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**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Application of San Diego Gas & Electric Company (U 902 M) for Review of its Safety Model Assessment Proceeding Pursuant to Decision 14-12-025.	Application 15-05-002 (Filed May 1, 2015)
And Related Matters.	Application 15-05-003 Application 15-05-004 Application 15-05-005 (Consolidated)
(NOT CONSOLIDATED)	
Application of San Diego Gas & Electric Company (U902M) for Authority, Among Other Things to Update its Electric and Gas Revenue Requirement and Base Rates Effective on January 1, 2019.	Application 17-10-007 (Filed October 6, 2017)
And Related Matter.	Application 17-10-008 (Filed October 6, 2017) (Consolidated)

**RISK SPENDING ACCOUNTABILITY REPORT OF
SAN DIEGO GAS & ELECTRIC COMPANY (U 902 M) AND
SOUTHERN CALIFORNIA GAS COMPANY (U 904 G) FOR 2020**

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March 30, 2021

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And Related Matter.	Application 17-10-008 (Filed October 6, 2017) (Consolidated)

**RISK SPENDING ACCOUNTABILITY REPORT OF
SAN DIEGO GAS & ELECTRIC COMPANY (U 902 M) AND
SOUTHERN CALIFORNIA GAS COMPANY (U 904 G) FOR 2020**

In compliance with Decision (“D.”) 19-04-020, Safety Model Assessment Proceeding Phase Two Decision Adopting Risk Spending Accountability Report Requirements and Safety Performance Metrics For Investor-Owned Utilities (“S-MAP Phase Two Decision”), San Diego Gas & Electric Company (“SDG&E”) and Southern California Gas Company (“SoCalGas”) submit this Risk Spending Accountability Report (“2020 RSAR”).¹ This 2020 Report covers spend authorized in the Test Year (“TY”) 2019 General Rate Case (“GRC”) cycle for activities that address safety, reliability, and/or maintenance, consistent with Public Utilities Code Section 591. This report is timely filed in accordance with D.19-04-020, the S-MAP Phase Two Decision.

¹ In compliance with D.19-04-020, the S-MAP Phase Two Decision, this 2019 RSAR is being filed and served on Application (“A.”) 17-10-007/008 (cons.), the GRC at the time of filing and that approved the risk spending, and also the current RAMP proceeding; it is also being served on the California Public Advocate’s Office. D.19-04-020 (issued May 6, 2019) at Ordering Paragraph 8, p. 64.

As directed in Energy Division's Report on SoCalGas and SDG&E's 2019 RSARs and D.19-04-020, SoCalGas and SDG&E hereby notify parties that they are permitted to file comments in the most recent open general rate case (GRC) proceeding (A.17-10-007/A.17-10-008) (also the GRC where the relevant funding requests were authorized), with copies of the comments emailed to Energy Division's Tariff Unit (edtariffunit@cpuc.ca.gov). Any comments should clearly identify the submissions upon which they are commenting. Energy Division shall serve an Annual Schedule that will include the deadlines for parties to file comments for each utility's RSAR by April 10, 2021.

Respectfully submitted on behalf of SoCalGas and SDG&E,

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March 30, 2021



Southern California Gas Company and San Diego Gas & Electric Company
2020 Risk Spending Accountability Report

March 30, 2021

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1. INTRODUCTION

In compliance with Decision (D.) 19-04-020, Safety Model Assessment Proceeding Phase Two Decision Adopting Risk Spending Accountability Report Requirements and Safety Performance Metrics For Investor-Owned Utilities (S-MAP Phase 2 Decision), Southern California Gas Company (SoCalGas) and San Diego Gas & Electric Company (SDG&E) (collectively, the Utilities) timely submit this annual Risk Spending Accountability Report (RSAR) comparing 2020 imputed authorized spending to actual spending (2020 RSAR).¹ This 2020 RSAR addresses O&M expenses and capital investments authorized in D.19-09-051, the Decision Addressing the Test Year (TY) 2019 General Rate Cases (GRCs) of SoCalGas and SDG&E (2019 GRC Decision) for activities that address safety, reliability, and/or maintenance, consistent with California Public Utilities Code (P.U. Code) Section (§) 591 and the S-MAP Phase 2 Decision.

This 2020 RSAR addresses the first attrition year of the 2019 GRC cycle, where the Utilities' applications were filed before the S-MAP Phase 2 Decision RSAR requirements were adopted. Because of this timing, this is a transitional report, as certain aspects of the information provided in this report were not authorized in the 2019 GRC Decision in a manner consistent with the S-MAP Phase 2 Decision's requirements.

The 2020 RSAR is organized as follows:

- **Section 1 Introduction** – briefly introduces the report.
 - **Section 1.A. Procedural Background** – describes previous events that lead to this report.
 - **Section 1.B. Overview of General Rate Cases and 2019 Cycle** – describes the basics of GRCs and the GRC cycle applicable for this report.
- **Section 2 Presentation of 2020 Risk Spending Accountability Report** – provides foundational information to consider when reviewing this 2020 RSAR.

¹ In compliance with D.14-12-025 and the S-MAP Phase 2 Decision, this 2020 RSAR is being filed in and served on the service lists for Application (A.) 17-10-007/008 (cons.), the “applicable GRC proceeding in which funding for the risk mitigation activities and spending was authorized,” (*see* D.14-12-025 at 46) and Investigation (I.) 19-11-010/-011 (cons.), the “most recent RAMP/GRC at the time of its filing” (S-MAP Phase 2 Decision at 45).

- **Section 2.A. Summary of Reporting Requirements** – sets forth the requirements subject to this report adopted in the S-MAP Phase 2 Decision.
- **Section 2.B. Key Parameters and Considerations Underlying the Report** – discusses assumptions that inform review of this report.
- **Section 2.C. Identification of Safety, Reliability, and Maintenance-Related Programs** – describes the activities in scope of this report.
- **Section 2.D. Derivation of Imputed Authorized Dollars** – explains how the authorized dollars from the 2019 GRC Decision were derived for attrition year 2020 for this report.
- **Section 3 Overview of 2020 Risk Spending Accountability Report Results** – provides the high-level results and a summary of the variance explanations of the report.
- **Attachment A SDG&E** – presents tables providing authorized, actual, work units, variance explanations, program descriptions, and testimony references.
- **Attachment B SoCalGas** – presents tables providing authorized, actual, work units, variance explanations, program descriptions, and testimony references.

A. Procedural Background

On November 14, 2013, the California Public Utilities Commission (Commission) opened Rulemaking (R.) 13-11-006, *Order Instituting Rulemaking to Develop a Risk-Based Decision-Making Framework to Evaluate Safety and Reliability Improvements and Revise the Rate Case Plan for Energy Utilities* (the Risk OIR). The purpose of the Risk OIR was to incorporate a risk-based decision-making framework into the Rate Case Plan (RCP) for the energy utilities' GRCs, in which utilities request funding for safety-related and other activities. On December 4, 2014, the Commission adopted D.14-12-025 in the Risk OIR establishing, as part of its risk-informed decision-making framework, annual verification reports – one of which is the Risk Spending Accountability Report.² According to the Commission, the Risk Spending

² D.14-12-025 also established the Risk Mitigation Accountability Report to compare projected and actual risk mitigation benefits (*see* D.14-12-025 at 12 and 44). Another element of this Risk Mitigation Accountability Report is addressed in the Utilities' Safety Performance Metrics Report, which will be separately filed on or before March 31, 2021 pursuant to the S-MAP Phase 2 Decision.

Accountability Report will “compare the utility’s GRC projected spending for approved risk mitigation projects to the actual spending on those projects, and to explain any discrepancies between the two.”³ These annual verification reports will “improve utility accountability of ratepayer money spent on risk mitigation.”⁴ To implement the verification reporting requirements, in D.16-06-054, the decision approving the TY 2016 GRCs of SoCalGas and SDG&E (2016 GRC Decision), the Commission ordered the Utilities to file interim RSARs for years 2014 through 2016 on a limited set of risk mitigation projects.⁵ These interim RSARs for years 2014-2016 were timely submitted by SoCalGas and SDG&E.

In September 2017, Senate Bill (SB) 549⁶ was signed into law, effective January 1, 2018. SB 549 added P.U. Code § 591 which requires “an electrical or gas corporation to annually notify the [public utilities] commission . . . of each time since that notification was last provided that capital or expense revenue authorized by the commission for maintenance, safety, or reliability was redirected by the electrical or gas corporation to other purposes.”⁷ Prior to the effective date of SB 549, RSARs had been limited to reporting on risk mitigation activities related to safety and/or reliability. SB 549 broadened the scope of reportable items to safety, reliability, and/or maintenance.⁸

To implement the requirements of SB 549 and standardize future RSARs, in 2018, the Commission further examined RSAR requirements in Phase 2 of the S-MAP. Energy Division issued a Proposal for Standardized Reporting and Outline (Staff Proposal) recommending revised reporting requirements.

In April 2019, the S-MAP Phase 2 Decision adopted RSAR requirements⁹ that, for SoCalGas and SDG&E, apply “starting with its 2019 RSAR filing (due March 31, 2020)”¹⁰ for spending authorized in the 2019 GRC Decision. A list of the requirements applied beginning in 2019 and applied for this 2020 RSAR are discussed in Section 2.A.

³ D.14-12-025 at 44.

⁴ D.14-12-025, Findings of Fact 27 at 52.

⁵ D.16-06-054, Ordering Paragraph (OP) 11 at 331-332, and at 39-41.

⁶ SB 549, Stats. 2017-2018, Ch. 284 (Cal. 2017).

⁷ P.U. Code § 591(a).

⁸ See D.19-04-020 at 9.

⁹ *Id.* Attachment 2.

¹⁰ *Id.* at 46.

B. Overview of General Rate Cases and the 2019 Cycle

The Utilities file GRC applications with the Commission seeking a revenue requirement (comprising O&M and capital-related funding) to become effective on January 1 of the test year. The Utilities typically put forth these requests in direct (*i.e.*, not including overhead costs), base year dollars by forecasting values in workpapers, which are groups of organizational-based O&M cost centers and capital budget codes. These direct dollar forecasts also include various risk mitigation activities and projects that are proposed in testimony by witnesses. The forecasts are converted into a test year revenue requirement. After the submission and thorough review of the evidentiary record, the Commission authorizes a revenue requirement to recover the reasonable costs forecasted to be incurred in the test year, and a mechanism for adjusting the revenue requirement annually during the post-test years.¹¹ A revenue requirement is the amount of money the Utilities are allowed to recover from their customers through rates.¹² The Commission authorizations may or may not be the same as originally presented by the Utilities in their respective GRC applications.

SoCalGas and SDG&E filed their TY 2019 GRC Applications on October 6, 2017.¹³ Among other things, the Utilities' Applications included requests related to mitigating their key safety risks and integrated the results from their RAMP filed on November 30, 2016 (2016 RAMP). The Utilities included testimony in the 2019 GRC Application providing a roadmap of the RAMP risks to witness area¹⁴ and a summary of GRC witnesses sponsoring RAMP costs,¹⁵ testimony that explained the RAMP to GRC integration process,¹⁶ and explicitly identified the RAMP-related items in the testimony of the witness sponsoring those forecasted costs.

¹¹ The years between a utility's GRC test years are referred to as post-test years or attrition years. The revenue requirements for the attrition years are generally determined through a post-test year mechanism. Ultimately, the GRC decision will prescribe the mechanism for how to adjust the test year revenue requirement for inflation and other factors that may affect costs, such as additional capital projects between test years.

¹² The Utilities' GRCs direct, base year dollar forecasts are converted into a test year revenue requirement using a ratemaking model, the Results of Operation (RO) model. The process by which the RO model converts the direct, base year dollars into a test year revenue requirement includes the escalation of costs (converting base year dollars into test year nominal dollars), intercompany billings between the Utilities, applying overheads (such as employee benefits) to capital projects, and converting the capital forecasts into capital-related costs (depreciation, taxes, and return).

¹³ Exhibit references herein refer to utility exhibit numbers as listed on their respective websites.

¹⁴ A.17-10-007/-008 (cons.), Ex. SCG-02-R/SDG&E-02-R, Chapter 1 (Day) at Appendix A.1.

¹⁵ *Id.* Ex. SCG-02-R/SDG&E-02-R, Chapter 1 (Day) at Appendix A.2.

¹⁶ *See Id.*, Ex. SCG-02-R/SDG&E-02-R, Chapter 3 (York).

The 2019 GRC Decision was approved by the Commission on September 26, 2019. The 2019 GRC Decision states,

[t]he adopted revenue requirement and PTY increases for SDG&E will provide the necessary funds to allow it to operate its electric and natural gas transmission and distribution system safely and reliably and to fulfill customer service functions at reasonable rates.

For SoCalGas, the adopted revenue requirement and PTY increases will provide the necessary funds to allow it to operate its natural gas transmission, gas distribution, and gas storage systems safely and reliably and to fulfill customer service functions at reasonable rates.¹⁷

While SoCalGas and SDG&E endeavored to “isolate the RAMP activity, to allow the reader to see the dollar request in GRC workpapers,”¹⁸ the 2019 GRC Decision stated that the “RAMP portion in Applicants’ requests is not presented as separate and distinct from the non-RAMP portions” and “in many instances our decision is not based on risk mitigation but rather on standard GRC methods.”¹⁹ Furthermore, the Utilities do not necessarily present work unit levels for a given level of proposed funding in their workpapers. Based on this, the 2019 GRC Decision does not necessarily authorize RAMP activity costs or work unit levels by line-item details. Thus, in this 2020 RSAR, some imputing of authorized RAMP activity costs and work unit levels was needed, or activity descriptions were provided in lieu of work units, when authorized levels were not available.

Furthermore, on January 16, 2020, the CPUC adopted a decision in the Risk OIR, D.20-01-002 (RCP Decision), extending the GRC cycle for each large California investor-owned utility (IOU) from three to four years. To facilitate the transition from a three- to four-year GRC cycle for the IOUs, the RCP Decision “direct[s] SoCalGas and SDG&E to request two additional attrition years (2022 and 2023) in their petition for modification of D.19-09-051.”²⁰ Thus, the RCP Decision revised the length of SoCalGas’ and SDG&E’s 2019 GRC cycle from 2019-2021 to 2019-2023. The petition for modification (PFM) of the 2019 GRC Decision to set attrition

¹⁷ D.19-09-051 at 3-4.

¹⁸ A.17-10-007/-008 (cons.), Ex. SCG-02-R/SDG&E-02-R, Chapter 3 (York) at JKY-6.

¹⁹ D.19-09-051 at 22.

²⁰ D.20-01-002 at 52.

year increases for 2022 and 2023 was filed by SoCalGas and SDG&E on April 9, 2020 and is pending a final decision by the Commission²¹.

To illustrate the GRC cycle relevant for this 2020 RSAR, the diagram below shows the Utilities' current TY 2019 GRC cycle for the TY 2019 GRC Application and reflecting the RCP Decision.

Diagram 1: TY 2019 GRC Cycle of SoCalGas and SDG&E

2019 GRC Proceeding	
Base Year	2016
Forecast Year	2017
Forecast Year	2018
Test Year	2019
Post-Test Year	2020
Post-Test Year	2021
Post-Test Year	2022
Post-Test Year	2023

Note: Revenue requirements for 2022 and 2023 have not yet been established pending the final decision on the PFM of the 2019 GRC Decision.

2. PRESENTATION OF 2020 RISK SPENDING ACCOUNTABILITY REPORT

This section provides foundational information, such as the underlying assumptions and key parameters, to consider when reviewing this 2020 RSAR.

A. Summary of Reporting Requirements

The reporting requirements applicable to this 2020 RSAR were adopted in the S-MAP Phase 2 Decision.²² The requirements and a roadmap to where each requirement has been met in this Report are summarized in the table below.

²¹ The proposed decision of Administrative Law Judges Rafael Lirag and Manisha Lakhanpal on the PFM was issued on March 19, 2021.

²² D.19-04-020, Attachment 2.

RSAR Reporting Requirements	Roadmap of Compliance in 2020 RSAR with Reporting Requirements
Develop a list of programs (<i>i.e.</i> , one list as an appendix to the report) that include activities relating to safety, reliability or maintenance authorized or in effect during the record period. The list should be separated into risk mitigation programs identified in the RAMP and other programs related to safety, reliability or maintenance presented in the GRC application.	The methodology used to determine the programs in scope is described in Section 2.C below.
Report the authorized and actual spending for each program in the record period and the difference in dollars (actual less authorized) and in percent (actual less authorized, divided by authorized).	Attachments A and B have tables dedicated to providing this information.
Explain the difference between authorized and actual spending for the GRC programs chosen using the selection criteria specific to SoCalGas and SDG&E.	Where applicable, a variance explanation has been provided in Attachments A and B.
Provide a description of the program and references to testimony.	Attachments A and B have tables dedicated to providing this information.
Report on authorized activities and actual safety activities performed, for each program, using, where available “work units” as the unit of reporting.	Where available, work units have been provided in Attachments A and B.
Group the GRC programs by the general lines of business as presented in the GRC in which the funding request for the record period was authorized.	Attachments A and B provide the required information by line of business and GRC witness area.
Divide programs into expense and capital programs.	Attachments A and B have different tables for O&M and Capital.
Include a separate section in the report, if a balancing account or memorandum account tracks any portion of a program, to discuss the cost recovery of the actual expenditures for the program.	Balanced programs have a dedicated section in Attachments A and B.
Include the total company authorized spending for the record period categorized into expense and capital programs.	Company totals are presented separately for capital and expense in Section 3.

RSAR Reporting Requirements	Roadmap of Compliance in 2020 RSAR with Reporting Requirements
In contrast, with cancelled or deferred projects, which result in a negative variance of 100%, utilities are required to report expanded programming or “emergent projects,” which result in a positive variance of 100%.	See the Appendices to Attachments A and B for a listing of projects that were cancelled, deferred or emergent.

The S-MAP Phase 2 Decision also adopted a definition of “program” for purposes of the RSAR for SoCalGas and SDG&E²³ as follows:

SDG&E and SoCalGas: Expensed programs are defined at the workpaper level, which may contain one or more cost centers. Capital programs are defined at the budget code level, which may aggregate workpaper groups that share the same budget code.

In addition, the S-MAP Phase 2 Decision adopted selection criteria for providing variance explanations based on SoCalGas and SDG&E for spending and work units as follows:

Work Units: Deviation between authorized work units and performed work units is equal to or greater than 20%.

Spending:

SoCalGas

- GRC expensed items: A variance of at least \$5 million, or a percentage variance of at least 20% subject to a minimum variance of \$1 million.
- Capital programs: A variance of at least \$10 million, or a percentage variance of at least 20% subject to a minimum variance of \$2 million.

SDG&E – Electric Operations and Other Reportable Areas

- GRC expensed items: A variance of at least \$5 million, or a percentage variance of at least 20% subject to a minimum variance of \$2.5 million.
- Capital programs: A variance of at least \$10 million, or a percentage variance of at least 20% subject to a minimum variance of \$5 million.

SDG&E – Gas Operations

²³ D.19-04-020, Attachment 2 at 3.

- GRC expensed items: A variance of at least \$2.5 million, or a percentage variance of at least 20% subject to a minimum variance of \$0.5 million.
- Capital programs: A variance of at least \$5 million, or a percentage variance of at least 20% subject to a minimum variance of \$1 million.

B. Key Parameters and Considerations Underlying the Report

SoCalGas and SDG&E present this 2020 RSAR by company, further divided into the line of business (*e.g.*, electric, gas, other), by program (*i.e.*, O&M workpaper and Capital budget code as described in Section 2.A above), and by RAMP and non-RAMP activities. For the activities, if work units are available, they are provided. In the event the selection criteria for spending and/or work units are met,²⁴ an explanation is provided along with the description of the program and citations to the associated 2019 GRC testimony. Information regarding balanced programs is presented in a separate section.

The Utilities are presenting this 2020 RSAR in direct dollars. Direct dollars are the input into the revenue requirement calculations, but not the revenue requirement itself. For those programs recorded to balancing accounts, the 2020 RSAR presents such programs in both direct dollars and on a revenue requirement basis, in accordance with the S-MAP Phase 2 Decision.²⁵

i. Units

As discussed in Section 1, the Utilities' respective 2019 GRC applications were filed before the S-MAP Phase 2 Decision RSAR requirements were adopted. The requirement in the S-MAP Phase 2 Decision to include work units where available in the 2020 RSAR is problematic for the 2019 GRC cycle (2019-2023) given that, in most cases, no work units were presented in the Utilities' 2019 GRC showing and were therefore not specifically defined or authorized in the Commission's decision. Accordingly, reporting authorized and actual work units, when work units were not explicitly defined or authorized presents a challenge. For the purposes of this report, the Utilities provide actual units and impute authorized units, where available. In other instances, the Utilities provide explanations of the activities within a program

²⁴ In response to SDG&E and SoCalGas' request for clarification of applying the variance selection criteria, Energy Division provided this guidance in an email dated February 14, 2020, "We have reviewed pages 41-43 of D.19-04-020 and believe that you should apply the selection criteria and explanations for all GRC programs as well as the risk mitigation programs, where work unit data is available. *That is to say that you will only need to provide greater details for the unitized risk mitigation programs.*"

²⁵ D.19-04-020, OP 10 at 65-66.

performed during 2020.²⁶ These items are addressed by the Utilities as applicable in Attachments A and B.

ii. RAMP

The 2020 RSAR utilizes the 2016 RAMP (I.16-10-015/016) that was integrated into the 2019 GRC. Since that time, a more quantitative risk methodology and framework for RAMP and GRC filings was approved by the Commission in D.18-12-014. Therefore, this 2020 RSAR does not yet reflect the methodology that was adopted in D.18-12-014.

For purposes of integrating the 2016 RAMP into the GRC, a variety of approaches were required, depending upon the activity. For example, the Utilities presented mappings of their 2016 RAMP risks to GRC witness areas²⁷ and a summary of RAMP costs by GRC witness area.²⁸ However, a mapping of each RAMP activity to GRC witness area was not included. Consistent with their presentation in the GRC, within an O&M and capital program in this 2020 RSAR, the Utilities (where necessary) provide the RAMP details by RAMP risk (e.g., Aviation Incident or Catastrophic Damage Involving Third Party Dig-Ins) rather than as the mitigation activity was designated in the 2016 RAMP Report.

However, for other areas, certain RAMP activities spanned multiple witness areas, meaning the costs for a particular RAMP activity were defended by and authorized in multiple GRC witness areas (e.g., records management training). This could occur because multiple departments perform this RAMP activity. Rather than showing such widespread activities in every applicable witness area, “for presentation purposes in this GRC”²⁹ the RAMP activity was presented in a single workpaper or mapped to a “limited number of GRC witnesses.”³⁰ In these instances, the GRC presentation does not match where the costs are recorded and thus creates variances between the RAMP imputed authorized and actuals.

As discussed above in Section 1.B, the 2019 GRC Decision did not explicitly authorize RAMP activities differently from non-RAMP activities. Instead, the 2019 GRC Decision

²⁶ The S-MAP Phase 2 Decision requires the Utilities to work with Energy Division staff to identify programs where work unit information is not available (D.19-04-020, at 39). The Utilities conferred with Energy Division staff in February 2021 regarding the manner to identify programs, as provided in Attachments A and B.

²⁷ A.17-10-007/-008 (cons.), Ex. SCG-02-R/SDG&E-02-R, Chapter 1 (Day) at Appendix A.1.

²⁸ *Id.*, at Appendix A.2.

²⁹ A.17-10-007/-008 (cons.), Ex. SCG-02-R/SDG&E-02-, Chapter 3 (York) a JKY-3.

³⁰ *Id.*, JKY-4.

assessed and authorized funding for the Utilities in many instances based on “standard GRC methods, such as the quality of the forecast, counterarguments by intervenors, and whether a given showing met the burden of proof.”³¹ This therefore made it difficult to identify or impute authorized amounts for some RAMP mitigation activities, especially at a granular activity level. Similarly, the Utilities do not necessarily track costs by RAMP mitigation activity or risk. Rather, the Utilities record costs to O&M cost centers and to various capital budget codes, aligned with their GRC presentations. Accordingly, assumptions were needed to impute actuals at the RAMP mitigation activity level. The fact that such assumptions were required also supports the Utilities providing RAMP in this 2020 RSAR at a higher level, by RAMP risk rather than by individual RAMP activities.

Based on the foregoing, the 2020 RSAR reflects a transitional approach for presenting the above-noted Commission directives. The Utilities will continue to work with Energy Division staff and the S-MAP technical working group (as needed) regarding additional details for future reports.

iii. Timing of the TY 2019 GRC Decision

As discussed in Section 1.B above, the Utilities’ test year was 2019 in which rates approved in the 2019 GRC Decision were expected to become effective beginning on January 1, 2019. The 2019 GRC Decision was approved by the Commission on September 26, 2019, approximately three quarters into the 2019 financial year.

Given that this 2019 GRC was a litigated proceeding, there was a high degree of uncertainty with the outcome. For the first 3 quarters of the year (*i.e.*, before a decision was approved), the Utilities were managing their business under their previously authorized levels from their TY 2016 GRC, while at the same time addressing safety-related issues that emerged. The regulatory lag in receiving a GRC decision resulted in variances during 2019 (as explained in last year’s RSAR), since the authorized levels from the 2019 GRC were unknown.

Now that the outcome of the 2019 GRC Decision is known, the Utilities are working to execute on the programs discussed during the 2019 GRC proceeding. While some programs may have been slow to start and others planned during 2020-2023 may be impacted further by other factors, including the COVID-19 pandemic, the Utilities are managing such programs over

³¹ D.19-09-051 at 22.

the 2019 GRC cycle. The results of this report reflect these circumstances for the 2020 financial period.

iv. Reprioritization

The Utilities recognize that they may need to re-prioritize funding to address critical matters that arise during the GRC cycle. Such differences in authorized programs are shown in this report and will likewise appear in future RSARs. The Commission has explicitly recognized that “new programs or projects may come up, others may be cancelled, and there may be reprioritization. *This process is expected and is necessary* for the utility to manage its operations in a safe and reliable manner.”³² It is for these reasons that “utilit[ies] [are] allowed the flexibility to reprioritize the authorized funds in order to ensure safe and reliable operations.”³³ Reprioritizing spending also allows utilities to “[r]espond to immediate or short-term crises outside of the RAMP and GRC process,”³⁴ in accordance with Commission directives. As the Commission has stated: “RAMP and GRCs...are not designed to addresses immediate needs; the utilities have responsibility for addressing safety regardless of the GRC cycle.”³⁵ Accordingly, SoCalGas and SDG&E are permitted to re-prioritize spending as needed. This is captured in variances, which may be attributable to a variety of causes. In summary, the forecasted test-year and attrition year funding methodologies permit utilities to reprioritize funds throughout GRC cycles. Many variances included herein are driven, at least in part, by the pressures created by this aspect of safely and reliably managing a utility in California.

v. COVID-19 Pandemic Impact on 2020 Report

The COVID-19 pandemic has materially impacted communities, supply chains and markets around the world, including in California. SDG&E and SoCalGas conducted business in 2020 with substantial modifications to employee travel, employee work location, and

³² D.11-05-018 at 27 (emphasis added).

³³ Energy Division, *Safety-Related Spending Accountability Report for Southern California Edison* (May 2017) (Safety Report) at 10, available at http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Safety/SCESafety-RelatedSpending.pdf; see also Resolution E-4464 (May 10, 2012) at 7 (“Under GRC ratemaking, the utilities are given an authorized revenue requirement to manage various parts of their utility business. Recognizing that the utilities may need to re-prioritize spending and spend more or less in a particular area of their business, the Commission affords them substantial flexibility to decide how much to spend in any particular area.”).

³⁴ D.18-04-016 at 6, citing n.7 (D.16-08-018 at 152).

³⁵ *Id.*

virtualization or cancellation of certain business activities, among other modifications, because of the pandemic. Certain governmental entities and governing bodies that affect SDG&E and SoCalGas businesses have taken precautionary, preemptive and responsive actions to address the effects of the COVID-19 pandemic. As essential service providers, and throughout the COVID-19 pandemic, SDG&E and SoCalGas have continued to provide safe and reliable service, albeit significantly differently than expected and originally forecasted in the 2019 GRC. This is discussed where applicable in the variance explanations that can be found throughout the 2020 RSAR in Attachments A and B.

COVID-19 impacted SDG&E and SoCalGas' customer-oriented work, creating additional cost pressures in some instances, and it delayed certain programs. The levels of work performed during 2020 were, in some cases, significantly different than authorized in the 2019 GRC. For the Utilities (and in particular for SoCalGas, where more customer-oriented activities require in-home service), activities such as in-home work orders for Customer Service Field staff were below historic trends and forecast. Similarly, the Utilities observed reductions in activities related to certain large capital projects, such as regulator station improvements. Additional activity categories were impacted by regulatory and other governmental mandates that either ceased or drastically slowed activities, such as overdue bill collection moratoriums, and construction permitting and inspection delays. In spite of these impacts, SDG&E and SoCalGas were largely able to implement many of their projected incremental projects and programs, including reducing or eliminating delays described in the 2019 RSAR. Incremental costs associated with addressing COVID-19 that are not included in the imputed authorized dollars are not included within this report and are being separately tracked through the Catastrophic Events Memorandum Account (CEMA), which will be offset by savings that may be realized due to the impacts of COVID-19.

C. Identification of Safety, Reliability, and Maintenance-Related Programs

In accordance with the S-MAP Phase 2 Decision, this 2020 RSAR includes a listing of all programs³⁶ authorized or in effect during 2020 that were associated with RAMP,³⁷ justified on the basis of safety and/or reliability, and programs associated with a maintenance³⁸ activity. Therefore, in-scope workpapers for SDG&E include electric distribution, electric generation, electric and fuel procurement, gas distribution, gas transmission, gas engineering, gas system integrity, customer services, information technology including cyber security, support services, administrative and general, and SDG&E's balanced programs including the Gas Distribution Integrity Management Program (DIMP), Gas Transmission Integrity Management Program (TIMP), Tree Trimming, electric distribution overhead pools, and SDG&E's Wildfire Mitigation Plan Memorandum Account (WMPMA). The variance explanations for these workpapers are attached hereto as Attachment A.

In this 2020 RSAR, SDG&E presents its wildfire mitigation-related programs differently from the 2019 GRC Decision. Subsequent to SDG&E filing its 2019 GRC Application on October 6, 2017, SB 901 was enacted in 2018, requiring SDG&E to submit an annual wildfire mitigation plan (WMP) to provide comprehensive information on SDG&E's efforts to mitigate wildfire risk.³⁹ Pursuant to SB 901, on February 6, 2019, SDG&E submitted its first WMP (2019 WMP),⁴⁰ which the Commission subsequently approved in D.19-05-039. Following approval of the 2019 WMP, SDG&E filed an advice letter to establish memorandum accounts to record costs associated with implementing the WMP.⁴¹

³⁶ Programs are defined as workpaper categories for expense items (*e.g.*, 1ED011.000 – Electric Regional Operations) and as budget codes for capital expenditures (*e.g.*, 13247 FiRM – Phases 1 & 2). *See* D.19-04-020, Attachment 2 at 3.

³⁷ Categories include but are not limited to: (1) Infrastructure Integrity, Physical Security and Environmental, (2) Cyber Security and Customer Data Privacy, (3) Wildfires, (4) System Reliability, and (5) Public & Employee Safety, Disaster Recovery. *Id.* at 2, Section III.

³⁸ *Id.* at 2, Section IV. These are activities associated with expensed and capitalized work related to Federal Energy Regulatory Commission Accounts 510-515, 528-532, 541-545, 551-554, 568-574, 576, 590-598, 830-837, 843, 861-869, 885-895, 932 and 935.

³⁹ The initial requirement to submit annual wildfire mitigation plans was set forth in SB 901, P.U. Code § 8386(b). This P.U. Code section was subsequently amended by Assembly Bill (AB) 1054.

⁴⁰ R.18-10-007, San Diego Gas & Electric Company's Wildfire Mitigation Plan (February 6, 2019). The 2019 WMP is available at <https://www.sdge.com/sites/default/files/regulatory/R.18-10-007%20SDG%26E%20Wildfire%20Mitigation%20Plan.pdf>.

⁴¹ SDG&E Advice Letter 3454-E/2817-G (filed October 31, 2019, effective May 30, 2019). SDG&E also established the Fire Risk Mitigation Memorandum Account (FRMMA) via Advice Letter 3333-E

Since its first WMP submission in 2019, SDG&E has and continues to submit WMP filings in accordance with directives set forth by the Wildfire Safety Division. In those WMP filings, SDG&E is required to provide a “description of the preventive strategies and programs to be adopted by the electrical corporation to minimize the risk of its electrical lines and equipment causing catastrophic wildfire, including consideration of dynamic climate change risks.”⁴² Some of the programs and strategies in SDG&E’s WMPs (2019, 2020, and 2021) were also forecasted in the 2019 GRC. As SDG&E explained in their WMP submissions, “Many (but not all) of the programs and activities described in this Plan have been included in and will be funded through SDG&E’s GRC rates.... There may be programs in the Plans for which SDG&E has revised its assumptions and cost forecasts compared to the 2019 GRC.”⁴³ Therefore, refinements, continuations, and/or enhancements to certain wildfire mitigation programs were reflected in the WMP submissions. As an example, the Pole Risk Mitigation and Engineering (PRiME) program was presented in the 2019 GRC as a program associated with the Electric Infrastructure Integrity risk. However, in implementing PRiME, SDG&E is focusing on the poles in its High Fire Threat District first and thus categorizing it as related to the risk of Wildfire. Accordingly, in this 2020 RSAR, programs presented in the 2019 WMP are shown as such and are categorized as Wildfire consistent with the WMP; however, due to timing, not all those WMP programs are included as RAMP. Further, SDG&E includes in this 2020 RSAR the wildfire-related programs in the Electric Distribution section herein consistent with how the programs were authorized in the 2019 GRC Decision. Subsequent to the GRC authorization, wildfire-related activities are subject to memorandum account treatment pursuant to statute and therefore, SDG&E is also including the balances of the WMPMA and disposition thereof in the Balanced section of this 2020 RSAR.

Similarly, in-scope workpapers for this 2020 RSAR for SoCalGas include gas distribution, gas transmission, gas engineering, gas system integrity, gas major projects, pipeline safety enhancement program (PSEP), aboveground storage, underground storage, gas procurement, customer services, information technology including cyber security, support services, administrative and general, and SoCalGas’ balanced programs including DIMP, TIMP,

(effective January 16, 2019) in compliance with the applicable law at that time to track costs incurred for fire risk mitigation that are not otherwise covered in revenue requirements.

⁴² Public Utilities Code Section 8386(c)(3), as amended by AB 1054.

⁴³ *Id.*, at 83.

Gas Storage Integrity Management Program (SIMP), and Research, Development and Demonstration (RD&D). The variance explanations for these workpapers are attached hereto as Attachment B.

D. Derivation of Authorized Dollars

	2020 Imputed Authorized Direct O&M⁴⁴	2020 Imputed Authorized Direct Capital	2020 Authorized Total Rev Req⁴⁵
SDG&E	\$1,026,072	\$786,010	\$2,117,047

	2020 Imputed Authorized Total Direct O&M⁴⁶	2020 Imputed Authorized Total Direct Capital⁴⁷	2020 Authorized Total Rev Req⁴⁸
SoCalGas	\$1,595,383	\$1,102,982	\$2,981,493

For the majority of the workpaper categories covered in Attachments A and B of this report, the “authorized” amounts are imputed authorized funding values for those workpapers that are fully or partially requested to address safety, reliability, and/or maintenance risks.⁴⁹ The O&M and capital expenditures in the 2019 RSAR were specifically authorized in the TY 2019 GRC. The dollars presented by the witnesses in testimony and workpapers were stated in base year 2016 dollars; however, for purposes of the 2019 report, the Utilities presented the information in direct nominal dollars using the 2019 GRC decision authorized escalation factors.

⁴⁴ Excludes officer compensation per D.19-09-051, OP 11 and 12 at 778-779. Reflects reductions of Application for Rehearing per D. 20-07-038 and Rate Reform Cost Recovery per Resolution (R.) E-5069/ Advice Letter 3352-E.

⁴⁵ Attrition Year 2020 revenue requirement authorized in D. 19-09-051 is adjusted to exclude officer compensation per OP 11 and 12, at 778-779, Application for Rehearing per D. 20-07-038, and Rate Reform Cost Recovery per Resolution (R.) E-5069 / Advice Letter 3352-E. The 2020 authorized revenue requirement does not include changes from the pending Petition for Modification of D.19-09-051.

⁴⁶ Excludes officer compensation per D.19-09-051, OP 11 and 12, at 778-779. Reflects reductions of Application for Rehearing per D. 20-07-038.

⁴⁷ Includes PSEP projects adopted in the Post-Test Year model in D.19-09-051.

⁴⁸ Attrition Year 2020 revenue requirement authorized in D. 19-09-051 is adjusted to exclude officer compensation per OP 11 and 12, at 778-779 and Application for Rehearing per D.20-07-038. The 2020 authorized revenue requirement does not include changes from the pending Petition for Modification of D.19-09-051.

⁴⁹ The Commission-approved final GRC decisions do not always provide authorized figures by project or activity, which may be needed for accountability reporting.

In this 2020 RSAR, the Utilities imputed authorized figures at the workpaper level, since this level of detail was neither specifically required, presented, or adopted in the 2019 GRC. This differs from the 2019 RSAR process because 2020 is an attrition or post-test year and not the test year. The adopted post-test year (PTY) ratemaking mechanism in the 2019 GRC Decision adjusts the authorized revenue requirement in the attrition years by applying separate attrition mechanisms for O&M expenses and capital-related costs. To derive the 2020 imputed authorized O&M expenses, 2019 adopted expenses, which were presented in base year 2016 dollars, were escalated to 2019 dollars based on the adopted labor and non-labor escalation rates.⁵⁰ The 2020 authorized O&M attrition factors are then applied to this expense level to derive the 2020 imputed authorized O&M.

In the 2019 GRC, specific capital project forecasts were approved for assets forecasted to be placed in-service in years 2017-2019 to establish the TY rate base and the capital-related revenue requirement (*i.e.*, depreciation, tax, and return) for 2019. The 2019 GRC Decision adopted an escalated seven-year average of capital additions to calculate the capital-related revenue requirement for the post-test years, including 2020. PTY capital expenditures are not forecasted at a project-specific level in the adopted PTY model except for SoCalGas's PSEP projects. For the purpose of this report, the Utilities imputed 2020 authorized capital expenditures by taking a seven-year average of the capital spending in base year dollars for the years 2013 through 2019 (2013-2016 recorded, 2017-2019 adopted values) which were then escalated to 2019 dollars. These values were then escalated using the adopted capital attrition factors to impute the authorized 2020 direct capital expenditures at the workpaper level of detail. SoCalGas's PSEP program is the only program that was specifically forecasted at the project level in the PTY model.

For the balanced programs, this report presents O&M and capital in revenue requirement terms (in addition to reporting these programs on a direct dollar basis), because the programs are tracked on a revenue requirement basis, as required by the annual advice letter filings. Reviewing balanced programs in these terms, rather than in nominal direct dollars, reflects more accurately how the Utilities manage these programs and track costs. The Utilities manage

⁵⁰ The Utilities presented the O&M expenses in direct nominal dollars (*i.e.*, 2020 authorized is in 2020 dollars). The authorized escalation factors used to calculate the direct nominal dollars were approved in D.19-09-051 and discussed on pages 670 – 671.

balanced programs considering the authorized revenue requirement for the entire GRC cycle and not within an individual spending year.

In compliance with Ordering Paragraph 5 of D.16-08-003, SoCalGas for the first time, incorporated PSEP project forecasts into the TY 2019 GRC. In the 2019 GRC Application, SoCalGas presented detailed O&M and capital estimates to complete proposed PSEP pressure test, replacement and valve project work. In direct testimony, SoCalGas PSEP witness Rick Phillips described that 2019 O&M cost forecasts were normalized and not reflective of actual 2019 projected spend.

Because 2019 will be a transition year as PSEP is incorporated into the GRC process, forecasted costs for 2019 do not reflect the level of forecasted spend in the post-test years. Therefore, the PSEP TY 2019 O&M forecast has been normalized to reflect the forecasted total level of O&M expenditures over the 2019 – 2021 GRC period.⁵¹

SoCalGas anticipated that actual O&M expenses would significantly differ from the normalized forecast and much of the 2020 PSEP O&M variance reflects the normalization methodology.

3. OVERVIEW OF 2020 RISK SPENDING ACCOUNTABILITY REPORT RESULTS

A. Summary of Report Variances by Company

Reportable Totals for SDG&E

	2020 Actuals	2020 Imputed Authorized	\$ Variance	% Variance
SDG&E Direct Capital	1,048,216	650,072	398,144	61%
SDG&E Direct O&M	664,303	544,284	120,019	22%
SDG&E Direct Total	1,712,519	1,194,356	518,163	43%

⁵¹ A.17-10-007/-008 (cons.), Ex. SCG-15-R (Philips) at RDP-A-21.

Reportable Totals for SoCalGas

	2020 Actuals	2020 Imputed Authorized	\$ Variance	% Variance
SoCalGas Direct Capital	1,469,169	1,030,806	438,363	43%
SoCalGas Direct O&M	910,921	952,511	(41,590)	-4%
SoCalGas Direct Total	2,380,090	1,983,317	396,773	20%

B. Summary of RAMP Variances by Company

i. SDG&E O&M RAMP Variances by GRC Witness Area

GRC Witness Area	SDG&E Exhibit Number	2020 RAMP Actuals	2020 Imputed Authorized RAMP	RAMP \$ Variance	RAMP % Variance
Accounting and Finance	SDG&E-31	185	549	(364)	-66%
Corporate Center - Gen Admin	SDG&E-26	2,995	2,734	261	10%
CS – Field	SDG&E-17	5,699	5,407	292	5%
CS - Information & Technologies	SDG&E-19	4,173	7,315	(3,142)	-43%
CS - Office Operations	SDG&E-18	961	1,047	(86)	-8%
Cyber Security	SDG&E-25	11,557	8,434	3,122	37%
Electric Distribution	SDG&E-15	151,899	103,175	48,723	47%
Electric Generation & SONGS	SDG&E-16	18	45	(27)	-60%
Gas Distribution	SDG&E-04	20,463	16,228	4,235	26%
Gas System Integrity	SDG&E-05	45	1,483	(1,438)	-97%
Gas Transmission	SDG&E-06	1,356	216	1,140	529%
Human Resources	SDG&E-30	4,218	4,037	182	5%
Real Estate & Facilities	SDG&E-22	2,985	3,915	(930)	-24%
TIMP & DIMP	SDG&E-11	9,792	12,069	(2,277)	-19%
Total SDG&E RAMP O&M		216,347	166,655	49,692	30%

ii. **SDG&E O&M RAMP Variances by RAMP Chapter**

RAMP Chapter	RAMP Risk Description	2020 RAMP Actuals	2020 Imputed Authorized RAMP	RAMP \$ Variance	RAMP % Variance
SDG&E-01	Wildfires Caused by SDG&E Equipment	88,159	40,986	47,172	115%
SDG&E-02	Catastrophic Damage Involving Third Party Dig-Ins	7,922	4,115	3,807	93%
SDG&E-03	Employee, Contractor, and Public Safety	62,176	51,720	10,457	20%
SDG&E-04	Distributed Energy Resources – Safety and Operational Concerns	75	82	(7)	-8%
SDG&E-06	Fail to Black Start	18	45	(27)	-60%
SDG&E-07	Cyber Security	11,557	8,434	3,122	37%
SDG&E-08	Aviation Incident	509	452	58	13%
SDG&E-09	Workplace Violence	4,748	5,240	(492)	-9%
SDG&E-10	Catastrophic Damage Involving High-Pressure Gas Pipeline Failure	9,030	5,693	3,337	59%
SDG&E-11	Unmanned Aircraft System Incident	290	179	111	62%
SDG&E-12	Electric Infrastructure Integrity	8,697	21,881	(13,184)	-60%
SDG&E-13	Records Management	6,809	9,431	(2,622)	-28%
SDG&E-14	Climate Change Adaptation	1,095	443	652	147%
SDG&E-16	Catastrophic Damage Involving Medium-Pressure Gas Pipeline Failure	11,769	15,543	(3,774)	-24%
SDG&E-17	Workforce Planning	3,493	2,411	1,081	45%
Total SDG&E RAMP O&M		216,347	166,655	49,692	30%

iii. **SDG&E Capital RAMP Totals by GRC Witness Area**

GRC Witness Area	SDG&E Exhibit Number	2020 RAMP Actuals	2020 Imputed Authorized RAMP	RAMP \$ Variance	RAMP % Variance
Cyber Security	SDG&E-25	9,675	3,144	6,530	208%
Electric Distribution	SDG&E-14	366,534	202,398	164,136	81%
Electric Generation	SDG&E-16	1,408	317	1,091	344%
Facilities/Other	SDG&E-22	8,029	8,944	(915)	-10%
Gas Distribution	SDG&E-04	31,634	27,109	4,526	17%
Gas Transmission	SDG&E-07	1,711	2,207	(496)	-22%
Information Technology	SDG&E-24	35,785	12,361	23,424	190%
TIMP/DIMP	SDG&E-11	45,629	27,368	18,261	67%
Total SDG&E RAMP Capital		500,406	283,849	216,557	76%

iv. **SDG&E Capital RAMP Totals by RAMP Chapter**

RAMP Chapter	RAMP Risk Description	2020 RAMP Actuals	2020 Imputed Authorized RAMP	RAMP \$ Variance	RAMP % Variance
SDG&E-01	Wildfires Caused by SDG&E Equipment	279,701	87,502	192,200	220%
SDG&E-02	Catastrophic Damage Involving Third Party Dig-Ins	4	313	(309)	-99%
SDG&E-03	Employee, Contractor, and Public Safety	23,835	9,252	14,583	158%
SDG&E-04	Distributed Energy Resources – Safety and Operational Concerns	46	233	(187)	-80%
SDG&E-05	Major Disturbance to Electrical Service (e.g., Blackout)	0	1,673	(1,673)	-100%
SDG&E-06	Fail to Black Start	1,408	1,990	(582)	-29%
SDG&E-07	Cyber Security	9,675	3,144	6,530	208%
SDG&E-08	Aviation Incident	1	1,929	(1,928)	-100%
SDG&E-09	Workplace Violence	4,246	4,069	178	4%
SDG&E-10	Catastrophic Damage Involving High-Pressure Gas Pipeline Failure	5,529	10,443	(4,914)	-47%
SDG&E-12	Electric Infrastructure Integrity	95,314	107,703	(12,389)	-12%
SDG&E-13	Records Management	7,501	12,361	(4,860)	-39%
SDG&E-16	Catastrophic Damage Involving Medium-Pressure Gas Pipeline Failure	73,146	43,239	29,907	69%
Total SDG&E RAMP Capital		500,406	283,849	216,557	76%

v. **SoCalGas O&M RAMP Variances by GRC Witness Area**

GRC Witness Area	SoCalGas Exhibit Number	2020 RAMP Actuals	2020 Imputed Authorized RAMP	RAMP \$ Variance	RAMP % Variance
Accounting and Finance	SCG-33	658	962	(304)	-32%
Advanced Metering	SCG-17	354	510	(156)	-31%
Corporate Center - Gen Admin	SCG-28	4,112	4,681	(569)	-12%
CS - Field & Meter Reading	SCG-18	60,780	64,500	(3,721)	-6%
CS - Information	SCG-20	1,064	3,000	(1,936)	-65%
CS - Office Operations	SCG-19	2,148	2,831	(682)	-24%
Cyber Security	SCG-27	789	783	6	1%
Environmental	SCG-25	2,904	2,888	16	1%
Fleet & Facilities	SCG-23	795	1,152	(357)	-31%
Gas Control & Sys Ops/Planning	SCG-13	5,459	6,326	(867)	-14%
Gas Distribution	SCG-04	59,522	66,689	(7,167)	-11%
Gas Engineering	SCG-09	381	2,252	(1,871)	-83%
Gas Major Projects	SCG-08	46	1,556	(1,510)	-97%
Gas System Integrity	SCG-05	6,454	21,306	(14,853)	-70%
Gas Transmission	SCG-06	19,211	10,509	8,702	83%
Human Resources	SCG-32	6,859	14,093	(7,233)	-51%
Pipeline Safety Enhancement Plan	SCG-15	21,824	62,182	(40,358)	-65%
TIMP & DIMP	SCG-14	151,929	95,189	56,740	60%
Underground Storage	SCG-10	24,478	30,530	(6,052)	-20%
Total SoCalGas RAMP O&M		369,766	391,940	(22,174)	-6%

vi. **SoCalGas O&M RAMP Variances by RAMP Chapter**

RAMP Chapter	RAMP Risk Description	2020 RAMP Actuals	2020 Imputed Authorized RAMP	RAMP \$ Variance	RAMP % Variance
SCG-01	Catastrophic Damage Involving Third Party Dig-Ins	15,297	23,464	(8,167)	-35%
SCG-02	Employee, Contractor, Customer, and Public Safety	83,271	101,295	(18,024)	-18%
SCG-03	Cyber Security	789	783	6	1%
SCG-04	Catastrophic Damage Involving High-Pressure Gas Pipeline Failure	154,139	128,959	25,180	20%
SCG-05	Workplace Violence	3,406	2,564	842	33%
SCG-06	Physical Security of Critical Gas Infrastructure	1,004	2,336	(1,332)	-57%
SCG-07	Workforce Planning	3,676	6,603	(2,927)	-44%
SCG-08	Records Management	5,405	14,721	(9,315)	-63%
SCG-09	Climate Change Adaptation	131	1,675	(1,544)	-92%
SCG-10	Catastrophic Damage Involving Medium-Pressure Gas Pipeline Failure	83,372	84,121	(749)	-1%
SCG-11	Catastrophic Event Related to Storage Well Integrity	19,276	25,420	(6,144)	-24%
Total SoCalGas RAMP O&M		369,766	391,940	(22,174)	-6%

vii. SoCalGas Capital RAMP Variances by GRC Witness Area

GRC Witness Area	SoCalGas Exhibit Number	2020 RAMP Actuals	2020 Imputed Authorized RAMP	RAMP \$ Variance	RAMP % Variance
Cyber Security	SCG-27	18,587	10,791	7,796	72%
Facilities/Other	SCG-23	2,137	329	1,807	549%
Gas Distribution	SCG-04	16,460	10,794	5,667	53%
Gas Engineering	SCG-09	2,009	2,827	(819)	-29%
Gas Major Projects	SCG-08	1,610	4,825	(3,215)	-67%
Gas Transmission	SCG-07	52,941	9,757	43,184	443%
Information Technology	SCG-26	35,967	30,352	5,615	19%
PSEP	SCG-15	88,397	176,955	(88,557)	-50%
TIMP/DIMP	SCG-14	270,545	124,796	145,750	117%
Underground Storage	SCG-10	115,180	91,467	23,713	26%
Total SoCalGas RAMP Capital		603,834	462,893	140,941	30%

viii. SoCalGas Capital RAMP Variances by RAMP Chapter

RAMP Chapter	RAMP Risk Description	2020 RAMP Actuals	2020 Imputed Authorized RAMP	RAMP \$ Variance	RAMP % Variance
SCG-01	Catastrophic Damage Involving Third Party Dig-Ins	637	896	(259)	-29%
SCG-02	Employee, Contractor, Customer, and Public Safety	10,138	3,365	6,773	201%
SCG-03	Cyber Security	18,587	10,791	7,796	72%
SCG-04	Catastrophic Damage Involving High-Pressure Gas Pipeline Failure	218,006	258,199	(40,193)	-16%
SCG-05	Workplace Violence	2,137	329	1,807	549%
SCG-06	Physical Security of Critical Gas Infrastructure	1,011	4,167	(3,156)	-76%
SCG-08	Records Management	38,905	36,864	2,041	6%
SCG-09	Climate Change Adaptation	3,364	7,167	(3,803)	-53%
SCG-10	Catastrophic Damage Involving Medium-Pressure Gas Pipeline Failure	199,199	56,515	142,684	252%
SCG-11	Catastrophic Event Related to Storage Well Integrity	111,851	84,599	27,252	32%
Total SoCalGas RAMP Capital		603,834	462,893	140,941	30%

ATTACHMENT A – SDG&E's 2020 RISK SPENDING ACCOUNTABILITY REPORT

1. SDG&E ELECTRIC

A. SDG&E Electric Distribution

i. SDG&E Electric Distribution O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure Or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Electric Distribution		111,735	102,616	9,119	9%							
Reliability & Capacity	Non-RAMP	266	290	(24)	-8%	Unable to identify a single unit due to multiple activities in this workpaper such as monitoring, forecasting, and responding to utilization of the electric distribution system.					No	No
Reliability & Capacity	Improved modeling tools for DERs	75	82	(7)	-8%	1	1	0	0%	Software license	No	No
Sub-Total Reliability & Capacity		342	373	(31)	-8%						No	
Construction Services	Non-RAMP	799	953	(154)	-16%	Unable to identify a single unit due to multiple activities in this workpaper that support capital projects. These activities include data management, permit verification, environmental releases, review of purchase orders, and negotiations of start and end dates.					No	No
Construction Services	Contractor Safety Review	690	823	(133)	-16%	Unable to identify a single unit due to multiple activities in this workpaper such as Contractor Incidents Reports and Safety Reviews.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure Or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Construction Services	System Hardening and Grid Modernization	2,454	2,928	(475)	-16%	Unable to identify a single unit due to multiple activities in this workpaper that support capital projects. These activities include small wire and connector replacement in non-fire threat zone (O&M represents 3.7% of capital), replacement of bridged cutout switches (O&M represents 10% of capital), and replacement of 4kV assets with 12kV (O&M represents 5% of capital).					No	No
Construction Services	Workforce Planning	15	18	(3)	-16%	5	5	0	0%	Training Modules	No	No
Sub-Total Construction Services		3,958	4,723	(765)	-16%						No	
District Ops Enterprise Geographic Information System Standards	Non-RAMP	244	292	(48)	-16%	Unable to identify a single unit due to multiple activities in this workpaper such as creating and maintaining all electric distribution, transmission, telecommunications and substation data in SDG&E's enterprise GIS system.					No	No
District Ops Enterprise Geographic Information System Standards	Records Management	924	1,106	(182)	-16%	Records Management RAMP activity is annual records management compliance. Groups are to perform a self-assessment of the department's compliance with the records management policies and procedures. The assessments are then reviewed by the Records Management group. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Sub-Total District Ops Enterprise Geographic Information System Standards		1,168	1,398	(230)	-16%						No	

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure Or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Electric Distribution Operations	Non-RAMP	22,384	19,030	3,354	18%	22,905	19,473	3,432	18%	Switch Plans	No	No
Electric Distribution Operations	Workforce Planning	36	31	5	18%	12	10	2	20%	Operators trained	No	Yes
Electric Distribution Operations	Records Management	2,616	2,224	392	18%	Records Management RAMP activity is annual records management compliance. Groups are to perform a self-assessment of the department's compliance with the records management policies and procedures. The assessments are then reviewed by the Records Management group. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Sub-Total Electric Distribution Operations		25,036	21,284	3,752	18%						No	
Kearny Operations Services	Non-RAMP	1,480	2,192	(713)	-33%	10	20	(11)	-51%	FTE	No	Yes

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure Or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Grid Operations	Non-RAMP	1,050	623	427	68%	8	4	5	125%	FTE	No	Yes
Grid Operations	Workforce Planning	0	4	(4)	-100%	0	1	(1)	-100%	Summer Intern	No	Yes
Sub-Total Construction Services		1,050	627	423	67%						No	
Project Management	Non-RAMP	2,071	1,397	674	48%	Unable to identify a single unit due to multiple activities in this workpaper such as planner development and training and design/development of e-training materials.					No	No
Electric Regional Operations	Non-RAMP	12,743	11,259	1,484	13%	26,000	22,973	3,027	13%	Estimated hours of Project Managers and Advisors	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure Or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Electric Regional Operations	Safety Policies & Programs	23,416	20,769	2,647	13%	72,050	63,904	8,146	13%	Employee hours in safety meetings plus a 1 day/year safety stand down	No	No
Electric Regional Operations	Aviation Safety	509	452	58	13%	1	1	0	0%	Aviation Safety Management System	No	No
Electric Regional Operations	Distribution Switch Maintenance Program	1,290	1,144	146	13%	542	481	61	13%	Switches inspected	No	No
Electric Regional Operations	Employee Records Management training course	0	43	(43)	-100%	0	1	(1)	-100%	Trainings	No	Yes
Electric Regional Operations	Workforce Planning	1,359	1,205	154	13%	12	11	1	13%	Apprentice Linemen	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure Or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Electric Regional Operations	Inspection and Preventative Maintenance	1,364	1,210	154	13%	134	119	15	13%	High risk OH switches (typically in contamination zones) Inspected or Replaced	No	No
Sub-Total Electric Regional Operations		40,682	36,083	4,599	13%						No	
Skills & Compliance Training	Non-RAMP	2,031	2,151	(119)	-6%	13	14	(1)	-7%	FTE	No	No
Skills & Compliance Training	Ongoing maintenance programs	2,864	3,032	(168)	-6%	220	232	(12)	-5%	Classes	No	No
Sub-Total Skills & Compliance Training		4,895	5,183	(288)	-6%						No	

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure Or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Service Order Team (SOT)	Non-RAMP	2,104	178	1,926	1084%	11	1	10	1084%	Full-Time Contractors	No	Yes
Substation C&O	Non-RAMP	6,022	4,949	1,073	22%	1,292	1,062	230	22%	Maintenance Orders	No	Yes
Substation C&O	Condition Base Maintenance (CBM) - Distribution	0	321	(321)	-100%	0	15	(15)	-100%	CBM monitors replaced	No	Yes
Sub-Total Substation C&O		6,022	5,270	752	14%						No	

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure Or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
System Protection	Non-RAMP	2,700	2,001	698	35%	15	11	4	36%	FTE	No	Yes
System Protection	Replace failed SCADA remote terminal units (RTU's)	0	60	(60)	-100%	0	7	(7)	-100%	RTUs replaced	No	Yes
System Protection	Workforce Planning	9	7	2	31%	155	125	30	24%	Hours job shadowed	No	Yes
Sub-Total System Protection		2,709	2,068	641	31%						No	
Distribution and Engineering	Non-RAMP	1,060	423	637	151%	Unable to identify a single unit due to multiple activities in this workpaper such as developing and maintaining overhead and underground construction standards to ensure safe and reliable customer service throughout 12kv and 4kv electric distribution.					No	No
Distribution and Engineering	Safety Policies & Programs	2,232	891	1,342	151%	368	454	(86)	-19%	Published updates to standards	No	No
Distribution and Engineering	Workforce Planning	566	226	340	151%	4,272	4,108	164	4%	Hours of training	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure Or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Distribution and Engineering	Records Management	109	44	66	151%	Records Management RAMP activity is annual records management compliance. Groups are to perform a self-assessment of the department's compliance with the records management policies and procedures. The assessments are then reviewed by the Records Management group. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Sub-Total Distribution and Engineering		3,968	1,583	2,384	151%						No	
Asset Management	Utility Asset Management (Non-WMP)	1,360	2,404	(1,043)	-43%	Utility Asset Management RAMP activity is the development and implementation of an Asset Management program that conforms with ISO 55000 (non-High Fire Threat District (HFTD) portion of RAMP Activity). The variety of activities makes it infeasible to develop a single unit of measurement for this category.					No	No
Asset Management	Annual records management compliance	524	925	(401)	-43%	80	90	(10)	-11%	Records and information management certifications	No	No
Sub-Total Asset Management		1,884	3,329	(1,445)	-43%						No	
Troubleshooting	Non-RAMP	8,440	8,689	(249)	-3%	75,567	77,580	(2,013)	-3%	SORT Orders	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure Or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Major Projects	Non-RAMP	590	115	475	415%	Unable to identify a single unit due to multiple activities in this workpaper involved with Project Management process improvement and support.					No	No
Major Projects	Contractor Safety Program	32	6	26	415%	Unable to identify a single unit due to multiple activities in this workpaper such as Contractor Incidents Reports and Safety Reviews.					No	No
Sub-Total Major Projects		621	121	501	415%						No	
Technology Utilization	Non-RAMP	1,079	1,361	(282)	-21%	10	12	(2)	-17%	FTE	No	No
Compliance Management	Non-RAMP	2,357	2,587	(230)	-9%	8	11	(3)	-27%	FTE	No	Yes
Compliance Management	Records Management	510	560	(50)	-9%	Records Management RAMP activity is annual records management compliance. Groups are to perform a self-assessment of the department's compliance with the records management policies and procedures. The assessments are then reviewed by the Records Management group. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Sub-Total Compliance Management		2,867	3,147	(280)	-9%						No	
Tech Solutions and Reliability	Non-RAMP	826	2,194	(1,367)	-62%	Unable to identify a single unit due to multiple activities in this workpaper such as management of GIS, technology, construction planning and design (CPD), and providing field hardware support for SDG&E field operations.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure Or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Tech Solutions and Reliability	Records Management	533	1,416	(882)	-62%	Records Management RAMP activity is annual records management compliance. Groups are to perform a self-assessment of the department's compliance with the records management policies and procedures. The assessments are then reviewed by the Records Management group. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Sub-Total Tech Solutions and Reliability		1,359	3,609	(2,250)	-62%						No	

ii. SDG&E Electric Distribution O&M Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
Electric Distribution Operations Workforce Planning	\$: No Units: Yes	Units: Operators Trained. Electric Distribution Operations trained higher Operators than planned primarily due to employee attrition and partially due to accounting for approximately 50% Operator pass rate.
Kearny Operations Services Non-RAMP	\$: No Units: Yes	Units: Number of FTE. Training Department Staffing lower than approved in 2019 GRC Decision due to challenges finding qualified personnel to fill the role. Additionally, due to a record amount of capital work, the current resources spent a greater percentage of their time on capital and transmission maintenance activities.
Grid Operations Non-RAMP	\$: No	Units: Number of FTE. More O&M work performed in 2020 than authorized. More labor was required than forecast in the 2019 GRC. This was primarily driven by field technicians who

WP Name	Variance Threshold Triggers	Variance Explanation
	Units: Yes	maintain SCADA Remote Terminal Units (RTUs). Higher than forecast labor was also incurred in the Mission Control training group.
Grid Operations Workforce Planning	\$: No Units: Yes	Units: Number of Summer Interns. No Summer intern in 2020 because of COVID-19 and challenges of onboarding remotely.
Electric Regional Operations Employee Records Management training course	\$: No Units: Yes	Units: Number of Trainings. This training is conducted every other year; no training in 2020, but training is required annually starting 2021 and thereafter.
Service Order Team Non-RAMP	\$: No Units: Yes	Units: Number of Full-Time Contractors. Service Order Team (SOT) workload increased due to increase in solar installs, upgrades due to remodels, and Communication Infrastructure Provider (CIP) network installs. Also, external lineman was brought in to support standby lineman work. In addition, as SOT work increased, additional planners, service coordinators and temporary contractors were needed to support the work.
Substation C&O Non-RAMP	\$: No Units: Yes	Units: Number of Maintenance Orders. More O&M work performed in 2020 than authorized. The amount of maintenance required on equipment varies year to year. Catch-up maintenance was required to make up for deferred maintenance/underspend from previous years. Additionally, 2020 had increased PSPS (Public Safety Power Shut Off)/Storm/high profile events, which required standby resources.
Substation C&O Condition Base Maintenance (CBM) - Distribution	\$: No Units: Yes	Number of CBM Orders. No CBM devices failed in 2020, so no replacements were performed under this RAMP activity.

WP Name	Variance Threshold Triggers	Variance Explanation
System Protection Non-RAMP	\$: No Units: Yes	Units: Number of FTE. More O&M work performed than forecast in the 2019 GRC due to additional required maintenance, a growing number of SCADA devices, and numerous PSPS (Public Safety Power Shutoffs)/EOC (Emergency Operation Center)/Storm events that required standby support.
System Protection Replace failed SCADA Remote Terminal Units (RTU's)	\$: No Units: Yes	Units: Number of RTU's replaced. No RTU's failed in 2020, so no replacements were performed under this RAMP activity.
System Protection Workforce Planning	\$: No Units: Yes	Units: Number of Jobs Shadowed. There was more job shadowing than was authorized because work is complex.
Compliance Management Non-RAMP	\$: No Units: Yes	Units: Number of FTE. The incremental costs associated to High-Volume Deployments for AT&T pole attachments are being managed by the Project Engagement group.

iii. SDG&E Electric Distribution O&M Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Electric Distribution Operations	SDG&E-15-2R WHS-30 to WHS-33 WP 1ED004.000	This workgroup is made up of the Electric Distribution Operations Control Center (EDOCC) and Electric Distribution Operations Technology (EDOT). The EDOCC is responsible for operating the Electric Distribution System safely and reliably for planned and unplanned events (e.g., outages). The EDOCC has two main resource types: technical support personnel and operators/programmers. This group supports 24/7 operations management and oversight for: the electric distribution system, District Engineers with Reliability Analysis of feeders and branches, and customer call-backs initiated by the Technical Support Team (TST) for every outage event.

WP Name	2019 GRC Testimony Location	WP Activity Description
Kearny Operations Services	SDG&E-15-2R WHS-34 to WHS-35 WP 1ED006.000	There are four functional work groups in the Kearny Maintenance Shops and Lab (Shop): (1) Tool Repair Group - the Shop maintains, repairs, fabricates, and acquires tooling, such as live-line tools, hot sticks, electric and hydraulic equipment and hand-tools. This is instrumental in maintaining the safety of the electric line and substation employees. (2) Apparatus Group - the condition-based maintenance program has necessitated the replacement of an increased number of electrical equipment. This includes the disposal or refurbishment of transformers, capacitors, switches, breakers, and bushings, along with associated gas and oil reclamation and recycling. Environmental concerns have been instrumental in the decision to scrap versus refurbishment. (3) Transformer Repair & High Voltage Testing - the Shop is a certified high voltage test station which tests to confirm the electrical condition of transformers, regulators, mechanical jumpers, grounds, hot sticks and other live line tools and equipment. Since 2008, there has been an increased demand for testing in the Shop to validate tool testing compliance. (4) Protective Equipment Testing Lab - the Shop is certified to inspect, and test rubber goods used for electrical work personal protection.
Grid Operations	SDG&E-15-2R WHS-15 & WHS-35 to WHS-37 WP 1ED008.000	The Electronic Control Technician is responsible for all Supervisory, Control & Data Acquisition (SCADA) equipment that interfaces with both the Transmission Emergency Management Systems (EMS) and Distribution Operations master stations, system totals & major intertie load reads to the Independent System Operator (ISO), as well as the A- & AV signals from customer facilities to SDG&E. The Mission Control Training Team provides initial and continual training for Distribution System Operators, Transmission System Operators and Operations Shift Supervisors as well as Authorization training for all operating districts personnel and contractors that work on the SDG&E electrical systems for distribution and transmission, including Generator Operators within SDG&E footprint.
Electric Regional Operations	SDG&E-15-2R WHS-40 to WHS-48 WP 1ED011.000	The Electric Regional Operations (ERO) organization consists of the electric distribution crews within six districts and other operating centers. These crews provide coverage for all of SDG&E's electric distribution system throughout its service territory. The ERO group consists of electric linemen, apprentices, line assistants, schedulers, aviation services, office support personnel, and management supervision. Their primary job functions are to maintain the electric distribution system, restore service due to outages, and fix service problems and other customer issues.

WP Name	2019 GRC Testimony Location	WP Activity Description
Service Order Team (SOT)	SDG&E-15-2R WHS-52 to WHS-53 WP 1ED014.000	The Service Order Team (SOT) is responsible for planning, overseeing and managing new additions and modifications to the electric and gas distribution systems, primarily related to services. The Service Order Team acts as the SDG&E customer representative on these projects. The O&M costs associated with this team are for its support of construction operations, storm recovery, construction maintenance programs, labor for training activities, and preparing orders to replace property.
Substation C&O	SDG&E-15-2R WHS-53 to WHS-55 WP 1ED015.000	This program installs and maintains specialized monitoring and communication devices on substation equipment in order to create a data-informed maintenance and replacement process for major substation assets. Distribution transformers (<i>e.g.</i> , 69/12 kV) and their associated oil/gas measurements are monitored. If the levels are inadequate, alerts will inform maintenance management of the need for maintenance. This program falls under the Electric Infrastructure Integrity Chapter of the RAMP Report and mitigates safety and reliability risks associated with failing substation equipment. The installation and maintenance of monitoring equipment allows SDG&E to utilize asset health metrics for critical distribution power transformers, allowing for proactive maintenance and/or replacement of these devices based on asset health data.
System Protection	SDG&E-15-2R WHS-56 to WHS-58 WP 1ED017.000	This program proactively replaces SCADA RTU with failed communications or bad sensors, in order to improve data-informed operations of field switches and other equipment. This risk mitigation program falls under the Electric Infrastructure Integrity Chapter of the RAMP Report and mitigates risks to employee safety and system reliability that can be associated with failing RTU equipment.
Compliance Management	SDG&E-15-2R WHS-75 to WHS-77 WP 1ED025.000	The Compliance and Asset Management workgroups focus on SDG&E maintaining its compliance with internal and external regulations, policies, and procedures as they relate to operating and maintaining the electric distribution system in a safe and efficient manner. The main subsections that comprise the Compliance and Asset Management Workgroup are the “Compliance Management Group” and the “Program Management Group.”

iv. SDG&E Electric Distribution Capital Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Electric Distribution		160,949	195,204	(34,255)	-18%							
Field Shunt Capacitors	Non-RAMP	992	705	287	41%	21	18	3	17%	Capacitor Banks Energized	No	No
Ocean Ranch 69/12KV Substation	Non-RAMP	528	3,012	(2,484)	-82%	Project completed in 2019 with 2020 Actuals for trailing charges during closeout. Variance is due to historically calculated imputed authorized.					No	No
Substation 12kV Capacitor Upgrades	Non-RAMP	35	455	(420)	-92%	0	4	(4)	-100%	Capacitor Banks Installed	No	Yes
C1447 MTO: Extension and offload from C958	Non-RAMP	0	76	(76)	-100%	This project was completed prior to 2020 and the variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.					No	No
GRID Modernization	Non-RAMP	0	79	(79)	-100%	This project was completed prior to 2020 and the variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Planned Investments	Non-RAMP	2,631	0	2,631	100%	This is an emergent project. This project provides for the reconstruction and extension of overhead and underground distribution facilities to replace overloaded conductors, to correct primary voltage problems, and to transfer load to balance circuits and substations. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Reactive Small Capital Projects	Non-RAMP	3,014	2,338	676	29%	Projects address primary distribution system overload and voltage-related issues with individual capital jobs identified on the forecast process. This project provides for the reconstruction and extension of overhead and underground distribution facilities to replace overloaded conductors, to correct primary voltage problems, and to transfer load to balance circuits and substations. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
C1023 LI New 12KV Circuit & Reconductor C354	Non-RAMP	122	495	(373)	-75%	Project completed in 2019 with 2020 Actuals for trailing charges during closeout. Variance is due to historically calculated imputed authorized.					No	No
C1450 MTO: New 12KV Circuit	Non-RAMP	5,428	237	5,191	2193%	Installed new circuit 1450, which will enhance the reliability in the area and increase the available capacity. The project requires the installation of SCADA switches, a pad-mount SCADA capacitor, trenching and installation of new conduit and underground cable. The project also includes the reconfiguration of existing overhead poles from a single circuit to a double circuit and the installation of two new hook sticks. Retagging of electric distribution equipment after load is transferred and a new circuit breaker is also required. The variety of work activities in					Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
						this category makes it infeasible to identify a single unit of measurement.						
C303 CAN: Reconductor & CAP	Non-RAMP	814	0	814	100%	This is an emergent project. This project requires the installation of SCADA switch and reconducting cable. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
TL633 Reconductor (Bernardo - Rancho Carmel)	Non-RAMP	119	0	119	100%	No 2020 units. This project completed prior to 2020 and these remaining charges only relate to close-out of the project.					No	No
Doheny Desalination 15MW Project	Non-RAMP	0	71	(71)	-100%	This project was completed prior to 2020 and the variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.					No	No
Wabash Canyon Sub 60/12kV Bank 32	Non-RAMP	72	0	72	100%	No 2020 units. This project completed prior to 2020 and these remaining charges only relate to close-out of the project.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Distribution System Capacity Improvement	Non-RAMP	4,333	2,006	2,327	116%	Projects identified within this budget include minor modifications, construction may include feeder and branch reconductoring, installation of appropriate switching, and other equipment as necessary to increase the capacity of the distribution system for reliability and operating concerns. This project also installs infrastructure for future circuit projects in conjunction with road improvements, transmission system upgrades or other upgrade activities. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Sub-Total Capacity/Expansion		18,087	9,473	8,615	91%							
Electric Distribution Tools/ Equipment	Non-RAMP	1,701	2,052	(352)	-17%	Many different types of tools and equipment are purchased through this budget to support Electric Distribution work and cannot be unitized. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Electric Transmission Tools/ Equipment	Non-RAMP	333	0	333	100%	This is an emergent project. This budget supports tool purchases for ongoing construction and maintenance activities on the Substation and Transmission System. Specialized tools and testing equipment are necessary to the proper inspection and operation of transmission and substation facilities. As regulatory rules change, new tools are required to maintain the highest level of safety and compliance. Acquisition of new types or additional tools will enable flexibility necessary for completing maintenance and construction goals. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Sub-Total Equip/Tools/Misc.		2,034	2,052	(19)	-1%							

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
RAMP Base - Corrective Maint Program (CMP)	Inspection, Repair, Maintenance & Replacement Programs	16,383	13,536	2,847	21%	1,920	1,735	185	11%	Pad Mounted Transformers and Terminators	No	No
RAMP Base - DOE Switch/Manhole Replacement	Distribution Switch Maintenance Program	10,530	6,817	3,713	54%	707	639	68	11%	Manhole and handhole vault repairs and switches	No	No
RAMP Base - Replacement of Live Front Equipment	Live Front Transformer and Terminator Replacement	522	668	(146)	-22%	6	8	(2)	-25%	Transformer/Terminator	No	Yes
Aerial Marking for Safety	Non-RAMP	11	70	(59)	-85%	1	1	0	0%	Location with distribution underbuild	No	No
RAMP Incremental - Distributed Generation Interconnect	Power Quality Studies of DER Interconnections	46	233	(187)	-80%	1	0	1	100%	Distributed Generation Interconnection	No	Yes

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
RAMP Incremental On Ramp Aerial Light - Post Filing	Install Aerial Marking and Lighting	0	244	(244)	-100%	This project was completed prior to 2020 and the variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.					No	No
Blue Hornet Solar	Non-RAMP	1	0	1	100%	Emergent project. Project scope and schedule driven by Customer. Interconnection is anticipated to be unitized upon energization.				Inter-connection	No	No
ECO Substation	Non-RAMP	4	0	4	100%	Emergent project. Costs are related to project management and scheduling for new project Energia Sierra Juarez Wind (ESJ).				Megawatts	No	No
Fallbrook Battery Energy Storage - PTO	Non-RAMP	19	0	19	100%	Emergent project. Project scope and schedule driven by Customer. Interconnection is anticipated to be unitized upon energization.				Inter-connection	No	No
Gateway Energy Storage	Non-RAMP	38	0	38	100%	1	0	1	100%	Inter-connection	No	Yes
Kettle Solar One	Non-RAMP	13	0	13	100%	Emergent project. Project scope and schedule driven by Customer. Interconnection is anticipated to be unitized upon energization.				Inter-connection	No	No
Mount Laguna Wind	Non-RAMP	2	0	2	100%	Emergent project. Project scope and schedule driven by Customer. Interconnection is anticipated to be unitized upon energization.				Inter-connection	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Rugged Solar Farm	Non-RAMP	18	0	18	100%	Emergent project. Project scope and schedule driven by Customer. Interconnection is anticipated to be unitized upon energization.				Inter-connection	No	No
Silver Ridge Mount Signal	Non-RAMP	1	0	1	100%	No 2020 units. This project completed prior to 2020 and these remaining charges only relate to close-out of the project.				Inter-connection	No	No
Top Gun PTO Interconnection	Non-RAMP	65	0	65	100%	1	0	1	100%	Inter-connection	No	Yes
Valley Center Renewable	Non-RAMP	13	0	13	100%	Emergent project. Project scope and schedule driven by Customer. Interconnection is anticipated to be unitized upon energization.				Inter-connection	No	No
Elect Transm Line Reliability Projects	Non-RAMP	3,713	0	3,713	100%	56	0	56	100%	Transmission Poles Replaced with Distribution Underbuild	No	Yes
RAMP Base — Annual Pole Reinforcement (Non-WMP)	GO165: Distribution Inspect and Repair program	7,431	8,773	(1,342)	-15%	546	537	9	2%	Poles replaced	No	No
Sub-Total Mandated		38,808	30,342	8,466	28%							

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Electric Meters & Regulators	Non-RAMP	2,578	3,792	(1,214)	-32%	14,138	25,704	(11,566)	-45%	Meters purchased	No	Yes
Transformers	Non-RAMP	21,571	23,510	(1,939)	-8%	8,682	9,073	(391)	-4%	Transformers purchased	No	No
Sub-Total Materials		24,149	27,301	(3,153)	-12%							
Reliability/Improvements Capital Projects	Non-RAMP	1,218	1,915	(698)	-36%	The activities in this workpaper include replacement of miscellaneous substation equipment that has failed. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Management of Overhead Distribution Service	Non-RAMP	6,510	7,471	(961)	-13%	657	750	(93)	-12%	Unique work order (generally referring to a single unplanned outage event)	No	No
Management of Underground Distribution Service	Non-RAMP	4,198	4,209	(11)	0%	403	500	(97)	-19%	Unique work order (generally referring to a single unplanned outage event)	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
RAMP Base - Cable Replacement	Proactive cable replacement	9,678	18,150	(8,473)	-47%	69	129.4	(60)	-47%	Miles	Yes	Yes
RAMP Incremental Capital Restoration of Service	Capital improvements	7,567	10,245	(2,678)	-26%	2,405	2,750	(345)	-13%	Unique work order (generally referring to a single unplanned outage event)	No	No
Rebuild Pt Loma Substation	Non-RAMP	0	1,946	(1,945)	-100%	This project was completed prior to 2020 and the variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.					No	No
Emergency Substation Equipment	Non-RAMP	739	490	250	51%	This workpaper includes activities to replenish a variety of spare equipment. Equipment includes breakers, transformer, cables, jumpers, etc. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
RAMP Incremental - 4 kV Modernization - Distribution	Overhead distribution modernization and hardening	2,951	1,476	1,475	100%	2	3	(1)	-33%	Miles	No	Yes

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Sewage Pump Station Rebuilds RAMP Incremental	Rebuild and repair aging infrastructure	0	746	(746)	-100%	This project was completed prior to 2020 and the variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.					No	No
RAMP Base - Condition Based Maintenance - Smart Grid	Conditioned Based Monitoring System	1	2,113	(2,112)	-100%	Project completed in 2019 with 2020 Actuals for trailing charges during closeout. Variance is due to historically calculated imputed authorized.					No	No
Rebuild Kearny 69/12kV Substation	Non-RAMP	110	2,798	(2,688)	-96%	Project completed in 2019 with 2020 Actuals for trailing charges during closeout. Variance is due to historically calculated imputed authorized.					No	No
New Vine 69/12KV Substation	Non-RAMP	4	3,260	(3,256)	-100%	Project completed in 2019 with 2020 Actuals for trailing charges during closeout. Variance is due to historically calculated imputed authorized.					No	No
Streamview 69/12KV Sub Rebuild-Pre Eng	Non-RAMP	0	32	(32)	-99%	This project was completed prior to 2020 and the variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Poway Substation Rebuild	Non-RAMP	3,568	244	3,324	1363%	Project scope includes transformers, disconnect switches, circuit breakers, circuit switchers, switchgear, capacitor banks, batteries, chargers, reactors, phase shifters, synchronous condensers, static var compensators, surge arresters, relays, station light & power transformers, Coupling Capacitor Voltage Transformers, and potential transformers. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Rancho Santa Fe Sub Fire Hardening	Non-RAMP	2,230	1,263	966	76%	16	16	0	0%	Breakers	No	No
Vault Restoration	Non-RAMP	0	388	(388)	-100%	0	18	(18)	-100%	Number of Customer Structures (Vault's) restored	No	Yes
OIR Worst Circuits	Non-RAMP	0	1,458	(1,458)	-100%	0	10	(10)	-100%	Number of Circuits documented	No	Yes
San Mateo Substation Rebuild (start in 2019)	Non-RAMP	6	0	6	100%	Emergent project. 2020 actuals represent project scoping and preliminary engineering activities.				Substation	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Avocado Sub 69KV Rebuild	Non-RAMP	950	0	950	100%	1	0	1	100%	Substation	No	Yes
Substation Mod to Support FLSR	Non-RAMP	2,513	0	2,513	100%	16	0	16	100%	Circuit Breaker	No	Yes
Electric Distribution Grid Analytics	Non-RAMP	0	1,282	(1,282)	-100%	This is a cancelled project and the variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.					No	No
Distribution Circuit Reliability Construction - RAMP	Expand and Maintain Distribution Advanced SCADA infrastructure	4,337	4,049	288	7%	21	19	2	11%	Switches Replaced	No	No
Power Quality Program	Non-RAMP	889	0	889	100%	13	0	13	100%	Power Quality Meters Replaced	No	Yes
Meteorology Outage Prediction Modeling P2	Non-RAMP	0	259	(259)	-100%	This project was completed prior to 2020 and the variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Substation SCADA Expansion-Distribution	Non-RAMP	227	391	(164)	-42%	2020 scope consisted of scoping and engineering for projects targeted to complete in 2021.					No	No
Telegraph Canyon 138/12kV Bank & C1226	Non-RAMP	0	345	(345)	-100%	This project was completed prior to 2020 and the variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.					No	No
Margarita Substation New 12kV Circuit 1259	Non-RAMP	5	140	(135)	-96%	Project completed in 2019 with 2020 Actuals for trailing charges during closeout. Variance is due to historically calculated imputed authorized.					No	No
Transmission System Automation	Non-RAMP	293	0	293	100%	6	0	6	100%	Substation Transmission SCADA Upgrades	No	Yes
Artesian 230kV Expansion-Prel. Eng.	Substation Reliability For Distribution Components - Proactive	370	0	370	100%	The 2020 spend in this workpaper was for preliminary engineering. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
High Risk Switch Replacement Project	Distribution Overhead Switch Replacement Program	810	0	810	100%	18	0	18	100%	Switches	No	Yes
Urban Substation Rebuild	Substation Reliability For Distribution Components - Proactive	916	0	916	100%	This is an emergent project. The 2020 spend for this workpaper were for Engineering & Design Services and a payment to AT&T to relocate their services. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
TL698 AVOCADO SUB GATEWAY DB CBL REPLACE	Non-RAMP	92	0	92	100%	This is an emergent project. FERC-driven project with minor costs for distribution circuit relocation and miscellaneous activities in 2020.				Distribution circuit relocation	No	No
Mission Substation 230kV Rebuild	Non-RAMP	488	0	488	100%	This is an emergent project. This workpaper include activities for communication equipment to support FERC driven substation rebuild. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
New 2nd Miguel to Bay Blvd. 230 kV Line	Non-RAMP	1	0	1	100%	No 2020 units. This project completed prior to 2020 and these remaining charges only relate to close-out of the project.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
SONGS Synchronous Condenser	Non-RAMP	1	0	1	100%	No 2020 units. This project completed prior to 2020 and these remaining charges only relate to close-out of the project.				Synchronous Condenser	No	No
TL603 Loop-in (Sweetwater, National City, and Naval Station Metering)	Transmission OH Reliability Projects	1	0	1	100%	Emergent project. FERC-driven project transmission loop-in with minor common/general plant allocations for CPUC components.				Distribution underbuild circuit miles	No	No
TL673 Direct Buried Cable Replacement (Rose Canyon - La Jolla)	Transmission OH Reliability Projects	10	0	10	100%	Emergent project. FERC-driven project with 2020 actuals for design and engineering activities.				Distribution underground circuit miles	No	No
TL6975-Escondido - San Marcos	Transmission OH Reliability Projects	29	0	29	100%	Emergent project. FERC-driven project with 2020 actuals for design and engineering activities.				Distribution underbuild circuit miles	No	No
12kV Substation Reliability	Non-RAMP	4,697	0	4,697	100%	This workpaper comprises 5 projects which activities include purchase of 12kV circuit breakers, batteries, transformers, switchgear, Engineering, Design and survey services, and both above and below grade construction services. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Replace Obsolete Substation Equipment - RAMP	Substation rebuild/replace ments based on operational significance and SDG&E reliability standards	4,126	5,197	(1,072)	-21%	This workpaper's activities include erosion control, fence replacement, control shelter roof replacement, transformer concrete pads, new drainage improvements in addition to traditional breakers transformers, etc. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Sub-Total Reliability/Improvements		59,534	69,868	(10,333)	-15%						Yes	
SF6 Switch Replacement	Replace with new technology	2,654	3,494	(840)	-24%	7	14	(7)	-50%	Switches	No	Yes
Substation Security Proj under \$500K	Non-RAMP	1,500	0	1,500	100%	This is an emergent project. This workpaper activities include security camera upgrades, fence/barbed wire improvements, security software. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Meteorology - Fire Behavior Modeling	Non-RAMP	0	157	(157)	-100%	This project was not cancelled or deferred and the variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Elect Integrity - RAMP (Non-WMP)	Wire Correction, Switch Replacement and Underground Connector Upgrade Program	0	12,339	(12,339)	-100%	0	70	(70)	-100%	Distribution circuit miles	Yes	Yes
RTU Modernization - RAMP Incremental - SCADA Master Modernization	Modernize Equipment	4,472	3,621	851	24%	0	24	(24)	-100%	RTUs energized	No	Yes
NCW New Bank 32 RAMP Incremental - Undergrounding New Circuits	Undergrounding	0	746	(746)	-100%	This project was completed prior to 2020 and the variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Twin Engine Helicopter	Purchase a Twin-Engine Helicopter	1	1,929	(1,928)	-100%	No 2020 units. This project completed prior to 2020 and these remaining charges only relate to close-out of the project. This variance is not due to the purchase being cancelled or deferred, but rather due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.				Helicopter	No	No
Tee Modernization Program	Non-RAMP	1,750	2,039	(289)	-14%	70	82	(12)	-15%	Tees	No	No
Proactive Dead Front Terminator Deploy	Non-RAMP	442	0	442	100%	8	0	8	100%	Terminators	No	Yes
Adv Protect & SCADA Upgrade	Inspection Repair Maintenance & Replacement Programs	0	7,471	(7,471)	-100%	0	5	(5)	-100%	Circuits and Substation Upgraded	Yes	Yes
CAST Security Upgrades	Non-RAMP	1	0	1	100%	Emergent project. FERC-driven project with minor associated distribution charges.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Overhead Public Safety	Overhead distribution modernization and hardening	53	0	53	100%	Emergent project. 2020 actuals for design and engineering activities. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.				Miles	No	No
TL13835-Wood to Steel Project	Non-RAMP	2	0	2	100%	No 2020 units. This project completed prior to 2020 and these remaining charges only relate to close-out of the project.					No	No
Sub-Total Safety & Risk Management		10,874	31,795	(20,921)	-66%							
Advanced Energy Storage	Non-RAMP	167	6,089	(5,922)	-97%	Two distinct storage projects are in scope and scheduled to commission in 2022. Detailed description of work completed in 2020 includes: Contracted with Owner Engineer for hydrogen storage project; Developed technical specifications for both energy storage systems in scope; Issued RFP for hydrogen storage project; Kicked off RFP development for battery energy storage project. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
Borrego Microgrid 2.0	Non-RAMP	0	1,572	(1,572)	-100%	This project was completed prior to 2020 and the variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas / SDG&E attrition years rather than a specific funding level by activity for each year.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Borrego Microgrid 3.0	Non-RAMP	435	1,056	(621)	-59%	There are multiple tracks of activities that make up this project and units are not consistent across activities. Details of work completed in 2020: Developed conceptual design for new distribution circuit and new substation bay; Completed cultural survey of land and began scoping for site grading; Completed analysis and assessment of existing microgrid equipment; Finalized scope for existing microgrid equipment upgrades, including new inverters and microgrid controller; Completed scoping for test environment simulation updates.					No	No
Integrated Test Facility	Non-RAMP	0	305	(305)	-100%	This project was completed prior to 2020 and the variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.					No	No
AB2868 Energy Storage	Non-RAMP	(1,100)	0	(1,100)	100%	This is a cancelled project and the variance is due to a write-off for incurred expenses.					No	No
Safety Enhancements for Battery	Non-RAMP	86	0	86	100%	1	0	1	100%	Emergency Stop Button Installation	No	Yes
Sub-Total DER Integration		(411)	9,023	(9,434)	-105%							
Transmission Substation Reliability	Non-RAMP	1	61	(60)	-98%	This workpaper includes activities used for replacement of miscellaneous substation equipment that has failed. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No

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Orange County Long Range Plan - SOCRE	Non-RAMP	2,970	2,507	462	18%	2020 project activities included 1 substation, 1.9 miles of UG distribution, 0.5 miles of double-circuit 230kV UG Transmission, 7 miles of double-circuit 230kV Transmission. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Los Coches Substation 138/69kV Rebuild	Non-RAMP	0	1,357	(1,357)	-100%	This project was completed prior to 2020 and the variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.					No	No
TL663 Mission to Kearny Reconductor	Non-RAMP	121	34	88	261%	56	0	56	100%	Topped distribution poles	No	Yes
TL600 - Reliability Pole Replacements	Non-RAMP	136	0	136	100%	5	0	5	100%	Transmission Poles Replaced with Distribution Underbuild	No	Yes
TL674A Del Mar Reconfigure/T L666D RFS	Non-RAMP	266	0	266	100%	Emergent project. 2020 actuals for design and engineering activities.				Miles of Distribution Undergrounded	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
TL690A Pendleton South W2S	Non-RAMP	1	0	1	100%	No units. Project is complete, remaining charges are related to close-out of the project.				Miles of Distribution Under-grounded	No	No
TL664_668 Miramar Wood to Steel	Non-RAMP	0	59	(59)	-100%	This project was completed prior to 2020 and the variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas / SDG&E attrition years rather than a specific funding level by activity for each year.					No	No
TL676 Mission to Mesa Heights Reconnector	Non-RAMP	14	887	(873)	-98%	This project was completed prior to 2020, and costs are related to the close-out of the project. The variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.					No	No
TL697 San Luis Rey Wood to Steel - RAMP Incremental	Inspection Repair Maintenance & Replacement Programs	0	489	(489)	-100%	Project completed in 2019. This variance is not due to the purchase being cancelled or deferred, but rather due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.				Distribution Underbuild Circuit Miles	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
TL691 Avo-Mon Wood to Steel - RAMP Incremental	Inspection Repair Maintenance & Replacement Programs	0	45	(45)	-100%	This project was not cancelled or deferred and the variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.					No	No
TL6912 Wood to Steel Pole Replacement - RAMP Incremental	Inspection Repair Maintenance & Replacement Programs	0	60	(60)	-100%	This project was not cancelled or deferred and the variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.					No	No
TL695 Talega Wood to Steel - RAMP Incremental	Inspection Repair Maintenance & Replacement Programs	0	246	(246)	-100%	This project was not cancelled or deferred and the variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.					No	No
CNF - RAMP	System Hardening	0	9,359	(9,359)	-100%	This project was not cancelled or deferred and the variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.					Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
TL649 Otay-San Ysidro-Border SW Pole Repl - RAMP Incremental	Inspection Repair Maintenance & Replacement Programs	0	246	(246)	-100%	This project was not cancelled or deferred and the variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.					No	No
Fiber Optic for Relay Protect & Telecom	Non-RAMP	4,302	0	4,302	100%	20	0	20	100%	All-Dielectric Self-Supporting (ADSS) Miles	No	Yes
San Luis Rey	Non-RAMP	28	0	28	100%	No units. Project is complete, remaining charges are related to close-out of the project.				Synchronous Condenser	No	No
Suncrest SVC Interconnection	Non-RAMP	16	0	16	100%	1	0	1	100%	Inter-connection	No	Yes
SX-PQ 230 kV Line	Non-RAMP	1	0	1	100%	No 2020 units. This project completed prior to 2020 and these remaining charges only relate to the close-out of the project.					No	No
Miguel Substation 230kV Rebuild	Non-RAMP	16	0	16	100%	Emergent project. 2020 actuals for design and engineering activities. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Sub-Total Transm/FERC Driven Projects		7,873	15,350	(7,477)	-49%							

v. SDG&E Electric Distribution Capital Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
Substation 12kV Capacitor Upgrades	\$: No Units: Yes	Units: Number of Capacitor Banks Installed. The variance is due to a capacitor design change and impacts due to manufacturer shutdowns and delays due to COVID-19.
C1450 MTO: New 12KV Circuit	\$: Yes Units: No	Since filing the 2019 GRC Application, SDG&E encountered easement and field condition issues, which led to project being delayed until 2020. Scope changes also consisting of a new circuit route, additional trenching, additional switch and cable leading to increased costs.
RAMP Base - Replacement of Live Front Equipment	\$: No Units: Yes	Units: Number of Transformer/Terminator. The variance is related to less than expected failures. This is a reactive budget where replacements occur when equipment fails. Imputed authorized is based on assumptions of historic performance.
RAMP Incremental - Distributed Generation Interconnect	\$: No Units: Yes	Units: Distributed Generation Interconnection. SDG&E is mandated by Electric Rule 21 and the Wholesale Distribution Open Access Tariff (WDAT) to interconnection customer or developer owned generators. In 2020, SDG&E completed one request for interconnection.
Gateway Energy Storage	\$: No Units: Yes	Units: Number of Interconnections. Emergent project. In 2020, SDG&E completed one customer request for generation interconnection.
Top Gun PTO Interconnection	\$: No Units: Yes	Units: Number of Interconnections. Emergent project. In 2020, SDG&E completed one customer request for generation interconnection.
Elect Transmission Line Reliability Projects	\$: No Units: Yes	Units: Number of Transmission Poles Replaced with Distribution Underbuild. When SDG&E presented this program in the 2019 GRC Application, it was intended to cover work completed in both the High Fire Threat District (HFTD) and Non-High Fire Threat District (Non-HFTD) areas. Since then, SDG&E has split the program to track the HFTD spend separately within Balanced along with the entire authorized spend. However, additional work continues to be performed outside of the HFTD.
Electric Meters & Regulators	\$: No Units: Yes	Units: Number of Meters Purchased. Lower than forecasted meter purchases due to managing appropriate inventory levels.
RAMP Base - Cable Replacement	\$: Yes Units: Yes	Units: Number of Miles. This workpaper includes reactive and proactive cable replacement. Variance is due to variability in cable failures due to unpredictable weather and system conditions caused lower than imputed authorized calculation. Also included within the imputed authorized calculation was funding for Downtown Sub. This project was delayed and is now being reported on its own line.

WP Name	Variance Threshold Triggers	Variance Explanation
RAMP Incremental - 4 kV Modernization - Distribution Overhead distribution modernization and hardening	\$: No Units: Yes	Units: Number of Miles. Construction delays resulting from coordination with customer resulted in 2.18 miles to be completed in 2020.
Vault Restoration	\$: No Units: Yes	Units: Number of Customer Structures restored. Cancelled project.
OIR Worst Circuits	\$: No Units: Yes	Units: Number of Circuits Documented. Cancelled project. SDG&E continues to address worst performing circuits; however, circuit enhancement work has shifted to other reliability budgets. The Electric Distribution capital portfolio will be managed over the life of the GRC cycle.
Avocado Sub 69KV Rebuild	\$: No Units: Yes	Units: Number of Substations. Emergent project. Driven by a reliability and capacity needs, one substation was energized in 2020.
Substation Mod to Support FLSR	\$: No Units: Yes	Units: Number of Circuit Breaker. Emergent project. Driven by a reliability and capacity needs, 16 circuit breakers were energized in 2020.
Power Quality Program	\$: No Units: Yes	Units: Number of Power Quality Meters Replaced. Emergent project. Driven by a reliability and capacity needs, 13 Power Quality meters were replaced in 2020.
Transmission System Automation	\$: No Units: Yes	Units: Number of Transmission Supervisory Control and Data Acquisition (SCADA) Upgrades. Emergent project. Driven by a reliability and capacity needs, 6 Advanced Relay Event Retrieval (ARER) upgrades were completed in 2020.
High Risk Switch Replacement Project	\$: No Units: Yes	Units: Number of Switches. Emergent project. Driven by a reliability and capacity needs, 18 switches were energized in 2020.
SF6 Switch Replacement	\$: No Units: Yes	Units: Number of Switches. Resources in 2020 were re-allocated to higher priority and emergent projects within Electric Distribution. The Electric Distribution capital portfolio will be managed over the life of the GRC cycle.
Elect Integrity - RAMP (Non-WMP)	\$: Yes Units: Yes	Units: Number of Distribution Circuit Miles. In the 2019 GRC, SDG&E revenue requirement allocated 10% to the Wildfire Mitigation Plan Overhead System Hardening efforts and 90% to non-wildfire Electric Distribution capital. The majority of the projects within this description have since broken out to Proactive Cable Replacement, High Risk Switch Replacement, TEE Modernization program, Overhead Public Safety Program, and Distribution Circuit Reliability.

WP Name	Variance Threshold Triggers	Variance Explanation
RTU Modernization - RAMP Incremental - SCADA Master Modernization	\$: No Units: Yes	Units: Number of Remote Terminal Units (RTUs) Energized. Construction delays resulted in inability to energize RTUs due to COVID-19 and Red Flag Warnings throughout the year.
Proactive Dead Front Terminator Deploy	\$: No Units: Yes	Units: Number of Terminators. Emergent project. Driven by safety, SDG&E proactively replaced 8 terminators in 2020.
Adv Protect & SCADA Upgrade	\$: Yes Units: Yes	Units: Number of Circuits and Substations Upgraded. This revenue requirement represents the Non-High Fire Threat District (Non-HFTD) portion of the advanced protection and Supervisory Control and Data Acquisition (SCADA) upgrades. Project was deferred due to constraint in engineering resources to wildfire-related activities. The Electric Distribution capital portfolio will be managed over the life of the GRC cycle.
Advanced Energy Storage	\$: Yes Units: No	Variance is due to internal engineering resource constraint due to reprioritization of Wildfire Mitigation Plan microgrids, mobile generator deployments, and energy storage projects.
Safety Enhancements for Battery	\$: No Units: Yes	Units: Number of Emergency Stop Button Installations. Emergent project. Driven by safety, SDG&E proactively installed one emergency stop button in 2020.
TL663 Mission to Kearny Reconductor	\$: No Units: Yes	Units: Number of Topped Distribution Poles. Project was delayed due to reprioritization of resources to focus on the Wildfire Mitigation Plan to mitigate wildfire related risk.
TL600 - Reliability Pole Replacements	\$: No Units: Yes	Units: Number of Transmission Poles Replaced with Distribution Underbuild. Emergent project. Driven by transmission reliability; SDG&E replaced 5 poles with associated distribution underbuild.
CNF - RAMP	\$: Yes Units: No	This variance is not due to the project being cancelled or deferred, but rather due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. All activities included in this workpaper were forecasted to be in-service prior to the creation of SDG&E's Wildfire Mitigation Plan (WMP). All costs after the creation of the WMP memorandum account (WMPMA) are reflected in the balanced program. The CPUC approved a post-test year mechanism for the SDG&E attrition years rather than a specific funding level by activity for each year. This is described in further detail in section 2.D above. The Electric Distribution capital portfolio will be managed over the life of the GRC cycle.
Fiber Optic for Relay Protect & Telecom	\$: No Units: Yes	Units: Number of All-Dielectric Self-Supporting (ADSS) Miles. When SDG&E presented this program in the 2019 GRC Application, it was intended to cover work completed in both the High Fire Threat District (HFTD) and Non - High Fire Threat District (Non-HFTD) areas. Since then, SDG&E has split the program to track the HFTD spend separately within Balanced along with the entire authorized spend. However, additional fiber optic

WP Name	Variance Threshold Triggers	Variance Explanation
		work continues to be performed outside of the HFTD due to the importance of system protection and controls, automation, and communications in all areas of the service territory.
Suncrest SVC Interconnection	\$: No Units: Yes	Units: Number of Interconnection. Emergent project. Customer requested interconnection.

vi. SDG&E Electric Distribution Capital Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Substation 12kV Capacitor Upgrades	SDG&E-14-R AFC-24 to AFC-25 WP 052530	The purpose of this project is to build an ultimate 120MVA substation in the southeastern portion of the City of Oceanside, within the Pacific Coast Business Park, which is part of the Rancho Del Oro Specific Plan area. The new substation will assist with meeting the electric distribution load growth and reliability limitations.
C1450 MTO: New 12KV Circuit	SDG&E-14-R AFC-28 to AFC-29 WP 162680	The purpose of this project is to mitigate an overload and increase the tie capacity in the area. This will be accomplished by installing a new circuit. The new circuit will also enhance the reliability in the area and increase the available capacity.
RAMP Base - Replacement of Live Front Equipment	SDG&E-14-R AFC-48 to AFC-50 WP 062470	The primary objective of this project is to increase the employee safety, public safety, operational flexibility, and the reliability of the SDG&E electric distribution system. SDG&E planned to replace live front equipment over a five-year period because it resolves the risk by 2020, while also not overextending resources to get the work done. Live front equipment poses a significantly higher risk for wire entry conditions, even though the connections to distribution equipment are behind locked cabinet doors. Live front equipment is also more difficult to work with as compared to dead front equipment. SDG&E is experiencing other challenges with this equipment including decreased expertise of working with live front equipment and slowing manufacturing.
RAMP Incremental - Distributed Generation Interconnect	SDG&E-14-R AFC-50 to AFC-51 WP 132640	To facilitate the interconnection of customer or developer owned generation to SDG&E's electric distribution system. SDG&E's is mandated by Electric Rule 21 and the Wholesale Distribution Open Access Tariff (WDAT) to interconnection customer or developer owned generators.

WP Name	2019 GRC Testimony Location	WP Activity Description
Gateway Energy Storage	Emergent	Gateway Energy Storage is a 250MW battery storage facility proposed to be interconnected to the existing Otay Mesa Switchyard at 230kV bus.
Top Gun PTO Interconnection	Emergent	SDG&E, as the Participating Transmission Owner (PTO), is required to conduct certain substation upgrades by expanding the RGT substation to create an interconnection for the 30 MW Top Gun Battery Energy Storage System (BESS) facility.
Elect Transm Line Reliability Projects	SDG&E-14-R AFC-139 to AFC-140 WP 001000	This budget covers transmission projects under \$750K. The majority of the activities that fall under this blanket budget are necessary to comply with Federal, State, and Local regulations. Activities include poles that need to be replaced due to deterioration or calculated overloads, and capital repairs related to inspections (visual, infrared, LiDAR, etc.). To meet SDG&E's obligation to serve and the safety requirements promulgated by CPUC G.O 95, A.B. 1890, A.B. 1017, etc., this project provides funds for several purposes.
Electric Meters & Regulators	SDG&E-14-R AFC-54 to AFC-55 WP 002020	This budget provides funding to install distribution meters and regulators necessary to operate and maintain SDG&E's electric distribution system. An ongoing blanket project to purchase new watt-hour meters and regulators used to service the electric distribution customers. Required to maintain inventory levels at each of the electric distribution service centers.
RAMP Base - Cable Replacement	SDG&E-14-R AFC-81 to AFC-82 WP 002300	The project provided funding for the proactive replacement of underground cable that was identified to have a high probability of failure based on electric reliability circuit analysis and cable failure data. It is also required to provide quality customer service and reliability to existing customers by proactively replacing failed cable in the underground cable system. There is presently approximately 85 circuit miles ofunjacketed feeder cable and 1809 circuit miles ofunjacketed lateral cable remaining on the SDG&E electric distribution system.
RAMP Incremental - 4 kV Modernization	SDG&E-14-R AFC-84 to AFC-85 WP 062600	This blanket budget provides funding for distribution work to support the removal of 4kV substations. The 4kV system is a legacy system at SDG&E. Retaining 4kV substations would exacerbate existing safety, operation and maintenance issues. Half of the substations are over 50 years old, and replacement parts for those substations are no longer available. The operation of 4kV substations is of a safety concern because the company is facing a shortage of qualified crews and electricians who are familiar and knowledgeable of design and operation of those aging and obsolete substations. The maintenance cost is unusually high and continues to increase. The 4kV substations are also reliability risks for the customers because high failure rates and lack of replacement parts would cause more frequent and unnecessary extended outages.

WP Name	2019 GRC Testimony Location	WP Activity Description
Vault Restoration	SDG&E-14-R AFC-103 WP 162570	This budget provides funding for the replacement or repair of deteriorated customer owned vaults associated with SDG&E facilities. Each vault is inspected through our Corrective Maintenance Program (CMP), and based on the results of these detailed inspections, minor equipment repairs (e.g., lighting, fans) and/or major structural repairs are identified. Good engineering practices and CPUC General Orders dictate the replacement or repairs of these vaults be completed for employee, contractor, and public safety.
OIR Worst Circuits	SDG&E-14-R AFC-103 to AFC-104 WP 16258A	This budget provides funding to support projects and construction of projects that include modifications to, installation and/or replacement of equipment to improve Reliability on SDG&E's 1% worst circuits as identified in the CPUC Annual Reliability Report. This budget is a result of the CPUC's Order Instituting Rulemaking OIR R.14-12-014 – Electric Reliability Reporting, which addresses the top 1% worst circuits at the utility.
Avocado Sub 69KV Rebuild	Emergent	The Avocado Substation 69kV rebuild will consist of installing the two new bays of 69kV and transferring the reconducted transmission lines to new positions which will minimize outage requirements. The existing equipment will be replaced in kind and the control shelter will be relocated.
Substation Mod to Support FLSR	Emergent	This project is necessary to modernize substation equipment that will help provide safe, reliable, and quality customer service by enabling the deployment of Fault Locations, Isolation, and Restoration (FLISR) technology. With FLISR technology, fault location, fault isolation, and customer restoration on a distribution circuit occurs automatically without the intervention of a distribution system operator. This results in safely improving the distribution system reliability and PBR impacts of distribution circuits in substations.
Power Quality Program	Emergent	<p>This project provides funding for expansion to substation power quality monitoring system (PQ Nodes) and associated communication system.</p> <p>The substation PQ monitoring system provides benefits as follows: 1) Distribution system health information. System parameters including RMS voltage, voltage & current transient events, system harmonics (including spectra), real & reactive power flow, power factor, flicker and others. 2) Event logging and notification for events occurring on transmission, distribution and customer systems that are perceptible at the distribution substation. 3) Advanced analytics processes including incipient fault detection (fault anticipation), and advanced fault locating. 4) A data source with analytics for historical events and steady state trends 5) Data collected via the substation PQ monitoring system is regularly utilized by several groups within the company including C&I Services, Electric Transmission and Distribution Engineering and Planning.</p>

WP Name	2019 GRC Testimony Location	WP Activity Description
Transmission System Automation	Emergent	The blanket capital Transmission System Automation budget is primarily used to enhance system reliability by installing new transmission SCADA systems and replacing/upgrading existing transmission SCADA systems to provide control and monitoring capability for Grid Operations. This budget is also used to provide monitoring of certain critical substation apparatus and to provide for required security and data requirements. Projects are selected based on the need of Grid Ops and to meet the requirements of NERC and the Sempra Control System Security Policy.
High Risk Switch Replacement Project	Emergent	Replace high risk underground and/or overhead switches, in-line switches, and cutouts damaged from environmental contamination and corrosion. Replace with new improved betterment designs and/or dynamic protective devices. Project benefits include reduced risk of catastrophic switch failure.
SF6 Switch Replacement	SDG&E-14-R AFC-112 to AFC-114 WP 142490	The primary objective of this initiative is to reduce environmental risks associated with the potential for SF6 emissions. Sulfur hexafluoride is known to have a global warming potential of 23,900 times that of carbon dioxide, making its potential impact to global warming of interest. In an effort to reduce greenhouse gas emissions to 1990 levels, with a deadline to achieve by 2020, federal (EPA) & state (CARB) agencies have created respective regulations for utilities to adhere to. The SF6 emission rates are becoming more restrictive each year; 2018 = 3%, 2019 = 2%, and finally 2020 and beyond will be 1%. Both regulating agencies require utilities to track the “life” of a gas switch from “cradle-to-grave,” as well as gas cylinder inventory and gas transfers in and out of switches. Removal and replacement of SF6 switches in SDG&E’s distribution system will reduce the likelihood of SF6 emissions from leaking switches, thus reducing emission rates. The switch change-outs will also reduce the amount of recordkeeping required, therefore reducing errors and increasing accuracy. Other efforts at SDG&E are underway to reduce SF6 emissions risks, including leak detection and monitoring of substation gas circuit breakers.
Elect Integrity - RAMP (Non-WMP)	SDG&E-14-R AFC-117 to AFC-119 WP 162520	This workpaper represents a collection of projects as presented in SDG&E’s RAMP Report implementing safety risk reduction measures in the Electric Infrastructure Integrity (EII) risk area. Several programs addressing key infrastructure improvement projects across electric distribution, substation, and transmission may be implemented as part of this initiative to proactively address the potential for premature asset failure.
RTU Modernization - RAMP Incremental - SCADA Master Modernization	SDG&E-14-R AFC-119 to AFC-120 WP 152550	The project will resolve issues with the current SCADA system. This project will allow SDG&E to address current existing issues and move away from legacy communications protocol that is no longer supported. This project will also allow a more transparent view to our grid, which will enhance our reliability and security of the grid. The project will proactively modernize our SCADA Remote Terminal Units (RTU) and replace our old legacy equipment which is no longer supported.

WP Name	2019 GRC Testimony Location	WP Activity Description
Proactive Dead Front Terminator Deploy	Emergent	This project encompasses system-wide proactive deployments of dead front terminator devices (<i>e.g.</i> , UG 3517/3518) to improve reliability by increasing sectionalized capabilities on 600/200-amp distribution systems and reducing safety risks associated with existing live front terminator devices where applicable.
Adv Protect & SCADA Upgrade	SDG&E-14-R AFC-116 to AFC-117 WP 152590	The objectives of this project are to replace aging equipment, improve distribution reliability, and improve fire safety at the substations. Fire Threat Zone Advanced Protection project will install new circuit breakers and/or relays to allow for improved protection functions and event recording for faults, create a protection system that will allow for communication of field devices with substation relays, install 12kV Bus Differential relays to improve overall protection, and install Distribution SCADA system where appropriate.
Advanced Energy Storage	SDG&E-14-R AFC-129 to AFC-130 WP 112470	Advanced energy storage devices will help minimize impacts of intermittency and operational problems associated with the variable output of renewable energy resources. The solution will place distributed energy storage system on circuits with a high penetration of distributed energy resources (<i>e.g.</i> , customer photovoltaic systems). Mitigate intermittency and operational problems from renewable energy sources by installing energy storage on distribution circuits that have a high concentration of photovoltaic (PV) systems. Additionally, energy storage will provide benefits such as peak shaving and reactive power support. Energy Storage coupled with advanced inverter functionality allows for 4-quadrant operational support, thereby enabling Distributed Energy Resource (DER) implementation by way of Photovoltaic (PV) smoothing, voltage control and increased reliability. Energy Storage and renewable generation may not share the same point of common coupling when installed on a distribution circuit. Therefore, further installation and analysis is needed to determine the effectiveness of PV smoothing and voltage control when the generation and storage are decoupled.
Safety Enhancements for Battery	Emergent	This project is to install Emergency Stop Buttons at all Battery Energy Storage Systems (BESS) sites in the SDG&E service territory for first responders' emergency use.
TL663 Mission to Kearny Reconductor	SDG&E-14-R AFC-149 to AFC-150 WP 11126A	The workpaper provides a long term "wires" mitigation for the identified NERC CAT B reliability criteria indications. Availability of the short-term non-wires option of depending on the pre-contingency dispatch of the Kearny gas turbines to provide loading relief is no longer available after 2013. Additionally, SDG&E does not consider reliance on pre-contingency gas turbine dispatch as a suitable long-term solution for sustained NERC reliability criteria indications.

WP Name	2019 GRC Testimony Location	WP Activity Description
TL600 - Reliability Pole Replacements	Emergent	The purpose is to improve reliability of TL600 by replacing aging wood infrastructure that have been recommended for replacement. This project replaces 32 wood structures with a combination of wood and steel structures to correct clearance violations and structure overloads.
CNF - RAMP	SDG&E-14-R AFC-143 to AFC-144 WP 081650	The project establishes a Master Special Use Permit (MSUP) to replace over 70 expired permits in the Cleveland National Forest. The project will also enhance system reliability in Fire Threat Zone and the High-Risk Fire Area of the SDG&E service territory via wood-to-steel pole conversion and other fire hardening measures.
Fiber Optic For Relay Protect & Telecom	SDG&E-14-R AFC-142 to AFC-143 WP 071440	The project, when completed, will provide a self-healing network to carry multi-gigabit data on demand. Our microwave network will also be upgraded to or be replaced with a higher bandwidth (622 Mbps or higher) system, which is key to real-time applications. This project will create a solid backbone of Synchronous Optical Network (SONET), consisting of fiber optic and high-speed digital microwave network. Modern protection relays require high-speed, dependable, and secure communication for protection and control. Presently, SDG&E's existing communication infrastructure is inadequate for protection of transmission lines, compromising protection dependability and security. SDG&E is lagging behind the industry in providing the quality of communication necessary to meet the demands of today's protection equipment. This project will install Fiber Optic communication on all 138kV and above transmission lines in the next 3 years and convert major 69 kV system to fiber in 5 years for safe grid operation. It will reduce single-use telecom infrastructures. It will position SDG&E for future automation application, Condition Based Maintenance (CBM), Smart Meter (AMI) and Smart Grid.
Suncrest SVC Interconnection	Emergent	Engineering, procurement, and construction of 230kV bay addition at Suncrest Substation and overhead span to connect IC's Static Var Compensator at SDG&E 230kV Suncrest Substation.

B. SDG&E Electric Generation

i. SDG&E Electric Generation O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Electric Generation		33,490	42,156	(8,666)	-21%							
Generation - Plant - Admin	Non-RAMP	246	389	(143)	-37%	1.0	2.1	(1.1)	-52%	FTE	No	Yes
Generation Plant Miramar	Non-RAMP	2,172	2,587	(415)	-16%	15,198	24,863	(9,666)	-39%	Plant Equivalent Operating Hours	No	Yes
Generation Plant Miramar	Maintenance Certification and testing of existing Blackstart Resources	11	23	(11)	-49%	0.0	0.1	(0.1)	-100%	FTE	No	Yes
Sub-Total Generation Plant Miramar		2,183	2,609	(426)	-16%						No	
Generation Plant Palomar	Non-RAMP	15,303	20,234	(4,931)	-24%	26,713	25,427	1,286	5%	Plant Equivalent Operating Hours	Yes	No
Electric Project Development	Non-RAMP	1	135	(134)	-100%	0.0	0.7	(0.7)	-100%	FTE	No	Yes
Generation Plant Desert Star	Non-RAMP	13,820	16,712	(2,892)	-17%	20,093	17,985	2,108	12%	Plant Equivalent Operating Hours	No	No
Generation Plant Cuyamaca Peak	Non-RAMP	1,049	1,161	(111)	-10%	4,801	11,565	(6,764)	-58%	Plant Equivalent Operating Hours	No	Yes

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Generation Plant Cuyamaca Peak	Add Blackstart capabilities to the southern part of the SDG&E electric system.	7	23	(16)	-70%	0.1	0.1	-	0%	FTE	No	No
Sub-Total Generation Plant Cuyamaca Peak		1,056	1,183	(127)	-11%						No	
Resource Planning Director	Non-RAMP	880	894	(14)	-2%	4.3	5.0	(0.7)	-14%	FTE	No	No

ii. SDG&E Electric Generation O&M Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
Generation Plant Admin Non-RAMP	\$: No Units: Yes	Units: Number of FTEs. Under run in FTEs is due to Principal Business Analyst position in 2019 GRC labor forecast not filled in 2020.
Generation Plant Miramar Non-RAMP	\$: No Units: Yes	Units: Number of Plant Equivalent Operating Hours. Under run in equivalent operating hours is due to Miramar Plant dispatched less in 2020 causing lower number of starts and service hours compared to the 5-Year average.
Generation Plant Miramar MEF I and II Blackstart	\$: No	Units: Number of FTEs. Under run in FTEs for Miramar Blackstart facility is due to lower maintenance and testing and no certification performed in 2020.

WP Name	Variance Threshold Triggers	Variance Explanation
generators maintenance and testing, and certification programs	Units: Yes	
Generation Plant Palomar Non-RAMP	\$: Yes Units: No	Actual 2020 (\$000). Under-spend is mainly due to deferral of the annual outage scheduled in April 2020, rescheduled to April 2021 due to COVID-19 safety concerns for employees and contractors, and reduced availability of contractors and materials impacted by COVID-19. A reduced-scope outage (high-priority maintenance only) was performed in Q4 2020 to safely and reliably extend the operations of the Palomar plant until the April 2021 planned outage.
Electric Project Development Non-RAMP	\$: No Units: Yes	Units: Number of FTEs. Under-run in FTEs is due to Manager - Electric Project Development position in 2019 GRC labor forecast not filled in 2020. The organization has been eliminated and the function has been transferred to other departments.
Generation Plant Cuyamaca Peak Non-RAMP	\$: No Units: Yes	Units: Number of FTEs. Under-run in equivalent operating hours is due to Cuyamaca Plant dispatched less frequently in 2020, causing lower number of starts and service hours compared to 5-year average.

iii. SDG&E Electric Generation O&M Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Generation - Plant - Admin	SDG&E-16 DSB-22 WP 1EG001.000	Generation Plant Administration includes labor for (1) Director of Generation, labor for: (1) Principal Business Analyst, and associated administrative expenses. This activity provides managerial oversight, plant cost analysis and budgeting for all generating facilities.

WP Name	2019 GRC Testimony Location	WP Activity Description
Generation Plant Miramar	SDG&E-16 DSB-20 WP 1EG002.000	Generation Plant Miramar encompasses the operation and maintenance of (2) peaking plants at the Miramar Energy Facility. Labor costs include Supervision, Maintenance, Operations, and Engineering personnel. Non-labor costs include items such as industrial gases, water, and maintenance parts and activities.
Generation Plant Palomar	SDG&E-16 DSB-18 to DSB-19 WP 1EG003.000	Generation Plant Palomar encompasses the operation and maintenance of the Combined Cycle Generating Plant at Palomar Energy Center. Labor costs include Supervision, Maintenance, Operations and Engineering personnel. Non-labor costs include items such as industrial gases, chemicals, water, and maintenance parts and activities.
Electric Project Development	SDG&E-16 DSB-22 WP 1EG004.000	Electric Project Development includes labor for (1) Manager - Electric Project Development and associated administrative expenses. This activity provides project management and business planning for existing and planned electric projects.
Generation Plant Cuyamaca Peak	SDG&E-16 DSB-20 to DSB-21 WP 1EG007.000	Generation Plant Cuyamaca Peak encompasses the operation and maintenance of the Peaking Plant at the Cuyamaca Peak Energy Plant. Labor costs include Supervision, Maintenance, and Operational expenses. Non-labor costs include items such as industrial gases, demineralized water, and maintenance parts and activities.

iv. SDG&E Electric Generation Capital Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Electric Generation		18,521	15,463	3,058	20%							
Generation Capital Tools & Test Eqpt.	Non- RAMP	92	230	(138)	-60%	Acquisition of mechanical tools, plant test and analysis equipment (meters, cameras, volt detectors, videoscopes, other equipment). The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Miramar	Non-RAMP	6,080	3,182	2,898	91%	2020 Actual project spend that increased the overall reliability, operability and safety of the Miramar Plant including replacement of the high- and low-pressure turbines, combustor replacement, equipment control system installation, and various mechanical improvement projects. These projects are comparable to the type of projects reflected in the Imputed Authorized amounts; however, because these plants have a variety of capital activities, the units and the costs vary year over year.					No	No
Palomar Plan Operational Improvements	Non-RAMP	5,970	4,890	1,080	22%	2020 Actual project spend that increased the overall reliability, operability and safety of the Miramar Plant, including cooling tower fill upgrade, combustion turbine 1 exhaust frame upgrade, completion of equipment control system upgrade, and various mechanical and instrument control improvement projects. These projects are comparable to the type of projects reflected in the imputed authorized amounts; however, because these plants have a variety of capital activities, the units and the costs vary year over year.					No	No
Desert Star Energy Ctr Oper. Enhance	Non-RAMP	3,871	3,875	(3)	0%	2020 Actual project spend that increased the overall reliability, operability and safety of the Desert Star Plant including installation of the steam turbine warming blanket, replacement of combustion turbine 1 generator rotor, equipment control system installation, upgrade of the heat recovery steam generator blowdown tanks, high pressure boiler stop valve replacement, and various mechanical improvement projects. These projects are comparable to the type of projects reflected in the imputed authorized amounts; however, because these plants have a variety of capital activities, the units and the costs vary year over year.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Cuyamaca Peak Energy Plant Oper Enhance	Non-RAMP	982	393	589	150%	2020 Actual project spend that increased the overall reliability, operability and safety of the Cuyamaca Plant including equipment control system installation, and various mechanical and instrument control improvement projects. These projects are comparable to the type of projects reflected in the imputed authorized amounts; however, because these plants have a variety of capital activities, the units and the costs vary year over year.					No	No
Ramona Solar Plant Oper Enhance	Non-RAMP	118	0	118	100%	Capital projects that increase the overall reliability, operability and safety of the Ramona Solar Plant, including the landscaping upgrade project and mechanical and instrument control improvement projects. The Ramona Solar Plant Operational Enhancements are emergent work as this workpaper activity was not a workpaper in the 2019 GRC.					No	No
RAMP - Incremental Black Start - South Grid - CPEP	Add blackstart capabilities to the southern part of the SDG&E electric system	1,408	317	1,091	344%	Capital project to provide black start capability for the southern part of the SDG&E electric grid. Project activities included site preparation and permitting, and acquisition and installation of a small size gas generator for black start. The 2019 GRC Workpaper assumed the project would be completed in 2018 and was completed in 2020. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Solar Photovoltaic Initiative	Non-RAMP	0	2,577	(2,577)	-100%	<p>The capital project to construct a utility-owned 4.95 MWdc solar photovoltaic facility, developed under the CPUC Solar Energy program, was completed in 2017. The 2019 GRC Workpaper assumed the project would be completed in 2017 and was completed in 2017.</p> <p>This variance is not due to the Solar project being cancelled or deferred, but rather is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years, rather than a specific funding level by activity for each year.</p>					No	No

v. SDG&E Electric Generation Capital Variance Explanations

No variance explanation is required for this category because no variance met the selection criteria.

vi. SDG&E Electric Generation Capital Workpaper Descriptions and GRC Testimony Locations

No workpaper mapping is required for this category because no variance met the selection criteria.

C. SDG&E Electric Fuel and Procurement

i. SDG&E Electric Fuel and Procurement O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Electric & Fuel Procurement		7,525	9,597	(2,071)	-22%							
Long Term Procurement	Non-RAMP	1,996	2,452	(456)	-19%	13.0	15.0	(2)	-13%	FTE	No	No
Trading & Scheduling	Non-RAMP	1,544	3,276	(1,732)	-53%	12.0	20.0	(8)	-40%	FTE	No	Yes
Mid and Back Office	Non-RAMP	3,985	3,868	116	3%	20.5	25.0	(5)	-18%	FTE	No	No

ii. SDG&E Electric Fuel and Procurement O&M Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
Trading & Scheduling	\$: No Units: Yes	Units: Number of FTEs. The 40% variance in Trading & Scheduling FTEs is primarily due to 4 unfilled positions and 4 eliminated positions - Associate Energy Administrator, 2 Transaction Schedulers and Principal Energy Administrator. These positions were included in the 2020 Imputed Authorized Units. Unfilled positions were filled later in 2020 and early 2021.

iii. SDG&E Electric Fuel and Procurement O&M Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Trading & Scheduling	SDG&E - 12 KKH 7 to KKH 10 WP 1EP002.000	The Energy Supply & Dispatch ("ES&D") department optimizes SDG&E's generation and contracted resources within the California Independent System Operator ("CAISO") markets to serve bundled customers in a least-cost dispatch manner and consistent with Commission-approved procurement plans. In 2016, ES&D managed electric supply resources to meet a peak load of over 64,000 megawatt hours. To support these activities, ES&D personnel have advanced and specific CAISO market expertise and leverage several information management systems across functions, including Power Costs System Inc. ("PCI"), YES Energy, and Morningstar.

iv. **SDG&E Electric Fuel and Procurement Capital Variances**

The Electric Fuel and Procurement witness did not sponsor any capital costs in the TY 2019 GRC.

2. **SDG&E GAS**

A. **SDG&E Gas Distribution**

i. **SDG&E Gas Distribution O&M Variances**

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Gas Distribution		36,114	32,604	3,510	11%							
Field O&M - Other Services	Non-RAMP	472	224	248	111%	This consists of miscellaneous expenses associated with Gas Distribution field operations that are not captured in other workgroups. Activities include inspection and repairing of customer meters, house regulators and house lines, and providing patrolling and other support to Transmission facilities and pipelines.					No	No
Field O&M - Leak Survey	Non-RAMP	0	2	(2)	-93%	SDG&E considers all Leak Survey activities to be safety-related, i.e., RAMP related and therefore activities that otherwise would have been in this category are included in the RAMP classified Leak Survey activities. This activity is included in RAMP as all Leak Survey activities are RAMP related.					No	No
Field O&M - Leak Survey	Maintenance	2,075	1,823	252	14%	837	The number of inspections and surveys on an annual basis vary by type of pipe, pressure and location. As such, it is infeasible to calculate a single imputed unit.			Inspections and Surveys	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Field O&M - Leak Survey	Employee, Contractor, and Public Safety	256	225	31	14%	104	The number of inspections and surveys on an annual basis vary by type of pipe, pressure and location. As such, it is infeasible to calculate a single imputed unit.			Inspections and Surveys	No	No
Sub-Total Field O&M - Leak Survey		2,331	2,051	280	14%						No	
Field O&M - Locate & Mark	Non-RAMP	464	531	(67)	-13%	This activity includes the support and staff functions to coordinate the Locate and Mark activity. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Field O&M - Locate & Mark	Training Locate & Mark Activities Prevention and Improvements	7,877	3,431	4,446	130%	166,070	The variety of drivers that influence the number of tickets transmitted each year makes it infeasible to calculate a single imputed unit. The number of tickets transmitted is beyond the control of SDG&E.			Tickets Transmitted	Yes	No
Sub-Total Field O&M - Locate & Mark		8,341	3,962	4,379	111%						Yes	
Field O&M - Main Maintenance	Non-RAMP	2,298	2,409	(111)	-5%	2,545	The variety and scope of work for main maintenance (moving, lowering, raising mains, vaults, valve, and related structures) makes it infeasible to calculate a single imputed authorized unit.			Non-RAMP Orders	No	No
Field O&M - Main Maintenance	Safety Policies & Programs	1,568	1,387	181	13%	633	The variety and scope of work for main maintenance (investigating and repairing leaks) makes it infeasible to calculate a single imputed authorized unit.			Leaks repaired	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Sub-Total Field O&M - Main Maintenance		3,866	3,796	70	2%						No	
Field O&M - Service Maintenance	Non-RAMP	2,190	2,079	111	5%	2,387	The variety and scope of work for service maintenance (investigating and repairing leaks, moving, lowering, raising sections of distribution services) makes it infeasible to calculate a single imputed authorized unit.			Work orders	No	No
Field O&M - Tools Fittings & Materials	Non-RAMP	1,414	1,114	301	27%	Included in this category are materials used and expenses necessary for 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. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Field O&M - Electric Support	Non-RAMP	380	471	(90)	-19%	516	The variety and scope of work for electric support (Gas Crew and Street Repair support primarily their Corrective Maintenance Program, the QC Repairs and Inspection Program, the restoration of outage, and transformer change-outs) makes it infeasible to calculate a single imputed authorized unit.			Work orders	No	No
Field O&M - Supervision & Training	Non-RAMP	2,942	1,832	1,110	61%	The activities in this item include the supervision and management in the operating districts, training expenses of the employees in the districts, supplies, telephone expenses, mileage expenses, employee uniforms, etc. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Field O&M - Supervision & Training	Safety Policies & Programs	112	2,088	(1,976)	-95%	21	21	0	0%	Internal traffic control crews	Yes	No
Field O&M - Supervision & Training	Improvements	1,492	355	1,137	320%	658	The variety and scope of work for Field O&M - Supervision and Training-Improvements (Annual Environmental, Safety, Compliance Management Program/OpQual, welding school) make it infeasible to calculate a single imputed authorized unit.			Headcount Trained	Yes	No
Sub-Total Field O&M - Supervision & Training		4,546	4,275	271	6%						No	
Asset Management	Non-RAMP	1,269	1,893	(624)	-33%	These activities include overheads representing time spent by personnel to support the technical office associated with identifying construction design requirements. Examples of work includes evaluating pressure specifications, providing project drawings, and identifying material selection. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
Asset Management	Maintenance	0	193	(193)	-100%	0	This activity is outside of the control of SDG&E, which makes it infeasible to calculate a single imputed unit.			Conflict checks performed	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Asset Management	Operations	90	76	14	19%	144	This activity involves standards reviewed at different review cycles based on industry requirements, regulation changes, and equipment and tool technology changes. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.			Standards Reviewed	No	No
Asset Management	Coat or remove affected buried piping in vaults	200	241	(41)	-17%	29	The number of these projects is dependent upon discovery during mapping reviews. It is therefore infeasible to calculate a single imputed unit.			Projects Reviewed	No	No
Sub-Total Field O&M - Asset Management		1,559	2,403	(844)	-35%						Yes	
Measurement & Regulation	Non-RAMP	2,298	2,017	281	14%	2,052	The number of meter change-outs fluctuates on an annual basis. It is therefore infeasible to identify a single imputed authorized unit of measure.			Non-RAMP work orders related to Meter changes and Electronic Pressure Monitor (EPM) maintenance	No	No
Measurement & Regulation	Scheduled monitoring and survey activities	2,720	2,666	54	2%	5,434	The number of compliance components maintained fluctuates on an annual basis. It is therefore infeasible to identify a single imputed authorized unit of measure.			Compliance Components Maintained	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Sub-Total Field O&M - Measurement & Regulation		5,018	4,683	335	7%						No	
Cathodic Protection	Non-RAMP	0	879	(879)	-100%	These are cost for cathodic protection that have been rolled into RAMP, as the whole activity of maintaining the Cathodic Protection (CP) system on our pipes is RAMP.					Yes	No
Cathodic Protection	Requirements for Corrosion Control	2,093	1,670	423	25%	25,730	This activity is dependent upon an ever-changing number of Cathodic Protection (CP) stations and CP10s (10-year inspection cycle) and the regulatory requirements surrounding these stations regarding the frequency of reads. It is therefore infeasible to identify a single imputed authorized unit of measure.			CP reads	No	No
Sub-Total Field Cathodic Protection		2,093	2,549	(455)	-18%						No	
Operations Management & Training	Non-RAMP	1,923	2,926	(1,003)	-34%	The activities of this workpaper include expenses for leadership-based training of personnel in the Gas Technical Services, Gas Operations, and Gas Distribution groups. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
Operations Management & Training	Qualifications of Pipeline Personnel	746	720	26	4%	586	The continuous fluctuation in Gas Distribution workforce as a result of promotional positions to other departments in the company make it infeasible to identify a single imputed authorized unit of measure.			Students Operator Qualifications	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Operations Management & Training	Operations #1	95	100	(5)	-5%	3	The number of Locate & Mark (LM) tickets transmitted varies on an annual basis. It is therefore infeasible to identify a single imputed authorized unit of measure.			L&M Inspectors	No	No
Operations Management & Training	Operations #2	64	75	(11)	-15%	869	The number of new construction jobs varies on an annual basis. It is therefore infeasible to identify a single imputed authorized unit of measure.			New Construction Inspections	No	No
Operations Management & Training	Mandatory employee refresher training programs	724	887	(163)	-18%	658	The continuous fluctuation in Gas Distribution workforce as a result of promotional positions to other departments in the company make it infeasible to identify a single imputed authorized unit of measure.			Headcount Trained	No	No
Operations Management & Training	Customer Communications & First Responder training	351	290	61	21%	79	The variety of groups and challenges of scheduling sessions for Customer Communication and First Responder Training (First Responder gas-related training and contingency planning to include internal personnel) make it infeasible to identify a single imputed authorized unit of measure.			Training Sessions	No	No
Sub-Total Operations Management & Training		3,903	4,998	(1,095)	-22%						Yes	

ii. SDG&E Gas Distribution O&M Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
Field O&M - Locate & Mark Training Locate & Mark Activities Prevention and Improvements	\$: Yes Units: No	The cost increase variance is primarily attributed to the business model change in Gas Distribution, which shifted the Locate and Mark (LM) function away from the high use of external resources to 100% internal SDG&E resources along with growth in ticket volume. The transition was made to improve the quality and efficiency of the LM function through increased oversight, control and higher internal resource competency that ensures compliance with mandated California Government Code 4216 - Dig Alert requirements. The transitional period required the continued use of external resources while the on-boarding and training of internal resources took place, which increased the cost of this function during that time. Ticket volume increase was greater than 15k compared to 2019 (greater than 10% increase).
Field O&M - Supervision & Training Non-RAMP	\$: Yes Units: No	This cost increase variance was caused by additional training expenses resulting from the continued expansion and implementation of the Operator Qualification Program for Gas Operations, the training and on-boarding expense of Locate and Mark (LM) personnel required to meet the commitment of 100% internal LM function, and the training and onboarding of additional field personnel required to meet the increase of capital work approved in the TY 2019 GRC.
Field O&M - Supervision & Training Safety Policies & Programs	\$: Yes Units: No	The variance is due to the risk mitigation of traffic control being spread over the respective compliance O&M cost groups rather than collected here in one expense location.
Field O&M - Supervision & Training Improvements	\$: Yes Units: No	The cost increase variance is caused by the expense of the continuous on-boarding and training of Gas Operations personnel resulting from high employee turnover, where employees move to different positions within the company; and the increase was additionally attributed to the continuous expansion and implementation of the Operator Qualification Program for Gas Distribution.
Asset Management Non-RAMP	\$: Yes	This non-RAMP variance was a result of resources allocated in the Gas Geographic Information System & Services group from O&M to capital to align with the actual work performed.

WP Name	Variance Threshold Triggers	Variance Explanation
	Units: No	
Cathodic Protection Non-RAMP	\$: Yes Units: No	The Non-RAMP variance is caused by all Cathodic Protection (CP) activities and work being RAMP specific, thus CP resources were allocated accordingly.
Operations Management & Training Non-RAMP	\$: Yes Units: No	The variance is due to shifting year 2020 expense to the related Field O&M Supervision & Training Non-RAMP sub workpaper to support our Locate & Mark business model shift. [Refer to the Field O&M Supervision & Training Non-RAMP variance explanation]

iii. SDG&E Gas Distribution O&M Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Field O&M - Locate & Mark	SDG&E-04-R GOM-36 to GOM-39 WP 1GD000.002	<p>Locate and Mark is the process mandated by 49 CFR 192.614 (Damage Prevention Program) and the California One Call Law (Government Code section 4216), where the owner of underground facilities, when notified by the Underground Service Alert One-Call Center of a planned excavation, must respond within two working days and mark the location of those underground facilities that are in conflict with the planned excavations.</p> <p>This workpaper is in scope of the report because locate and mark activities, as described, are designed to mitigate damage by third party excavators that can interrupt gas service and pose a risk to public and employee safety.</p>
Field O&M - Supervision & Training	SDG&E-04-R GOM-47 to GOM-50 WP 1GD000.007	Supervision and Training includes employee field skills training, field supervision and management, and miscellaneous expenses related to SDG&E's gas operations. This category includes costs for activities designed to mitigate employee safety risks.

WP Name	2019 GRC Testimony Location	WP Activity Description
Asset Management	SDG&E-04-R GOM-57 to GOM-62 WP 1GD001.000	<p>Asset Management is the evaluation of the condition of the distribution system. This includes maintaining asset records, identifying corrective maintenance solutions, and coordinating with field personnel on completion and recording of O&M activities.</p> <p>This workpaper is in scope of the report because the maintenance of gas distribution system records is a critical risk mitigation measure designed to mitigate hazards to public and employee safety, infrastructure integrity, and to the reliable delivery of natural gas to SDG&E customers.</p>
Cathodic Protection	SDG&E-04-R GOM-53 to GOM-57 WP 1GD003.000	<p>Cathodic Protection (CP) is the inspection, evaluation, and monitoring of the CP system on SDG&E's steel distribution pipelines, remediation of CP areas that are found out of tolerance, and preventive measures to avoid areas out of tolerance to maintain and operate the system in accordance with state and federal regulations.</p> <p>This workpaper is in scope of the report because the maintenance of the CP system will minimize corrosion of steel pipelines and reduce the risk to the public from leakage of gas. CP is mandated by Federal code DOT 49 CFR 192 subpart I.</p>
Operations Management & Training	SDG&E-04-R GOM-62 to GOM-68 WP 1GD004.000	<p>Operations Management & Training includes leadership and operations support providing vision and guidance to the organization responsible for gas distribution, maintaining distribution construction standards; evaluating new field technologies, and assisting with field training and managing the Operator Qualification program.</p> <p>This category is in scope since it includes costs for leadership, training and qualification designed to mitigate employee and public safety risks through ensuring a qualified and safe workforce.</p>

iv. SDG&E Gas Distribution Capital Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Gas Distribution		90,284	65,154	25,130	39%							

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
New Business	Non-RAMP	6,417	8,073	(1,656)	-21%	1,843	The variety and scope of work for each new business (customer-driven gas service) project makes it infeasible to identify a single imputed authorized unit of measure. The number and timing of new pipeline projects is based on factors outside the control of SDG&E.			Projects	Yes	No
New Business - RAMP	Odorization of gas	-	49	(49)	-100%	-	The variety and scope of work for each new business (customer-driven gas service) project makes it infeasible to identify a single imputed authorized unit of measure. The number and timing of new pipeline projects is based on factors outside the control of SDG&E. This work is not separately tracked, but rather is charged directly to the project, where applicable.			Projects	No	No
Sub-Total New Business		6,417	8,122	(1,705)	-21%						Yes	
System Minor Additions, Relocations, & Retirements	Non-RAMP	5,303	4,327	977	23%	805	The variety and scope of work for each system addition, relocation, or retirement (customer-driven) project makes it infeasible to identify a single imputed authorized unit of measure. The number and timing of addition, relocation, or retirements are			Projects	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
							based on factors outside the control of SDG&E.					
System Minor Additions, Relocations, & Retirements - RAMP	Locate and Mark	4	305	(301)	-99%	805	The variety and scope of work for each system addition, relocation, or retirement (customer-driven tickets) project makes it infeasible to identify a single imputed authorized unit of measure. The number and timing of addition, relocation, or retirements are based on factors outside the control of SDG&E.			Tickets	No	No
Sub-Total System Minor Additions, Relocations, & Retirements		5,307	4,631	676	15%						No	
Meters and Regulator Materials	Non-RAMP	12,448	7,451	4,997	67%	93,337	This activity involves buying various quantities of four different types of meters and/or regulators. The costs and quantity of these different meters/regulators makes it infeasible to identify a single imputed authorized unit of measure.			Meters/regulators purchased	Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Pressure Betterment	Non-RAMP	264	1,973	(1,709)	-87%	1	This activity includes reinforcement and pressure betterment projects required to remedy low-pressure situations and/or improve reliability to large single feed areas that are usually initiated due to new loads being added to the system. The number and scope of projects is dependent on number, type, location, and timing of new loads, and these factors are outside of SDGE's control. The variety of work activities in this category makes it infeasible to identify a single imputed authorized unit of measurement.			Projects	Yes	No
Easements	Non-RAMP	-	43	(43)	-100%	-	This activity involves work required to perform necessary surveys and mapping functions, document research, document preparation, and negotiations for the acquisition of easements to allow the installation of gas distribution facilities on private property or public lands. There were no projects in 2020. The variety of work activities in this category makes it infeasible to identify a single imputed authorized unit of measurement.			Projects	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Franchise Relocations	Non-RAMP	4,132	8,173	(4,041)	-49%	29	This activity covers the relocation of existing gas distribution facilities when necessitated by public improvements as required by the company's franchise agreements to clear municipal or other improvements. The number and scope of projects are based on factors outside of SDG&E's control and the number of projects forecasted did not materialize. The variety of work activities in this category makes it infeasible to identify a single imputed authorized unit of measurement.			Projects	Yes	No
Tools and Equipment	Non-RAMP	6,279	1,927	4,352	226%	490	The need for tools and equipment is influenced by the age and condition of the tools, technology, ergonomics, and changes in company gas standards and procedures, which make it infeasible to identify a single imputed authorized unit of measure.			Tools	Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Tools and Equipment	Training props	115	589	(475)	-81%	49	This activity involves the construction of training props to simulate real-world scenarios as a means to qualify personnel. Because the number and type of props constructed depends on the scenarios being simulated and the quality of any existing props, it is infeasible to identify a single imputed authorized unit of measure.			Tools	No	No
Sub-Total Tools and Equipment		6,393	2,516	3,877	154%						Yes	
Code Compliance	Non-RAMP	2,587	1,201	1,386	115%	1,364	The variety and scope of work of each capital investment in this workpaper makes it infeasible to identify a single imputed authorized unit of measure. This workpaper encompasses isolation valve installation/replacement, K-reg removal, installation of barricades to protect Meter set assembly (MSA's) from vehicular traffic, and electronic pressure monitoring device installation and repair.			Projects	Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Replacements of Mains and Services - RAMP1	Early Vintage Steel Replacement	3,754	3,291	463	14%	10,560	The timing of individual projects is based on a number of factors including the need for review of operating conditions, detailed planning requirements, acquiring the necessary permits, and coordination and scheduling of resources. As such, it is infeasible to identify a single imputed authorized unit of measure.			Feet Replaced	No	No
Replacements of Mains and Services - RAMP2	Early Vintage Threaded Main Removal	1,663	3,304	(1,641)	-50%	1,759	The timing of individual projects is based on a number of factors including the need for review of operating conditions, detailed planning requirements, acquiring the necessary permits, and coordination and scheduling of resources. As such, it is infeasible to identify a single imputed authorized unit of measure.			Feet Replaced	Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Replacements of Mains and Services - RAMP3	Pipeline Observations (Standby)	0	9	(9)	-100%	-	The timing of individual projects is based on a number of factors including the need for review of operating conditions, detailed planning requirements, acquiring the necessary permits, and coordination and scheduling of resources. As such, it is infeasible to identify a single imputed authorized unit of measure. This work is not separately tracked, but rather is charged directly to the project, where applicable.			Projects	No	No
Replacements of Mains and Services - RAMP4	Leak Repair	9,500	1,170	8,331	712%	564	The timing of individual projects is based on a number of factors including customer or leak survey reporting of leaks, the need for review of operating conditions, detailed planning requirements, acquiring the necessary permits, and coordination and scheduling of resources. As such, it is infeasible to identify a single imputed authorized unit of measure.			Projects	Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Replacements of Mains and Services - RAMP5	EPOCH Planned Replacement of Pipe	1,040	1,505	(464)	-31%	3,696	The timing of individual projects is based on a number of factors including the need for review of operating conditions, detailed planning requirements, acquiring the necessary permits, and coordination and scheduling of resources. As such, it is infeasible to identify a single imputed authorized unit of measure.			Feet Replaced	No	No
Sub-Total Replacements of Mains and Services		15,958	9,278	6,680	72%						Yes	
Cathodic Protection	Non-RAMP	3,672	1,526	2,146	141%	39	The frequency of projects performed in this work category are driven by the age of the CP system, the health of surrounding CP stations, soil conditions, and effective resolution of failed CP stations. It is therefore infeasible to identify a single imputed authorized unit of measure.			Projects	Yes	No
Regulator Station Improvements and Other	Non-RAMP	1,032	393	638	162%	6	Units in this workpaper vary depending largely on the number and nature of remediations identified as well as planning, permitting, and scheduling requirements. It is therefore infeasible to identify a single imputed authorized unit of measure.			Projects	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Regulator Station Improvements and Other - RAMP1	Improvements	1,391	2,752	(1,361)	-49%	11	The variety and scope of work for removal of each dresser coupling project, along with crew availability and the process to acquire municipality permits, makes it infeasible to identify a single imputed authorized unit of measure.			Couplings removed	Yes	No
Regulator Station Improvements and Other - RAMP2	Improvements	193	3,246	(3,053)	-94%	3	The variety and scope of work for removal of each oil drip piping, along with crew availability and the process to acquire municipality permits, makes it infeasible to identify a single imputed authorized unit of measure.			Oil drips removed	Yes	No
Regulator Station Improvements and Other - RAMP3	Improvements	188	1,377	(1,188)	-86%	2	The variety and scope of work for removal of each pipeline buried in vaults, along with crew availability and the process to acquire municipality permits, makes it infeasible to identify a single imputed authorized unit of measure.			Buried vault pipes repaired or replaced	Yes	No
Regulator Station Improvements and Other - RAMP4	Improvements	448	604	(156)	-26%	4	The variety and scope of work for each removal of closed valve between High Pressure (HP) and Medium Pressure (MP) Pipeline projects, along with crew availability and the process to acquire municipality permits, makes it infeasible to identify a single imputed authorized unit of measure.			HP/MP valves removed.	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Sub-Total Regulator Station Improvements and Other		3,253	8,373	(5,120)	-61%						Yes	
GD Local Engineering Pool	Non-RAMP	16,516	1,474	15,042	1020%	This activity includes non-RAMP related work performed by both company employees and contracted personnel based on availability and skill sets required of each project's scope of work. The type of work includes project management, engineering, design, and drafting cost for both internal and external resources to support capital investment. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
GD Local Engineering Pool	Local Engineering overhead costs associated with large RAMP proposed projects	9,202	3,859	5,343	138%	This activity includes RAMP related work performed by both company employees and contracted personnel based on availability and skill sets required of each project's scope of work. The type of work includes project management, engineering, design, and drafting cost for both internal and external resources to support capital investment. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
GD Local Engineering Pool	Improvements to Cathodic Protection reliability	120	1,197	(1,078)	-90%	This activity is a region-specific program to perform a detailed cathodic protection evaluation to assess the health of the cathodic protection system. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
GD Local Engineering Pool	Safety policies and Programs	296	2,690	(2,394)	-89%	This activity is related to traffic control measures for capital projects. Activity is now being tracked within the specific projects rather than within this activity.					Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
GD Local Engineering Pool	Gas standards review	61	45	16	35%	60	This activity involves standards reviewed at different review cycles based on industry requirements, regulation changes, and equipment and tool technology changes. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.				No	No
GD Local Engineering Pool	Operational QA/QC	2,410	254	2,156	848%	This activity includes inspection of installed assets, welding/bonding procedures, material verification, gas standards and other construction activities of the capital investments performed above. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
Sub-Total GD Local Engineering Pool		28,604	9,519	19,085	201%						Yes	
Cathodic Protection System Enhancement	Non-RAMP	0	1,005	(1,005)	-100%	This activity involves proactively assessing the company's cathodic protection system to identify locations where an enhancement would improve the overall Cathodic Replacement (CP) system. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
Cathodic Protection System Enhancement - RAMP	Cathodic Protection	1,249	1,343	(95)	-7%	18	Cathodic Replacement (CP) System enhancements are a proactive approach to improve our CP system based on an internal company assessment of our system. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.			Projects	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Sub-Total Cathodic Protection System Enhancement		1,249	2,348	(1,099)	-47%						Yes	

v. SDG&E Gas Distribution Capital Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
New Business	\$: Yes Units: No	This activity involves installing new pipeline associated with providing gas service to new business. The number and timing of new pipeline projects is based on factors outside the control of SDG&E.
Meters and Regulator Materials	\$: Yes Units: No	This activity includes the purchase of new gas meters and regulators used in establishing service for new customers and for replacement of the equipment that has reached the end of its useful life. This higher than forecasted spend is due to SDG&E proactively initiating the purchase of an increased level of equipment in 2020 to ensure availability in 2020 and 2021 as a precaution to address potential manufacturing and delivery delays due to COVID-19.
Pressure Betterment	\$: Yes	This activity includes reinforcement and pressure betterment projects required to remedy low pressure situations and/or improve reliability to large single feed areas that are usually initiated due to new loads being added to the system. The number and scope of projects is dependent on number, type, location, and timing of new loads, and these are factors outside of

WP Name	Variance Threshold Triggers	Variance Explanation
	Units: No	SDG&E's control. This lower than forecasted spend was driven by 1 project planned for 2020 that has not yet been completed.
Franchise Relocations	\$: Yes Units: No	This activity covers the relocation of existing gas distribution facilities when necessitated by public improvements, as required by the company's franchise agreements to clear municipal or other improvements. The scope of projects is based on factors outside of SDG&E's control, and the number of projects anticipated did not materialize.
Tools and Equipment	\$: Yes Units: No	Variance was driven by the purchase of additional radios to replace outdated models used by Maintenance, Gas Regional Operations Construction Group, and additional crews for the Gas Emergency Department, as well as to completely outfit Pipeline Operations. This increased communication capability will enhance awareness of work being conducted across the individual gas groups, leading to improved safety and efficiencies.
Code Compliance	\$: Yes Units: No	The cost of compliance related activities was higher than forecasted due to an increase in capital investment to replace inoperable valves, barrier post installations and unforeseen costs incurred due to municipality requirements requiring increased street repaving and working hour restrictions, as well as start/stop delays due to COVID-19.
Replacements of Mains and Services - RAMP2	\$: Yes Units: No	COVID-19 conditions resulted in municipality permitting delays and internal and external crew availability due to quarantine requirements. In addition, internal resource constraints due to onboarding and training challenges led to the use of additional external resources resulting in 2020 construction delays.

WP Name	Variance Threshold Triggers	Variance Explanation
Replacements of Mains and Services - RAMP4	\$: Yes Units: No	The variance is due to an increase in leaks compared to the imputed authorized and an increase in cost per repair due to large scope repairs in conjunction with municipality constraints and requirements associated with permitting and paving.
Cathodic Protection	\$: Yes Units: No	The variance is due to installation of higher numbers of new and renewed cathodic protection (CP) stations to maintain compliance. In addition, there was an increase in cost per station associated with municipality constraints and enhanced design leading to higher construction costs.
Regulator Station Improvements and Other - RAMP1	\$: Yes Units: No	COVID-19 conditions resulted in long lead times for materials, municipality permitting delays, and crew availability. In addition, internal resource constraints due to onboarding and training challenges leading to the use of additional external resources which resulted in 2020 construction delays.
Regulator Station Improvements and Other - RAMP2	\$: Yes Units: No	COVID-19 conditions resulted in long lead times for materials, municipality permitting delays, and crew availability. In addition, internal resource constraints due to onboarding and training challenges leading to the use of additional external resources which resulted in 2020 construction delays.
Regulator Station Improvements and Other - RAMP3	\$: Yes Units: No	COVID-19 conditions resulted in long lead times for materials, municipality permitting delays, and crew availability. In addition, internal resource constraints due to onboarding and training challenges leading to the use of additional external resources which resulted in 2020 construction delays.

WP Name	Variance Threshold Triggers	Variance Explanation
GD Local Engineering Pool Non-RAMP	\$: Yes Units: No	This variance is due to higher than projected project management, engineering, design, and drafting cost for both internal and external resources to support capital investment. Additional municipality requirements and post-design changes contributed to additional costs and construction delays.
GD Local Engineering Pool with large RAMP Proposed Projects	\$: Yes Units: No	The variance is due to incremental requirements for Capital RAMP Supervision costs not requested in the 2019 GRC.
GD Local Engineering Pool Improvements to Cathodic Protection reliability	\$: Yes Units: No	The variance was due to the majority of work on the Cathodic Protection (CP) improvement project being deferred into 2021 to allow resources to focus on higher priority work activities, including capital RAMP project work and Gas Safe Handling Plans during 2020.
GD Local Engineering Pool Safety policies and Programs	\$: Yes Units: No	This variance is due to the risk mitigation of traffic control being spread over the respective Capital projects rather than collected in this workpaper.
GD Local Engineering Pool Operational QA/QC	\$: Yes Units: No	This activity involves the inspection and establishing material traceability to maintain code compliance associated with new construction projects. The variance is due to incremental requirements for Capital QA/QC costs not requested in the TY 2019 GRC.
Cathodic Protection System Enhancement	\$: Yes Units: No	The Cathodic Protection work is all considered to be RAMP-related, thus there are no dollars recorded to the non-RAMP line item. The variance for Cathodic Protection System Enhancement is due to the gas line project originally forecast for 2020 being placed on hold due to ongoing negotiations with the City of San Diego. No expected start date at this time.

vi. SDG&E Gas Distribution Capital Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
New Business	SDG&E-04-R GOM-71 to GOM-72 WP 005000	This budget code provides the necessary capital to extend mains and services consistent with Gas Rules 2, 15 and 16. These additions support service for residential, commercial and industrial customers, including identified single customers such as co-generation, Compressed Natural Gas (CNG), or concrete and asphalt plants where the gas distribution main must be extended.
Meters and Regulator Materials	SDG&E-04-R GOM-75 to GOM-77 WP 005020	This budget code provides for the capital material expenses for purchasing new residential, commercial, and industrial gas meters and pressure regulators. This category includes costs for activities, as described, designed to mitigate infrastructure integrity risks.
Pressure Betterment	SDG&E-04-R GOM-77 to GOM-79 WP 005030	Recorded in this budget code are expenditures for Gas Distribution pressure betterment projects performed on an on-going basis to maintain system reliability and service to all customers. Pressure betterment projects are performed in areas where there is insufficient capacity or pressure to meet load growth. This category includes costs for activities, as described, designed to mitigate system reliability risks.
Franchise Relocations	SDG&E-04-R GOM-79 to GOM-82 WP 005050	This project covers the relocation of existing gas distribution facilities when necessitated by public improvements as required by the company's franchise agreements to clear municipal or other improvements. Generally, the work involves a change in alignment and/or grade of existing gas pipelines and associated facilities driven by local and state agency requirements. Work may involve main replacement in a new location in lieu of lowering, raising or changing lateral position of the existing main due to municipal improvements such as street and highway, railroad, and water and sewer line construction. This project covers the relocation of existing gas distribution facilities in compliance with State Highway and Municipal Franchise Agreements. All pipeline work must be performed in compliance with CPUC GO 112-F.

WP Name	2019 GRC Testimony Location	WP Activity Description
Tools and Equipment	SDG&E-04-R GOM-82 to GOM-84 WP 005060	Funds in this budget code are used to acquire various tools and equipment used by gas crews, personnel in the field, construction operations, shop operations, and identical state-of-the-art tools used in training. Tools and equipment are replaced due to failure, age, advances in technology, and to improve employee safety and ergonomics. These tools and equipment are necessary to economically and safely install, operate and maintain the gas distribution system. Budget code 506 provides funds for new tools and equipment required by field personnel in order to safely and efficiently install, operate and maintain the gas distribution system, as well as maintenance of the Skills City inventory of training equipment.
Code Compliance	SDG&E-04-R GOM-84 to GOM-88 WP 005070	Four principle ongoing compliance issues involving the gas distribution system currently require funding under this budget code: 1. Labor for the Regulator Replacement Program for pre-1982 American Meter Type K-Regulators to be removed in compliance with 49 CFR § 192.197(b); 2. Labor and materials necessary for the installation of barricades to protect MSAs from vehicular traffic in compliance with 49 CFR § 192.353(a); 3. Labor and materials necessary for the installation of distribution system electronic pressure monitoring devices (EPM), in compliance with 49 CFR § 192.741(a)-(b); and 4. Installation of isolation valves necessary for the safe operation of the gas distribution system, in compliance with 49 CFR §192.181. Capital expenditures in budget code 507 are used to keep SDG&E's gas distribution system in compliance with State and Federal regulations for natural gas pipelines.
Replacements of Mains and Services - RAMP2	SDG&E-04-R GOM-88 to GOM-91 WP 005080	Funding in this budget code is required to address compliance requirements for the elimination of potentially hazardous conditions due to leaking or relatively poor performing gas pipelines. This budget code provides for the replacement of poor performing gas distribution system pipelines. This category includes costs for activities, as described, designed to mitigate infrastructure integrity risks.
Cathodic Protection	SDG&E-04-R GOM-91 to GOM-94 WP 005090	The Cathodic Protection budget code includes expenditures associated with the installation of new and replacement CP systems and equipment in accordance with state and federal pipeline corrosion control standards (49 C.F.R. § 192, Subpart I–Requirements for Corrosion Control and GO 112-F). This category includes costs for the installation of the CP assets that will minimize corrosion of steel pipelines and reduce the risk to the public from leakage of gas.

WP Name	2019 GRC Testimony Location	WP Activity Description
Regulator Station Improvements and Other	SDG&E-04-R GOM-94 to GOM-98 WP 005100	This budget code provides funding for small capital projects that improve safety, provide required code compliance, and improve gas system performance or reliability through the replacement of aging gas pipeline system operating equipment. This category includes costs for activities, as described, designed to mitigate infrastructure integrity risks.
Local Engineering Pool	SDG&E-04-R GOM-99 to GOM-102 WP 009020	The Local Engineering Pool work category provides the labor and non-labor funding for a broad range of services to support Gas Distribution field capital asset construction. This budget code represents the forecasted costs associated with the Gas Distribution Local Engineering Pool. The Local Engineering Pool is composed of three cost categories: technical planning, project management, and engineering activities.
Cathodic Protection (CP) System Enhancement	SDG&E-04-R GOM-91 to GOM-94 WP 125510	Budget code 125510 provides funds to enhance and improve SDG&E's CP system in addition to the cathodic protection work performed in budget code 005090. This budget code tracks projects specifically associated with creating dedicated high-pressure and medium-pressure distribution pipeline CP systems. This category includes costs for activities, as described, designed to mitigate infrastructure integrity risks.

B. SDG&E Gas Engineering

i. SDG&E Gas Engineering O&M Variances

The Gas Engineering witness did not sponsor any O&M costs in the TY 2019 GRC.

ii. SDG&E Gas Engineering Capital Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure Or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Gas Engineering		1,135	474	661	140%							

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure Or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
GT Land Rights	Non-RAMP	0	216	(216)	-100%	Gas Transmission Land Rights activities include acquisition of property rights that allow for the access, construction, operation and maintenance of pipeline infrastructure. The variety of work activities in this category makes it infeasible to identify a single unit of measurement. No land rights renewed or acquired in 2020 apply to this budget code.					No	No
GT Auxiliary Equipment (BC 419)	Non-RAMP	461	30	431	1444%	Gas Transmission Auxiliary Equipment activities include new installations or upgrades of aging M&R station and pipeline system control and telemetry systems which provide information to centralized Gas Control Supervisory Control and Data Acquisition (SCADA) computer system. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
GT Capital Tools	Non-RAMP	70	97	(27)	-28%	Gas Transmission Capital Tools activities include acquiring and replacing Capital Tools used on a daily basis by the operating employees. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
GT Auxiliary Equipment (BC 439)	Non-RAMP	0	11	(11)	-100%	Gas Transmission Auxiliary Equipment activities include new installations of aging M&R station and pipeline system control and telemetry systems which provide information to centralized Gas Control Supervisory Control and Data Acquisition (SCADA) computer system. The variety of work activities in this category makes it infeasible to identify a single unit of measurement. No new installations or upgrades of aging SDG&E M&R station and pipeline system control work completed in 2020 apply to this budget code.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure Or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
GT Supervision & Engineering Pool	Non-RAMP	604	120	484	402%	Local Gas Transmission Supervision & Engineering Overhead Pool captures expenditures on a direct basis that will be reassigned to various capital budget categories and include labor costs for planning, and engineering of capital gas infrastructure projects. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No

iii. SDG&E Gas Engineering Capital Variance Explanations

No variance explanation is required for this category because no variance met the selection criteria.

iv. SDG&E Gas Engineering Capital Workpaper Descriptions and GRC Testimony Locations

No workpaper mapping is required for this category because no variance met the selection criteria.

C. SDG&E Gas System Integrity

i. SDG&E Gas System Integrity O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Gas System Integrity		127	1,710	(1,584)	-93%							
Gas Contractor Controls	Safety Policies & Programs	0	142	(142)	-100%	0	2	(2)	-100%	FTEs	No	Yes

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Pipeline Safety & Compliance	Non-RAMP	81	118	(37)	-31%	1	1	(0)	-20%	FTEs	No	Yes
Damage Prevention and Public Awareness	Non-RAMP	0	109	(109)	-100%	No single unit is available for this workpaper due to multiple activities including mailers sent and the number of customers.					No	No
Damage Prevention and Public Awareness	Public Awareness	45	684	(638)	-93%	No single unit is available for this workpaper due to multiple activities including mailers sent and the number of customers.					Yes	No
Sub-Total Field O&M - Damage Prevention and Public Awareness		45	792	(747)	-94%						Yes	
Codes Standards and Records	Information Management Systems	0	658	(658)	-100%	No single unit is available for this workpaper due to multiple activities including records digitized and the number of enhancements.					Yes	No

ii. SDG&E Gas System Integrity O&M Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
Gas Contractor Controls	\$: No Units: Yes	Units: Number of FTE. Costs forecasted in this area were instead recorded to cost centers in Electric Distribution, so this activity is not considered cancelled or deferred.
Pipeline Safety & Compliance	\$: No	Units: Number of FTE. The variance is caused by delay in plan development due to difficulties in recruiting qualified personnel during COVID-19 pandemic.

WP Name	Variance Threshold Triggers	Variance Explanation
	Units: Yes	
Damage Prevention and Public Awareness - RAMP Public Awareness	\$: Yes Units: No	Lower than forecasted Public Awareness expenses due to the COVID-19 pandemic impacts such as in-person outreach and focus group cancellations and instead hosting lower cost virtual outreach events and also by leveraging outreach activities with other programs such as SB1371 and DIMP. The company still met federally mandated Public Awareness program requirements as prescribed in 49 CFR 192.616.
Codes Standards and Records	\$: Yes Units: No	Costs forecasted in this area were recorded to cost centers in the SoCalGas Records Management organization that manages records on behalf of both companies.

iii. SDG&E Gas System Integrity O&M Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Gas Contractor Controls	SDG&E-05 OR-13 to OR-17 WP 1SI000.000	Gas Contractor Controls collaborates with Company and industry leaders and subject matter experts to formulate and promote policy related to construction contractor safety and pipeline safety/quality oversight.
Pipeline Safety & Compliance	SDG&E-05 OR-17 to OR-19 WP 1SI002.000	The Pipeline Safety & Compliance department manages and coordinates SEU activities related to the General Order 112-F CPUC and DOT regulations. Provides counsel, guidance and information to Engineering & Operations and Field Services groups on pipeline safety issues relative to CPUC & DOT regulations. Specific activities associated with this work group include representing SDG&E in all interactions with the CPUC Utility Safety and Reliability Branch related to natural gas operations as well as providing direction and guidance to utility personnel to assure compliance with DOT/CPUC pipeline regulatory operations.
Damage Prevention and Public Awareness	SDG&E-05 OR-19 to OR-22 WP 1SI003.000	The Public Awareness program contributes to enhanced public safety by providing certain risk mitigation measures. The program includes activities to educate the public, appropriate government organizations, and persons engaged in excavation-related activities regarding: (1) use of the one-call notification system prior to excavation and other damage prevention activities; (2) possible hazards associated with unintended releases from a gas pipeline facility; (3) physical indications that such a release may have occurred; (4) steps that should be taken for public safety in the event of a gas pipeline release; and (5) procedures for reporting such an event.

WP Name	2019 GRC Testimony Location	WP Activity Description
Codes Standards and Records	SDG&E-05 OR-23 to OR-24 WP 2100-3563	Codes and Standards help SDG&E and SoCalGas meet their regulatory obligations and allow for information exchange to enhance public and employee safety. This Workpaper covers non-labor support needed to manage and provide consistency with respect to gas standards best practices and regulatory oversight.

iv. SDG&E Gas System Integrity Capital Variances

The Gas System Integrity witness did not sponsor any capital costs in the TY 2019 GRC.

D. SDG&E Gas Transmission

i. SDG&E Gas Transmission O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Gas Transmission		5,154	5,650	(496)	-9%							
Pipeline Operations	Non-RAMP	534	1,976	(1,442)	-73%	1032	1058	-26	-2%	Work orders	Yes	No
Pipeline Operations	Pipeline Patrol & Maintenance	709	22	687	3187%	1944	1731	213	12%	Compliance & preventative work orders	Yes	No
Pipeline Operations	Cathodic Protection	80	30	51	170%	472	402	70	17%	Compliance & follow- up reads	No	No
Pipeline Operations	M&R (Maint. & Insp.)	527	8	518	6312%	1336	1188	148	12%	Compliance & preventative work orders	Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Sub-Total Pipeline Operations		1,850	2,035	(186)	-9%						No	
Compression Station Operations	Non-RAMP	3,262	3,450	(188)	-5%	3076	3133	-57	-2%	Compliance & preventative work orders	No	No
Technical Services	Non-RAMP	2	8	(6)	-71%	0.02	0.07	(0.05)	-71%	FTE	No	Yes
Technical Services	Operator Qualification	0	120	(120)	-100%					FTE	No	No
Technical Services	Engineering, Supervision, Oversight & Review	40	36	4	12%	0.3	0.3	0.04	12%	FTE	No	No
Sub-Total Technical Services		43	164	(122)	-74%						No	

ii. SDG&E Gas Transmission O&M Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
Pipeline Operations - Non-RAMP	\$: Yes Units: No	The spending variance is due to the majority of activities under Pipeline Operations are RAMP activities. The Non-RAMP activities under this workpaper (i.e., 2GT000.000 - Pipeline Operations) were moved to identified RAMP activities under the same workpaper. The majority of Operation & Maintenance activities in Pipeline Operations in Gas Transmission are mitigations to address the risk of catastrophic high-pressure pipeline failure.
	\$: Yes	The original RAMP activity under this workpaper (i.e., 1GT000.000 - Pipeline Operations) was only for "Patrol Pipelines for leaks." However, the Gas Transmission Pipeline function within Gas Transmission

WP Name	Variance Threshold Triggers	Variance Explanation
Pipeline Operations - Pipeline Patrol & Maintenance	Units: No	Operations is responsible for the safe day-to-day operation and maintenance of gas transmission pipeline facilities and related infrastructure. This includes operating and maintaining equipment at pipeline receipt points, valve inspections, bridge & span inspections, right-of-way maintenance, and pipeline patrol activities.
Pipeline Operations - M&R (Maint. & Insp.)	\$: Yes Units: No	The original RAMP activity under this workpaper (i.e., 1GT000.000 - Pipeline Operations) was only for “Inspect Regulators to ensure overpressure protection in place and maintained.” However, the Gas Transmission Measurement & Instrumentation function within Gas Transmission Operations is responsible for the safe day-to-day operation and maintenance of gas transmission pipeline facilities and related infrastructure. This includes operating and maintaining equipment at pipeline receipt points, control valve station, major customer delivery custody-transfer points, and all associated monitoring, metering, and control facilities. Activities also include operating and maintaining odorization equipment, pressure limiting equipment, and real-time operating data telemetry communications between gas facilities and SoCalGas’ Gas Control Operations department.
Technical Services - Non-RAMP	\$: No Units: Yes	Units: Number of FTE. The variance is due to the FTEs in Technical Services primarily working on RAMP-related activities. The Non-RAMP activities were moved to identified RAMP activities under same workpaper. The majority of the activities within Technical Services are to address the risk of catastrophic high-pressure pipeline failure.

iii. SDG&E Gas Transmission O&M Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Pipeline Operations	SDG&E-06 EAM-8 to EAM-10 WP 1GT000.000	Gas Transmission Pipelines Operations is responsible for the safe day-to-day operation and maintenance of gas transmission pipeline facilities and related infrastructure. This includes, but is not limited to, leak surveys, valve inspections, cathodic protection systems, locate & mark, stand-by, and maintaining equipment at pipeline receipt points that includes odorization equipment and real-time operating data telemetry communication equipment.
Technical Services	SDG&E-06 EAM-13 WP 1GT002.000	The Technical Services function includes the activities of design and engineering, instrumentation, control, project support, and environmental services in support of the day-to-day operations and maintenance of the gas transmission system.

iv. SDG&E Gas Transmission Capital Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Gas Transmission		14,928	10,440	4,488	43%							
New Gas Transmission Pipeline	Non-RAMP	0	2,659	(2,659)	-100%	This activity is tracked by projects that are initiated due to costs associated with the installation and of new pipeline to provide increased resiliency, capacity and reliability. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
GT Relocation	Non-RAMP	0	1	(1)	-100%	This activity is tracked by projects that are initiated due to costs associated with the modification and relocation of transmission pipelines to accommodate planned private property development, municipal public works and street improvement projects, and other work required due to right-of-way agreements, contract and franchise requirements. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
GT Cathodic Protection	Requirements for corrosion control.	1,711	238	1,474	619%	This activity is tracked by projects that are initiated due to costs associated with the installation of cathodic protection equipment used to preserve transmission pipelines such as anodes, rectifiers, and cathodic protection stations. The variety of work activities in this category makes it infeasible to identify a single unit of measurement. The actual costs for this activity in 2020 are associated with 5 projects.					Yes	No
GT M&R Stations	Non-RAMP	3,390	555	2,836	511%	This activity is tracked by projects that are initiated due to costs associated with installing and rebuilding MSAs and pressure limiting stations. The variety of work activities in this category makes it infeasible to identify a single unit of measurement. The actual costs for this activity in 2020 are associated with 12 projects.					Yes	No
GT Replacements	Non-RAMP	1,626	0	1,626	100%	This activity is tracked by projects that are initiated due to costs associated with the replacement of pipelines due to the condition or hazardous conditions affecting the pipeline such as leaks, poor coating, erosion, etc. as well as changes to the class location of the pipeline. The variety of work activities in this category makes it infeasible to identify a single unit of measurement. The actual costs for this activity are associated with 19 projects.					Yes	No
GT Replacements	HCA Class Location Follow-up Mitigation	0	1,969	(1,969)	-100%	This activity is tracked by projects that are initiated due to costs associated with the High Consequence Area (HCA) class location mitigation risks. No new projects in 2020.					Yes	No
Sub-Total GT Replacements		1,626	1,969	(344)	-17%						No	

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Compressor Stations (BC 415)	Non-RAMP	2,818	1,975	843	43%	This activity is tracked by projects that are initiated due to costs associated with the replacement of compressor station equipment due to environmental regulations. The variety of work activities in this category makes it infeasible to identify a single unit of measurement. The actual costs for this activity in 2020 are associated with 22 projects.					No	No
Compressor Stations (BC 435)	Non-RAMP	2,753	3,043	(290)	-10%	5	5	0	0%		No	No
Moreno Modernization Project	Non-RAMP	2,629	0	2,629	100%	The Moreno Compressor Station Modernization project consists of a variety of activities such as: install two new compressor drive units, decommission four existing compressors, install auxiliary systems and infrastructure to support two new compressors, install two new backup electric generators. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No

v. SDG&E Gas Transmission Capital Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
New Gas Transmission Pipeline	\$: Yes Units: No	Less new customer service or increased capacity requests compared to the five year-average forecast methodology resulted in zero projects for new pipelines in 2020.

WP Name	Variance Threshold Triggers	Variance Explanation
GT Cathodic Protection - Requirements for corrosion control	\$: Yes Units: No	Higher than forecasted costs due to an emergent project. The emergent project was executed in conjunction with a concurrent wood to steel electric pole replacement project to provide the proper corrosion control to the pipeline. Refer to the Appendix - Emergent, Cancelled, and Deferred Project List.
GT M&R Stations	\$: Yes Units: No	Higher than forecasted costs due to an emergent renewable natural gas meter set, Rule 39 Bio-Sanco. Refer to the Appendix - Emergent, Cancelled, and Deferred Project List.
GT Replacements Non-RAMP	\$: Yes Units: No	Higher than forecasted costs due to emergent projects. These emergent projects were completed to mitigate erosion around the pipelines caused by heavy rains in 2019 and 2020. Refer to the Appendix - Emergent, Cancelled, and Deferred Project List.
GT Replacements RAMP - HCA Class Location Follow-up Mitigation	\$: Yes Units: No	Lower than forecasted customer development projects resulted in zero class location changes that would cause new class location projects to be initiated during 2020.
Moreno Modernization Project	\$: Yes Units: No	The overspend is due to funding for the Moreno Compressor Station Modernization (CSM) project not being requested in the test year 2019 GRC because the project was scheduled to be placed into service in a post-test year. The CPUC recognized in Decision (D.) 19-09-051 the importance of the proposed project and the role of compressor stations in maintaining operational reliability and safety of the gas transmission system. The CPUC found the planning of the Moreno CSM project to be prudent and reasonable. The costs incurred in 2020 are associated with project planning activities.

vi. SDG&E Gas Transmission Capital Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
New Gas Transmission Pipeline	SDG&E-07-R JGT-9 to JGT-10 WP 004010	New Construction Pipeline is required to provide the backbone and local natural gas transmission system with additional resiliency, capacity, and reliability in order to serve new or increased loads or to provide natural gas supply reinforcement to an existing area.
GT Cathodic Protection	SDG&E-07-R JGT-15 to JGT-16 WP 004160	Typical expenditures include the replacement of surface anode beds, deep well anodes and/or rectifier systems, installation of new cathodic protection stations, and applying cathodic protection to existing steel mains and service lines. Cathodic protection projects may also include the installation of new remote satellite communication technology which allows for more efficient operation and monitoring of the cathodic protection system.
GT M&R Stations	SDG&E-07-R JGT-16 to JGT-18 WP 004180	This Budget Code includes costs of installing and rebuilding large meter set assemblies (MSAs) for transmission-served customers and pressure limiting stations on the gas transmission system. These assets require replacement principally for three reasons: aging, change in use patterns and/or population encroachment, and enhancement of the transmission system to address gas quality and capacity issues. The capital work sustains reliable operation of critical transmission assets. This includes periodic replacement of local field measurement and control equipment
GT Replacements	SDG&E-07-R JGT-10 WP M04120	Occasionally natural gas transmission pipelines need to be replaced due to the condition of the pipeline or hazardous conditions affecting the existing pipeline location. Some pipeline sections need to be replaced due to erosion from agricultural activities or storm water runoff; more often, however, replacements are required due to a class location change, which is the re-classification of a pipeline segment from non-High Consequence Area to High Consequence Area (HCA) due to changes in population density in the vicinity of that pipeline segment. This category includes costs for activities, as described, designed to mitigate system reliability risks.
Moreno Modernization Project	SDG&E-07-R JGT-13 WP M04350	The purpose of the Moreno Compressor Replacement project is to replace aging, inefficient equipment with new equipment that will provide additional reliability while reducing emissions and lowering the overall operational cost of the facility. Currently, the Moreno station is operating with insufficient capacity to allow the station to move the design flow of 800 million standard cubic feet per day (MMSCFD) at 440 psig suction on a peak day, when any one of ten existing large compressors is out of service. This current situation poses an operation risk to SoCalGas and SDG&E's ability to meet tariff obligations and serve our customer base if any single large compressor is out of service for extended periods.

3. SDG&E OTHER

A. SDG&E Customer Services

i. SDG&E Customer Services O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Customer Services		66,391	75,218	(8,827)	-12%							
Customer Services Field		23,474	26,432	(2,958)	-11%							
Customer Services Field - Operations	Non-RAMP	9,900	12,367	(2,467)	-20%	159,725	257,593	(97,868)	-38%	Non-RAMP orders	No	Yes
Customer Services Field - Operations	CSF Emergency Orders - include carbon monoxide, fumigation and hazardous and non-hazardous gas leaks and atmospheric corrosion orders	5,290	5,105	185	4%	67,500	79,565	(12,065)	-15%	RAMP orders	No	No
Customer Services Field - Operations	Job Observation and Behavior	127	164	(37)	-23%	1,324	842	482	57%	Job Observations	No	Yes

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
	Based Safety.											
Customer Services Field - Operations	Workforce Planning Technical Training for Critical Roles - Service Technicians and Appliance Mechanics backfill for retirements	175	55	120	216%	6	2	4	200%	Incremental Headcount	No	Yes
Sub-Total Customer Services Field - Operations		15,492	17,691	(2,199)	-12%						No	
Customer Services Field – Supervision	Non-RAMP	1,289	1,585	(296)	-19%	12	12	0	0%	Field FTEs per Supervisor (span of control)	No	No
Customer Services Field - Dispatch	Non-RAMP	4,696	4,355	341	8%	38	41	(3)	-7%	Dispatcher FTE	No	No
Customer Services Field - Dispatch	Field observations of employee and contractors' activities and	1	1	0	0%	52	61	(9)	-15%	Job Observations	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
	safety behaviors											
Sub-Total Customer Services Field - Dispatch		4,697	4,356	342	8%						No	
Customer Services Field - Support	Non-RAMP	1,890	2,718	(828)	-30%	181	904	(723)	-80%	Job Inspections	No	Yes
Customer Services Field - Support	Field observations of employee and contractors' activities and safety behaviors	106	82	24	29%	1.0	0.9	0.1	11%	Behavior Based Safety (BBS) Instructor FTE	No	No
Sub-Total Customer Services Field - Support		1,996	2,800	(805)	-29%						No	
Customer Service Information & Technology		17,168	22,504	(5,336)	-24%							

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Marketing Research & Analytics	Non-RAMP	6,974	8,398	(1,424)	-17%	Marketing, Research, & Analytics 2020 activities included those described in testimony and workpapers such as: Developing strategic marketing plans, execution of communication tactics across various channels such as mass, direct, digital, and social, oversight and management of SDG&E's websites, conducting qualitative and quantitate research and analytics, and providing key services through mobile application development and management. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Marketing Research & Analytics	Safety Communications (Summer/ Winter Preparedness; Emergency Preparedness)	266	327	(61)	-19%	Marketing, Research & Analytics 2020 Safety Communication activities included those described in testimony and workpapers such as summer and winter season messaging pertaining to the importance of safety energy usage and changes that occur during the season. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Marketing Research & Analytics	Safety Communications (Wire Down)	3,796	6,671	(2,875)	-43%	1	1	0	0	Campaign	Yes	No
Sub-Total Marketing Research & Analytics		11,036	15,397	(4,360)	-28%						Yes	

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Customer Programs Pricing and Other Office	Non-RAMP	6,021	6,790	(769)	-11%	Customer Programs Pricing and Other Office 2020 activities included those described in testimony and workpapers such as: Program management, enrollment, and outreach for Medical Baseline, Neighbor to Neighbor, and Low-Income Energy Assistance Program (LIHEAP); Customer Solutions; Customer Pricing; Electric Rates, Rate Design & Strategy, Electric Load Analysis (Measurement & Evaluation studies), Electric Demand Forecasting. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Customer Programs Pricing and Other Office	Natural Gas Appliance Testing (NGAT) is a safety-related program for Customer Assistance's Energy Savings Assistance (ESA) Program participants.	111	317	(206)	-65%	2,838	7,391	(4,553)	-62%	NGATs (tests)	No	Yes
Sub-Total Customer Programs Pricing and Other Office		6,132	7,107	(975)	-14%						No	
Customer Service - Office Operations		25,748	26,281	(533)	-2%							
Advanced Metering Ops	Non-RAMP	8,586	9,150	(565)	-6%	44,673	38,676	5,997	16%	Orders	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Advanced Metering Ops	Job Observation and Behavior Based Safety.	147	41	106	258%	812	348	464	133%	Job Observations	No	Yes
Advanced Metering Ops	Workforce Planning	0	120	(120)	-100%	0	1	(1)	-100%	FTE	No	Yes
Sub-Total Advanced Metering Op		8,733	9,312	(579)	-6%						No	
Credit & Collec-tions	Non-RAMP	2,667	3,145	(478)	-15%	Credit and Collections 2020 activities included those described in testimony and workpapers such as: Credit Accounts, Credit Policy, Management reporting and analysis, management of collection agencies, skip tracing, delinquent bill collection, bankruptcy processing. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Credit & Collec-tions	Meter Tampering and meter bypass investigation and remediation.	298	265	33	13%	1,965	2,290	(325)	-14%	Investiga-tions/ Leads	No	No
Sub-Total Credit & Collections		2,965	3,410	(444)	-13%						No	
CCC Operations	Non-RAMP	10,279	9,980	299	3%	1,369,195	1,353,273	15,922	1%	Non-RAMP Call Volume	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
CCC Operations	Emergency calls taken by the Customer Contact Center including outage calls.	354	414	(60)	-14%	152,394	192,079	(39,685)	-21%	Emergency/outage calls	No	Yes
CCC Operations	Capture Customer Email Program to update customer contact information	133	185	(52)	-28%	938,615	1,091,916	(153,301)	-14%	Email solicitation/verification residential non-move calls	No	No
CCC Operations	ESS Emergency call training: 5 hrs. per ESS.	29	23	6	28%	0.4	0.4	0	0%	FTE	No	No
Sub-Total CCC Operations		10,795	10,601	194	2%						No	
CCC Support	Non-RAMP	3,255	2,959	296	10%	1,521,589	1,545,352	(23,763)	-2%	Call Volume	No	No

ii. SDG&E Customer Services O&M Variance Explanations

WP Name	Variance Threshold Triggers		Variance Explanation
Customer Services Field			
Customer Services Field - Operations Non-RAMP	\$: No Units: Yes		Units: Number of Non-RAMP orders. Lower than forecasted customer requested orders, multi-seasonal and change of accounts (customer moves), and less collection and non-payment shutoffs order due to credit moratorium. All of this attributable to COVID-19.
Customer Services Field - Operations Job Observation and Behavior Based Safety.	\$: No Units: Yes		Units: Number of Job Observations. Higher than forecasted job observations. This is primarily driven by the continual enhancement of safety engagement throughout SDG&E and in this case between supervision and field employees by broadening the focus of observations including safe driving and parking practices in addition to standard work practices and policies.
Customer Services Field - Operations Workforce Planning Technical Training for Critical Roles - Service Technicians and Appliance Mechanics backfill	\$: No Units: Yes		Units: Number of incremental head count. Higher than forecasted incremental headcount due to impending retirements and subsequent new employee training classes.
Customer Services Field - Support Non-RAMP	\$: No Units: Yes		Units: Number of Inspections. Lower than forecasted Quality Assurance Inspections due to the activity being suspended to address/eliminate health and safety exposures for employees and customers related to the COVID-19 pandemic starting in March 2020.
Customer Service Information & Technology			
Marketing Research & Analytics Safety Communications (Wire Down)	\$: Yes		Safety Communications (Wire Down) -The extraordinary financial impact of the COVID-19 pandemic and the unexpected duration of stay-at-home orders necessitated that SDG&E reprioritize our communications tactics and messaging to ensure timely, effective and relevant information was delivered to customers as early as possible. While messaging around safety topics such as storm preparedness and downed wire continued in low cost and no costs mediums such as digital and social media, the more large-scale paid media efforts focused on available resources for customers to help manage energy bills. Topics included utility bill assistance, California Alternate Rates for Energy (CARE), Federal Emergency Relief Administration (FERA), Low Income Energy Assistance Program (LIHEAP), conservation tips, rate plan

WP Name	Variance Threshold Triggers	Variance Explanation
Workforce Planning	Units: Yes	
CCC Operations Emergency calls taken by the Customer Contact Center including outage calls.	\$: No Units: Yes	Units: Number of Emergency & Outage Calls - Lower than forecasted emergency and outage calls due to improvements in outage notifications and more reliable emergency customer contact information.

iii. SDG&E Customer Services O&M Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Customer Services Field		
Customer Services Field - Operations	SDG&E-17-R GRM-B-9 to GRM-B-19 WP 1FC001.000	The CS-F Operations cost category consists of labor and non-labor expenses for field technicians to provide service at customer premises, including both customer- and company-generated work orders. Examples of customer-generated work orders include requests to establish/remove gas and electric service, light gas pilots, check gas appliances, shut off and restore gas service for fumigation, investigate the potential causes of high bills, respond to emergency incidents, investigate potential gas leaks, and other services. Examples of company-generated work include meter and regulator changes, and other meter work necessary to maintain company assets, and collecting customer payments for delinquent bills. Non-labor costs include items such as uniform expenses, small tools and miscellaneous supplies used on the job. This workpaper is in scope of the spending accountability report due to customer orders relative to public safety, job observations, behavior-based safety, and workforce planning and technical training related activities, as described, designed to mitigate safety risks.

WP Name	2019 GRC Testimony Location	WP Activity Description
Customer Services Field - Support	SDG&E-17-R GRM-B-9 to GRM-B-19 WP 1FC004.000	The CS-F Support cost category includes: (1) centralized training (classroom instructors and training manager located at SDG&E's skills training center); (2) field instructors who accompany new field employees immediately following their formal training; (3) QA inspectors and QA supervisor who inspect the work of technicians; (4) district operations clerks who are located at the field operating bases; (5) District Operations Managers who oversee the day to day operations of each field operating base; (6) a Meter Access group that resolves any difficulty field technicians might be experiencing in gaining safe access to meters at customer premises; (7) a safety group that fosters safe work practices among CS-F employees; and (8) field technology support personnel who maintain the field Mobile Data Terminals (MDTs), work management, routing and reporting systems used for CS-F operations. This workpaper is in scope of the spending accountability report due to job observations and behavior-based safety, as described, designed to mitigate safety risks.
Customer Service Information & Technology		
Marketing Research & Analytics	SDG&E-19 LCD-27 to LCD-44 WP 1IN003.000	The Marketing, Research, & Analytics (MRA) department is responsible for a wide variety of activities, which include developing strategic marketing plans, execution of communication tactics across various channels (such as mass, direct, social and digital), oversight and management of SDG&E's websites, conducting qualitative and quantitative customer research and analytics, supporting statewide collaboration regarding various marketing initiatives, and providing key services through mobile application development and management. This workpaper is in scope of the spending accountability report due to the wire down campaign safety messaging in customer communications and on the web.
Customer Programs, Pricing and Other Office	SDG&E-19 LCD-44 to LCD-49 WP 1IN004.000	Customer Programs, Pricing, and Other Office (CP&P) consists of the Vice President of Customer Services and three key groups: Customer Assistance Programs (CAP), Customer Solutions and Customer Pricing. These groups are collectively responsible for analytical, technical and policy support for development of value-added customer solutions as well as rate design, strategy, electric load analysis, and demand forecasting. This workpaper is in scope of the spending accountability report due to Natural Gas Appliance Testing (NGAT) conducted for Energy Savings Assistance (ESA) program participants as described, designed to mitigate safety risks.
Customer Service - Office Operations		
Advanced Metering Ops	SDG&E-18 JDS-9 to JDS-18 WP 1OO001.000	AMO supports the delivery of customer services on premises, responds to customer inquiries, resolves customer problems, and ensures safe, accurate, and reliable metering for all of SDG&E's 2.26 million electric meters, covering all of San Diego County and South Orange County. This workpaper is in scope of the spending accountability report due to job observations, behavior-based safety, and workforce planning related activities, as described, designed to mitigate safety risks.

WP Name	2019 GRC Testimony Location	WP Activity Description
CCC Operations	SDG&E-18 JDS-49 to JDS-56 WP 100006.000	The Customer Contact Center (CCC) expenses cover the costs of answering customer telephone calls; responding to incoming email from customers; responding to customer inquiries through on-line chat features; answering written customer correspondence regarding customer account activity; following up on all CPUC telephone referrals and informal and formal customer complaints; and responding to other customer account-related inquiries. This workpaper is in scope of the spending accountability report due to ESS emergency call training, emergency and outage calls handled by the CCC, and post filing mitigation program.

iv. SDG&E Customer Services Capital Variances

The Customer Services witnesses did not sponsor any Capital costs in the TY 2019 GRC.

B. SDG&E Information Technology & Cyber Security

i. SDG&E Information Technology & Cyber Security O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Information Technology & Cyber Security		86,856	94,739	(7,882)	-8%							
Information Technology		75,299	86,304	(11,005)	-13%							
IT Applications NSS	Non-RAMP	13,707	19,244	(5,537)	-29%	This workpaper encompasses software maintenance, managed services, and internal labor related to application support services. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
IT Infrastructure NSS	Non-RAMP	6,811	13,276	(6,465)	-49%	This workpaper encompasses Data Center / Infrastructure enhancements, incremental resources to support new functions / features implemented by capital projects, subscriptions, and other non-labor services. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
Telecom Field Voice - SDG&E	Non-RAMP	1,186	2,243	(1,057)	-47%	9	15	(6)	-40%	FTE	No	Yes
Enterprise Integration Services	Non-RAMP	1,299	1,813	(514)	-28%	10	14	(4)	-29%	FTE	No	Yes
SSDS Project Office	Non-RAMP	994	717	277	39%	8	5	3	60%	FTE	No	Yes
Software Dev - Work Meas Systems	Non-RAMP	757	357	401	112%	6	3	3	100%	FTE	No	Yes
Software Dev - Database Administrator	Non-RAMP	682	2,269	(1,588)	-70%	4	16	(12)	-75%	FTE	No	Yes
Network Communication Services Director	Non-RAMP	7,370	37	7,333	19842%	4	0	4	100%	FTE	Yes	Yes
Client Technology & Depot Services	Non-RAMP	1,592	1,815	(224)	-12%	9	11	(2)	-14%	FTE	No	No
Middleware and Internet Engineering	Non-RAMP	1,197	624	573	92%	8	5	3	60%	FTE	No	Yes
Infrastructure Eng & Ops Director	Non-RAMP	325	595	(271)	-45%	2	4	(2)	-50%	FTE	No	Yes

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Network/Telecom Services - SDG&E	Non-RAMP	8,710	6,522	2,189	34%	This workpaper includes multiple types of lines of services from voice to data as well as various third-party support services. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Enterprise Operations	Non-RAMP	(2)	2	(4)	-201%	0	1	(1)	-100%	Employee Cell Phone Charges	No	Yes
Server Management	Non-RAMP	1,091	974	117	12%	7	8	(1)	-13%	FTE	No	No
Infrastructure Program Office	Non-RAMP	16	404	(388)	-96%	0	2	(2)	-100%	FTE	No	Yes
IT Network Field - LAN/WAN Voice	Non-RAMP	0	1	(1)	-100%	0	0	0		FTE	No	No
Enterprise Command Center	Non-RAMP	2,138	2,289	(151)	-7%	8	17	(9)	-53%	FTE	No	Yes
Shared Software Development Contracts	Non-RAMP	6,337	6,856	(519)	-8%	This workpaper contains variable O&M software maintenance and renewal costs for multiple IT systems. The maintenance pertains to financial, enterprise, and field operation applications. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Project Improvement Office-NCS	Non-RAMP	0	237	(237)	-100%	0	2	(2)	-100%	FTE	No	Yes
Service Delivery - NCS	Non-RAMP	1,755	842	913	109%	4	7	(3)	-43%	FTE	No	Yes
Service Development Program Management	Non-RAMP	343	322	21	7%	3	3	0	0%	FTE	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Customer Analytics System	Non-RAMP	920	533	387	73%	3	2	1	50%	FTE	No	Yes
Field Force Program Delivery Team	Non-RAMP	897	60	836	1389%	4	0	4	1900%	FTE	No	Yes
SVP & CITO	Non-RAMP	609	471	138	29%	2	2	0	18%	FTE	No	No
Director IT Infrastructure	Non-RAMP	2,949	1,204	1,744	145%	This workpaper encompasses contracts, managed services, and internal labor related to Data Analytics. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Infrast Prgrm Office	Non-RAMP	645	831	(185)	-22%	5	5	0	0%	FTE	No	No
Client Services Maintenance & Support	Non-RAMP	0	2	(2)	-100%	0	1	(1)	-100%	Employee Cell Phone	No	Yes
Voice Leased Circuits	Non-RAMP	370	1,069	(699)	-65%	This workpaper includes multiple types of lines of services from voice to data as well as various third-party support services. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Managed Services Voice Enterprise	Non-RAMP	856	2,629	(1,772)	-67%	This workpaper includes third party support services to meet required service level agreements on system reliability such as operations support and maintenance of the Avaya Enterprise phone system and call recording software for customer call centers. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Voice Enterprise Support	Non-RAMP	175	551	(376)	-68%	1	3	(2)	-67%	FTE	No	Yes
Client Tech Services	Non-RAMP	0	74	(74)	-100%	0	1	(1)	-100%	FTE	No	Yes

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
IT Portfolio Management	Non-RAMP	1	316	(315)	-100%	0	2	(2)	-100%	FTE	No	Yes
BI & Analytics Engineering-SAS Contracts	Non-RAMP	5,183	5,284	(100)	-2%	This workpaper contains software and hardware maintenance costs across multiple contracts/and purchase orders. The cost basis for these systems varies – some are based on capacity, some on user count, some a fixed annual fee. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
IT & OTI Contracts SS	Non-RAMP	5,762	11,446	(5,684)	-50%	This workpaper contains O&M software and hardware maintenance costs across multiple contracts and purchase orders. The cost basis for these systems varies – some are based on capacity, some on user count, some a fixed annual fee. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
IT Telecom PMO	Non-RAMP	89	97	(8)	-8%	1	1	0	0%	FTE	No	No
DCAM Program	Non-RAMP	14	0	14	100%	0	0	0		FTE	No	No
IT Serv Contin Mgmt	Non-RAMP	51	0	51	100%	0	0	0		FTE	No	No
Infrastructure Portfolio	Non-RAMP	54	0	54	100%	0	0	0		FTE	No	No
SDG&E Network Engineering	Non-RAMP	416	301	115	38%	3	1	2	200%	FTE	No	Yes
Cyber Security		11,557	8,434	3,122	37%							
Security Policy and Awareness	Cyber security risk and vulnerability	1,485	1,049	436	42%	7	8	(1)	-13%	FTE	No	No
Director - Information Security	Cyber security risk and vulnerability	309	402	(93)	-23%	2	2	0	0%	FTE	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Security Engineering	Cyber security risk and vulnerability	2,612	1,573	1,039	66%	13	10	3	30%	FTE	No	Yes
Security Operations	Cyber security risk and vulnerability	3,243	1,927	1,317	68%	18	16	2	13%	FTE	No	No
Critical Infrastructure Protection	Cyber security risk and vulnerability	3,409	3,028	381	13%	This workpaper contains various O&M costs pertaining to cybersecurity systems maintenance and related pro services. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Critical Infrastructure Protection	Incremental maintenance costs associated with Grid Modernization capital projects	194	431	(237)	-55%	This workpaper contains various O&M costs pertaining to cybersecurity systems maintenance and related pro services. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Sub-Total Critical Infrastructure Protection		3,603	3,459	144	4%						No	
Information Security Programs	Cyber security risk and vulnerability	109	24	85	349%	1	0	1	100%	FTE	No	Yes
Identity & Access Management	Cyber security risk and vulnerability	195	0	195	100%	2	0	2	100%	FTE	No	Yes

ii. SDG&E Information Technology & Cyber Security O&M Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
Information Technology		
IT Applications NSS	\$: Yes Units: No	Negotiated significant reduction in O&M for legacy CIS system maintenance and enhancements due to pending system replacement. In addition, the CISCO Wellness initiative completed prior to 2020.
IT Infrastructure NSS	\$: Yes Units: No	Shifted work from O&M to infrastructure capital projects in response to significant infrastructure outage. In addition, Microsoft Office 365 costs were capitalized due to increased functionality.
Telecom Field Voice - SDG&E	\$: No Units: Yes	Units: Number of FTE. Internal resources were temporarily shifted to Business Units as part of a pilot program but subsequently returned. Resources were also charging more labor to Network capital projects undertaken to reduce technical debt.
Enterprise Integration Services	\$: No Units: Yes	Units: Number of FTE. Internal resources re-prioritized to support the CIS Replacement project
SSDS Project Office	\$: No Units: Yes	Units: Number of FTE. Existing FTEs moved due to an intra-department re-organization.
Software Development - Work Measurement Systems	\$: No Units: Yes	Units: Number of FTE. Existing FTE moved due to an intra-department re-organization. Additionally, there was a shift from capital to O&M support for Construction, Planning & Design (CPD) applications.
Software Development - Database Administrator	\$: No Units: Yes	Units: Number of FTE. Reduction in FTEs is driven by a shift from internal labor to external resources.
Network Communication Services Director	\$: Yes Units: Yes	Units: Number of FTE. Additional costs to operationalize and run a center of excellence around the scanning, analysis, validation, and remediation of open vulnerabilities, as well as increase compliance with Cybersecurity policies & procedures. In addition, implemented improved process and automation around IT Change management in order to reduce risk, decrease unplanned outages and downtime associated with IT related production changes. FTEs added to focus on design, build, implementation and management of system-wide network and telecommunications infrastructure.
Middleware and Internet Engineering	\$: No Units: Yes	Units: Number of FTE. Additional resources to manage new emergent Cloud Foundation initiative.
	\$: No	

WP Name	Variance Threshold Triggers		Variance Explanation
Infrastructure Engineering & Operations Director	Units:	Yes	Units: Number of FTE. Additional FTEs forecasted in director cost center were filled in other groups within the Utility and Financial Application Operation department.
Enterprise Operations	\$: Units:	No Yes	Units: Employee Cell Phones. This cost center is now retired, the trailing employee cell phone charges were cancelled.
Infrastructure Program Office	\$: Units:	No Yes	Units: Number of FTE. Due to the launch of the Data Center and Application Modernization (DCAM) program became the hub for Infrastructure Project Management work. Work outside of the DCAM program has restarted in late 2020.
Enterprise Command Center	\$: Units:	No Yes	Units: Number of FTE. Reduction in FTEs is driven by a shift from internal labor to external resources.
Project Improvement Office-NCS	\$: Units:	No Yes	Units: Number of FTE. This cost center is now retired, this function has been re-organized under the Enterprise Command Center workpaper.
Service Delivery - NCS	\$: Units:	No Yes	Units: Number of FTE. Reduction in FTEs is driven by a shift from internal labor to external resources.
Customer Analytics System	\$: Units:	No Yes	Units: Number of FTE. Additional FTE needed for architectural framework support.
Field Force Program Delivery Team	\$: Units:	No Yes	Units: Number of FTE. Additional FTEs due to de-centralization of the Portfolio Management office.
Client Services Maintenance & Support	\$: Units:	No Yes	Units: Number of Employee Cell Phones. This cost center is now retired, the trailing employee cell phone charges were cancelled.
Voice Enterprise Support	\$: Units:	No Yes	Units: Number of FTE. Resources were re-organized to Network Engineering workpaper from Voice Enterprise Support workpaper.
Client Tech Services	\$: Units:	No Yes	Units: Number of FTE. This cost center is now retired, the function continuing in the Service Delivery-NCS workpaper.
IT Portfolio Management	\$: Units:	No Yes	Units: Number of FTE. These 2 positions have been eliminated due to restructuring of the Portfolio Management Office.
IT & OTI Contracts SS	\$: Units:	Yes No	Lower than forecasted software and hardware costs resulting from successful contract negotiations and shift to IT capital project work.
	\$:	No	

WP Name	Variance Threshold Triggers	Variance Explanation
SDG&E Network Engineering	Units: Yes	Units: Number of FTE. Resources were re-organized to Network Engineering workpaper from Voice Enterprise Support workpaper.
Cyber Security		
Security Engineering	Units: Yes	Units: Number of FTE. Additional FTEs to support current Cybersecurity workforce needs. The Cybersecurity resources are working closely with our cloud Agile Development Methodology and application migrations, Industrial Control Systems to ensure cybersecurity risks are minimized.
Information Security Programs	Units: Yes	Units: Number of FTE. Current FTEs re-prioritized to higher O&M labor to meet business requirements for oversight of contracts and maintenance activities.
Identity & Access Management	Units: Yes	Units: Number of FTE. Additional resources added focusing primarily on the support of evolving needs of identity life-cycle management process improvements, access and governance enforcement, engineering of new processes, and increasing our solution migration for broader cloud adoption.

iii. SDG&E Information Technology & Cyber Security O&M Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Information Technology		
IT Applications NSS	SDG&E-24-R CRO-11 WP 1IT001.000	The Non-Shared SDG&E IT Applications costs represent labor and non-labor for systems where 100% of the activities directly support SDG&E. The types of systems supported in this area include customer field operations, work order management, smart meter data management, customer billing, service order routing, scheduling and dispatching, revenue cycle processing, and customer assistance and customer contact functions, including self-service capabilities via MyAccount.
IT Infrastructure NSS	SDG&E-24-R CRO-12 WP 1IT002.000	These Non-Shared SDG&E IT Infrastructure costs represent labor and non-labor for the infrastructure area where 100% of the activities are for SDG&E. These costs are typically related to providing service to SDG&E-only facilities (e.g., construction and operations districts, and customer contact centers) and include network engineering infrastructure support.

WP Name	2019 GRC Testimony Location	WP Activity Description
Telecom Field Voice - SDG&E	Emergent	This cost center is responsible for the installation and maintenance of telecom equipment including PBXs, microwave, data and mobile radio services across the SDG&E service territory, including Corporate Center (parent).
Enterprise Integration Services	SDG&E-24-R CRO-14 WP 2100-3073.000	This cost center is responsible for performance monitoring, tuning, problem resolution and software installation for the SAP environment. This cost center is also responsible for providing and securing access to all systems in the SAP environment.
SSDS Project Office	SDG&E-24-R CRO-14 WP 2100-3074.000	This cost center is responsible for architecture and design of new systems and major enhancements to existing systems in the Shared application services department. Business Units supported include SDG&E and SoCalGas.
Software Dev - Work Measurement Systems	SDG&E-24-R CRO-14 WP 2100-3088.000	This cost center represents support services for a broad range of client organizations, including: Gas Operations/Distribution, Construction, Generation and Environmental Services. The application services are based on several enterprise systems, including: SAP Plant Maintenance and Click Scheduling and Mobility. In addition, the legacy support services include Distribution Planning Scheduling System (DPSS).
Software Dev - Database Administrator	SDG&E-24-R CRO-14 WP 2100-3091.000	This cost center provides maintenance and enhancement support for system wide database administration.
Network Communication Services Director	SDG&E-24-R CRO-14 to CRO-15 WP 2100-3095.000	This cost center includes the Director of ITOTI and his administrative support. Activities include department level management for plan, design, build, implementation and management of system-wide network and telecommunications infrastructure.
Middleware and Internet Engineering	SDG&E-24-R CRO-14 to CRO-15 WP 2100-3100.000	Infrastructure engineering support for the following systems: email, Gateways, FTP, Enterprise System Management, middleware and Internet technologies such as directories and web and application servers that are used on a system-wide basis.
Infrastructure Eng & Ops Director	SDG&E-24-R CRO-14 WP 2100-3102.000	The director cost center manages the work activities and prioritization of the UOFAS department for project, operational and system support activities.

WP Name	2019 GRC Testimony Location	WP Activity Description
Enterprise Operations	SDG&E-24-R CRO-14 to CRO-15 WP 2100-3334.000	This Operations support group is responsible for providing 7/24 coverage and maintainability for distributive UNIX class servers at prime locations of Rancho Bernardo, Century Park, San Diego Headquarters, Monterrey Park, and Gas Company Tower. This group also has this same responsibility for remote locations, such as company bases and payment offices.
Infrastructure Program Office	SDG&E-24-R CRO-14 to CRO-15 WP 2100-3498.000	The Infrastructure PMO provides project management and development for IT Related Projects enterprise wide.
Enterprise Command Center	SDG&E-24-R CRO-14 to CRO-15 WP 2100-3502.000	The Enterprise command center organization provides 7/24 operation system-wide services to ensure network/telecom availability for all related business applications and services that are dependent upon voice, data, microwave, etc., category of communication services.
Project Improvement Office-NCS	Emergent	Preventive maintenance activities on network and telecom infrastructure (i.e., hardware, software, facilities, services). This cost center is responsible for the design and implementation of CI projects for Local Area and Wide Area networks and voice systems that link all company facilities.
Service Delivery - NCS	SDG&E-24-R CRO-14 to CRO-15 WP 2100-3684.000	Network and systems engineering, operations and maintenance activities to support the messaging and collaboration infrastructure, including E-mail, Instant Message, Conferencing and SharePoint services on a system-wide basis across Corporate Center, SDG&E, and SoCalGas.
Customer Analytics System	Emergent	This cost center provides leadership in establishing policies, strategies, and architectural framework that help guide technology adoptions and alignment with the overall business. It develops awareness and statements of direction for emerging technology opportunities to enable key business strategies and goals.
Field Force Program Delivery Team	Emergent	This cost center is a part of the Project Management Office (PMO) dedicated to the build of IT Assets. It specifically manages the programing and coding for the various capital application builds.
Clint Services Maintenance & Support	Emergent	This cost center performs system services on a system-wide basis across Corporate Center, SDG&E, and SoCalGas.

WP Name	2019 GRC Testimony Location	WP Activity Description
Voice Enterp Support	SDG&E-24-R CRO-14 to CRO-15 WP 2100-3885.000	This cost center supports the managed services of Enterprise Voice support costs, Customer Contact Centers Voice and Computer Telephony Integration support costs and the Enterprise and Customer Contact Centers call recording support costs.
Client Tech Svcs	SDG&E-24-R CRO-14 to CRO-15 WP 2100-3888.000	This cost center manages Client Technology Support and Solutions, SempraHelp & IT Service Management, and IT Communications system-wide.
IT Portfolio Management	SDG&E-24-R CRO-14 to CRO-15 WP 2100-3900.000	This cost center includes the PMO Director and her administrative support. The IT PMO & QA Director provides project management and development for IT Related Projects enterprise wide, as well as documentation for all business case and concepts. Also, project management for several SDG&E-funded projects.
IT&OTI Contracts SS	SDG&E-24-R CRO-14 to CRO-15 WP 2100-3921.000	This cost center will contain all Computing Infrastructure contract costs that are shared between SDG&E, SoCalGas, and the Parent. These contracts support system-wide resources and benefit the utilities and parent.
SDG&E Network Engineering	SDG&E-24-R CRO-14 to CRO-15 WP 2100-3975.000	Provides IT Network Engineering services, including preventive maintenance activities on network infrastructure (i.e., hardware, software, and facilities).
Cyber Security		
Security Engineering	SDG&E 25 GW-30 to GW-33 WP 2100-3774.000	The Security Engineering section provides enterprise-scale security functions and integration services for business, operational, and IT technology assets.
Information Security Programs	SDG&E 25 GW-25 to GW-27 WP 2100-3976.000	This cost center contains provides support for the Information Security portfolio of capital projects and maintenance contracts.
Identity & Access Management	Emergent	This cost center is responsible for expanding opportunities to improve the identity lifecycle with emphasis in onboarding, continuous end-user authentication improvements, new policy frameworks and standards for Identity & Access Management at the utilities, expanding governance initiatives for access enforcement, furthering our integration models for application and data synchronization, and alignment and support of strategic company initiatives.

iv. SDG&E Information Technology & Cyber Security Capital Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
IT & Cyber Security		113,242	73,350	39,892	54%							
Total Information Technology		103,568	70,206	33,362	48%							
IT - Enterprise - Application	Records Management	7,501	9,430	(1,929)	-20%	This workpaper for the Application - RAMP portfolio contains various projects within the following categories: 1. Work Management and Outage reporting modernizations 2. GIS applications, portals and mobile communications modernizations. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
IT - Enterprise - Application	Electric Infrastructure Integrity	9,393	0	9,393	100%	This workpaper for the Application - EII portfolio contains various projects that relate to the modernization of decision support for capital and O&M maintenance and replacement strategies. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
IT - Enterprise - Application	Non-RAMP	24,819	6,507	18,313	281%	This workpaper for the Application portfolio contains various projects within the following categories: 1. CAISO-mandated 2. Outage & Reliability reporting modernization 3. Fleet monitoring modernization 4. Scheduling & Dispatch modernization 5. Builder Customer portal modernization The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
Sub-Total IT Applications		41,714	15,936	25,777	162%						Yes	

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
IT - Enterprise - Network - RAMP	Records Management	0	2,931	(2,931)	-100%	This workpaper for the Network - RAMP portfolio contains various projects which relate to the modernization of the Smart Meter analytics platform that enables data processing, enhanced reporting and analytics capabilities. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
IT - Enterprise - Network	Non-RAMP	41,295	37,453	3,842	10%	This workpaper for the Network portfolio contains various projects within the following categories: 1. Field Area Network modernization 2. Wide Area Network modernization 3. Local Area Network modernization 4. Network communications and monitoring modernization 5. Network core modernization The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Sub-Total IT Network		41,295	40,384	911	2%						No	
IT - Enterprise – Infrastructure	Non-RAMP	15,748	5,501	10,246	186%	This workpaper for the Infrastructure portfolio contains various projects within the following categories: 1. Virtual Desktop Infrastructure modernization 2. Data Center modernization 3. Storage modernization and capacity enhancements 4. Mobile Data Terminal and Computing Devices replacements The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
Customer Services	Non-RAMP	4,812	8,384	(3,572)	-43%	This workpaper for the Customer Services portfolio contains various projects within the following categories: 1. Smart Meter modernizations 2. Customer Care Center modernization The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
IT - Enterprise - Cyber - RAMP	Cyber Security	9,675	3,144	6,530	208%	This workpaper for the Cyber portfolio contains various projects within the following categories: 1. Internal Defense 2. Perimeter Defense 3. Obsolete IT Systems 4. Operational Technology (OT) Cybersecurity The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No

v. SDG&E Information Technology & Cyber Security Capital Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
Information Technology		
IT - Enterprise - Application (Electric Infrastructure Integrity)	\$: Yes Units: No	Variance due to emergent needs to implement tools to provide decision support for capital and O&M maintenance and replacement strategies.
IT - Enterprise - Application (Non-RAMP)	\$: Yes Units: No	Variance due to emergent needs and new technology availability driving business value, such as machine learning models for object/damage detection, Application Vulnerability & Modernization and Data Foundation and Analytics Solution.
IT - Enterprise – Infrastructure (Non-RAMP)	\$: Yes Units: No	Response to significant infrastructure outage resulted in increased spend in the infrastructure portfolio.
Cyber Security		
IT - Enterprise - Cyber - RAMP	\$: Yes Units: No	Variance due to emergent needs to address Cloud Access Security Broker services.

vi. **SDG&E Information Technology & Cyber Security Capital Workpaper Descriptions and GRC Testimony Locations**

WP Name	2019 GRC Testimony Location	WP Activity Description
Information Technology		
IT - Enterprise - Application (Electric Infrastructure Integrity)	SDG&E-24-R CRO-16 to CRO-31	The Application - EII portfolio is mainly composed of projects that relate to the modernization of decision support for capital and O&M maintenance and replacement strategies.
IT - Enterprise - Application (Non-RAMP)	SDG&E-24-R CRO-16 to CRO-31	Applications support the development, implementation and maintenance of computer software utilized by customers, employees and/or vendor partners. The Application portfolio is mainly composed of projects within the following categories: 1. CAISO-mandated 2. Outage & Reliability reporting modernization 3. Fleet monitoring modernization 4. Scheduling & Dispatch modernization 5. Builder Customer portal modernization
IT - Enterprise – Infrastructure (Non-RAMP)	SDG&E-24-R CRO-16 to CRO-31	IT Infrastructure supports the design, implementation and operation of the company's computing infrastructure. The Infrastructure portfolio is mainly composed of projects within the following categories: 1. Virtual Desktop Infrastructure modernization 2. Data Center modernization 3. Storage modernization and capacity enhancements 4. Mobile Data Terminal and Computing Devices replacements
Cyber Security		

WP Name	2019 GRC Testimony Location	WP Activity Description
IT - Enterprise - Cyber - RAMP	SDG&E-25-R CRO-37 to CRO-53	The Cyber portfolio is composed of projects within the following categories: 1. Internal Defense 2. Perimeter Defense 3. Obsolete IT Systems 4. Operational Technology (OT) Cybersecurity

C. SDG&E Support Services

i. SDG&E Support Services O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Support Services		36,647	38,366	(1,719)	-4%							
Environmental		4,852	5,176	(324)	-6%							
Environmental SDG&E NSS Cost Center	Non- RAMP	4,852	5,176	(324)	-6%	24	28	(4)	-14%	FTE	No	No
Real Estate (RE) and Facilities		31,796	33,190	(1,395)	-4%							
SDG&E Facility Operations	Non- RAMP	6,179	5,269	911	17%	11	13	(2)	-15%	FTE	No	No
SDG&E Facility Operations	Physical Security	2,985	3,915	(930)	-24%	86	91	(5)	-5%	Security Guards	No	No
Sub-Total SDG&E Facility Operations		9,164	9,184	(19)	0%						No	
Land Services	Non- RAMP	1,280	761	519	68%	3	3	0	0%	FTE	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure	Spending Variance Explanation Required?	Unit Variance Explanation Required?
SDG&E Rents & Maintenance	Non-RAMP	17,539	17,976	(437)	-2%	31,000	28,400	2,600	9%	Sq	No	No
RE Planning	Non-RAMP	490	1,164	(674)	-58%	2	5	(3)	-60%	FTE	No	Yes
HQ Rent & Facilities Maintenance	Non-RAMP	1,201	2,435	(1,233)	-51%	4,200	7,800	(3,600)	-46%	Sq	No	Yes
Facilities & Capital Programs - Admin	Non-RAMP	105	142	(36)	-26%	1	1	0	0	FTE	No	No
RE Resources	Non-RAMP	322	539	(217)	-40%	1	2	(1)	-50%	FTE	No	Yes
Facilities Operations South Manager	Non-RAMP	574	539	35	7%	4	4	0	0%	FTE	No	No
RB Data Center	Non-RAMP	670	439	232	53%	12,000	7,100	4,900	69%	Sq	No	Yes
RE Planning-Mac	Non-RAMP	448	12	436	3519%	2	0	2	100%	FTE	No	Yes

ii. SDG&E Support Services O&M Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
Real Estate and Facilities		
RE Planning	\$: No Units: Yes	Units: FTE. The underrun in the unit variance for this workpaper is due to a reorganization that split this department into a second group associated with move management functions (RE Planning-MAC). 2 out of the 5 FTEs that were authorized in this workpaper have been reassigned to the RE Planning-MAC workpaper.
HQ Rent & Facilities Maintenance	\$: No Units: Yes	Units: Square Footage. The underrun in the unit variance for this workpaper is a result of less maintenance expenses due to a lower occupancy in the HQ building downtown.
RE Resources	\$: No Units: Yes	Units: FTE. The underrun in the unit variance for this workpaper is a result of a shifted focus to capital in order to develop the software system module for Building Information Management (BIM) Archibus platform to manage facility operations.
RB Data Center	\$: No Units: Yes	Units: Square Footage. The overrun in the unit variance for this workpaper is due to occupying additional space at the RB Data Center to accommodate additional hosting of applications, servers and equipment.
RE Planning-MAC	\$: No Units: Yes	Units: FTE. The overrun in the unit variance for this workpaper is due the reorganization of the RE Planning group. The authorized dollars and units for this workpaper were included in the authorized amounts of the RE Planning workpaper.

iii. SDG&E Support Services O&M Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Real Estate and Facilities		
RE Planning	SDG&E-22 RDT-23 to RDT-24 WP 2100-0706.000	The Real Estate Planning group provides space planning services for SDG&E and Corporate Center. Long-term facility space plans are developed with operating and support departments and alternatives are explored with respect to property acquisitions and facility expansions or upgrades.

WP Name	2019 GRC Testimony Location	WP Activity Description
HQ Rent & Facilities Maintenance	SDG&E-22 RDT-25 to RDT-26 WP 2100-0708.000	This cost center manages the building maintenance services for the Sempra HQ building.
RE Resources	SDG&E-22 RDT-24 to RDT-25 WP 2100-3303.000	Real Estate Resources supports the workplace technology tools that supports and manage all aspects of Corporate Real Estate including maintenance management, sustainability management, and space planning.
RB Data Center	SDG&E-22 RDT-20 to RDT-21 WP 2100-3610.000	This cost center represents the facility maintenance costs for the Rancho Bernardo Data Center and the Rancho Bernardo Annex which are occupied by a portion of SDG&E's IT staff.
RE Planning-MAC	SDG&E-22 RDT-23 to RDT-24 WP 2100-3977.000	This cost center contains the costs associated with coordinating employee moves involving furniture and equipment.

iv. SDG&E Support Services Capital Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required ?
Support Services - Real Estate, Land Services & Facilities		83,390	46,940	36,450	78%							

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required ?
Land Blanket	Non-RAMP	223	335	(112)	-33%	Units not available for this workpaper due to highly diverse project scope and the absence of like units that would be comparable year over year. This capital blanket includes funding for the installation of new landscaping or renovation of existing landscape and irrigation systems and other improvements on existing Company property and various Company property works (i.e., Substations, transmission line right-of-way) including but not limited to fencing, masonry screening or retaining walls, access gates, signs, grading, paving, drainage improvements, landscaping and landscape irrigation.					No	No
Structures and Improvements	Non-RAMP	12,893	4,415	8,478	192%	Units not available for these workpapers due to highly diverse project scope and the absence of like units that would be comparable over a multi-year period. This capital blanket funds building shell modifications, site improvements and other facility upgrades of a structural, civil or weatherproofing nature. These projects vary year to year based on need, but address the capital replacement or addition of basic, individual interior and exterior facilities construction components, including site lighting, fencing, gates, paving, roofing, canopies, training areas, windows and storage racking or sheds.					Yes	No
Environmental/Safety Blanket	Facility improvements necessary to comply with safety and environmental code or regulations and also to	3,783	1,530	2,253	147%	Units not available for this workpaper due to highly diverse project scope and the absence of like units that would be comparable year over year. This capital blanket funds the installation of concrete pads, hazardous waste storage and other requirements to mitigate environmental risks. Safety projects vary in nature but can include communication systems, fall protection, on-campus traffic improvements, canopies, or any other improvements to reduce employee risk.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required ?
	implement best practices towards mitigating risk to either the environment or safety of employees or the public.											
Environmental/Safety Blanket	Non-RAMP	506	161	345	215%	Units not available for this workpaper due to highly diverse project scope and the absence of like units that would be comparable year over year. This capital blanket funds improvements to meet stormwater management regulations. Stormwater compliance includes physical changes to the site including drainage control, curbs and berms, coverings to manage the flow of stormwater and other best management practices.					No	No
Sub-Total Environmental/Safety Blanket		4,289	1,691	2,598	154%						No	
Misc. Equipment Blanket	Non-RAMP	2,000	1,749	251	14%	Units not available for this workpaper due to highly diverse project scope and the absence of like units that would be comparable year over year. This capital blanket funds the purchase and installation of miscellaneous equipment that does not fall under the scope of any other capital project. Types of equipment included in this budget code are replacements of small equipment such as kitchen, audio-visual, specialized mechanical equipment used in the fleet garages (reels, jacks or					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required ?
						hoists, lab equipment for sampling of soils and wastewater, and the like.						
Security Systems	Physical Security Systems	4,246	4,069	178	4%	Units not available for this workpaper due to highly diverse project scope and the absence of like units that would be comparable year over year. This capital blanket funds projects that address the security of the company employees, operations, and assets. Common project types covered in this budget code are card readers, cameras, video recorders, physical barriers, and controlled automated gates and turnstiles.					No	No
Infrastructure & Reliability	Non-RAMP	11,627	5,708	5,919	104%	Units not available for this workpaper due to highly diverse project scope and the absence of like units that would be comparable year over year. This capital blanket funds the purchase and installation of items such as Chillers, Boilers, Air Handlers, HVAC Replacements, Generators, UPS systems, Electrical Distribution Systems and Computer Room Infrastructure.					Yes	No
Remodel/ Relocate/ Reconfig Blanket	Non-RAMP	27,478	16,503	10,975	67%	Units not available for these workpapers due to highly diverse project scope and the absence of like units that would be comparable over a multi-year period. The Remodel, Reconfigure, Relocation blanket budget funds tenant improvement construction, spatial remodels and associated workstation moves, and changes needed to provide adequate and efficient office space and work environments for employees.					Yes	No
Remodel/ Relocate/ Reconfig Blanket	Modernization of Grid Control Centers	0	3,345	(3,345)	-100%	Units not available for these workpapers due to highly diverse project scope and the absence of like units that would be comparable over a multi-year period. The scope of the project associated with this RAMP mitigation included the installation					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required ?
						of new video display systems, operator consoles, furniture and other accessories.						
Business Unit Expansion Blanket 2017 - 2019	Non-RAMP	19,303	7,862	11,441	146%	Units not available for these workpapers due to highly diverse project scope and the absence of like units that would be comparable over a multi-year period. The purpose of this blanket is to fund building and facility expansions and improvements that are necessary to adequately support growing corporate business objectives and initiatives. The projects under this blanket include master planning, expansion, relocation, building construction and facility consolidation projects at various company buildings/facilities.					Yes	No
Archibus Business Systems Improvements	Non-RAMP	1,331	1,264	68	5%	Units not available for this workpaper due to highly diverse nature of the system development that takes place over a multi-year period. Archibus is an integrated work management system used by Real Estate & Facilities employees to capture support requests and manage preventative maintenance for real estate assets and facilities.					No	No

v. SDG&E Support Services Capital Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
Real Estate and Facilities		
Structures and Improvements	\$: Yes	The \$8.5M spend over the 2020 authorized amount was driven by the re-prioritization of high priority reliability and safety projects. Aging facility infrastructure at SDG&E required a high number of

WP Name	Variance Threshold Triggers	Variance Explanation
	Units: No	projects which replaced the end-of-life and failing roofing (\$4.2M) plus concrete and asphalt paving (\$1.6M) at various company facilities. In addition to the replacement of aging infrastructure, approximately \$3.6M of storage expansion projects were reprioritized into 2020 to help meet the needs of SDG&E Operations and Logistics.
Infrastructure & Reliability	\$: Yes Units: No	The \$5.9M spend over the 2020 imputed authorized amount was driven by the re-prioritization of high priority infrastructure reliability projects such as HVAC, generator and chiller replacements (\$4.2M) as well as the timing of spend on the Rancho Bernardo Data Center Uninterruptable Power System (RBDC UPS) Expansion Project (\$1.7M).
Remodel/Relocate/Reconfig Blanket	\$: Yes Units: No	The increased spend over the authorized amount was driven primarily by the delay in the initiation of tenant improvement projects at the Century Park campus. Based on intervener testimony which recommended specific reductions in funding for the Century Park Building 4 & 5 tenant improvement projects, SDG&E did not have a high degree of certainty that funding for those projects would be approved by The Commission. SDG&E found it prudent to delay further tenant improvement projects at Century Park until the decision of the GRC which shifted \$15.6M of project costs from 2019 to 2020.
Business Unit Expansion Blanket 2017 - 2019	\$: Yes Units: No	The increased spend of \$11.4M over the 2020 authorized amount was driven by the deferral of projects caused by the analysis and resolution of the exit strategy for the vacating of Miramar Building B and its occupants. When comparing the cumulative 2019 and 2020 actual project spend against cumulative 2019 and 2020 imputed authorized spend, the variance was \$1.6M over the authorized amount.

vi. SDG&E Support Services Capital Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Real Estate and Facilities		
Structures and Improvements	SDG&E - 22 RDT-29 701A	This budget funds minor building modifications, upgrades and facility improvements to adequately support corporate business initiatives, to extend the life of the asset, or increase the functionality of a building or site. Small projects under \$1 million are bundled when possible for economies of scale in sourcing. These projects vary year to year based on need, but address the capital replacement or addition of basic, individual interior and exterior facilities construction components, including site lighting, fencing, gates, paving, roofing, flooring, windows and storage racking or sheds. Each year's requirements are prioritized to manage and protect the facility assets, keep the employees safe and optimize real estate

WP Name	2019 GRC Testimony Location	WP Activity Description
		value. Scope of work may include modernization projects and/or offer best alternatives for cost avoidance compared to other scenarios.
Infrastructure & Reliability	SDG&E – 22 RDT-33 708A	This capital blanket funds the purchase and installation of items such as Chillers, Boilers, Air Handlers, HVAC Replacements, Generators, UPS systems, Electrical Distribution Systems and Computer Room Infrastructure.
Remodel/Relocate/Reconfig Blanket	SDG&E - 22 RDT-34 709A	This budget funds tenant improvement construction, spatial remodels and associated workstation moves, and changes needed to provide adequate and efficient office space and work environments for employees. Requirements are based on business needs and functionality needed to meet business and resource objectives. Space standards and guidelines are used to manage space allocations and modifications effectively in reconfigurations. Ergonomics are considered in the upgrades to provide improved working conditions and safety for employees.
Business Unit Expansion Blanket 2017 - 2019	SDG&E - 22 RDT-41 710A	The purpose of this blanket is to fund building and facility expansions and improvements that adequately support corporate business objectives and initiatives. The projects identified include Master Planning, Expansion, Relocation and Facility Consolidation projects at various existing company buildings/facilities or those newly acquired or leased. These projects would satisfy current and future space requirements to appropriately house employees and provide expanded workspace and storage capacities to keep pace with company growth.

D. SDG&E Administrative & General

i. SDG&E Administrative & General O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure Or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Administrative & General		77,186	60,031	17,155	29%							
Accounting & Finance, Legal, Regulatory Affairs, External Affairs		849	816	33	4%							
Operations Cost Center -USS-Controllers-Business Controls	Non-RAMP	664	266	397	149%	3	3	0	0%	FTE	No	No
Operations Cost Center -USS-Controllers-Business Controls	Consulting expertise to improve records management program	185	549	(364)	-66%	Duties of the records management consultant will be of the following: 1. Complete comprehensive external review of current records management program 2. Address effectiveness of current records management program 3. Provide best practice suggestions for improvements The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Sub-Total Operations Cost Center -USS-Controllers-Business Controls		849	816	33	4%						No	
Compensation & Benefits		160	286	(127)	-44%							
Health Benefits - Emp Assistance Program	Non-RAMP	160	286	(127)	-44%	4,448	4,515	(67)	-1%	Ave Emp Count	No	No
Corporate Center - General Administration		72,487	51,534	20,954	41%							

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure Or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
SECC Outside Services Employees - F923.1	Non-RAMP	69,492	48,799	20,693	42%	The workpaper include the allocations from the following Corporate Center functions: Outside Legal, Cash/Finance Fees, Facilities, LTIP/SERP Executive Compensation, Finance, Legal, External Affairs, and Human Resources. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
SECC Outside Services Employees - F923.1	Records Management	106	106	0	0%	The workpaper include the allocations from the following functions: administration of and adherence to its record management policy and practices, resources to manage records, internal audits, and records storage and retention. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
SECC Outside Services Employees - F923.1	Workplace Violence/Corporate Security	1,763	1,325	438	33%	The workpaper include the allocations from the following functions: mitigation for Planning, Awareness, and Incident Management of Workplace Violence. These mitigation efforts are managed by Corporate Security. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
SECC Outside Services Employees - F923.1	Cybersecurity	1,126	1,304	(178)	-14%	The workpaper include the allocations from the following functions: defining the technology architecture required to support the technology strategy and govern the selection, deployment, and use of applications, infrastructure, and tools. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Sub-Total SECC Outside Services Employees - F923.1		72,487	51,534	20,954	41%						Yes	
Risk Management		3,690	7,395	(3,705)	-50%							

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure Or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Risk Management	Non-RAMP	589	4,233	(3,644)	-86%	1	1	0	0%	FTE	Yes	No
VP Enterprise Risk Management	Non-RAMP	409	473	(64)	-13%	2	2	0	0%	FTE	No	No
Operations Risk Management SDG&E	Non-RAMP	2,692	2,689	3	0%	1	1	0	0%	FTE	No	No

ii. SDG&E Administrative & General O&M Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
Corporate Center - General Administration		
SECC Outside Services Employees - F923.1	\$: Yes Units: No	This workpaper [SECC Outside Services Employed – F923.1] had a very small amount attributable to RAMP and/or safety-related activities. The RAMP activities themselves do not meet the variance criteria threshold. The vast majority of this workpaper included costs for Non-RAMP and/or non-safety-related items. The overall variance/overage in 2020 actuals is due to higher than forecasted costs allocated to SDG&E primarily due to disallowances of the LTIP and SERP programs, higher finance and bank fees incurred, net additional staffing/labor and non-labor costs, and an increase in outside legal services. Even though a portion of the requested funding for SDG&E's LTIP and SERP programs was disallowed in the TY 2019 GRC decision, the full forecasted amount was still incurred in 2020.
Risk Management		
Risk Management	\$: Yes Units: No	Lower than plan cost variance due to SoCalGas (SCG) GRC authorized costs included in this workpaper. The funding for this item was previously included in SDG&E's GRC as a shared service function. In 2020, SCG began separately tracking costs for this item.

iii. SDG&E Administrative & General O&M Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Corporate Center - General Administration		
SECC Outside Services Employees - F923.1	SDG&E-26-R MLD-10 to MLD-14 WP 1SE000.001	Corporate Center Shared Services Allocations - Outside Services Employed: Corporate center allocated costs include security services provided to protect corporate assets and employees, security systems, and the Corporate Security (CSS) department. The CSS department is responsible for the development and management of programs and policies for security systems, security investigations, workplace violence avoidance, as well as crisis and security risk management services. Corporate Center function is also actively involved in activities designed to mitigate the identified risk of workplace violence by supporting the planning and incident management investigation as well as programs designed to mitigate the risk event before it occurs. This includes training, investigation, employee awareness, new hire screening, employee assistance, and corporate security activities.
Risk Management		
Risk Management	SDG&E-02 GSF-3 to GSF-6 WP 2100-3590.000	This cost center has focused on the development of risk frameworks and tools. As SoCalGas and SDG&E expand the implementation of risk management practices, the Director of Operational Risk Management cost center will have primary responsibility to refresh the risk registries, apply new risk models to the risk identification, analysis, and evaluation processes, and support the implementation of operating unit registries.

iv. SDG&E Administrative & General Capital Variances

The Administrative & General witnesses did not sponsor any capital costs in the TY 2019 GRC.

E. SDG&E Human Resources

i. SDG&E Human Resources O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Human Resources Dept, Safety, LTD & WC		8,673	7,841	832	11%							
Safety, Wellness & Disability Services	Non-RAMP	694	0	694	100%	SDG&E's Safety department provides leadership, administration, and strategy for employee and contractor safety, health, and well-being programs. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Safety, Wellness & Disability Services	Safety Management System (SMS)	902	0	902	100%	SDG&E's SMS is a process-based, systematic, integrated, continuous improvement framework aimed to reduce risk, enhance the Company's safety culture, and take proactive actions to prevent safety incidents. The variety of work activities in this category makes it infeasible to identify a single unit of measurement. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Safety, Wellness & Disability Services	Contractor Safety Oversight	1,023	264	759	287%	The Contractor Safety Services (CSS) Department is dedicated to oversight of Contractors engaged with SDG&E. The CSS team is tasked with managing internal and external compliance with the SDG&E Contractor Safety Program. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Safety, Wellness & Disability Services	Safety Training, Workshops and campaigns	199	1,394	(1,195)	-86%	This workpaper includes activities such as workshops and campaigns covering Serious Injuries and Fatalities (SIF); Safety Congress; Smith Driving; Safety Barometer. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Safety, Wellness & Disability Services	AED Maintenance	26	44	(18)	-41%	This workpaper includes activities such as annual Automated External Defibrillator (AED) maintenance includes replacement pads, batteries, and additional AED's. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Safety, Wellness & Disability Services	OSHA Voluntary Protection Programs	0	55	(55)	-100%	This workpaper includes activities such as official OSHA recognition for achieving exemplary occupational safety and health competencies. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Safety, Wellness & Disability Services	VPP Application and Implementation	0	110	(110)	-100%	This workpaper includes activities such as onsite assessments to prepare for application and implementation. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Sub-Total Safety, Wellness & Disability Services		2,844	1,868	976	52%						No	
Organizational Effectiveness	Non-RAMP	1,839	1,970	(130)	-7%	This workpaper consist of activities such as SDG&E's Organizational Effectiveness (OE) department provides four key functions: Talent Management, Organizational Design, People Research, and Workforce Planning. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Organizational Effectiveness	Supervisor Effectiveness Training	0	110	(110)	-100%	This workpaper consist of activities such as enhancement of supervisor knowledge, leadership skills, safety awareness, and policy knowledge. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Organizational Effectiveness	Working Foreman Training and Human Performance	0	87	(87)	-100%	This workpaper consist of activities such as a program to enhance the leadership skills of approximately 200 Working Foremen and crew leads, and approximately 150 management personnel who oversee field operations. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Organizational Effectiveness	Workforce Planning Efforts / Supervisor Effectiveness Program	0	247	(247)	-100%	This workpaper consist of techniques and methods such as training, coaching, incident analysis, and behavior analysis to enhance safety preparedness and investigations. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Organizational Effectiveness	Training	15	0	15	100%	This workpaper consist of activities such as a respectful workplace summit for all peer team members and field leaders/supervisors providing content including Safety Meeting Presentations; Tailgate Leadership; Field Visits; and Supporting New Safety initiatives. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Sub-Total Organizational Effectiveness		1,854	2,414	(560)	-23%						No	
Offices of the President and COO	Non-RAMP	1,824	1,513	312	21%	This workpaper consist of activities such as providing leadership, guidance, and direction to employees to establish and direct the policies, goals, and objectives of SDG&E. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
SDG&E Field Safety	Safety Programs & Projects	1,038	1,065	(28)	-3%	This workpaper includes field safety activities such as incident investigation, defensive driving, ergonomics, job observations, and statistical analysis. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Safety Compliance	Safety Regulations, Policies, and Guidelines	1,016	659	356	54%	Safety Compliance leads and oversees various compliance programs such as: Hearing Conservation, Respirator, Wildfire Smoke, Air Quality, ARC Flash, FR Clothing, and Electric Magnetic Field (EMF). The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Employee Assistance Program (EAP) And Wellness Programs	Non-RAMP	97	322	(225)	-70%	This workpaper consist of managing and administering SDG&E's Emergency Assistance Program (EAP), Emergency Back-Up Care Program, and Wellness Programs & Activities. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No

ii. SDG&E Human Resources O&M Variance Explanations

No variance explanation is required for this category because no variance met the selection criteria.

iii. SDG&E Human Resources O&M Workpaper Descriptions and GRC Testimony Locations

No workpaper mapping is required for this category because no variance met the selection criteria.

iv. SDG&E Human Resources Capital Variances

The Human Resources witness did not sponsor any capital costs in the TY 2019 GRC.

4. SDG&E BALANCED PROGRAMS – DIMP, TIMP, TREE TRIMMING, ELECTRIC DISTRIBUTION OVERHEAD POOLS AND WILDFIRE MITIGATION

A. SDG&E Balanced Programs Direct O&M Costs

i. SDG&E Balanced Programs Direct O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Total TIMP & DIMP		9,792	12,069	(2,277)	-19%							
TIMP	Assessments of transmission pipelines in High Consequence Areas (49 CFR Part 192 Subpart O) to evaluate and remediate threats and minimize risk.	7,674	5,477	2,197	40%	4	1	3	300%	ILI	Yes	Yes
						3	9	-6	-67%	ECDA		Yes
DIMP	Programs in place to minimize integrity risks to distribution pipelines and minimize infrastructure damage.	2,118	6,591	(4,473)	-68%	This activity and the work completed in 2020 consists of work associated with managing and developing programs/projects and activities to address risk (PAARs); it includes risk analysis, data collection and management, database maintenance, and reporting. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Total ED Wildfire Mitigation Balanced Program		184,614	61,688	122,925	199%							
Wildfire Mitigation Program	Non-RAMP	76,204	444	75,760	17053%	There is no single number of like units that would be comparable year over year that can be identified because there are several activities such as Emergency Related Red Flag Warning (RFW)/Public Safety Power Shutoff (PSPS) incremental costs; Drone Assessment Program; Hotline Clamp Replacements; Programs to Mitigate of Impact on Customers During PSPS Events; Wildfire Resource Allocation Methodology, etc.					Yes	No
Wildfire Mitigation Program	Utility Asset Management - (WMP)	175	1,294	(1,119)	-86%	1	1	0	0%	Consultant contract	No	No
Wildfire Mitigation Program	Wildfire Communications	8,754	271	8,483	3131%	421,109,821	103,031,368	318,078,453	309%	Gross Impressions	Yes	Yes
Wildfire Mitigation Program	Fire Science & Climate Adaptation	6,216	4,313	1,903	44%	There is no single number of like units that would be comparable year over year that can be identified because there are several activities such as Weather Monitoring & Forecasting; Forecast of Fire Potential Index (FPI) or similar; Contracted Firefighting Resources; PSPS Situational Awareness dashboards; etc.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Wildfire Mitigation Program	UAS Safety Program	290	179	111	62%	1	1	0	0%	UAS Safety Management System	No	No
Wildfire Mitigation Program	System Hardening and Helo	13,717	11,828	1,890	16%	12	12	0	0%	Months of Helo availability	No	No
Wildfire Mitigation Program	Inspection and Preventative Maintenance	2,053	12,519	(10,466)	-84%	There is no single number of like units that would be comparable year over year that can be identified because there are several activities such as Pole Risk Mitigation & Engineering (PRiME); Detailed Inspections of Distribution Electric Lines & Equipment; Patrols of Distribution Lines & Equipment; HFTD Tier 3 Inspections; Infrared/Corona Inspections, etc.					Yes	No
Wildfire Mitigation Program	Meteorology Studies and Education	1,095	443	652	147%	1	1	0	0%	1 Climate vulnerability assessment	No	No
Wildfire Mitigation Program	Emergency Prep Trainings	2,467	999	1,468	147%	97	81	16	20%	Training sessions for first responders, incident respond, and EOC	No	Yes

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Wildfire Mitigation Program	Records Management	175	498	(323)	-65%	10	10	0	0%	10 records and information management certifications	No	No
Sub-Total Wildfire Mitigation Program		111,147	32,788	78,359	239%						Yes	
Vegetation Management (Pole Brushing)	Safety Policies & Programs	5,241	4,055	1,186	29%	34,994	54,706	(19,712)	-36%	Poles brushed	No	Yes
Vegetation Management (Pole Brushing)	Joint Power Line Inspections with CalFire	49	38	11	29%	0	0.3	0.0	0%	FTE	No	No
Sub-Total Vegetation Management (Pole Brushing)		5,290	4,093	1,197	29%						No	
Vegetation Management (Tree Trimming)	Programs to inspect and maintain trees in SDG&E's service territory that have the potential to encroach within the minimum required	68,177	24,808	43,369	175%	455,000	454,893	107.0	0%	Trees Inspected	Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
	compliance distance between vegetation and overhead power lines.											

ii. SDG&E Balanced Programs Direct O&M Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
TIMP & DIMP		
TIMP	<p>\$: Yes</p> <p>Units: Yes</p>	<p>TIMP complies with 49 CFR 192, Subpart O - Gas Transmission Pipeline Integrity Management and includes threat identification, risk analysis, pipeline assessments, remediation, and other actions that minimize threats and integrity concerns to reduce risk of pipeline failure. TIMP is balanced to the GRC authorized cycle and not on an individual year basis. The number of assessment projects varies year to year, primarily based on the timing and intervals of prior assessments and compliance dates. Furthermore, integrity assessments remain variable based on external factors and individual project costs will differ. The higher than forecasted expenditures in 2020 are also attributable to validation work for assessments that took place in 2019. 2020 units were not proposed in SDG&E's 2019 GRC, and for the purposes of the RSAR, SDG&E adopted 2019 authorized units for 2020 reporting. The units identified in this report are a component and not the entirety of activities and costs supporting TIMP. SDG&E's TIMP budget is authorized and balanced to GRC cycles rather than calendar years, and program activity may vary year to year due to compliance and operational considerations. Integrity management activities also remain variable based on assessment findings. Additionally, PHMSA allows the use of several multiple assessment methods to comply with 49 CFR Part 192, Subpart O and the selected method may vary depending on SDG&E's system knowledge, prior assessments, and findings. Units should be reviewed in aggregate rather than by assessment method.</p>
DIMP	<p>\$: Yes</p> <p>Units: No</p>	<p>DIMP complies with 49 CFR 192, Subpart P - Gas Distribution Pipeline Integrity Management and includes threat identification, risk assessment, and various programs to minimize threats and integrity concerns to reduce risk of pipeline incidents. DIMP is balanced to the GRC authorized cycle and not on an individual year basis. Additionally, program activity may vary year to year due to compliance and operational considerations and the program costs may vary based on inspection findings. As described in the 2019 GRC testimony, DIMP costs are driven by existing and new Programs/Projects and Activities Addressing Risks (PAARs). SDG&E continues to develop PAARs to address distribution integrity risks and integrity management activities and associated costs remain variable. This year's lower than forecasted expenses are attributable to the initial ramp up period of new PAAR-related work considered in the 2019 GRC; as the projects mature, costs are expected to stabilize.</p>

WP Name	Variance Threshold Triggers		Variance Explanation
ED Wildfire Mitigation Balanced Program			
Wildfire Mitigation Program Non-RAMP	\$: Yes Units: No	After SDG&E filed its 2019 GRC Application, Senate Bill 901 required electric corporations, including SDG&E, to annually submit Wildfire Mitigation Plans. There, SDG&E proposed additional wildfire mitigation activities beyond or incremental to those included in the GRC. SDG&E spent funds on these new incremental activities.	
Wildfire Mitigation Program Wildfire Communications	\$: Yes Units: Yes	Units: Number of Gross Impressions. Increased cost and unit variance due to significantly expanded Wildfire efforts, including PSPS communications and drone inspections.	
Wildfire Mitigation Program Inspection and Preventative Maintenance	\$: Yes Units: No	Decreased cost variance in line with 2019 actuals and due to lower than planned WMP O&M for PRiME & QA/QC costs.	
Wildfire Mitigation Program Emergency Prep Training	\$: No Units: Yes	Units: Number of Training sessions for first responders, incident respond, and Emergency Operations Center (EOC). Increased cost and unit pressures due to significantly expanded wildfire preparation and response efforts. The number of preparation and response efforts increased, and the dollars and units associated with each effort significantly increased.	
Vegetation Management (Pole Brushing) - Safety Policies & Programs	\$: No Units: Yes	Units: Number of Poles Brushed. Decreased unit variance is representative of the total poles brushed in 2020 vs. imputed actual units that can include multiple activities for the same pole (e.g., Notification = inspect pole, notify customer, & check for ability to apply chemicals; Chemical Application; Mechanical Clearing; Re-Clearing; and Chemical Warranty).	
Vegetation Management (Tree Trimming)	\$: Yes Units: No	Units: Number of Trees Inspected. Increased cost variance due to higher than planned contractor costs as a result of Senate Bill 247 increasing labor costs.	

iii. SDG&E Balanced Programs Direct O&M Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
TIMP & DIMP		
TIMP	SDG&E-11 MTM-9 to MTM-16 WP 1TD000.000	TIMP complies with 49 CFR 192, Subpart O—Gas Transmission Pipeline Integrity Management and includes activities such as threat identification and risk assessment, pipeline assessments, remediation, and other actions that minimize threats and integrity concerns to reduce risk of pipeline failure.
DIMP	SDG&E-11 MTM-16 to MTM-21 WP 1TD000.001	DIMP complies with 49 CFR 192, Subpart P— Gas Distribution Pipeline Integrity Management and identifies and reduces pipeline integrity risks for distribution pipelines, as required under the Pipeline Integrity, Protection, Enforcement and Safety Act of 2006.6.
ED Wildfire Mitigation Balanced Program		
Wildfire Mitigation Program	SDG&E-15-2R Table WS-2 (see SDG&E- 1 Wildfires Caused by SDG&E Equipment), WHS-6 to WHS-9, and WHS-13 WP 1ED000.000	This workpaper was created for purposes of this report to provide in a single workpaper for SDG&E’s wildfire-related prevention and mitigation O&M activities. While this was not presented in this manner in the 2019 GRC Application, it is consistent with the GRC activities that are now included in SDG&E’s subsequently filed Wildfire Mitigation Plans (<i>See</i> Rulemaking (R.) 18-10-007).
Vegetation Management (Pole Brushing)	SDG&E-15-2R WHS-66 to WHS-69 WP 1ED021.000	Pole brushing for SDG&E involves the clearing of flammable brush and vegetation away from SDG&E distribution poles subject to the California Public Resource Code (PRC), section 4292. PRC 4292 is intended to prevent energized electrical hardware from igniting a fire by keeping the area under the subject poles clear of flammable vegetation at all times.
Vegetation Management (Tree Trimming)	SDG&E-15 WHS-69 to WHS-72 WP 1ED021.000	SDG&E’s Vegetation Management program complies with CPUC GO 95, Rule 35; Public Resources 25 Code, sections 4292 and 4293; and NERC FAC-003 and is responsible for inspecting and maintaining an inventory of approximately 450,000 trees. The tree trimming work includes pruning healthy trees growing into overhead power lines as well as the pruning or removal of dead, dying, diseased, or structurally unsound trees with the potential to fall into overhead lines.

B. SDG&E Balanced Programs Direct Capital Costs

i. SDG&E Balanced Programs Direct Capital Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
TIMP & DIMP		45,629	27,368	18,261	67%							
TIMP	TIMP ILI/ECDA	3,818	8,236	(4,418)	-54%	This activity and work completed in 2020 consists of pipeline remediation work as a result of integrity assessment findings. The number and types of remediation are driven by each assessment. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
DIMP	DIMP DREAMS	41,811	19,133	22,678	119%	28	27	1	4%	Miles	Yes	No
IT WMP - Balanced		55,234	13,156	42,077	320%							
Customer Services	Stakeholder Cooperation & Community Engagement	5,224	0	5,224	100%	Development of a Public Safety Power Shutoff (PSPS) mobile application that provides timely and accurate information to consumers (customers and stakeholders) before, during and after PSPS events. This application is available in the iOS and Android app stores. Also in 2020, enhancement were completed to SDG&E EOC ENS interfaces to ensure reliable flow of operationally critical fire weather information. This information allows Pre-Event reporting, Real Time Communication Dashboards and Event Summary Reports. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
IT WMP - Balanced	Non-RAMP	36,343	13,156	23,187	176%	The workpaper contains several foundational components of the LTE network, including spectrum license acquisition, data center core implementation and field deployment. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
IT - Enterprise - Application	Grid Operations & Operating Protocols	789	0	789	100%	3,500	-	3,500	100%	User Licenses	No	Yes

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
IT - Enterprise - Application	Emergency Planning & Preparedness	1,748	0	1,748	100%	2,000	-	2,000	100%	User Licenses	No	Yes
IT - Enterprise - Application	Data Governance (BC 208750)	7,336	0	7,336	100%	8	-	8	100%	Analytical Models	Yes	Yes
IT - Enterprise - Application	Data Governance (BC 208890)	293	0	293	100%	15	-	15	100%	Enhancements	No	Yes
IT - Enterprise - Application	Data Governance (BC 208910)	2,585	0	2,585	100%	84	-	84	100%	Data Views for WMP Data Foundation	No	Yes
IT - Enterprise - Application	Situational Awareness & Forecasting	424	0	424	100%	1	-	1	100%	Analytical Dashboards	No	Yes
IT - Enterprise - Application	Inspection Repair Maintenance & Replacement Program	48	0	48	100%	63	-	63	100%	Application Users	No	Yes
IT - Enterprise - Application	Resource Allocation Methodology	444	0	444	100%	3	-	3	100%	Enhancements	No	Yes
Sub-Total IT - Enterprise - Application		13,667	0	13,667	100%							

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Facilities WMP - Balanced	Non-RAMP	635	670	(35)	-5%	Units not available for these workpapers due to highly diverse project scope and the absence of like units that would be comparable year over year. The CP 6 EOC Tenant Improvement Project reconfigured EOC space to include new employee work surfaces, update the layout and conference rooms and the installation of up-to-date audio-visual technologies. Work completed in 2020 included the completion of construction documents and the submittal of the construction permit with City of San Diego.					No	No
Electric Distribution Balanced Projects		464,269	201,851	262,418	130%							
RAMP Base - Annual Pole Reinforcement (WMP)	GO165: Distribution Inspect and Repair program	10,053	10,783	(730)	-7%	666	780	(114)	-15%	Poles Replaced	No	No
RAMP Base - Wireless Fault Indicators	Design and Engineering Approaches	837	1,726	(888)	-51%	502	500	2	0%	Wireless Fault Indicators	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Overhead System Hardening	System Hardening	139,673	54,759	84,913	155%	100	96	4	4%	Circuit Miles	Yes	No
Fire Threat Zone Adv Protect & SCADA Upgrade	Inspection Repair Maintenance & Replacement Programs	9,164	3,097	6,067	196%	13	1	12	1200%	Circuits and Substations Upgraded	Yes	Yes
HFTD Fuse Replacements	Non-RAMP	6,291	0	6,291	100%	3,179	-	3,179	100%	Fuses Replaced	Yes	Yes
PSPS Engineering Enhancements	Non-RAMP	5,072	0	5,072	100%	23	-	23	100%	Sectionalizing Devices	Yes	Yes
HFTD Undergrounding	Non-RAMP	38,896	0	38,896	100%	16	-	16	100%	Circuit Miles	Yes	Yes
Meteorology - Fire Science Enhancements	Non-RAMP	1,191	0	1,191	100%	47	-	47	100%	Registered Users	No	Yes

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Backup Power for Resiliency	Non-RAMP	3,608	0	3,608	100%	Purchased materials, land acquisition for Cameron Corners and Design & Engineering (Ramona & Cameron Corners). Additional land surveys and capacity load studies for all 4 microgrids. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
CNF - RAMP	System Hardening	84,044	12,384	71,660	579%	61	The variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year. The variety of work activities in this category makes it infeasible to identify a single imputed authorized unit of measurement.			Distribution Circuit Miles	Yes	No
TL649 Otay-San Ysidro-Border SW Pole Repl - RAMP Incremental	Inspection Repair Maintenance & Replacement Programs	1,279	0	1,279	100%	4	-	4	100%	Distribution Underbuild Circuit Miles	No	Yes

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
TL6916 Sycamore Canyon to Scripps Wood to Steel	Non-RAMP	68	50	18	35%	No 2020 units. 2020 actuals for design activities. The variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.				Distribution Underbuild Circuit Miles	No	No
TL691 Avo-Mon Wood to Steel - RAMP Incremental	Inspection Repair Maintenance & Replacement Programs	192	0	192	100%	No 2020 units. 2020 actuals for design activities. The variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.				Distribution Underbuild Circuit Miles	No	No
TL694 Wood To Steel	Non-RAMP	0	148	(148)	-100%	This is a deferred project and the variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.					No	No
TL695 Talega Wood to Steel - RAMP Incremental	Inspection Repair Maintenance & Replacement Programs	87	0	87	100%	No 2020 units. 2020 actuals for design and engineering activities.				Distribution Underbuild Circuit Miles	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
TL6912 Wood to Steel Pole Replacement - RAMP Incremental	Inspection Repair Maintenance & Replacement Programs	2,782	0	2,782	100%	5	-	5	100%	Distribution Underbuild Circuit Miles	No	Yes
TL698 Monserate - Avocado Wood to Steel	Non-RAMP	148	296	(148)	-50%	No 2020 units. 2020 actuals for design activities. The variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.				Distribution Underbuild Circuit Miles	No	No
TL6926 Rincon to Valley Center Fire Hardening	Inspection Repair Maintenance & Replacement Programs	78	0	78	100%	No 2020 units. 2020 actuals for design and engineering activities.				Distribution Underbuild Circuit Miles	No	No
TL690E – Camp Pendleton – Wood to Steel	Inspection Repair Maintenance & Replacement Programs	164	0	164	100%	No 2020 units. 2020 actuals for design and engineering activities.				Distribution Underbuild Circuit Miles	No	No
TL692 Horno Pulgas (Camp Pend)	Inspection Repair Maintenance & Replacement Programs	69	0	69	100%	No 2020 units. 2020 actuals for design and engineering activities.				Distribution Underbuild Circuit Miles	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
TL639 Wood to Steel Replacement	Inspection Repair Maintenance & Replacement Programs	37	0	37	100%	No 2020 units. 2020 actuals for design and engineering activities.				Distribution Underbuild Circuit Miles	No	No
TL636 Wood to Steel Replacement	Inspection Repair Maintenance & Replacement Programs	60	0	60	100%	Emergent project. FERC-driven project transmission loop-in with minor common/general plant allocations for CPUC components.				Distribution Underbuild Circuit Miles	No	No
TL13831 Wood to Steel Replacement (Talega - Rancho Mission Viejo)	Inspection Repair Maintenance & Replacement Programs	38	0	38	100%	No 2020 units. 2020 actuals for design and engineering activities.				Distribution Underbuild Circuit Miles	No	No
TL23001 TL23004 Wood to Steel Replacement (Mission - San Luis Rey)	Inspection Repair Maintenance & Replacement Programs	37	0	37	100%	Emergent project. FERC-driven project transmission loop-in with minor common/general plant allocations for CPUC components.				Distribution Underbuild Circuit Miles	No	No
Lightning Arrestor Replacement Program	Inspection Repair Maintenance & Replacement Programs	20	0	20	100%	No 2020 units. 2020 actuals for design and engineering activities.				Lightning Arrestors	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Aerial Mesh Network Expansion	Non-RAMP	185	0	185	100%	2	-	2	100%	Towers Completed	No	Yes
Drone Investigation Assessment and Repair	Inspection Repair Maintenance & Replacement Programs	15,899	0	15,899	100%	293	-	293	100%	Pole Replacements Completed	Yes	Yes
Aviation Firefighting Program	Grid Operations & Operating Protocols	7,092	0	7,092	100%	No 2020 units. 2020 charges reflect down payments. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
WMP Enhanced Comm 800MHZ Radio Systems	Emergency Planning & Preparedness	225	0	225	100%	54	-	54	100%	Radios	No	Yes
Elect Transmission Line Reliability Projects	Non-RAMP	838	914	(76)	-8%	34	37	(3)	-8%	Transmission Poles Replaced with Distribution Underbuild	No	No
Fiber Optic for Relay Protect & Telecom	Non-RAMP	4,304	317	3,987	1258%	10	1	9	900%	ADSS Miles	No	Yes

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Ramp Base - Install SCADA on Line Capacitors	Expand and Maintain Distribution Advanced SCADA infrastructure	1,032	2,881	(1,849)	-64%	30	30	0	0%	Capacitors	No	No
RAMP Base - Weather Station Adv Detection	Advanced Detection	1,032	536	496	92%	30	30	0	0%	Weather stations	No	No
Sub-Total WMP Projects (Balanced Costs)		334,493	87,890	246,603	281%							
Local Engineering Pool - Electric Distribution	Non-RAMP	96,009	80,633	15,376	19%	The Local Engineering – ED Pool consists of the pool of Planners, Designers and Engineers, and support personnel who research, analyze, and design the facilities needed to serve customers. These persons address the engineering needs for new services, facilities relocations, overhead-to-underground conversions, capacity, and reliability projects. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
Local Engineering Pool - ED RAMP	Works Standards and Methods	969	814	155	19%	Work Standards and Methods Portion of the Local Engineering Pool. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Sub-Total Local Engineering Pool – Electric Distribution		96,978	81,447	15,531	19%						Yes	

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Local Engineering Pool - Substation	Non-RAMP	3,621	22,864	(19,243)	-84%	The Local Engineering – Substation Pool consists of the pool of planners, designers and engineers and support personnel who research, analyze, and design the facilities needed to serve customers. These persons address the engineering needs for substation projects. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
Department Overhead Pool	Non-RAMP	10,390	5,431	4,959	91%	Department Overheads are those costs for supervision and administration of crews in the SDG&E Construction and Operation (C&O) districts. Department Overhead is charged for expenses that are not attributable to one particular project but benefit many projects, or the Construction and Operation (C&O) districts as a whole. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Contract Admin Pool - RAMP Base	Administration of Projects performed by Contractors	18,787	4,218	14,569	345%	The Contract Administration (CA) pool consists of those expenses necessary for the administration of projects that are performed by contractors for SDG&E. The expenses to this pool consist of labor for Contract Administrators and support personnel, as well as the associated non-labor support costs such as office and field supplies. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
Sub-Total ED Overhead Pools (Balanced Costs)		129,776	113,961	15,815	14%						Yes	

ii. **SDG&E Balanced Programs Direct Capital Variance Explanations**

WP Name	Variance Threshold Triggers	Variance Explanation
TIMP & DIMP		
TIMP	\$: Yes Units: No	TIMP complies with 49 CFR 192, Subpart O - Gas Transmission Pipeline Integrity Management and includes threat identification, risk analysis, pipeline assessments, remediation, and other actions that minimize threats and integrity concerns to reduce risk of pipeline failure. The variance in spend this year is not driven by substantial changes to the program, but rather is driven by the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SDG&E attrition years rather than a specific funding level by activity for each year. This is described in further detail in section 2.D above.
DIMP	\$: Yes Units: No	DIMP complies with 49 CFR 192, Subpart P - Gas Distribution Pipeline Integrity Management and includes threat identification, risk assessment, and various programs to minimize threats and integrity concerns to reduce risk of pipeline incidents. DIMP is balanced to the GRC authorized cycle and not on an individual year basis. The number of projects completed may fluctuate year to year and integrity management activities remain variable due to external factors; accordingly, individual project costs will differ. Rather than substantial changes to the program, the variance in spend this year is driven by the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SDG&E attrition years rather than a specific funding level by activity for each year. This is described in further detail in section 2.D above.
IT WMP - Balanced		
Customer Services	\$: Yes Units: No	Emergent project. Since filing the 2019 GRC Application, SDG&E has identified this program within its Wildfire Mitigation Plan to mitigate wildfire-related risk.

WP Name	Variance Threshold Triggers	Variance Explanation
IT WMP - Balanced	\$: Yes Units: No	In 2019, the project continued to solidify scope and technology but at a slower rate than initially expected, resulting in an underrun. The 2020 increase against imputed authorized reflects a ramp up in the build out/deployment of the network assets. In addition, the calculation used to impute authorized funding at the activity level for the GRC post-test years is contributing to the variance. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year.
IT - Enterprise - Application Grid Operations & Operating	\$: No Units: Yes	Units: Number of User Licenses. Emergent needs – implement tools to provide decision support for Capital/O&M maintenance and replacement strategies within Wildfire Mitigation Plan to mitigate wildfire-related risk.
IT - Enterprise - Application Emergency Planning & Preparedness	\$: No Units: Yes	Units: Number of User Licenses. Emergent needs – implement tools to provide decision support for Capital/O&M maintenance and replacement strategies within Wildfire Mitigation Plan to mitigate wildfire-related risk.
IT - Enterprise - Application Data Governance (BC 208750)	\$: Yes Units: Yes	Units: Number of Analytical Model. Emergent project. Since filing the 2019 GRC Application, SDG&E has identified this program within its Wildfire Mitigation Plan to mitigate wildfire-related risk.
IT - Enterprise - Application Data Governance (BC 208890)	\$: No Units: Yes	Emergent project. Since filing the 2019 GRC Application, SDG&E has identified this program within its Wildfire Mitigation Plan to mitigate wildfire-related risk.
IT - Enterprise - Application Data Governance (BC 208910)	\$: No Units: Yes	Emergent project. Since filing the 2019 GRC Application, SDG&E has identified this program within its Wildfire Mitigation Plan to mitigate wildfire-related risk.
IT - Enterprise - Application Situational Awareness & Forecasting	\$: No Units: Yes	Emergent project. Since filing the 2019 GRC Application, SDG&E has identified this program within its Wildfire Mitigation Plan to mitigate wildfire-related risk.
IT - Enterprise - Application Inspection Repair Maintenance & Replacement Program	\$: No Units: Yes	Emergent project. Since filing the 2019 GRC Application, SDG&E has identified this program within its Wildfire Mitigation Plan to mitigate wildfire-related risk.
IT - Enterprise - Application Allocation Methodology	\$: No Units: Yes	Emergent project. Since filing the 2019 GRC Application, SDG&E has identified this program within its Wildfire Mitigation Plan to mitigate wildfire-related risk.
ED Wildfire Mitigation Balanced Program		
Overhead System Hardening	\$: Yes	

WP Name	Variance Threshold Triggers	Variance Explanation
	Units: No	Since filing the 2019 GRC Application, SDG&E has consolidated multiple overhead fire hardening programs (FiRM, WiSE, and PRiME), as described in the 2021 WMP to mitigate wildfire-related risk. Higher than authorized capital investment due to the increase of fire hardening projects within the High Fire Threat District (HFTD).
Fire Threat Zone Adv Protect & SCADA Upgrade	\$: Yes Units: Yes	Units: Number of Circuits and Substations Upgraded. Since filing the 2019 GRC Application, SDG&E has consolidated multiple advanced protection programs and reprioritized the scope to mitigate wildfire-related risk.
HFTD Fuse Replacements	\$: Yes Units: Yes	Number of Fuses Replaced. Emergent project. Since filing the 2019 GRC Application, SDG&E has identified this program within its Wildfire Mitigation Plan to mitigate wildfire-related risk.
PSPS Engineering Enhancements	\$: Yes Units: Yes	Units: Number of Sectionalizing Devices. Emergent project. Since filing the 2019 GRC Application, SDG&E has identified this program within its Wildfire Mitigation Plan to mitigate wildfire-related risk.
HFTD Undergrounding	\$: Yes Units: Yes	Units: Number of Circuit Miles. Emergent project. Since filing the 2019 GRC Application, SDG&E has identified this program within its Wildfire Mitigation Plan to mitigate wildfire-related risk.
Meteorology - Fire Science Enhancements	\$: No Units: Yes	Units: Number of Registered Users. Emergent project. Since filing the 2019 GRC Application, SDG&E has identified this program within its Wildfire Mitigation Plan to mitigate wildfire-related risk.
CNF - RAMP	\$: Yes Units: No	Units: Number of Distribution Circuit Miles. Actuals were higher due to increased CPUC vs FERC settlements compared to forecasted assumptions and timing of construction after the establishment of the WMPMA. This variance is not due to the project being cancelled or deferred, but rather due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. Some activities included in the actuals were forecasted to be in-service prior to the creation of SDG&E's Wildfire Mitigation Plan. See corresponding explanation in Electric Distribution capital. All costs after the creation of the WMP are reflected in the balanced program. The CPUC approved a post-test year mechanism for the SDG&E attrition years rather than a specific funding level by activity for each year. Prior year construction delays resulting from environmental and permitting issues, as well as limited availability of contractor resources, resulted in delayed in service dates. 61.12 distribution circuit miles were completed in 2020.

WP Name	Variance Threshold Triggers	Variance Explanation
TL649 Otay-San Ysidro- Border SW Pole Repl - RAMP Incremental	\$: No Units: Yes	Units: Number of Distribution Underbuild Circuit Miles. Prior year construction delays resulting from the regulatory approval process resulted in 4 distribution circuit miles to be completed in 2020.
TL6912 Wood to Steel Pole Replacement - RAMP Incremental	\$: No Units: Yes	Units: Number of Distribution Underbuild Circuit Miles. Prior year construction delays resulting from coordination with the military base resulted in 5 distribution circuit miles to be completed in 2020.
Aerial Mesh Network Expansion	\$: No Units: Yes	Units: Number of Towers Completed. Emergent project. Since filing the 2019 GRC Application, SDG&E has identified this program within its Wildfire Mitigation Plan to mitigate wildfire-related risk.
Drone Investigation Assessment and Repair	\$: Yes Units: Yes	Units: Number of Pole Replacements Completed. Emergent project. Since filing the 2019 GRC Application, SDG&E has identified this program within its Wildfire Mitigation Plan to mitigate wildfire-related risk.
Aviation Firefighting Program	\$: Yes Units: No	Emergent project. Since filing the 2019 GRC Application, SDG&E has identified this program within its Wildfire Mitigation Plan to mitigate wildfire-related risk.
WMP Enhanced Comm 800MHZ Radio Systems	\$: No Units: Yes	Units: Number of Radios. Emergent project. Since filing the 2019 GRC Application, SDG&E has identified this program within its Wildfire Mitigation Plan to mitigate wildfire-related risk.
Fiber Optic for Relay Protect & Telecom	\$: No Units: Yes	Units: Number of All-Dielectric Self-Supporting (ADSS) Miles. When SDG&E presented this program in the 2019 GRC Application, it was intended to cover work completed in both the HFTD and non-HFTD areas. Since then, SDG&E has split the program to track the HFTD spend separately within balanced along with the entire authorized spend. However, additional fiber optic work continues to be performed within the HFTD due to the importance of system protection and controls, automation, and communications in all areas of the service territory.
Local Engineering Pool - Electric Distribution	\$: Yes Units: No	This variance is primarily due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year. Over the GRC cycle, SDG&E intends to manage the overhead pool program at authorized levels.
Local Engineering Pool - Substation	\$: Yes	The Local Engineering - Substation pool is loaded onto electric distribution substation capital jobs, electric transmission substation capital jobs and gas capital jobs. The actual funding was lower than authorized due to less substation capital work being designed compared to the amount forecasted in

WP Name	Variance Threshold Triggers	Variance Explanation
	Units: No	the GRC Application. Over the GRC cycle, SDG&E intends to manage the overhead pool program at authorized levels.
Contract Admin Pool - RAMP Base	\$: Yes Units: No	This program spent more than authorized levels due to an increase in the amount of contractor resources primarily to support the increase of wildfire-related work. Also, the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas/SDG&E attrition years rather than a specific funding level by activity for each year. Over the GRC cycle, SDG&E intends to manage the overhead pool program at authorized levels.

iii. SDG&E Balanced Programs Direct Capital Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
TIMP & DIMP		
TIMP	SDG&E-11 MTM-22 to MTM-23 WP 034680	TIMP complies with 49 CFR 192, Subpart O—Gas Transmission Pipeline Integrity Management, and includes activities such as threat identification and risk assessment, pipeline assessments, remediation, and other actions that minimize threats and integrity concerns to reduce risk of pipeline failure.
DIMP	SDG&E-11 MTM-24 to MTM-25 WP 095460	DIMP complies with 49 CFR 192, Subpart P— Gas Distribution Pipeline Integrity Management and identifies and reduces pipeline integrity risks for distribution pipelines, as required under the Pipeline Integrity, Protection, Enforcement and Safety Act of 2006.6.
IT WMP - Balanced		
Customer Service	SDG&E-24-R CRO-16 to CRO-31	Applications support the development, implementation and maintenance of computer software utilized by customers, employees and/or vendor partners.
IT WMP - Balanced	SDG&E-24-R CRO-16 to CRO-31	Applications support the development, implementation and maintenance of computer software utilized by customers, employees and/or vendor partners.
IT - Enterprise - Application	SDG&E-24-R CRO-16 to CRO-31	Applications support the development, implementation and maintenance of computer software utilized by customers, employees and/or vendor partners.

WP Name	2019 GRC Testimony Location	WP Activity Description
ED Wildfire Mitigation Balanced Program		
Overhead System Hardening	SDG&E-14-R AFC-123 to AFC-126; AFC-111 to AFC-112 WP 132470 & 17254A	To address Wildfire risk, this initiative will address aged conductor, aged splices, overloaded poles, as well as other conditions that are known to be a risk in the fire-prone areas. The combination of these fire mitigation methods effectively and efficiently reduces the risk of fire initiation and propagation while prioritizing the highest risk assets for strategic targeting by the FiRM project. When replacing these high-risk assets, poles, conductor, and other hardware are designed and constructed in accordance with current regulatory requirements as well as known local weather conditions for increased preparedness. In all, the FiRM project provides substantive fire risk reduction for SDG&E and its customers.
Fire Threat Zone Adv Protect & SCADA Upgrade	SDG&E-14-R AFC-116 to AFC-117 WP 152590	The objectives of this project are to replace aging equipment, improve distribution reliability, and improve fire safety of the substations. Fire Threat Zone Advanced Protection project will install new circuit breakers and/or relays to allow for improved protection functions and event recording for faults, create a protection system that will allow for field device communication with substation relays, install 12kV Bus Differential relays to improve overall protection and install Distribution SCADA system where appropriate.
HFTD Fuse Replacements	Emergent	Pursuant to SDG&E's Wildfire Mitigation Plan, this budget provides funding to proactively replace at-risk electric distribution cutout bodies and fuses in HFTD Tier 2 and Tier 3 with Cal Fire-approved devices in order to reduce the risk of wildfire ignition. Infrastructure upgrades as required to facilitate these fuse changeouts may also be implemented.
PSPS Engineering Enhancements	Emergent	Pursuant to SDG&E's Wildfire Mitigation Plan, this budget provides funding to add distribution sectionalizing devices in the High Fire Threat District (HFTD) areas to minimize customer impacts during Public Safety Power Shut-Off (PSPS) events. This project will deliver substantial improvements to fire weather operational response efforts and is expected to reduce the risk of wildfire ignitions.
HFTD Undergrounding	Emergent	Pursuant to SDG&E's Wildfire Mitigation Plan, this budget provides funding to perform distribution overhead to underground conversions in an effort to mitigate risk of wildfire ignitions caused by overhead infrastructure failures.
Meteorology - Fire Science Enhancements	Emergent	Pursuant to SDG&E's Wildfire Mitigation Plan, this budget provides funding to enhance the fire science capabilities at SDG&E. New tools and technologies will be developed to greatly enhance current technologies such as the Fire Potential Index and create the next generation of fire weather tools.
CNF - RAMP	SDG&E-14-R AFC-143 to AFC-144 WP 081650	The project establishes a Master Special Use Permit (MSUP) to replace over 70 expired permits in the Cleveland National Forest. The project will also enhance system reliability in Fire Threat Zone and the High-Risk Fire Area of the SDG&E service territory via wood-to-steel pole conversion and other fire hardening measures.

WP Name	2019 GRC Testimony Location	WP Activity Description
TL649 Otay-San Ysidro-Border SW Pole Repl - RAMP Incremental	SDG&E-14-R AFC-144 to AFC-145 WP 091370	Transmission line outages due to fires have serious impacts on utility electric system reliability, and the resulting loss of electric service can debilitate emergency services and our customers' abilities to cope during the fire emergency. In an effort to reduce future damage and enhance the line's fire resistance, approximately 10 miles of wood poles on TL6910 within high-risk fire areas has been targeted for replacement with equivalent steel poles.
TL6912 Wood to Steel Pole Replacement - RAMP Incremental	SDG&E-14-R AFC-149 WP 10149A	As part of the wood-to-steel initiative, SDG&E replaced wood infrastructure with steel infrastructure to increase fire safety and service reliability. Replaced (75) wood poles with a combination of direct-buried steel poles and self-supporting tubular steel poles on concrete anchor bolt foundation or micropile foundations. Approximately 5.5 miles from San Luis Rey to Pendleton substation.
Aerial Mesh Network Expansion	Emergent	Pursuant to SDG&E's Wildfire Mitigation Plan, this budget provides funding to install 4 mountain top antenna arrays to expand the coverage of the existing mesh network helicopter downlink system. The mesh network system is an information pipeline to feed live HD video, infrared video, UV video still images, and shape files to the Incident Command Vehicle(s) or any other capable SDG&E asset. The camera-equipped helicopter is deployed during emergencies, such as fires, where SDG&E's infrastructure is being impacted or threatened. The mesh network downlink system provides real-time information to the Incident Commander(s) to address the emergency.
Drone Investigation Assessment and Repair	Emergent	Pursuant to SDG&E's Wildfire Mitigation Plan, this budget provides funding to utilize drones to collect photos of distribution facilities in the high fire threat district (HFTD), identify items that could pose a fire risk and implement any necessary repairs or improvements to mitigate the risk in accordance with regulatory requirements and SDG&E standards.
Aviation Firefighting Program	Emergent	Pursuant to SDG&E's Wildfire Mitigation Plan, this budget provides funding to purchase and equip a new Sikorsky S-70i Fire hawk helicopter. The S-70i Fire hawk will complete firefighting and heavy construction needs for SDG&E. The twin-engine Fire hawk will be equipped with a 9,000 lb. construction hook, a 1,000-gallon belly-mounted firefighting water tank, FLIR camera, helicopter mesh network downlink system and other highly specialized mission equipment.
WMP Enhanced Comm 800MHZ Radio Systems	Emergent	Pursuant to SDG&E's Wildfire Mitigation Plan, this budget provides funding to furnish 800 MHz radios and essential accessories in support of field resource emergency response efforts.
Fiber Optic for Relay Protect & Telecom	SDG&E-14-R AFC-142 to AFC-143 WP 071440	The project when completed will provide a self-healing network to carry multi-gigabit data on demand. Our microwave network will also be upgraded to or be replaced with higher bandwidth (622 Mbps or higher) system, which is key to real-time applications. Create a solid backbone of Synchronous Optical NETwork (SONET) consisting of fiber optic and high-speed digital microwave network. Modern protection relays require high-speed, dependable, and secure communication for protection and control. Presently, SDG&E's existing communication infrastructure is inadequate for protection of transmission lines, compromising protection dependability and security. SDG&E is lagging behind the industry in

WP Name	2019 GRC Testimony Location	WP Activity Description
		providing the quality of communication necessary to meet the demands of today's protection equipment. This project will install Fiber Optic communication on all 138kV and above transmission lines in the next 3 years and convert major 69 kV system to fiber in 5 years for safe grid operation. It will reduce single-use telecom infrastructures. It will position SDG&E for future automation application, Condition Based Maintenance (CBM), Smart Meter (AMI), and Smart Grid.
Local Engineering Pool - Electric Distribution	SDG&E-14-R AFC-69 to AFC-70 WP 009010	Local Engineering activities are required to see a project from inception to completion. Due to the volume of capital work that takes place on the distribution system, the most effective and efficient way to allocate the planning and engineering activities is through the use of the overhead pools. It is not feasible to charge directly for each electric distribution job due to the tremendous amount of work orders.
Local Engineering Pool - Substation	SDG&E-14-R AFC-70 to AFC-72 WP 009040	The Local Engineering – Substation Pool consists of the pool of planners, designers and engineers and support personnel who research, analyze, and design the facilities needed to serve customers. These persons address the engineering needs for substation projects. These persons also address the interaction with internal and external customers in preparing a work order package for construction. This pool includes the costs that will be allocated to electric distribution and transmission substation capital activities.
Contract Admin Pool - RAMP Base	SDG&E-14-R AFC-73 to AFC-74 WP 00806A	The Contract Administration (CA) pool consists of those expenses necessary for the administration of projects that are performed by contractors for SDG&E. The expenses to this pool consist of labor for Contract Administrators and support personnel, as well as the associated non-labor support costs such as office and field supplies. This pool includes the costs that will be allocated to contracted work.

C. SDG&E Balanced Program Regulatory Account 2020 Cumulative Balances

i. SDG&E Regulatory Account – DIMPBA

	SDG&E DIMPBA Details Revenue Requirements (\$000) Program Cycle 2019-2023 Two-Way					
	(a)	(b)	(c)	(d) = (b) - (c)	(e)	(f) = (a) + (d) + (e)
	Beginning Balance	Actual	Authorized	Under/(Over) Collection	Interest	Ending Balance
Year 2020						

	SDG&E DIMPBA Details Revenue Requirements (\$000) Program Cycle 2019-2023 Two-Way					
Beginning Balance	(8,417)					(8,417)
O&M		3,377	15,843	(12,466)		(12,466)
Capital-Related Costs		4,776		4,776		4,776
Adjustments ¹						
Interest					(75)	(75)
Subtotal	(8,417)	8,153	15,843	(7,690)	(75)	(16,182)

ii. **SDG&E Regulatory Account – TIMPBA**

	SDG&E TIMPBA Details Revenue Requirements (\$000) Program Cycle 2019-2023 Two-Way					
	(a)	(b)	(c)	(d) = (b) - (c)	(e)	(f) = (a) + (d) + (e)
	Beginning Balance	Actual	Authorized	Under/(Over) Collection	Interest	Ending Balance
Year 2020						
Beginning Balance	2,516					2,516
O&M		10,588	10,728	(140)		(140)
Amortization			(768)	768		768
Capital-Related Costs		470		470		470
Interest					13	13
Subtotal	2,516	11,058	9,960	1,098	13	3,627

iii. **SDG&E Regulatory Account – Tree Trimming Balancing Account**

¹ Per D.19-09-052 balance as of December 31, 2018 was transferred to Core Fixed Cost Account (CFCA) and Noncore Fixed Cost Account (NFCA).

SDG&E Tree Trimming Balancing Account Details Revenue Requirements (\$000) Program Cycle 2019-2023 Two-Way						
	(a)	(b)	(c)	(d) = (b) - (c)	(e)	(f) = (a) + (d) + (e)
	Beginning Balance	Actual	Authorized	Under/(Over) Collection	Interest	Ending Balance
Year 2020						
Beginning Balance	10,421					10,421
O&M		68,164	24,808	43,356		43,356
Amortization			0			0
Interest					123	123
Subtotal	10,421	68,164	24,808	43,356	123	53,900

iv. **SDG&E Regulatory Account – Overhead Pools Balancing Account**

SDG&E Overhead Pools Balancing Account Details Revenue Requirements (\$000) Program Cycle 2019-2023 One-Way						
	(a)	(b)	(c)	(d) = (b) - (c)	(e)	(f) = (a) + (d) + (e)
	Beginning Balance	Actual	Authorized	Under/(Over) Collection	Interest	Ending Balance
Year 2020						
Beginning Balance	(50,537)					(50,537)
Funding		129,776	113,961	15,815		15,815
Interest					0	0
Subtotal	(50,537)	129,776	113,961	15,815	0	(34,722)

v. **SDG&E Regulatory Account – Wildfire Mitigation Plan (WMP) Memorandum Account**

SDG&E Wildfire Mitigation Plan Memorandum Account Details Revenue Requirements (\$000) Program Cycle 2019-2023 ² Two-Way						
	(a)	(b)	(c)	(d) = (b) - (c)	(e)	(f) = (a) + (d) + (e)
	Beginning Balance	Actual	Authorized	Under/(Over) Collection	Interest	Ending Balance
Year 2020						
Beginning Balance	20,853					20,853
O&M		128,064	68,521	59,543		59,543
Capital-Related Costs		12,503		12,503		12,503
Amortization						0
Interest					208	208
Subtotal	20,853	140,56	68,521	72,046	208	93,107

D. SDG&E Balanced Program Regulatory Account Disposition

i. TIMP & DIMP

Per D.19-09-051, the TIMPBA and Post-2011 DIMPBA will continue for the 2019 GRC cycle. Any over- or under-collected balance at the end of each year within the GRC cycle will be carried over to the following year. For any under-collections as a result of overspending up to 35% of the total authorized O&M and capital expenditures, SDG&E will submit a Tier 3 advice letter seeking recovery of the under-collected amount. For under-collections due to overspending greater than 35% of the total authorized O&M and capital expenditures, SDG&E will seek recovery through a separate application. If SDG&E has not overspent in excess of the total authorized O&M and capital expenditures for the current GRC cycle, but an under-collection exists due to compounding of actual capital revenue requirement recorded in the balancing account, SDG&E will incorporate the under-collected balance in its annual

² The WMPMA was effective beginning on May 30, 2019. Therefore, the WMPMA balance represents the partial year of 2019 and the full-year 2020.

regulatory account balance update submittal for recovery in the subsequent year's rates. For any unspent funds at the end of the current GRC cycle, SDG&E will propose in its next GRC proceeding to return the unspent funds in rates to customers.

ii. DIMPBA

In its TY 2019 GRC, SDG&E proposed to return to customers the Post-2011 DIMPBA over-collected balance as of December 31, 2018.³ Per D.19-09-052, the DIMPBA balance as of December 31, 2018 was transferred to CFCA and NFCA to be included in rates.

iii. TIMPBA

Pursuant to D.13-05-010 Transmission Integrity Management Program Balancing Account (TIMPBA) was established to record actual Operations and Maintenance (O&M) and capital-related costs associated with SDG&E's TIMP to track the difference between authorized and actual expenditures. Pursuant to D.16-06-054 and AL 2777-G, SDG&E is authorized to recover the January 2016 – December 2018 costs reasonably incurred for pipeline integrity-related expenses. TIMPBA is a two-way balancing account.

iv. Tree Trimming Balancing Account

Pursuant to D.19-09-051, TY 2019 GRC, effective January 1, 2019, the TTBA will continue for the 2019 GRC cycle. TTBA is a two-way balancing account. SDG&E is required to file a Tier 3 advice letter for recovery of under-collections up to 35 percent of the revenue requirement and an application for under-collections above 35 percent. Any over-collected balance at the end of each year will

³ A.17-10-007, Ex. SDG&E-41 (Jasso) at NGJ-12: 10-11.

be amortized in connection with its annual regulatory account balance update filing for rates effective January 1 of the following year.

On July 1, 2020, SDG&E filed application A.20-07-003 requesting recovery of the 2019 under-collected balance of \$10.4 million which is roughly 43% of the authorized revenue requirement. The proceeding is ongoing with the next step being a proposed decision.

v. Overhead Pools Balancing Account

Pursuant to D.19-09-051, the Overhead Pools Balancing account (OPBA) is established as a non- interest bearing, one-way balancing account, in effect during the TY 2019 GRC cycle, which will be evaluated at the end of the cycle. The OPBA shall apply to Electric Distribution customers, except for those specifically excluded by the Commission. The four overhead capital pools that are covered by this balancing account are the Local Engineering Electric Distribution pool; Local Engineering – Substation pool; the Department Overhead pool and the Contract Administration pool. This is a tracking account only and is not posted to the general ledger. The account will be evaluated for ratemaking purposes over the entire cycle covered by the TY 2019 GRC. If the account is over-collected at the end of the TY 2019 GRC cycle, the amount will be calculated into a revenue requirement to be refunded to ratepayers. This adjustment will be included in the next available rate change following the TY 2019 GRC cycle.

vi. Wildfire Mitigation Plan Memorandum Account

Pursuant to D.19-05-039 and AL 3454-E / 2817-G, SDG&E established the Wildfire Mitigation Plan Memorandum Account (WMPMA) to record costs incurred to implement SDG&E's Commission-approved Wildfire Mitigation Plan, effective May 30, 2019. The WMPMA is a two-way memorandum account; it records the revenue requirement authorized in SDG&E's GRC (or other proceeding deemed appropriate by the Commission) for wildfire-related activities beginning on May 30, 2019 and O&M and capital-

related costs associated with work performed based on activities in SDG&E's Wildfire Mitigation Plan beginning on May 30, 2019.

Accordingly, the WMPMA balance reflects those costs net of revenue requirement authorized in SDG&E's GRC. The WMPMA shall remain open until the Commission authorizes closure of the account. The WMPMA may be addressed in SDG&E's GRC proceeding or other proceeding deemed appropriate by the Commission.

APPENDIX – SDG&E’s EMERGENT, CANCELLED, AND DEFERRED PROJECT LIST

Business Unit	O&M or Capital	WP Name	Emergent	Cancelled	Deferred
Electric Distribution	O&M	Electric Regional Operations			Employee Records Management
Electric Distribution	O&M	Substation C&O			Condition Based Maintenance
Electric Distribution	O&M	Grid Operations			Workforce Planning
Electric Distribution	Capital	Planned Investments	Planned Investments		
Electric Distribution	Capital	C303 CAN: Reconductor & CAP	C303 CAN: Reconductor & CAP		
Electric Distribution	Capital	TL633 Reconductor (Bernardo - Rancho Carmel)	TL633 Reconductor (Bernardo - Rancho Carmel)		
Electric Distribution	Capital	Wabash Canyon Sub 60/12kV Bank 32	Wabash Canyon Sub 60/12kV Bank 32		
Electric Distribution	Capital	Electric Transmission Tools/Equipment	Electric Transmission Tools/Equipment		
Electric Distribution	Capital	Blue Hornet Solar	Blue Hornet Solar		

Business Unit	O&M or Capital	WP Name	Emergent	Cancelled	Deferred
Electric Distribution	Capital	ECO Substation	ECO Substation		
Electric Distribution	Capital	Fallbrook Battery Energy Storage - PTO	Fallbrook Battery Energy Storage - PTO		
Electric Distribution	Capital	Gateway Energy Storage	Gateway Energy Storage		
Electric Distribution	Capital	Kettle Solar One	Kettle Solar One		
Electric Distribution	Capital	Mount Laguna Wind	Mount Laguna Wind		
Electric Distribution	Capital	Rugged Solar Farm	Rugged Solar Farm		
Electric Distribution	Capital	Silver Ridge Mount Signal	Silver Ridge Mount Signal		
Electric Distribution	Capital	Top Gun PTO Interconnection	Top Gun PTO Interconnection		
Electric Distribution	Capital	Valley Center Renewable	Valley Center Renewable		
Electric Distribution	Capital	Elect Transm Line Reliability Projects	Elect Transm Line Reliability Projects		
Electric Distribution	Capital	Vault Restoration		Vault Restoration	

Business Unit	O&M or Capital	WP Name	Emergent	Cancelled	Deferred
Electric Distribution	Capital	OIR Worst Circuits		OIR Worst Circuits	
Electric Distribution	Capital	San Mateo Substation Rebuild (start in 2019)	San Mateo Substation Rebuild (start in 2019)		
Electric Distribution	Capital	Avocado Sub 69KV Rebuild	Avocado Sub 69KV Rebuild		
Electric Distribution	Capital	Substation Mod to Support FLSR	Substation Mod to Support FLSR		
Electric Distribution	Capital	Electric Distribution Grid Analytics		Electric Distribution Grid Analytics	
Electric Distribution	Capital	Power Quality Program	Power Quality Program		
Electric Distribution	Capital	Transmission System Automation	Transmission System Automation		
Electric Distribution	Capital	Artesian 230kV Expansion-Prel. Eng.	Artesian 230kV Expansion-Prel. Eng.		
Electric Distribution	Capital	High Risk Switch Replacement Project	High Risk Switch Replacement Project		
Electric Distribution	Capital	Urban Substation Rebuild	Urban Substation Rebuild		
Electric Distribution	Capital	TL698 Avocado Sub Gateway DB CBL Replace	TL698 Avocado Sub Gateway DB CBL Replace		
Electric Distribution	Capital	Mission Substation 230kV Rebuild	Mission Substation 230kV Rebuild		
Electric Distribution	Capital	New 2nd Miguel to Bay Blvd. 230 kV Line	New 2nd Miguel to Bay Blvd. 230 kV Line		
Electric Distribution	Capital	SONGS Synchronous Condenser	SONGS Synchronous Condenser		

Business Unit	O&M or Capital	WP Name	Emergent	Cancelled	Deferred
Electric Distribution	Capital	TL603 Loop-in (Sweetwater, National City, and Naval Station Metering)	TL603 Loop-in (Sweetwater, National City, and Naval Station Metering)		
Electric Distribution	Capital	TL673 Direct Buried Cable Replacement (Rose Canyon - La Jolla)	TL673 Direct Buried Cable Replacement (Rose Canyon - La Jolla)		
Electric Distribution	Capital	TL6975- Escondido - San Marcos	TL6975- Escondido - San Marcos		
Electric Distribution	Capital	12kV Substation Reliability	12kV Substation Reliability		
Electric Distribution	Capital	Substation Security Proj under \$500K	Substation Security Proj under \$500K		
Electric Distribution	Capital	Proactive Dead Front Terminator Deploy	Proactive Dead Front Terminator Deploy		
Electric Distribution	Capital	CAST Security Upgrades	CAST Security Upgrades		
Electric Distribution	Capital	Overhead Public Safety	Overhead Public Safety		
Electric Distribution	Capital	TL13835- Wood to Steel Project	TL13835- Wood to Steel Project		
Electric Distribution	Capital	AB2868 Energy Storage		AB2868 Energy Storage	
Electric Distribution	Capital	Safety Enhancements for Battery	Safety Enhancements for Battery		
Electric Distribution	Capital	TL600 - Reliability Pole Replacements	TL600 - Reliability Pole Replacements		
Electric Distribution	Capital	TL674A Del Mar Reconfigure/TL666D RFS	TL674A Del Mar Reconfigure/TL666D RFS		

Business Unit	O&M or Capital	WP Name	Emergent	Cancelled	Deferred
Electric Distribution	Capital	TL690A Pendleton South W2S	TL690A Pendleton South W2S		
Electric Distribution	Capital	Fiber Optic for Relay Protect & Telecom	Fiber Optic for Relay Protect & Telecom		
Electric Distribution	Capital	San Luis Rey	San Luis Rey		
Electric Distribution	Capital	Suncrest SVC Interconnection	Suncrest SVC Interconnection		
Electric Distribution	Capital	SX-PQ 230 kV Line	SX-PQ 230 kV Line		
Electric Distribution	Capital	Miguel Substation 230kV Rebuild	Miguel Substation 230kV Rebuild		
Electric Generation	O&M	Generation Plant Palomar			Annual Plant Outage
Electric Generation	Capital	Ramona Solar Plant Oper Enhance	Projects that increase the overall reliability, operability and safety of the Ramona Solar Plant including the landscaping and mechanical and instrument control improvement projects.		
Gas Distribution	O&M	Field O&M Leak Survey - Non- RAMP			Activities related to Leak Survey are all covered in RAMP line item.
Gas Distribution	O&M	Asset Management			Maintenance

Business Unit	O&M or Capital	WP Name	Emergent	Cancelled	Deferred
Gas Distribution	O&M	Cathodic Protection – Non-RAMP			Activities related to Cathodic Protection are all covered in RAMP line item.
Gas Distribution	Capital	New Business - Odorization of Gas			Costs are charged directly to Cristianito Project.
Gas Distribution	Capital	Pressure Betterment			Via Vera Cruz/Bent Ave.- San Marcos Creek was deferred into 2021.
Gas Distribution	Capital	Cathodic Protection System Enhancement			Plaza de Panama project is deferred until further notice.
Gas Distribution	Capital	Franchise Relocations			Bradley Ave Relocation, SW Crown Point West, and Pala Vista Park, were deferred into 2021.
Gas Engineering	Capital	GT Land Rights			No land rights renewed or acquired in 2020 applicable to this budget code.
Gas Engineering	Capital	GT Auxiliary Equipment (BC 439)			No new installations or upgrades of aging SDG&E M&R station and pipeline system control work completed in 2020 applicable to this budget code.

Business Unit	O&M or Capital	WP Name	Emergent	Cancelled	Deferred
Gas System Integrity	O&M	Damage Prevention and Public Awareness Non-RAMP			New Mailer/Messaging/Outreach Approaches, and Partnerships.
Gas System Integrity	O&M	Codes Standards and Records			Effort to Digitize Records
Gas Transmission	O&M	Technical Services - Operator Qualification		Technical Services - Operator Qualification	
Gas Transmission	Capital	New Gas Transmission Pipeline			No new pipelines in 2020
Gas Transmission	Capital	GT Relocations Non-RAMP			
Gas Transmission	Capital	GT Cathodic Protection	L3600 CURRENT MITIGATION		
Gas Transmission	Capital	GT M&R Stations	BIOME RULE 39 - SANCO SVCS LP B		
Gas Transmission	Capital	GT Replacements	1. L2010 Mission Trails 2. L3010 Maple & Olive 3. L1600 Daley Ranch		
Gas Transmission	Capital	Moreno Modernization Project	Moreno Modernization Project		
Customer Service	O&M	Advance Metering Ops Workforce Planning			
Information Technology	O&M	IT Network Field - LAN/WAN Voice			IT Network Field - LAN/WAN Voice

Business Unit	O&M or Capital	WP Name	Emergent	Cancelled	Deferred
Information Technology	O&M	Project Improvement Office-NCS			Resources have been reassigned to Enterprise Command Center
Information Technology	O&M	Client Services Maintenance and Support		Client Services Maintenance and Support	
Information Technology	O&M	Client Tech Svcs			Resources have been reassigned to Service Delivery - NCS
Information Technology	O&M	DCAM Program	DCAM Program		
Information Technology	O&M	IT Serv Contin Mgmt	IT Serv Contin Mgmt		
Information Technology	O&M	Infrastructure Portf	Infrastructure Portf		
Cyber Security	O&M	Identity & Access Management	Identity life-cycle management system created a need for this activity		
Information Technology	Capital	IT - Enterprise - Application (Electric Infrastructure Integrity)	Electric Asset Management Platform		
Information Technology	Capital	IT - Enterprise - Network - RAMP (Records Management)		Enhanced Network Analytics	
Real Estate, Land Services and Facilities	O&M	Remodel / Relocate / Reconfigure Blanket			Modernization of Grid Control Centers

Business Unit	O&M or Capital	WP Name	Emergent	Cancelled	Deferred
Human Resources Dept, Safety, LTD & WC	O&M	Safety Management System (SMS)	Safety Management System (SMS)		
Human Resources Dept, Safety, LTD & WC	O&M	Organization Effectiveness	1. Supervisor Effectiveness Training 2. Working Foreman Training 3. Workforce Planning Efforts 4. Training		
IT WMP - Balanced	Capital	Customer Services	Customer Services		
IT WMP - Balanced	Capital	IT - Enterprise - Application	IT - Enterprise - Application		
ED Wildfire Mitigation Balanced Program	Capital	HFTD Fuse Replacements	HFTD Fuse Replacements		
ED Wildfire Mitigation Balanced Program	Capital	PSPS Engineering Enhancements	PSPS Engineering Enhancements		
ED Wildfire Mitigation Balanced Program	Capital	HFTD Undergrounding	HFTD Undergrounding		
ED Wildfire Mitigation Balanced Program	Capital	Meteorology - Fire Science Enhancements	Meteorology - Fire Science Enhancements		
ED Wildfire Mitigation Balanced Program	Capital	Backup Power for Resiliency	Backup Power for Resiliency		
ED Wildfire Mitigation Balanced Program	Capital	TL649 Otay-San Ysidro-Border SW Pole Repl - RAMP Incremental	TL649 Otay-San Ysidro-Border SW Pole Repl - RAMP Incremental		

Business Unit	O&M or Capital	WP Name	Emergent	Cancelled	Deferred
ED Wildfire Mitigation Balanced Program	Capital	TL691 Avo-Mon Wood to Steel - RAMP Incremental	TL691 Avo-Mon Wood to Steel - RAMP Incremental		
ED Wildfire Mitigation Balanced Program	Capital	TL695 Talega Wood to Steel - RAMP Incremental	TL695 Talega Wood to Steel - RAMP Incremental		
ED Wildfire Mitigation Balanced Program	Capital	TL6912 Wood to Steel Pole Replacement - RAMP Incremental	TL6912 Wood to Steel Pole Replacement - RAMP Incremental		
ED Wildfire Mitigation Balanced Program	Capital	TL6926 Rincon to Valley Center Fire Hardening	TL6926 Rincon to Valley Center Fire Hardening		
ED Wildfire Mitigation Balanced Program	Capital	TL690E – Camp Pendleton – Wood to Steel	TL690E – Camp Pendleton – Wood to Steel		
ED Wildfire Mitigation Balanced Program	Capital	TL692 Horno Pulgas (Camp Pend)	TL692 Horno Pulgas (Camp Pend)		
ED Wildfire Mitigation Balanced Program	Capital	TL639 Wood to Steel Replacement	TL639 Wood to Steel Replacement		
ED Wildfire Mitigation Balanced Program	Capital	TL636 Wood to Steel Replacement	TL636 Wood to Steel Replacement		
ED Wildfire Mitigation Balanced Program	Capital	TL13831 Wood to Steel Replacement (Talega - Rancho Mission Viejo)	TL13831 Wood to Steel Replacement (Talega - Rancho Mission Viejo)		
ED Wildfire Mitigation Balanced Program	Capital	TL23001 TL23004 Wood to Steel Replacement (Mission - San Luis Rey)	TL23001 TL23004 Wood to Steel Replacement (Mission - San Luis Rey)		

Business Unit	O&M or Capital	WP Name	Emergent	Cancelled	Deferred
ED Wildfire Mitigation Balanced Program	Capital	Lighting Arrestor Replacement Program	Lighting Arrestor Replacement Program		
ED Wildfire Mitigation Balanced Program	Capital	Aerial Mesh Network Expansion	Aerial Mesh Network Expansion		
ED Wildfire Mitigation Balanced Program	Capital	Drone Investigation Assessment and Repair	Drone Investigation Assessment and Repair		
ED Wildfire Mitigation Balanced Program	Capital	Aviation Firefighting Program	Aviation Firefighting Program		
ED Wildfire Mitigation Balanced Program	Capital	WMP Enhanced Comm 800MHZ Radio Systems	WMP Enhanced Comm 800MHZ Radio Systems		
ED Wildfire Mitigation Balanced Program	Capital	TL694 Wood To Steel			TL694 Wood To Steel

ATTACHMENT B - SOCALGAS' 2020 RISK SPENDING ACCOUNTABILITY REPORT

1. SOCALGAS Gas

A. SoCalGas Gas Distribution

i. SoCalGas Gas Distribution Operations O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Gas Distribution		154,026	158,895	(4,869)	-3%							
Field Services Leadership & Operations Assessment	Non-RAMP	512	304	208	68%	This activity consists of the salary and non-labor expenses for the Vice President of Gas Field Operations Organization and one-time expenses that benefit the entire organization. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Field Support	Non-RAMP	15,760	14,263	1,497	10%	Recorded to Field Services Non-RAMP are a variety of support services to successfully complete daily Gas Distribution O&M activities. The primary components are: field supervision; clerical support; dispatch operations; off-production time; materials support; and removal of abandoned mains. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Field Support	Maintenance - Pipeline observation "Standby" (From Field Support)	0	3,675	(3,675)	-100%	This activity is captured by the RAMP activity in the Locate & Mark Workpaper called "QA Job Observations Field Rides and Job Monitoring."					Yes	No
Field Support	PPE and Safety Equipment	0	22	(22)	-100%	This RAMP activity is related to the purchase of Confined Space Air Monitoring System for Field Personnel. This RAMP activity was only anticipated to occur in 2018 and 2019. No costs were incurred in 2020 (<i>i.e.</i> , there were no units in 2020).					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Field Support	Qualifications of Pipeline Personnel	2,988	2,614	374	14%	88,548	This activity is being tracked by student training hours. The variety of classes and fluctuating frequency of classes makes it infeasible to identify a single imputed authorized unit of measurement.			Student Training Hours	No	No
Field Support	Contractor Management and Traffic Control	695	1,629	(934)	-57%	This activity consists of the time of inspection, documentation of inspections, and invoicing related to contractors working on Gas Company facilities. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.				No	No	
Field Support	QA Job Observations Field Rides and Job Monitoring	129	64	65	103%	2,682	This activity is being tracked by supervisor inspection hours, which consists of the time spent by supervisors inspecting company crews while performing various field activities. The variety of work activities in this category makes it infeasible to identify a single imputed authorized unit of measurement.			Inspection Hours	No	No
Sub-Total Field Support		19,572	22,266	(2,694)	-12%						No	
Leak Survey	Non-RAMP	945	2,712	(1,767)	-65%	12,444	These non-RAMP activities comply with 49 CFR part 192, Subpart M. These activities include Bar Per Policy (BPP) orders and Special Leakage Surveys. Both order types are driven by external factors that vary from year to year. The variety of work activities in this category			Bar Per Policy (BPP) Orders	Yes	No
						647				Special Survey Miles	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
							makes it infeasible to identify a single imputed authorized unit of measurement.					
Leak Survey	Maintenance - Leak Survey	9,024	9,379	(355)	-4%	35,093	This activity is being tracked by leakage survey orders. The objective of a leakage survey is to conduct a thorough search for gas leak indications in an assigned area and report all detectable leaks using an approved survey method. The variety of work activities in this category makes it infeasible to identify a single imputed authorized unit of measurement.			Survey Miles	No	No
Sub-Total Leak Survey		9,969	12,091	(2,122)	-18%						No	
Locate & Mark	Non-RAMP	1,790	42	1,748	4121%	This activity consists of a combination of USA membership fees related to the number of USA tickets processed and Depth Check/Excavate to Locate Pipe orders. The USA membership fees are charged partially on a per ticket basis and partially on a flat rate based on the Regional Office charging. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Locate & Mark	Locate & Mark Activities	14,265	16,144	(1,879)	-12%	815,669	The variety of drivers that influence the number of tickets transmitted each year makes it infeasible to identify a single imputed authorized unit of measurement. The number transmitted is beyond the control of SoCalGas.			USA Tickets	No	No
Locate & Mark	QA Job Observations, Field Rides, and Job Monitoring	2,810	1,741	1,069	61%	3,117	This work complies with CCR 1541(b)1(B). This activity is being tracked by Standby orders, which involves making third-party excavators aware of proper digging requirements when working near high priority subsurface installations. It also includes inspecting third-party excavators, observing the condition of the pipeline, and correcting any issues identified during the observation. The variety of work activities in this category makes it infeasible to identify a single imputed authorized unit of measurement.			Standby Orders	Yes	No
Sub-Total Locate & Mark		18,865	17,927	938	5%						No	

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Main Maintenance	Non-RAMP	22,507	17,159	5,349	31%	34,348	This activity complies with GO 112-F and 49 CFR part 192 Subpart M. The variety and scope of work for main maintenance (leak repair, leak investigation, leak re-evaluate, misc. maintenance, paving repairs, etc.) makes it infeasible to identify a single imputed authorized unit of measurement.			Main Maintenance Orders	Yes	No
Main Maintenance	Contracting for Traffic Control Delineation materials -- Distribution Only. Outside vendors	1,482	1,810	(328)	-18%	This activity complies with GO 112-F and 49 CFR part 192 Subpart M. This RAMP activity consists of the costs associated with traffic control related purchases on O&M orders. This includes traffic control delineation materials and third-party contractors hired specifically to assist with traffic control. The variety of activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Main Maintenance	Maintenance - Valve Inspection and Maintenance (From Field Support)	1,014	911	103	11%	6,470	This activity is being tracked by valve inspection orders. This RAMP activity represents the medium pressure valve inspections. Valves are checked and serviced at intervals not exceeding 15 months, but at least once each calendar year. The variety of work activities in this category makes it infeasible to identify a single imputed authorized unit of measurement.			Medium Pressure Valve Inspection Orders	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Main Maintenance	High-Pressure Pipeline Failure, Project Maintenance - Valve Maintenance and Installation (Distribution High Pressure) (From Field Support)	69	63	6	10%	442	This activity is being tracked by valve inspection orders. This RAMP activity represents the high-pressure valve inspections. Valves are checked and serviced at intervals not exceeding 15 months, but at least once each calendar year. The variety of work activities in this category makes it infeasible to identify a single imputed authorized unit of measurement.			High Pressure Valve Inspection Orders	No	No
Main Maintenance	Maintenance - Pipeline Patrol (From Field Support)	90	209	(119)	-57%	457	This activity is being tracked by Pipeline Patrol orders. The objective of the patrol program is 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 49 CFR 192.705 and 192.721. The variety of work activities in this category makes it infeasible to identify a single imputed authorized unit of measurement.			Pipeline Patrol Orders	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Main Maintenance	Maintenance - Bridge and Span (From Field Support)	96	128	(32)	-25%	783	This activity is being tracked by Bridge and Span orders and involves inspecting for signs of atmospheric corrosion on pipelines that are exposed to the atmosphere. The variety of work activities in this category makes it infeasible to identify a single imputed authorized unit of measurement.			Bridge and Span Orders	No	No
Main Maintenance	Maintenance - Unstable Earth Inspection (From Field Support)	9	8	1	10%	159	This activity is being tracked by Unstable Earth orders. The objective of unstable earth orders is to inspect locations where physical movement or external loading could occur that could cause failure or leakage. The variety of work activities in this category makes it infeasible to identify a single imputed authorized unit of measurement.			Unstable Earth Orders	No	No
Sub-Total Main Maintenance		25,267	20,288	4,979	25%						Yes	

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Service Maintenance	Non-RAMP	13,835	17,600	(3,765)	-21%	31,594	The variety and scope of work for service maintenance (leak repair, leak investigation, leak re-evaluate, riser leak repair and maintenance, meter set leak repair and maintenance, misc. maintenance, etc.) makes it infeasible to identify a single imputed authorized unit of measurement.			Service Maintenance Orders	Yes	No
Tools Fittings & Materials	Non-RAMP	11,338	8,751	2,587	30%	Included in this category are materials used and expenses necessary for 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. The variety of purchases makes it infeasible to identify a single unit of measurement.					Yes	No
Tools Fittings & Materials	PPE and Safety Equipment - Companywide purchases of personal protective equipment (PPE)	1,439	733	706	96%	This RAMP activity is comprised of a variety of purchases related to personal protective equipment (PPE). The variety of purchases makes it infeasible to identify a single unit of measurement.					No	No
Tools Fittings & Materials	PPE and Safety Equipment - Uniform rentals for employees - both protective	571	1,091	(520)	-48%	This RAMP activity is comprised of uniform rentals for employees that provide both protection and security for our employees. The variety of purchases makes infeasible to identify a single unit of measurement.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
	and for security											
Sub-Total Tools Fittings & Materials		13,348	10,575	2,773	26%						Yes	
Asset Management	Non-RAMP	8,367	7,778	589	8%	This activity consists of services provided by the Technical Office. Activities performed by this office include items such as identifying construction design requirements, evaluating pressure specifications, conducting pipeline planning, and obtaining permits. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Measurement & Regulation	Non-RAMP	8,573	9,474	(902)	-10%	This activity consists of maintaining and operating regulator stations and support services provided by management and administrative personnel. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Measurement & Regulation	Maintenance - Inspect meters, regulators, and gauges to evaluate and confirm overpressure protection is in place and maintained.	1,602	1,550	52	3%	3,328	The variety and scope of work for this RAMP activity (Inspecting meters, regulators and gauges) makes it infeasible to identify a single imputed authorized unit of measurement.			Meter, Regulator, and Gauge Inspection Orders	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Measurement & Regulation	Maintenance - Maintenance and inspections of meter set assemblies (MSA) in the system.	5,401	5,580	(179)	-3%	18,251	The variety and scope of work for this RAMP activity (Large MSA maintenance, unusual consumption, planned meter change, Customer Regulator, etc.) makes it infeasible to identify a single imputed authorized unit of measurement.			M&R Meter Set Assembly (MSA) Orders	No	No
Sub-Total Measurement & Regulation		15,576	16,604	(1,028)	-6%						No	
Cathodic Protection	Non-RAMP	0	2,034	(2,034)	-100%	Because all Cathodic Protection activities are maintenance-related, all cathodic protection activities are categorized and tracked as RAMP activities.					Yes	No
Cathodic Protection	Requirements for Corrosion Control	16,449	17,338	(889)	-5%	43,806	The variety and scope of work for this RAMP activity (impressed current reads, magnesium anode reads, down reads, anode installation, troubleshooting, etc.) makes it infeasible to identify a single imputed authorized unit of measurement.			CP Maintenance Orders	No	No
Cathodic Protection	Gas Facility and Pipeline Inspections	1,389	978	411	42%	39,393	This activity is being tracked by CP 10% reads and involves the inspection of isolated cathodically protected facilities. The method to calculate imputed authorized dollars makes it infeasible to identify a single imputed authorized unit of measurement.			CP 10% Reads	No	No
Sub-Total Cathodic Protection		17,838	20,350	(2,512)	-12%						No	

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Operations and Management	Non-RAMP	6,957	7,161	(204)	-3%	This activity includes support from operations leadership and field management. Operations leaders are responsible for setting the tone and direction of the organization. Field management is responsible for overall management of the workforce. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Operations and Management	Policy, Procedures, Standards and ESCMP	0	1,022	(1,022)	-100%	This RAMP activity consists of the time of Standard Owners to complete initial review, coordinate inputs, make changes and complete processing of formal gas standards, procedures, and processes for Gas Distribution. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
Sub-Total Operations and Management		6,957	8,183	(1,226)	-15%						No	
Regional Public Affairs	Non-RAMP	3,919	4,928	(1,009)	-20%	Regional Public Affairs primarily supports field operations through its work with regional and local governments on issues regarding proposed regulations, franchises, permitting, and emergency preparedness and response. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No

ii. SoCalGas Gas Distribution O&M Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
Field Support Maintenance -	\$: Yes	The variance in this workpaper is due to recording the costs for these activities in the RAMP Locate & Mark Workpaper, "QA Job Observations Field Rides and Job Monitoring."

WP Name	Variance Threshold Triggers	Variance Explanation
Pipeline observation "Standby" (From Field Support)	Units: No	
Leak Survey Non-RAMP	\$: Yes Units: No	The variance is attributable to fewer orders than anticipated. Both order types (BPP and Special Leak Survey) are driven by external factors that are beyond SoCalGas's control. BPP orders are typically follow-up orders generated by the Customer Services Department initially generated by customer requests. Special Leak Survey orders are typically generated based on Franchise (City) requests.
Locate & Mark Non-RAMP	\$: Yes Units: No	The variance is driven by a combination of higher than anticipated costs in excavate to locate/depth check orders and USA Membership fees.
Locate & Mark QA Job Observations Field Rides and Job Monitoring	\$: Yes Units: No	Standby orders, which are driven by factors outside the control of the Gas Company, were higher than anticipated in 2020. SoCalGas believes this increase is likely attributed to a greater awareness by the public of the 811-process due to efforts made by SoCalGas's Damage Prevention Team and the Dig Safe Board.
Main Maintenance Non-RAMP	\$: Yes Units: No	The variance in units and cost is due to acceleration of leak repair activities to complete more repairs in 2020 than initially forecast. In addition, activities to address a backlog of paving orders also contributed towards increased non-labor costs.
Service Maintenance Non-RAMP	\$: Yes Units: No	The volume of maintenance work associated with this activity was less than anticipated due to other activities reducing the need for this type of maintenance (<i>i.e.</i> , assets that otherwise would have incurred service maintenance were either replaced or maintained under other initiatives. Examples of these other initiatives include: Cathodic Protection (CP) 10% service replacements, Distribution Riser Inspection Program (DRIP) riser inspections and maintenance, and Distribution Integrity Management (DIMP) main and service replacement projects.

WP Name	Variance Threshold Triggers	Variance Explanation
Tools Fittings & Materials Non-RAMP	\$: Yes Units: No	The variance is due to higher demand than anticipated for work volumes and incremental tool purchases.
Cathodic Protection Non-RAMP	\$: Yes Units: No	The variance is attributable to the fact all CP activities are inherently maintenance-related, and therefore categorized as RAMP activities (<i>i.e.</i> , there were no non-RAMP CP activities).
Operations and Management Policy, Procedures, Standards and ESCMP	\$: Yes Units: No	The variance is attributable to the fact the costs for these activities are reported within other witness areas.

iii. SoCalGas Gas Distribution O&M Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Field Support	SCG-04-R GOM-62 to GOM-69 WP 2GD000.000	Recorded to the Field Services workgroup are a variety of support services to successfully complete daily Gas Distribution O&M activities. The primary components are: field supervision, clerical support, dispatch operations, off-production time, materials support and removal of abandoned mains. This category includes costs for activities, as described, designed to mitigate employee safety risks.
Leak Survey	SCG-04-R GOM-36 to GOM-40 WP 2DG000.001	The work in this workgroup is associated with federal and state pipeline safety regulations pertaining to surveying for gas leaks.
Locate & Mark	SCG-04-R GOM-31 to GOM-36 WP 2GD000.002	The work in this workgroup is initiated by third-party excavators requesting SoCalGas to identify substructures at locations of planned excavations. The performed work is preventative in nature and required to avert damages caused by third-party excavators working near gas underground substructures. The work is primarily comprised of: locating and marking SoCalGas's underground pipelines; conducting job observations; performing pothole operations; and performing depth checks.

WP Name	2019 GRC Testimony Location	WP Activity Description
Main Maintenance	SCG-04-R GOM-49 to GOM-56 WP 2GD000.003	Work in this workgroup is designed to meet federal (49 CFR 192) and state (GO 112-F, SB1371) pipeline safety regulations and to extend the life of distribution main pipelines and related infrastructure. Main maintenance is generally corrective in nature and required to keep the natural gas system operating safely and reliably. Primary activities include: leak evaluation; leak repairs; franchise alterations; compliance maintenance; and miscellaneous main maintenance.
Service Maintenance	SCG-04-R GOM-56 to GOM-62 WP 2GD000.004	The work in this workgroup is designed to meet federal (49 CFR 192) and state, (General Order 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. This category includes costs for activities designed to mitigate infrastructure integrity risks.
Tools Fittings & Materials	SCG-04-R GOM-69 to GOM-72 WP 2GD003.005	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 obtaining complete and safe work results. 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., and miscellaneous installation materials – cold patch asphalt, pre-mixed concrete, etc. Also recorded to this workgroup are expenses for the rental and laundering of uniforms.
Cathodic Protection	SCG-04-R GOM-45 to GOM-49 WP 2GD003.000	Cathodic Protection is one method utilized by SoCalGas to mitigate the external corrosion on buried steel pipelines, without which the steel may corrode by reverting back to its natural state as an iron oxide. Mitigating external corrosion is required to decrease the potential for leaks and reduced useful life of the pipelines.
Operations and Management	SCG-04-R GOM-77 to GOM-81 & SCG-05-R OR-24 to OR-33 WP 2GD004.000 & 2SI001.000	Operations Management and Training is a critical component of managing the integrity of the pipeline system to prevent and reduce risks. The activities completed within this workgroup are categorized as Operations Leadership, Field Management, Operations Support and Field Technical Skills Training. This category includes costs for activities, as described, designed to mitigate system reliability risks.

iv. SoCalGas Gas Distribution Capital Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Gas Distribution		365,616	326,581	39,035	12%							
New Business Construction	Non-RAMP	52,227	41,619	10,608	25%	12,805	The variety and scope for each new business (customer driven gas service) makes it infeasible to identify a single imputed authorized unit of measurement. The number and timing of new pipeline projects is based on factors outside the control of SoCalGas.			Non-RAMP New Business Orders with 2020 Energized Date	Yes	No
New Business - RAMP	MSA Inspections - Customer Service Initial Turn-Ons	2,296	2,276	20	1%	1,772	The variety and scope for each new business (customer driven gas service) makes it infeasible to identify a single imputed authorized unit of measurement. The number and timing of new pipeline projects is based on factors outside the control of SoCalGas.			New Business Orders with Customer Service Initial Turn-ons	No	No
Sub-Total New Business		54,523	43,895	10,628	24%						Yes	
Gas Meters	Non-RAMP	21,097	27,872	(6,775)	-24%	93,327	This activity involves the purchase, warehouse handling, technical evaluation, and quality assurance associated with procuring new meters for either the installation of new businesses or the replacement of existing meters. The variety of work activities in this category makes it infeasible to identify a			Meters Purchased	Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
							single imputed authorized unit of measurement.					
Gas Regulators	Non-RAMP	5,440	6,547	(1,107)	-17%	62,758	This activity involves the purchase of new regulators for the installation of new businesses or the replacement of an in-service regulator. Because of the different models and types of regulators and the many factors to consider when determining which model to purchase, it is infeasible to identify a single imputed authorized unit of measurement.			Regulators Purchased	No	No
Cathodic Protection	Non-RAMP	0	2,745	(2,745)	-100%	The work associated with installing or replacing cathodic protection stations includes the additions of new rectifier sites and associated anode installations, installing the necessary instrumentation and remote monitoring equipment, and shallow and deep well anode bed replacements for existing rectified systems. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.				Yes	No	
Cathodic Protection - RAMP	Systems are in place to monitor and manage compliance activity schedules	6,289	4,137	2,153	52%	The work associated with this activity complies with 49 CFR Part 192, Subpart I and consists of expenditures associated to a wide variety of CP related work (<i>e.g.</i> , related to installation and replacement of cathodic protection stations, applying cathodic protection to existing steel mains and service lines, additions of new rectifiers, shallow well and deep well anode bed replacements, as well as larger surface bed magnesium anode systems). The variety of work activities in this category makes it infeasible to identify a single unit of measurement.				Yes	No	

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Sub-Total Cathodic Protection		6,289	6,882	(592)	-9%						No	
Electronic Pressure Monitors (EPM)	Non-RAMP	560	1,038	(478)	-46%	180	195	(15)	-8%	EPM Installations/ Replacements	No	No
Remote Meter Reading	Non-RAMP	(51)	2,214	(2,265)	-102%	This workpaper consists of Customer Services Field (CSF) labor and non-labor expenses for curb meter replacements as part of the planned meter changes associated with the Advanced Metering Infrastructure (AMI) implementation. Work related to Remote Meter Reading was completed prior to 2020. No costs or units have been incurred in 2020. The negative actual cost in 2020 reflects accounting adjustments.					Yes	No
Pressure Betterment Projects	Non-RAMP	40,951	28,335	12,615	45%	53	This activity includes reinforcement and pressure betterment projects required to remedy low-pressure conditions and/or improve reliability to large single feed areas that are usually initiated due to new loads being added to the system. The variety of work activities in this category makes it infeasible to identify a single imputed authorized unit of measurement.			Field Completed Pressure Betterment Projects	Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Main Replacements	Non-RAMP	21,155	35,804	(14,649)	-41%	214	This activity involves replacing main operating pipeline to address deteriorating pipe conditions, risk to the public, and increased maintenance costs. The variety of work activities in this category makes it infeasible to identify a single imputed authorized unit of measurement.			Field Completed Main Replacement Projects	Yes	No
Main Replacements - RAMP	Contracting for Traffic Control Delineation materials	2,457	2,434	23	1%	2,413	This RAMP activity includes all capital orders that involve contracting for traffic control delineation materials. The variety of work activities in this category makes it infeasible to identify a single imputed authorized unit of measurement.			Orders involving contracting for traffic control delineation materials	No	No
Sub-Total Main Replacements		23,612	38,238	(14,626)	-38%						Yes	
Main & Service Abandonments	Non-RAMP	12,176	9,134	3,041	33%	3,636	This category includes activities associated with the abandonment of distribution pipeline mains and services. The work includes cutting and capping the pipe to be abandoned at the service-to-main connection. The variety of work activities in this category makes it infeasible to identify a single imputed authorized unit of measurement.			Field Completed Main & Service Abandonments	Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Service Replacements	Non-RAMP	44,968	29,504	15,464	52%	4,639	The timing of service replacement projects is based on a number of factors including the need for review of operating conditions, detailed planning requirements, acquiring the necessary permits, and coordination and scheduling of resources. The variety of work activities in this category makes it infeasible to identify a single imputed authorized unit of measurement.			Field Completed Service Replacements	Yes	No
Pipeline Relocations - Freeway	Non-RAMP	1,995	8,859	(6,864)	-77%	5	Gas pipeline relocation projects are performed to establish adequate clearance to accommodate freeway construction improvements and/or expansions. The number and scope of projects is driven by external agencies and therefore outside of SoCalGas's control. The varying scope of each project makes it infeasible to identify a single imputed authorized unit of measurement.			Field Completed Projects of Freeway related Franchise work	Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Pipeline Relocations - Franchise	Non-RAMP	39,364	20,804	18,560	89%	84	Gas pipeline relocation projects are performed to relocate pipe that would, in its current location, interfere with the construction or reconstruction of streets and other public works projects. The number and scope of projects is driven by external agencies and therefore outside of SoCalGas's control. The variety of work activities in this category makes it infeasible to identify a single imputed authorized unit of measurement.			Field Completed Projects - Franchise related work	Yes	No
Meter Guards	Non-RAMP	4,549	3,022	1,527	51%	7,911	Represented in this work category are expenditures for installations of Meter Guards to protect the meter set assemblies at existing customer locations from vehicular traffic. This category includes costs for activities, as described, designed to support public safety and system integrity. This activity complies with CPUC GO 112-F and 49 CFR 192.353(a). The variety of work activities in this category makes it infeasible to identify a single imputed authorized unit of measurement.			Meter Guard Installations	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Regulator Stations	Non-RAMP	4,573	11,730	(7,157)	-61%	This Non-RAMP activity is tracked by work orders that are initiated for new business and to meet reliability needs. The scope of work and corresponding costs associated with each order is project-specific and varies significantly from project to project (e.g., projects may include the installation, replacement, relocation and/or maintenance of regulator stations and vault lids). The variety of work activities in this category makes it infeasible to identify a single unit of measurement. The actual costs for this activity in 2020 are associated with 15 orders.					Yes	No
Regulator Stations - RAMP	Systems are in place to monitor and manage compliance activity schedules related to high pressure.	1,387	154	1,233	804%	5	This RAMP Activity complies with 49 CFR Part 192.739, Subpart M. This activity is tracked by work orders that are initiated to address non new-business and public safety needs. The scope of work and corresponding costs associated with each order is project-specific and varies significantly from project to project (e.g., projects may include the installation, replacement, relocation and/or maintenance of regulator stations and vault lids). The variety of scopes of work and varying dollars associated with each order make it infeasible to identify a single imputed authorized unit of measurement.			Orders	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Regulator Stations - RAMP	Systems are in place to monitor and manage compliance activity schedules related to medium pressure.	73	35	38	109%	6	This RAMP activity complies with 49 CFR Part 192, Subpart M. This activity is tracked by work orders that are initiated to address non new-business and public safety needs. The scope of work and corresponding costs associated with each order is project-specific and varies significantly from project to project (e.g., projects may include the installation, replacement, relocation and/or maintenance of regulator stations and vault lids). The variety of scopes of work and varying dollars associated with each order make it infeasible to identify a single imputed authorized unit of measurement.			Orders	No	No
Sub-Total Regulator Stations		6,033	11,919	(5,885)	-49%						Yes	
Supply Line Replacements	Non-RAMP	237	3,773	(3,535)	-94%	2	The activities in this work category are tracked by work orders and include costs to replace high-pressure distribution pipelines (i.e., supply lines). Drivers for these supply line replacement projects include deteriorating pipe conditions, risk to the public, and increased maintenance costs. The variety of work activities in this category makes it infeasible to			Field Completed Orders Supply Line Replacement works	Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
							identify a single imputed authorized unit of measurement.					
Other Distribution Capital Projects	Non-RAMP	9,456	3,802	5,653	149%	This non-RAMP activity is tracked by work orders that are initiated for capital relocations of SoCalGas facilities, not specifically included in franchise agreements or franchise work, and covers a wide variety of work and corresponding costs associated with collectible and non-collectible construction projects (e.g., related to relocation of service lines, MSAs, replacement or alterations of vaults, drips, traps, roads, fences and EFVs). The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
Other Distribution Capital Projects - RAMP	Systems are in place to monitor and manage compliance activity schedules-Maintenance and Inspection of Medium Pressure Valves	238	9	229	2600%	This RAMP activity complies with 49 CFR Part 192, Subpart P. The scope of work and corresponding costs associated with each order is project-specific and varies significantly from project to project (e.g., projects may include the installation, replacement, relocation and/or maintenance of medium pressure valves). The variety of work activities in this category makes it infeasible to identify a single unit of measurement. The actual costs for his activity in 2020 are associated with 9 orders.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Other Distribution Capital Projects - RAMP	Valve Maintenance and Installation (Distribution High Pressure)	763	26	737	2880%	This RAMP activity complies with 49 CFR Part 192.747 Subpart M. The scope of work and corresponding costs associated with each order is project-specific and varies significantly from project to project (e.g., projects may include the installation, replacement, relocation and/or maintenance of high-pressure valves). The variety of work activities in this category makes it infeasible to identify a single unit of measurement. The actual costs for this activity in 2020 are associated with 11 orders.					No	No
Sub-Total Other Distribution Capital Projects		10,457	3,837	6,620	173%						Yes	
Gas Energy Measurement Systems (GEMS)	Non-RAMP	215	1,447	(1,233)	-85%	612	667	(55)	-8%	GEMS Units Installed	No	No
Capital Tools & Equipment	Non-RAMP	17,640	7,084	10,556	149%	This activity consists of various 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. The range of costs and types of equipment makes it infeasible to identify a single unit of measurement.					Yes	No
Capital Tools & Equipment - RAMP	Prevention and Improvements	637	896	(259)	-29%	69	Units were not utilized to determine authorized dollars and forecasts for this RAMP activity; however, 2020 actual units of purchased Damage Prevention Kits were identified. The actual costs in 2020 are associated with the purchase of 69 Damage Prevention Kits.			Damage Prevention Kits	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Capital Tools & Equipment - RAMP	Upgrade Nomex Coveralls & Fresh Equipment	1,361	406	955	235%	554	This activity involves purchasing clothing (Nomex Coveralls) and equipment (gloves, gas extraction suits, air respirators) utilized by field personnel working in flammable atmosphere environments. The variety of work activities in this category makes it infeasible to identify a single imputed authorized unit of measurement. The actual costs in 2020 are associated with the purchase of 554 Nomex Coveralls.			Nomex Coverall/Reequipment Purchased Units	No	No
Capital Tools & Equipment - RAMP	Confined space air monitoring system for field personnel	81	268	(187)	-70%	This activity involves the purchase of confined space air monitoring systems for field personnel. No systems were purchased in 2020 and the actual costs reflect carry-over accounting for systems purchased in 2019.					No	No
Sub-Total Capital Tools & Equipment		19,719	8,655	11,064	128%						Yes	
Field Capital Support	Non-RAMP	84,244	69,759	14,485	21%	735	This activity consists of a wide variety of work performed by multiple personnel that is associated with the installation of gas distribution capital assets (e.g., project planning, local engineering, clerical support, field dispatch, field management and supervision, and off-production time for support personnel and field crews who			FTEs Related to Field Capital Support	Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
							install gas distribution capital assets). The variety of work activities in this category makes it infeasible to identify a single imputed authorized unit of measurement.					
Field Capital Support - RAMP	Med Pressure Company Crew Inspections	124	59	65	111%	2,576	This activity includes Field Team Leads and Field Operations Supervisors performing inspections on medium pressure pipeline projects as part of the company’s quality assurance / quality control program using the FACT/ISN reporting system. The variety of work activities in this category makes it infeasible to identify a single imputed authorized unit of measurement.			Company Crew Inspection Hours	No	No
Field Capital Support - RAMP	Systems are in place to monitor and manage compliance activity schedules	754	94	660	702%	This activity complies with CFR 49 Subpart M and involves work performed to process third party-initiated conflict review and/or right of way issues. The number and scope of projects is varied and dependent on factors outside SoCalGas' control, thus making it infeasible to identify a single unit of measurement. There were nine employees who performed this work in 2020.					No	No
Sub-Total Field Capital Support		85,122	69,911	15,211	22%						Yes	

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
New Business Construction - Trench Reimbursements	Non-RAMP	1,238	694	544	78%	This workpaper covers the reimbursable costs covered by SoCalGas if the customer provides the trench, which can vary significantly year over year, thus making it infeasible to identify a single unit of measurement.					No	No

v. SoCalGas Gas Distribution Capital Variance Explanations

WP Name	Variance Threshold Triggers		Variance Explanation
New Business Construction (WP Total & Non-RAMP)	\$:	Yes	This work activity involves making changes and/or additions to the existing gas distribution system to connect new residential, commercial and/or industrial customers. The variety and scope of work for each new business is customer driven and therefore based on factors outside the control of SoCalGas. The variance is attributed to higher than anticipated customer driven requests and project expenditures related to more than anticipated new business projects.
	Units:	No	
Gas Meters	\$:	Yes	This activity involves the purchase, warehouse handling, technical evaluation, and quality assurance associated with procuring new meters for either the installation of new businesses, replacement of existing meters shop survey meters, routine meter change and/or planned meter changes. The variance is attributed to a reduction in shop survey meter purchases due to the proactive effort to replace meters during the Advanced Meter Infrastructure project implementation, in addition to lower than anticipated planned meter changes.
	Units:	No	
Cathodic Protection Non-RAMP	\$:	Yes	The variance is attributable to the fact all CP activities are inherently maintenance-related, and therefore categorized as RAMP activities (<i>i.e.</i> , there were no non-RAMP CP activities).
	Units:	No	
	\$:	Yes	

WP Name	Variance Threshold Triggers	Variance Explanation
Cathodic Protection RAMP	Units: No	This variance is due to the methodology used to calculate the imputed authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas / SDG&E attrition years rather than a specific funding level by activity for each year. This is described in further detail in section 2.D above.
Remote Meter Reading Non-RAMP	\$: Yes Units: No	The variance is due to Remote Meter Reading related work being completed prior to 2020. No costs or units have been incurred in 2020. The negative actual cost in 2020 reflects accounting adjustments.
Pressure Betterment Projects	\$: Yes	The variance is primarily attributed to the costs associated with construction of a large pressure betterment project, the Terra Bella Pressure Betterment Project- Phase 1 and 2. This large project was not included in the calculation used to impute authorized funding at the activity level for the GRC post-test years.
	Units: No	
Main Replacements (WP Total & Non-RAMP)	\$: Yes Units: No	Variance is due to lower than anticipated number of main replacements being performed as a number of projects were identified and captured, as appropriate, under other leak remediation and main replacement programs such as SB1371 and DIMP. Variance is also due 2020 construction delays, municipality permitting, and project construction start date delays and crew availability.
Main & Service Abandonment	\$: Yes Units: No	Variance is due to higher than anticipated expenditures from an increase in customer requested abandonments ahead of new business construction.
Service Replacements	\$: Yes Units: No	Variance in Non-RAMP and RAMP are due to higher than anticipated expenditures for service replacements addressing leakage and CP-10 compliance dates.
Pipeline Relocations - Freeway	\$: Yes Units: No	Variance is due to higher than anticipated municipality and third-party agency demand for relocations of pipeline and related facilities and due to timing of work schedule versus expectations of collections on Franchise Projects. In addition, trailing costs for construction projects completed in 2019 contributed to the variance.
Pipeline Relocations - Franchise	\$: Yes Units: No	Variance is due to higher than anticipated municipality and third-party agency demand for relocations of pipeline and related facilities and due to timing of work schedule versus expectations of collections on Franchise Projects. The majority of this variance is attributed to a large unanticipated relocation project (16" Supply-Line 42-46) that was driven by external entities.

WP Name	Variance Threshold Triggers		Variance Explanation
Regulator Stations (WP Total & Non-RAMP)	\$: Units:	Yes No	The variance is due to the timing of project expenditures related to incremental regulator station replacement work proposed in the 2019 GRC. High priority regulator station replacements, relocations and installations are addressed immediately as part of baseline activities. This activity category addresses incremental regulator station replacement work to further enhance the safety and reliability of the system. The pace of this incremental work is anticipated to increase in 2021 and beyond.
Supply Line Replacements	\$: Units:	Yes No	The variance is primarily attributable to a large portion of Supply Line replacement work being performed and recorded under other activity categories (<i>e.g.</i> , PSEP and Pipeline Integrity) and allocation of funds to other higher-priority Distribution Capital projects.
Other Distribution Capital Projects (WP Total & Non-RAMP)	\$: Units:	Yes No	Variance is due to a significant ramp-up of Excess Flow Valve (EFV) installations to comply with 49 CFR 192.383, in addition to increased resources and contractor planners hired on to support the EFV ramp-up efforts. There were also additional capital investments driven by outstanding paving and survey invoice reconciliation efforts and trailing invoices from 2019 projects.
Capital Tools & Equipment (WP Total & Non-RAMP)	\$: Units:	Yes No	The variance is due to higher than anticipated Capital Tools expenditures due to accelerated purchases of Remote Methane Leak Detector units for Customer Service and Distribution, additional Nomex coveralls, CO Upgrade Kits, regulators humidifying boxes and deployment of approximately 870 Gas Surveyor purchases for Customer Service Field.
Field Capital Support (WP Total & Non-RAMP)	\$: Units:	Yes No	The variance is due to higher than anticipated project management, engineering, field dispatch, field management/supervision, and off- production time expenditures to support field capital investments activities. Additional stringent municipality requirements and construction delays contributed to additional costs in required resources and field support.

vi. SoCalGas Gas Distribution Capital Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
New Business Construction	SCG-04-R GOM-93 to GOM-96 WP 0151	This work category provides for changes and additions to the existing gas distribution system to connect new residential, commercial, and industrial customers. The activities of this category include installation of gas mains and services, meter set assemblies, regulator stations and the associated facilities necessary to provide service to new customers.

WP Name	2019 GRC Testimony Location	WP Activity Description
Gas Meters	SCG-04-R GOM-126 to GOM-129 WP 163	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. This category includes costs for activities designed to mitigate system reliability risks.
Cathodic Protections	SCG-04-R GOM-112 to GOM-116 WP 173	This work category includes capital expenditures associated with the installation of cathodic protection equipment used to preserve the integrity of steel pipelines by protecting them from external corrosion. This category includes costs for activities designed to mitigate infrastructure integrity risks.
Remote Meter Reading	SCG-04-R GOM-142 to GOM-144 WP 1820	This cost category consists of Customer Services Field (CSF) labor and non-labor expenses for curb meter replacements as part of the planned meter changes associated with the Advanced Metering Infrastructure (AMI) implementation. Beginning in 2013, the Advanced Metering Infrastructure (AMI) project assumed responsibility for above-ground Planned Meter Changes (PMC), including both planned and accelerated meter changes, and CSF shifted its focus to curb meter changes. This trade-off (<i>i.e.</i> , the AMI project team focusing on above-ground meters and CSF focusing on curb meters) enabled a better match between the work and employee skill sets. Over the course of the deployment period, SoCalGas anticipates all GRC and AMI-funded planned meter changes will be completed.
Pressure Betterment Projects	SCG-04-R GOM-96 to GOM-99 WP 251	This work category records expenditures for Gas Distribution pressure betterment projects performed on a continuing basis to maintain system reliability and service to customers. This category includes costs for activities designed to mitigate system reliability risks.
Main Replacements	SCG-04-R GOM-101 to GOM-103 WP 252	This work category includes expenditures to replace mains operating at 60 psig and below, also referred to as medium-pressure main replacements. This category includes costs for activities designed to mitigate infrastructure integrity risks.
Main & Service Abandonments	SCG-04-R GOM-106 to GOM-108 WP 2540	This work category includes expenditures associated with the abandonment of distribution pipeline mains and services without the installation of new pipeline to replace the old. Abandonment of mains and services are planned when abandonment of the pipeline is anticipated not to cause a negative effect on the distribution system, otherwise, a replacement plan will be pursued. Mains are retired from service by stopping the flow of gas into the section of pipe to be abandoned. This is typically accomplished with pressure control fittings installed on both ends of the section of pipe to isolate from gas flow. Abandonment of service lines is accomplished by cutting and capping at the service-to-main connection.

WP Name	2019 GRC Testimony Location	WP Activity Description
Service Replacements	SCG-04-R GOM-103 to GOM-105 WP 2560	Service replacements represented in this category include expenditures specific to the 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. Services are replaced by two construction methods, “insertion” and “direct bury.” With the insertion method, a new plastic replacement service pipe is inserted into the to-be abandoned steel service pipe such that the steel service becomes casing for the plastic pipe. The direct bury technique specifies to the construction crews that the installation of new pipe does not need casing, and any appropriate installation method can be utilized, such as boring or open trench.
Pipeline Relocations - Freeway	SCG-04-R GOM-116 to GOM-118 WP 261	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. This category includes costs for activities designed to mitigate public safety risks.
Pipeline Relocations - Franchise	SCG-04-R GOM-118 to GOM-120 WP 262	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’ franchise agreements with city and county agencies. This category includes costs for activities designed to mitigate public safety risks.
Regulator Stations	SCG-04-R OM-109 to GOM-112 WP 265	Represented in this work category are expenditures for the upgrade, relocation, and replacement of regulator stations. This category includes costs for activities designed to mitigate infrastructure integrity risks.
Supply Line Replacements	SCG-04-R GOM-99 to GOM-100 WP 267	The Supply Line Replacements work category includes expenditures to replace high-pressure distribution pipelines, referred to as “supply lines” at SoCalGas. This category includes costs for activities designed to mitigate infrastructure integrity risks.
Other Distribution Capital Projects	SCG-04-R GOM-121 to GOM-123 WP 270	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. This category includes costs for activities designed to mitigate public safety risks.
Capital Tools & Equipment	SCG-04-R GOM-134 to GOM-138 WP 725 & 906	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. This category includes costs for activities designed to mitigate employee safety risks.
Field Capital Support	SCG-04-R GOM-138 to GOM-142 WP 9030	Traditional work elements recorded to this budget category include project planning, local engineering, clerical support, field dispatch, field management and supervision, and off-production time for support personnel and field crews who install the Gas Distribution capital assets.

B. SoCalGas Gas Control & System Operations

i. SoCalGas Gas Control & System Operations O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Gas Control & System Operations - Planning		8,796	9,925	(1,129)	-11%							
Energy Markets & Capacity Products - Director	Non-RAMP	0	349	(349)	-100%	0	2	(2)	-100%	FTE	No	Yes
Energy Markets & Capacity Products - Support	Non-RAMP	807	685	122	18%	7	6	1	18%	FTE	No	No
Energy Markets & Capacity Products - Manager	Non-RAMP	866	680	186	27%	7	6	2	27%	FTE	No	Yes
Gas Scheduling	Non-RAMP	594	801	(207)	-26%	5	7	(2)	-26%	FTE	No	Yes
Gas Control & SCADA Operation Group - USS	Non-RAMP	0	14	(14)	-100%	Gas Control and SCADA Operations is responsible for the remote monitoring, control, and real-time operation of SoCalGas and SDG&E's combined gas-transmission system including its' associated pipelines, line compressor stations, and underground storage facilities. The variety of work scope and varying dollars associated with this activity make it impractical to identify an appropriate unit of measure.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Gas Control & SCADA Operation Group - USS	Fatigue Management	852	475	376	79%	49 CFR § 192.631(d) - Control Room Management Fatigue Mitigation requires each operator to implement methods to reduce the risk associated with controller fatigue that could inhibit a controller's ability to carry out their roles and responsibilities safely. The variety of work scope and varying dollars associated with this activity make it impractical to identify an appropriate unit of measure.					No	No
Gas Control & SCADA Operation Group - USS	Operation	0	2	(2)	-100%	Gas Control and SCADA Operations is responsible for the remote monitoring, control, and real-time operations of SoCal Gas and SDG&E's combined gas-transmission system including its' associated pipelines, line compressor stations, and underground storage facilities. The variety of work scope and varying dollars associated with this activity make it impractical to identify an appropriate unit of measure.					No	No
Gas Control & SCADA Operation Group - USS	Gas Control Operation	2,057	1,787	270	15%	Gas Control and SCADA Operations is responsible for the remote monitoring, control, and real-time operations of SoCal Gas and SDG&E's combined gas-transmission system including its' associated pipelines, line compressor stations, and underground storage facilities. The variety of work scope and varying dollars associated with this activity make it impractical to identify an appropriate unit of measure.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Gas Control & SCADA Operation Group - USS	SCADA Operation	924	1,063	(140)	-13%	49 CFR § 192.631 applies to each operator of a pipeline system monitoring and controlling the system via a Supervisory Control and Data Acquisition (SCADA) system. The SCADA department manages the planning, operation and maintenance of the SCADA system. The SCADA system provides for remote monitoring and operation of valves, compressors, pressure regulation equipment, and gas flow across the system. The variety of work scope and varying dollars associated with this activity make it impractical to identify an appropriate unit of measure.					No	No
Sub-Total Gas Control & SCADA Operation Group - USS		3,833	3,342	491	15%						No	
Gas Transmission Planning	Non-RAMP	864	765	99	13%	7	6	1	13%	FTE	No	No
Storage Products Manager	Non-RAMP	206	175	31	18%	2	1	0	18%	FTE	No	No
Emergency Services	Non-RAMP	0	130	(130)	-100%	0	1	(1)	-100%	FTE	No	Yes
Emergency Services	Safety, Wellness and Emergency Services Support	1,626	2,998	(1,372)	-46%	11	19	(8)	-41%	FTE	Yes	Yes
Sub-Total Emergency Services		1,626	3,129	(1,502)	-48%						Yes	

ii. SoCalGas Gas Control & System Operations O&M Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
Energy Markets & Capacity Products - Director	\$: No Units: Yes	Units: Number of FTE. During TY2019 GRC, Gas Scheduling and Energy Markets Departments reported to the same Director. When the Departments were separated, the Energy Markets Department reported directly to a Senior VP with no inline Director. The Gas Scheduling Department was moved to the Director of Gas Control & System Planning
Energy Markets & Capacity Products - Manager	\$: No Units: Yes	Units: Number of FTE. Actual units and imputed authorized units are derived from Labor and Non-Labor costs. Unplanned non-labor costs for market simulation software to simulate gas demand for Utility Electric Generation (UEG) planning were new in 2020.
Gas Scheduling	\$: No Units: Yes	Units: Number of FTE. The variance is due to lower than forecast staffing levels including an unfilled Gas Scheduling Manager position.
Emergency Services - Non-RAMP	\$: No Units: Yes	Units: Number of FTE. Due to the Pandemic, resources were shifted to support COVID-19 and the development of new and existing health and safety policies, procedures and protocols company-wide, which resulted in the postponement of drills and exercises for the year.
Emergency Services – RAMP Safety, Wellness and Emergency Services Support	\$: Yes Units: Yes	Units: Number of FTE. Due to the Pandemic, resources were shifted to support COVID-19 and the development of new and existing health and safety policies, procedures and protocols company-wide, which resulted in the postponement of drills and exercises for the year.

iii. SoCalGas Gas Control & System Operations O&M Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Energy Markets & Capacity Products - Director	SCG-13 DKZ-18 WP 2200-00246.000	Energy Markets & Capacity Products’ shared service elements include both direct customer service and staff support. Specific groups in this area include Capacity Products Support and Capacity Products – Manager. These shared services provide capacity services for gas marketers that serve both SoCalGas and SDG&E customers, large nonresidential customers who choose to act as their own gas supplier, and core aggregators. The group also manages business relationships with upstream pipelines that serve the SoCalGas and SDG&E systems; provides analytical and regulatory compliance support for Backbone Transportation Service, unbundled storage and Hub transactions; and represent SoCalGas in the development and modification of gas industry standards for gas scheduling.

WP Name	2019 GRC Testimony Location	WP Activity Description
Energy Markets & Capacity Products - Manager	SCG-13 DKZ-18 to SKZ-19 WP 2200-0330.000	Energy Markets & Capacity Products' shared service elements include both direct customer service and staff support. Specific groups in this area include Capacity Products Support and Capacity Products – Manager. These shared services provide capacity services for gas marketers that serve both SoCalGas and SDG&E customers, large nonresidential customers who choose to act as their own gas supplier, and core aggregators. The group also manages business relationships with upstream pipelines that serve the SoCalGas and SDG&E systems; provides analytical and regulatory compliance support for Backbone Transportation Service, unbundled storage and Hub transactions; and represent SoCalGas in the development and modification of gas industry standards for gas scheduling.
Gas Scheduling	SCG-13 DKZ-19 to DKZ-20 WP 2200-2158.000	Gas Scheduling is responsible for day-to-day management and operation of the ENVOY system for nominations, allocations and scheduling of gas transportation for approximately 920 of SoCalGas' non-core customers and 125 of SDG&E's non-core customers.
Emergency Services	SCG-13 DKZ-3 & DKZ-15 to DKZ-16 WP 2GS001.000	The SoCalGas Emergency Services department main objective is to support SoCalGas goals of maintaining comprehensive and coordinated emergency response and recovery programs to comply with applicable state and federal requirements. The department consists of four key groups <i>i.e.</i> , Core Emergency Operations Center Operations, Emergency Services Enhancement Program, Enterprise Planning/Tech Advancement/Training Program, and Regulatory Compliance/Stakeholder Outreach/Development Program.

iv. SoCalGas Gas Control & System Operations Capital Variances

The Gas Control & System Operations witness did not sponsor any capital costs in the TY 2019 GRC.

C. SoCalGas Gas Engineering

i. SoCalGas Gas Engineering Operations O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Gas Engineering		22,741	31,391	(9,190)	-29%							
Dir Eng & Tech Services	Non-RAMP	634	561	74	13%	Director of Gas Engineering includes expenditures incurred for activities such as engineering governance, oversight, policies, and strategies related to the safe design and operation of gas infrastructure and consists of a variety of activities					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
						including engineering service provider contracts and quality management and converting design applications to data-centric, three-dimensional models that involve modeling and scanning gas assets. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.						
Dir Eng & Tech Services	Information Management Systems	58	334	(276)	-83%	1	4	(3)	-83%	FTE	No	Yes
Sub-Total Dir Eng & Tech Service		692	894	(202)	-23%						No	
MRC Management & Special Projects	Non-RAMP	863	993	(130)	-13%	Measurement, Regulation, and Control (MRC) Management & Special projects provides general management and administrative support and provides engineering policy, design, material selection, testing and field support related to measurement, gas regulation, automated control systems for pipelines and compressor stations and other instrumentation. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Measurement & Design	Non-RAMP	364	1,288	(925)	-72%	Measurement & Design provides engineering, commissioning, and design solutions for M&R stations, district regulator stations, pipeline valve automation and system integration, fiber optic assets, pressure relief valves, and pressure regulation control and monitoring. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Measurement Technologies	Non-RAMP	1,258	1,416	(158)	-11%	Measurement Technologies is responsible for: testing, evaluation, selection, and deployment of strategic planning and policies and practices associated with gas metering equipment; managing meter and regulator maintenance and inspection scheduling and reporting systems; and managing meter and regulator maintenance and inspection scheduling and reporting systems. The variety of work activities in this					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
						category makes it infeasible to identify a single unit of measurement.						
Measurement Field Support	Non-RAMP	783	1,383	(600)	-43%	Measurement Field Support provides planning, field support, technical guidance policy, procedures and training in the areas of large, automated control for gas compressor stations, pipelines, California Producers, metering and regulation station and auxiliary equipment. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Engineering Design Management Process Engineering & Design	Non-RAMP	1,486	2,057	(571)	-28%	The non-RAMP portion of the Engineering Design workpaper includes several functional areas that cannot be described as a single unit of measure. These functional areas consist of core engineering activities and include: Pipeline Design, Process Engineering, Mechanical Design, and Design Drafting, including support of renewable gas design of interconnect facilities.					No	No
Engineering Design Management Process Engineering & Design	Information Management Systems	192	243	(51)	-21%	2	2	0	0%	FTE	No	No
Sub-Total Engineering Design Management Process Engineering & Design		1,678	2,301	(622)	-27%						No	
Pipeline Materials	Non-RAMP	137	440	(303)	-69%	Pipeline Materials activities include management of related business processes for the approval documentation, and quality management of gas pipeline and appurtenance materials including process for approving manufacturers that supply specified pipeline materials. The variety of work activities in this category makes it infeasible to identify a					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
						single unit of measurement.						
Mechanical Design	Non-RAMP	96	199	(103)	-52%	The activities provided by the Mechanical Design group include the technical expertise needed to develop and implement mechanical engineering strategies and designs related to transmission and storage facilities, including compressor stations, instrument air systems, exhaust systems, pressure vessels, field piping, fire protection systems, and gas processing facilities. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Pipeline Engineering	Non-RAMP	412	743	(331)	-45%	Pipeline Engineering establishes engineering gas standards and procedures and material specifications and consists of a variety of activities involving assessments of pipelines for transmission, distribution, and storage fields including pressure testing, surface loadings, span evaluations, piping vibration and ground movement impacts. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Research, Planning & Development	Non-RAMP	0	44	(44)	-100%	Research Planning includes activities related to the program management of Environmental Research, and Gas Operations Research, Development and Demonstrations (RD&D) and includes participation in research projects related to environmental research with organizations such as Pipeline Research Council International (PRCI) and in gas operations RD&D projects such as methane detection using an unmanned aerial vehicle drone. The variety of work activities in this category makes it infeasible to identify a single unit of measurement. This work was not cancelled or deferred; it was performed within the Balanced RD&D program.					No	No
MRC – Instrument-	Non-RAMP	506	1,466	(960)	-65%	MRC Instrumentation Repair and Field Support includes activities that provide calibration of instruments used for: field					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
ation Repair and Field Support						maintenance of gas facilities; field inspection, and the configuration, programming, testing and repair/assessment of electronic measurement devices used for customer billing. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.						
Engineering Analysis Center - Chemical Lab	Non-RAMP	2,005	2,278	(272)	-12%	The Engineering Analysis Center Chemical section provides environmental, gas operation, and BTU measurement related analytical services to the operation and customer services organizations and activities include: PCB analysis and sample management, hazardous material, gas quality policy and operating procedures, gas composition, odorization management and test development, gas line odor seasoning management and training, gas quality testing, BTU measurement, fugitive and leakage gas identification and verification. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
MRC Standards	Non-RAMP	176	807	(632)	-78%	MRC Standards includes activities to develop material specification and technical standards for small and medium-sized meter and regulator stations and the management of policy, standards and planning for the measurement of gas heating value (BTU) or composition needed for special reporting and planning. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
High Pressure & Distribution Engineering	Non-RAMP	817	1,263	(447)	-35%	High pressure and Distribution Engineering maintain and manage engineering drawings and consists of a variety of activities including creating computer hydraulic models of medium and high-pressure pipe Distribution networks, managing pressure monitoring programs, system analysis training of Region Engineering Employees, and providing engineering data analytics. The variety of work activities in this category makes it infeasible to identify a single unit of					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
						measurement.						
Electrical Design	Non-RAMP	117	171	(53)	-31%	Electrical design is responsible for designing and producing documents and design drawings associated with electrical components such as meters, control valves, and monitoring equipment. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Gas Engineering Analysis Center, NGV and Electrical Field	Non-RAMP	7,762	6,771	991	15%	The Gas Engineering Analysis Center, Natural Gas Vehicle (NGV) and Electrical Field Maintenance workpaper includes several functional areas that cannot be described as a single unit of measure. These functional areas include: Compressor Services and Air Quality Testing, Materials Quality Management, Manufacturer Specifications (MSPs), Manufacturer Approvals and Audits, Chemical and Environmental Services, Non-Destructive Examination (NDE) Testing and Oversight Program, Materials Laboratory, Welding Procedure Evaluation, Natural Gas Vehicle Field Support and Maintenance, Electrical Maintenance and Applied Technologies. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Land Services & Right of Way	Non-RAMP	3,363	4,003	(640)	-16%	Land Services and Right of Way manages and acquires the necessary property rights that allow for the access, construction, operation and maintenance of pipeline infrastructure. This workpaper also includes lease administration. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Civil Structural & Hazard Mitigation Engineering	Non-RAMP	147	1,099	(952)	-87%	0	1	(1)	-100%	Seismic Report	No	Yes

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Civil Structural & Hazard Mitigation Engineering	Monitoring of Land Movement & Flood zones	222	1,207	(985)	-82%	3	3	0	0%	Flood Analysis Report Satellite Monitoring and Subsidence Monitoring	No	No
Civil Structural & Hazard Mitigation Engineering	Gas Infrastructure Resilience & Vulnerability Report	(96)	358	(454)	-127%	SoCalGas hires contractors to perform multiple resiliency and vulnerability reports of varying scope throughout the year. Invoices are submitted reflecting phases of these contracts. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.				No	No	
Civil Structural & Hazard Mitigation Engineering	Real time monitoring of land movement via stress acting on infrastructure	5	110	(105)	-95%	3	This activity is tracked by the number of Strain Gauge Installation Projects. The variety of work scope and varying dollars associated with this activity make it infeasible to identify a single imputed authorized unit of measurement.			Strain Gauge projects	No	No
Sub-Total Civil Structural & Hazard Mitigation Engineering		278	2,774	(2,496)	-90%						Yes	
Meter Shop & Records	Non-RAMP	1,433	2,697	(1,263)	-47%	This activity involves refurbishing, repairing and maintaining a variety of meter types. The variety of work makes it infeasible to identify a single imputed authorized unit of measurement. The 2020 Actual Dollars are associated with 15 FTEs.					Yes	No

ii. SoCalGas Gas Engineering O&M Variance Explanations

WP Name	Variance Threshold Triggers		Variance Explanation
Dir Eng & Tech Services Information Management Systems	\$:	No	Units: Number of FTE. The variance is primarily attributable to delays associated with ramping up this effort. In addition, some of the work forecasted as O&M for the administration and support of the engineering design conversion from two-dimensional drawings to three-dimensional drawings (3D) was conducted under other programs.
	Units:	Yes	
Civil Structural & Hazard Mitigation Engineering Non-RAMP	\$:	No	Units: Number of Seismic Report. The variance is primarily attributed to delays associated with ramping up this effort. Report activities were postponed due to complications that prevented the completion of necessary site reconnaissance. These activities are expected to be completed during the current GRC Cycle.
	Units:	Yes	
Total Civil Structural & Hazard Mitigation Engineering	\$:	Yes	The variance is due to delay of work activities associated with preparing the Seismic Report and a reduction in the frequency and scope of sites associated with Satellite Monitoring and Subsidence Monitoring in 2020.
	Units:	No	
Meter Shop & Records	\$:	Yes	The variance is attributable to a higher proportion of capital meter refurbishment work than forecast.
	Units:	No	

iii. SoCalGas Gas Engineering O&M Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Dir Eng & Tech Services	SCG -9-R DRH-12 DRH-23 to DRH-24 WP 2200-0300.000	This cost center includes expenditures incurred by the Director of Gas Engineering and the organization's administrative and financial support functions. Expenses are typically for gas transmission, underground storage, and gas distribution-related engineering and associated costs of engineering related programs that cross business units or utilities such as the cathodic protection oversight program or engineering service provider quality management.

WP Name	2019 GRC Testimony Location	WP Activity Description
Civil Structural & Hazard Mitigation Engineering	SCG-9-R DRH-10, DRH-12, DRH-13 to DRH-14 WP 2EN002.000	The Civil Structural and Hazard Mitigation Engineering group is responsible for structural engineering design and Geological Hazard Engineering programs, which includes a seismic mitigation program, strain gauge programs, and satellite monitoring programs. This category includes activities, as described designed to mitigate geological hazards and climate change adaption related risks.
Meter Shop & Records	SCG-22-R DW-12 to DW-13 WP 2SS002.000	Meter Shop & Records supports the field requirements for Meters and Meter Transmission Units (MTUs) such as planned meter changes, high bill investigations, new business, and routine meter changes. The Meter Shop also tests, repairs, and salvages Meters and MTUs previously removed from service. The Meter Records group tracks, reports, and reconciles all activity related to the life cycle of Meters and MTUs.

iv. SoCalGas Gas Engineering Capital Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Gas Engineering		113,355	11,185	102,170	913%							
Laboratory Equipment - RAMP	Odorization	2,009	2,827	(819)	-29%	28	33	-5	-15%	Laboratory Equipment	No	No
Supervision & Engineering Overhead Pool	Non-RAMP	9,319	4,753	4,567	96%	Supervision & Engineering Overhead Pool captures expenditures on a direct basis that will be reassigned to various capital budget categories and include labor costs for planning, and engineering of capital gas infrastructure projects including compressor station replacements, fiber optics, and methane detection systems. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Land Rights & Buildings	Non-RAMP	102,026	3,605	98,422	2731%	The Gas Transmission Building portion of this Workpaper consist of improvements activities for construction, replacement or upgrades to structures used by Gas Transmission to contain, shelter and/or protect Transmission equipment such as meter stations, pressure regulating equipment, critical valves or control equipment. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No

v. SoCalGas Gas Engineering Capital Variance Explanations

WP Name	Variance Threshold Triggers		Variance Explanation
Supervision & Engineering Overhead Pool	\$: Yes	Units: No	The variance is attributed to an increase in the volume and complexity of projects requiring more oversight and preliminary engineering support.
Land Rights & Buildings	\$: Yes	Units: No	The variance is attributed to higher than forecasted investment required to acquire necessary land rights.

vi. SoCalGas Gas Engineering Capital Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Supervision & Engineering Overhead Pool	SCG-09 DRH-40 WP 009080	Provide a pool for overhead charges from the Gas Engineering Supervisors or other employees. The charges get reassigned to the various budget categories on a direct basis. Charges reside in this Budget Category temporarily and are reassigned on a monthly basis. Overhead charges stemming from labor spend on capital projects and reassigned to Capital budget categories.
Land Rights & Buildings	SCG-09 DRH-38 to DRH-39 WP 006170	This workpaper provides capital funding for purchases of land or land rights for new Transmission pipelines and for existing rights-of-way that have expired per contractual obligation and need to be re-negotiated. Typically, these are for pipelines installed in private lands. It also provides funding for construction, replacement or upgrades to building structures used by Transmission operations to contain, shelter and/or protect Transmission equipment such as meter stations, pressure regulating equipment, critical valves, or controls equipment.

D. SoCalGas Gas Major Projects

i. SoCalGas Gas Major Projects Operations O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure Or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Major Projects		4,107	4,415	(307)	-7%							
Major Projects Management & Outreach	Non-RAMP	2,377	2,498	(121)	-5%	3	15	(12)	-81%	FTE	No	Yes

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure Or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Major Projects Management & Outreach	Real-time pressure data and providing remote control to high priority distribution sites.	46	1,556	(1,510)	-97%	0	10	(10)	-100%	FTE	Yes	Yes
Sub-Total Major Projects Management & Outreach		2,423	4,054	(1,631)	-40%						Yes	
Project & Construction Management	Non-RAMP	1,097	223	874	393%	9	1	8	1025%	FTE	No	Yes
Project Controls and Estimating	Non-RAMP	587	138	449	325%	5	0	5	1150%	FTE	No	Yes

ii. SoCalGas Gas Major Projects O&M Variance Explanations

WP Name	Variance Threshold Triggers		Variance Explanation
Major Projects Management & Outreach Non-RAMP	\$:	No	Units: Number of FTE. The unit variance is due to a greater reliance on third party, contractor support rather than full time employees to complete the activities.
	Units:	Yes	

WP Name	Variance Threshold Triggers		Variance Explanation
Major Projects Management & Outreach Real-time pressure data and providing remote control to high priority distribution sites.	\$:	Yes	Units: Number of FTE. The 2020 unit and expenditure variances are due to unanticipated delays in the capital field installations and hiring of staff to manage the O&M component of the Distribution Operations Control Center (DOCC) field and control room activities.
	Units:	Yes	
Project & Construction Management	\$:	No	Units: Number of FTE. The unit and expenditure variances are due to a re-organization within SoCalGas that led to transfer of the project management functions related to this sub-WP into a capital delivery organization responsible for a large portfolio of projects. The re-organization resulted in a consolidation of FTEs into this workpaper which led to the staffing level being higher than authorized.
	Units:	Yes	
Project Controls and Estimating	\$:	No	Units: Number of FTE. The unit and expenditure variances are due to a re-organization within SoCalGas of project controls, estimating, regulatory, financial performance, and contractor safety functions related to this sub-WP into a capital delivery organization responsible for a large portfolio of projects. The re-organization resulted in a consolidation of FTEs into this workpaper which led to the increase in staffing level being higher than authorized.
	Units:	Yes	

iii. SoCalGas Gas Major Projects O&M Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Major Projects Management & Outreach	SCG-08-R MAB-11 to MAB-12 WP 2MP001.000	This workpaper captures the activities and expenses associated with the Vice President of Gas Engineering and Major Projects, Director of Project Management and Construction and Capital Projects Outreach. Activities include the O&M costs of leadership of engineering and project execution as well as the costs of public education regarding capital projects.
Project & Construction Management	SCG-08-R MAB-16 to MAB-17 WP 2MP002.000	This workpaper captures the activities and O&M expenses associated with the management and execution of projects both regarding pipeline work and facilities work including but not limited to regulator stations, meter stations, compressor stations etc. The cost centers included are Project and Construction Management - Pipeline and Project and Construction Management.

WP Name	2019 GRC Testimony Location	WP Activity Description
Project Controls and Estimating	SCG-08-R MAB-17 to MAB-18 WP 2MP003.000	This workpaper captures the activities and O&M expenses associated with the improvement of project execution efficiency as well as the cost estimation of projects. Additionally, this workpaper covers O&M costs of quality assessment of projects including compliance with governing entities and public safety.

iv. SoCalGas Gas Major Projects Capital Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Gas Major Projects		5,805	7,715	(1,910)	-25%							
Distribution Operations Control Center (DOCC)	Non-RAMP	4,194	2,889	1,305	45%	This non-RAMP portion of the workpaper includes several activities including installation of methane sensors, fiber optics monitoring stations, and a new and enhanced pipeline infrastructure management system which integrates various IT functions across the network. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Distribution Operations Control Center (DOCC)	Gas Control Operation	1,610	4,825	(3,215)	-67%	The DOCC project consists of upgrading and modifying existing field equipment to provide additional control and monitoring capabilities to the DOCC SCADA servers, co-located with the existing Gas Control which will be looking to migrate to a new facility in 2023. In addition to the field equipment, 32 employees (seventeen management and fifteen union) will be needed to support the project. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
Sub-Total (DOCC)		5,805	7,715	(1,910)	-25%						No	

v. SoCalGas Gas Major Projects Capital Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
Distribution Operations Control Center (DOCC) Gas Control Operations	\$: Yes Units: No	The variance is related to delayed hiring, which delayed the planning processes, and engineering designs for field installation activities, and timing of build and migration to the new DOCC facility.

vi. SoCalGas Gas Major Projects Capital Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Distribution Operations Control Center (DOCC)	SCG-08-R MAB-19 to MAB-25 WP 343	SoCalGas and SDG&E plan to establish a distribution Control Center that is functionally similar and integrated into its existing transmission Gas Control Center operations. Control room functions include ensuring pipeline safety parameters as established by Federal and State agencies, analyzing and responding to abnormal and/or emergency conditions on the pipeline system, coordinating necessary pipeline shutdowns for maintenance and/or emergency measures, and serving as a communication center between various departments conducting maintenance on both the Distribution and Transmission pipeline systems.

E. SoCalGas Gas System Integrity

i. SoCalGas Gas System Integrity Operations O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Gas System Integrity		16,396	36,522	(20,126)	-55%							

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
USS - VP Gas System Integrity	Non-RAMP	0	696	(696)	-100%	0	4	(4)	-100%	FTE	No	Yes
Business Process Enterprise System Support (ESS) Implementation and ESS Mobile Solution	Non-RAMP	218	212	6	3%	2	2	0	5%	FTE	No	No
Business Process ESS Implementation and ESS Mobile Solution	Information Management System	276	122	154	126%	1	1	0	0%	FTE	No	No
Sub-Total Business Process ESS Implementation and ESS Mobile Solution		494	334	160	48%						No	
Applications	Non-RAMP	289	529	(240)	-45%	3	4	(1)	-19%	FTE	No	No
ESS Production Support	Non-RAMP	311	626	(316)	-50%	0	4	(4)	-100%	FTE	No	Yes
ESS Production Support	Information Management Systems	80	111	(31)	-28%	1	1	(0)	-20%	FTE	No	Yes

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Sub-Total ESS Production Support		391	737	(346)	-47%						No	
Wrk Mgmt & Databases	Non-RAMP	674	1,833	(1,159)	-63%	7	12	(5)	-44%	FTE	Yes	Yes
Wrk Mgmt & Databases	Operational Compliance and Oversight	200	222	(22)	-10%	2	2	0	0%	FTE	No	No
Sub-Total Wrk Mgmt & Databases		874	2,055	(1,181)	-57%						Yes	
Contract & Maintenance	Non-RAMP	469	618	(150)	-24%	0	1	(1)	-100%	FTE	No	Yes
Field Technologies	Non-RAMP	215	459	(244)	-53%	2	3	(1)	-20%	FTE	No	Yes
Gas System Integrity Staff & Programs	Non-RAMP	140	354	(214)	-60%	1	2	(1)	-36%	FTE	No	Yes
Operator Qualification	Non-RAMP	1,651	1,281	370	29%	13	11	2	19%	FTE	No	No
Operator Qualification	Operations	0	879	(879)	-100%	0	7	(7)	-100%	FTE	No	Yes
Sub-Total Operator Qualification		1,651	2,159	(508)	-24%						No	
Pipeline System Construction Policy	Locate & Mark Activities	0	1,357	(1,357)	-100%	0	9	(9)	-100%	FTE	Yes	Yes

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Pipeline System Construction Policy	Policy Procedures Standards and ESCMP	696	686	10	1%	6	7	(1)	-14%	FTE	No	No
Sub-Total Pipeline System Construction Policy		696	2,043	(1,347)	-66%						Yes	
Quality & Risk	Operational Compliance and Oversight	430	1,344	(914)	-68%	5	12	(7)	-58%	FTE	No	Yes
Sub-Total Quality & Risk		430	1,344	(914)	-68%						No	
Enterprise Geographic Information System (eGIS)	Non-RAMP	1,244	2,182	(938)	-43%	12	21	9	41%	FTE	No	Yes
Enterprise Geographic Information System (eGIS)	Operational Compliance and Oversight	0	642	(642)	-100%	0	1	1	100%	FTE	No	Yes
Sub-Total Enterprise Geographic Information System (eGIS)		1,244	2,824	(1,579)	-56%						Yes	
Shared Public Awareness Activities	Analysis	165	594	(429)	-72%	1	2	(1)	-37%	FTE	No	Yes
Pipeline Safety & Compliance Manager	Non-RAMP	725	944	(219)	-23%	7	7	(1)	-7%	FTE	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Pipeline Safety Oversight	Non-RAMP	602	634	(31)	-5%	6	4	2	44%	FTE	No	Yes
Records Management - From 2200-2361	Operational Compliance and Oversight	0	1,825	(1,825)	-100%	0	4	(4)	-100%	FTE	Yes	Yes
Records Management - From 2200-2361	Policy Procedures Standards and ESCMP	0	996	(996)	-100%	0	15	(15)	-100%	FTE	No	Yes
Sub-Total Records Management - From 2200-2361		-	2,821	(2,821)	-100%						Yes	
Gas Operations Training & Development	Non-RAMP	872	1,413	(541)	-38%	5	4	1	18%	FTE	No	No
Gas Operations Training & Development	Qualifications of Pipeline Personnel - MP	1,600	1,497	103	7%	14	13	1	8%	FTE	No	No
Gas Operations Training & Development	Qualifications of Pipeline Personnel - HP	140	132	8	6%	1	1	0	0%	FTE	No	No
Gas Operations Training & Development	Expand "Situation City" training props at Pico Rivera campus	0	277	(277)	-100%	0	0	0		FTE	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Gas Operations Training & Development	Employee Skills Training	2,000	1,775	225	13%	0	3	(3)	-100%	FTE	No	Yes
Gas Operations Training & Development	Locate & Mark Activities	200	156	44	28%	2	2	0	13%	FTE	No	No
Sub-Total Gas Operations Training & Development		4,812	5,249	(437)	-8%						No	
Pipeline Safety & Compliance	Non-RAMP	693	674	19	3%	1	3	(3)	-85%	FTE	No	Yes
Pipeline Safety & Compliance	Operational Compliance and Oversight	0	2,556	(2,556)	-100%	0	27	(27)	-100%	FTE	Yes	Yes
Sub-Total Pipeline Safety & Compliance		693	3,230	(2,537)	-79%						Yes	
Public Awareness	Non-RAMP	0	312	(312)	-100%	No single unit is available for this workpaper due to multiple activities including mailers sent and the number of customers.					No	No
Public Awareness	Public Awareness	666	1,538	(871)	-57%	No single unit is available for this workpaper due to multiple activities including mailers sent and the number of customers.					No	No
Sub-Total Public Awareness		666	1,849	(1,183)	-64%						Yes	
Asset Management	Non-RAMP	1,839	2,449	(610)	-25%	12	21	(9)	-41%	FTE	No	Yes
Asset Management	Operational Compliance and Oversight	0	345	(345)	-100%	0	3	(3)	-100%	FTE	No	Yes

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Sub-Total Asset Management		1,839	2,794	(955)	-34%						No	
Gas Contractor Controls	Contractor Management and Traffic Control	0	4,256	(4,256)	-100%	0	20	(20)	-100%	FTE	Yes	Yes

ii. SoCalGas Gas System Integrity O&M Variance Explanations

WP Name	Variance Threshold Triggers		Variance Explanation
USS - VP Gas System Integrity	\$: Units:	No Yes	Units: Number of FTE. The company has since reorganized to align resources with strategic priorities. The dollars and units associated with the vice president position previously titled VP of Gas Systems Integrity are now included in the costs for Gas Major Projects – Major Projects Management & Outreach.
ESS Production Support Non-RAMP	\$: Units:	No Yes	Units: Number of FTE. The variance is primarily attributable to delay in plan development and the time necessary to recruit and onboard qualified personnel.
ESS Production Support Information Management Systems	\$: Units:	No Yes	Units: Number of FTE. The variance is primarily attributable to delay in plan development and the time necessary to recruit and onboard qualified personnel.
Wrk Mgmt & Databases Non-RAMP	\$: Units:	Yes Yes	The variance is due to the Data historian and Engineering/Operations analysis system for Gas Storage Supervisory Control and Data Acquisition (SCADA) Data (OsiPi software) purchase and implementation being included under an IT Capital cost category.

WP Name	Variance Threshold Triggers		Variance Explanation
Contract & Maintenance	\$:	No	Units: Number of FTE. The variance is attributable to a portion of the annual AVEVA maintenance costs (design software solution utilized to model complex assets in 3D) being included under a Gas Engineering cost category.
Field Technologies Non-RAMP	\$:	No	Units: Number of FTE. The variance reflects lower than forecasted labor expenses as a result of social distancing requirements in trainings due to Covid-19 safety concerns for employees and contractors, which resulted in fewer employees per training.
Gas System Integrity Staff & Programs (GSISP)	\$:	No	Units: Number of FTE. One Full-time employee transferred from Distribution to GSISP late in the year to support a high-pressure closeout initiative.
Operator Qualification Operations	\$:	No	Units: Number of FTE. The variance is due to lower than forecasted staffing levels associated with difficulties in recruiting and onboarding qualified personnel. Staffing levels are expected to increase during the current GRC cycle.
Pipeline System Construction Policy - Locate & Mark Activities #1	\$:	Yes	The variance is caused by delay in plan development and difficulties in recruiting and onboarding qualified personnel. Additionally, some Locate and Mark costs are included in Gas Distribution, Transmission, and Storage cost categories.
	Units:	Yes	
Quality & Risk - Operational Compliance and Oversight	\$:	No	Units: Number of FTE. Resources were re-prioritized to support Construction projects.
	Units:	Yes	
Enterprise Geographic Information System (eGIS) Non-RAMP	\$:	No	Units: Number of FTE. The variance is caused by delay in plan development and difficulties in recruiting and onboarding qualified personnel. In addition, some related costs are included in an associated IT Capital cost category.
	Units:	Yes	
Enterprise Geographic Information System (eGIS) Operational Compliance and Oversight	\$:	No	Units: Number of FTE. The variance is caused by delay in plan development and difficulties in recruiting and onboarding qualified personnel. In addition, some related costs are included in an associated IT Capital cost category.
	Units:	Yes	

WP Name	Variance Threshold Triggers		Variance Explanation
Shared Public Awareness Activities Analysis	\$:	No	Units: Number of FTE. The variance is caused by delay in plan development and difficulties in recruiting and onboarding qualified personnel. The company met the federally mandated Public Awareness program requirements, as prescribed in 49 CFR 192.616.
	Units:	Yes	
Pipeline Safety Oversight	\$:	No	Units: Number of FTE. The variance is due to hiring additional resources to investigate incidents, identify lessons learned, and implement continuous improvement opportunities company wide.
	Units:	Yes	
Records Management - From 2200-2361 Operational Compliance and Oversight	\$:	Yes	The variance is caused by delay in plan development and difficulties in recruiting and onboarding qualified personnel. In addition, some Records Management costs are included in an IT Capital cost category.
	Units:	Yes	
Records Management - From 2200-2361 Policy Procedures Standards and ESCMP	\$:	No	Units: Number of FTE. This area was forecasted to expand to perform enhanced activities, however, this variance is caused by delay in plan development and difficulties in recruiting and onboarding qualified personnel. Additionally, some Records Management costs are included in Gas Distribution, Transmission, TIMP, and IT Capital cost categories.
	Units:	Yes	
Gas Operations Training & Development Employee Skills Training	\$:	No	Units: Number of FTE. The variance is caused by delay in plan development and difficulties in recruiting and onboarding qualified personnel.
	Units:	Yes	
Pipeline Safety & Compliance Non-RAMP	\$:	No	Units: Number of FTE. The variance is caused by delay in plan development and difficulties in recruiting and onboarding qualified personnel. Additionally, some costs are being captured in Gas Major Projects.
	Units:	Yes	
Pipeline Safety & Compliance Operational Compliance and Oversight #1 - 4	\$:	Yes	Units: Number of FTE. The variance is caused by delay in plan development and difficulties in recruiting and onboarding qualified personnel. Additionally, some costs are being captured in a Gas Major Projects category.
	Units:	Yes	

WP Name	Variance Threshold Triggers		Variance Explanation
Public Awareness RAMP	\$:	Yes	Lower than forecasted Public Awareness expenditures are due to COVID-19 pandemic impacts (<i>e.g.</i> , in-person outreach and focus group events were cancelled, and instead SoCalGas hosted lower-cost virtual outreach events) and also operational efficiencies from coordinating with other programs on outreach activities. The company met federally mandated Public Awareness program requirements, as prescribed in 49 CFR 192.616.
	Units:	No	
Asset Management Non-RAMP	\$:	No	Units: Number of FTE. The variance is caused by delay in plan development and difficulties in recruiting and onboarding qualified personnel.
	Units:	Yes	
Asset Management Operational Compliance and Oversight #1	\$:	No	Units: Number of FTE. The variance is caused by delay in plan development and difficulties in recruiting and onboarding qualified personnel. In addition, some Asset Management Operational Compliance and Oversight costs are captured in Pipeline Safety & Compliance, ESS Productions Support, and Underground Storage cost categories.
	Units:	Yes	
Gas Contractor Controls Contractor Management and Traffic Control	\$:	Yes	Units: Number of FTE. The variance is caused by delay in plan development and difficulties in recruiting and onboarding qualified personnel. The work forecasted in this workpaper was redistributed and managed in Gas Engineering, Gas Distribution, and Construction.
	Units:	Yes	

iii. SoCalGas Gas System Integrity O&M Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
USS - VP Gas System Integrity	SCG-05-R OR-48 WP 2200-0225.000	The costs for the Vice President of Gas Engineering and System Integrity include technical and financial support, as well as policy issuance to successfully sustain the operation and provide the vision to maintain the safety and reliability of the gas system. The Vice President's activities also include the governance, technical, and policy support for Gas Transmission and Gas Distribution support functions at both utilities, in addition to Storage for SoCalGas.

WP Name	2019 GRC Testimony Location	WP Activity Description
ESS Production Support	SCG-05-R OR-62 to OR-63 WP 2200-0305.000	ESS organization maintains and provides support for business applications used by Gas Transmission, Distribution, and Storage organizations for both utilities. These applications are utilized by the organizations in support of meeting regulatory requirements. ESS develops and maintains more than two dozen applications that are used by Gas Transmission and Gas Storage organizations. The group also provides first-level support to users of several enterprise business application users that are developed and maintained by the central Information Technology (IT) organization. Users of business applications are supported through phone calls, emails, Help Desk ticketing system, and walkups from 6:00 am to 6:00 pm during weekdays. The team monitors interfaces between applications, resolve program interface issues, publishes client communications (release notes, information bulletins, outage notifications, technical bulletins, interim process bulletins, applications instructions, webcasts, etc.), supports hardware used in the field (mobile devices and peripheral equipment), maintains training environments, and manages systems modifications/change requests including software quality assurance (QA) activities.
Wrk Mgmt & Databases	SCG-05-R OR-63 to OR-64 WP 2200-0306.000	Activities associated with this cost center include the support of Work Management Systems for Measurement and Regulation (M&R), System Protection Specialists (SPS) and Work Order Tracking (WOT) applications, AutoSol Enterprise System (AES), and the MyProjects enterprise system. This cost center also supports the SDG&E Gas Technical Services Group in Miramar; specifically, the Electronic Data Management System (EDMS) and the Cathodic Protection Data Management (CPDM) applications. These systems are key operational systems to support field functions to verify pipeline and ancillary facilities continue to be fit for service.
Contract & Maintenance	SCG-05-R OR-64 to OR-65 WP 2200-0308.000	This cost center accounts for the labor and non-labor expenses associated with software licenses and maintenance contracts for Operations Technology. Operations Technology manages, administers, and maintains hardware, software, and back-end processes that support the systems and applications of various organizations at SoCalGas and SDG&E, including Safety, Distribution, Customer Service, Environmental, Transmission and Engineering.
Field Technologies	SCG-05-R OR-48 to OR-49 WP 2200-2023.000	Recorded to this cost center are the labor, employee expense, and non-labor materials and services required to research and evaluate new tools and technology that enhance or replace existing processes or tools and provide benefits in the form of improved safety. This team helps mitigate risks associated with potential failure of field technologies or the use of obsolete equipment. Field Technologies supports Field Operations by conducting tool and equipment instruction and training to help clients become proficient in the use of new and existing tools and equipment.
Gas System Integrity Staff & Programs	SCG-05-R OR-49 WP 2200-2144.000	This cost center includes the salaries for the Gas System Integrity Staff & Programs Director and the Administrative Associate who support this organization. This cost center also includes the associated employee expenses, as well as miscellaneous supplies and materials.

WP Name	2019 GRC Testimony Location	WP Activity Description
Operator Qualification	SCG-05-R OR-52 to OR-54 WP 2200-2344.000	Activities associated with this work group are performed by the Operator Qualification department, which manage the implementation and continual enhancements of the Operator Qualification Program. The Operator Qualification department is responsible for scheduling qualification activities, reviewing and auditing contractor qualification programs, keeping qualification records, monitoring records for possible compliance issues, evaluating the program for any deficiencies, and making changes and enhancements to the program. The activities and forecast in this department are part of the RAMP SCG-10 Catastrophic Damage Involving a Medium-Pressure Pipeline Failure risk, as described earlier in my testimony.
Pipeline System Construction Policy	SCG-05-R OR-56 to OR-59 WP 2200-2345.000	Pipeline Systems Construction Policy focuses on the safe construction of high and medium pressure pipelines and associated systems. This category includes development and maintenance of medium and high pressures construction policies and practices in accordance with applicable specifications, requirements and regulations.
Quality & Risk	SCG-05-R OR-54 to OR-55 WP 2200-2360.000	The Quality and Risk group performs quality assurance and quality control activities for various pipeline safety and compliance activities on gas utility assets. The group provides objective assessments and thorough analyses resulting in recommendations and process improvements. Additionally, the group provides process improvement oversight to enhance discipline in process improvement activities with an emphasis on the implementation tracking, effectiveness evaluation, and review of business control tracking related to the enhancement. The Quality and Risk group seeks to not only support the organization to meet regulatory requirements, but also proactively use tools and processes to enhance system safety and reliability through the implementation of continuous improvement across the business units.
Enterprise Geographic Information System (eGIS)	SCG-05-R OR-65 to OR-66 WP 2200-2376.000	The need to gather and harmonize the disparate data sets is being addressed by the synchronization of the GIS system. The high-pressure pipe (maximum operating pressure greater than 60 psi), medium pressure pipe (maximum operating pressure less than or equal to 60 psi), storage field pipe and other above-ground facility pipes exist across multiple GIS and computer aided drafting and design databases and software platforms. This category includes costs for activities, as described, designed to mitigate system reliability risks.
Shared Public Awareness	SCG-05-R OR-55 to OR-56 WP 2200-2417.000	The activities associated with the shared service component of Public Awareness include the central management of both SoCalGas and SDG&E's Public Awareness plans. This co-operator approach offers some resource efficiencies by leveraging the knowledge to the benefit of both companies. As noted in the non-shared service discussion, the Public Awareness work group is focused on the mandates from 49 CFR 192.616, which requires the development and implementation of a public awareness program.
Pipeline Safety Oversight	SCG-05-R OR-50 to OR-51 WP 2200-2551.000	The Pipeline Safety Oversight group provides centralized incident evaluation; compliance improvement oversight through monitoring and documenting the progress of corrective actions; and monitoring of compliance with federal and state regulatory requirements.

WP Name	2019 GRC Testimony Location	WP Activity Description
Records Management - From 2200-2361	SCG-05-R OR-67 to OR-68 WP 2200-7242.000	Records Management provides centralized operational oversight for records management processes in specific operational areas.
Gas Operations Training & Development	SCG-05-R OR-24 to OR-33 WP 2SI001.000	Gas Operations Training and Development communicates and reinforces the SoCalGas safety culture and strives to instill a passion for success through participation in employee seminars, ongoing refresher training, and one-on-one employee meetings. Gas Operations Training and Development also consists of Field Technical Skills Training for employees in Gas Transmission, Gas Distribution, and Storage. These trainings and services are necessary for the Company to follow applicable laws, regulations and standards and to help maintain the safety of the workforce and the public. Also, included under Gas Operations Training and Development are activities and associated O&M expenses within the workgroup of Pipeline Maintenance Policy, which conducts a variety of operational services necessary for employees to complete their daily activities. These activities include identifying, developing, implementing, monitoring, and enhancing Company policies, procedures, tariffs, technologies, and/or reports used by Gas Transmission, Gas Distribution, and Storage.
Pipeline Safety & Compliance	SCG-05-R OR-51 to OR-52 WP 2200-2473.000	The Pipeline Safety and Compliance group serves as the point of contact with the Commission during SED audits and manages responses to various SED inquiries. The group leads all gas utility audits in areas related to policies and rules pertaining to General Order 112-F and provides counsel, guidance, and information to Gas Engineering and Gas Operations groups on pipeline safety issues relative to CPUC and DOT regulations. Specific activities include representing SoCalGas and SDG&E in all interactions with SED related to natural gas operations, as well as providing direction and guidance to utility personnel to maintain compliance with DOT/CPUC pipeline regulations. This cost supports the Company's goals of complying with all state and federal pipeline regulations in the safe operation of our gas system.
Public Awareness	SCG-05-R OR-37 to OR-41 WP 2SI003.000	This activity includes development and implementation of a federally mandated Public Awareness program, as prescribed in 49 CFR 192.616. The Public Awareness program contributes to enhanced public safety by providing certain risk mitigation measures. In adopting these Public Awareness program requirements, the Pipeline and Hazardous Materials Safety Administration (PHMSA) determined that "effective public awareness programs are vital to continued safe pipeline Operations" and that "such programs are an important factor in establishing communications with affected stakeholders, providing information necessary to enhance public awareness of pipelines, and communicating stakeholder roles relative to pipeline safety." The federal regulations directing the implementation of this program specifically require that the program include activities to educate the public, appropriate government organizations, and persons engaged in excavation-related activities regarding: (1) use of the one-call notification system prior to excavation and other damage prevention activities; (2) possible hazards associated with unintended releases from a gas pipeline facility; (3) physical indications that such a release may have occurred; (4) steps that should be taken for public safety in the event of a gas pipeline release; and (5) procedures for reporting such an event.

WP Name	2019 GRC Testimony Location	WP Activity Description
Asset Management	SCG-05-R OR-41 to OR-43 WP 2SI004.000	Asset and data management requires computer-based work management systems, document management systems with integration to GIS, and technical computing management and support. Part of the activity performed in this workgroup is to maintain and upgrade software applications. These application systems and the management of field hardware and mobile applications, as well as supporting activities are necessary for the safe and efficient operation and maintenance of the gas infrastructure from receipt point through the Transmission, Distribution, and Storage pipeline networks, as well as to support Customer Services. This category includes work performed to support computer programs and systems, as well as field hardware and mobile applications not provided by the Company's Information Technology group.
Gas Contractor Controls	SCG-05-R OR-43 to OR-46 WP 2SI005.000	Gas Contractor Controls collaborates with Company and industry leaders and subject matter experts to formulate and promote policy related to construction contractor safety and pipeline safety/quality oversight. Activities include establish, maintain, and expand construction contractor oversight program, including safety (occupational and process), to systematically review, assess, and enhance the management practices related to contractors; provide written guidance on inspection of workmanship on the pipeline; facilitate invoice approval process via online training and invoice submittal system user support; and construction fraud vigilance and training. As prescribed in the Agreement between SoCalGas and Utility Workers Union of America (AFL-CIO) and International Chemical Workers Union Council, SoCalGas must provide semi-annual reports to the union identifying contract employees doing represented work (excluding Distribution) and a report of Gas Distribution contract employment showing the ration of company/contractor employees. Deliver pipeline construction fraud awareness training; author and maintain Company Gas Standards, forms, and workflows related to construction contractor oversight and associated information/records collection, including those related to California Public Utilities Code Section 141 Construction and Safety Standards; and develop Safety Congress presentation/content and facilitate quarterly meetings. Pipeline Safety Management System (PSMS) - Develop and implement a Company-wide PSMS API RP 1173, consistent with PHMSA's recommendation.

iv. SoCalGas Gas System Integrity Capital Variances

The Gas System Integrity witness did not sponsor any capital costs in the TY 2019 GRC.

F. SoCalGas Gas Transmission

i. SoCalGas Gas Transmission Operations O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Gas Transmission		35,085	34,094	992	3%							
Director Gas Transmission - USS	Non-RAMP	300	265	35	13%	2	2	0	13%	FTE	No	No
Field Operations Managers - USS	Non-RAMP	297	464	(167)	-36%	2	4	-1	-36%	FTE	No	Yes
Technical Services Manager - USS	Non-RAMP	395	395	1	0%	3	3	0	0%	FTE	No	No
Pipeline Operations	Non-RAMP	3,887	11,055	(7,168)	-65%	4,056	4,279	-223	-5%	Maximo Orders	Yes	No
Pipeline Operations	Maintenance - Leak Survey, Patrol, Valve, Meters, PLS, Regulators, etc.	10,842	4,469	6,373	143%	This workpaper is comprised of many Pipeline Maintenance activities, including leak surveys, pipeline patrol, valve inspections, meter inspections, vault inspections and bridge & span inspections on transmission pipelines. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
Pipeline Operations	Corrosion Control Operation - Cathodic Protection	1,602	278	1,324	476%	This workpaper is comprised of many Pipeline Maintenance activities, including annual ETS reads, bi-monthly current source inspections and annual rectifier maintenance on transmission pipelines. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Pipeline Operations	Odorization of Natural Gas	1,044	111	933	842%	The odorization of the natural gas is required by 49 CFR § 192.625. Odorant is added to natural gas as a safety precaution reducing risk that leaks will go undetected and gas will accumulate to hazardous levels. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Pipeline Operations	Training and Qualification of Personnel	0	193	(193)	-100%	Training and Qualification of personnel is a regulatory requirement before an employee can perform work in specified job functions. Costs associated with Training and Qualification of Transmission employees were recorded in a cost category under a different Department (Gas Operations & Development) outside of Gas Transmission. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Sub-Total Pipeline Operations		17,375	16,106	1,270	8%						No	
Compressor Station Operations	Non-RAMP	10,736	11,084	(349)	-3%	11,305	11,154	151	1%	Compliance & Preventative work orders in Maximo	No	No
Technical Services	Non-RAMP	260	322	(62)	-19%	2	3	-1	-19%	FTE	No	No
Technical Services	Class Location (Hydrotest)	0	1,586	(1,586)	-100%	Class location changes are driven by commercial, residential, and/or industrial development that occur along transmission pipeline rights-of-way. Pipeline segments operating in an area where the class location has changed, may require remediation under existing regulations. For example, one form of remediation under the regulations is hydrotesting the existing pipeline to a higher test pressure than it was originally tested to when it was installed. The variety of work activities in this					Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
						category makes it infeasible to identify a single unit of measurement.						
Technical Services	Engineering, Supervision, Oversight, and Compliance	820	1,354	(534)	-39%	7	11	-4	-39%	FTE	No	Yes
Technical Services	ROW - Maintenance & Routine	4,903	1,654	3,249	196%	24	20	4	18%	Projects	Yes	No
Technical Services	Class Location Mitigation	0	865	(865)	-100%	Class location changes are driven by commercial, residential, and/or industrial development that occur along transmission pipeline rights-of-way. Pipeline segments operating in an area where the class location changes may require remediation. Pipeline segments operating in an area where the class location has changed, may require remediation under existing regulations. For example, one form of remediation under the regulations is hydrotesting the existing pipeline to a higher test pressure than it was originally tested to when it was installed. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Sub-Total Technical Services		5,982	5,780	202	3%						No	

ii. SoCalGas Gas Transmission O&M Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
Field Operations Managers - USS	\$: No Units: Yes	Units: Number of FTE. The variance is due to lower than forecast staffing levels including one unfilled Field Operations Manager position that is anticipated to be filled in 2021.
Pipeline Operations - Non-RAMP	\$: Yes Units: No	The expenditure variance is due to the majority of activities under Pipeline Operations being categorized as RAMP activities. The majority of Operation & Maintenance activities in Pipeline Operations in Gas Transmission are mitigations to address the risk of catastrophic high-pressure pipeline failure. Therefore, the Non-RAMP activities under this workpaper (<i>i.e.</i> , 2GT000.000 - Pipeline Operations) were moved to identified RAMP activities under the same workpaper.
Pipeline Operations - Maintenance - Leak Survey, Patrol, Valve, Meters, PLS, Regulators, etc.	\$: Yes Units: No	The authorized Maintenance RAMP item in this workpaper covered limited pipeline maintenance activities. The actual expenses recorded in this Maintenance RAMP category include additional Maintenance activities that were authorized as Non-RAMP activities. The majority of Operation & Maintenance activities in Pipeline Operations in Gas Transmission are mitigations to address the risk of catastrophic high-pressure pipeline failure.
Pipeline Operations - Corrosion Control Operation - Cathodic Protection	\$: Yes Units: No	The 2020 authorized costs for Cathodic Protection related items in this RAMP mitigation activity were for limited cathodic protection activities. The actual expenses recorded in this Corrosion Control Operation RAMP category include additional cathodic protection maintenance activities that were authorized under the Pipeline Operations - Non-RAMP category.
Technical Services - Class Location (Hydrotest)	\$: Yes Units: No	The variance is due to the timing of Class Location projects that are expected to be initiated and completed within the current GRC cycle. Technical Services completed higher-priority maintenance of access roads and routine right of way projects.
	\$: No	Units: Number of FTE. The original RAMP activity under this workpaper (<i>i.e.</i> , 2GT002.000 - Technical Services) included Operator Qualification which was not an activity performed by Technical Services

WP Name	Variance Threshold Triggers	Variance Explanation
Technical Services - RAMP Engineering, Supervision, Oversight, and Compliance	Units: Yes	since 2017 and thus one FTE was eliminated. In addition, more FTE support was shifted to planning routine right of way projects.
Technical Services - ROW-Maintenance & Routine	\$: Yes Units: No	There were more ROW Projects completed in 2020 than forecasted because there were no Class Location Hydrotest Projects, thus dollars were shifted from the Class Location Hydrotest mitigation to the Right of Way Maintenance mitigation. The maintenance of access roads and Right of Way easements provides safe, efficient access to SoCalGas facilities. In addition, the projects completed in 2020 were in environmentally sensitive areas that required greater expenditures per project.

iii. SoCalGas Gas Transmission O& M Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Field Operations Managers - USS	SCG-06 EAM-21 to EAM-22 WP 2200-0265.000	The Field Operations Managers organization is responsible for departmental operational leadership, staffing management, operation and maintenance performance, regulatory compliance, financial and work measurement performance and reporting for Gas Transmission pipeline and compressor station operations within both SoCalGas and SDG&E.
Pipeline Operations	SCG-06 EAM-9 to EAM-10 WP 2GT000.000	Gas Transmission Pipelines Operations is responsible for the safe day-to-day operation and maintenance of gas transmission pipeline facilities and related infrastructure. This includes, but is not limited to, leak surveys, valve inspections, cathodic protection systems, locate & mark, stand-by, and maintaining equipment at pipeline receipt points that includes odorization equipment and real-time operating data telemetry communication equipment.
Technical Services	SCG-06 EAM-16 WP 2GT002.000	The Technical Services function includes the activities of engineering, instrumentation, control, project support, and plan file review in support of the day-to-day operations and maintenance of the gas transmission system. Responsibilities include right-of-way maintenance, providing on-site technical expertise to Pipeline and Compression Operations field personnel, and troubleshooting technical issues for both capital and O&M projects.

iv. SoCalGas Gas Transmission Capital Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Gas Transmission		247,366	116,212	131,154	113%							
Gas Transmission New Pipeline	Non-RAMP	3,827	5,691	(1,864)	-33%	The activities tracked within this category are for projects associated with the installation of new pipeline to provide increased resiliency, capacity and reliability. The scope of work is project-specific and varies significantly from project to project (e.g., pipe size, location, valves, fittings). Accordingly, project costs vary significantly from project to project as well. The variety of work activities in this category makes it infeasible to identify a single unit of measurement. The actual costs for this activity in 2020 are associated with 9 projects.					No	No
Gas Transmission Relocations	Non-RAMP	24,944	16,384	29,263	191%	The activities tracked within this category are for projects related to the modification and relocation of transmission pipelines to accommodate planned private property development, municipal public works and street improvement projects, and other work required due to right-of-way agreements, contract and franchise requirements. The scope of work is project-specific and varies significantly from project to project (e.g., pipe size, location, installation method). Accordingly, project costs vary significantly from project to project as well. The variety of work activities in this category makes it infeasible to identify a single unit of measurement. The actual costs for this activity in 2020 are associated with 37 projects.					Yes	No
GT M&R Stations	Non-RAMP	16,919	17,893	(974)	-5%	The activities tracked within this category are for projects associated with installing and rebuilding meter set assemblies and pressure limiting stations. The scope of work is project-specific and varies significantly from project to project (e.g., station piping, valves, regulators, control and communications equipment, shelters,					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
						enclosure, etc.). Accordingly, project costs vary significantly from project to project as well. The variety of work activities in this category makes it infeasible to identify a single unit of measurement. The actual costs for this activity in 2020 are associated with 84 projects.						
GT M&R Stations - RAMP Base	Valve Maintenance and Installation	10,278	0	10,278	100%	The activities tracked within this category are for projects associated with valve automation and upgrades/redesign/replacement of valve and pressure regulating stations. The scope of work is project-specific and varies significantly from project to project (e.g., station piping, size, valves, regulators and control equipment). Accordingly, project costs vary significantly from project to project as well. The variety of work activities in this category makes it infeasible to identify a single unit of measurement. The actual costs for this activity in 2020 are associated with 38 projects.					Yes	No
Sub-Total M&R Stations		27,197	17,893	9,304	52%						Yes	
GT Auxiliary Equipment	Non-RAMP	6,002	3,612	2,390	66%	The activities tracked within this category are for projects associated with the installation of equipment to support transmission system operations that are not assigned to any other Budget Code. The scope of work is project-specific and varies significantly from project to project (e.g., installation of telemetric and recording equipment, auxiliary water, electrical, paving, moisture analyzer, pipe supports, methane sensing, etc.) Accordingly, project costs vary significantly from project to project as well. The variety of work activities in this category makes it infeasible to identify a single unit of measurement. The actual costs for this activity in 2020 are associated with 28 projects.					Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
GT Auxiliary Equipment - RAMP	Operational Resiliency	0	3,167	(3,167)	-100%	The activities tracked within this category are for projects to enhance operational flexibility through the installation of supportive pipeline system capabilities, backup equipment and resources, resumption planning and exercises. The variety of work activities in this category makes it infeasible to identify a single unit of measurement. There were no projects completed in 2020 due to limited studies to identify where additional pipelines would provide needed flexibility to the pipeline system.					Yes	No
GT Auxiliary Equipment - RAMP	Physical security measures put in place for the security/safety of employees and infrastructure	1,011	1,000	11	1%	The activities tracked within this category are for projects associated with installations of physical security upgrades put in place for the security/safety of people and infrastructure. The scope of work is project-specific and varies significantly from project to project (e.g., security cameras, lighting, gates, locks and equipment upgrades. Accordingly, project costs vary significantly from project to project as well. The variety of work activities in this category makes it infeasible to identify a single unit of measurement. The actual costs for this activity in 2020 are associated with 17 projects.					No	No
GT Auxiliary Equipment - RAMP	Strain Gauge Installation Projects	35	299	(264)	-88%	1	1	0	0%	Strain gauge projects	No	No
Sub-Total GT Auxiliary Equipment		7,048	8,079	(1,031)	-13%						No	
Gas Transmission Freeway Relocations	Non-RAMP	815	22	793	3659%	The activities tracked within this category are for projects associated with relocation of transmission pipelines to accommodate freeway construction. The scope of work is externally driven, project-specific and varies significantly from project to project (e.g., pipe size, location, installation method, etc.). Accordingly, project costs vary significantly from project to project as well. The variety of work activities in this category makes it infeasible to					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
						identify a single unit of measurement. The actual cost for this activity in 2020 is associated with 1 project.						
Gas Transmission Cathodic Protection	Non-RAMP	0	3,140	(3,140)	-100%	The activities tracked within this category are for projects associated with the installation of cathodic protection equipment used to preserve transmission pipelines, such as anodes, rectifiers and cathodic protection stations. The variety of work activities in this category makes it infeasible to identify a single unit of measurement. The actual costs for this activity in 2020 are associated with 0 projects, since all projects meet RAMP criteria and are therefore classified as GT- Cathodic Protection RAMP.					Yes	No
Gas Transmission Cathodic Protection - RAMP	Requirements for corrosion control	12,327	1,162	11,165	961%	The activities tracked within this category are for projects associated with the installation of cathodic protection equipment used to preserve transmission pipelines, such as surface anodes, rectifiers, and cathodic protection stations. The variety of work activities in this category makes it infeasible to identify a single unit of measurement. The actual costs for this activity in 2020 are associated with 93 projects.					Yes	No
Sub-Total GT Cathodic Protection		12,327	4,302	8,025	187%						Yes	
GT Compressor Stations (BC 305)	Non-RAMP	0	210	(210)	-100%	The activities tracked within this category are for projects associated with the replacement of compression station equipment. The scope of work is project-specific and varies significantly from project to project (e.g., automated data gathering systems, replacing outdated technology, emissions monitoring, catalyst and combustion technologies, etc.) Accordingly, project costs vary significantly from project to project as well. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
GT Replacement Pipelines	Non-RAMP	6	14,419	(14,413)	-100%	The activities tracked within this category are for projects associated with the replacement of pipelines to address conditions that could affect pipeline integrity, such as leaks, poor coating, erosion, etc., as well as changes to the class location of the pipeline. The scope of work is project-specific and varies significantly from project to project (e.g., pipe size, location, installation method, etc.). Accordingly, project costs vary significantly from project to project as well. The variety of work activities in this category makes it infeasible to identify a single unit of measurement. The actual costs for this activity are associated with 1 project.					Yes	No
GT Replacement Pipelines - RAMP	Gas Transmission	29,290	4,128	25,162	609%	The activities tracked within this category are for projects associated with the replacement of pipelines to address conditions that could affect the integrity of the pipeline, such as leaks, poor coating, erosion, etc., as well as changes to the class location of the pipeline. The scope of work is project-specific and varies significantly from project to project (e.g., pipe size, location, installation method, etc.). Accordingly, project costs vary significantly from project to project as well. The variety of work activities in this category makes it infeasible to identify a single unit of measurement. The actual costs for this activity in 2020 are associated with 152 projects.					Yes	No
Sub-Total GT Replacement Pipelines		29,296	18,547	10,749	58%						Yes	
GT Compressor Stations (BC 315)	Non-RAMP	12,239	11,262	976	9%	The activities tracked within this category are for projects associated with the replacement of compression station equipment to comply with environmental regulations. The scope of work is project-specific and varies significantly from project to project (e.g., replace engine components and controls, emissions monitoring, reporting equipment, etc.). Accordingly, project costs vary significantly from project to project as well. The variety of work activities in					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
						this category makes it infeasible to identify a single unit of measurement. The actual costs for this activity in 2020 are associated with 58 projects.						
GT Compressor Stations (BC 325)	Non-RAMP	0	1,667	(1,667)	-100%	The activities tracked within this category are for projects associated with the installation and replacement of compressor station equipment used in operating the transmission system. The scope of work is project-specific and varies significantly from project to project (e.g., engine components and controls) Accordingly, project costs vary significantly from project to project as well. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
MP PL Rpls / Quality/Economic Driven	Non-RAMP	134	0	134	100%	The activities tracked within this category are for projects associated with the replacement of pipelines to meet pipeline quality or efficiency objectives. The scope of work is project-specific and varies significantly from project to project (e.g., pipe size, location, installation method, etc.). Accordingly, project costs vary significantly from project to project as well. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
GT Compressor Stations (BC 335)	Non-RAMP	113,345	39,978	73,366	184%	The Blythe Compressor Station Modernization project consists of a variety of activities including installation of two new compressors and a compressor building (Plant 4), rebuilding five existing compressors and installing clean burn emission reduction technology (Plant 2), installation of a new operations building, new electric generators, cooling tower apparatus, underground and aboveground pipelines, and other infrastructure. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Ventura Compressor Station Modernization	Non-RAMP	3,316	0	3,316	100%	The Ventura Compressor Station Modernization project consists of a variety of activities including installation of four new reciprocating gas engine-driven compressors, a compressor building, an office and warehouse building, utilities and associated controls, electrical, instrumentation and emission control equipment. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No

v. SoCalGas Gas Transmission Capital Variance Explanations

WP Name	Variance Threshold Triggers		Variance Explanation
Gas Transmission Relocations	\$:	Yes	Cost variance is due to execution of emergent projects. These emergent projects were executed due to compliance or contractual obligations. One project, LAWA pipeline relocation, was deferred from 2019 to 2020 due to permit delays. Refer to the Appendix - Emergent, Cancelled, and Deferred Project List.
	Units:	No	
GT M&R Stations - RAMP Base Valve Maintenance	\$:	Yes	Cost variance is due to execution of emergent projects. These emergent projects were executed to maintain safety and reliability of the pipeline system. One project was deferred from 2019 to 2020 due to design delays that also contributed to the variance. Refer to the Appendix - Emergent, Cancelled, and Deferred Project List.
	Units:	No	
GT Auxiliary Equipment Non-RAMP	\$:	Yes	Cost variance is due to execution of emergent projects. These emergent projects were executed to facilitate future operation of Plant 4 at Blythe Compressor Station. Refer to the Appendix - Emergent, Cancelled, and Deferred Project List.
	Units:	No	
GT Auxiliary Equipment - Operational Resiliency	\$:	Yes	Cost variance is due to deferred projects. Operational resiliency projects were deferred due to limited studies completed to verify where additional pipelines would provide necessary flexibility to the pipeline system.
	Units:	No	
Gas Transmission Cathodic Protection Non-RAMP	\$:	Yes	Cost variance is due to recategorization of CP Engine projects to the RAMP workpaper as these projects provide increased cathodic protection and corrosion control, which are maintenance activities.
	Units:	No	
Gas Transmission Cathodic Protection - RAMP Requirements for corrosion control	\$:	Yes	The cost variance is due to emergent projects. These emergent projects were executed due to more focused efforts to address out of tolerance areas and cathodic protection effectiveness. Refer to the Appendix - Emergent, Cancelled, and Deferred Project List.
	Units:	No	

WP Name	Variance Threshold Triggers		Variance Explanation
GT Replacement Pipelines Non-RAMP	\$: Yes	Units: No	The cost variance is due to recategorization of pipeline leak and exposure projects that address the potential of catastrophic pipeline failure as RAMP activities.
GT Replacement Pipelines - RAMP	\$: Yes	Units: No	The cost variance is due to emergent projects. These emergent projects were executed to address shallow and exposed pipe due to wildfires and heavy rains in 2019 and 2020. In addition, a replacement project on SL36-37 was executed for increased construction efficiency along with an adjacent PSEP project. Refer to the Appendix - Emergent, Cancelled, and Deferred Project List.
GT Compressor Stations BC335	\$: Yes	Units: No	The cost variance is due to the timing of execution for the Blythe Compression Station. The majority of construction activities occurred in 2020, which is reflected in the reported costs. In addition, milestones that were delayed in 2019 were completed in 2020.
Ventura Compressor Station Modernization	\$: Yes	Units: No	The cost variance is due to the timing of the Ventura Compressor Station Modernization (CSM) project not being aligned with the test year of the 2019 GRC (<i>i.e.</i> , the project was scheduled to be placed in service in a post-test year). The CPUC recognized in Decision (D.) 19-09-051 the importance of the proposed project and the role of compressor stations in maintaining operational reliability and safety of the gas transmission system. The CPUC found the planning of the Ventura CSM project to be prudent and reasonable. The costs incurred in 2020 are associated with project planning activities.

vi. SoCalGas Gas Transmission Capital Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Gas Transmission Relocations	SCG-07 MAB-13 to MAB-16 WP 00304	Activities in this category are associated with the modification and relocation of transmission pipelines to accommodate planned private property development, municipal public works and street improvement projects, and other work required due to right-of-way agreements, contract and franchise requirements. This category includes costs for activities designed to mitigate system reliability risks.
GT M&R Stations	SCG-07 MAB-26 to MAB-28 WP 00308 & 00308A	Activities in this category include installing and rebuilding large meter set assemblies (MSAs) for transmission-served customers and pressure limiting stations on the gas transmission system. These assets require replacement principally for three reasons: aging, change in use patterns and/or population encroachment, and enhancement of the transmission system to address gas quality and capacity issues. The capital work sustains reliable operation of critical transmission assets. This includes periodic replacement of

WP Name	2019 GRC Testimony Location	WP Activity Description
		local field measurement and control equipment directly linking with Gas Operations SCADA system via remote communications.
GT Auxiliary Equipment	SCG-07 MAB-28 to MAB-29 WP 003090 & 00309A	Activities in this category include new installations or upgrades of aging Measurement and Regulation station and pipeline system control and telemetry systems which link with and provide information to, but are not a direct part of, SoCalGas' centralized Gas Control's SCADA computer system. Also included are telemetry-related upgrades to remote site security systems and remote-control systems for critical in-line valves
Gas Transmission Cathodic Protection -	SCG-07 MAB-25 to MAB-26 WP 003160	This workpaper includes activities associated with the installation of cathodic protection equipment used to preserve the integrity of transmission pipelines by protecting them from external corrosion. These projects are mandated by Federal and State pipelines safety regulations and enable the maintenance of adequate protection on company facilities. Typical expenditures include the replacement of surface anode beds, deep well anodes and/or rectifier systems, installation of new cathodic protection stations, and applying cathodic protection to existing steel mains and service lines.
GT Replacement Pipelines M0312	SCG-07 MAB-10 to MAB-13 WP M03120	Activities in this category include the cost to plan, design, permit, acquire materials, construct, commission, and mitigate impacts for the replacement of pipelines, fittings, valves, and associated pressure regulating stations and service lines. Multiple projects are completed each year ranging in size and magnitude from a few feet to several miles of replacement. Projects can involve difficult and hazardous access with many logistical challenges caused by weather or physical terrain. Also included are projects to replace pipelines due to class location changes.
GT Compressor Stations (BC 335)	SCG-07 MAB-16 to MAB-24 WP M0335	Activities in this category include the decommission of two compressor stations, Desert Center and Cactus City, and isolation of the station from existing transmission pipelines. SoCalGas will install new gas compression and related ancillary systems at the Blythe Compressor Station.
Ventura Compressor Station Modernization	SCG-07 MAB-16 to MAB-24 WP M0335	The Ventura Compressor Replacement Project (VCR) will ultimately consist of six compressor trains. Three of these compressor trains will be purchased new, engineered, and installed in a new building on the west side of the station grounds. Each new unit will be engine-driven with non-Selective Catalytic Reduction emissions reduction systems with 1680 horsepower each.

G. SoCalGas Underground Storage

i. SoCalGas Underground Storage Operations O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Underground Storage		45,465	45,204	262	1%							
Underground Storage	Non-RAMP	35,727	33,264	2,463	7%	This workpaper is comprised of a variety of activities including the preparation of engineering studies, pipeline & equipment testing and maintenance, pipeline patrolling, compliance with regulations, and labor to support these activities. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Underground Storage	Maintenance work performed on gas storage wells	3,352	4,559	(1,207)	-26%	This workpaper is comprised of a variety of activities to address failure components such as tubing, casing, valves, pumps, and other equipment on existing wells. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
Underground Storage	Contract Security	918	1,444	(526)	-36%	This workpaper is comprised of security guard staffing costs to address physical security at the four storage fields. The variety of coverage and intermittent additional needs required at each field makes it infeasible to identify a single unit of measurement applicable to all four fields.					No	No
Underground Storage	Maintenance of high-pressure storage lines	4,045	3,051	993	33%	4	4	0	0%	Storage Fields	No	No
Underground Storage	Internal Corrosion Plan	239	615	(376)	-61%	This workpaper is comprised of activities to address internal corrosion, including corrosion monitoring, chemical program, internal corrosion program enhancement. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Sub-Total Underground Storage		44,281	42,934	1,347	3%						No	
Storage Risk Management	Non-RAMP	1,184	2,270	(1,086)	-48%	The variety of work (e.g., implementation requirements of CARB, CalGEM, and PHMSA regulations) and varying dollars make it impractical to identify a unit.					Yes	No

ii. SoCalGas Underground Storage O&M Variance Explanations

WP Name	Variance Threshold Triggers		Variance Explanation
Underground Storage Maintenance work performed on gas storage wells	\$: Units:	Yes No	Lower than forecasted maintenance work required on wells due to wells being plugged and abandoned.
Storage Risk Management	\$: Units:	Yes No	Lower than forecasted due to decrease in expenses associated with organizational re-structuring within Aboveground and Underground Storage and Storage Risk Management.

iii. SoCalGas Underground Storage O&M Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Underground Storage	SCG-10-R NPN-18 to NPN-24 WP 2US000.000	Storage Operations is responsible for the safe, efficient, and economical operation of the underground natural gas storage facilities for SoCalGas. This work paper covers the supervision, engineering, and operational costs associated with the operation of the underground storage fields.

WP Name	2019 GRC Testimony Location	WP Activity Description
Storage Risk Management	SCG-10-R NPN-24 to NPN-25 WP 2US001.000	The Storage Risk Management Team consists of Facilities Data, Systems and Compliance, along with Storage Integrity Management Program, Underground Data Management, Regulatory and Policy Management. The workpaper covers the labor and nonlabor associated with supporting above ground monitoring, data management, compliance and audit support at the storage fields. The group is organized and resourced to address the implementation requirements of CARB, CalGEM and PHMSA regulations.

iv. SoCalGas Underground Storage Capital Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Underground Storage		116,139	104,705	11,434	11%							
GS Compressor Stations	Non-RAMP	10,160	19,949	(9,789)	-49%	This workpaper is comprised of activities associated with compressor station and auxiliary equipment upgrades. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
GS Wells - Cushion Gas Purchase	Non-RAMP	(0)	568	(568)	-100%	0	1	-1	-100%	Storage Field	No	Yes
GS Wells - RAMP Base - C1	Well replacements	6,144	19,225	(13,081)	-68%	4	7	-3	-43%	Wells	Yes	Yes
GS Wells - RAMP Base - C2	Well plug & abandon	18,468	18,046	422	2%	9	5	4	80%	Wells	No	Yes
GS Wells - RAMP Base - C3	Tubing upsizing	16	962	(946)	-98%	0	3	-3	-100%	Wells	No	Yes
GS Wells - RAMP Base - C4	Well workovers	4,939	4,743	196	4%	9	3	6	200%	Wells	No	Yes

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
GS Wells - RAMP Base - C5	Wellhead repairs & replacements	0	412	(412)	-100%	0	0	0		Wells	No	No
GS Wells - RAMP Base - C7	Wells blanket projects	653	794	(141)	-18%	This workpaper is comprised of well blanket project activities, which include upgrades to gas lift line and kill systems, compressed air system updates, and work string capital tools. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
GS Wells Sub-Total		30,220	44,749	(14,530)	-32%						Yes	
GS Pipelines	Non-RAMP	29,396	6,222	23,175	372%	This workpaper is comprised of non-RAMP work such as upgrading or replacing lateral piping and related components including valve replacements, pipe bridge replacement, expansions, upsizing, supports, corrosion protection, and other elements related to piping systems. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
GS Pipelines - RAMP Base	Combat land movement through ground stabilization projects in both Gas Transmission and Gas Storage.	1,726	4,420	(2,694)	-61%	1	1	0	0%	Storage Field	Yes	No
GS Pipelines Sub-Total		31,122	10,641	20,481	192%						Yes	
GS Purification	Non-RAMP	6,491	8,612	(2,120)	-25%	This workpaper is comprised of dehydration and tank farm equipment upgrade work activities, including, but not limited to the installation, replacements and relocations of gas and glycol filters for improved gas conditioning as well as instrumentation upgrades to allow remote monitoring.					Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
						The variety of work activities in this category makes it infeasible to identify a single unit of measurement.						
GS Auxiliary Equipment	Non-RAMP	36,543	18,305	18,238	100%	This workpaper is comprised of non-RAMP auxiliary equipment work activities including overhead power and electrical system upgrades, relief system redesign, and equipment modernization. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
GS - Aliso Canyon	Erosion mitigation	1,401	1,062	339	32%	1	1	0	0%	Storage Field	No	No
GS - Playa Del Rey	Erosion mitigation	202	1,387	(1,185)	-85%	1	1	0	0%	Storage Field	No	No
GS Auxiliary Equipment Sub-Total		38,146	20,753	17,393	84%						Yes	

v. SoCalGas Underground Storage Capital Variance Explanations

WP Name	Variance Threshold Triggers		Variance Explanation
Compressor Stations	\$:	Yes	The variance in compressor station work is primarily due to the revised schedule of the Honor Rancho main compressor unit replacement study and the limited ability to remove compressor equipment from service to perform work, because the equipment is required to stay online to maintain the reliability of the system.
	Units:	No	
GS Wells Cushion Gas - Non-RAMP	\$:	No	Units: Storage Fields. Lower than forecasted since Honor Rancho storage reservoir did not require purchased cushion gas to maintain adequate pressure and deliverability rates.
	Units:	Yes	

WP Name	Variance Threshold Triggers		Variance Explanation
GS Wells - RAMP Base - C1	\$: Yes	Units: Yes	Units: Number of Wells. Lower than forecasted well replacement activity. 2020 investments reflect site preparation work and casing purchases for four wells, however, drilling only started on one of the four. The drilling of 3 new wells has been deferred due to the accelerated CalGEM reassessment timeline.
GS Wells - RAMP Base - C2	\$: No	Units: Yes	Units: Number of Wells. Higher than forecasted due to accelerated CalGEM reassessment timeline requirements, as well as change of scope resulting in increased plug and abandonment activities.
GS Wells - RAMP Base - C3	\$: No	Units: Yes	Units: Number of Wells. Lower than forecasted due to prior acceleration of work activities; tubing upsizing was primarily completed prior to 2020 as part of well upgrades/workovers.
GS Wells - RAMP Base - C4	\$: No	Units: Yes	Units: Number of Wells. Higher than forecasted well workovers due to increased compliance activity in accordance with CalGEM's Mechanical Integrity Testing (MIT) and Standard Annual Pressure Testing (SAPT) requirements.
GS Pipelines Non-RAMP	\$: Yes	Units: No	Higher than forecasted due to reassessments identifying wellhead changes that necessitated lateral modifications and plug and abandonment work, subsequently requiring increased removal of pipelines. This activity is tracked by projects that are initiated for pipeline work at storage fields.
GS Pipelines RAMP Base	\$: Yes	Units: No	The variance is due to a reduction in scope of work. Revised work activities include installation of isolation valves to address identified risk mitigation measure.
GS Purification	\$: Yes	Units: No	Lower than forecasted purification equipment work at the storage fields. Restrictions imposed on the use of the Aliso Canyon storage field has placed additional operational reliance and use on the non-Aliso storage fields, resulting in the limited ability to remove the purification equipment from service at those facilities to perform work. This activity is tracked by projects that are initiated for purification work in storage fields.
GS Auxiliary Equipment	\$: Yes	Units: No	The variance is attributable to prioritization of work activities related to safety and compliance requirements (e.g., CARB Oil & Gas Rule equipment and installation, General Order 95 wood-to-steel replacements, and electrical upgrades).

vi. SoCalGas Underground Storage Capital Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
GS Compressor Stations	SCG-10-R NPN-31 to NPN-35 WP 00411	These storage compressor units increase the pressure of natural gas so it can be injected into the underground reservoirs. Examples of equipment within this area include turbines, engines, high pressure gas compressors, compressed air system equipment, fire suppression systems, gas scrubbers, and related control instruments. This budget category includes the necessary capital for maintenance, replacements, and upgrades of the various storage field compressors to uphold safety, maintain or improve reliability, extend equipment life, achieve environmental compliance, and to meet the required injection capacities.
GS Wells	SCG-10-R NPN-35 to NPN-42 WP 00412	This budget category includes costs associated with replacing failed components on existing wells, and the design, drilling and completion of replacement wells for the injection and withdrawal of natural gas and reservoir observation purposes. This includes well workover contractors (major well work), drilling contractors, and component materials such as tubing, casing, valves, pumps, and other down-hole equipment, and well plugging and abandonment. The intent behind the capital expenditure plan is to provide safe, reliable delivery of natural gas to customers and enhance the integrity, efficiency, and responsiveness of operations while maintaining compliance with applicable regulatory and environmental regulations.
GS Pipelines	SCG-10-R NPN-42 to NPN-44 WP 00413	This budget category includes costs associated with upgrading or replacing failed field piping and related components. The intent behind the capital expenditure plan is to provide safe, reliable delivery of natural gas to customers and also enhance the integrity, efficiency, and responsiveness of operations while maintaining compliance with applicable regulatory and environmental regulations.
GS Purification	SCG-10-R NPN-44 to NPN-4 WP 00414	This budget category forecasts costs associated with equipment used primarily for the removal of impurities from, or the conditioning of, natural gas withdrawn from storage. Examples of equipment included in this area are dehydrators, coolers, scrubbers, boilers, pumps, valves, piping, power supply, controls, and instrumentation. The intent behind the capital expenditure plan is to provide safe, reliable delivery of natural gas to customers and also enhance the integrity, efficiency, and responsiveness of operations while maintaining compliance with applicable regulatory and environmental regulations.
GS Auxiliary Equipment	SCG-10-R NPN-46 to NPN-51 WP 00419	This budget category includes work on various types of field equipment not included in other budget codes such as instrumentation, measurement, controls, electrical, drainage, infrastructure, safety, security, and communications systems

H. SoCalGas Pipeline Safety Enhancement Program (PSEP)

i. SoCalGas PSEP O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure Or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Pipeline Safety Enhancement Plan		21,824	62,182	(40,358)	-65%							
Pipeline Safety Enhancement Program	Approved PSEP program to test or replace High Consequence Area High Pressure pipelines	20,441	57,813	(37,371)	-65%	19.70	104.39	(85)	-81%	Miles	Yes	Yes
Pipeline Safety Enhancement Program- PMO Costs	Approved PSEP program to test or replace High Consequence Area High Pressure pipelines	1,383	4,369	(2,987)	-68%	The activities in the PMO include labor and non-labor activities that can't be described as a single unit of measure. These activities support the successful implementation of PSEP and other large capital projects by ensuring compliance with regulatory requirements, facilitating and implementing continuous work improvement, and establishing controls across all PSEP and non-PSEP functional teams.					Yes	No

ii. SoCalGas PSEP O&M Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
Pipeline Safety Enhancement Program	\$: Yes Units: Yes	Unit and cost variances are primarily attributed to the deferral of four hydrotest projects due to gas system capacity and reliability constraints. These projects totaled approximately 110 miles. PSEP O&M actuals in 2020 are primarily associated with the execution of five smaller projects totaling approximately 20 miles, including three that were accelerated into construction in 2020; another that was completed as originally planned according to the 2019 GRC application; and an additional project not filed in the 2019 GRC that was authorized to be accelerated in Advice Letter 5617. One of the aforementioned deferred projects (L2000 Blythe to Cactus City) was a 64-mile hydrotest that initiated construction in April 2021.
Pipeline Safety Enhancement Program-PMO Costs	\$: Yes Units: No	The expenditure variance is primarily due to a re-organization of PMO functions related to this workpaper into a large capital delivery organization. The re-organization necessitated the support of PMO employees to be spread to both PSEP and non-PSEP projects across the portfolio; therefore, O&M costs are now either included in the projects themselves or applied to company overhead pools. The variance is partially offset by the inclusion of PSEP-specific material storage and warehousing costs, which are also shared with non-PSEP projects, and an emergent project documentation migration effort funded by the PMO.

iii. SoCalGas PSEP O&M Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Pipeline Safety Enhancement Program	SCG-15-R RDP-A-28 to RDP-A-33 WP 2PS000.000	This is the total cost of PSEP Hydrotest projects in the GRC. Costs have been normalized based on the hydrotest expenditures from 2019-2021. Detailed information at a project level is contained in the supplemental workpapers included as Exhibit No. SCG-15-WP-S.
Pipeline Safety Enhancement Program-PMO Costs	SCG-15-R RDP-A-36 to RDP-A-38 WP 2PS000.001	The PSEP Project Management Office (PMO) provides governance and management that enable the PSEP program to effectively achieve their objectives. The PMO ensures compliance with regulatory requirements, facilitates and implements continuous work improvement, and establishes controls across all PSEP functional teams. The PSEP PMO costs included in this forecast represents those PSEP organizational costs that are not charged to individual projects.

iv. SoCalGas PSEP Capital Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Pipeline Safety Enhancement Program		88,397	176,955	(88,557)	-50%							
PSEP Pipeline Replacement - RAMP	Approved PSEP program to test or replace High Consequence Area High Pressure pipelines	37,764	66,414	(28,650)	-43%	4.21	4.27	-0.06	-1%	Miles	Yes	No
PSEP Hydrotest Capital		7,919	19,800	(11,880)	-60%	The activities in Hydrotest Capital include labor and non-labor activities that can't be described as a single unit of measure. These activities are associated with the execution of hydrotest projects.					Yes	No
PSEP Valve Projects - RAMP		42,346	80,128	(37,782)	-47%	27	97	-70	-72%	Installations	Yes	Yes
PSEP PMO - RAMP		368	10,613	(10,245)	-97%	The activities in the PMO include labor and non-labor activities that can't be described as a single unit of measure. These activities support the successful implementation of PSEP and other large capital projects by ensuring compliance with regulatory requirements, facilitating and implementing continuous work improvement, and establishing controls across all PSEP and non-PSEP functional teams.					Yes	No

v. SoCalGas PSEP Capital Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
PSEP Pipeline Replacement - RAMP	<p>\$: Yes</p> <p>Units: No</p>	Aggregate cost variance is attributed to one or more of the following reasons impacting specific replacement projects: delayed environmental permitting, land acquisition, and material procurement (1 project); scope changes leading to mileage reductions (2 projects); significant investment in 2019 due to acceleration of construction start dates (2 projects); construction delays due to conflict with unrelated construction activities on existing utility lines (1 project); and deferral due to gas system capacity and/or reliability constraints (1 project). The cost variance was partially offset by the completion of a replacement project in 2020 that was initially planned for 2019 and the acceleration of two replacement projects (one of which was completed in 2020) not filed in the 2019 GRC that were authorized in Advice Letter 5617.
PSEP Hydrotest Capital	<p>\$: Yes</p> <p>Units: No</p>	Cost variance primarily reflects execution timing of hydrotest projects as discussed above. Approximately ~\$2.3M of the variance is attributable to a lack of pipeline test failures. While costs to remediate a potential test failure were included in the capital workpaper, no test failures were experienced on any of the 2019 GRC projects in 2020.
PSEP Valve Projects - RAMP	<p>\$: Yes</p> <p>Units: Yes</p>	Variance due to execution timing of valve project bundles originally planned for 2020 in the 2019 GRC application. Reasons for investment below the imputed authorized level primarily includes cancellation of projects through the scope validation process during the detailed design stage (26); planned deferral of projects to better optimize SoCalGas resources and schedules by bundling smaller scope installations (27); deferrals due to permitting, easement, redesign and other issues (18); and prior acceleration of project construction start dates to 2019 (11). This was partially offset by construction of planned projects (10); acceleration of projects not originally planned for 2020 (2); new projects identified and executed in 2020 (7); and projects that were deferred from 2019 (8). In sum, costs associated with 27 project bundles were incurred relative to the 97 planned installations; however, a significant portion of 2020 costs also reflect either trailing costs from projects constructed in 2019 or detailed design and planning costs for projects deferred to 2021-2023. As of the submittal of this report, SoCalGas plans to complete implementation of the approved Valve Enhancement Plan within the GRC cycle.

WP Name	Variance Threshold Triggers	Variance Explanation
PSEP PMO - RAMP	<p>\$: Yes</p> <p>Units: No</p>	The cost variance is primarily due to a re-organization of PMO functions related to this workpaper into a large capital delivery organization. The re-organization necessitated the support of PMO employees to be spread to both PSEP and non-PSEP projects across the portfolio; therefore, capital costs are now either included in the projects themselves or applied to company overhead pools. The variance is minimally offset by the inclusion of PSEP-specific material storage and warehousing costs, which are also shared with non-PSEP projects.

vi. SoCalGas PSEP Capital Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
PSEP Pipeline Replacement - RAMP	SCG-15-R RDP-A-40 to RDP-A-47 WP 00569A	This is the total cost of PSEP Replacement projects in the GRC. Detailed information at a project level is contained in the supplemental workpapers included as Exhibit No. SCG-15-WP-S-R
PSEP Hydrotest Capital	SCG-15-R RDP-A-28 to RDP-A-33 P 00569A	This line item was not specifically addressed in TY 2019 GRC testimony since the capital component of hydrotests was originally included in the pipeline replacements workpaper. For RSAR purposes, hydrotest capital as well as allowance for pipeline test failures have been pulled out as a specific line item in order to clarify variance reporting.
PSEP Valve Projects - RAMP	SCG-15-R RDP-A-48 WP 00569B	Continued implementation of the Valve Enhancement Plan included in the overall PSEP approved by the Commission in D.14-06-007. We expect to complete PSEP Valve projects in each of the GRC years at an annual cost of \$82 million. Detailed information at a project level is contained in the supplemental workpapers included as Appendix A of SCG-15.
PSEP PMO - RAMP	SCG-15-R RDP-A-36 to RDP-A-38 WP 00569C	The PSEP Project Management Office (PMO) provides governance and management that enable the PSEP program to effectively achieve their objectives. The PMO ensures compliance with regulatory requirements, facilitates and implements continuous work improvement, and establishes controls across all PSEP functional teams. The PSEP PMO costs included in this forecast represents those PSEP organizational costs that are not charged to individual projects.

I. SoCalGas Gas Acquisition

i. SoCalGas Gas Acquisition O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Gas Procurement		4,909	4,725	184	4%							
Gas Acquisition	Non-RAMP	4,909	4,725	184	4%	35	34	1	3%	FTE	No	No

ii. SoCalGas Gas Acquisition O&M Variance Explanations

No variance explanation is required for this category because the variance doesn't meet the selection criteria.

iii. SoCalGas Gas Acquisition O&M Workpaper Descriptions and GRC Testimony Locations

No variance explanation is required for this category because the variance doesn't meet the selection criteria.

iv. SoCalGas Gas Acquisition Capital Variances

The Gas Acquisition witness did not sponsor any capital costs in the TY 2019 GRC.

2. SOCALGAS Other

A. SoCalGas Customer Services

i. SoCalGas Customer Services O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Customer Services		246,406	277,868	(31,463)	-11%							
Advance Metering Infrastructure Policy		9,428	11,541	(2,113)	-18%							
Advanced Meter Operations	Non-RAMP	9,074	11,031	(1,957)	-18%	45	48	(4)	-8%	FTE	No	No
Advanced Meter Operations	Annual DCU/ Pole Inspections	257	306	(49)	-16%	4,416	4,600	(184)	-4%	Inspections	No	No
Advanced Meter Operations	Analyze consumption patterns to identify atypical/ unusual consumption	98	204	(107)	-52%	30,190	21,312	8,878	42%	Accounts	No	Yes
Sub-Total Advanced Meter Operations		9,428	11,541	(2,113)	-18%						No	
Customer Services - Field & Meter Reading		174,930	192,318	(17,389)	-9%							
CS Field Staff Manager	Non-RAMP	465	537	(72)	-13%	4	6	(2)	-36%	FTE	No	Yes
CS Field Staff Manager	Policy Procedures Standards and ESCMP	811	963	(151)	-16%	7	8	(1)	-14%	FTE	No	No
Sub-Total CS Field Staff Manager		1,277	1,500	(223)	-15%						No	

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Customer Services Field - Operations	Non-RAMP	69,086	81,246	(12,160)	-15%	1,077,366	1,829,324	(751,958)	-41%	Non-RAMP Orders	Yes	Yes
Customer Services Field - Operations	Safety-related field Orders, Field Employee meetings and Training	37,018	40,941	(3,923)	-10%	655,143	843,077	(187,934)	-22%	Safety-related field orders	No	Yes
Customer Services Field - Operations	PPE and Tools	2,403	3,453	(1,049)	-30%	1,080	1,330	(249)	-19%	FTE	Yes	No
Sub-Total CS Field - Operations		108,507	125,640	(17,133)	-14%						Yes	
Customer Services Field - Supervision	Non-RAMP	12,740	11,395	1,345	12%	116	109	7	6%	FTE	No	No
Customer Services Field - Supervision	Job Observations Field Rides and Job Monitoring	830	976	(146)	-15%	1,080	1,330	(249)	-19%	FTE	No	No
Sub-Total CS Field-Supervision		13,570	12,371	1,199	10%						No	
Customer Services Field - Dispatch	Non-RAMP	12,979	9,715	3,265	34%	124	93	31	33%	FTE	Yes	Yes

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Customer Services Field - Support	Non-RAMP	12,901	15,561	(2,660)	-17%	103	113	(11)	-9%	FTE	No	No
Customer Services Field - Support	Employee Skills Training and QA inspections	3,918	3,887	31	1%	35	37	(2)	-5%	FTE	No	No
Sub-Total CS Field-Support		16,819	19,448	(2,629)	-14%						No	
MSA Inspection Program	Non-RAMP	5,492	7,238	(1,746)	-24%	124,981	166,509	(41,528)	-25%	Remedia-tion Orders	Yes	Yes
MSA Inspection Program	Gas Facility and Pipeline Inspections	15,312	13,022	2,290	18%	2,850,126	2,292,132	557,994	24%	MSA Inspections	No	Yes
Sub-Total MSA Inspection Program		20,804	20,260	544	3%						No	
Meter Reading - Operations	Non-RAMP	487	1,223	(736)	-60%	10	26	-15.25	-60%	FTE	No	Yes
Meter Reading - Operations	Manual Meter Reads for Atmospheric Corrosion Inspections	487	1,258	(772)	-61%	10	26	(15)	-60%	FTE	No	Yes
						165,602	335,744	(170,142)	-51%	Manual Meter Reads		Yes
Sub-Total Meter Reading - Operations		973	2,481	(1,508)	-61%						Yes	

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Meter Reading - Clerical	Non-RAMP	-	166	(166)	-100%	-	2.0	(2.0)	-100%	FTE	No	Yes
Meter Reading - Supervision & Training	Non-RAMP	-	397	(397)	-100%	-	4.0	(4.0)	-100%	FTE	No	Yes
Meter Reading - Support	Non-RAMP	0	341	(341)	-100%	-	3.0	(3.0)	-100%	FTE	No	Yes
Customer Services - Office Operations		32,573	43,257	(10,684)	-25%							
CCC - Operations	Non-RAMP	22,282	30,580	(8,298)	-27%	3,674,684	4,877,877	(1,203,193)	-25%	Non-Emergency Call Volume	Yes	Yes
CCC - Operations	Update customer information for notification/access purposes	1,130	1,621	(491)	-30%	2,492,849	4,908,129	(2,415,280)	-49%	Call Volume	No	Yes
CCC - Operations	CSR Training, Quality Observations, CCC Safety Committee Liaison	482	254	229	90%	3.3	2.2	1.1	49%	FTE	No	Yes

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
CCC - Operations	Emergency Call Handling	536	957	(420)	-44%	268,172	346,767	(78,595)	-23%	Emer-gency Calls	No	Yes
Sub-Total CCC - Operations		24,430	33,411	(8,980)	-27%						Yes	
CCC - Support	Non-RAMP	8,143	9,847	(1,704)	-17%	55	66	-10.9	-17%	FTE	No	No
Customer Services - Information		24,603	25,317	(714)	-3%							
Renewable Gas - Customer Outreach	Non-RAMP	490	1,055	(566)	-54%	The Renewable Gas Customer Outreach group supports customer implementation of renewable gas projects through activities such as educating customers on technology options and project economics, providing information on state/local incentive programs, monitoring renewable gas credit prices, as well as developing presentations and informational materials for use by others in the company. The variety of work activities in this category makes it infeasible to identify a single unit of measurement					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Clean Transportation - Customer Outreach	Non-RAMP	1,484	1,502	(18)	-1%	The Clean Transportation Customer Outreach conducts direct customer contact activities such as providing customer information for natural gas vehicles (NGV) and refueling stations, education and training related to clean transportation regulations, utility service, infrastructure, safety, and products, and the evaluation of clean transportation solutions. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
CI-Customer Strategy and Engagement -	Non-RAMP	6,093	7,854	(1,761)	-22%	Customer Strategy and Engagement (CSE) manages internal and external communications and marketing activities such as design, research, compliance, campaigns, and communication events. Activities in this area include: 1. Customer Marketing and Communications: Marketing and communication plans, management of communication campaigns; 2. Creative Services: Graphic design, scheduling and production for various printed and electronic materials such as bill enclosures, brochures, flyers, posters, and newsletters, conducting external outreach events; 3. Customer Insights & Analytics: Primary and secondary customer research such as SoCalGas' Customer Experience Study, customer insight panels, disadvantaged communities and low-income customer research; 4. Digital Engagement: Management of socialgas.com, MyAccount residential & business, mobile, email, SMS text, and non-marketing social media. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
CI-Customer Assistance Programs	Non-RAMP	321	781	(460)	-59%	Activities administering the Medical Baseline and Gas Assistance Fund programs include outreach, enrollment, processing, customer support, and participant recertification. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
CI-Customer Assistance Programs	Natural Gas Appliance Testing (NGAT) ¹	1,064	3,000	(1,936)	-65%	34,044	103,084	(69,040)	-67%	NGATs	Yes	Yes
Sub-Total CI-Customer Assistance Programs		1,385	3,782	(2,396)	-63%						Yes	
CI-Customer Segment Services	Non-RAMP	15,151	11,124	4,027	36%	Customer Segment Services area consists of a variety of activities which include account management and support for large commercial & industrial customers and the energy market segment; outreach and market analysis for small/medium businesses and residential customer segments; negotiated contract assessments and contract management; customer rate analysis; segment demand forecasting; developing program offerings and services in compliance with legislative and regulatory mandates. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
Customer Services - Technologies, Policies & Solutions		4,872	5,434	(562)	-10%							
Business Strategy and Development	Non-RAMP	2,044	1,659	385	23%	The group provides analytical and execution support for initiatives in major strategic priority areas such as development and deployment of clean energy solutions that support ratepayer interests and advance Commission policy. The group also performs research and analysis on various clean energy innovation topics. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Environmental Affairs	Non-RAMP	403	716	(313)	-44%	The group activities are to monitor and analyze issues to identify air quality regulatory and compliance impacts on SoCalGas and SDG&E customers and on utility operations. The group works directly with air quality agency staff and with customers on rulemakings. The variety of work activities in					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
						this category makes it infeasible to identify a single unit of measurement.						
Energy & Environmental Policy	Non-RAMP	941	1,815	(874)	-48%	This group provides policy analysis, agency engagement and outreach related to policies, laws and regulations related to natural gas delivery and utilization. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Planning & Legislative Analysis	Non-RAMP	258	244	14	6%	The group activities consist of managing legislative analysis for SoCalGas and provide legislative support for SDG&E. Provides analysis of legislative policies and emerging issues that could impact SoCalGas customers. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Policy & Environmental Solutions NSS	Non-RAMP	1,226	1,001	225	23%	The group leads the development and implementation of SoCalGas' public policy and planning efforts related to the role of gas infrastructure & system for meeting federal, state, regional and local energy and environmental policy goals. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No

ii. SoCalGas Customer Services O&M Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
Advance Metering Infrastructure Policy		

WP Name	Variance Threshold Triggers	Variance Explanation
Advance Meter Operations Analyze consumption patterns to identify atypical/unusual consumption	\$: No Units: Yes	Units: Number of accounts. Higher than forecasted number of accounts analyzed due to Advanced Meter analytics process improvements continuing to enhance the ability to evaluate unusual/atypical consumption by customers.
Customer Services - Field & Meter Reading		
Customer Service Field Staff Manager – Non-RAMP	\$: No Units: Yes	Units: Number of FTE. Lower than forecasted number of FTEs due to delayed activities such as Field Technologies programs, Hydrogen Blending, and seismic valve removal due to COVID-19 impacts on performing these activities.
Customer Services Field - Operations Non-RAMP	\$: Yes Units: Yes	Units: Number of orders. Lower than forecasted number of orders and associated costs due to reduced customer demand and the curtailment of fielded orders in response to COVID-19 pandemic and safety implications. Decreased order types include collection, non-pay turn on/off, and food industry/commercial orders. In addition, utilized Advanced Meter analytics data to decrease the number of fielded orders related to abnormal usage.
Customer Services Field - Operations Safety-related field Orders, Field Employee meetings and Training	\$: No Units: Yes	Units: Number of Safety Related Field Orders. Lower than forecasted number of orders due to reduced customer demand and the curtailment of certain non-essential fielded orders in response to COVID-19 pandemic and safety considerations. Decreased order types include read/verify, soft close and CSO orders. In addition, utilized Advanced Meter analytics data to decrease the number of fielded orders related to abnormal usage.
Customer Services Field - Operations PPE & Tools	\$: Yes Units: No	Units: Number of FTE. Lower than forecasted PPE & Tools due to the reduction of CSF technician FTEs required as a result of the reduction in customer demand and the curtailment of fielded orders in response to COVID-19 pandemic safety considerations.
Customer Services Field - Dispatch Non-RAMP	\$: Yes Units: Yes	Units: Number of FTE. Higher than forecasted costs and FTE due to COVID-19 impact on attendance and the consolidation of Dispatch Operations, which resulted in costs shifted from CS Field Support to CS Field Dispatch.
MSA Inspection Program Non-RAMP	\$: Yes Units: Yes	Units: Number of Remediation Orders. Lower than forecasted remediation orders and associated costs due to conditions resolved by CS Field technicians in the CS Field - Operations workpaper in addition to other remediation work also shifting to CS Field - Operations.
MSA Inspection Program Gas Facility and Pipeline Inspections	\$: No	Units: Number of MSA Inspections. Increase due to route realignment effort resulting in additional field attempts. The route realignment effort attempts to group orders to gain future

WP Name	Variance Threshold Triggers	Variance Explanation
	Units: Yes	efficiencies. Increased total inspections is also due to 2020 CGI (“can’t get in”) percentage increase above forecast caused by higher number new employees.
Meter Reading - Operations Non-RAMP	\$: No Units: Yes	Units: Number of FTE. Fewer manual meter reads were needed for opt-out customers due to effective increased outreach and fewer escalated city reads due to neighboring city Data Collection Units (DCUs) providing communication coverage
Meter Reading - Operations Manual Meter Reads for Atmospheric Corrosion Inspections	\$: No Units: Yes	Units: Number of FTE and Manual Meter Reads. Fewer manual meter reads were needed for opt-out customers due to effective increased outreach and fewer escalated city reads due to neighboring city DCUs providing communication coverage
Meter Reading - Clerical	\$: No Units: Yes	Units: Number of FTE. This activity was absorbed into CS Field Operations due to fewer manual meter reads needed for opt-out customers associated with effective increased outreach and fewer escalated city reads related to neighboring city DCUs providing communication coverage.
Meter Reading - Supervision & Training	\$: No Units: Yes	Units: Number of FTE. This activity was absorbed into CS Field Operations due to fewer manual meter reads needed for opt-out customers associated with effective increased outreach and fewer escalated city reads related to neighboring city DCUs providing communication coverage.
Meter Reading - Support	\$: No Units: Yes	Units: Number of FTE. This activity was absorbed into CS Field Operations due to fewer manual meter reads needed for opt-out customers associated with effective increased outreach and fewer escalated city reads related to neighboring city DCUs providing communication coverage
Customer Services - Office Operations		
CCC - Operations	\$: Yes Units: Yes	Units: Non-Emergency Call Volume. Lower call volume than forecasted as a result of an assumed 1% increase in calls year-over year. The CCC experienced a 20.2% decrease from 2019 to 2020. The decrease in calls is attributed to COVID-19 impacts on CSF customer generated orders such as non-pay turn on/off and collection activities.

WP Name	Variance Threshold Triggers	Variance Explanation
CCC - Operations Update customer information for access purposes	\$: No Units: Yes	Units: Call Volume. Lower than forecasted call volume due to the COVID-19 pandemic impact on customer generated orders, improved self-service channels and implementation of agent assist (automation intelligence).
CCC - Operations CSR Training, Quality Observations, CCC Safety Committee Liaison	\$: No Units: Yes	Units: Number of FTE. Higher than forecasted FTEs is attributable to increase in Customer Services Representative (CSR) Supervision time performing Quality Observations (QOs). This is due to internal policy changes to increase the number of annual QOs performed per CSR from 10 per CSR to a minimum of 12 (one per month) QOs per CSR.
CCC - Operations Emergency Call Handling	\$: No Units: Yes	Units: Emergency Call Volume. Lower than forecasted number of emergency calls received potentially due to the COVID-19 pandemic impact on customer generated orders requesting a field visit from CS Field - Operations.
Customer Services - Information		
CI-Customer Strategy and Engagement -	\$: Yes Units: No	Due to the COVID-19 pandemic and duration of stay-at-home orders in 2020, a reprioritization of resources was necessary in order to communicate information on relevant topics to meet internal and external needs such as: COVID-19 workplace information, customer service protocol safety plans, information on natural gas service and managing energy bills, and bill payment options, impacting Customer Strategy and Engagement's ability to complete work that would otherwise happen in a typical year. Safety communications were completed within authorized funding levels. Additionally, costs for Touchpoint Action Program (previously the Customer Experience Study) activities completed in 2020 were recorded under Customer Service-Office Operations. Business Customer Insight survey and panel program activities were canceled at the end of 2018 and are currently performed on an as-needed basis when additional research information is necessary.

WP Name	Variance Threshold Triggers	Variance Explanation
CI-Customer Assistance Programs Natural Gas Appliance Testing (NGAT)	\$: Yes Units: Yes	Units: Number of NGATs. The lower than forecasted percentage of homes receiving NGAT in 2020 was the result of an increase in installation of simple measures at the time of ESA program enrollment in multifamily units without a Property Owner Authorization. Without a Property Owner Authorization, no other measures beyond simple measures can be installed, resulting in a decrease in instances of NGAT being performed when treating a unit.
CI-Customer Segment Services	\$: Yes Units: No	Variance is primarily due to emergent analysis and planning activities aligned with existing renewable gas and climate change policy initiatives to support state decarbonization and carbon neutrality mandates from recent developments in areas including: (1) the CPUC's microgrids rulemaking (R.19-09-009) for customer solutions to reliability, resiliency, and decarbonization needs through microgrids and DERs; (2) the CPUC's long-term gas planning rulemaking (R.20-01-007) for long-term clean fuels/hydrogen planning to support California's goals in decarbonization.

iii. SoCalGas Customer Services O&M Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Advance Metering Infrastructure Policy		
Advance Meter Operations	SCG-17-R RFG-14 to RFG-23 WP 2AM002.000	This workpaper includes costs associated with the Advanced Meter Operations (AMO) organization. AMO will be responsible for AM systems maintenance and DCUs network management, post-project deployment. This workpaper includes activities, as described, designed to mitigate safety risks.
Customer Services - Field & Meter Reading		
Customer Service Field Staff Manager	SCG-18-R GRM-54 to GRM-56 WP 2200-0942.000	CSF Staff is comprised primarily of management personnel who develop and implement processes, policies and procedures, including Gas Standards and Information Bulletins; track, analyze and report operational data; and manage special projects for CSF operations. The CSF Staff cost category also includes an administrative assistant who provides clerical support to the CSF Staff organization. Although the CSF Staff is primarily centralized at SoCalGas' Los Angeles headquarters, this organization supports both SoCalGas' and SDG&E's CSF organizations.

WP Name	2019 GRC Testimony Location	WP Activity Description
Customer Service Field - Operations	SCG-18-R GRM-14 to GRM-28 WP 2FC001.000	CS - Field Operations consists of labor and non-labor expenses for field technicians to provide service at customer premises, including both customer and company-generated work orders. Examples of customer-generated work orders include requests to establish/remove gas service, light gas pilots, check gas appliances, shut off and restore gas service for fumigation, investigate the potential causes of high gas bills, respond to emergency incidents, investigate potential gas leaks, and other field services to customers. Examples of company-generated work include meter and regulator changes and other meter work necessary to maintain company assets and collecting customer payments for delinquent bills.
Customer Service Field - Dispatch	SCG-18-R GRM-32 to GRM-34 WP 2FC003.000	CS - Field Support Includes labor and non-labor costs for CS - Field Dispatch personnel who route and dispatch work orders to CS - Field Operations employees 24 hours a day, 365 days a year. Dispatchers are located at four central locations and handle all matters that come up during the day, including: 1) dispatching emergency orders real time as they are received; 2) redistributing work when CS - Field Operations employees call in sick or otherwise become unavailable; and 3) redistributing work orders when CS - Field Operations employees are not able to complete all work that has been assigned for the day.
MSA Field Inspection Program	SCG-18-R GRM-38 to GRM-44 WP 2FC005.000	The Department of Transportation (DOT) Code of Federal Regulations (<i>i.e.</i> , CFR 192.481) generally requires that each MSA be inspected every three years for atmospheric corrosion. Meter readers have historically performed this function, but with the implementation of AMI and the elimination of traditional Meter Reading function, a new group, the CS - Field MSA Inspection Organization, was formed in 2016. This includes costs to perform physical, onsite inspection of each meter set assembly (MSA) to comply with DOT required MSA inspections for atmospheric corrosion, to identify conditions which require remediation by CS - Field Operations and Distribution field employees, and to contact customers to resolve meter access issues. This workpaper includes activities, as described, designed to mitigate safety risks.
Meter Reading - Operations	SCG-18-R GRM-44 to GRM-47 WP 2FC006.000	Costs include part-time meter readers who are dispersed across SoCalGas' operating bases. Meter readers are equipped with MDTs (handheld devices) which are used to record customers' gas consumption. Meter readers capture monthly meter reads at customer premises and read over 68 million meters per year. Data from the meter readers' MDTs are uploaded each night and transferred to the company's mainframe computer for processing and billing. Meter readers are also supported by meter reading technicians. This workpaper includes activities, as described, designed to mitigate safety risks.
Meter Reading - Clerical	SCG-18-R GRM-47 to GRM-49 WP 2FC007.000	CS - Meter Reading clerks handle the timekeeping, payroll, scheduling of part-time meter readers, and various customer facility record and geographical coding updates necessary for meter reading operations. The clerical group also handles meter access issues and provides general administrative support to the CS - Meter Reading organization.

WP Name	2019 GRC Testimony Location	WP Activity Description
Meter Reading - Supervision & Training	SCG-18-R GRM-49 to GRM-51 WP 2FC008.000	The CS - Meter Reading Supervision and Training cost category includes meter reading supervisors who are distributed across SoCalGas' operating bases from which meter readers work, to supervise, coach and manage the performance of meter reading employees.
Meter Reading - Support	SCG-18-R GRM-51 to GRM-52 WP 2FC009.000	The CS - Meter Reading Support cost category consists of a meter reading manager who support meter reading operations and business analysts who support the meter reading technologies, including the process to download and upload data to meter reading MDTs (aka handheld devices), conduct meter reading route analyses and route realignments, project management, and other reporting and analysis.
Customer Service - Office Operations		
CCC - Operations	SCG-19-R MHB-7 to MHB-9, MHB-11 to MHB-20 WP 2OO000.000	<p>CCC-Operations expenses cover the costs of answering customer telephone calls related to Gas Leaks, Service Orders, and Billing and Payments; responding to incoming email from customers; responding to inquiries from socalgas.com website and My Account; processing faxed fumigation orders; and responding to other customer account related inquiries.</p> <p>CCC-Operations are in scope of the spending accountability report because it is generally the first point of contact for emergencies; as such it provides a critical support role in the safety of the SoCalGas system and the public's well-being.</p> <p>This workpaper includes activities, as described, designed to mitigate safety risks.</p>
Customer Services - Information		
CI-Customer Strategy and Engagement -	SCG-20-R ASC-13 to ASC-23 WP 2IN001.000	The function and objectives of Customer Strategy and Engagement are to: provide prompt communications to customers with the objective to build awareness of and improve access to existing and new utility services, programs and resources; educate customers and stakeholders about natural gas, energy management, billing/payment options, programs, and natural gas safety; adopt and maintain relevant communication channels; conduct customer research and analysis to understand customer service needs, preferences, and products; enforce intellectual property requirements across internal and external communications; and enforce Web Access Standards to ensure web pages and PDF documents available on SoCalGas' website are compliant with current accessibility standards. This workpaper is in scope of the spending accountability report due to the safety messaging in customer communications and on the web.

WP Name	2019 GRC Testimony Location	WP Activity Description
CI-Customer Assistance Programs	SCG-20-R ASC-24 to ASC-27 WP 2IN002.000	<p>The Customer Assistance Program area covers costs for the administration of assistance programs offered to residential customers with limited income and/or certain medical conditions. These programs include Energy Savings Assistance (ESA) Program Natural Gas Appliance Testing (NGAT), Medical Baseline Program, and the Gas Assistance Fund.</p> <p>ESA Program NGAT or carbon monoxide (CO) testing is a safety-related program for Customer Assistance's ESA Program participants. SoCalGas conducts CO testing on homes weatherized through the ESA Program in accordance with the ESA Program California Installation Standards Manual and the Statewide ESA Program Policy and Procedures Manual.</p> <p>This workpaper is in scope of the spending accountability report due to the NGAT activity that's designed to mitigate customers' exposure to unsafe levels of carbon monoxide.</p>
CI-Customer Segment Services	SCG-20-R ASC-27 to ASC-32 WP 2IN004.000	CI Segment Services organization is responsible for developing program offerings and services in compliance with legislative and regulatory mandates. The primary goal of this group is to strategically manage customer segments to ensure relevant information, services, products, programs, and other offerings are provided to help meet and manage customers' energy needs.
Customer Services - Technologies, Policies & Solutions		

iv. SoCalGas Customer Services Capital Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure Or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Advanced Meter		0	5,312	(5,312)	-100%							
Advanced Meter	Non-RAMP	0	5,312	(5,312)	-100%	SoCalGas AMI is showing \$24.718 million in 2017 and \$7.524 million in 2018 as capital costs for rate base purposes only. Costs through 2018 are AMI implementation-related and are recorded in the Advanced Metering Infrastructure Balancing Account (AMIBA), as previously authorized in the AMI Decision (D.) 10-04-027 (Decision) and 2016 GRC Decision (D.) 16-06-054.					Yes	No

v. SoCalGas Customer Services Capital Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
Advanced Meter	\$: Yes Units: No	This variance is due to the methodology used to calculate the imputed authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas / SDG&E attrition years rather than a specific funding level by activity for each year. This is described in further detail in section 2.D above.

vi. SoCalGas Customer Services Capital Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Advanced Meter	SCG-17-R RFG-23 to RFG-25 SCG-17-CWP	Expenditure for labor and non-labor costs associated with the Software Development group supporting the Advanced Metering Infrastructure (AMI) project. This group oversees the systems impacted by AM data, including the Headend Meter Data Management System (MDMS).

B. SoCalGas Information Technology & Cyber Security

i. SoCalGas Information Technology & Cyber Security O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Information Technology & Cyber Security		23,899	33,435	(9,536)	-29%							
Information Technology		23,111	32,652	(9,541)	-29%							

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Director IT SoCalGas Applications	Non-RAMP	576	796	(220)	-28%	2	2	0	0%	FTE	No	No
Director - Computing Infrastructure	Non-RAMP	203	0	203	100%	1	1	0	0%	FTE	No	No
SCG Work Management Services	Non-RAMP	561	1,341	(781)	-58%	6	10	(4)	-40%	FTE	No	Yes
SCG GIS & CAD Services	Non-RAMP	279	189	90	47%	2	1	1	100%	FTE	No	Yes
SCG Software Dev - Database	Non-RAMP	311	632	(321)	-51%	3	5	(2)	-40%	FTE	No	Yes
SCG Apps Maj Mrk App - SCG	Non-RAMP	1,381	1,603	(222)	-14%	9	8	1	13%	FTE	No	No
Scalable Platform Servs - SCG	Non-RAMP	198	528	(331)	-63%	1	4	(3)	-75%	FTE	No	Yes
CI Compute Support SCG	Non-RAMP	1,317	1,149	167	15%	8	9	(1)	-11%	FTE	No	No
CI Compute Provisioning SCG	Non-RAMP	0	706	(706)	-100%	0	5	(5)	-100%	FTE	No	Yes
CI Standards	Non-RAMP	849	566	283	50%	4	4	0	0%	FTE	No	No
IT Portfolio Management	Non-RAMP	465	667	(202)	-30%	2	2	0	0%	FTE	No	No
Architecture and Integration - SCG	Non-RAMP	579	584	(5)	-1%	3	3	0	0%	FTE	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure	Spending Variance Explanation Required?	Unit Variance Explanation Required?
IT Telecom PMO	Non-RAMP	638	104	534	515%	1	1	0	0%	FTE	No	No
IT Applications NSS	Non-RAMP	7,814	8,807	(993)	-11%	This workpaper contains variable O&M costs including FTEs, software maintenance costs, and managed service costs. All expenditures pertain to financial and operational applications. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
IT Infrastructure NSS	Non-RAMP	6,961	14,615	(7,655)	-52%	This workpaper contains variable O&M costs including FTEs, software maintenance costs, and managed service costs. All expenditures pertain to Infrastructure including network engineering, data center, and maintenance subscriptions. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
DCAM Program	Non-RAMP	72	0	72	100%	1	0	1	100%	FTE	No	Yes
Enterprise Monitoring	Non-RAMP	519	0	519	100%	1	0	1	100%	Contract	No	Yes
Clnt Tech & Depot Svc-SCG	Non-RAMP	374	363	11	3%	2	2	0	0%	FTE	No	No
IT Infra PMO	Non-RAMP	14	0	14	100%	1	0	1	100%	FTE	No	Yes
Cyber Security		789	783	6	1%							
IT Information Security SCG	Firewall Admin	761	783	(22)	-3%	1	1	0	0%	FTE	No	No
Identity & Access Management	Firewall Admin	27	0	27	100%	0.2	0	0	100%	FTE	No	Yes

ii. SoCalGas Information Technology & Cyber Security O&M Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
Information Technology		
SCG Work Management Services	\$: No Units: Yes	Units: Number of FTEs. Filling vacancies took longer than expected and resources worked on capital projects more than was originally expected.
SCG GIS & CAD Services	\$: No Units: Yes	Units: Number of FTEs. An additional resource was needed to provide maintenance support and small enhancements for the GIS & CAD systems.
SCG Software Dev - Database	\$: No Units: Yes	Units: Number of FTEs. Database Administrators worked on more capital projects in the IT Utility Operations Applications and the IT Enterprise Infrastructure areas than was originally planned.
Scalable Platform Servs - SCG	\$: No Units: Yes	Units: Number of FTEs. Reduction in FTEs due to a shift from internal labor to managed service. Some FTEs were shifted to other work.
CI Compute Provisioning SCG	\$: No Units: Yes	Units: Number of FTEs. Cost center is retired due to a reorganization. FTEs have been moved to support other departments.
IT Infrastructure NSS	\$: Yes Units: No	Shifted work from O&M to infrastructure capital projects in response to significant infrastructure outage. In addition, Microsoft Office 365 costs were capitalized due to increased functionality.
DCAM Program	\$: No Units: Yes	Units: Number of FTEs. Data Center Application and Modernization Program created in response to significant data center outage with an FTE added to manage the upgrading legacy systems and infrastructure.
Enterprise Monitoring	\$: No Units: Yes	Units: Number of Contracts. Emergent - Additional tools added to support the evolving needs in monitoring network performance, applications and infrastructure.
IT Infra PMO	\$: No Units: Yes	Units: Number of FTE. Emergent - Additional resources added to support the evolving network infrastructure and perform comprehensive initialization, execution and management of the IT PMO at SoCalGas.

WP Name	Variance Threshold Triggers	Variance Explanation
Cyber Security		
Identity & Access Management Firewall Admin	\$: No Units: Yes	Units: Number of FTE. Emergent - FTEs added to focus on support of evolving needs of identity life-cycle management system and process improvements.

iii. SoCalGas Information Technology & Cyber Security O&M Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Information Technology		
SCG Work Management Services	SCG-26 CRO-15 to CRO-16 WP 2200-2445.000	This cost center represents support services for a broad range of client organizations, including: Gas Operations / Distribution, Construction, Generation and Environmental Services. The application services are based on several enterprise systems, including: SAP Plant Maintenance and Click Field Force, and CMS/NBMS.
SCG GIS & CAD Services	SCG-26 CRO-15 to CRO-16 WP 2200-2446.000	This cost center supports GIS Applications services for Gas at both SDGE & SCG
SCG Software Dev - Database	SCG-26 CRO-15 to CRO-16 WP 2200-2447.000	This cost center provides maintenance and enhancement support for system wide database administration.
Scalable Platform Servs - SCG	SCG-26 CRO-16 to CRO-17 WP 2200-2458.000	Messaging and network activities for support and maintenance of messaging infrastructure, including E-mail, Calendaring, Instant Messaging, and SharePoint services on a system-wide basis across Corporate Center, SDG&E, and SoCal Gas.
CI Compute Provisioning SCG	SCG-26 CRO-16 to CRO-17 WP 2200-2466.000	This cost center is responsible for the design and implementation of CI projects for Local Area and Wide Area networks and voice systems that link all company facilities.

WP Name	2019 GRC Testimony Location	WP Activity Description
IT Infrastructure NSS	SCG-26 CRO-13 to CRO-14 WP 2IT002.000	Infrastructure activities include preventative maintenance, problem diagnosis and resolution, and service request processing and implementation. This category includes costs for activities, as described, designed to mitigate infrastructure risks.
DCAM Program	SCG-26 CRO-13 to CRO-14 Emergent	This cost center provides support for the DCAM (Data Center & Application Modernization) program at SDGE, SCG, and Corporate. DCAM mitigates outages from unplanned events, prevents data loss, and creates resiliency by building new infrastructure between Rancho Bernardo (RBDC) and Las Vegas (LVDC). Guides higher availability and faster recovery objectives and encompasses application or business continuity processes modernization including system application stability, recovery & upgrading legacy systems.
Enterprise Monitoring	Emergent	This cost center provides the core IT monitoring capabilities for Sempra and Utility Conglomerates
IT Infra PMO	Emergent	This cost center will support IT PMO organization for Network and Infrastructure projects <i>i.e.</i> , network performance, applications & infrastructure.
Cyber Security		
Identity & Access Management	SCG-27-R GW – 22 to GW – 25 WP 2200-2469.000	This cost center is responsible for expanding opportunities to improve the identity lifecycle with emphasis in onboarding, continuous end-user authentication improvements, new policy frameworks and standards for Identity & Access Management at the utilities, expanding governance initiatives for access enforcement, furthering our integration models for application and data synchronization, alignment and support of strategic company initiatives such as the Utility Split, and much more.

iv. SoCalGas Information Technology & Cyber Security Capital Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Information Technology & Cyber Security		134,136	91,164	42,971	47%							

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Sub-Total Information Technology		115,548	80,373	35,175	44%							
IT Utility Operations Applications	Non-RAMP	3,715	1,223	2,492	204%	This workpaper contains various projects that upgrade and modernize applications utilized for maintenance and operational support. The variety of work scope and varying dollars associated with this activity make it impractical to identify an appropriate unit of measure.					Yes	No
IT Utility Operations Applications - RAMP	Records Management	28,703	28,833	(130)	0%	This workpaper contains various projects to upgrade and modernize applications within the following categories: 1. Records and document management systems 2. Work management systems 3. Asset management systems 4. Geographic Info Systems (GIS) applications, portals and mobile communications systems 5. Pressure & monitoring systems The variety of work scope and varying dollars associated with this activity make it impractical to identify an appropriate unit of measure.					No	No
IT Utility Operations Applications - RAMP	Employee, Contractor, Customer, and Public Safety	6,115	197	5,917	3002%	This workpaper contains various projects related to upgrade and modernize applications within the following categories: 1. Incident Management Systems 2. Environmental Health & Safety System The variety of work scope and varying dollars associated with this activity make it impractical to identify an appropriate unit of measure.					Yes	No
Sub-Total IT Utility Operations Applications		38,533	30,253	8,280	27%						Yes	

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
IT Enterprise Infrastructure	Non-RAMP	60,301	36,324	23,977	66%	This workpaper contains various projects within the following categories: 1. Data Center modernization 2. Monitoring systems 3. Storage expansion and capacity enhancements 4. Computing devices replacements The variety of work scope and varying dollars associated with this activity make it impractical to identify an appropriate unit of measure.					Yes	No
Network/Telecom	Non-RAMP	13,884	11,473	2,410	21%	This workpaper contains various projects within the following categories: 1. Field Area Network modernization 2. Wide Area Network modernization 3. Local Area Network modernization 4. Network communications and monitoring modernization 5. Network core modernization The variety of work scope and varying dollars associated with this activity make it impractical to identify an appropriate unit of measure.					Yes	No
IT Utility Operations Hardware - RAMP	Records Management	1,149	1,322	(173)	-13%	This workpaper contains various projects that replace and/or upgrade Records Management related Utility hardware utilized for maintenance and operational support. The variety of work scope and varying dollars associated with this activity make it impractical to identify an appropriate unit of measure.					No	No
Sub-Total IT Utility Operations Hardware		1,149	1,322	(173)	-13%						No	

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Customer Services	Non-RAMP	1,681	1,000	681	68%	This workpaper contains various projects within the following categories: 1. Meter Set Assembly Inspection Enhancements 2. Emergency Service and Safety Monitoring The variety of work scope and varying dollars associated with this activity make it impractical to identify an appropriate unit of measure.					No	No
Cyber Security - RAMP	Cyber Security	18,587	10,791	7,796	72%	This workpaper is comprised of projects within the following categories: 1. Internal Defense 2. Perimeter Defense 3. Obsolete IT Systems 4. Operational Technology (OT) Cybersecurity The variety of work scope and varying dollars associated with this activity make it impractical to identify an appropriate unit of measure.					Yes	No

v. SoCalGas Information Technology & Cyber Security Capital Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
Information Technology		
IT Utility Operations Applications (Non-RAMP)	\$: Yes Units: No	Emergent needs due to end of life technology replacement with more reliable, secure, and cohesive solutions that also provide increased capability and usability.

WP Name	Variance Threshold Triggers	Variance Explanation
IT Utility Operations Applications - RAMP (Employee, Contractor, Customer, and Public Safety)	\$: Yes Units: No	Emergent needs due to end of life technology replacement with more reliable, secure, and cohesive solutions that also provide increased capability and usability. Additionally, new initiatives and projects identified to improve operational safety.
IT Enterprise Infrastructure	\$: Yes Units: No	Response to significant previous infrastructure outage resulted in reprioritization of projects in the network & infrastructure portfolios.
Network Telecom	\$: Yes Units: No	Response to significant previous infrastructure outage resulted in reprioritization of projects in the network & infrastructure portfolios.
Cyber Security - RAMP		
Cyber Security - RAMP	\$: Yes Units: No	Variance due to emergent needs to address Cloud Access Security Broker services.

vi. SoCalGas Information Technology & Cyber Security Capital Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Information Technology		
IT Utility Operations Applications (Non-RAMP)	SCG-26 CRO-17 to CRO-39	Applications support the development, implementation and maintenance of computer software utilized by customers, employees and/or vendor partners. Projects included in this budget code are related to enterprise-wide software applications in support of utility operations. This category includes costs for activities, as described, designed to mitigate reliability risks.

WP Name	2019 GRC Testimony Location	WP Activity Description
IT Enterprise Infrastructure	SCG-26 CRO-17 to CRO-39	IT Infrastructure supports the design, implementation and operation of the company's computing infrastructure. Projects included in this budget code are related to enterprise-wide infrastructure in support of utility operations. This category includes costs for activities, as described, designed to mitigate reliability risks.
Network Telecom	SCG-26 CRO-17 to CRO-39	IT Network/Telecom supports the design, implementation and operation of the company's network computing infrastructure, includes both hardware and software. Projects included in this budget code are related to enterprise-wide telecommunication investments. This category includes costs for activities, as described, designed to mitigate reliability risks.
Cyber Security - RAMP		
Cyber Security - RAMP	SCG-27-R GW-25 to GW-61	The Cyber portfolio is comprised of projects within the following categories: 1. Internal Defense 2. Perimeter Defense 3. Obsolete IT Systems 4. Operational Technology (OT) Cybersecurity

C. SoCalGas Support Services

i. SoCalGas Support Services O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Support Services		34,518	34,719	(201)	-1%							
Environmental		5,255	7,762	(2,507)	-32%							
Environmental	Non-RAMP	2,351	4,874	(2,523)	-52%	The workpaper consists of activities that include: Compliance Programs, Permits, 3rd Party Consultants, Office & Field Supplies, Dept Vehicles (maintenance, registrations, and fuel). The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Environmental	Environmental Services and Safety Compliance Management Program (ESCMP)	147	113	34	30%	2	2	0	0%	FTE	No	No
Environmental	Environmental Self-Assessment	418	491	(73)	-15%	96	121	(25)	-21%	Self-Assessments	No	Yes
Environmental	Investigation of environmental exposure incidents	616	497	119	24%	283	245	38	16%	Agency Inspections	No	No
Environmental	Compliance program to comply with the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)	9	19	(10)	-53%	1	1	0	0%	3rd Party Consultant(s)	No	No
Environmental	Service Contracting	215	185	30	16%	2	2	0	0%	FTE	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Environmental	Asbestos Safety Program	662	807	(145)	-18%	6	8	(2)	-25%	FTE	No	Yes
Environmental	SoCalGas Environmental Training	837	777	60	8%	3,693	3,797	(104)	-3%	Attendees	No	No
Sub-Total Environmental		5,255	7,762	(2,507)	-32%						Yes	
Fleet Services & Facilities		26,958	23,346	3,612	15%							
Facilities-Monterey Park Mgr	Non-RAMP	2,564	2,580	(16)	-1%	2	2	0	0%	FTE	No	No
Facilities GCT	Non-RAMP	724	1,674	(950)	-57%	7	7	0	0%	FTE	No	No
Director	Non-RAMP	156	128	28	22%	1	1	0	0%	FTE	No	No
Facility Operations	Non-RAMP	22,720	17,813	4,907	28%	46	51	(5)	-10%	FTE	Yes	No
Facility Operations	New Contract Security	198	242	(44)	-18%	53,880	52,189	1,691	3%	Security Guard Hours	No	No
Facility Operations	Physical Security	510	17	493	2825%	532	621	(89)	-14%	Work Orders	No	No
Facility Operations	Site Security Reviews	19	12	7	53%	124	124	0	0%	Sites	No	No
Facility Operations	Additional Security Guards	67	880	(813)	-92%	3,291	3,131	160	5%	Security Guard Hours	No	No
Sub-Total Facility Operations		23,515	18,965	4,550	24%						Yes	

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Supply Management, Logistics & Supplier Diversity		2,305	3,611	(1,306)	-36%							
Fabrication & Repair	Non-RAMP	2,305	3,611	(1,306)	-36%	2,628	3,762	(1,134)	-30%	Movements	Yes	Yes

ii. SoCalGas Support Services O&M Variance Explanations

WP Name	Variance Threshold Triggers		Variance Explanation
Environmental			
Environmental Non-RAMP	\$:	Yes	Non-RAMP O&M activities are managed by Environmental Services staff. These activities include the management and oversight of various compliance programs, travel to attend site-specific inspections, site-specific project meetings, and to perform the oversight and management of third-party consultants. In 2020, due to the COVID-19 pandemic and related shutdown, SoCalGas was required to temporarily modify its oversight protocol for the compliance programs. For example, many on-site inspections and site-specific project meetings were performed remotely. These temporary modifications to the oversight protocols resulted in reduced O&M costs.
	Units:	No	
Environmental Environmental Self-Assessment	\$:	No	Units: Number of Self-Assessments (SA). The imputed authorized number is a 5-year average. The 5-year SAs fluctuate as the Transmission business unit conducts a 5-year Assessment at relevant locations. Due to COVID-19 work restrictions, such as mandated remote work conditions, the number of SAs performed fell below the average. SoCalGas anticipates that number of SAs will meet the average for after COVID-19 precautions are no longer needed.
	Units:	Yes	
Environmental Asbestos Safety Program	\$:	No	Units: Number of FTE. The variance is due to lower than forecasted staffing levels. Analysis of staff responsibilities resulted in more efficient operating protocols that led to the permanent reduction of one (1) FTE in the Hazardous Materials operations team. Additionally, COVID-19 required Environmental Services to temporarily re-prioritize efforts to hire and onboard an Environmental Specialist.
	Units:	Yes	

WP Name	Variance Threshold Triggers	Variance Explanation
Fleet Services & Facilities		
Facility Operations Non-RAMP	\$: Yes Units: No	The variance is due to higher than forecasted expenditures to maintain our bases, regional headquarters, and branch offices. The costs are attributed to operations that provide a safe work environment for our employees. The cost drivers include labor and non-labor to manage and maintain the infrastructure and contracted services such as janitorial and landscaping
Supply Management, Logistics & Supplier Diversity		
Fabrication & Repair	\$: Yes Units: Yes	Units: Number of Movements. The (\$1.3M) variance is primarily driven by a reduction in Gas Operation demand of product from the Warehouse resulting in the reduction in Fabrication replenishment from the Fabrication Shop. In addition, the impacts of COVID-19 in 2020 were also attributable to the reduction in demand for Fabrication and Repair services as projects were delayed in order to focus efforts and resources related to COVID-19.

iii. SoCalGas Support Services O&M Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Environmental		
Environmental	SCG-25 DJ-6, DJ-11 to DJ-12 WP 2EV000.000	Environmental Services responds dynamically to several changing factors in the SCG territory which cannot be expected to follow historical trending patterns. Regulatory instructions and requirements from government agencies expand the scope of Environmental attention annually. These Environmental Services cost centers include subject matter experts in air and water quality, biological resources, cultural resources, land planning, and managing the internal environmental governance of the company. The group supports ongoing environmental compliance, including obtaining environmental permits and approvals, developing environmental plans and conducting specialized environmental training.

WP Name	2019 GRC Testimony Location	WP Activity Description
Fleet Services & Facilities		
Facility Operations	SCG-23-R CLH-30 to CLH-25 WP 2RF004.000	Facility Operations is tasked with operating an organization with safe, regulatory compliant, reliable, and suitable working environments for its employees. Some activities include: having safe and Americans with Disabilities Act (“ADA”) compliant access to our customers at the branch offices; having proper training of facility maintenance personnel to comply with all applicable rules and regulations; conducting regular preventative maintenance of SoCalGas facilities and grounds to check that we are operating with energy efficiency, environmental awareness and safety of our employees and the public in mind; having storm water pollution control regulations; address cleanliness of our parking lots and potential storm water runoff and discharge from our facilities. SoCalGas’ service territory encompasses approximately 20,000 square miles in diverse terrain throughout Central and Southern California, from Visalia to the Mexican border. Facility Operations provides operation and maintenance for 80 owned and staffed utility facilities averaging 47 years old. This workgroup contains the SoCalGas non-shared facility operation costs. Facility operations costs includes the labor and non-labor to support the maintenance of the Southern California Gas facilities, which include operating bases, branch offices, and multi-use sites.
Supply Management, Logistics & Supplier Diversity		
Fabrication & Repair	SCG-22 DW-12 to DW-13 WP 2SS003.000	This cost center supports the field requirements for fabricated materials, such as wedding bands, canopies, prefabricated regulator stations, shop modified pressure control fittings and specialty tools. They are also a supplier of approximately 300 inventoried materials which are distributed by the Pico Rivera general warehouse. The shop also performs maintenance, repair and calibration on pneumatic, hydraulic, electronic and gas driven tools and equipment.

iv. SoCalGas Support Services Capital Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Support Services - Facilities		46,179	25,765	20,414	79%							

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Infrastructure & Improvements	Non-RAMP	42,133	21,475	20,657	96%	Infrastructure and Improvement projects are undertaken to improve SoCalGas facilities. Projects that were completed or in progress in 2020 in this category include improvements and installations of roofs (5 projects), asphalt (8 projects), meters (11 projects), HVACs (4 projects), generators (4 projects), septic tanks (1 project), audio visual (11 projects), water pathogen projects (4 projects), and building improvements (21 projects). The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
Infrastructure & Improvements - RAMP	Physical Security	2,137	329	1,807	549%	20	20	0	0%	Sites	No	No
Sub-Total Infrastructure & Improvements		44,269	21,805	22,465	103%						Yes	
Safety/Environmental	Non-RAMP	758	1,564	(806)	-52%	10	11	(1)	-9%	Sites	No	No
Bakersfield Multi-Use Facility	Non-RAMP	925	2,313	(1,388)	-60%	1	1	0	0%	Project	No	No
Facility Energy Management Systems	Non-RAMP	227	83	144	175%	4	3	1	33%	Sites	No	Yes

v. SoCalGas Support Services Capital Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
Facilities		
Infrastructure & Improvements Non-RAMP	\$: Yes Units: No	Additional investment was undertaken due to project delays in 2019. Projects that were planned for execution in 2019 were delayed and executed in 2020, which led to an increase in investment that was greater than our forecasted 5-Year average. Significant projects include facility enhancements and improvements for aging infrastructure.
Facility Energy Management Systems	\$: No Units: Yes	Unit: Number of Sites. Additional sites were piloted for energy management systems to better understand operational needs for payment offices and bases. Testing additional sites is important to better gauge our network needs as this upgrade will incorporate technologically advanced systems to operate more efficiently and cost effectively.

vi. SoCalGas Support Services Capital Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Facilities		
Infrastructure & Improvements	SCG-23-R CLH-41 to CLH-43 WP 00653A	The Infrastructure & Improvements forecast funds necessary recurring facility improvements and equipment upgrades to adequately support business operations. The SoCalGas capital renewal program identifies facilities to be repaired or improved, as needed, based on the criticality of the facility, the age of the asset, and the implications for failure to complete the replacement or upgrade. The capital renewal program is based on a systematic management process to plan and budget for known recurring repairs and replacements that extend the life and retain the usable condition of facilities and systems. The requested capital expenditure costs are needed to maintain safety of Company facilities and assets and to support operational needs.

WP Name	2019 GRC Testimony Location	WP Activity Description
Facility Energy Management Systems	SCG-23-R CLH-49 to CLH-51 WP 00712A	The primary business purpose of the Energy Management System (“EMS”) is to use electricity more efficiently and to reduce energy consumption at company facilities. EMS systems are a tool used by facility managers to monitor, measure, and control electrical building loads. EMS can be used to centrally control devices like HVAC units and lighting systems across multiple physical locations. Energy management systems can also provide metering, sub-metering, and monitoring functions. These functions allow facility and building managers to gather data and insight to make more informed decisions about energy activities across the remaining sites that do not have energy conservation measures. This project is important for energy management and lowering our energy consumption at some of the remaining sites that do not have energy conservation measures. EMS systems can provide facility managers with the ability to pre-program the building lighting and HVAC systems remotely. The EMS provides facility managers with essential building controls and energy monitoring features to reduce energy waste and help with cost containment due to rising electricity costs.

D. SoCalGas Administrative and General

i. SoCalGas Administrative and General O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure Or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Administrative & General		90,670	65,303	25,367	39%							
Accounting & Finance, Legal, Regulatory Affairs, External Affairs		1,141	1,287	(146)	-11%							
Accounting Systems & Compliance	Non-RAMP	483	325	158	49%	7	7	0	0%	FTE	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure Or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Accounting Systems & Compliance	Consulting expertise to improve records management program	658	962	(304)	-32%	Activities to be performed by the records management consultant include: (1) complete comprehensive external review of current records management program; (2) address effectiveness of current records management program; and (3) provide best practice suggestions for improvements. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Sub-Total Accounting Systems & Compliance		1,141	1,287	(146)	-11%						No	
Compensation & Benefits		333	798	(464)	-58%							
Health Benefits - Emp Assistance Program	Non-RAMP	333	798	(464)	-58%	7,911	8,624	(713)	-8%	Ave Emp Count	No	No
Corporate Center - General Administration		86,939	62,895	24,044	38%							
SECC Outside Services Employees - F923.1	Non-RAMP	82,827	58,213	24,614	42%	The costs include the allocations from the following Corporate Center functions: Outside Legal, Cash/Finance Fees, Facilities, LTIP/SERP Executive Compensation, Finance, Legal, External Affairs, and Human Resources. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
SECC Outside Services Employees - F923.1	Records Management	121	121	(0)	0%	The costs include the allocations from the following functions: administration of and adherence to its record management policy and practices, resources to manage records, internal audits, and records storage and retention. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure Or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
SECC Outside Services Employees - F923.1	Workplace Violence/Corporate Security	2,576	2,183	393	18%	The costs include the allocations from the following functions: mitigation for Planning, Awareness, and Incident Management of Workplace Violence. These mitigation efforts are managed by Corporate Security. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
SECC Outside Services Employees - F923.1	Cybersecurity	1,415	2,377	(962)	-40%	The costs include the allocations from the following functions: defining the technology architecture required to support the technology strategy and govern the selection, deployment, and use of applications, infrastructure, and tools. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
Sub-Total SECC Outside Services Employees - F923.1		86,939	62,895	24,044	38%						Yes	
Risk Management		2,256	323	1,932	598%							
Director of Risk	Non-RAMP	1,176	0	1,176	100%	1	0	1	100%	FTE	Yes	Yes
Chief Risk Officer	Non-RAMP	673	0	673	100%	1	0	1	100%	FTE	No	Yes
Oper Risk Mgmt-SCG	Non-RAMP	407	323	83	26%	2	2	0	0%	FTE	No	No

ii. SoCalGas Administrative and General O&M Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
Accounting & Finance, Legal, Regulatory Affairs, External Affairs		
SECC Outside Services Employees - F923.1 Non-RAMP	\$: Yes Units: No	This workpaper [SECC Outside Services Employed – F923.1] had a very small amount attributable to RAMP and/or safety-related activities. The RAMP activities themselves do not meet the variance criteria threshold. The vast majority of this workpaper included costs for Non-RAMP and/or non-safety-related items. The overall variance/overage in 2020 actuals is due to higher than forecasted costs allocated to SoCalGas primarily due to disallowances of the LTIP and SERP programs, higher finance and bank fees incurred, net additional staffing/labor and non-labor costs, and an increase in outside legal services. Even though a portion of the requested funding for SoCalGas’ LTIP and SERP programs was disallowed in the TY 2019 GRC decision, the full forecasted amount was still incurred in 2020.
Risk Management		
Director of Risk	\$: Yes Units: Yes	Units: Number of FTE. This department was not authorized for SoCalGas under the GRC. The funding for this position was previously included in SDG&E’s GRC as a shared service function. For 2020, this position was moved to SoCalGas.
Chief Risk Officer	\$: No Units: Yes	Units: Number of FTE. This department was not authorized for SoCalGas under the GRC. This is a newly created position for 2020.

iii. SoCalGas Administrative and General O&M Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
Corporate Center - General Administration		
SECC Outside Services Employees - F923.1	SCG-28-R MLD-9 to MLD-11 WP 2SE000.001	Corporate center allocated costs include security services provided to protect corporate assets and employees, security systems, and the Corporate Security (CSS) department. The CSS department is responsible for the development and management of programs and policies for security systems, security investigations, workplace violence avoidance, as well as crisis and security risk management services. Corporate Center function is also actively involved in activities designed to mitigate the identified risk of workplace violence by supporting the planning and incident management investigation as well as programs designed to mitigate the risk event before it occurs. This includes training, investigation, employee awareness, new hire screening, employee assistance, and corporate security activities.
Risk Management		
Director of Risk	Emergent	This workpaper is comprised of activities to continue to develop and continuously improve upon SoCalGas' Enterprise Risk Management (ERM) framework. The ERM facilitates the identification and management of enterprise risks, with an emphasis on safety, the identification and prioritization of effective mitigation measures and the incorporation of risk into the investment decision-making process. The Director of Risk and Compliance is responsible for developing and implementing the increased application of probabilistic and quantitative processes based upon data to assess risks and measure results of risk management efforts, supporting the Safety Model Assessment Proceeding (S-MAP) and other regulatory efforts, and partnering with the Accounting & Finance and Regulatory departments to support accurate and complete accountability reporting.
Chief Risk Officer	Emergent	The role of Chief Risk Officer establishes the vision and guides the approach to the development and continuous improvement of SoCalGas' ERM framework. The ERM facilitates the identification and management of enterprise risks, with an emphasis on safety, the identification and prioritization of effective mitigation measures and the incorporation of risk into the investment decision-making process. This is a new position. The VP - Risk Management and Chief Risk Officer will continue to establish and guide risk management policy, promote the integration of risk concepts and analysis in asset management and investment processes, and to support the strengthening of SoCalGas' safety culture.

iv. SoCalGas Administrative and General Capital Variances

The Administrative and General witnesses did not sponsor any capital costs in the TY 2019 GRC.

E. SoCalGas Human Resources

i. SoCalGas Human Resources O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure	Spending Variance Explanation Required?	Unit Variance Explanation Required?
Human Resources Dept, Safety, LTD & WC		18,184	21,441	(3,256)	-15%							
SCG CEO President & COO and Chief of Human Resources & CAO	Non-RAMP	2,400	1,817	583	32%	4	4	(1)	-16%	FTEs	No	No
SCG Director HR Services	Non-RAMP	6,991	3,159	3,832	121%	69	48	21	43%	FTEs	Yes	Yes
SCG Director HR Services	Workforce Planning - Software/Program Implementation.	726	2,668	(1,942)	-73%	5	8	(3)	-33%	FTEs	Yes	Yes
Sub-Total SCG Director HR Services		7,717	5,826	1,890	32%						Yes	
SCG Director Safety & Wellness	Non-RAMP	324	611	(287)	-47%	5	5	0	0%	FTEs	No	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure	Spending Variance Explanation Required?	Unit Variance Explanation Required?	
SCG Director Safety & Wellness	HR sponsored employee contractor customer & public safety activities.	5,183	8,928	(3,745)	-42%	30	56	(26)	-47%	FTEs	Yes	Yes	
Sub-Total SCG Director Safety & Wellness		5,507	9,539	(4,032)	-42%						Yes		
SCG Director Org Effectiveness	Non-RAMP	1,610	1,761	(151)	-9%	8	20	(12)	-60%	FTEs	No	Yes	
SCG Director Org Effectiveness	Knowledge Management and Training Strategy	950	2,497	(1,547)	-62%	12	9	3	37%	FTEs	Yes	Yes	
Sub-Total SCG Director Org Effectiveness		2,560	4,258	(1,698)	-40%	20						Yes	

ii. **SoCalGas Human Resources O&M Variance Explanations**

WP Name	Variance Threshold Triggers	Variance Explanation
SCG Director HR Services Non-RAMP	\$: Yes Units: Yes	Units: Number of FTE. The dollar and unit variance are attributed to additional Staffing, Compensation, and ECS resources needed to support increases in hiring needs and additional HR support needed for a growing employee population.
SCG Director HR Services Workforce Planning - Software/Program Implementation.	\$: Yes Units: Yes	Units: Number of FTE. The cost variance for “Workforce Planning Software/Program implementation” is due to three factors: 1) The imputed authorized units and costs include employees and expenses across the company, including outside of the HR Services department. The actual units and costs only include employees and expenses incurred within the HR Services department. This is consistent with SoCalGas’ shift from a decentralized workforce planning approach to a centralized one. 2) SoCalGas has been able to leverage existing modeling and forecasting tools to develop workforce plans for business units, and offset several costs related to

WP Name	Variance Threshold Triggers	Variance Explanation
		purchasing workforce planning software. 3). Delay in hiring due to challenges in recruiting candidates with required skillsets in workforce planning.
SCG Director Safety & Wellness HR sponsored employee contractor customer & public safety activities	<p>\$: Yes</p> <p>Units: Yes</p>	<p>Units: Number of FTE. Due to the COVID-19 pandemic, certain safety-related and wellness activities/programs that were forecasted were deferred and/or an alternative solution was identified resulting in variance in expenditures and units (FTEs). Additionally, part of the variance is due to vacancies and the reorganization of SoCalGas company structure, in which the cost of the forecasted Contractor Safety activities described in this Director Safety & Wellness workpaper were incurred in a new department focusing on areas of Construction Contractor Management within the Gas Major Projects area.</p> <p>The key activities impacted by the pandemic include: the ability to conduct in-person instructor led training, strengthening safety-related employee and contractor programs, development of the wellness and fitness program, expansion of the contractor-safety program, and enhancements to the mandatory health and safety programs (e.g., IIPP, industrial hygiene program). Activities deferred due to the pandemic are still planned for the GRC cycle and will resume when employees return to the workplace.</p>
SCG Director Org Effectiveness Non-RAMP	<p>\$: No</p> <p>Units: Yes</p>	Units: Number of FTE. There was a reorganization leading to the transfer of 5 employees out of the Organizational Effectiveness department to CSF Training & Development, CCC Training & Development and to Gas Operations Training & Development areas of the Company.
SCG Director Org Effectiveness Knowledge Management and Training Strategy	<p>\$: Yes</p> <p>Units: Yes</p>	<p>Units: Number of FTE. The original time estimates within the embedded costs were inclusive of employees' time across the company and outside of the Organizational Effectiveness department and the current units and costs only include the time spent on activities for employees within the Organizational Effectiveness department.</p> <p>Due to the Covid-19 pandemic, some training programs were delayed or put-on hold during 2020. Costs were not incurred for the programs that were put on hold, while other programs were converted to a virtual format, so they incurred lower than forecasted costs. Remaining courses that can be converted to a virtual format will resume in 2021, however, others that are vendor supported or have other constraints, may not be able to resume in 2021.</p> <p>Additionally, there was lower than forecasted staffing levels in Organizational Effectiveness due to lack of availability of qualified candidates. The decreased staffing levels impacted both the dollar variance and the unit variance.</p>

iii. SoCalGas Human Resources O&M Workpaper Descriptions and GRC Testimony Locations

WP Name	2019 GRC Testimony Location	WP Activity Description
SCG Director HR Services	SCG-32 MG-19 to MG-23 WP 2HR004.000	The HR Services department is comprised of five work units, including: (1) Staffing - Manages the recruitment and selection of a qualified and diverse workforce; (2) HR Research & Workforce Planning - Responsible for pre-employment testing and assessments used for internal and external selection. Workforce Planning conducts workforce trend analyses and forecasts workforce needs; (3) HR Operations - Responsible for management and retention of all employee personnel records; (4) Compensation - Responsible for developing and delivering competitive compensation programs, ensuring legal compliance and adherence to wage and hour laws; and (5) Employee Care Services (ECS) - Responsible for Workers' Compensation program, short- and long-term disability, leaves of absence, and return-to-work programs, Family Medical Leave Act (FMLA), California Family Rights Act (CFRA), Pregnancy Disability Leave (PDL), temporary modified duty placements, and reasonable accommodations under the Americans with Disabilities Act (ADA), and the California Fair Employment and Housing Act (FEHA).
SCG Director Safety & Wellness	SCG-32 MG-25 to MG-30 WP 2HR006.000	The Safety, Wellness and Disability Services department is responsible for positioning SoCalGas employees to lead healthy and productive lives. The services provided by the department extend from pre-employment health testing through the end of employment at SoCalGas. Services include: physical & mental wellness education; safety and industrial hygiene education and compliance; incident prevention, analysis and reporting; Workers' Compensation administration; short-term & long-term disability management; leave-of-absence administration; and return-to-work services.
SCG Director Org Effectiveness	SCG-32 MG-30 to MG-33 WP 2HR007.000	The Organizational Effectiveness (OE) department provides leadership, organizational, and employee development programs, instructional design services, and knowledge transfer and management programs for SoCalGas. OE consists of three work units providing services to SoCalGas: Organizational Development & Talent Management, Knowledge Management, and Learning & Development.

iv. SoCalGas Human Resources Capital Variances

The Human Resources witness did not sponsor any capital costs in the TY 2019 GRC.

3. SOCALGAS BALANCED PROGRAMS – DIMP, TIMP, SIMP AND RESEARCH DEVELOPMENT & DEMONSTRATION TECHNOLOGY

A. SoCalGas Balanced Programs Direct O&M Costs

i. SoCalGas Balanced Programs Direct O&M Variances

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
TIMP & DIMP		151,929	95,189	56,740	60%							
TIMP Project Support	TIMP Data Maintenance	1,524	1,824	(300)	-16%	This activity and the work completed in 2020 consist of data collection and management, database maintenance, and reporting for SDG&E under Shared Services. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
DIMP Project Support	DIMP Data Maintenance	573	1,815	(1,242)	-68%	This activity and the work completed in 2020 consist of data collection and management, database maintenance, and reporting for SDG&E under Shared Services. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
TIMP	ILI & ECDA - cleaning and assessing internal conditions of high-pressure pipelines	104,779	49,080	55,699	113%	14	21	(7)	-33%	ILI	Yes	Yes
						5	20	(15)	-75%	ECDA		Yes
						1	-	1	100%	Pressure Test		Yes

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
DIMP	DIMP Programs (e.g., DREAMS, GIPP)	45,053	42,471	2,582	6%	184,881	180,000	4,881	3%	Riser Inspections	No	No
						73,122	60,000	13,122	22%	Service Inspections		Yes
						4,377	4,400	(23)	-1%	Site Mitigations		No
Underground Storage - RSIMP	SIMP RAMP	15,924	20,861	(4,936)	-24%	82	-	82	100%	Well inspections	Yes	Yes
Research Development and Demonstration (RD&D) Technology Dev	Non-RAMP	16,040	15,802	238	2%	Consistent with PUC 740.1, The Research Development & Demonstration (RD&D) projects support the following goals: safety, conservation, development of renewable resources and supply technologies, reliability, efficiency, and cost reduction. RD&D is focused on identifying, developing, and demonstrating technologies of significant potential value to customers and utility operations. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No

ii. **SoCalGas Balanced Programs Direct O&M Variance Explanations**

WP Name	Variance Threshold Triggers	Variance Explanation
TIMP & DIMP		
DIMP Project Support	<p>\$: Yes</p> <p>Units: No</p>	<p>DIMP complies with 49 CFR 192, Subpart P - Gas Distribution Pipeline Integrity Management and includes threat identification, risk assessment, and various programs to minimize threats and integrity concerns to reduce risk of pipeline incidents. DIMP Project Support activities are shared services and are informed by DIMP Programs/Projects and Activities Addressing Risks (PAARs) and balanced to the GRC authorized cycle, rather than on an individual year basis. Accordingly, activities fluctuate year to year and individual year expenditures may vary from the authorized amount. As described in the 2019 GRC testimony, the shared services costs are driven by existing and new PAARs. While SDG&E continues to develop PAARs to address distribution integrity risks, integrity management shared service activities remain variable. This year's lower than forecasted expenses are attributable to the initial ramp up period of new PAAR-related work contemplated in the 2019 GRC; as the programs mature, costs are expected to stabilize.</p>
TIMP	<p>\$: Yes</p> <p>Units: Yes</p>	<p>TIMP complies with 49 CFR 192, Subpart O - Gas Transmission Pipeline Integrity Management and includes threat identification, risk analysis, pipeline assessments, remediation, and other actions that minimize threats and integrity concerns to reduce risk of pipeline failure. TIMP is balanced to the GRC authorized cycle and not on an individual year basis. The number of assessment projects varies year to year primarily based on the timing and intervals of prior assessments and compliance dates. Furthermore, integrity assessments remain variable based on external factors and individual project costs will differ. The higher than forecasted expenditures in 2020 are attributable to continued validation work for assessments that took place in 2019. In addition, 2020 costs reflect Line 235 activities, specifically in-line assessments and related follow-up assessments and remediation activities, which SoCalGas will identify in a Tier II Advice Letter for review in accordance with the 2019 GRC Decision (D. 19-09-051).</p> <p>2020 units were not proposed in SoCalGas' 2019 GRC and for the purposes of the RSAR, SoCalGas adopted 2019 authorized units for 2020 reporting. The units identified in this report are a component and not the entirety of activities and costs supporting TIMP. SoCalGas' TIMP budget is authorized and balanced to GRC cycles rather than calendar years and program activity may vary year to year due to compliance and operational considerations. Additionally, PHMSA allows the use of multiple assessment methods to comply with 49 CFR Part 192, Subpart O and the selected method may vary depending on SoCalGas' system knowledge, prior assessments, and findings. Units should be reviewed in aggregate rather than by assessment method.</p>
DIMP	<p>\$: No</p>	<p>DIMP complies with 49 CFR 192, Subpart P - Gas Distribution Pipeline Integrity Management and includes threat identification, risk assessment, and various programs to minimize threats and integrity concerns to reduce risk of pipeline incidents. The units identified in this report are a component and not the entirety of activities and costs supporting DIMP. SoCalGas' DIMP budget is authorized and balanced to GRC cycles rather than calendar years.</p>

WP Name	Variance Threshold Triggers	Variance Explanation
	Units: Yes	Additionally, program activity may vary year to year due to compliance and operational considerations. The level of program activity may also vary based on inspection findings. Units for DIMP O&M are comprised of work for the Distribution Riser Inspection Project (DRIP), Sewage Lateral Inspection Program (SLIP), and Gas Infrastructure Protection Project (GIPP). While DRIP and GIPP levels of activity were as expected, the SLIP project team was able to access assets on private property more efficiently due to the COVID-19 stay-at-home order.
Underground Storage – RSIMP		
Underground Storage - RSIMP	\$: Yes	SIMP complies with 14 CCR §1726.6 – Requirements for Underground Gas Storage Projects, Mechanical Integrity Testing and includes threat identification, risk analysis, assessments, remediation, and other actions that minimize threats and integrity concerns to reduce risk of well-related incidents. SoCalGas’ SIMP budget is authorized and balanced to GRC cycles rather than calendar years. SIMP complies with 14 CCR §1726.6(a). This can cause program activity to vary year-to-year due to compliance and operational considerations (<i>i.e.</i> , 24-month reassessment cycle requirements to be balanced with deliverability necessities). Additionally, the cost of integrity inspections may fluctuate due to individual project findings. 2020 activity was lower than planned because the rate of integrity inspections is also influenced by well remediation and abandonment activity due to the availability of wells and resources. Units completed per year remain variable but are managed to compliance requirements.
	Units: Yes	Newly identified units: Number of Well Inspections. While distinct units were not previously identified, SoCalGas has since determined that well inspections are representative of O&M costs. However, the units identified are a component and not the entirety of O&M activities and costs supporting SIMP. SoCalGas’ SIMP budget is authorized and balanced to GRC cycles rather than calendar years. SIMP complies with 14 CCR §1726.6(a), which can cause program activity to vary year to year due to compliance and operational considerations (<i>i.e.</i> , 24-month reassessment cycle requirements to be balanced with deliverability necessities). The rate of integrity inspections is also influenced by well remediation and abandonment activity due to the availability of wells and resources and therefore, units completed per year remain variable but are managed to compliance requirements.

iii. **SoCalGas Balanced Programs Direct O&M Workpaper Descriptions and GRC Testimony Locations**

WP Name	2019 GRC Testimony Location	WP Activity Description
TIMP & DIMP		
DIMP Project Support	SCG-14 MTM-28 WP 2200-7001.000	Shared service Project Support for the SDG&E DIMP Program.
TIMP	SCG-14 MTM-28 to MTM-31 WP 2TD000.000	TIMP complies with 49 CFR 192, Subpart O—Gas Transmission Pipeline Integrity Management, and includes activities such as threat identification and risk assessment, pipeline assessments, remediation, and other actions that minimize threats and integrity concerns to reduce risk of pipeline failure.
DIMP	SCG-14 MTM-20 to MTM-28 WP 2TD000.001	DIMP complies with 49 CFR 192, Subpart P— Gas Distribution Pipeline Integrity Management and identifies and reduces pipeline integrity risks for distribution pipelines, as required under the Pipeline Integrity, Protection, Enforcement and Safety Act of 2006.6.
Underground Storage - RSIMP		
Underground Storage – RSIMP	SCG-10-R NPN-25 to NPN-28 WP 2US002.000	SIMP is a forward-looking, methodical, and structured program using advanced inspection technologies such as ultra-sonic and neutron type casing logs along with risk management disciplines to address well integrity issues. Primary O&M activities focus on the development, management and support of the Storage Integrity Management Program (SIMP).
Research Development and Demonstration (RD&D) Technology Dev		

B. SoCalGas Balanced Programs Direct Capital Costs

i. **SoCalGas Balanced Programs Capital Variances**

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
TIMP & DIMP Total		270,545	124,796	145,750	117%							
DIMP	DIMP Programs &	4,526	2,176	2,350	108%	This activity and the work completed in 2020 consist of risk analysis, data collection and management, database maintenance, and reporting. The variety of work activities in					Yes	No

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
	records management					this category makes it infeasible to identify a single unit of measurement.						
DIMP	DIMP Programs - High Pressure Risk	1,686	22,290	(20,604)	-92%	358	286	72	25%	Site Mitigations	Yes	Yes
DIMP	DIMP Programs - Medium Pressure Risk	187,938	45,139	142,799	316%	115	107	8	7%	Miles	Yes	No
Sub-Total DIMP		194,150	69,606	124,544	179%						Yes	
TIMP - Dist	ILI & ECDA - cleaning and assessing internal conditions of high-pressure pipelines	3,473	4,844	(1,371)	-28%	This activity and work completed in 2020 consist of pipeline remediation work as a result of integrity assessment findings. The number and types of remediation are driven by each assessment. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					No	No
TIMP - Trans	ILI & ECDA - cleaning and assessing internal conditions of high-pressure pipelines	68,396	48,981	19,415	40%	This activity and work completed in 2020 consist of pipeline remediation work as a result of integrity assessment findings. The number and types of remediation are driven by each assessment. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
TIMP	TIMP Data Maintenance	4,526	1,365	3,161	232%	This activity and the work completed in 2020 consist of data collection and management, database maintenance, and reporting. The variety of work activities in this category makes it infeasible to identify a single unit of measurement.					Yes	No
Sub-Total TIMP		76,395	55,190	21,205	38%						Yes	

WP Activity Description	RAMP Mitigation Activity	2020 Actuals (\$000)	2020 Imputed Authorized (\$000)	\$ Variance (\$000)	% Variance	2020 Actual Units	2020 Imputed Authorized Units	Unit Variance	% Unit Variance	Unit of Measure or Activity Description	Spending Variance Explanation Required?	Unit Variance Explanation Required?
SIMP Total	Well Integrity Management inclusive of inspection of wells, plugging and abandonment, data management, etc.	81,631	40,417	41,214	102%	8	0	8	100%	Plug & Abandonments	Yes	Yes
						57	92	-35	-38%	Workovers		Yes

ii. SoCalGas Balanced Programs Capital Variance Explanations

WP Name	Variance Threshold Triggers	Variance Explanation
TIMP & DIMP		
DIMP Programs & records management	\$: Yes	DIMP complies with 49 CFR 192, Subpart P - Gas Distribution Pipeline Integrity Management and includes threat identification, risk assessment, and various programs to minimize threats and integrity concerns to reduce risk of pipeline incidents. DIMP records management activities are informed by DIMP and balanced to the GRC authorized cycle, rather than an individual year basis. Additionally, DIMP records management capital costs are driven by continuous enhancement and administration of system databases through software enhancements and data management for Programs/Projects and Activities Addressing Risks (PAARs). Accordingly, activities fluctuate year-to-year and may vary from the authorized amount. This year's variance is due in part to the higher than forecasted level of records management activity and is also driven by the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas attrition years rather than a specific funding level by activity for each year. This is described in further detail in section 2.D above.
	Units: No	

WP Name	Variance Threshold Triggers	Variance Explanation
DIMP Programs - High Pressure Risk	<p>\$: Yes</p> <p>Units: Yes</p>	<p>DIMP complies with 49 CFR 192, Subpart P - Gas Distribution Pipeline Integrity Management and includes threat evaluation, risk analysis, and various programs to mitigate risk. In 2019, SoCalGas reallocated authorized costs for DIMP between the high-pressure and medium-pressure RAMP chapters to better support risk management activities. The overall total authorized cost for DIMP remains unaffected. Moreover, SoCalGas' DIMP budget is authorized and balanced to GRC cycles rather than calendar years and program costs may vary year-to-year due to compliance and operational considerations. The cost of program activity also varies based on inspection findings and remediation measures.</p> <p>The units identified in this report are a component and not the entirety of activities and costs supporting DIMP. They represent Gas Infrastructure Protection Project (GIPP) work on high-pressure assets and the authorized units were derived from the total GIPP 2019 authorized units using a ratio of high-pressure and medium-pressure assets. However, GIPP is forecasted and managed at the program level and the actual number of high-pressure vs. medium-pressure mitigations may vary year-to-year due to operational considerations.</p>
DIMP Programs - Medium Pressure Risk	<p>\$: Yes</p> <p>Units: No</p>	<p>DIMP complies with 49 CFR 192, Subpart P - Gas Distribution Pipeline Integrity Management and includes threat identification, risk assessment, and various programs to minimize threats and integrity concerns to reduce risk of pipeline incidents. The variance in investments this year is not due to substantial changes to the program, but rather due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas attrition years rather than a specific funding level by activity for each year. This is described in further detail in section 2.D above.</p>
TIMP Trans	<p>\$: Yes</p>	<p>TIMP complies with 49 CFR 192, Subpart O - Gas Transmission Pipeline Integrity Management and includes threat identification, risk analysis, pipeline assessments, remediation, and other actions that minimize threats and integrity concerns to reduce risk of pipeline failure. The variance in investments this year is not due to substantial changes to the program, but rather due to two drivers. One is the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas attrition years rather than a specific funding level by activity for each year. This is described in further detail in section 2.D above. The second driver for the variance in investment is that costs also reflect Line 235 activities, specifically in-line assessments and related follow-up assessments and remediation activities, which SoCalGas will identify in a Tier II Advice Letter for review in accordance with the 2019 GRC Decision (D. 19-09-051).</p>

WP Name	Variance Threshold Triggers	Variance Explanation
	Units: No	
TIMP Data Maintenance	\$: Yes Units: No	<p>TIMP complies with 49 CFR 192, Subpart O - Gas Transmission Pipeline Integrity Management and includes threat identification, risk analysis, pipeline assessments, remediation, and other actions that minimize threats and integrity concerns to reduce risk of pipeline failure. TIMP data maintenance activities are informed by TIMP and balanced to the GRC authorized cycle, rather than an individual year basis. The variance is due to the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas attrition years rather than a specific funding level by activity for each year. This is described in further detail in section 2.D above.</p>
SIMP		
SIMP RAMP	\$: Yes	<p>SIMP complies with 14 CCR §1726.6 – Requirements for Underground Gas Storage Projects, Mechanical Integrity Testing and includes threat identification, risk analysis, assessments, remediation, and other actions that minimize threats and integrity concerns to reduce risk of well-related incidents. SoCalGas' SIMP budget is authorized and balanced to GRC cycles rather than calendar years. SIMP complies with 14 CCR §1726.6(a). This can cause program activity to vary year to year due to compliance and operational considerations (<i>i.e.</i>, 24-month reassessment cycle requirements to be balanced with deliverability necessities). Additionally, the cost of well remediation and abandonment activity is influenced by results of integrity assessments and inspections and remain variable.</p> <p>This year's variance is also driven by the calculation used to impute authorized funding at the activity level for the GRC post-test years. The CPUC approved a post-test year mechanism for the SoCalGas / SDG&E attrition years rather than a specific funding level by activity for each year. This is described in further detail in section 2.D above.</p>
	Units: Yes	<p>The units identified in this report are a component and not the entirety of activities and costs supporting SIMP. SoCalGas' SIMP budget is authorized and balanced to GRC cycles rather than calendar years. SIMP complies with 14 CCR §1726.6(a), which can cause program activity to vary year-to-year due to compliance and operational considerations (<i>i.e.</i>, 24-month reassessment cycle requirements to be balanced with deliverability necessities). Well remediation and abandonment activity are also influenced by the results of integrity inspections, which remain variable.</p>

vi. **SoCalGas Balanced Programs Capital Workpaper Descriptions and GRC Testimony Locations**

WP Name	2019 GRC Testimony Location	WP Activity Description
TIMP & DIMP		
TIMP	SCG-14 MTM-28 to MTM-31 WP 003120 & 00276	TIMP complies with 49 CFR 192, Subpart O—Gas Transmission Pipeline Integrity Management, and includes activities such as threat identification and risk assessment, pipeline assessments, remediation, and other actions that minimize threats and integrity concerns to reduce risk of pipeline failure.
DIMP	SCG-14 MTM-20 to MTM-28 WP 002770	DIMP complies with 49 CFR 192, Subpart P— Gas Distribution Pipeline Integrity Management and identifies and reduces pipeline integrity risks for distribution pipelines, as required under the Pipeline Integrity, Protection, Enforcement and Safety Act of 2006.6.
SIMP		
SIMP	SCG-10-R NPN-51 to NPN-57 WP 00441	SIMP is a forward-looking, methodical, and structured program using advanced inspection technologies such as ultra-sonic and neutron type casing logs along with risk management disciplines to address well integrity issues.

C. **SoCalGas Regulatory Account 2020 Cumulative Balances**

i. **SoCalGas Regulatory Accounts – DIMPBA**

SoCalGas DIMPBA Details Revenue Requirements (\$000) Program Cycle 2019 - 2023 Two-Way						
	(a)	(b)	(c)	(d) = (b) - (c)	(e)	(f) = (a) + (d) + (e)
	Beginning Balance	Actual	Authorized	Under/(Over) Collection	Interest	Ending Balance
Year 2020	-4,039					-4,039
Beginning Balance						
O&M		46,683	42,472	4,211		4,211
Capital-Related Costs		18,857	19,072	-215		-215
Interest					-46	-46
Subtotal	-4,039	65,540	61,544	3,996	-46	-89

ii. SoCalGas Regulatory Accounts – TIMPBA

SoCalGas TIMPBA Details Revenue Requirements (\$000) Program Cycle 2019 - 2023 Two-Way						
	(a)	(b)	(c)	(d) = (b) - (c)	(e)	(f) = (a) + (d) + (e)
	Beginning Balance	Actual	Authorized	Under/(Over) Collection	Interest	Ending Balance
Year 2020	27,566					27,566
Beginning Balance						
O&M		104,648	49,080	55,568		55,568
Capital-Related Costs		10,751	4,016	6,735		6,735
Interest					287	287
Subtotal	27,566	115,399	53,096	62,303	287	90,156

iii. SoCalGas Regulatory Accounts – SIMPBA

SoCalGas SIMPBA Details Revenue Requirements (\$000) Program Cycle 2019 - 2023 Two-Way						
	(a)	(b)	(c)	(d) = (b) - (c)	(e)	(f) = (a) + (d) + (e)
	Beginning Balance	Actual	Authorized	Under/(Over) Collection	Interest	Ending Balance
Year 2020	-5,866					-5,866
Beginning Balance						
O&M		17,554	20,860	-3,306		-3,306
Capital-Related Costs		4,736	1,232	3,504		3,504
Interest					-53	-53
Subtotal	-5,866	22,290	22,092	198	-53	-5,721

iv. SoCal Gas Regulatory Accounts – RD&D

SoCalGas RD&D Expense Account Details Revenue Requirements (\$000) Program Cycle 2019 - 2023 One-Way						
	(a)	(b)	(c)	(d) = (b) - (c)	(e)	(f) = (a) + (d) + (e)
	Beginning Balance	Actual	Authorized	Under/(Over) Collection	Interest	Ending Balance
Year 2020	-2,346					-2,346
Beginning Balance						
O&M		16,043	15,801	242		242
Capital-Related Costs						
Interest					-30	-30
Subtotal	-2,346	16,043	15,801	242	-30	-2,134

v. SoCal Gas Regulatory Accounts – L235MA

SoCalGas L235MA Account Details Revenue Requirements (\$000) Program Cycle 2019 - 2023						
	(a)	(b)	(c)	(d) = (b) - (c)	(e)	(f) = (a) + (d) + (e)
	Beginning Balance	Actual	Authorized	Under/(Over) Collection	Interest	Ending Balance
Year 2020						
Beginning Balance						
O&M		3,883		3,883		3,883
Capital-Related Costs		5,868		5,868		5,868
Interest					58	58
Subtotal		9,751		9,751	58	9,809

vi. SoCal Gas Regulatory Accounts – MROWMA

SoCalGas MROWMA Account Details Revenue Requirements (\$000) Program Cycle 2019 - 2023						
	(a)	(b)	(c)	(d) = (b) - (c)	(e)	(f) = (a) + (d) + (e)
	Beginning Balance	Actual	Authorized	Under/(Over) Collection	Interest	Ending Balance
Year 2020	109					109
Beginning Balance						
O&M						
Capital-Related Costs		8,326		8,326		8,326
Interest					5	5
Subtotal	109	8,326		8,326	5	8,440

vii. SoCal Gas Regulatory Accounts – PSEPMA

There are no costs recorded in the Program Cycle 2019 – 2023.

D. SoCalGas Balanced Program Regulatory Account Disposition of Cost Recovery

i. TIMP & DIMP & SIMP (same for all three programs)

Per D.19-09-051, the TIMPBA, Post-2011 DIMPBA, and SIMPBA will continue for the 2019 GRC cycle. Any over- or under-collected balance at the end of each year within the GRC cycle will be carried over to the following year. For any under-collections as a result of overspending up to 35% of the total authorized O&M and capital expenditures, SoCalGas will submit a Tier 3 advice letter seeking recovery of the under-collected amount. For under-collections due to overspending greater than 35% of the total authorized O&M and capital expenditures, SoCalGas will seek recovery through a separate application. If SoCalGas has not overspent in excess of the total authorized O&M and capital expenditures for the current GRC cycle, but an under-collection exists due to compounding of actual capital revenue requirement recorded in the balancing account, SoCalGas will incorporate the under-collected balance in its annual regulatory account balance update submittal for recovery in the subsequent year's rates. For any unspent funds at the end of the current GRC cycle, SoCalGas will propose in its next GRC proceeding to return the unspent funds in rates to customers.

ii. TIMPBA and DIMPBA

Pursuant to Advice No. 5539, refunds of overcollections totaling \$5,756,011 associated with the Post-2011 DIMPBA (2016-2018 and 2012-2015 GRC cycles) and net overcollections totaling \$22,058,901 associated with the TIMPBA (2016-2018 and 2012-2015 GRC cycles) were incorporated in 2020 rates.

iii. SIMPBA

The SIMPBA balance at the end of 2017 had already exceeded the three-year authorized revenue requirement by \$15.3 million, or 78.7%. Therefore, on February 8, 2018, SoCalGas filed Tier 3 advice letter AL 5253-G, seeking to recover 35%, or \$6.8 million of the \$19.5 million authorized revenue for the TY2016 GRC cycle. AL 5253 was approved and effective as of January 1, 2019 per Resolution G-3544. SoCalGas submitted Application A.21-01-016 for recovery of the remaining under-collection of approximately \$34.4 million on January 28, 2021.

iv. Research Development and Demonstration Expense Account (RDDEA)

The RDDEA is a one-way regulatory account. Pursuant to D. 19-09-051, the RDDEA will continue through the 2019 GRC cycle. Any over- or under-collected balance at the end of each year within the GRC cycle will be carried over to the following year. For any unspent RD&D funds at the end of the current GRC cycle, SoCalGas will propose in its next GRC proceeding to return the overcollections in rates to customers. Under-collections may not be recovered from ratepayers and shareholders will absorb the balance in the event actual expenses exceed authorized levels.

In its TY 2019 GRC, SoCalGas proposed to return to customers the RDDEA over-collected balance as of December 31, 2018¹. Pursuant to Advice No. 5539, refunds of these overcollections totaling \$269,409 associated with the 2016-2018 GRC cycle were incorporated in 2020 rates.

v. Line 235 Memorandum Account (L235MA)

SoCalGas shall seek amortization of PSEP Cost Subaccount balance of the L235MA in a Tier 2 advice letter submitted at the conclusion of Line 235 West Sections 1 and 2 testing or replacement. The Tier 2 advice letter will provide clear accounting delineations of which costs are subject to the TIMP and which costs are subject to the PSEP. Such PSEP costs shall not be placed into rates for recovery and such TIMP costs shall be made subject to refund until the advice letter is approved.

vi. Morongo Rights of Way Memorandum Account (MROWMA)

The disposition of the MROWMA balance will be addressed in SoCalGas' next General Rate Case or other applicable proceeding designated by the Commission.

vii. Pipeline Safety Enhancement Plan Memorandum Account (PSEPMA)

The PSEP-GRC and Line 44 Subaccount balances of the PSEPMA will be addressed in SoCalGas' next GRC or other applicable proceeding.

¹ A.17-10-008, Ex. SCG-42 (Yu) at RQY-2: 12-13.

APPENDIX – SOCALGAS’ EMERGENT, CANCELLED, AND DEFERRED PROJECT LIST

Business Unit	O&M or Capital	WP Name	Emergent	Cancelled	Deferred
Gas Distribution	O&M	Field Support - Maintenance Pipeline Observation "Stand By"		Costs are represented in Locate & Mark - QA Job Observations.	
Gas Distribution	O&M	Cathodic Protection - Non-RAMP		Activities related to Cathodic Protection are all covered in RAMP line item.	
Gas Distribution	O&M	Operations and Management - Policy, Procedures, Standards and ESCMP		Costs are represented Companywide.	
Gas Distribution	Capital	Cathodic Protection - Non-RAMP		Activities related to Cathodic Protection are all covered in the RAMP line item.	
Gas Control & System Operations	O&M	Energy Markets & Capacity Products Director		Department now reports directly to VP.	
Gas Control & System Operations	O&M	Gas Control & SCADA Operation Group - USS NON-RAMP		Gas Control & SCADA Operation Group - USS NON-RAMP.	
Gas Control & System Operations	O&M	Gas Control & SCADA Operation Group - USS Operation		Gas Control & SCADA Operation Group - USS Operation.	
Gas Control & System Operations	O&M	Emergency Services Non-RAMP			Activities postponed in 2020, will resume.
Gas Engineering	O&M	Research, Planning & Development		Costs are represented in the Balanced RD&D Program.	
Gas System Integrity	O&M	USS - VP Gas System Integrity		VP costs are represented in the Major Projects area.	

Business Unit	O&M or Capital	WP Name	Emergent	Cancelled	Deferred
Gas System Integrity	O&M	Operator Qualification - Operations			Deferred hiring additional headcount.
Gas System Integrity	O&M	Pipeline System Construction Policy		Costs are represented in Gas Distribution, Transmission, and Storage.	
Gas System Integrity	O&M	Enterprise Geographic Information System (eGIS)		Costs are represented in IT.	
Gas System Integrity	O&M	Records Management - From 2200-2361		Costs are represented in the Gas Distribution, Transmission, TIMP, and IT Capital.	
Gas System Integrity	O&M	Gas Operations Training & Development			Situation City expansion deferred to 2021.
Gas System Integrity	O&M	Pipeline Safety & Compliance		Costs are represented in Gas Major Projects.	
Gas System Integrity	O&M	Public Awareness		Activities related to Public Awareness are all covered in the RAMP line item.	
Gas System Integrity	O&M	Asset Management		Costs represented in Pipeline Safety & Compliance, ESS Production Support, and Underground Storage.	
Gas System Integrity	O&M	Gas Contractor Controls		Costs represented in Gas Engineering, Gas Distribution, and PSEP.	
Gas Transmission	O&M	Pipeline Operations - Training and Qualification of Personnel		Costs are represented in Gas Operations & Development.	

Business Unit	O&M or Capital	WP Name	Emergent	Cancelled	Deferred
Gas Transmission	O&M	Technical Services - Class Location Mitigation		Technical Services - Class Location Mitigation.	
Gas Transmission	Capital	Gas Transmission Relocations	1. L4000 MP 96.7 Benson Bridge Relocation N 2. LINE 2001 West Relocation Project 3. L1026 RELO Oceanside Blvd & Tait ST MP54.8 4. L2002 Relocation, Montebello Hills		Los Angeles World Airports (LAWA) Grade (2019 to 2020)
Gas Transmission	Capital	GT M&R Stations - RAMP	1. L5000 to L2000 Pressure Limiting Station 2. Moreno Large Comm Building & Control UPG 3. Lecouvreur & F Station Control Valve Upgrade 4. Desert Center Valve Upgrade - 5. Cajon Pass Valve 140 STN-Complete Redesign 6. Yorba Station Valves Replacement 7. Valve STN Upgrade L5000 MP 58.09-0		PI: Quigley Sta Controls & Meter Upgrade (from 2019 to 2020)

Business Unit	O&M or Capital	WP Name	Emergent	Cancelled	Deferred
Gas Transmission	Capital	GT Aux Equip	1. Blythe Compressor Station Auxiliary Water 2. Blythe Comp STN Air System Upgrade 3. Blythe Haz-Waste Storage Area Upgrade	Activities related to Operational Resiliency are all covered in Non-RAMP line item.	
Gas Transmission	Capital	GT Cathodic Protection	1. Master CP WOA created for all Districts 2. L85 MP 78.60 DWA and Rectifier 3. L6916, L4000, and L85 # TEG Replacements	Activities related to Cathodic Protection are all covered in RAMP line item.	
Gas Transmission	Capital	GT Replacement Pipelines - RAMP	1. L406 MP 1.30 Span and Exposures 2. SL36-37 Section 11D Replacement 3. L3003&L407 Pipe Expo & Shallow in Sullivan 4. L8109 MP49.48 Drop Section		
Gas Transmission	Capital	MP PL Rpls / Quality/Economic Driven	MP PL Rpls / Quality/Economic Driven		
Gas Transmission	Capital	Ventura Compressor Station Modernization	Ventura Compressor Station Modernization		
Storage	Capital	GS Compressor Stations			Honor Rancho study
Storage	Capital	GS Wells		Cushion gas purchase	Drilling of new wells
Storage	Capital	GS Pipelines			Aliso pipe bridge replacement project

Business Unit	O&M or Capital	WP Name	Emergent	Cancelled	Deferred
Storage	Capital	GS Auxiliary Equipment	1. NERBA 2. RECLAIM Sunset Emissions Compliance		
PSEP	O&M	Pipeline Safety Enhancement Program	Line 2005 Hydrotest		1. L235W Section 3 2. L2000 Section E 3. L2000 Blythe to Cactus City 4. L2000 Chino Hills
PSEP	O&M	Pipeline Safety Enhancement Program- PMO Costs	1. Delcon to OpenText Migration		
PSEP	Capital	PSEP Pipeline Replacement - RAMP	1. L235E North Needles Replacement 2. L235E Newberry Springs Replacement		1. SL36-1032 Section 11 2. L2000E Cactus City Compressor Station
PSEP	Capital	PSEP Valve Projects - RAMP	7 New Installations	26 Installations were cancelled	45 Installations are deferred to 2021 - 2023
PSEP	Capital	PSEP Hydrotest Capital – RAMP	Line 2005 Hydrotest		1. L235W Section 3 2. L2000 Section E 3. L2000 Blythe to Cactus City 4. L2000 Chino Hills
Customer Service-Information	O&M	CI-Customer Strategy and Engagement -		Business Customer Insight Panel and Survey programs	
Customer Service-Information	O&M	CI-Customer Segment Services	Fuel cell, microgrid, and clean fuel/hydrogen market analysis and planning		
Information Technology	O&M	Director - Computing Infrastructure	Costs are represented for new Director		

Business Unit	O&M or Capital	WP Name	Emergent	Cancelled	Deferred
Information Technology	O&M	CI Compute Provisioning SCG		Costs were cancelled and resources were redeployed to other areas in IT	
Information Technology	O&M	DCAM Program	Significant Data Center Outage created a need for this activity		
Information Technology	O&M	Enterprise Monitoring	Additional support and tools created a need for this activity		
Information Technology	O&M	IT Infrastructure PMO	Additional network Infrastructure created a need for this activity		
Cyber Security	O&M	Identity & Access Management	Identity life-cycle management system created a need for this activity		
Risk Management	O&M	Director of Risk	This position was created to support SoCalGas		
Risk Management	O&M	Chief Risk Officer	This position was created to support SoCalGas		