Company: Southern California Gas Company (U 904 G)
Proceeding: 2024 General Rate Case
Application: A.22-05-____
Exhibit: SCG-08

PREPARED DIRECT TESTIMONY OF

BILL G. KOSTELNIK

(PIPELINE SAFETY ENHANCEMENT PLAN)

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

May 2022

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APPENDICES

SUMMARY

PIPELINE SAFETY ENHANCEMENT PLAN In 2021 (in $000s)			
O&M	**2021 Adjusted-Recorded**	**Estimated TY 2024**	**Change**
Non-Shared	64,082	54,214	(9,868)
Shared	-	-	-
Total O&M	**64,082**	**54,214**	**(9,868)**

Note: these tables display forecasted PSEP costs but do not include costs proposed to be recovered via reasonableness review, as detailed in testimony below

PIPELINE SAFETY ENHANCEMENT PLAN In 2021 (in $000s)				
Capital	**2021 Adjusted-Recorded**	**Estimated 2022**	**Estimated 2023**	**Estimated TY 2024**
Non-shared	191,219	141,509	101,920	73,810
Shared	-	-	-	-
Total Capital	**191,219**	**141,509**	**101,920**	**73,810**

Note: these tables display forecasted PSEP costs but do not include costs proposed to be recovered via reasonableness review, as detailed in testimony below

Summary of Requests

- Continue the implementation and prudent execution of Southern California Gas Company's (SoCalGas) Pipeline Safety Enhancement Plan (PSEP) as mandated in Decision (D.) 14-06-007 and in furtherance of the California Public Utilities Commission's (CPUC or Commission) order to complete the Plan "as soon as practicable," while balancing other pipeline safety compliance regulations and the obligation to provide customers with safe and reliable service.
- Authorize SoCalGas's Test Year 2024 PSEP Operations & Maintenance (O&M) forecast of $54,214,000 and SoCalGas's forecast for PSEP capital expenditures in 2022, 2023, and 2024 of $141,509,000, $101,920,000, and $73,810,000, respectively, each on an aggregate basis, for pipeline and valve enhancement projects scheduled to be completed within the 2024-2027 GRC cycle.
- Authorize funding based on an anticipated level of executable spending from a portfolio of 28 Phase 2A and five Phase 1B replacement projects presented in this Application.

- Authorize funding for a small number of remaining valve enhancement plan projects and other miscellaneous costs.
- Authorize recovery of the $426 million in capital expenditures and $35 million in O&M expenditures incurred in executing Phase 1A projects; the reasonableness of $25 million in expenditures for the purchase of Line 306; and the reasonableness of $13 million in expenditures for other costs incurred to execute PSEP. The associated revenue requirement for the projects presented for reasonableness review is approximately $109 million.
- Authorize recovery of $20.3 million for the planning and execution of the SB 1383 Dairy Pilot Program.

PREPARED DIRECT TESTIMONY OF
BILL KOSTELNIK
(PIPELINE SAFETY ENHANCEMENT PLAN)

I. INTRODUCTION

A. Summary of Costs and Activities

This testimony supports the Test Year (TY) 2024 forecasts for operations and maintenance (O&M) costs for non-shared services, capital costs for the forecast years 2022, 2023, and 2024 associated with the Pipeline Safety Enhancement Plan (PSEP) for SoCalGas and miscellaneous costs associated with the Construction organization.

I am presenting for reasonableness review costs associated with completed PSEP projects and other miscellaneous costs that SoCalGas incurred from December 2015 to December 2020, and a reasonableness review of Senate Bill (SB) 1383 Dairy Pilot Program capital costs in compliance with D.17-12-004.

The PSEP program, mandated by the Commission in D.14-06-007, supports SoCalGas's mission to become the cleanest, safest, most innovative utility company in North America. Since its inception, the four objectives of PSEP have been and continue to be: (1) enhance public safety; (2) comply with Commission directives; (3) minimize customer impacts; and (4) maximize the cost effectiveness of safety investments. Consistent with these objectives, the hydrotesting and replacement of pipelines and enhancement of valve infrastructure will position SoCalGas to continue to serve its customers safely and reliably, in a manner consistent with SoCalGas's sustainability objectives outlined in the Sustainability and Climate Change Policy testimony of Michelle Sim and Naim Jonathan Peress (Exhibit SCG-02). Additionally, the Dairy Pilot projects comply with state legislation (SB 1383) and support SoCalGas's vision to become the cleanest natural gas utility in North America by capturing fugitive methane gas produced at dairy farms, processing the gas, and introducing the processed gas into the SoCalGas pipeline system.

Tables BK-1,2,3, and 4 summarize my sponsored costs.

Table BK-1
Test Year 2024 Summary of O&M Forecast Costs
In 2021 (in $000s)

Testimony Area	**2021 Adjusted-Recorded**	**TY 2024 Estimated**	**Change**
Hydrotest Projects	61,260	50,682	(10,578)
Miscellaneous Costs	2,822	3,532	710
Total O&M	**64,082**	**54,214**	**(9,868)**

Table BK-2
Test Year 2024 Summary of Capital Forecast Costs
In 2021 (in $000s)

Testimony Area	**2021 Adjusted-Recorded**	**Estimated 2022**	**Estimated 2023**	**Estimated 2024**
Hydrotest Projects	16,391	17,077	13,711	22,223
Replacement Projects[1]	124,306	52,072	54,645	42,923
Valves	50,515	72,360	33,564	8,664
Total Capital	**191,212**	**141,509**	**101,920**	**73,810**

Table BK-3
Summary of PSEP Reasonableness Review Project Costs
(in $000s)

Testimony Area	**Capital**	**O&M**
PSEP Reasonableness Review Projects	426,209	34,920
Line 306 Purchase	25,040	-
Miscellaneous Costs	2,517	10,093
Total	**453,766**	**45,013**

Note: All PSEP Reasonableness Review costs are fully loaded.

[1] Also includes derate and abandonment projects.

Table BK-4
Summary of SB 1383 (Dairy Pilot) Reasonableness Review
(in $000s)

Testimony Area	Authorized (2019)[2]	EAC	Variance
SB 1383 Dairy Pilot Program	36,559	56,821	20,262

Note: All Dairy Pilot Program Reasonableness Review costs are fully loaded.

B. Support To and From Other Witnesses

This testimony also references the testimony and workpapers of several other witnesses, either in support of their testimony or as referential support for mine.

1. Ex. SCG-02 – Sustainability and Climate Policy (Naim Jonathan Peress and Michelle Sim)
2. Ex. SCG-03/SDG&E-03, Chapter 2 – RAMP to GRC Integration (R. Scott Pearson and Gregory S. Flores)
3. Ex. SCG-06 – Gas Transmission Operations & Construction (Rick Chiapa, Steve Hruby, and Aaron Bell)
4. Ex. SCG-07 – Gas Engineering (Maria Martinez)
5. Ex. SCG-09 – Gas Integrity Management Programs (Travis Sera and Amy Kitson)
6. Ex. SCG-27 – Safety & Risk Management System (Neena N. Master)
7. Ex. SCG-38 – Regulatory Accounts (Rae Marie Yu)

C. Organization of Testimony

This testimony is organized as follows:

- Introduction (Section I);
- Risk Assessment Mitigation Phase Integration (Section II);
- PSEP Overview (Section III);
- Sustainability and Safety Culture (Section IV);

[2] Cost estimates were completed in 2018, but the revenue requirement submitted in AL 5398-A was not authorized until 2019.

- Forecast Projects (Section V);
- PSEP Reasonableness Review (Section VI);
- SB 1383 Dairy Pilot Reasonableness Review (Section VII);
- Conclusion (Section VIII);
- Witness Qualifications (Section IX).

II. RISK ASSESSMENT MITIGATION PHASE INTEGRATION

All of the forecasted PSEP project costs supported in this testimony are associated with mitigating a top safety risk described in SoCalGas and SDG&E's 2021 Risk Assessment Mitigation Phase (RAMP) Report.[3] The 2021 RAMP Report presented an assessment of the key safety risks for SoCalGas and SDG&E and proposed plans for mitigating those risks. As discussed in the testimony of the RAMP to GRC Integration witnesses R. Scott Pearson and Gregory S. Flores (Ex. SCG-03/SDG&E-03, Chapter 2), the costs of risk mitigation projects and programs were translated from the 2021 RAMP Report into the individual witness areas.

In the course of preparing the PSEP project-related GRC forecasts, SoCalGas continued to evaluate the scope, schedule, resource requirements, and synergies of RAMP-related projects and programs. Therefore, the final presentation of RAMP costs may differ from the ranges shown in the 2021 RAMP Report.

[3] Refer to the RAMP-to-GRC Integration testimony of R. Scott Pearson and Gregory Flores (Ex. SCG-03/SDG&E-03, Chapter 2) for more details regarding the SoCalGas's 2021 RAMP Report.

Tables BK-5 and BK-6 provide a summary of the RAMP-related costs supported in this testimony:

Table BK-5
Summary of RAMP O&M Costs
(in $000s)

RAMP Report Chapter	**BY 2021 Embedded Costs**	**TY 2024 Total**	**TY 2024 Estimated Incremental**
RAMP Risks			
SCG-Risk-1 Incident Related to the High-Pressure System (Excluding Dig-in)	63,412	50,682	(12,730)
Sub-Total RAMP Risk Costs	**63,412**	**50,682**	**(12,730)**
RAMP CFFs			
None	n/a	n/a	n/a
Sub-Total RAMP CFF Costs	**n/a**	**n/a**	**n/a**
Total RAMP O&M Costs	**63, 412**	**50,682**	**(12,730)**

Table BK-6
Summary of RAMP Capital Costs
(in $000s)

RAMP Report Chapter	**2022 Estimated RAMP Total**	**2023 Estimated RAMP Total**	**2024 Estimated RAMP Total**
RAMP Risks			
SCG-Risk-1 Incident Related to the High-Pressure System (Excluding Dig-in)	141,509	101,920	73,810
Sub-Total RAMP Risk Costs	**141,509**	**101,920**	**73,810**
RAMP CFFs			
None	n/a	n/a	n/a
Sub-Total RAMP CFF Costs	**n/a**	**n/a**	**n/a**
Total RAMP Capital Costs	**141,509**	**101,920**	**73,810**

A. Risk Overview

As summarized in Tables BK-5 and BK-6 above, this testimony includes costs to mitigate the *Incident Related to the High-Pressure System (Excluding Dig-in)* risk included in the RAMP Report. This risk is further described in Table BK-7 below:

Table **BK-7**
RAMP Risk Chapter Description

SCG-Risk-1 – Incident Related to the High-Pressure System (Excluding Dig-in)	This addresses the risk of damage caused by a high-pressure pipeline (maximum allowable operating pressure – Maximum Allowable Operating Pressure (MAOP), greater than 60 psig) failure event, which results in serious injuries or fatalities.

The testimony of RAMP to GRC Integration witnesses R. Scott Pearson and Gregory S. Flores (Ex. SCG-03/SDG&E-03, Chapter 2) describes all the risks and factors included in the 2021 RAMP Report and the process utilized for RAMP to GRC integration.

B. GRC Risk Controls and Mitigations

Tables BK-8 and BK-9, below, summarize the respective O&M and capital TY 2024 forecasts by workpaper associated with the RAMP activities. The activities listed below are discussed in detail in the corresponding sections of this testimony that follow, particularly Sections III (PSEP Overview) and V (Forecast Projects), as well as in my supplemental workpapers.

Table BK-8
Summary of PSEP Safety Related Risk Mitigation Costs by Workpaper (O&M)
In 2021 (in $000s)

Work-paper	RAMP ID	Description	BY2021 Embedded Base Costs	TY2024 Estimated Total	TY2024 Estimated Incremental	GRC RSE
2PS000.000	SCG-Risk-1 - C22-T3.4	Hydrotesting (Phase 2A GRC Base)	63,412	50,682	(12,730)	2
Total			**63,412**	**50,682**	**(12,730)**	

Table BK-9
Summary of PSEP Safety Related Risk Mitigation Costs by Workpaper (Capital)
In 2021 (in $000s)

Workpaper	RAMP ID	Description	2022 Estimated RAMP Total	2023 Estimated RAMP Total	2024 Estimated RAMP Total	GRC RSE
00512A.001	SCG-Risk-1 - C22-T3.4	P2A Capital Replacements for Hydrotests Non-HCA (GRC Base)	17,077	13,711	20,111	n/a[4]
00512B.001	SCG-Risk-1 - C22-T2.4	PSEP Phase 1B – Pipeline Replacement Non-HCA (GRC Base)	37,814	52,377	19,943	4
00512C.001	SCG-Risk-1 - C22-T3.2	P2A Replacements Non-HCA (GRC Base)	14,258	2,268	22,980	62
00571A.001	SCG-Risk-1 - C22-T4.3	Valve Enhancement (GRC Base, HCA)	61,812	29,388	3,780	95
00571A.002	SCG-Risk-1 - C22-T4.4	Valve Enhancement Non-HCA (GRC Base)	10,548	4,176	4,884	17
Total			**141,509**	**101,920**	**71,698**	

C. Changes From RAMP Report

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

[4] Units for hydrotest projects are represented in the *Hydrotesting (Phase 2A GRC Base, O&M)* tranche.

General changes to risk scores or Risk Spend Efficiency (RSE) values are primarily due to changes in the Multi-Attribute Value Framework (MAVF) and RSE methodology, as discussed in the RAMP to GRC Integration testimony. Other than these changes, the RAMP-related activities described in my GRC testimony are consistent with the activities presented in the 2021 RAMP Report. Any variances between forecasted costs for specific RAMP activities presented in this testimony with those presented in the 2021 RAMP filing are attributable to the refinement of PSEP project costs and schedules that have occurred subsequent to the filing of the RAMP Report in 2021.

III. PSEP OVERVIEW

The primary objectives of PSEP are to: (1) enhance public safety; (2) comply with Commission directives; (3) minimize customer impacts; and (4) maximize the cost effectiveness of safety investments. As directed by the Commission, the SoCalGas and SDG&E PSEP includes a risk-based prioritization methodology that prioritizes pipelines located in more populated areas ahead of pipelines located in less populated areas and further prioritizes pipelines operated at higher stress levels above those operated at lower stress levels. To implement this prioritization process, the PSEP is divided into two initial Phases, Phase 1 and Phase 2, with these two phases sub-divided into two parts, Phases 1A and 1B, and Phases 2A and 2B.[5] The scopes of these phases are described in greater detail in the following subsections.

A. Procedural History and Regulatory Framework

On September 9, 2010, a 30-inch diameter natural gas transmission pipeline ruptured and caught fire in the city of San Bruno, California. In response, the Commission promulgated new regulations in D.11-06-017 (later codified at California Public Utilities Code Sections 957 and 958), finding that "natural gas transmission pipelines in service in California must be brought into compliance with modern standards for safety," and ordering all California natural gas

[5] In addition to these Phases, PSEP projects may also incorporate "incidental" mileage which includes pipe segments that are not required to be addressed as part of PSEP but are included where it is determined that doing so improves cost and program efficiency, addresses implementation constraints, or facilitates continuity of testing. These segments may be included within the scope of PSEP projects in order to: (1) minimize customer impacts, (2) respond to operational constraints, or (3) because of the cost and operational efficiencies gained by incorporating them into the project scope rather than circumventing them.

transmission pipeline operators "to prepare and file a comprehensive Implementation Plan to replace or pressure test all natural gas transmission pipeline in California that has not been tested or for which reliable records are not available."[6] The Commission required that the plans provide for testing or replacing all such pipelines "as soon as practicable."[7] On August 26, 2011, SoCalGas and SDG&E filed their proposed PSEP. The PSEP included, amongst other things, a proposed Decision Tree to guide whether specific segments should be hydrotested, replaced, or abandoned; a proposed valve enhancement plan; a proposed technology plan; and preliminary cost forecasts.[8] In June 2014, the Commission issued D.14-06-007, which approved SoCalGas and SDG&E's proposed PSEP and "adopt[ed] the concepts embodied in the Decision Tree," "adopt[ed] the intended scope of work as summarized by the Decision Tree," and "adopt[ed] the Phase 1 analytical approach for Safety Enhancement…as embodied in the Decision Tree…and related descriptive testimony."[9] In the decision approving SoCalGas and SDG&E's proposed plan, the Commission acknowledged the broad scope of SoCalGas and SDG&E's PSEP, which also included modification and addition of valve infrastructure in order to isolate, limit the flow of gas to no more than 30 minutes, and thereby facilitate timely access of "first responders" into the area surrounding a substantial section of ruptured pipe.

The Commission adopted a process for reviewing and approving PSEP implementation costs after-the-fact.[10] To enable the after-the-fact review of PSEP costs, D.14-06-007 required SoCalGas and SDG&E to establish certain additional balancing accounts [the Safety Enhancement Capital Cost Balancing Accounts (SECCBAs) and Safety Enhancement Expense Balancing Accounts (SEEBAs)] to record PSEP expenditures.[11] Additionally, to recover PSEP costs, SoCalGas and SDG&E were ordered to "file an application with testimony and work

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6 D.11-06-017 at 18.

7 *Id*. at 19.

8 On December 2, 2011, SoCalGas and SDG&E amended their PSEP to include supplemental testimony to address issues identified in R.11-02-019, "Amended Scoping Memo and Ruling of the Assigned Commissioner," filed November 2, 2011.

9 D.14-06-007 at 2, 22, 59 (Ordering Paragraph 1).

10 The Commission determined in D.14-06-007, however, that certain PSEP costs should be disallowed (see Section 6, "Ratemaking Principles to be Applied in Reasonableness Applications," at 31-39).

11 *Id*. at 60 (Ordering Paragraph 4).

papers to demonstrate the reasonableness of the costs incurred which would justify rate recovery."[12] In December 2014, SoCalGas and SDG&E filed an application requesting the Commission find reasonable the costs incurred to implement PSEP projects, as well as the associated revenue requirement, recorded in the Pipeline Safety and Reliability Memorandum Accounts (PSRMAs) before June 12, 2014. The Commission found that SoCalGas and SDG&E's actions and expenses were reasonable and consistent with the reasonable manager standard, with one exception related to insurance coverage, and granted the application.[13]

The first of the two reasonableness review applications, Application (A.)16-09-005, was filed in September 2016, comprising 26 pipeline projects, 15 valve projects, and miscellaneous costs for SoCalGas totaling $195M. Excluding about $7M in post-1955 disallowances[14] acknowledged in the filing, $188M was reviewed by the Commission, of which $187M was ultimately deemed to be reasonably incurred (>99%).[15] The second of SoCalGas and SDG&E's standalone reasonableness reviews was filed in November 2018 (A.18-11-010), comprising 44 pipeline projects and 39 bundled valve projects, and miscellaneous costs for SoCalGas totaling $941M. The Commission's final decision in that proceeding deemed $935M of $939M in total costs reasonable (>99%, after accounting for acknowledged disallowances).[16] SoCalGas's forecast application A.17-03-021, which addressed forecasted costs associated with nine Phase 1B and three Phase 2A pipeline projects, was filed in March 2017. The Commission found that SoCalGas met the burden of proof regarding the forecasted cost estimates for completing these

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[12] *Id*. at 39.

[13] *See* D.16-12-063, granting A.14-12-016. The decision declined to authorize recovery of costs for PSEP-specific insurance (without prejudice) after determining that SoCalGas and SDG&E did not make a sufficient factual showing in the Application to support the reasonableness of those costs. *Id.* at 50.

[14] The Commission determined in D.14-06-007 and D.15-12-020 that certain PSEP costs should be disallowed, including costs of hydrotesting post-1955 vintage segments.

[15] D.19-02-004, at 104-108 (Ordering Paragraphs 1-47).

[16] D.20-08-034 at 31 (Ordering Paragraph 4).

projects and authorized recovery of the entirety of the $254.5M forecast amount, subject to one-way balancing.[17] The Commission also approved SoCalGas's Phase 2A decision tree.[18]

B. Commission Directive to Transition PSEP into the GRC

In A.15-06-013 (Application of SoCalGas and SDG&E to Proceed with Phase 2 of their Pipeline Safety and Enhancement Plan and Establish Memorandum Accounts to Record Phase 2 Costs), the assigned Administrative Law Judge issued a ruling requesting the parties to meet and confer to develop a procedural plan focused on bringing PSEP work within the GRC regulatory process and to develop a comprehensive plan to address PSEP costs expected to be incurred prior to the next GRC test year. In resolving SoCalGas and SDG&E's application, D.16-08-003 provided for two additional standalone applications for after-the-fact review of the costs incurred to complete Phase 1A projects and one forecast application as described below. All Phase 1A projects completed after the filing of the two reasonableness reviews, as well as remaining forecasted projects not included in the forecast application, were to be submitted for approval in the Test Year 2019 (TY 2019) and subsequent GRCs.[19, 20]

Pursuant to D.16-08-003, SoCalGas first integrated PSEP into a GRC with the filing of its TY 2019 GRC application (A.17-10-008) in October 2017.[21] A.17-10-008 included 22 SoCalGas Phase 2A and Phase 1B PSEP pipeline projects and 284 valve projects, as well as miscellaneous costs associated with the continuing prudent implementation of PSEP. The total costs presented for review (on a forecast basis) amounted to $901M. The Commission's final decision (D. 19-09-051) authorized the revenue requirement for all but three[22] of the 22 pipeline projects, the entirety of the submitted valve enhancement projects, and all of the requested

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17 D.19-03-025 at 82-84 (Ordering Paragraphs 2-12).

18 *Id.* at 82 (Ordering Paragraph 1)

19 D.16-08-003 at 16 (Ordering Paragraph 5).

20 This is the first GRC to present PSEP Phase 1A projects for reasonableness review.

21 SDG&E PSEP projects were not included in the 2019 GRC as no Phase 2A mileage exists within the scope of SDG&E's PSEP and the remaining Phase 1B mileage is associated with the Line 1600 Test and Replace Plan, which is being addressed outside of the GRC.

22 Because of complications with the Line 235 West Sections 1 and 2 hydrotests, and Supply Line 44-1008 replacement, they were separately authorized to be tracked and recorded into a memorandum account for future review and cost recovery.

miscellaneous costs. After accounting for the three projects (which were ordered to be tracked separately for later cost recovery), the amount authorized to be recovered in rates was $680M out of $734M.

Subsequent to the 2019 GRC final decision, the Commission ordered in its Rate Case Plan Proceeding (D.20-01-002) that, in order to facilitate the transition to a four year rate case cycle for all California investor-owned utilities, SoCalGas and SDG&E were to file a petition for modification (PFM) to revise their 2019 GRC decision to add two additional attrition years (resulting in a five-year GRC period (2019-2023)) and specifically addressing PSEP and other capital projects for 2022 and 2023. SoCalGas and SDG&E filed the PFM in April 2020. A Final Decision in the Rate Case Plan Proceeding was issued on May 6, 2021, approving a separate revenue requirement for PSEP capital additions in 2022 and 2023, based on 4th year projects presented in the 2019 GRC.

C. PSEP Scope

1. Phase 1A

Phase 1A encompasses pipelines located in Class 3 and 4 locations and Class 1 and 2 locations in high consequence areas (HCAs) that do not have sufficient documentation of a hydrotest to at least 1.25 times the MAOP.[23] At the time of the filing of this GRC application, SoCalGas has addressed approximately 97 miles of Phase 1A mileage.[24] Approximately 2 miles of Phase 1A mileage currently remain to be addressed for SoCalGas. In accordance with D.14-06-007, as amended by D.16-08-003, SoCalGas will request cost recovery for any future Phase 1A projects during the implementation of PSEP consistent with the previously established regulatory framework described above.

2. Phase 1B

The scope of Phase 1B, as outlined in SoCalGas's PSEP, is to replace non-piggable pipelines installed prior to 1946 with new pipe constructed using state-of-the-art methods and

[23] Class Locations as defined in Part 192.5 of Title 49 of the Code of Federal Regulations.

[24] Excludes incidental and accelerated mileage.

up to modern standards, including current hydrotest standards.[25] The Commission ordered this work in directing California pipeline operators to "address retrofitting pipeline to allow for in-line inspection tools" in D.11-06-017. "Non-piggable" pipelines cannot accommodate in-line inspection tools that assess pipeline integrity. Pre-1946 pipelines were built using non-state-of-the-art construction methods and materials (*i.e.*, pipe manufacturers used various non-state-of-the art manufacturing processes), were not designed to accommodate a post-construction hydrotest, and have an increased risk of developing leaks on girth welds. SoCalGas anticipates that Phase 1B will be completed within the next two GRC periods.

3. Phase 2A

Whereas Phases 1A and 1B address pipelines located in more populated areas and pre-1946 non-piggable pipe, Phase 2A addresses the remaining transmission pipelines that do not have sufficient documentation of a hydrotest to at least 1.25 MAOP and are located in Class 1 and 2 non-high consequence areas. With Phase 1A approaching completion, the focus continues to transition to Phase 2A, which is anticipated to be completed over the next two GRC cycles. Consistent with the risk prioritization framework originally presented in A.11-11-002, this transition reflects the progression of the PSEP program from more populated to less populated areas.

4. Phase 2B

Phase 2B pipelines are those that have documentation of a hydrotest that predates the adoption of federal hydrotesting regulations—Part 192, Subpart J of Title 49 of the Code of Federal Regulations (CFR)—on November 12, 1970. In the 2019 GRC application, SoCalGas sought clarification on State policy regarding whether Phase 2B is within the scope of PSEP. In its final decision, the Commission determined that its original order as laid out in D.11-06-017 which required the California utilities to develop implementation plans to provide for the hydrotesting of "all in-service natural gas transmission pipeline … in accordance with 49 CFR

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25 The scope of Phase 1B in the SoCalGas and SDG&E Amended PSEP Application (A.11-11-002) also included those pipeline segments that otherwise would be addressed in Phase 1A but cannot be addressed in the near term due to the need to construct new infrastructure to maintain service during hydrotesting. Phase 2 of the Pipeline Safety and Reliability Project, also known as Line 1600 (A.15-09-013), addresses this aspect of Phase 1B, as defined in the Amended PSEP Application.

192.619" was inclusive of SoCalGas's proposed Phase 2B and ordered the development of a Phase 2B implementation plan with specific directives to be included.[26]

As Amy Kitson and Travis Sera discuss in the Gas Integrity Management Programs testimony (Ex. SCG-09), the Pipeline and Hazardous Materials Safety Administration (PHMSA) published the Safety of Gas Transmission Pipelines: Maximum Allowable Operating Pressure Reconfirmation, Expansion of Assessment Requirements, and Other Related Amendments final rule – also referred to as the Gas Transmission Safety Rule (GTSR) Part 1 – in the federal register on October 1, 2019. The final rule became effective on July 1, 2020, with some compliance obligations taking effect July 1, 2021. Amongst other safety requirements for gas transmission pipeline operators, this rule requires operators to reconfirm the Maximum Allowable Operating Pressure (MAOP) of transmission pipelines in accordance with 49 CFR §192.624.

Given SoCalGas's obligations to comply with the Commission's order regarding PSEP Phase 2B pursuant to D.19-09-051, and the recent promulgation of the GTSR Part 1, SoCalGas is proposing in the testimony of Amy Kitson and Travis Sera to merge these efforts into an overarching Integrated Safety Enhancement Plan (ISEP). The ISEP includes, amongst other things, a proposal to address the six directives of the Phase 2B implementation plan ordered in D.19-09-051. As such, there is no Phase 2B-related forecast included in this testimony.

PSEP will continue to address Phase 1A, 1B and 2A mileage which have been previously approved by the Commission in prior proceedings. Given that SoCalGas's integrated plan to implement Phase 2B and GTSR Part 1 has not yet been approved by the Commission, SoCalGas believes that defining PSEP to those phases previously approved by the Commission is reasonable and gives the Commission the opportunity to address Phase 2B and GTSR Part 1 as an integrated plan.

5. Valve Enhancement Plan

In D.11-06-017, the Commission also directed pipeline operators to address the installation of "automated or remote controlled shut off valves" in their proposed implementation

[26] D.19-09-051 at 221-222.

plans.[27] In response to this directive, SoCalGas submitted a Valve Enhancement Plan as part of their PSEP in A.11-11-002. The Valve Enhancement Plan works in concert with PSEP's pipeline testing and replacement plan to enhance system safety by augmenting existing valve infrastructure to accelerate SoCalGas's ability to identify, isolate and contain escaping gas in the event of a pipeline rupture.

As discussed above, SoCalGas submitted valve enhancement projects for review in its 2016 Reasonableness Review, 2018 Reasonableness Review, and TY 2019 GRC applications. As of the submittal of this Application, SoCalGas has initiated construction on approximately 55% of the installations presented in the 2019 GRC, with significant investments planned for 2022 and 2023. As stated in SoCalGas's 2019 and 2020 Risk Spending Accountability Reports, many of the valve projects presented in the TY 2019 GRC have been deferred for reasons such as permitting, easement, redesign and other issues, or to optimize SoCalGas's resources and schedules by bundling smaller scope installations for later execution.[28] In this GRC, SoCalGas is presenting a forecast associated with a small number of valve enhancement projects which are anticipated to be completed in 2025.

IV. SUSTAINABILITY AND SAFETY CULTURE

SoCalGas's pipeline system, which has been safely operated across its history, aligns with SoCalGas's intent to reliably deliver both natural gas and other renewable fuels as the energy transformation unfolds in California. This is a key element of SoCalGas's ASPIRE 2045 climate commitment,[29] which aims to leverage existing gas infrastructure to provide the energy ecosystem with flexibility, storage, reliability, and resiliency. One of the many areas of focus for SoCalGas in achieving the objectives of ASPIRE 2045 is the reduction of fugitive emissions.[30]

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[27] D.11-06-017 at 21, 30 (Conclusion of Law Paragraph 9), and 32 (Ordering Paragraph 8).

[28] Some of these deferrals have been offset by completion of newly scoped projects, cancellation of previously scoped projects, or others that were planned to be executed later but were accelerated into construction.

[29] Available at: https://www.socalgas.com/sites/default/files/2021-03/SoCalGas_Climate_Commitment.pdf

[30] This goal was also discussed in Sempra Energy's 2019 and 2020 Corporate Sustainability Reports, available at: https://www.sempra.com/sustainability. SoCalGas, along with SDG&E and iEnova, aims

Through the pressure-testing of existing pipe, and the installation of new, state-of-the-art pipelines, the PSEP program contributes to this particular goal by enhancing the ability to reduce fugitive emissions associated with the day-to-day operation of these pipelines, and helps mitigate the risk of an in-service pipeline rupture and associated emissions that would result from such an event. The installation of remote shut off valves (RSVs) which detect drops in gas pressure (an indication if a leak or rupture) and remotely isolate that section of the pipeline, avoid leakage or release of fugitive emissions into the atmosphere, and helps contribute to ongoing emissions reduction efforts while also enhancing the safety of the system. Together, these activities provide a supplemental contribution[31] to minimizing SoCalGas's carbon footprint without being a stated goal of the program. PSEP has also contributed significant emissions reductions through the use of gas capture technology, which has been employed extensively in recent years to reduce the burden of vented gas. Through this effort, PSEP has reduced emissions by as much as 160 million cubic-feet of gas, which accounted for more than half of SoCalGas's company-wide reductions through gas capture in 2020.[32] As part of ASPIRE 2045, SoCalGas has committed to phasing out the practice of venting gas during planned transmission pipeline work (excluding emergency repairs) by 2030.

The Dairy Pilot projects, which are also presented in this testimony, support the State's commitment to reduce emissions of short-lived climate pollutants and the 40% reduction in methane by 2030 compared to 2013 levels established under SB 1383. This program supports the creation of energy infrastructure that supports the capture and use of fugitive methane to decarbonize the pipeline.

Execution of the PSEP program supports SoCalGas's goal to become the cleanest, safest, most innovative utility company in North America. The safety benefits of PSEP are well-established, as SoCalGas was responding to a Commission directive to improve public safety in developing the program. The PHMSA promulgation of the Gas Transmission Safety Rules at the

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to reduce fugitive emissions from the natural gas transmission and distribution system by 40% from their 2015 baseline by 2030.

31 SoCalGas's emissions reduction program systematically identifies and repairs leaks as a part of its compliance with the R.15-01-008 proceeding.

32 SoCalGas's SB1371 compliance reports are available at: https://www.socalgas.com/regulatory/R1501008

federal level further complements the actions SoCalGas has taken with PSEP and enhances public safety. The hundreds of miles of SoCalGas pipelines that will ultimately be tested or replaced consistent with the Commission's goal to bring all California in-service natural gas transmission pipelines "into compliance with modern standards for safety,"[33] as well as the hundreds of individual valves that were enhanced, yield a safer system that will benefit ratepayers for years to come.

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

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

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

V. FORECAST PROJECTS

A. Description of Costs and Underlying Activities

As summarized above, this testimony addresses O&M and capital costs associated with the continued prudent implementation of PSEP beginning in test year 2024. PSEP is a safety-related program that was included in SoCalGas's 2021 RAMP filing and remains an important

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[33] R.11-02-019.

control/mitigation of the risk entitled *Incident Related to the High Pressure System (Excluding Dig-in)*. The proposed O&M request primarily includes funding for Phase 2A hydrotest projects, but also includes miscellaneous costs associated with management employee O&M labor (Construction labor costs) and a technology roadmap initiative known as Capital Delivery Technology. The proposed Capital request primarily represents Phase 1B and 2A pipeline replacements,[34] valve projects, and capital elements of the hydrotests, including an allowance for test failures.

1. Description of PSEP RAMP Mitigations

Table BK-10
Description of PSEP RAMP Mitigations

		RAMP		GRC		RAMP	GRC
RAMP ID	Description	Dollar Range ($000's)	Unit Range	Dollar Forecast ($000's)	Unit Forecast	RSE	RSE
SCG-Risk-1 - C22-T3.4	Hydrotesting (Phase 2A GRC Base, O&M)[35]	55,860-67,620	143- 173	50,682	61	24	2
SCG-Risk-1 - C22-T3.4	P2A Capital Replacements for Hydrotests Non-HCA (GRC Base, Capital)	74,845-90,601	n/a[36]	50,899	n/a	n/a	n/a
SCG-Risk-1 - C22-T2.4	PSEP Phase 1B – Pipeline Replacement Non-HCA (GRC Base, Capital)	65,785-79,634	19-23	110,134	25	6	4
SCG-Risk-1 - C22-T3.2	P2A Replacements Non-HCA (GRC Base, Capital)	88,982-107,715	28-33	39,506	20	220	62

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34 Some capital costs are associated with a small number of derate and/or abandonment projects.

35 O&M RAMP and GRC forecasts are presented for TY 2024 only; capital forecasts represent 2022-2024.

36 Units for hydrotest projects are represented in the *Hydrotesting (Phase 2A GRC Base, O&M)* tranche.

		RAMP		GRC		RAMP	GRC
RAMP ID	Description	Dollar Range ($000's)	Unit Range	Dollar Forecast ($000's)	Unit Forecast	RSE	RSE
SCG-Risk-1 - C22-T4.3	Valve Enhancement (GRC base, HCA, Capital)	27,253-32,990	13-16	94,980	56	276	95
SCG-Risk-1 - C22-T4.4	Valve Enhancement Non-HCA (GRC Base, Capital)	5,166 - 6,253	2-2	19,608	19	743	17

B. Forecast Method

1. Zero-based Approach

The forecast method utilized to develop the costs of PSEP projects presented in this application is zero-based. Given the size, scope, and complexity of PSEP projects, a project-specific cost estimate was developed for each pipeline project, based on preliminary engineering and project planning analyses, as described below. However, rather than presenting a forecast that relies on the execution of specific projects in specific years (as was the case in A.17-10-008), SoCalGas is instead requesting authorization to establish a revenue requirement based on an anticipated level of executable spending from a portfolio of 33 Phase 1B and 2A pipeline projects.[37] As such, the capital and O&M forecasts requested in this GRC application will be less than the total costs of the overall portfolio of projects included as supplemental workpapers.[38] This method is most appropriate because many of the projects within this portfolio are located on large-diameter transmission lines that support the overall reliability of SoCalGas's natural gas pipeline system and are thus subject to interactive dependencies. Due to SoCalGas's obligation to maintain gas capacity to support system reliability (a variable factor based on gas demand and therefore outside of SoCalGas's control), previously planned projects that require shut-ins on these lines may be delayed for later execution, which often occurs after

37 The capital portfolio also includes a small number of remaining valve enhancement plan projects.

38 On a project basis (excluding miscellaneous costs) SoCalGas's TY 2024 O&M request of $51M is ~17% of the $295M O&M portfolio presented below. The 2022-2024 capital request of $317M is ~56% of the $570M capital portfolio, which represents capital pipeline projects, capital components of hydrotests, and valves.

detailed design has been completed and a project is ready to be constructed. These circumstances limit SoCalGas's ability to execute projects according to previously determined schedules.

The approach laid out above allows SoCalGas to quickly respond to project execution schedule changes by advancing projects from the overall 33-project portfolio into construction in place of those that are delayed. This maximizes SoCalGas's ability to execute PSEP "as soon as practicable" in accordance with the Commission mandate laid out in D.11-06-017, and in alignment with GRC-authorized spending levels. Further, this approach is consistent with the four over-arching objectives of PSEP: (1) enhance public safety; (2) comply with Commission directives; (3) minimize customer impacts; and (4) maximize the cost effectiveness of safety investments.

2. Estimating Process

The estimating process used to develop cost estimates for PSEP projects has evolved over time. In 2011, SoCalGas retained a third-party consultant to help develop an initial PSEP project cost estimating tool in response to the Commission's June 2011 directive to all California pipeline operators to file proposed hydrotesting implementation plans in August 2011 that "include best available expense and capital cost projections for each Plan component."[39] In 2013, SoCalGas enhanced the tool to increase the number of factors considered in deriving estimates, which enabled the utilities to prepare more comprehensive estimates. Since 2013, SoCalGas has continued to enhance estimate accuracy by incorporating actual costs into the tool as they are incurred in the field. SoCalGas has also formed a dedicated estimating department to increase focus on the quality and accuracy of estimates. These continuous improvements have resulted in a more robust process that incorporates more input from subject matter experts in the various functional areas that contribute to a project's overall cost. These subject matter experts use their expertise and professional experience to provide estimate assumptions for their areas that form the basis of each estimate. Notwithstanding the foregoing improvements and level of rigor, estimates remain estimates, and each PSEP project is unique. As such, both foreseeable and unforeseeable conditions may be encountered during construction that may result in actual expenditures varying from estimates. Furthermore, a

[39] D.11-06-017 at 32 (Ordering Paragraph 9).

minimum of three years will lapse between the completion of the detailed project cost estimates included in this filing and the start of construction. During this three-year period, construction, contractor, and material costs may change, new environmental regulations may be enacted, and other external forces may come into play that may impact what is a reasonable project cost estimate today.

Planning and Engineering Design

For the purpose of developing the project-specific estimates in this Application, SoCalGas undertook the following work:

- Assessment and confirmation of project parameters;
- Site visits;
- Review of feature studies;[40]
- Coordination with Gas Engineering and Pipeline Integrity groups to identify repairs/cut-outs for anomalies and in-line inspection compatibility;
- Development of a pipeline profile using ground elevation data;
- Determination of maximum and minimum allowable test pressures, and corresponding segmentation of the pipeline into test sections;
- Development of a preliminary design for each work site;
- Survey and preparation of base maps;
- Analysis of environmental restrictions to work locations;
- Analysis of seasonal restrictions; and
- Determination of additional valve locations, as required.

Costs associated with planning and engineering design work are incorporated into the project cost estimates in this Application, as indicated in the individual supplemental project workpapers. However, amortization of planning and engineering costs booked to the Pipeline Safety and Enhancement Plan – Phase 2 Memorandum Account (PSEP-P2MA) will be included in the 2024 GRC Reasonableness Review as described in Section VII.A.I.

[40] A feature study depicts and describes the physical components of a pipeline and the attributes associated with those components.

Development of the Project Cost Estimate

As part of the scope definition process described above, subject matter experts representing the following key areas contribute to the estimate development process.

Project Execution

Project Execution subject matter experts provide the following in support of estimate development:

- For replacement projects, analysis of alternatives to replacement (*e.g.*, abandonment, de-rating the line, and non-destructive examination for short segments);
- Validation of appropriate replacement diameter;
- Identification of taps and laterals within hydrotest or replacement segments;
- Assessment of potential system and customer impacts and development of mitigation strategies;
- Identification of pipeline features to be cut out prior to a hydrotest (*e.g.*, pipeline anomalies, non-piggable features, and obsolete appurtenances);
- Identification of potential valve additions;
- Review and approval of scope of work; and
- Review and approval of project-specific hydrotest procedures, when applicable.

Engineering Design

The key responsibility of Engineering Design is to perform the planning and engineering design work necessary to provide a scope of work with sufficient detail to develop more robust project cost estimates. The scope of work is intended to facilitate the approximation of all identifiable cost components up to, and including, the completion of construction and close-out. The typical planning and engineering design scope includes the following considerations:

- Assessment and validation of project extent/parameters;
- Physical visit to job site to gain familiarity with the area;
- Development of preliminary design for each work site;

- Development of pipeline profile;
- Identification of hydrotest segments based on the minimum and maximum allowable test pressures in order to achieve required test pressures; and
- Identification of any special pipeline crossings for replacement projects (*e.g.*, waterways, railroads, freeways, etc.)

Environmental

Environmental subject matter experts provide the following in support of estimate development:

- Detailed analysis of recommended project routing to minimize environmental construction impacts and associated cost impacts;
- Identification of permit conditions and development of costs associated with securing required environmental permits and mitigation costs, where applicable;
- Determination of water treatment costs, as applicable;
- Quantification of water transportation costs, as appropriate; and
- Development of cost estimates for required environmental construction monitoring, sampling/laboratory analysis, abatement, and hazardous material management and disposal.

Construction

The forecast of construction costs incorporates input from SoCalGas subject matter experts and impacted organizations including the following elements:

- Input from contractors with construction expertise;
- Field walk with all parties to capitalize on combined expertise for assessment of constructability issues; and
- Review of engineering design package to determine construction assumptions.

Land Services

Land Services provides the following in support of estimate development:

- Determination of applicable municipal permit requirements and associated costs;
- Identification of potential laydown/staging yards required for individual

projects, and subsequent communication with land owners as required to determine availability; and

- Development of cost estimates associated with laydown yards, temporary construction easements, grants of easement, appraisals, title reports, etc.

Compressed Natural Gas/Liquefied Natural Gas (CNG/LNG) Team

The CNG/LNG Team provides the following in support of estimate development:

- Provision of analyses on impacted customer natural gas loads to determine optimal process for keeping customers online; and
- Development of cost estimates for the provision of CNG/LNG.

Supply Management

To assist in developing cost estimates, Supply Management provides material and logistics-related cost estimates based on a preliminary bill of material developed by the Project Team.

C. Cost Drivers

The fundamental cost driver behind this forecast is the ongoing implementation and execution of PSEP, in compliance with Commission directives and statutory law. PSEP strives to balance the Commission mandate to execute the program as soon as practicable while minimizing impacts to customers (which is a key consideration of SoCalGas's zero-based forecasting approach discussed above), consistent with the four objectives of PSEP. However, certain project-related cost drivers are beyond SoCalGas's control, such as the cost of labor and materials, which have increased globally in recent years. Further, basing the PSEP forecast on an executable level of spending from a portfolio of projects mitigates the risk of year-to-year variances from authorized amounts.

D. Capital Forecast

The following provides an overview of the PSEP capital portfolio, which includes replacement, abandonment, derate, and valve enhancement plan projects.[41] The capital costs associated with hydrotest projects are also included in the capital forecast but are presented within the individual hydrotest project tables shown in Section V.E.1. below,[42] in addition to a description of the costs associated with remediation of hydrotest failures. Table BK-11 summarizes the GRC capital forecasts associated with the Phase 1B and Phase 2A projects described below.

Table BK-11
Test Year 2024 Summary of Capital Forecast Costs
In 2021 (in $000s)

Testimony Area	**2021 Adjusted-Recorded**	**Estimated 2022**	**Estimated 2023**	**Estimated 2024**
Hydrotest Projects[43]	16,391	17,077	13,711	22,223
Replacement Projects[44]	124,306	52,072	54,645	42,923
Valves	50,515	72,360	33,564	8,664
Total Capital	**191,212**	**141,509**	**101,920**	**73,810**

The Phase 1B replacement projects, as explained in Section III, are intended to replace non-piggable pipelines installed prior to 1946 with new pipe constructed using state-of-the-art methods and up to modern standards, including current hydrotest standards. Replacement projects addressing Phase 2A mileage were primarily scoped based on the PSEP Phase 2 Decision tree. Continued work on the Valve Enhancement Plan entails enhancing system safety by installing and upgrading valve infrastructure to support automatic and remote isolation as well

41 Supply Line 44-306/44-307 is characterized as a "retrofit" rather than a replacement as the primary purpose of the project is to integrate the line, formerly known to PG&E as "Line 306", into SoCalGas's pipeline system and make the line piggable in a manner with other projects classified as Phase 1B. *See* Section V.D.2. below for additional information.

42 This section also addresses two projects which include both hydrotest and replacement scopes.

43 Also includes an allowance for hydrotest failures which is presented below as a miscellaneous cost.

44 Also includes derate, abandonment, and retrofit projects but is characterized as "replacements" which are the predominant project type included in the capital portfolio.

as depressurization of the transmission pipeline in 30 minutes or less in the event of a pipeline rupture.

As stated previously, the detailed supplemental workpapers represent the full suite of capital pipeline projects that are candidates for completion within the 2024 GRC period. The aggregate amount of the capital portfolio (which includes capital pipeline projects, capital components of hydrotests, and valves) is approximately $570M, which is more than is being requested in revenue requirement as it is not anticipated that all of these projects will be completed within the GRC period.

1. Capital Pipeline Projects

This section provides brief descriptions of 19 Phase 1B and Phase 2A capital pipeline projects and the remaining scope of the Valve Enhancement Plan. Detailed information regarding each project is provided in the detailed supplemental workpapers (Ex. SCG-08-WPS, Volume I). Table BK-12 depicts the PSEP capital pipeline projects that are candidates for execution within the GRC period.

Table BK-12
GRC Capital Pipeline Projects
(*Direct Costs – Thousands*)

Project	Category	Phase	Capital
38-100	Replacement	2A	1,525
38-539	Replacement	2A	61,131
44-707	Replacement	2A	1,754
44-729	Replacement	2A	2,249
85 North Lake Station to Grapevine Road	Replacement	1B	176,265
159	Replacement	2A	1,116
225 North Coles Levee	Replacement	2A	6,838
235 East Kelso Station	Replacement	2A	3,905
1004 Section 2	Replacement	1B	25,754
Station Piping[45]	Replacement	2A	3,677
44-306/44-307	Retrofit	1B	98,326
41-6000-1	Abandonment	2A	9,528
38-101 Section 3	Derate	1B	9,059
38-2101	Derate	2A	2,835

45 Consists of four small projects that are combined into one workpaper due to similar scopes of work.

Project	Category	Phase	Capital
133	Derate	2A	4,646
38-143	Derate / Replace	1B	5,871
Total Capital Pipeline Costs			**414,479**

2. Capital Pipeline Project Descriptions

Table BK-13
SoCalGas
38-100
(Direct Costs – Thousands)

Project	Type	Location	Mileage	Capital
38-100	Replacement	Kern County	0.01	$1,525

The Supply Line 38-100 Phase 2A Replacement Project will replace approximately 31 feet of pipeline that includes 9 feet of Phase 2A pipe, 22 feet of Incidental pipe, and one existing aboveground plug valve with a ball valve. The Supply Line 38-100 Phase 2A Replacement Project is located in Kern County, approximately 10 miles east of Maricopa, at the connection with Supply Line 38-7057. In order to maintain service to an existing customer, a bypass will be installed. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-14
SoCalGas
38-539
(Direct Costs – Thousands)

Project	Type	Location	Mileage	Capital
38-539	Replacement	Tulare County	12.57	$61,131

The Supply Line 38-539 Phase 2A Replacement Project will replace approximately 12.57 miles of pipeline. The Supply Line 38-539 Phase 2A Replacement Project starts at the intersection of Avenue 96 and Road 112 and ends south of the intersection of Avenue 196 and Road 112 in Tulare County. The replacement will be installed along the route via open trench. Approximately 1.02 miles will be installed in nine separate instances of horizontal directional drill (HDD) and bore methods. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-15
SoCalGas
44-707
(Direct Costs – Thousands)

Project	Type	Location	Mileage	Capital
44-707	Replacement	Santa Barbara County	0.01	$1,754

The Supply Line 44-707 Phase 2A Replacement Project will replace approximately 10 feet of pipeline. The Supply Line 44-707 Phase 2A Replacement Project is an inlet tap that feeds the Mail Road Distribution Regulator Station near the intersection of Mail Road and Domingos Road in the City of Lompoc. The Project will install a bypass on Line 1010 to maintain service during construction. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-16
SoCalGas
44-729
(Direct Costs – Thousands)

Project	Type	Location	Mileage	Capital
44-729	Replacement	Kern County	0.01	$2,249

The Supply Line 44-729 Phase 2A Replacement Project will replace 45 feet of pipe, including 26 ft Phase 2A pipe in Maricopa. The Project will replace 16 ft of pipe on Line 203 and abandon 29 ft of pipe on Supply Line 38-143 for constructability purposes. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-17
SoCalGas
85 North Lake Station to Grapevine
(Direct Costs – Thousands)

Project	Type	Location	Mileage	Capital
85 North Lake Station to Grapevine	Replacement	Kern County	30.04	$176,265

The Line 85 North Phase 1B Lake Station to Grapevine Replacement and Abandonment Project will replace and reroute approximately 21 miles of pipeline. The new pipeline will be rerouted from the existing pipeline alignment to avoid private properties and roads where practical, by installing it along public roadways thus enhancing the safety of the pipeline. The Project will also permanently abandon an approximately 9-mile segment of Line 85 south of the replacement offset to Grapevine Road. The Project starts at Lake Station and ends at Grapevine Road in Kern County. Due to the offset of the new alignment, additional distribution work will be required as part of the project scope, to allow for existing customers to be served from the rerouted alignment. The Project will coordinate construction phasing with the Supply Line 38-101 Section 3 Phase 1B Derate Project to sequence the activities of Line 85. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-18
SoCalGas
159
(Direct Costs – Thousands)

Project	Type	Location	Mileage	Capital
159	Replacement	Santa Barbara County	0.13	$1,116

The Line 159 Phase 2A Replacement Project will replace approximately 670 feet of pipe within the Goleta Storage Facility. The Project will coordinate with planned maintenance activities in order to reduce any impacts to storage facility operations. A nitrogen test will be performed for the 670 feet of new pipe. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-19
SoCalGas
225 North Coles Levee
(Direct Costs – Thousands)

Project	Type	Location	Mileage	Capital
225 North Coles Levee	Replacement	Kern County	0.07	$6,838

The Line 225 North Coles Levee Phase 2A Replacement Project will replace approximately 343 feet of pipeline. The Line 225 North Coles Levee Phase 2A Replacement Project is located at the North Coles Levee Station, northeast of Taft Highway and Tupman Road, in unincorporated Kern County. The existing pipe is of various sizes and will be replaced with new pipe of uniform sizing. Eight valves will also be replaced. Due to capacity constraints, two stopple fittings and an above ground bypass will be installed to maintain Line 225 during the execution of the work. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-20
SoCalGas
235 East Kelso Station
(Direct Costs – Thousands)

Project	Type	Location	Mileage	Capital
235 East Kelso Station	Replacement	San Bernardino County	0.05	$3,905

The Line 235 East Phase 2A Kelso Station Replacement project will replace approximately 0.052 miles of pipeline and replace one mainline valve (MLV). The Line 235 East Phase 2A Kelso Replacement Project is located at the Kelso Compressor Station within San Bernardino County. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-21
SoCalGas
1004 Section 2
(Direct Costs – Thousands)

Project	Type	Location	Mileage	Capital
1004 Section 2	Replacement	Ventura County	2.50	$25,754

The Line 1004 Section 2 Phase 1B Replacement Project will replace and reroute approximately 2.30 miles of pipe in unincorporated Ventura County. The Project will replace and reroute this pipeline with 2.50 miles of pipeline using two HDDs totaling 0.57 miles, open trench installation between the two HDDs and the removal of seven catenary spans. The primary considerations for this route selection are to reduce the risk of susceptibility to landslides and limiting the maintenance constraints associated with environmental resources within the canyons of this region. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-22
SoCalGas
Station Piping
(Direct Costs – Thousands)

Project	Type	Location	Mileage	Capital
Station Piping	Replacement	Various	0.10	$3,677

The Phase 2A Station Piping Replacement Projects will replace approximately 418 feet (ft) of pipeline, including 317 ft of Phase 2A pipe, at four individual Project sites within existing SoCalGas station facilities. The Indio Laterals Phase 2A Replacement Project will replace approximately 113 ft of pipeline in Indio. The Mesa Cathodic Station Phase 2A Replacement Project will replace approximately 76 ft of above ground piping in Ventura. The Project will also replace nine valves. The Newhall - Potrero Phase 2A Replacement Project will replace approximately 179 feet of pipeline in Newhall. The Brea Canyon Road Phase 2A Replacement Project will replace approximately 60 feet of pipeline of varying diameters in location. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-23
SoCalGas
44-306/307
(Direct Costs – Thousands)

Project	Type	Location	Mileage	Capital
44-306/307	Retrofit	San Luis Obispo County	58.26	$98,326

Supply Line 44-306 / Supply Line 44-307 is a 70-mile pipeline between Morro Bay and Kettleman City in Central California.[46] The Supply Line 44-306 / Supply Line 44-307 Retrofit Project will replace approximately 4.58 miles with 6.96 miles of pipeline in multiple segments. The increase in mileage is due to various segments requiring an offset from the existing alignment in order to provide adequate space for construction and to improve overall safety when accessing the pipeline for routine maintenance. The Project will be completed in multiple phases. The Supply Line 44-306 Retrofit Project will replace approximately 0.65 miles pipeline and the Supply Line 44-307 Retrofit Project will replace approximately 3.93 miles of pipeline.

[46] The demarcation of Supply Line 44-306 and Supply Line 44-307 is at Estrella Limiting Station near Paso Robles.

The Supply Line 44-1008 Derate and Abandonment Project will derate approximately 21 miles of existing pipeline and abandon approximately 30 miles of existing pipeline.

The Supply Line 44-1008 Derate and Abandonment Project will derate approximately 21 miles of existing 10-inch pipeline from Shandon to Atascadero, install one new regulator station near the connection of Supply Line 44-1008 and Supply Line 36-9-21, and abandon approximately 30 miles of existing 10-inch pipeline from Avenal to Shandon. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-24
SoCalGas
41-6000-1
(Direct Costs – Thousands)

Project	Type	Location	Mileage	Capital
41-6000-1	Abandonment	Imperial County	7.43	$9,528

The Supply Line 41-6000-1 Phase 2A Abandonment Project will abandon approximately 7.43 miles pipeline, between the cities of Niland and Calipatria in Imperial County. The segment of abandoned pipeline begins at the Niland Regulator Station and ends at the Calipatria Regulator Station to the south. A service tap off Supply Line 41-6000-1 will be switched over to the adjacent Supply Line 41-6001-2 to continue service, facilitated by the installation of a new distribution line and regulator station. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-25
SoCalGas
38-101 Section 3
(Direct Costs – Thousands)

Project	Type	Location	Mileage	Capital
38-101 Section 3	Derate	Kern County	8.21	$9,059

The Supply Line 38-101 Section 3 Phase 1B Derate Project will derate approximately 7.17 miles of pipe between Wheeler Ridge and Lakeview in Kern County. In order to derate the pipeline and maintain customer service, additional distribution work will be required as part of the project scope to allow for existing customers to be served from Supply Line 38-101. The Project will coordinate construction phasing with the Line 85 North Phase 1B Lake Station to

Grapevine Replacement Project to sequence the abandonment activities for Line 85. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-26
SoCalGas
38-2101
(Direct Costs – Thousands)

Project	Type	Location	Mileage	Capital
38-2101	Derate	Kern County	10.01	$2,835

The Supply Line 38-2101 Phase 2A Derate Project will derate approximately 9.00 miles of pipeline and abandon 1.01 miles of pipeline. The Project is located in Kern County beginning at the Delano Station at the intersection of Avenue 24 and Road 112 and ends near the intersection of Avenue 24 and Road 32. In order to derate the line, a new pressure limiting station will be installed at Delano Station. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-27
SoCalGas
133
(*Direct *Costs – Thousands)

Project	Type	Location	Mileage	Capital
133	Derate	Kern County	3.22	$4,646

The Line 133 Phase 2A Derate Project will derate approximately 3.22 miles of pipeline. The Line 133 Phase 2A Derate Project starts approximately 1.20 miles southwest of Lost Hills Road and ends approximately 1.17 miles northeast of Highway 33 and Lokern Road in Kern County. The derate will be completed in one mobilization. In order to derate the pipeline, one regulator station will be installed off of the Line 85 North tap connection. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-28
SoCalGas
38-143
(Direct Costs – Thousands)

Project	Type	Location	Mileage	Capital
38-143	Derate / Replace	Kern County	5.82	$5,871

The Supply Line 38-143 Phase 1B Replacement and Derate Project will replace approximately 0.43 miles of pipeline and derate approximately 4.96 miles of existing pipeline located in Kern County. One regulator station will be installed southeast of Paloma Station to complete the derate. The replacement and derate will be completed in one mobilization. In order to maintain customer service, each tap will require installation of Meter Set Assemblies (MSAs). Additionally, 0.43 miles of pipeline will be abandoned in place. A detailed map included in supplemental workpapers depicts the scope of the project.

Valve Enhancement Plan

Table BK-29
SoCalGas
Valve Enhancement Plan
(Direct Cost- Thousands)

Valve Enhancement Plan	Location	Number of Installations	Capital
	Various	18	$8,339

These costs represent a continuation of the PSEP Valve Enhancement Plan, as described in Section III.C.5 of this testimony, beginning in 2024. The forecasted costs are based on SoCalGas's experience in the design, permitting, and construction of previously executed Valve Enhancement Plan projects. Based on this experience, SoCalGas anticipates that the completion of the Valve Enhancement Plan will occur by 2025. Completion of the Valve Enhancement Plan will achieve SoCalGas's objective of enabling the automatic or remote isolation of transmission pipeline in 30 minutes or less in the event of a pipeline rupture, thereby enhancing the safety of the entire SoCalGas pipeline system.

Table BK-30 details the type of valves to be installed:

Table BK-30
SoCalGas
Valve Enhancement Plan Forecasted Project Types

Planned Enhancement	Number of Installations
Installation of new backflow prevention devices, either with check valve installations or through modifications to existing regulator stations	18

Detailed information regarding the specific pipelines, locations, and valve forecast methodology is contained in the detailed supplemental workpapers (Ex. SCG-08-WPS, Volume I).

3. Line 306 (Supply Line 44-306/307)

SoCalGas submitted a forecast for replacement of its Supply Line (SL) 44-1008 in the 2019 GRC (A.17-10-008). This 51-mile, 10-inch diameter pipeline was installed in 1937 and is located within Kings, Kern, and San Luis Obispo Counties, extending from Atascadero in the south to Avenal in the north. The Commission did not authorize the proposed costs for this project ($153M in direct costs), stating that "the environmental permitting process relating to the project may preclude SoCalGas from even initiating construction during this rate case cycle"[47] and instead determined that "authorization for Line 44-1008 should be requested in SoCalGas's next GRC application."[48]

Prior to the GRC Decision in September 2019, SoCalGas had stated in the 2019 GRC direct testimony that an alternative to the replacement of SL44-1008 was being considered. This alternative materialized with the purchase and interconnection of PG&E's Line 306. Line 306 is a 70-mile, 20-inch diameter pipeline installed in 1962 that roughly parallels SL 44-1008 and continues further west to Morro Bay.

On April 30, 2021, SoCalGas finalized the purchase of Line 306 from PG&E. SoCalGas began considering the purchase because PG&E's Line 306 could be used to provide service to customers in the region without incurring the substantial costs and environmental impacts anticipated with the replacement of SL44-1008. As SoCalGas explained in the Commission

[47] D.19-09-051 at 213.

[48] D.19-09-051 at 766 (Conclusion of Law 42).

proceeding related to the purchase of Line 306 (A.19-04-003), SoCalGas anticipated that the purchase ($25M) and refurbishments/improvements (estimated at the time to be ~$40M) would result in a significant cost savings for ratepayers compared to the estimated cost of replacing Supply Line 44-1008. As discussed further below, the PSEP-related improvements to Line 306 include, but are not limited to, installing in-line inspection tools, replacing non-piggable valves and fittings, hydrotesting and/or replacing various pipeline sections, adding additional service extensions to existing customers, and improving cathodic protection capabilities on the pipeline. SoCalGas has included for Reasonableness Review in this GRC filing the $25M cost associated with the purchase of Line 306 from PG&E.

4. Supply Line 44-306/307 Retrofit Forecasted Costs

In order to comply with the Commission's directive to address PSEP mileage "as soon as practicable," and because the Commission did not make any findings or determinations regarding the purchase and retrofitting of Line 306 in its 2019 GRC Decision, SoCalGas is presenting in this filing the aforementioned retrofit costs on a forecast basis. SoCalGas is now referring to PG&E's Line 306 as Supply Line 44-306/307, following Company naming conventions.

5. Justification of Purchase of Line 306 and Associated Retrofit Costs vs. Replacement of Supply Line 44-1008

The purchase and enhancement of Line 306 as an alternative to full replacement of Supply Line 44-1008 will result in savings to ratepayers. It also comports with the four objectives of PSEP, which are: (1) enhance public safety, (2) comply with the Commission's directives, (3) minimize customer and community impacts, and (4) maximize the cost-effectiveness of safety investments. Currently, SoCalGas estimates that the retrofits needed to integrate SoCalGas's Supply Line 44-306/307 into its distribution system are approximately ~$98M. These costs have increased relative to the original estimate that was developed ($40M), primarily due to subsequent scope refinements. For example, through the acquisition of additional pipeline records and the associated due diligence and records research that occurred subsequent to the development of the original estimate, SoCalGas identified a significant number of non-piggable fittings that will need to be replaced (more than five times the originally estimated amount) as well as the installation of a meter/regulator station. Compared to the original estimated replacement costs for Supply Line 44-1008 ($153M) presented in A.17-10-008, the purchase of Line 306, coupled with the retrofit costs of Supply Line 44-306/307 amounts to an estimated total cost of approximately $123M, saving ratepayers approximately $30M.

E. O&M Forecast

The following provides an overview of the PSEP O&M portfolio, which includes hydrotest projects and certain miscellaneous costs. The section that follows also presents capital costs that are associated with hydrotests, which include replacements that are necessary to facilitate completion of the tests, and an allowance for test failures. Additionally, two hydrotest and replacement-combination projects are described. Table BK-31 summarizes the GRC O&M forecast associated with the Phase 2A hydrotest projects described below, and O&M costs for two types of miscellaneous costs.

Table BK-31
Test Year 2024 Summary of O&M Forecast Costs
In 2021 (in $000s)

Testimony Area	2021 Adjusted-Recorded	TY 2024 Estimated	Change
Hydrotest Projects	61,260	50,682	(10,578)
Miscellaneous Costs	2,822	3,532	710
Total O&M	**64,082**	**54,214**	**(9,868)**

As stated previously, the detailed supplemental workpapers represent the full suite of hydrotest projects that are candidates for completion within the 2024 GRC period. The aggregate amount of the O&M portfolio (excluding miscellaneous costs) is approximately $295M, which is more than is being requested in revenue requirement as it is not anticipated that all of these projects will be completed within this GRC period.

The Phase 2A hydrotest projects, as indicated above in Section III.C.3, are intended to test sections of pipe that do not have sufficient documentation of a hydrotest to at least 1.25x MAOP and are located in Class 1 and 2 non-high consequence areas.

1. Hydrotest Projects

This section provides an overview of 14 Phase 2A hydrotest projects. Detailed information regarding each project is provided in the detailed supplemental workpapers (Ex.

SCG-08-WPS, Volume I). Table BK-32 depicts the Phase 2A PSEP hydrotest projects that are candidates for execution within this GRC period.

Table BK-32
GRC Hydrotest Projects
(*Direct Costs – Thousands*)

Project	Phase	O&M Cost	Cap. Cost	Total Cost
38-362	2A	$6,323	$3,521	$9,844
38-504	2A	$446	$149	$595
225 South	2A	$10,453	$3,916	$14,369
235 East Section 1	2A	$42,485	$14,635	$57,120
235 East Section 2	2A	$34,911	$13,088	$47,999
Line 257	2A	$2,083	$588	$ 2,671
404 Section 12	2A	$3,804	$1,771	$5,576
406	2A	$24,126	$9,973	$34,099
1004	2A	$2,511	$1,163	$3,674
1005	2A	$13,794	$5,321	$19,115
3000 East	2A	$75,751	$39,350	$115,100
4000	2A	$72,506	$33,930	$106,435
36-9-09 North	2A	$553	$1,658	$2,211
38-952	2A	$4,960	$17,688	$22,648
Total Hydrotest Project Costs		**$294,706**	**$146,751**	**$441,457**[49]

a. Hydrotest Project Descriptions

Table BK-33
SoCalGas
38-362
(Direct Costs – Thousands)

Project	Location	Mileage	O&M	Capital
38-362	Kern County	7.31	$6,323	$3,521

The Supply Line 38-362 Phase 2A Hydrotest Project will hydrotest approximately 7.31 miles of pipe in Kern County. The Project begins north of the Interstate 5 freeway northbound rest stop near Buttonwillow to the intersection of Fresno Avenue and Palm Avenue. The Project includes the replacement of 13 taps and three pipeline features in order to facilitate the hydrotest. A detailed map included in supplemental workpapers depicts the scope of the project.

[49] Differences due to rounding.

Table BK-34
SoCalGas
38-504
(Direct Costs – Thousands)

Project	Location	Mileage	O&M	Capital
38-504	Kings County	1.34	$446	$149

The Supply Line 38-504 Phase 2A Hydrotest Project will hydrotest approximately 1.34 miles of pipeline in Hanford. The Project runs along Lacey Boulevard, starting near Highway 43 and ending at South 6th Street. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-35
SoCalGas
225 South
(Direct Costs – Thousands)

Project	Location	Mileage	O&M	Capital
225 South	Angeles National Forest	10.60	$10,453	$3,916

Line 225 South Phase 2A Hydrotest Project will hydrotest approximately 10.60 miles of pipeline. The Line 225 South Phase 2A Hydrotest project begins on the south end of Angeles National Forest and continues north through Angeles National Forest. The Project will be split into six hydrotest sections due to hydrotest pressure limitations. The Project will also replace one MLV. The hydrotest will be completed in one mobilization. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-36
SoCalGas
235 East Section 1
(Direct Costs – Thousands)

Project	Location	Mileage	O&M	Capital
235 East Section 1	San Bernardino County	58.08	$42,485	$14,635

The Line 235 East Section 1 Phase 2A Hydrotest Project will hydrotest approximately 58.08 miles of pipeline. The Project begins at the North Needles Compressor Station and ends at the Kelso Compressor Station. This Project consists of 25 hydrotest segments due to elevation changes to compensate for the hydrotest pressure limitations. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-37
SoCalGas
235 East Section 2
(Direct Costs – Thousands)

Project	Location	Mileage	O&M	Capital
235 East Section 2	San Bernardino County	56.33	$34,911	$13,088

The Line 235 East Section 2 Phase 2A Hydrotest Project will hydrotest approximately 56.33 miles of natural gas pipeline and install one MLV. The Project begins in Kelso and ends in Newberry Springs. This Project consists of 16 hydrotest segments due to elevation changes to compensate for the hydrotest pressure limitations. Section 2 will be isolated to accommodate the timely completion of hydrostatic activities. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-38
SoCalGas
Line 257
(Direct Costs – Thousands)

Project	Location	Mileage	O&M	Capital
Line 257	Santa Barbara County	0.02	$2,083	$588

The Line 257 Phase 2A Hydrotest Project will hydrotest approximately 24 feet of pipeline within the Goleta storage field. The Project will hydrotest the pipeline in two test sections and the project will be completed in one mobilization and one demobilization. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-39
SoCalGas
404 Section 12
(Direct Costs – Thousands)

Project	Location	Mileage	O&M	Capital
404 Section 12	Ventura County	6.07	$3,804	$1,771

The Line 404 Section 12 Phase 2A Hydrotest Project will hydrotest approximately 6.07 miles of pipeline. The Project starts east of Oak Park near Sheep Corral Trail within unincorporated Ventura County and ends at Westside Station in Woodland Hills. Line 404 and

Line 406 provide critical redundancy for the communities between Ventura and Los Angeles and are required to fully utilize the Goleta storage field. The hydrotest will be executed in two segments due to elevation and be completed in one mobilization. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-40
SoCalGas
406
(Direct Costs – Thousands)

Project	Location	Mileage	O&M	Capital
406	Ventura County	14.32	$24,126	$9,973

The Line 406 Phase 2A Hydrotest Projects will hydrotest approximately 14.32 miles of pipeline across six individual Project Sections. Line 404 and Line 406 provide critical redundancy for the coastal communities between Ventura and Los Angeles and are required to fully utilize the Goleta storage field. The Projects start in Ventura and end in Thousand Oaks. The Line 406 Section 11 Phase 2A Hydrotest Project will hydrotest approximately 3.72 miles of pipeline in six test segments due to elevation. The Line 406 Section 12 Phase 2A Hydrotest Project will hydrotest approximately 1.39 miles of pipeline in two test segments due to elevation. The Line 406 Section 13 Phase 2A Hydrotest Project will hydrotest approximately 1.92 miles of pipeline. The Line 406 Section 14 Phase 2A Hydrotest Project will hydrotest approximately 4.56 miles of pipeline. The Line 406 Section 15 Phase 2A Hydrotest Project will hydrotest approximately 1.65 miles of pipeline in two test segments due to elevation. The Line 406 Section 16 Phase 2A Hydrotest project will hydrotest approximately 1.11 miles of pipeline in two test segments due to elevation. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-41
SoCalGas
1004
(Direct Costs – Thousands)

Project	Location	Mileage	O&M	Capital
1004	Ventura County	0.43	$2,511	$1,163

The Line 1004 Phase 2A Hydrotest Project will hydrotest approximately 0.43 miles of pipe just west of the city of Ventura in unincorporated Ventura County. The hydrotest will be executed in one hydrotest section and the Project will be completed in one mobilization. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-42
SoCalGas
1005
(Direct Costs – Thousands)

Project	Location	Mileage	O&M	Capital
1005	Ventura County	15.20	$13,794	$5,321

The Line 1005 Phase 2A Hydrotest Project will hydrotest approximately 15.20 miles of pipeline. The Line 1005 Phase 2A Hydrotest Project starts east of Carpinteria in unincorporated Santa Barbara County and ends in unincorporated Ventura County, north of the intersection of Highway 126 and Highway 101. The hydrotest will be completed in 14 hydrotest segments and the Project will be completed in one mobilization. To facilitate water management, the Project will use approximately 0.98 miles of existing pipeline as a conduit for water transfer and this segment of existing pipeline will not be hydrotested. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-43
SoCalGas
3000 East
(Direct Costs – Thousands)

Project	Location	Mileage	O&M	Capital
3000 East	San Bernardino County	115.15	$75,751	$39,350

The Line 3000 East Phase 2A Hydrotest project will hydrotest approximately 115.15 miles of pipe. The Project is located in San Bernardino County, starting in the City of Needles and traveling near Interstate 40 to Newberry Springs. The Project will be divided into 49 hydrotest sections to address limitations due to elevation changes. The hydrotest sections will be executed in four separate hydrotest bundles: Hydrotest Bundle 1 (Needles #1) will complete 13 hydrotest sections, Hydrotest Bundle 2 (Needles #2) will complete 13 hydrotest sections, Hydrotest Bundle 3 (Newberry #1) will complete 13 hydrotest sections, and Hydrotest Bundle 4 (Newberry #2) will complete 10 hydrotest sections. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-44
SoCalGas
4000
(Direct Costs – Thousands)

Project	Location	Mileage	O&M	Capital
4000	San Bernardino County	45.85	$72,506	$33,930

The Line 4000 Phase 2A Hydrotest project will hydrotest approximately 45.67 miles of pipe and replace 787 feet of 30-inch station pipe. The Project is located in San Bernardino County between Newberry Compressor Station and Fontana Station. The Project starts south of Newberry Springs, traversing through Lucerne Valley, Hesperia, the Cajon Pass, and follows Interstate 15 ending at Duncan Canyon Road in Fontana. The Project will be divided into 45 hydrotest sections to address limitations due to elevation changes. The hydrotest sections will be executed in five separate groups: Hydrotest Group 1 (Newberry Springs #1) will complete 13 hydrotest sections, Group 2 (Newberry Springs #2) will complete 12 hydrotest sections, Group 3 (Apple Valley) will complete 13 hydrotest sections, Group 4 (Hesperia) will complete 14 hydrotest sections, and Group 5 (Fontana) will complete one hydrotest section. A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-45
SoCalGas
36-9-09 North
(Direct Costs – Thousands)

Project	Location	Mileage	O&M	Capital
36-9-09 North	San Luis Obispo County	0.52	$553	$1,658

The Supply Line 36-9-09 North Phase 2A Hydrotest and Replacement Project will remove and replace approximately 0.40 miles of pipeline and hydrotest approximately 664 feet (ft) of pipeline in two Project Sections. Supply Line 36-9-09 North Section 11 Phase 2A Hydrotest Project is located west of Highway 101, this section will hydrotest approximately 664 ft of pipeline and install one MLV. Supply Line 36-9-09 North Section 13 Phase 2A Replacement Project is located east of Highway 101 in San Luis Obispo County, this section will remove and replace approximately 0.40 miles of existing pipeline within the existing right of way (ROW). A detailed map included in supplemental workpapers depicts the scope of the project.

Table BK-46
SoCalGas
38-952
(Direct Costs – Thousands)

Project	Location	Mileage	O&M	Capital
38-952	Kern County	9.22	$4,960	$17,688

The Supply Line 38-952 Phase 2A Hydrotest and Replacement Project will hydrotest approximately 6.59 miles and replace approximately 2.49 miles of 12-inch pipeline. The Project is located in Kern County, beginning approximately 2.75 miles northeast of the intersection of State Route 33 and State Route 46 and ends approximately 0.82 miles northeast of Interstate 5. The Project was divided into three sections. Section 1 and Section 3 will be hydrotested and Section 2 will be replaced and rerouted. Section 2 will be replaced in order to make the pipeline piggable which includes the removal of two existing pipeline spans over aqueducts, one aboveground span that is approximately 600 feet, and one submerged span that is approximately 35 feet. The new Section 2 pipeline will be rerouted from the existing pipeline alignment to avoid an oil field, orchards, private properties and roads where practical, by installing it along public roadways thus enhancing the safety of the pipeline. The Project will be completed in one mobilization and one demobilization. A detailed map included in supplemental workpapers depicts the scope of the project.

2. Construction Miscellaneous Costs

Table BK-47
Construction Miscellaneous Cost Summary
(Direct Costs – Thousands)

Cost Category	O&M	Capital	Total
Allowance for Test Failures	$0	$2,087[50]	$2,087
Construction Labor Costs	$1,140	$0	$1,140
Capital Delivery Technology	$2,392	$0	$2,392
Total Miscellaneous Costs	**$3,532**	**$2,087**	**$5,619**

a. Allowance for Test Failures

Hydrotest projects described above do not include costs related to a test failure, as such occurrences are expected to be infrequent. Therefore, SoCalGas is including an allowance for

[50] These costs are incorporated within the capital components of hydrotests in Section V.D. above.

test failures as a part of the capital forecast for PSEP in this GRC (an allowance for pipeline failures was previously approved in D.19-09-051). Costs associated with a test failure, which are characterized as capital due to the need to replace sections of pipe that are determined to have contributed to the test failure, may consist of the use of helium/nitrogen tracer gas or other methods to determine the source of a test failure, replacement of the affected pipe segment, costs incurred to achieve water containment (as needed), and the costs of re-testing the segment. Recent hydrotest projects show SoCalGas has experienced eight test failures out of a total of 18 test projects, totaling 157 miles. The allowance is therefore based on a ratio of one test failure to approximately 20 miles of hydrotests, which has been extrapolated to the total forecasted miles of pipe to be hydrotested in the GRC period. Additional information regarding the derivation of these costs is included in the Construction Miscellaneous Costs supplemental workpapers (Ex. SCG-08-WPS, Volume VI).

3. Construction Labor Costs

In 2019, the PSEP organization, along with other departments that execute major projects, were aligned into an overarching Construction organization. SoCalGas's vision for this organization was to create a scalable, consistent framework for infrastructure project management and execution. The primary objective of aligning the various departments making up this organization under one common leadership and execution framework was to promote consistency in the application of project management and execution practices across the portfolio of major projects. This is achieved through the use of a Capital Delivery Model (CDM), which was initially pioneered at SoCalGas by the PSEP program (also known as the stage-gate process).[51] CDM is a comprehensive approach to achieving excellence in delivering energy infrastructure projects and programs. It encompasses key components required for planning, managing, and executing construction projects, and is broadly applicable to a diverse range of projects.

The large and complex programs comprising the Construction organization portfolio require appropriate governance and management to achieve the goals of CDM. Therefore, a wide variety of personnel across a variety of departments encompassing the Program

[51] The Stage Gate process is further described below in Section VI.C.2.

Management Office (PMO), Project Development and Management teams, Budgeting and Administration group, Construction Operations, and executive leadership must oversee and evaluate the portfolio in order to apply the practices discussed above consistently. As such, these individuals do not charge their time to individual projects. These individuals execute many crucial roles for the organization, including organizational level oversight, development of policies to promote standardization and accountability, managing portfolio budgeting, and creating reporting metrics to keep management apprised of progress for all construction projects.

This testimony includes O&M labor and non-labor costs associated with the individuals that have been identified within the organization to support these efforts, as PSEP constitutes the primary O&M spend within the organization. Additional information regarding the derivation of these costs is included in the Construction Miscellaneous Costs supplemental workpapers (Ex. SCG-08-WPS, Volume VI). Capital costs for this section are addressed in the Gas Engineering testimony of Maria Martinez (Ex. SCG-07).

4. Capital Delivery Technology

The Construction organization established a technology roadmap which identified tools and technology that will drive process standardization and consistency to mitigate regulatory risk, achieve efficiency and better productivity, and provide visibility to data that is imperative to making informed business decisions. The Construction organization will implement these tools and technology identified in the roadmap during the GRC period. The forecasted O&M costs include organizational change management, training, and data migration project costs that cannot be capitalized during the IT project implementation. In addition, costs also include incremental resources to support end user adoption, provide business support, optimize functions, enhance capabilities, and perform tool and database maintenance. These costs are composed of the necessary O&M support associated with the IT project technology enhancements. Additional information regarding the derivation of these costs is included in the Construction Miscellaneous Costs supplemental workpapers (Ex. SCG-08-WPS, Volume VI). Capital costs for this section are addressed in the Information Technology testimony of Jamie Exon (Ex. SCG-21, Chapter 2) and the business justification for the enhancements is contained in the Gas Systems Staff and Technology testimony of Wallace Rawls (Ex. SCG-05).

5. Line 235 West

In A.17-10-008, as part of its PSEP testimony, SoCalGas presented two hydrotest projects (Line 235 West Section 1 and Line 235 West Section 2) on Line 235. These projects proposed to hydrotest approximately 45 miles of pipe that do not have sufficient documentation of a hydrotest to at least 1.25 times the MAOP. The location of the hydrotests was between Newberry Station in Newberry Springs, CA, and the east side of the Mojave River span near Victorville, CA.

In D.19-09-051 the Commission did not authorize the Line 235 West Sections 1 and 2 hydrotests, expressing concerns with Line 235 due to ongoing Transmission Integrity Management Program (TIMP) repairs resulting from the October 1, 2017, pipeline rupture and the ongoing work to repair numerous leaks on the pipeline which was necessary to bring the pipeline back to service. The Commission expressed concern that the repaired segments on Line 235 would be accounted for in both TIMP and PSEP, and ordered SoCalGas to "file a Tier 2 Advice Letter at the conclusion of Line 235 West Sections 1 and 2 testing or replacement with clear accounting delineations of which costs are subject to the Transmission Integrity Management Program (TIMP) and which costs are subject to the Pipeline Safety Enhancement Plan (PSEP) before any associated Line 235 PSEP hydrotesting costs can be placed into rates for recovery."[52]

SoCalGas is proposing to replace Line 235 West in the same vicinity as the PSEP hydrotest described above in the joint testimonies of Travis Sera & Amy Kitson (Gas Integrity Management Programs, Ex. SCG-09), and Rick Chiapa, Steve Hruby, and Aaron Bell (Gas Transmission Operations and Construction, Ex. SCG-06). In the event the Commission instead authorizes SoCalGas to proceed with the repair option (discussed in the same testimonies) instead of full replacement, hydrotesting of the line will still be required to comply with PSEP. Due to the non-contiguous nature of the replacement sections, which total approximately 15 miles compared to the 45-mile length of the hydrotest, it is anticipated that the scope of the PSEP hydrotest will be approximately the same as presented in A.17-10-008 (Line 235 West Sections 1 and 2). As with any PSEP project, the scope development of the hydrotest project will be coordinated with TIMP prior to the execution of the hydrotest. If the repair option is selected,

[52] D.19-09-051 at 779 (Ordering Paragraph 13).

SoCalGas will record the costs of the hydrotest to the Line 235 memorandum account (as ordered in D.19-09-051), clearly delineating which costs are attributed to PSEP and TIMP.

VI. PSEP REASONABLENESS REVIEW

A. Introduction

The purpose of this section is to present for reasonableness review the activities associated with the PSEP projects completed primarily between December 2015 and December 2020, representing approximately 80 miles of transmission pipeline and 116 valves. This testimony describes the prudent oversight, project execution, and proactive cost management measures taken by SoCalGas in the continuing implementation of SoCalGas's PSEP.

First, I will explain how, through prudent execution of the 21 pipeline and bundled valve projects, SoCalGas complied with the directives in D.11-06-017 and subsequent Commission decisions, as well as California Public Utilities Code Sections 957 and 958.

Second, I will describe how:

- the PSEP organizational framework promotes prudent program and project oversight;
- the prudent execution of PSEP projects mitigates obstacles to maximize efficiencies and complete construction as soon as practicable; and
- SoCalGas prudently manages PSEP costs for the benefit of customers.

Finally, this section demonstrates the prudence with which SoCalGas continues to execute its PSEP and the reasonableness of the costs presented for review and recovery. Our actions have enhanced safety, complied with Commission and statutory directives, minimized impacts to customers and communities, and avoided and reduced costs for the benefit of customers. SoCalGas acted as a reasonable manager of PSEP by carefully considering information that was known at the time decisions were made, exercised experienced and professional judgment in its decision-making, and therefore, should be granted full recovery of the revenue requirements requested. As discussed in the testimony of Rae Marie Yu (Ex. SCG-38), this amount reflects the 50% interim rate recovery subject to refund approved by the Commission in D.16-08-003.

B. Reasonableness Review Projects

Presented in this testimony is the reasonableness of the $426 million in capital expenditures and $35 million in O&M expenditures incurred in executing the projects, the reasonableness of $25 million in expenditures for the purchase of Line 306, and the reasonableness of $13 million in expenditures for other costs incurred to execute PSEP. As part of this testimony, as authorized by D.14-06-007, I will explain the project cost components, application of the Commission-approved Decision Tree for PSEP pipeline projects, the calculation of disallowed project costs, and provide a reconciliation of the "as filed" mileage as compared to the actual mileage.

The costs in this chapter provide the basis for determining the revenue requirements recorded in SoCalGas's SECCBAs and SEEBAs, Pipeline Safety Enhancement Plan Memorandum Account (PSEPMA) and PSEP-P2MA. As demonstrated in this testimony and workpapers, these PSEP costs were reasonably incurred, and the associated revenue requirements are justified for rate recovery.

To facilitate the review process and ease of reference, detailed information for each project is included in the supporting project workpapers, which are voluminous and available upon request. The information contained in this chapter is designed to provide a summary of the projects and associated costs.

1. Project Cost Components

The costs presented in this chapter are those incurred through December 2020. The revenue requirement treatment associated with these costs will be addressed in the Regulatory Accounts testimony of Rae Marie Yu (Ex. SCG-38). The project costs included in this chapter include costs incurred in direct support of individual hydrotest, replacement, derate or abandonment projects; project support costs not directly tied to a specific project and incurred to support overall implementation of PSEP,[53] and indirect costs.[54] Project costs may include both capital and O&M expenditures, depending on the specifics of the project. For example, the

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[53] PSEP organizational costs not attributable to a specific project (*i.e.*, PSEP General Management and Administration costs) are allocated to hydrotest, replacement, abandonment, and valve projects.

[54] Certain company overhead costs are deemed incremental to PSEP and subject to recovery as they are associated with incremental PSEP activities. The applicable incremental overheads are included in the costs presented for review in this Application.

majority of work associated with hydrotesting is considered O&M. As part of the normal hydrotesting process, however, a section of the existing pipeline is removed to accommodate the temporary test heads that are used to conduct the hydrotest. After the line is tested and the temporary test heads are removed, a new section of pipe is installed to "tie-in" the just-tested segment to the pipeline on either end of the segment. The tie-in pipe is new pipe and is capitalized in accordance with SoCalGas's accounting policy.

2. Summary of Project Costs

a. Pipeline Replacement Projects

Table BK-48
Replacement Projects
Summary of Capital and O&M Costs (in $000's)

Project	Capital	O&M	Total
30-18 Section 2 Replacement	$10,906	$ -	$ 10,906
33-120 Section 1 Replacement Project	$ 12,477	$ -	$ 12,477
36-1032 Replacement Section 4	$ 6,106	$ -	$ 6,106
36-9-09 North Section 5B-02 and 5C Replacement	$ 13,746	$ -	$ 13,746
36-9-09 North 6B Replacement Project	$ 15,916	$ -	$ 15,916
36-9-21 Replacement	$ 6,796	$ -	$ 6,796
37-18 K Replacement	$ 16,813	$ -	$ 16,813
38-101 Wheeler Ridge Replacement Project	$ 14,443	$ -	$ 14,443
41-6001-2 Replacement	$ 723	$ -	$ 723
43-121 North Replacement	$ 22,642	$ -	$ 22,642
45-120 Section 2 Replacement Project	$ 92,044	$ -	$ 92,044
404 Section 4A Replacement Project	$ 18,672	$ -	$ 18,672
404-406 Replacement Project Somis Station	$ 9,388	$ -	$ 9,388
2006-P1A Replacement Project	$ 5,391	$ -	$ 5,391
Total	**$ 246,063**	$ -	$ 246,063

a. Hydrotest Projects

Table BK-49
Hydrotest Projects
Summary of Capital and O&M Costs (in $000's)

Project	Capital	O&M	Total
33-121 Hydrotest	$ -	$ 4,589	$ 4,589
2000-D Hydrotest Whitewater to Moreno	$ 2,665	$ 7,672	$ 10,337
2001 West-C Desert Hydrotest	$ 2,065	$ 11,091	$ 13,156
2001 West-D Whitewater Hydrotest	$ 1,294	$ 5,645	$ 6,939
Storage - Goleta	$ 1,597	$ 5,917	$ 7,514
Total	**$ 7,621**	**$ 34,914**	**$ 42,535**

b. Abandonment Projects

Table BK-50
Derate and Abandonment Projects
Summary of Capital and O&M Costs (in $000's)

Project	Capital	O&M	Total
41-6000-2 Abandonment & Tie-Over	$ 35,971	$ -	$ 35,971
103-P1B-01 Derate Project	$ 1,486	$ -	$ 1,486
Total	**$ 37,457**	**$ -**	**$ 37,457**

c. Valve Bundle Projects

Table BK-51
Valve Projects
Summary of Capital and O&M Costs (in $000's)

Project	Capital	O&M	Total
29 Palms Valve Enhancement Project Indian Canyon	$ 1,497	$ -	$ 1,497
29 Palms Valve Enhancement Project Mohawk Trail	$ 980	$ -	$ 980
29 Palms Valve Enhancement Project Sunburst Street	$ 1,440	$ -	$ 1,440
29 Palms Valve Enhancement Project Utah Trail	$ 1,287	$ -	$ 1,287
225 Valve Enhancement Project - Beartrap	$ 1,262	$ -	$ 1,262
225 Valve Enhancement Project - Quail Canal	$ 1,260	$ -	$ 1,260
404-406 Somis Yard Valve Enhancement Project	$ 1,279	$ -	$ 1,279
404-406 Valley Bundle Valve Enhancement Project	$ 11,328	$ -	$ 11,328
1014 Olympic Valve Enhancement Project	$ 8,406	$ -	$ 8,406
1018 Valve Enhancement Project - Alipaz Street	$ 1,871	$ -	$ 1,871
1018 Valve Enhancement Project - Avery Parkway	$ 1,257	$ -	$ 1,257
1018 Valve Enhancement Project - Burt Transmission	$ 2,824	$ -	$ 2,824
1018 Valve Enhancement Project - Camino Capistrano	$ 4,374	$ -	$ 4,374
1018 Valve Enhancement Project - El Toro Road	$ 2,408	$ -	$ 2,408
1018 Valve Enhancement Project - Harvard & Alton	$ 3,103	$ -	$ 3,103
2000 Beaumont Riverside 2016 Valve Enhancement Bundle	$ 5,944	$ -	$ 5,944
4000 Valve Enhancement Project - PowerRoad	$ 1,402	$ -	$ 1,402
4000-P1B Valve Enhancement Project - Camp Rock Road	$ 1,340	$ -	$ 1,340
4000-P1B Valve Enhancement Project - Desert View Road	$ 1,953	$ -	$ 1,953
4000-P1B Valve Enhancement Project - Devore Station	$ 1,548	$ -	$ 1,548
7000 Valve Enhancement Project - Road 68 & Avenue 232	$ 2,000	$ -	$ 2,000
7000 Valve Enhancement Project - Road 96 & Avenue 198	$ 2,225	$ -	$ 2,225
7000 Valve Enhancement Project - Beech & Highway 46	$ 3,560	$ -	$ 3,560
7000 Valve Enhancement Project - Melcher & Elmo	$ 3,831	$ -	$ 3,831
7000 Valve Enhancement Project - Visalia Station	$ 555	$ -	$ 555
Adelanto Valve Enhancement Project MLV 4	$ 735	$ -	$ 735
Apple Valley Valve Enhancement Project - MLV 13	$ 416	$ -	$ 416
Apple Valley Valve Enhancement Project - MLV 2	$ 1,402	$ -	$ 1,402
Aviation & 104th Valve Enhancement Project	$ 9,645	$ -	$ 9,645
Banning 2001 Valve Enhancement Project - MLV 14.3	$ 1,397	$ -	$ 1,397

Project	Capital	O&M	Total
Banning 2001 Valve Enhancement Project - MLV 14A	$ 1,241	$ -	$ 1,241
Banning 2001 Valve Enhancement Project - MLV 16A	$ 1,432	$ -	$ 1,432
Banning 2001 Valve Enhancement Project - MLV 17A	$ 1,930	$ -	$ 1,930
Banning Airport Valve Enhancement Project	$ 2,094	$ 6	$ 2,100
Blythe Valve Enhancement Project - Cactus City	$ 1,828	$ -	$ 1,828
Brea Valve Enhancement Project - Atwood Station	$ 1,085	$ -	$ 1,085
Brea Valve Enhancement Project - Chino Hill & Carbon Canyon	$ 489	$ -	$ 489
Brea Valve Enhancement Project - Gale & Azusa	$ 454	$ -	$ 454
Brea Valve Enhancement Project - Sapphire & Brea Canyon	$ 1,361	$ -	$ 1,361
Burbank Valve Enhancement Project - Riverside & Agnes	$ 936	$ -	$ 936
Carpinteria Valve Enhancement Project - Oxy & Rincon	$ 1,237	$ -	$ 1,237
Del Amo Station Valve Enhancement Project	$ 1,542	$ -	$ 1,542
Fontana 4002 Valve Enhancement Project - Benson & Chino & Tronkeel	$ 1,566	$ -	$ 1,566
Fontana 4002 Valve Enhancement Project - Etiwanda & 4th	$ 1,266	$ -	$ 1,266
Glendale Valve Enhancement Project	$ 539	$ -	$ 539
Indio Valve Enhancement Project - MLV 9	$ 1,392	$ -	$ 1,392
Indio Valve Enhancement Project - MLVs 10, 10A, & 10B	$ 1,998	$ -	$ 1,998
Indio Valve Enhancement Project - MLVs 8, 8A, & 8B	$ 2,148	$ -	$ 2,148
Pallowalla Valve Enhancement Project	$ 2,192	$ -	$ 2,192
Rainbow 2017 Valve Enhancement Project - Martin & Ramona	$ 1,908	$ -	$ 1,908
Rainbow Valve Enhancement Project - MLV 5	$ 1,998	$ -	$ 1,998
Rainbow Valve Enhancement Project - Newport & Briggs	$ 514	$ -	$ 514
Rainbow Valve Enhancement Project - Ramona & Lakeview	$ 466	$ -	$ 466
Rainbow Valve Enhancement Project - Scott & El Centro	$ 515	$ -	$ 515
Rainbow-P1B Valve Enhancement Project - Rainbow Valley	$ 372	$ -	$ 372
Santa Barbara Valve Enhancement Project - Lions	$ 2,845	$ -	$ 2,845
Spence Station Valve Enhancement Project	$ 1,704	$ -	$ 1,704
Supply Line 45-120 Valve Enhancement Project	$ 1,091	$ -	$ 1,091
Taft Valve Enhancement Project - 7th Standard	$ 1,357	$ -	$ 1,357
Taft Valve Enhancement Project - Buttonwillow	$ 1,419	$ -	$ 1,419
Taft Valve Enhancement Project - Hageman & Renfro	$ 8,150	$ -	$ 8,150
Taft Valve Enhancement Project - Sycamore	$ 1,340	$ -	$ 1,340
Victorville Valve Enhancement Project - MLV 11	$ 309	$ -	$ 309
Victorville Valve Enhancement Project - MLV 12	$ 529	$ -	$ 529
Western Del Rey Valve Enhancement Project - Mississippi & Armacost	$ 495	$ -	$ 495
Wilmington Valve Enhancement Project - Eubank Station	$ 796	$ -	$ 796
Total	**$ 135,067**	**$ 6**	**$ 135,073**

d. L306 (Supply Line 44-306/307) Purchase in Lieu of Replacement

As described in Forecast Section V.D.2, SoCalGas is requesting cost recovery for the $25M acquisition cost for PG&E Line 306. The acquisition cost is a necessary expenditure to achieve the cost savings for ratepayers as described Section V.D.2.

As indicated in D. 20-03-018, the Commission authorized PG&E to sell its local gas transmission Line 306 to Southern California Gas Company for $25 million and further concluded that the sale was "not adverse to the public interest pursuant to Public Utilities Code Section 851."[55] The acquisition of L306 allows SoCalGas to use this property "for other productive purposes without interfering with the utility's operation or affecting service to utility customers."[56] The acquisition cost is currently booked to the PSEPMA.

During the due diligence conducted by SoCalGas to assess the viability and reasonableness of a potential purchase of Line 306, SoCalGas conducted on-site visits at PG&E to review pipeline records. A team of nine SoCalGas subject matter experts reviewed extensive documentation and record information pertaining to Line 306. The purpose of the review was to evaluate the line's current condition, identify potential retrofits required, and to make a recommendation on whether to have further discussions to purchase the line. By the close of escrow approximately 2,500 files of information related to Line 306 had been reviewed.

The review consisted of the following main areas of focus:

- Cathodic protection records indicating miles/stationing to determine how many miles are under cathodic protection, the location and output of rectifiers, the location and output of anodes, and associated supporting records.
- Geographic Information System (GIS) data to determine piggability through the total number and location of ells, bends, other fittings, valves (by type), pig launchers/receivers, pipe diameter changes/specifications, regulator/pressure limiting stations, and taps.
- Review of the past five years of maintenance records, including leaks (including grade, location, disposition, cause, repair methodology, and leak repair order), transmission integrity information, records of any other pipeline digs, planned integrity assessments, known asbestos or other environmental hazards, contract delivery pressure and volume, facilities descriptions, and any potential compliance items.

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[55] D. 20-03-018 at 8.

[56] D. 20-03-018 at 7.

At the conclusion of the review, the SoCalGas subject matter experts concluded that Line 306 was in good condition for a pipeline of its vintage and could be considered for purchase. Prior to executing the purchase agreement, SoCalGas obtained internal review and approval to proceed with the purchase.

As described in Section V.D.2, the purchase of Line 306 was a prudent acquisition by SoCalGas because the purchase and retrofits provide a more cost-effective alternative to customers than replacing Supply Line 44-1008. The Commission should find the purchase of Line 306 by SoCalGas reasonable for the same reasons outlined in D.20-03-18 discussing the sale of the line by PG&E.

3. Miscellaneous Costs

SoCalGas has also incurred various miscellaneous costs that were necessary to execute PSEP. Table BK-52 includes a summary of these costs:

Table BK-52
Miscellaneous Costs
Summary of Costs (in $000's)

Cost Type	Capital	O&M	Total
Phase 2 Memorandum Account	$ -	$ 4,544	$ 4,544
Post-Completion Construction	$ 2,517	$ 1,179	$ 3,697
Facilities Lease	$ -	$ 2,470	$ 2,470
Descoped Projects	$ -	$ 713	$ 713
Delcon Migration Project	$ -	$ 1,110	$ 1,110
Total	**$ 2,517**	**$ 10,016**	**$ 12,533**

a. Phase 2 Memorandum Account

D.16-08-003 authorized the creation of the PSEP-P2MA (Phase 2 Memorandum account) to record planning and engineering design cost associated with Phase 2A projects included in the TY 2019 GRC (A.17-10-008). The PSEP-P2MA was necessary to record these costs as Phase 2 had yet to be approved by the Commission. SoCalGas indicated in A.17-10-008 that amortization of these costs would be included in a future proceeding as authorized under D.16-08-003.[57,58] Costs recorded in the PSEP-2MA were not included in the PSEP revenue

57 Reference R. Phillips GRC testimony page RDP-A-21.

58 D.16-08-003 at 14 (Ordering Paragraph 1).

requirement request in A.17-10-008. SoCalGas includes these costs for recovery in this filing and the memorandum account will be closed.[59]

b. Post Completion Construction

Post-completion cost adjustments in the amount of $3,696,727 associated with lines that were presented for review (including descoped projects) in A.16-09-005 are included for recovery in this section. Post-completion adjustments occur when invoices or accounting adjustments are processed after the filing of an application for an after-the-fact reasonableness review. Despite the best efforts of SoCalGas to capture all items during the close-out process, post-completion adjustments occur that may result in increased or decreased costs. For the costs presented herein, the primary categories of post-completion adjustments are contractor invoices, accrual reversals, company labor, and journal entry adjustments.

c. Facilities Lease

The costs included in Facilities Lease Expense consist of the remaining lease expense associated with the 22nd and 23rd floors at the Gas Company Tower in Los Angeles. PSEP was responsible for these floors prior to the Facilities organization incorporating these floors into the overall Gas Company Tower lease effective with the TY 2019 GRC. These costs are for the time period between May 2018 and March 2019.

d. Descoped Projects

During the course of Phase 1A, planning work began on a number of projects that were later descoped or cancelled through either scope validation activities or the reduction of the MAOP to a level sufficient to bring the line outside the scope of PSEP. SoCalGas seeks recovery of $713,147 for the cost of descoped projects. The amount included for recovery is associated with pipelines installed prior to 1956.

e. Delcon Migration Project

Delcon was the document management system that SoCalGas was using to track and manage the process and documents necessary for PSEP's construction activities. In May 2019

[59] Refer to the Regulatory Accounts Testimony of R.M. Yu (Ex. SCG-38).

the new document system, Open Text, was established. The costs of $1.1 million are associated with migrating projects that are subject to cost recovery via Reasonableness Review to the new system. Some examples of these migration costs are the costs to develop and configure the Delcon application to prevent the loss of functionality when moving to a new system, and the costs to develop scripts to ingest data from Delcon.

4. Disallowed Costs

In D.14-06-007, the Commission approved SoCalGas's proposed PSEP, with some limited exceptions. D.14-06-007 (as modified by D.15-12-020) ordered that certain specified costs discussed below would be disallowed from recovery in rates. Table BK-53 summarizes the disallowed costs as relevant to the projects presented for review in this section.

Table BK-53
Disallowed Costs
Summary of Costs (in $000's)

Disallowance Type	Total
Post-1955 PSEP Costs	$ 1,548
Undepreciated Book Balances	$ -
Executive Incentive Compensation	$ 1
Records Search	$ -
Total	$ 1,549

5. PSEP Mileage Reconciliation

As required by D.14-06-007, a reconciliation of the "as filed" mileage with the actual mileage that was hydrotested, replaced or abandoned is included in Table BK-54 below for the projects presented in the reasonableness review.[60]

Table BK-54
Pipeline Projects
Mileage Summary

Line	As Filed (Miles)	Included in this Filing	
		(Miles)	(Feet)
L103-P1B-01	8.530	9.303	49,120
L2006-P1A	N/A	0.094	497
Line 2000-D Whitewater to Moreno	117.601	3.184	16,814
Line 2001 West-C Desert Hydrotest	64.100	16.803	88,719
Line 2001 West-D Whitewater Hydrotest	64.100	4.360	23,018

60 The "as filed" mileage is consistent with that contained in the workpapers included with the SoCalGas and SDG&E Amended PSEP Application (A.11-11-002) filed in December of 2011.

Line	As Filed (Miles)	Included in this Filing	
		(Miles)	(Feet)
Line 30-18 Section 2	2.584	0.619	3,266
Line 33-120 Section 1	1.252	0.240	1,267
Line 33-121	0.610	0.478	2,522
Line 36-1032 Section 4	1.555	0.307	1,620
Line 36-9-09 North Section 5B-02 & 5C	16.016	0.894	4,723
Line 36-9-09 North Section 6B	16.016	1.732	9,145
Line 36-9-21 (REPL)	0.389	0.464	2,451
Line 37-18-K	2.850	1.928	10,179
Line 404 Section 4A	37.800	0.831	4,387
Line 404-406 Somis Station	58.499	0.136	716
Line 41-6000-2 Abandonment & Tie-Over	35.950	29.371	155,081
Line 41-6001-2	0.005	0.005	26
Line 43-121	4.411	1.054	5,565
Line 45-120 Section 2	4.301	3.588	18,943
SL38-101-P1B (Wheeler Ridge)	7.320	4.525	23,893
Storage - Goleta	0.913	0.286	1,515
Total	**444.80**	**80.20**	**423,467**

C. The PSEP Organizational Framework Promotes Prudent Program and Project Oversight

The following sections describe the processes employed by SoCalGas to optimize the cost effectiveness of PSEP in keeping with one of its primary objectives. The scope of work scheduled to be completed under PSEP is extensive, both in terms of the volume of projects, engineering and design complexity, and the time necessary to complete each project. When PSEP was initiated, an organization was created within SoCalGas to provide prudent oversight to manage this large and complex volume of work safely and cost effectively, incorporate continuous improvement, and manage a large pool of both company and contracted employees.[61] This organization oversees PSEP project execution, provides project and process controls during the project life cycle, allows SoCalGas to assess each project's budget and schedule, and communicates PSEP progress to stakeholders.

The following is an overview of the primary ways SoCalGas promotes prudent program and project oversight in the execution of PSEP.

[61] In 2019, a Construction organization was created and has now absorbed all of the PSEP elements described in this section.

1. The Implementation of PSEP Is Subject to Prudent Governance by a Dedicated Program Management Office and Project Portfolio Teams

PSEP is a large and complex program that requires appropriate governance and management to achieve its goal of cost effectively enhancing safety. The PSEP governance and management strategy is to comply with applicable regulatory requirements, continuously improve the program, and establish proper controls and management across PSEP functional areas to verify that each component of a PSEP project, including design, material procurement, construction, and closeout is performed correctly and consistently.

The PMO develops standards and procedures for PSEP that allows PSEP to be executed in a consistent manner across projects. Through the management and facilitation of the stage gate process, the PMO promotes adherence to applicable standards and procedures and ensures that PSEP projects are consistently executed and procedural discrepancies are authorized and documented. The Project Portfolio Teams (1) collaborate, coordinate, and provide functional guidance on project design and construction to cost effectively meet or exceed compliance requirements, (2) follow, as appropriate, industry best practices, and (3) identify and incorporate process improvements.

2. The Stage Gate Review Process Promotes Efficient PSEP Project Oversight and Execution

The Stage Gate Review Process sequences and schedules PSEP project workflow deliverables at the project level. The workflow deliverables are detailed by stage in a PSEP Work Process Map.[62] The Stage Gate Review Process consists of seven stages,[63] with specific objectives for each stage and an evaluation at the end of each stage by Construction leadership to verify that objectives have been met before proceeding to the next stage.[64] The following is a brief description of each of the seven stages.

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[62] The Work Process Map details the deliverables by stage and has been formally updated 13 times since the inception of PSEP.

[63] The seven-stage Stage Gate Review Process was implemented by the PSEP organization beginning in the First Quarter of 2013. It has since been reduced to five stages that still encompass all the deliverables of the seven stages, by combining Stages 1 and 2 and Stages 6 and 7. Most of the projects in this section were completed following the seven-stage Stage Gate Review Process with the exception of 13 projects which followed the five-stage Stage Gate Review Process.

[64] Evaluations are gate reviews or completion check lists. Certain stages are condensed or combined for valve and small pipeline projects.

- Stage 1 (Project Initiation): Project team initiates a Work Order Authorization (WOA) to track initial costs and the initial scope is validated.
- Stage 2 (Test or Replace Analysis): SoCalGas analyzes data to determine whether a pipeline should be addressed through testing or replacement.
- Stage 3 (Begin Detailed Planning): Project execution plan is finalized, baseline schedules and funding estimates are developed, and project funding is obtained.
- Stage 4 (Detailed Design/Procurement): Project team finalizes design and construction documents, secures necessary permits and completes procurement activities.
- Stage 5 (Construction): Project team monitors scope, cost and schedule, and construction contractors are mobilized.
- Stage 6 (Place into Service): Commissioning and operating activities are performed to achieve completion certification for the project.
- Stage 7 (Closeout): Project team finalized project closeout activities.

3. Test Versus Replace Analysis Supports Prudent Selection of the Execution Option that Will Provide the Most Benefit to Customers

In Stage 2 of the State Gate Review Process, SoCalGas applies the Decision Tree and concepts approved by the Commission in D.14-06-007 to conduct a Test or Replace Analysis.[65] In undertaking this analysis, SoCalGas applies engineering judgment to determine a final execution scope to provide both short- and long-term customer benefits.

In addition to evaluating options for testing or replacement of the required segments, the project teams also review for potential accelerated or incidental mileage that can be included within the scope to avoid future costs and operational impacts that would otherwise be incurred if SoCalGas is required to return later to undertake a separate project on the same line. Included in the analysis are an evaluation of potential customer impacts and a preliminary assessment of the costs to provide alternate means of service during the time that each section would be out of service for construction. SoCalGas applies sound engineering judgment to weigh many factors, in addition to identifying a least-cost option, when determining the final scope of a project.

[65] Similarly, a detailed process is used to determine the scope of work of projects under the Valve Enhancement Plan.

4. The PSEP Project Review Process Prudently Includes Collaboration with Relevant Stakeholders

To achieve the goal of minimizing impacts to customers and communities, it is important to assess how various PSEP project options and approaches may impact SoCalGas's transmission system and the customers and communities served. An integral part of the analysis that results in prudent decision making is the collaboration by PSEP project teams with other knowledgeable groups within SoCalGas (*e.g.*, Region Operations, Gas Engineering, Gas Transmission Planning, Gas Control, Commercial Industrial Services, Regional Public Affairs, etc.) to route, design, and schedule pipeline and valve work to minimize costs and accommodate capacity impacts or restrictions. For example, these groups provide information to guide project-specific decisions including: (1) the feasibility of shut-ins and alternate feeds to regulator stations or customers, (2) customer and community impacts, (3) planned projects to coordinate with PSEP, and (4) environmental requirements, rights-of-way, and permitting needs. This information is used to help determine the scope and constructability of the project.

5. PSEP Projects Are Integrated with Other Company Projects to Achieve Efficiencies and/or Minimize Customer and Community Impacts

Consistent with the overarching objectives of PSEP to maximize the cost effectiveness of safety investment and minimize customer and community impacts, SoCalGas coordinates the execution of PSEP projects with other projects planned throughout their service territories. For example, if an Operating District has plans to do work on the same or an adjacent pipeline, SoCalGas coordinates, as feasible, the PSEP project team's scope and schedule with the Operating District's scope and schedule to maximize efficiencies and minimize customer and community impacts.

Effort is also taken to integrate, whenever possible, a PSEP project with a planned Operating District project that is scheduled for the same line.

As mentioned above, a PSEP project may standardize the pipe diameter of a project to facilitate piggability, which may result in an upsizing or downsizing of the pipe diameter. Under such circumstances, where the standardization is to facilitate constructability of a PSEP project and/or the piggability of the pipeline, such costs are allocated to the PSEP project. On occasion, SoCalGas identifies circumstances where it would be beneficial to customers to upsize or downsize the pipe diameter to address system capacity requirements or future planned construction projects as part of the PSEP project. Under such circumstances, SoCalGas will modify the project design to address the system capacity requirement or future planned construction project to achieve efficiencies. To reduce overall costs for customers, the PSEP organization plans and executes the project, and the Operating District funds the portion of the costs attributable to the upgraded materials and additional effort required for the upgrade.

6. PSEP Projects Are Designed and Constructed in Adherence to SoCalGas's Gas Standards to Achieve Compliance with State and Federal Laws and Regulations, Promote Safety, and Attain Operational Efficiency

PSEP adheres to SoCalGas Gas Standards and applicable laws and regulations to prudently implement compliant safety enhancement work. SoCalGas Gas Standards comprise the policies and procedures that govern the design, construction, operation, and maintenance of the transmission and distribution systems. Thus, in executing each project, the Gas Standards and other internal standards and practices govern the design analysis, materials purchased, and construction practices. The Gas Standards have dual objectives: to drive compliance with applicable laws and regulations and to promote safety and operational efficiency.

In addition to SoCalGas's own internal oversight efforts, the Commission's Safety Enforcement Division (SED) has closely collaborated with SoCalGas in the successful execution of PSEP projects. As ordered by D.14-06-007,[66] SED provides oversight on various aspects of PSEP implementation, with emphasis on construction activities and recordkeeping. SED personnel routinely are onsite at PSEP construction projects and monitor compliance with applicable regulations.

D. Prudent Execution of PSEP Projects Mitigates Obstacles to Maximize Efficiencies and Complete Construction As Soon As Practicable

The following are examples of some of the obstacles common when executing major pipeline projects such as PSEP and proactive mitigation measures taken.

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66 D.14-06-007 at 29 ("Specific to SDG&E and SoCalGas's Safety Enhancement we delegate to Safety Div. the specific authority to directly observe and inspect the testing, maintenance and construction, and all other technical aspects of Safety Enhancement to ensure public safety both during the immediate maintenance or construction activity and to ensure that the pipeline system and related equipment will be able to operate safely and efficiently for their service lives.")

1. Permitting and Temporary Land Right Acquisition

With respect to utility construction projects, and more specifically, pipeline projects, there is a significant difference between projects that are completely or mostly performed on private land ("behind the fence") and those that are "linear projects," *i.e.*, located in public rights-of-way. In the latter, since SoCalGas does not own the land, various permits and rights must be obtained for construction to occur. PSEP pipeline and valve projects are primarily linear projects located in franchised rights-of-way (*i.e.*, streets) but are also located on private and federal land. These varying locations result in the need to acquire numerous permits and conduct negotiations with private landowners.

Further, while some projects such as those located within existing SoCalGas facilities do not require extensive permitting, others, depending on the location, may require multiple additional permits ranging from those required by environmental agencies (*e.g*., water, wildlife, cultural, etc.) to those required by agencies with impacted land rights, such as Caltrans. These permits/agreements have long lead times and can restrict projects to certain schedules. At a minimum, PSEP projects require a permit from the municipal agency where the replacement or hydrotest is being executed before a project can commence construction. Although SoCalGas factors in anticipated permit processing time based on their experience in the project planning process, unanticipated delays beyond the length of time anticipated to acquire a permit can and do occur. Further, projects located on private land require permission from the owner and temporary acquisition of land rights for construction to proceed.

2. Material Availability

Given the unprecedented level of pipeline work, not only at SoCalGas but at other California utilities, material availability has been an issue that has impacted cost and schedule. SoCalGas has purchased, when appropriate, bulk quantities of commonly used pipe fittings and pipe to have adequate material available for projects. Bulk purchases result in better pricing as opposed to purchasing material on a project-specific basis. However, there are certain materials that are not purchased "off the shelf" and must be made-to-order or modified to fit conditions. Examples are valves with extensions, vaults to house equipment underground, and instrument cabinets. Manufacturing delays occur due to capacity limitations caused by increased demand for pipeline material at a regional and national level. To determine whether ordered materials meet company specifications, most items require inspection. When items do not meet specifications, they need to be modified or new items need to be acquired. This may result in extra time that may delay the start of construction.

3. Unforeseen Factors Encountered During Construction

Despite due diligence in the planning and engineering design phase, unforeseen factors encountered during construction may increase the complexity of projects and cause projects to take longer than planned. Some unknown conditions can only be identified after construction begins and the pipe is exposed, such as actual pipe condition, unknown substructures or unfavorable soil conditions. This is particularly true for older developed areas, such as the dense urban locations of many PSEP Phase 1 pipelines, because requirements for substructure recordation were not as stringent historically as they are today. Additionally, governmental records (originally in paper form) may have been lost over the years. Unidentified substructures usually require pipeline routing changes. Unanticipated soil changes (*i.e.*, loose sandy soil rather than more cohesive soil) may require a change in excavation or shoring methods. Finally, coordination with other utilities can sometimes delay project schedules.

4. Proactive Community Outreach Efforts to Minimize Community and Customer Impacts

Phase 1A projects are located in more densely populated areas. As such, proactive community outreach efforts—to inform customers, elected officials and government entities about PSEP projects taking place in their communities—are an integral part of SoCalGas's prudent execution of PSEP to minimize community and customer impacts, manage costs, and implement PSEP as soon as practicable. The Community Outreach team works closely with external stakeholders early in the planning stages to identify and help remove potential obstacles and roadblocks that could affect PSEP project execution and maintain a positive customer experience by mitigating the effects of construction with targeted communications and efforts to fully inform external stakeholders prior to PSEP construction activity. Numerous meetings have been held with elected officials and municipal agencies to provide advance notice and ongoing updates regarding PSEP projects. Additionally, SoCalGas established a PSEP webpage, which provides information about construction activities and project status to give customers and stakeholders easier access to information.

These various outreach efforts were instrumental in avoiding project delays and, in some instances, resulted in less onerous permitting conditions being imposed on PSEP projects, which helped minimize costs and benefited customers.

E. SoCalGas Prudently Manages PSEP Costs for the Benefit of Customers

As previously explained, the scope of PSEP work that is planned for and executed is extensive, complex, and costly. The PSEP project teams look for the following ways to avoid costs and exercise diligence: (1) scope validation efforts have identified cost avoidance opportunities; (2) sequencing PSEP projects to maximize efficiency and productivity; (3) prudent procurement of materials to achieve reasonable market-based costs for customers; and (4) use of the Performance Partnership Program to further enhance construction contractor cost effectiveness.

SoCalGas has put in place controls and measures to manage costs and maximize customer value and execute projects cost effectively. This has been achieved through scope validation, competitive procurement efforts, coordination with internal and external groups, and other cost avoidance actions.

1. Scope Validation Efforts Have Identified Cost Avoidance Opportunities

A key first step in project execution is the scope validation efforts conducted in Stage 1 (Project Initiation). SoCalGas does not proceed with PSEP projects without first performing due diligence to verify the project scope through diligent scope validation activities. From the initial phase of a PSEP project, the PSEP management team identifies the potential for cost avoidance when studying the proposed project. To do this, data from the initial PSEP application and internal databases are reviewed by the project team to validate project mileage. Through this scope validation step, mileage reduction may be accomplished through the critical assessment of records, reduction in MAOP, or abandonment of lines that were no longer required from an overall gas operating system perspective.[67]

[67] Lines are only abandoned after a thorough review of the ability of adjoining lines to meet current and future load requirements and to verify there will be no customer impact or system constraints.

2. Sequencing PSEP Projects to Maximize Efficiency and Productivity

SoCalGas strategically schedules construction projects to keep company and contractor workforces fully productive, thereby maximizing the cost-effectiveness of the PSEP workforce. Construction start dates are tentatively slated months in advance to maintain a steady flow of work to the construction teams. The various functional groups that support execution of a project are consulted prior to these dates being proposed. The expected construction completion dates of projects are monitored closely so that new projects can start soon afterwards.

3. Through Prudent Procurement, SoCalGas Gas Achieves Reasonable and Market-Based Costs for the Benefit of Customers

SoCalGas continues to minimize PSEP project execution costs through cost-avoidance efforts that focus on efficiencies identified in the engineering and design process through efficient procurement practices, coordination and scheduling effectiveness, and construction execution. To promote the reasonableness of these costs, PSEP relies heavily on proven supply management techniques and strategies to acquire materials and services. To provide safety enhancement to customers at reasonable and market-based costs, SoCalGas uses established selection processes, creates incentives for contractors, and imposes cost controls. PSEP maintains guidelines for the preparation, solicitation, evaluation, award, and administration of contracts and subcontracts that supply PSEP with qualified and best-value contractors, subcontractors, and vendors.

SoCalGas's sourcing objective is to utilize competition to achieve market-based rates. As such, the majority of PSEP agreements entered into for materials and services have been either competitively bid or were set at market-based rates stemming from previous competitive solicitations. In other words, in addition to individual bidding events, as appropriate, SoCalGas executes PSEP agreements by leveraging terms and conditions and rates from existing agreements. This avoids administrative costs, uses previously negotiated rates, and furthers the goal of completing the work as soon as practicable.

Where possible, SoCalGas acquires materials for PSEP projects by aggregating material needs from multiple projects and making periodic buys for larger quantities of materials. These efforts better enable SoCalGas to obtain favorable pricing. Project-specific buys are also done to account for specific design parameters. Generally, project-specific buys are executed at each major design phase to address time constraints and reduce costs. For example, long-lead-time items are identified early for sourcing. As appropriate, items may be transferred between projects to reduce last-minute buys and shipping costs. Regardless of the type of order, material bids are designed to obtain multiple quotes for the best pricing options, promote work with select firms for efficiency of process, and encourage the development of local resources and sourcing.

4. The Performance Partnership Program Further Enhances Construction Contractor Cost-Effectiveness

The Performance Partnership Program allows PSEP Construction contractors to enter into competitive bidding for batches of projects as opposed to one at a time. A Performance Partner is a qualified alliance contractor that is willing to partner with SoCalGas by using their unique experience and expertise to seek more efficient ways of executing projects and share in the cost savings. This provides numerous benefits for customers, such as providing competitive market prices, avoiding administrative costs for successive individual bids, engaging construction contractors in longer-term agreements for numerous projects (which lowers costs by hiring a sustained workforce with less downtime and allowing contractors to work with the same internal engineering teams for a more collaborative effort),[68] and providing contractors an incentive to competitively bid for the work and agree to additional cost-control mechanisms (since the winning bidder is awarded more than just one project). Although SoCalGas had implemented the Performance Partnership Program to execute PSEP, the PSEP organization retains the discretion to conduct competitive solicitations or to single-source work to acquire contractors for any PSEP project where it is determined that it may be beneficial to customers to do so.[69]

Under the Performance Partnership Program, each project constructed by a Performance Partner is subject to a target price risk/reward mechanism. This mechanism is based on establishing a target price agreed to by SoCalGas and the Performance Partner. The target price

[68] These efforts also mitigate the risk of insufficient trade labor and supervisory resources (leading to direct cost savings through efficient dispersal and logistics of regional work) and better enable construction personnel to provide valuable engineering and design recommendations.

[69] For example: (1) in order to diversify the assignment of work (instead of limiting it to four construction partners), (2) as a separate tool to validate costs incurred by the performance partners (providing yet another rate by which to compare Performance Partner performance), and (3) to allow other construction contractors who were not selected as Performance Partners the opportunity to bid on projects, which helps sustain their viability in the SoCalGas service territory.

provides the Performance Partner with a cost incentive to efficiently perform the project because it stands to share both reduced and excess costs. The Performance Partner is not, however, entitled to any profits when costs exceed 20% of the target price. By virtue of this sharing mechanism, SoCalGas realizes cost savings, for the benefit of customers, that would not exist under traditional competitively bid contracts.

VII. SB 1383 DAIRY PILOT PROGRAM REASONABLENESS REVIEW

A. Introduction

The purpose of this reasonableness review testimony is to request the cost recovery of $20.3 million above the authorized amount of $39.3 million for the design, construction, and commissioning of four SB 1383 Dairy Biomethane Pilot Projects (Dairy Pilots). Included in my reasonableness review testimony are the following: SB 1383 Dairy Pilot project background and description, total project costs, and variance explanations describing the reasons for the actual amounts exceeding the authorized amounts.[70] Detailed workpapers contained in Ex. SCG-08-WPS, Volume VII will further demonstrate the reasonableness of the total project costs. This testimony will also highlight how these projects demonstrate SoCalGas's role in supporting and developing the renewable natural gas market.

In September of 2016, Governor Brown signed SB 1383, and in June of 2017, the CPUC issued R.17-06-015 to develop a framework which directed gas utilities to implement no less than five Dairy Pilots to demonstrate interconnection to the California gas utilities' pipeline systems and allow for recovery of reasonable infrastructure costs pursuant to SB 1383.[71,72]

On December 18, 2017, the Commission issued D.17-12-004, which established the implementation and selection framework to implement the dairy biomethane pilots required by SB 1383. Respondents were directed to submit a Tier 2 Advice Letter seeking approval of the

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70 As these projects will not be financially closed out as of the filing date, the estimate at completion (EAC) costs are being used in lieu of actuals. It is anticipated that the difference between EAC and actuals will be minimal as construction is completed on all the projects.

71 CPUC Press Release identifying all Dairy Pilot projects, four of which are in SoCalGas territory https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M246/K748/246748640.PDF.

72 Dairy Pilot Selection Scorecard is available here: https://www.cpuc.ca.gov/-/media/cpuc-website/files/uploadedfiles/cpuc_website/content/utilities_and_industries/energy/energy_programs/gas/natural_gas_market/finalselectioncomscorecardsum.pdf

contracts with the selected Dairy Biomethane Pilot Projects within 30 days of the notification award by the Selection Committee, which consisted of members from the Commission, the California Air Resources Board (CARB), and the California Department of Food and Agriculture (CDFA).

On December 3, 2018, the Selection Committee identified the four Dairy Pilots located in the SoCalGas service territory: (1) CalBioGas Buttonwillow LLC, (2) CalBioGas North Visalia LLC, (3) CalBioGas South Tulare LLC, and (4) Lakeside Pipeline LLC. All four projects are located in the San Joaquin Valley. SoCalGas submitted AL 5398 on December 13, 2018, in compliance with Ordering Paragraph (OP) 5 of D.17-12-004 to establish balancing and memorandum accounts for the SB 1383 Dairy Pilot projects and amended by AL 5398-A on January 28, 2019, which included a revenue requirement and updated project costs. It was approved by the Commission on February 14, 2019.

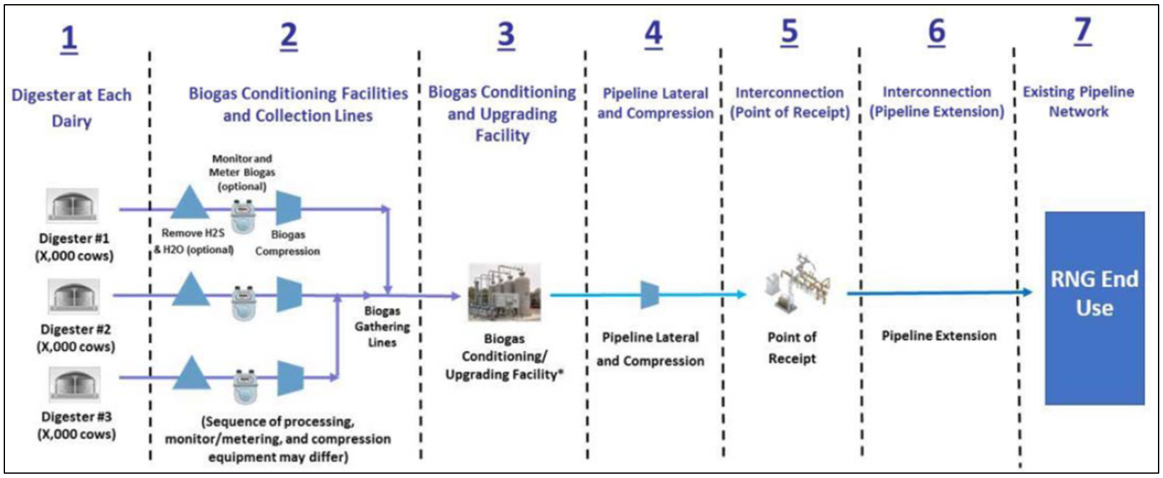
1. Regulatory Recovery Mechanism

Pursuant to D.17-12-004, SoCalGas tracked Dairy Pilot costs in a memorandum account. The Dairy Biomethane Project Memorandum Account (DBPMA) records project costs associated with pipeline lateral, pipeline extension, and point of receipt. Capital-related costs are recoverable through SoCalGas annual regulatory account balance update filing up to authorized amounts. Pursuant to D.17-12-004, the amounts above authorized and recorded in the DBPMA are being addressed in this GRC as Reasonableness Review.

2. Scope of Work

SoCalGas's scope of work consisted of the design, construction, and commissioning of four Dairy Pilot projects to receive and distribute an applicant's biogas into the SoCalGas pipeline system. Each Dairy Pilot project consisted of a Pipeline Lateral, Compressors, a Point of Receipt, and a Pipeline Extension, as depicted in Figure 1 below. The Pipeline Extension connected the Point of Receipt with SoCalGas's existing pipeline system. The four Dairy Pilots were constructed in the cities of Visalia, Tulare, Hanford, and Buttonwillow in the San Joaquin Valley, as detailed below.

Figure BK-1
SoCalGas
SB 1383 Dairy Pilot Projects – Pipeline Infrastructure



a. North Visalia

The North Visalia Dairy Pilot was constructed in Visalia off of Road 68. The pipeline extension started at a point west of Road 68 and north of Riggin Avenue (downstream of the SoCalGas Point of Receipt), crossed Road 68, and then proceeded southerly along Road 68 to Riggin Avenue where it connected to SoCalGas's existing pipeline system. It was determined that the interconnecting pipeline system has sufficient capacity for the proposed gas production and did not require a system enhancement.

b. South Tulare

The South Tulare Dairy Pilot was constructed in Tulare off of Road 96. The pipeline extension started west of Road 96 and connected to SoCalGas's existing pipeline system. It was determined that the interconnecting pipeline system has sufficient capacity for the proposed gas production and did not require a system enhancement.

c. Lakeside

The Lakeside Dairy Pilot is located in Hanford off of 7th Avenue. The pipeline extension proceeded easterly across 7th Avenue, and connected to SoCalGas's existing pipeline system. Due to insufficient receipt capacity, a pipeline system enhancement was required along 7th Avenue. This system enhancement consisted of one new pipeline installation, one pipeline replacement, and the abandonment of an existing pipeline. Details of the system enhancement are included in supplemental workpaper Ex. SCG-08-WPS, Volume VII.

d. Buttonwillow

The Buttonwillow Dairy Pilot is located in Buttonwillow off of 7th Standard Road. The pipeline extension proceeded west along 7th Standard Road and connected to SoCalGas's existing pipeline system. It was determined that the interconnecting pipeline system has sufficient capacity for the proposed gas production and did not require a system enhancement.

B. Project Cost Components

To develop the total cost of $36.6 million authorized by the Commission in its decision approving AL 5398, SoCalGas developed a Class 4 cost estimate consistent with AACE International (AACE)[73] recommended practices for each Dairy Pilot site. SoCalGas utilized multiple sources of information to identify the preliminary scope in order to estimate the anticipated costs of the four Dairy Pilots. All costs are included in the presented testimony and supporting workpapers. This testimony will describe how the actual costs vary from the initial estimates, and why these variances reflect prudent and reasonable decision-making.

Table BK-55, below, shows the costs of each Dairy Pilot project as authorized in 2019 versus the Estimated Cost at Completion (EAC) to design, construct, and commission. The EAC is a fully loaded project cost, which is determined by escalating the direct costs from the Total Installed Cost (TIC) estimate, calculating associated indirect costs (detailed further in Section C below), and summing them to arrive at a fully loaded and escalated total cost.

At the time each initial estimate was performed in 2018, the estimate was developed using SoCalGas historical data, information known about the project at the time, and assumptions about future work and project execution activities.

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[73] An industry association of cost estimating professionals.

C. Variance From Assumptions/Projections in Application

1. Introduction

Table BK-55
SoCalGas
Summary of Fully Loaded Project Cost Variances by Dairy Pilot (in $000s)

Project	Authorized (2019)[74]	EAC[75]	Variance
North Visalia	$8,318	$11,920	$3,602
South Tulare	$9,094	$13,890	$4,794
Lakeside[76]	$10,843	$18,503	$7,660
Buttonwillow	$8,304	$12,508	$4,204
Total	**$36,559**	**$56,821**	**20,262**

There are five main categories that contributed to cost variances from the initial estimates: (1) Engineering; (2) Equipment and Materials; (3) Construction; (4) Company Labor; and (5) Other Construction Management Costs. As previously mentioned in Section B, Class 4 cost estimates were developed for these Dairy Pilot projects.

2. Engineering

Table BK-56
SoCalGas
Summary of Engineering Variance by Site (in $000s)

Scope	Authorized (2019)[77]	EAC	Variance
North Visalia	$517	$1,079	$562
South Tulare	$544	$1,191	$647
Lakeside[78]	$683	$2,290	$1,607
Buttonwillow	$524	$1,034	$510

[74] Cost estimates were completed in 2018, but the revenue requirement submitted in AL 5398-A was not authorized until 2019.

[75] Actuals as of 12/31/2021 are $52,480.

[76] Includes system enhancement work.

[77] Cost estimates were completed in 2018, but the revenue requirement submitted in AL 5398-A was not authorized until 2019.

[78] Includes system enhancement work.

Increases in Engineering costs are primarily attributed to the requirement of: (1) additional equipment and material; (2) larger than planned equipment sizes; (3) additional design, civil, structural, mechanical, electrical, instrumentation, and process scope of work; and (4) additional engineering services. Table BK-56 above shows the direct cost differences between the original estimate for the engineering work versus the actual final engineering costs for each Dairy Pilot project. The associated indirect costs are captured in Section 7 below.

The original cost estimate did not include any front-end engineering design (FEED) work in order to meet the Commission filing schedule. A preliminary high level plot plan depicting each Dairy Pilot project was developed based on historical Point of Receipt sites. Upon award of the four Dairy Pilot projects by the Commission, the selected engineering vendors started the FEED stages including the scope of work, design basis, and design drawing packages. As the scope of work and design basis progressed during the FEED stages, the new design requirements deviated significantly from the preliminary high level plot plan. Specified equipment sizes were greater than anticipated requiring redesign to accommodate for the changes in equipment. Included in the additional scope of work are the following: (1) additional instrument air compressor packages; (2) additional duct banks, conduits, pipe supports, electrical and instrumentation work, and civil design work; (3) larger power distribution centers, compressor foundations, and pipe supports; and (4) additional engineering services including document control support, design drafting, and engineering studies and calculations.

3. Equipment and Materials

Table BK-57
SoCalGas
Summary of Equipment and Materials Variance by Site (in $000s)

Scope	Authorized (2019)[79]	EAC	Variance
North Visalia	$2,908	$3,274	$366
South Tulare	$4,063	$4,689	$626
Lakeside[80]	$3,126	$3,598	$472
Buttonwillow	$2,907	$2,817	($90)

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79 Cost estimates were completed in 2018, but the revenue requirement submitted in AL 5398-A was not authorized until 2019.

80 Includes system enhancement work.

Changes in the engineering scope of work as outlined in the Engineering section resulted in an increase in equipment and material costs. The following equipment and material were added to the scope of work: (1) additional instrument air compressor packages; (2) piping material; (3) additional instrumentation and controls material/equipment; and (4) larger power distribution centers. Table BK-57 above shows the direct cost differences between the original estimate for equipment and materials versus the actual final equipment and material costs for each Dairy Pilot project. The associated indirect costs are captured in Section 7 below.

4. Construction

Table BK-58
SoCalGas
Summary of Construction Contractor Costs by Site (in $000s)

Dairy Pilot	Authorized (2019)[81]	EAC	Variance
North Visalia	$1,797	$4,353	$2,556
South Tulare	$1,509	$4,371	$2,862
Lakeside[82]	$2,813	$6,204	$3,391
Buttonwillow	$1,890	$4,301	$2,411

Increase in construction costs are primarily attributed to: (1) additional electrical scope of work; (2) additional mechanical and civil/structural scope of work; and (3) additional inspection and company labor. The additional electrical, mechanical, and civil/structural scopes of work were driven by the scope changes outlined in Engineering and Equipment and Material sections. Table BK-58 above shows the direct cost differences between the original estimate for the construction contract work versus the actual final construction contract costs for each Dairy Pilot project. The associated indirect costs are captured in Section 7 below.

In addition, the actual construction duration for each Dairy Pilot project was approximately three times longer than the original durations from the 2018 estimate. The increase in construction duration resulted in higher costs for company labor, and third-party inspection and field engineering support. Lakeside, North Visalia, and South Tulare were constructed simultaneously starting August 24, 2020, and completed on June 2, 2021.

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[81] Cost estimates were completed in 2018, but the revenue requirement submitted in AL 5398-A was not authorized until 2019.

[82] Includes system enhancement work.

Buttonwillow was constructed separately, and construction started on May 24, 2021, and finished on December 10, 2021. Lakeside System enhancement construction started May 10, 2021, and finished on August 31, 2021.

5. Company Labor

Table BK-59
SoCalGas
Summary of Company Labor by Site (in $000s)

Dairy Pilot	Authorized (2019)[83]	EAC	Variance
North Visalia	$668	$702	$34
South Tulare	$699	$705	$6
Lakeside[84]	$703	$1,095	$392
Buttonwillow	$652	$838	$186

The increase in Company Labor was driven by the need for additional engineering, project management, and construction management required to support the changes in the scope of work as outlined in the sections above. Table BK-59, above, shows the direct cost differences between the original estimate for company labor versus the EAC company labor costs for each Dairy Pilot project. The associated indirect costs are captured in Section 7 below.

6. Other Construction Management Costs

Table BK-60
SoCalGas
Summary of Other Construction Management Costs by Site (in $000s)

Dairy Pilot	Authorized (2019)[85]	EAC	Variance
North Visalia	$1,051	$1,145	$94
South Tulare	$779	$1,272	$493
Lakeside[86]	$1,284	$2,311	$1,027
Buttonwillow	$968	$1,745	$777

83 Cost estimates were completed in 2018, but the revenue requirement submitted in AL 5398-A was not authorized until 2019.

84 Includes system enhancement work.

85 Cost estimates were completed in 2018, but the revenue requirement submitted in AL 5398-A was not authorized until 2019.

86 Includes system enhancement work.

Changes in the scope of work and schedule as outlined in the sections above resulted in an increase in other construction management costs. The increased costs were attributed to additional third-party field engineering, inspection teams, third-party non-destructive examination (NDE), and NDE oversight required during construction. Table BK-60, above, shows the direct cost differences between the original estimate for other construction management costs versus the EAC for each Dairy Pilot project. The associated indirect costs are captured in Section 7 below.

7. Indirect Costs

The Indirect Costs category includes SoCalGas overheads, Allowance for Funds Used During Construction (AFUDC), and ad valorem taxes. The indirect costs estimated in the advice letter were based on the Project scope, schedule, and duration proposed at the time. As explained earlier in this testimony, the schedule and duration of the Dairy Pilot projects have changed significantly. The same changes that drove increases in the direct cost categories discussed above also drove increases in the Indirect cost category.

Table BK-61
SoCalGas
Indirect Costs by Site (In $000s)

Dairy Pilot	Authorized (2019)[87]	EAC	Variance
North Visalia	$1,377	$1,367	($10)
South Tulare	$1,500	$1,662	$162
Lakeside[88]	$2,233	$3,005	$772
Buttonwillow	$1,363	$1,772	$409

a. SoCalGas Overhead Costs

The Capital costs of completing a project consist of both direct costs and indirect costs (or overhead) costs where the sum amounts to the fully-loaded cost. Overhead allocations are those activities and services that are associated with direct costs and benefits, such as payroll taxes and pension and benefits, or costs that cannot be economically direct-charged, such as

[87] Cost estimates were completed in 2018, but the revenue requirement submitted in AL 5398-A was not authorized until 2019.

[88] Includes system enhancement work.

Administrative and General overheads. Overhead allocations are based on direct capital costs, consistent with their classification as Company Labor, Contract Labor, or Purchased Services and Materials. Increases in overhead costs are due to the increases in direct capital costs described above.

b. Allowance for Funds Used During Construction

The total project costs authorized by the Commission include an estimate of AFUDC and were based on the estimated direct capital cost, estimated overhead costs, and proposed project schedule. Due to additional scope of work and extended project schedule, AFUDC increased as a result.

c. Ad Valorem

The code of Federal Regulations specifies that ad valorem taxes on physical property during a period of construction shall be included in the capital construction costs.

VIII. CONCLUSION

This testimony supports SoCalGas's request to continue the prudent implementation of PSEP through the execution of hydrotest projects, capital pipeline projects, and the valve enhancement plan, as well as including certain miscellaneous costs. In order to maximize SoCalGas's ability to prudently execute PSEP, I have presented a portfolio of projects that are candidates for execution during the GRC period based on a funding request of approximately $54M for test year 2024 (O&M) and an aggregate capital amount of $317M for 2022-2024. This approach maximizes SoCalGas's ability to execute PSEP "as soon as practicable" in accordance with the Commission mandate laid out in D.11-06-017, and in alignment with GRC-authorized spending levels. Further, this approach is consistent with the four over-arching objectives of PSEP: (1) enhance public safety, (2) comply with Commission directives, (3) minimize customer impacts, and (4) maximize the cost effectiveness of safety investments.

In addition to the PSEP forecast, the Commission, consistent with prior PSEP-related proceedings, should find that SoCalGas has continued to execute PSEP prudently, consistent with the requirements of D.14-06-007. Further, the costs presented for review and recovery in this Application are reasonable and the associated revenue requirements submitted for recovery should be recovered in rates.

Finally, the Commission should also find reasonable the costs associated with the SB 1383 Dairy Pilot projects.

This concludes my prepared direct testimony.

IX. WITNESS QUALIFICATIONS

My name is Bill G. Kostelnik. I am employed by Southern California Gas Company (SoCalGas) as the PMO Performance and Strategy Manager. My business address is 555 West Fifth St, Los Angeles, California 90013.

I joined SoCalGas in 1983 as an Accountant and have worked in several diversified areas of the utility business with increasing leadership responsibility. I have held various positions in Accounting and Finance, Administrative Services, Regulatory Affairs, Procurement and Logistics, Supply Management, Gas Distribution Operations, Pipeline Safety Enhancement Plan, Major Program and Project Controls, and Construction.

In my current positon I am responsible for the planning, development, and implementation of regulatory proceedings within the Construction organization.

In 1982, I earned a Bachelor of Science Degree in Accounting from California State University, Northridge. In 1987, I earned a Master of Business Adminnstration from Loyola Marymount University.

I have not previously testified before the California Public Utilities Commission.

APPENDIX A

GLOSSARY OF TERMS

APPENDIX A
Glossary of Terms

Acronym	Definition
AACE	Association for the Advancement of Cost Engineering
AFUDC	Allowance for Funds Used During Construction
BY	Base Year
CDM	Capital Delivery Model
CFR	Code of Federal Regulations
CNG	Compressed Natural Gas
CPUC	California Public Utilities Commission
DBPMA	Dairy Biomethane Project Memorandum Account
EAC	Estimated Cost at Completion
FEED	Front-end Engineering Design
GHG	Green House Gas
GIS	Geographic Information System
GRC	General Rate Case
GTSR	Gas Transmission Safety Rule
HCA	High Consequence Area
HDD	Horizontal Directional Drill
ISEP	Integrated Safety Enhancement Plan
LNG	Liquid Natural Gas
MAOP	Maximum Allowable Operating Pressure
MLV	Mainline Valve
NDE	Non-Destructive Examination
O&M	Operations & Maintenance
PFM	Petition for Modification
PG&E	Pacific Gas & Electric Company
PHSMA	Pipeline and Hazardous Materials Safety Administration
PSEP	Pipeline Safety Enhancement Plan
PSEPMA	Pipeline Safety Enhancement Plan Memorandum Account
PSEP-P2MA	Pipeline Safety Enhancement Plan Phase 2 Memorandum Account
PSRMA	Pipeline Safety and Reliability Memorandum Accounts
RSV	Remote Shut-off Valve
ROW	Right of Way
SB	Senate Bill
SDG&E	San Diego Gas & Electric Company
SECCBA	Safety Enhancement Capital Cost Balancing Accounts
SEEBA	Safety Enhancement Expense Balancing Accounts
SED	CPUC's Safety Enforcement Division
SEEBA	Safety Enhancement Expense Balancing Accounts
SL	Supply Line
SoCalGas	Southern California Gas Company
TIC	Total Installed Cost Estimate
TIMP	Transmission Integrity Management Program

Acronym	Definition
TY	Test Year
VEP	Valve Enhancement Plan