SOUTHERN CALIFORNIA GAS COMPANY
Risk Assessment and Mitigation Phase
2025 Report

Chapter: SCG-Risk-2
Number: SCG-R02-WP

High Pressure Gas System O&M Workpapers

SOUTHERN CALIFORNIA GAS COMPANY

May 15, 2025

2025 Risk Assessment & Mitigation Phase

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Risk Chapter 2OR02: SCG-RISK-2 HIGH PRESSURE GAS SYSTEM

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Summary of Risk Chapter: 2OR02 - SCG-Risk-2 High Pressure Gas System

In 2024 $ (000s) Incurred Costs												
	Adjusted Recorded					Adjusted Forecast						
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Control/Mitigation	251,587	262,313	252,038	237,944	269,675	363,657	310,040	308,217	290,311	302,392	294,234	395,415
Alternative Mitigation	0	0	0	0	0	17,435	17,435	17,435	17,435	17,435	17,435	17,435
Units	See detailed pages for Units as the unit measure can vary for each mitigation.											

Note: Totals may include rounding differences.

Risk Chapter: **SCG-Risk-2 High Pressure Gas System**

Risk ID: **2OR02**

In 2024 $ (000s) Incurred Costs

Mitigation		Unit Measure	Adjusted Recorded					Adjusted Forecast						
ID	Name		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
A171	DIMP - High Pressure Pipeli	Miles of Pip	0	0	0	0	0	17,435	17,435	17,435	17,435	17,435	17,435	17,435
C010	Pipeline Monitoring Technolc	FTEs	0	92	48	20	17	768	1,954	3,788	5,906	7,057	7,158	7,165
C013	Gas Transmission Safety Ru	No feasible	0	0	176	28	2,900	2,988	2,988	2,988	2,988	2,988	2,988	2,988
C014	Storage HP Field Maintenan	Storage Fiel	42,025	36,071	33,019	30,820	34,703	32,847	32,847	32,847	32,847	32,847	32,847	32,847
C016	Storage HP Field Maintenan	Storage Fiel	6,709	4,616	2,547	3,705	4,231	3,986	3,986	3,986	3,986	3,986	3,986	3,986
C103	Cathodic Protection Base Ac	Work orders	1,227	1,395	1,199	1,109	1,052	1,052	1,052	1,052	1,052	1,052	1,052	1,052
C105	SCADA Operations	No feasible	1,088	1,351	1,330	1,189	1,735	1,735	1,735	1,735	1,735	1,735	1,735	1,735
C108	Cathodic Protection - Mainte	No feasible	98	916	1,192	1,202	1,265	3,062	3,067	3,072	3,077	3,082	3,087	3,092
C109	Control Room Monitoring Op	No feasible	3,371	3,323	3,161	3,310	3,472	3,472	3,472	3,472	3,472	3,472	3,472	3,472
C116	M&R Station and EPM Inspe	Work orders	792	815	825	698	817	789	789	789	789	789	789	789
C117	Leak Survey & Patrol	No feasible	0	943	888	803	848	848	848	848	848	848	848	848
C132	Pipeline Maintenance	No feasible	6,792	5,751	5,216	5,628	5,049	5,191	5,239	5,239	5,239	5,239	5,239	5,239
C134	Pipeline Monitoring	Work orders	602	642	605	698	660	660	660	660	660	660	660	660
C142	Compressor Station - Mainte	No feasible	11,420	10,842	9,702	10,645	9,837	10,303	10,303	10,303	10,303	10,303	10,303	10,303
C145	Class Location (Hydrotest)	No feasible	0	126	-13	44	92	802	602	602	602	602	602	602
C155	Measurement & Instrumenta	No feasible	3,668	4,861	4,941	3,827	3,418	3,418	3,418	3,418	3,418	3,418	3,418	3,418
C156	Quality Assurance Transmis	FTEs	0	0	0	0	0	0	0	0	370	370	370	370
C157	PSEP Phase 1A	Miles of Pip	10,254	6,006	940	910	2,515	930	3,616	5	0	0	0	0
C160	Odorization	No feasible	663	552	232	577	487	487	487	487	487	487	487	487
C171	Integrity Assessments & Rer	Miles	131,505	122,002	134,791	126,914	150,125	254,972	183,815	179,066	146,877	162,521	151,598	249,857
C178	Distribution Leak Survey	Feet	3,774	3,844	3,754	3,706	3,881	3,881	3,881	3,881	3,881	3,881	3,881	3,881
C179	Distribution Main & Service I	Leaks Repa	1,005	1,148	901	756	630	630	630	630	630	630	630	630
C186	PSEP Phase 2A	Miles of Pip	26,594	57,017	46,584	41,355	41,941	30,836	44,651	49,349	61,144	56,425	59,084	61,994

Note: Totals may include rounding differences. Mitigation IDs preceded by an asterisk (*) have units in (000s).

Risk Chapter: **SCG-Risk-2 High Pressure Gas System**

Risk ID: **2OR02**

Units

Mitigation		Unit Measure	Adjusted Recorded					Adjusted Forecast						
ID	Name		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
A171	DIMP - High Pressure Pipeli	Miles of Pip	0	0	0	0	0	3	3	3	3	3	3	3
C010	Pipeline Monitoring Technolc	FTEs	0	0	0	0	0	1	3	5	9	10	10	10
C013	Gas Transmission Safety Ru	No feasible	0	0	0	0	0	0	0	0	0	0	0	0
C014	Storage HP Field Maintenan	Storage Fiel	4	4	4	4	4	4	4	4	4	4	4	4
C016	Storage HP Field Maintenan	Storage Fiel	4	4	4	4	4	4	4	4	4	4	4	4
C103	Cathodic Protection Base Ac	Work orders	3,482	3,544	3,423	3,160	3,339	3,339	3,339	3,339	3,339	3,339	3,339	3,339
C105	SCADA Operations	No feasible	0	0	0	0	0	0	0	0	0	0	0	0
C108	Cathodic Protection - Mainte	No feasible	0	0	0	0	0	0	0	0	0	0	0	0
C109	Control Room Monitoring Op	No feasible	0	0	0	0	0	0	0	0	0	0	0	0
C116	M&R Station and EPM Inspe	Work orders	1,066	1,276	1,320	1,077	1,318	1,211	1,211	1,211	1,211	1,211	1,211	1,211
C117	Leak Survey & Patrol	No feasible	0	0	0	0	0	0	0	0	0	0	0	0
C132	Pipeline Maintenance	No feasible	0	0	0	0	0	0	0	0	0	0	0	0
C134	Pipeline Monitoring	Work orders	3,117	3,546	3,561	3,744	3,833	3,833	3,833	3,833	3,833	3,833	3,833	3,833
C142	Compressor Station - Mainte	No feasible	0	0	0	0	0	0	0	0	0	0	0	0
C145	Class Location (Hydrotest)	No feasible	0	0	0	0	0	0	0	0	0	0	0	0
C155	Measurement & Instrumenta	No feasible	0	0	0	0	0	0	0	0	0	0	0	0
C156	Quality Assurance Transmis	FTEs	0	0	0	0	0	0	0	0	3	3	3	3
C157	PSEP Phase 1A	Miles of Pip	4	1	1	0	0	1	3	0	0	0	0	0
C160	Odorization	No feasible	0	0	0	0	0	0	0	0	0	0	0	0
C171	Integrity Assessments & Rer	Miles	461	471	251	370	365	412	483	497	438	264	235	405
*C178	Distribution Leak Survey	Feet	61,144	61,710	62,639	62,272	60,863	60,863	60,863	60,863	60,863	60,863	60,863	60,863
C179	Distribution Main & Service I	Leaks Repa	409	392	417	188	191	191	191	191	191	191	191	191
C186	PSEP Phase 2A	Miles of Pip	19	10	153	0	30	35	74	27	69	66	72	25

Note: Totals may include rounding differences. Mitigation IDs preceded by an asterisk (*) have units in (000s).

Supplemental Workpapers

PRIVILEGED AND CONFIDENTIAL/WORK PRODUCT

2025 RAMP
SCG-Risk-2-Supplemental
Workpaper

SCG DIMP - High Pressure Pipeline Assessments

Assumptions:

The DIMP High Pressure Pipeline Assessments identifies threats to high pressure pipelines; determines the risk posed by these threats; schedules prescribed assessments to evaluate thee threats; collects information about the condition of the pipelines; and takes actions to minimize applicable threat and integrity concerns to reduce the risk of a pipeline failure.
Costs are based on estimated robotic ILI costs at $5,000,00 per mile
Assumed 3 O&M digs and 2 capital digs based on SME experience
Labor and non-labor splits are assumed to be close to TIMP ILI at 16% and 84% respectively for SCG O&M and 5% and 95% for Capital
Forecast projected spend is before 16% V&S factor.

O&M Forecast

	2025	2026	2027	2028	2029	2030	2031
Miles Assessed	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Project	3	3	3	3	3	3	3
O&M Projected Spend	$ 17,000,000	$ 17,000,000	$ 17,000,000	$ 17,000,000	$ 17,000,000	$ 17,000,000	$ 17,000,000

O&M Forecast Cost Breakdown

	2025	2026	2027	2028	2029	2030	2031
Estimated robotic ILI cost per mile	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000
O&M digs per project *(assuming 3 projects for 2.5 miles with 3 digs each)*	$1,500,000	$1,500,000	$1,500,000	$1,500,000	$1,500,000	$1,500,000	$1,500,000
Projects	3	3	3	3	3	3	3
Forecasted Miles	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Projected Cost	$ 17,000,000	$ 17,000,000	$ 17,000,000	$ 17,000,000	$ 17,000,000	$ 17,000,000	$ 17,000,000

Labor/Non-Labor

	2025	2026	2027	2028	2029	2030	2031
Labor at 16%	$ 2,720,000	$ 2,720,000	$ 2,720,000	$ 2,720,000	$ 2,720,000	$ 2,720,000	$ 2,720,000
Non-Labor at 84%	$ 14,280,000	$ 14,280,000	$ 14,280,000	$ 14,280,000	$ 14,280,000	$ 14,280,000	$ 14,280,000
Total Projected Cost	$ 17,000,000	$ 17,000,000	$ 17,000,000	$ 17,000,000	$ 17,000,000	$ 17,000,000	$ 17,000,000

Capital Forecast Breakdown

	2025	2026	2027	2028	2029	2030	2031
O&M digs per project *(assuming 2 digs per project)*	$2,000,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000
Projects	3	3	3	3	3	3	3
Projected Cost	$ 6,000,000	$ 6,000,000	$ 6,000,000	$ 6,000,000	$ 6,000,000	$ 6,000,000	$ 6,000,000

Labor/Non-Labor

	2025	2026	2027	2028	2029	2030	2031
Labor at 5%	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000
Non-Labor at 95%	$ 5,700,000	$ 5,700,000	$ 5,700,000	$ 5,700,000	$ 5,700,000	$ 5,700,000	$ 5,700,000
Total Projected Cost	$ 6,000,000	$ 6,000,000	$ 6,000,000	$ 6,000,000	$ 6,000,000	$ 6,000,000	$ 6,000,000

C010 SCG O&M - Summary

HCA Methane Total	2025	2026	2027	2028	2029	2030	2031
Labor	$ 130,362.05	$ 297,316.88	$ 549,051.01	$ 965,122.94	$ 1,110,266.89	$ 1,103,485.49	$ 1,110,266.89
Non-Labor	$ 507,729.70	$ 1,467,100.05	$ 2,982,333.70	$ 4,558,223.63	$ 5,526,243.93	$ 5,634,244.93	$ 5,634,245.93
Total	$ 638,091.75	$ 1,764,416.94	$ 3,531,384.71	$ 5,523,346.57	$ 6,636,510.83	$ 6,737,730.42	$ 6,744,512.83

OPM Station Total	2025	2026	2027	2028	2029	2030	2031
Labor	$ 38,197.75	$ 66,277.79	$ 74,990.24	$ 119,295.19	$ 138,366.51	$ 138,366.51	$ 138,366.51
Non-Labor	$ 64,329.85	$ 64,710.80	$ 81,920.80	$ 89,921.05	$ 83,218.80	$ 83,218.80	$ 83,218.80
Total	$ 102,527.60	$ 130,988.59	$ 156,911.04	$ 209,216.24	$ 221,585.31	$ 221,585.31	$ 221,585.31

HCA & OPM Total	2025	2026	2027	2028	2029	2030	2031
Labor	$ 168,560	$ 363,595	$ 624,041	$ 1,084,418	$ 1,248,633	$ 1,241,852	$ 1,248,633
*V&S**	$ 26,970	$ 58,175	$ 99,847	$ 173,507	$ 199,781	$ 198,696	$ 199,781
Total Labor	$ 195,529	$ 421,770	$ 723,888	$ 1,257,925	$ 1,448,415	$ 1,440,548	$ 1,448,415
Non-Labor	$ 572,060	$ 1,531,811	$ 3,064,254	$ 4,648,145	$ 5,609,463	$ 5,717,464	$ 5,717,465
Total	$ 767,589	$ 1,953,581	$ 3,788,142	$ 5,906,070	$ 7,057,877	$ 7,158,012	$ 7,165,879

	2025	2026	2027	2028	2029	2030	2031
FTE	1.4	3.0	5.2	9.0	10.4	10.3	10.4

**V&S assumed to be 16%*

CCM - High Consequence Area (HCA) Methane Sensors - O&M

Unit Count

	2025	2026	2027	2028	2029	2030	2031
Total Installations	200	230	230	240	239	0	0
Total Cumulative Units	211	441	671	911	1150	1150	1150

Labor

	2025	2026	2027	2028	2029	2030	2031
Inspections	$ 24,170.55	$ 79,789.81	$ 165,256.53	$ 327,888.71	$ 392,464.53	$ 392,324.04	$ 392,464.53
Follow On Work	$ 5,035.53	$ 16,622.88	$ 34,428.44	$ 68,310.15	$ 81,763.44	$ 81,734.18	$ 81,763.44
Battery Replacements (every 2 years)	$ 9,495.57	$ 12,720.12	$ 61,238.68	$ 118,532.54	$ 183,072.71	$ 176,623.20	$ 183,072.71
Intrusive Wood Pole Testing	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Field Alarm Response	$ 13,314.35	$ 27,335.12	$ 41,852.62	$ 65,422.69	$ 65,796.68	$ 65,773.13	$ 65,796.68
Minor Damages	$ 75,089.93	$ 154,163.95	$ 236,039.38	$ 368,969.26	$ 371,078.49	$ 370,945.65	$ 371,078.49
Major Damages/Pole & Equipment Replacement	*$ 3,256.12*	$ 6,685.00	$ 10,235.36	$ 15,999.58	$ 16,091.05	$ 16,085.29	$ 16,091.05
Total Labor Cost	*$ 130,362.05*	*$ 297,316.88*	*$ 549,051.01*	*$ 965,122.94*	*$ 1,110,266.89*	*$ 1,103,485.49*	*$ 1,110,266.89*

Non-Labor

	2025	2026	2027	2028	2029	2030	2031
Inspections	$ 122,400.00	$ 237,600.00	$ 410,400.00	$ 583,200.00	$ 680,400.00	$ 680,400.00	$ 680,400.00
Battery Replacement	$ 24,000.00	$ 56,000.00	$ 184,000.00	$ 376,000.00	$ 568,000.00	$ 676,000.00	$ 676,000.00
Minor Damages	$ 343,774.11	$ 1,129,543.52	$ 2,308,197.63	$ 3,486,851.73	$ 4,149,844.67	$ 4,149,844.67	$ 4,149,844.67
Major Damages/Pole & Equipment Replacement	$ 8,206.26	$ 26,963.44	$ 55,099.21	$ 83,234.97	$ 99,061.34	$ 99,061.34	$ 99,061.34
Contractor Costs	$ 7,324.32	$ 14,967.09	$ 22,609.86	$ 26,908.92	$ 26,908.92	$ 26,908.92	$ 26,908.92
Total Non-Labor Cost	*$ 507,729.70*	*$ 1,467,100.05*	*$ 2,982,333.70*	*$ 4,558,223.63*	*$ 5,526,243.93*	*$ 5,634,244.93*	*$ 5,634,245.93*

O&M Forecast

	2025	2026	2027	2028	2029	2030	2031
Total Labor	$ 130,362.05	$ 297,316.88	$ 549,051.01	$ 965,122.94	$ 1,110,266.89	$ 1,103,485.49	$ 1,110,266.89
Total Non-Labor	$ 507,729.70	$ 1,467,100.05	$ 2,982,333.70	$ 4,558,223.63	$ 5,526,243.93	$ 5,634,244.93	$ 5,634,245.93
Total	*$ 638,091.75*	*$ 1,764,416.94*	*$ 3,531,384.71*	*$ 5,523,346.57*	*$ 6,636,510.83*	*$ 6,737,730.42*	*$ 6,744,512.83*

Assumptions

The CCM HCA Methane Sensor project was proposed as part of enhanced pipeline safety to enhance the monitoring and response along its high-pressure pipeline routes in high consequence areas.
See 16% V&S addition on the Summary Supplemental Workpaper
All activities include time for work management system entry, perimeter setup, and drive time
Battery replacements include solar panel cleaning
Inspections include bump testing (the process of briefly exposing sensors to an expected concentration of calibration gas in order to validate that the sensor is responding and the alarm is functioning)
Inspections also include mirror/sensor cleaning

SCG - Optical Pipeline Monitoring (OPM) Stations O&M

Labor

	2025	2026	2027	2028	2029	2030	2031
Planned - OPM Station	$ 1,086.11	$ 1,355.73	$ 1,788.78	$ 2,763.29	$ 2,328.52	$ 2,328.52	$ 2,328.52
Planned - Hand Holes	$ 6,721.62	$ 13,256.62	$ 14,104.06	$ 24,175.46	$ 26,664.06	$ 26,664.06	$ 26,664.06
Locate and Mark	$ 21,522.49	$ 42,426.51	$ 45,244.71	$ 77,353.49	$ 94,004.13	$ 94,004.13	$ 94,004.13
Unplanned - Hand Holes	$ 6,072.42	$ 6,447.71	$ 11,059.82	$ 12,210.40	$ 12,580.37	$ 12,580.37	$ 12,580.37
Field Alarm Response	$ 2,795.13	$ 2,791.22	$ 2,792.88	$ 2,792.54	$ 2,789.44	$ 2,789.44	$ 2,789.44
Total Labor Cost	*$ 38,197.75*	*$ 66,277.79*	*$ 74,990.24*	*$ 119,295.19*	*$ 138,366.51*	*$ 138,366.51*	*$ 138,366.51*

Non-Labor

	2025	2026	2027	2028	2029	2030	2031
Planned	$ 17,612.00	$ 17,722.20	$ 31,683.20	$ 38,871.20	$ 31,898.20	$ 31,898.20	$ 31,898.20
Unplanned	$ 46,717.85	$ 46,988.60	$ 50,237.60	$ 51,049.85	$ 51,320.60	$ 51,320.60	$ 51,320.60
Total Non-Labor Cost	*$ 64,329.85*	*$ 64,710.80*	*$ 81,920.80*	*$ 89,921.05*	*$ 83,218.80*	*$ 83,218.80*	*$ 83,218.80*

O&M Forecast

	2025	2026	2027	2028	2029	2030	2031
Total Labor	$ 38,197.75	$ 66,277.79	$ 74,990.24	$ 119,295.19	$ 138,366.51	$ 138,366.51	$ 138,366.51
Total Non-Labor	$ 64,329.85	$ 64,710.80	$ 81,920.80	$ 89,921.05	$ 83,218.80	$ 83,218.80	$ 83,218.80
Total	*$ 102,527.60*	*$ 130,988.59*	*$ 156,911.04*	*$ 209,216.24*	*$ 221,585.31*	*$ 221,585.31*	*$ 221,585.31*

Assumptions

Planned Maintenance includes: Hand hole inspection (annual), Locate/Mark, General monitoring stations maintenance (annual), and standby support.
Uplanned maintenance: Repairs or replacements to damage hand hole lids or casing, leak investigation/response.
First two years include one time tool costs
Unplanned cable damage scope will ONLY include standby support for Transmission; does not include cable splicing. Cable splicing to be preformed by approved contractor or Gas Engineering.
Monitoring station analyzer/server maintenance managed by Gas Engineering via authorized 3rd party vendors
Battery replacement is needed every 5 years from the initial installation date
Assumed 3% of hand hole lids will need to be replaced per year due to damage or theft per year
Assumed 1% of hand holes will need full replacement per year
Unplanned cable & site repairs removed because they are categorized as capital spend
Omnisens annual maintenance costs not included
Assumed 42 locate and mark events happening per mile per year (based on 2021's ~159,467 L/M tickets and ~3715 miles of pipeline across both SCG & SDGE combined)
See 16% V&S addition on the Summary Supplemental Workpaper

2025 RAMP
Chapter SCG-Risk-1-Supplemental Workpaper
C157: PSEP Phase 1A - O M

Assumptions: Budget Codes: 512, 552, 555, 557, 710, 556

The Pipeline Safety Enhancement Plan (PSEP) Phase 1A cost forecast represents replacement and pressure test projects. The forecast relies on estimating practices that follow the Association for the Advancement of Cost Engineering (AACE) industry standard. This method is most appropriate due to the unique scope, size, and complexity of each project. Project scheduling is based on a discrete number of projects driven by Commission ordered work in D.11-06-017, "address retrofitting pipeline to allow for in-line inspection tools" and to be completed as soon as practicable.

Note: Amounts are shown in 2024 Direct dollars and totals may include rounding differences. Labor is shown in Direct dollars before the 16% Vacation & Sick addition.

Table 1: O&M Forecast Totals

	2025	2026	2027	2028	2029	2030	2031
Forecast Projected Spend	$ 913,987	$ 3,613,041	$ 4,800	$ -	$ -	$ -	$ -
Direct Labor	$ 101,211	$ 19,865	$ 900	$ -	$ -	$ -	$ -
Non-Labor	$ 812,776	$ 3,593,176	$ 3,900	$ -	$ -	$ -	$ -

Table 2: O&M Forecast Project List

Project	Project Type	NOP	Cost_Element	2025	2026	2027	2028	2029	2030	2031
GTSR/PSEP-L4000-4002-P1A-YORBA LINDA	**REPL**	**2025**	**Direct Costs**	833,522	-	-	-	-	-	-
GTSR/PSEP-L4000-4002-P1A-YORBA LINDA			*Direct Labor*	92,668		-	-	-	-	-
GTSR/PSEP-L4000-4002-P1A-YORBA LINDA			*Non-Labor*	740,854	-	-	-	-	-	-
PSEP-L225-P1A	**TEST**	**2026**	**Direct Costs**	80,465	3,613,041	4,800	-	-	-	-
PSEP-L225-P1A			*Direct Labor*	8,543	19,865	900	-	-	-	-
PSEP-L225-P1A			*Non-Labor*	71,922	3,593,176	3,900	-	-	-	-

2025 RAMP
Chapter SCG-Risk-1-Supplemental Workpaper
C186: PSEP Phase 2A - O M

Assumptions: **Budget Code: 563, 564, 565, 566, 567**

The Pipeline Safety Enhancement Plan (PSEP) Phase 2A cost forecast represents replacement projects and hydrotest projects. The forecast relies on estimating practices that follow the Association for the Advancement of Cost Engineering (AACE) industry standard. This method is most appropriate due to the unique scope, size, and complexity of each project. Project scheduling is based on a discrete number of projects driven by Commission ordered work in D.11-06-017, "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" and to be completed as soon as practicable. PSEP Phase 2A forecast costs may include removal and replacement of non-piggable features, integrity anomalies, and small sections of pipe where test heads will be installed to facilitate the test.

Note: Amounts are shown in 2024 Direct dollars and totals may include rounding differences. Labor is shown in Direct dollars before the 16% Vacation & Sick addition.

Table 1: O&M Forecast Totals

	2025	2026	2027	2028	2029	2030	2031
Forecast Projected Spend	$ 30,682,364	$ 44,435,035	$ 49,137,109	$ 60,916,485	$ 56,130,271	$ 58,943,038	$ 61,939,396
Direct Labor	$ 966,578	$ 1,354,544	$ 1,329,867	$ 1,425,982	$ 1,855,363	$ 889,002	$ 342,508
Non-Labor	$ 29,715,786	$ 43,080,491	$ 47,807,242	$ 59,490,503	$ 54,274,908	$ 58,054,036	$ 61,596,888

Table 2: O&M Forecast Project List

Project	Project Type	NOP	Cost_Element	2025	2026	2027	2028	2029	2030	2031
GTSR PSEP-L4000-P2A-APPLE VLY TO LUCERNE	TEST	2026	Direct Costs	89,118	12,097,555	290,740	-	-	-	-
GTSR PSEP-L4000-P2A-APPLE VLY TO LUCERNE			*Direct Labor*	33,712	63,614	8,230	-	-	-	-
GTSR PSEP-L4000-P2A-APPLE VLY TO LUCERNE			*Non-Labor*	55,405	12,033,941	282,511	-	-	-	-
GTSR/PSEP-L1005-P2-TEST	TEST	2024	Direct Costs	958,800	-	-	-	-	-	-
GTSR/PSEP-L1005-P2-TEST			*Direct Labor*	46,000	-	-	-	-	-	-
GTSR/PSEP-L1005-P2-TEST			*Non-Labor*	912,800	-	-	-	-	-	-
GTSR/PSEP-L404-P2-01	TEST	2026	Direct Costs	111,480	2,611,887	87,938	-	-	-	-
GTSR/PSEP-L404-P2-01			*Direct Labor*	19,908	159,597	33,180	-	-	-	-
GTSR/PSEP-L404-P2-02			*Non-Labor*	91,572	2,452,290	54,758	-	-	-	-
GTSR-PSEP-L4000-P2A-FONTANA STN TO HESPERIA	TEST	2024	Direct Costs	960,046	-	-	-	-	-	-
GTSR-PSEP-L4000-P2A-FONTANA STN TO HESPERIA			*Direct Labor*	21,710	-	-	-	-	-	-
GTSR-PSEP-L4000-P2A-FONTANA STN TO HESPERIA			*Non-Labor*	938,336	-	-	-	-	-	-
PSEP-L1004-P2-01	TEST	2025	Direct Costs	2,218,525	164,132	-	-	-	-	-
PSEP-L1004-P2-01			*Direct Labor*	97,580	19,720	-	-	-	-	-
PSEP-L1004-P2-01			*Non-Labor*	2,120,945	144,412	-	-	-	-	-
PSEP-L1030-GRC-HYDRO	TEST	2025	Direct Costs	2,730,041	-	-	-	-	-	-
PSEP-L1030-GRC-HYDRO			*Direct Labor*	92,475	-	-	-	-	-	-
PSEP-L1030-GRC-HYDRO			*Non-Labor*	2,637,566	-	-	-	-	-	-
PSEP-L159-P2-GOLETA STORAGE PIPING REPL	TEST	2028	Direct Costs	16,166	-	-	1,676,099	107,370	-	-
PSEP-L159-P2-GOLETA STORAGE PIPING REPL			*Direct Labor*	2,800	-	-	68,000	14,800	-	-
PSEP-L159-P2-GOLETA STORAGE PIPING REPL			*Non-Labor*	13,366	-	-	1,608,099	92,570	-	-
PSEP-L-2000-C-P2	TEST	2026	Direct Costs	20,673	435,045	7,143	-	-	-	-
PSEP-L-2000-C-P2			*Direct Labor*	3,136	22,837	680	-	-	-	-
PSEP-L-2000-C-P2			*Non-Labor*	17,536	412,208	6,463	-	-	-	-
PSEP-L2000-P2-Chino Hills	TEST	2024	Direct Costs	27,464	-	-	-	-	-	-
PSEP-L2000-P2-Chino Hills			*Direct Labor*	189	-	-	-	-	-	-
PSEP-L2000-P2-Chino Hills			*Non-Labor*	27,275	-	-	-	-	-	-
PSEP-L2001E-P2-Blythe to L1030 Test	TEST	2024	Direct Costs	71,247	-	-	-	-	-	-
PSEP-L2001E-P2-Blythe to L1030 Test			*Direct Labor*	28,911	-	-	-	-	-	-
PSEP-L2001E-P2-Blythe to L1030 Test			*Non-Labor*	42,336	-	-	-	-	-	-
PSEP-L2001W-D-BADL-P2	TEST	2026	Direct Costs	(149,831)	126,948	63,474	-	-	-	-
PSEP-L2001W-D-BADL-P2			*Non-Labor*	(149,831)	126,948	63,474	-	-	-	-
PSEP-L2001W-D-P2	TEST	2024	Direct Costs	3,684	-	-	-	-	-	-
PSEP-L2001W-D-P2			*Direct Labor*	3,684	-	-	-	-	-	-
PSEP-L225-P2A-North	TEST	2030	Direct Costs	-	-	77,600	114,000	547,600	11,696,209	318,422
PSEP-L225-P2A-North			*Direct Labor*	-	-	16,800	26,400	28,800	48,800	1,688
PSEP-L225-P2A-North			*Non-Labor*	-	-	60,800	87,600	518,800	11,647,409	316,734
PSEP-L225-P2A-South	TEST	2028	Direct Costs	-	72,800	149,430	10,771,892	156,518	-	-
PSEP-L225-P2A-South			*Direct Labor*	-	16,800	28,800	41,050	1,688	-	-
PSEP-L225-P2A-South			*Non-Labor*	-	56,000	120,630	10,730,841	154,830	-	-
PSEP-L235E-P2-01 Test	TEST	2028	Direct Costs	-	-	-	43,583,175	1,257,139	54,151	-
PSEP-L235E-P2-01 Test			*Direct Labor*	-	-	-	1,113,064	457,859	38,025	-
PSEP-L235E-P2-01 Test			*Non-Labor*	-	-	-	42,470,111	799,280	16,126	-
PSEP-L235E-P2-02 Test	TEST	2029	Direct Costs	-	-	-	-	37,080,131	289,757	-
PSEP-L235E-P2-02 Test			*Direct Labor*	-	-	-	-	886,907	247,268	-
PSEP-L235E-P2-02 Test			*Non-Labor*	-	-	-	-	36,193,224	42,489	-
PSEP-L235E-P2-Newberry Springs Repl	TEST	2024	Direct Costs	11,160	-	-	-	-	-	-
PSEP-L235E-P2-Newberry Springs Repl			*Direct Labor*	9,300	-	-	-	-	-	-
PSEP-L235E-P2-Newberry Springs Repl			*Non-Labor*	1,860	-	-	-	-	-	-
PSEP-L235W-P2-01	REPL	2031	Direct Costs	144,941	-	-	-	12,176,611	5,564,410	61,534,699
PSEP-L235W-P2-01			*Direct Labor*	19,080	-	-	-	392,304	267,499	332,348
PSEP-L235W-P2-01			*Non-Labor*	125,861	-	-	-	11,784,307	5,296,911	61,202,351
PSEP-L235W-P2-SECTION 3 HYDRO	TEST	2024	Direct Costs	42,156	-	-	-	-	-	-
PSEP-L235W-P2-SECTION 3 HYDRO			*Non-Labor*	42,156	-	-	-	-	-	-
PSEP-L257-P2-01-SCDM	TEST	2025	Direct Costs	726,008	-	-	-	-	-	-
PSEP-L257-P2-01-SCDM			*Direct Labor*	29,869	-	-	-	-	-	-
PSEP-L257-P2-01-SCDM			*Non-Labor*	696,139	-	-	-	-	-	-
PSEP-L3000E-P2A	TEST	2030	Direct Costs	163,886	-	-	-	-	19,699,701	40,240
PSEP-L3000E-P2A			*Direct Labor*	24,660	-	-	-	-	133,710	2,721
PSEP-L3000E-P2A			*Non-Labor*	139,226	-	-	-	-	19,565,991	37,519
PSEP-L3000E-P2A-ESSEX TO KELBAKER	TEST	2030	Direct Costs	152,356	-	-	-	-	18,752,445	46,035
PSEP-L3000E-P2A-ESSEX TO KELBAKER			*Direct Labor*	23,616	-	-	-	-	122,575	5,751
PSEP-L3000E-P2A-ESSEX TO KELBAKER			*Non-Labor*	128,740	-	-	-	-	18,629,870	40,284
PSEP-L3000E-P2A-KELBAKER TO LUDLOW	TEST	2026	Direct Costs	-	18,684,204	40,239	-	-	-	-
PSEP-L3000E-P2A-KELBAKER TO LUDLOW			*Direct Labor*	-	137,271	3,535	-	-	-	-
PSEP-L3000E-P2A-KELBAKER TO LUDLOW			*Non-Labor*	-	18,546,932	36,704	-	-	-	-
PSEP-L3000E-P2A-LUDLOW TO NEWBERRY	TEST	2025	Direct Costs	17,212,021	42,864	-	-	-	-	-
PSEP-L3000E-P2A-LUDLOW TO NEWBERRY			*Direct Labor*	166,961	4,181	-	-	-	-	-
PSEP-L3000E-P2A-LUDLOW TO NEWBERRY			*Non-Labor*	17,045,060	38,683	-	-	-	-	-
PSEP-L4000-P2A- LUCERNE VLY TO ORD MTN	TEST	2027	Direct Costs	103,360	-	18,348,141	122,346	-	-	-
PSEP-L4000-P2A- LUCERNE VLY TO ORD MTN			*Direct Labor*	39,100	-	217,220	3,051	-	-	-
PSEP-L4000-P2A- LUCERNE VLY TO ORD MTN			*Non-Labor*	64,260	-	18,130,920	119,295	-	-	-
PSEP-L4000-P2A-ORD MTN TO NEWBERRY STN	TEST	2027	Direct Costs	103,360	-	17,327,011	221,702	-	-	-
PSEP-L4000-P2A-ORD MTN TO NEWBERRY STN			*Direct Labor*	39,100	-	95,107	10,299	-	-	-
PSEP-L4000-P2A-ORD MTN TO NEWBERRY STN			*Non-Labor*	64,260	-	17,231,904	211,403	-	-	-
PSEP-L406-GRC-SEC 11	TEST	2027	Direct Costs	210,218	215,283	6,011,542	-	-	-	-
PSEP-L406-GRC-SEC 11			*Direct Labor*	46,716	70,074	432,123	-	-	-	-
PSEP-L406-GRC-SEC 11			*Non-Labor*	163,502	145,209	5,579,419	-	-	-	-
PSEP-L406-GRC-SEC 12	TEST	2026	Direct Costs	338,817	3,181,731	-	-	-	-	-
PSEP-L406-GRC-SEC 12			*Direct Labor*	42,152	234,618	-	-	-	-	-
PSEP-L406-GRC-SEC 12			*Non-Labor*	296,665	2,947,113	-	-	-	-	-
PSEP-L406-GRC-SEC 13	TEST	2026	Direct Costs	297,215	3,350,482	-	-	-	-	-
PSEP-L406-GRC-SEC 13			*Direct Labor*	38,324	256,702	-	-	-	-	-
PSEP-L406-GRC-SEC 13			*Non-Labor*	258,891	3,093,780	-	-	-	-	-
PSEP-L406-GRC-SEC 14	TEST	2026	Direct Costs	306,896	3,027,913	14,936	-	-	-	-
PSEP-L406-GRC-SEC 14			*Direct Labor*	39,579	265,080	7,468	-	-	-	-
PSEP-L406-GRC-SEC 14			*Non-Labor*	267,317	2,762,833	7,468	-	-	-	-
PSEP-L406-GRC-SEC 15	TEST	2027	Direct Costs	21,651	126,301	3,273,833	14,436	-	-	-

Table 2: O&M Forecast Project List

Project	Project Type	NOP	Cost_Element	2025	2026	2027	2028	2029	2030	2031
PSEP-L406-GRC-SEC 15			*Direct Labor*	-	54,129	256,204	7,218	-	-	-
PSEP-L406-GRC-SEC 15			*Non-Labor*	21,651	72,172	3,017,629	7,218	-	-	-
PSEP-L406-GRC-SEC 16	**TEST**	**2027**	**Direct Costs**	198,013	196,392	3,333,708	-	-	-	-
PSEP-L406-GRC-SEC 16			*Direct Labor*	46,320	46,320	220,020	-	-	-	-
PSEP-L406-GRC-SEC 16			*Non-Labor*	151,693	150,072	3,113,688	-	-	-	-
PSEP-SL36-9-09-North-GRC	**TEST**	**2028**	**Direct Costs**	12,750	-	111,375	3,297,000	315,750	-	-
PSEP-SL36-9-09-North-GRC			*Direct Labor*	1,000	-	10,500	93,000	15,000	-	-
PSEP-SL36-9-09-North-GRC			*Non-Labor*	11,750	-	100,875	3,204,000	300,750	-	-
PSEP-SL38-100-P2-01-GRC	**TEST**	**2024**	**Direct Costs**	3,622	-	-	-	-	-	-
PSEP-SL38-100-P2-01-GRC			*Direct Labor*	195	-	-	-	-	-	-
PSEP-SL38-100-P2-01-GRC			*Non-Labor*	3,427	-	-	-	-	-	-
PSEP-SL38-362-GRC	**TEST**	**2030**	**Direct Costs**	-	-	-	723,906	1,317,852	2,679,840	-
PSEP-SL38-362-GRC			*Direct Labor*	-	-	-	54,000	46,125	28,125	-
PSEP-SL38-362-GRC			*Non-Labor*	-	-	-	669,906	1,271,727	2,651,715	-
PSEP-SL38-504-GRC-LACEY BLVD	**TEST**	**2025**	**Direct Costs**	3,576,522	101,498	-	-	-	-	-
PSEP-SL38-504-GRC-LACEY BLVD			*Direct Labor*	50,500	3,600	-	-	-	-	-
PSEP-SL38-504-GRC-LACEY BLVD			*Non-Labor*	3,526,022	97,898	-	-	-	-	-
PSEP-SL38-952-P2A	**TEST**	**2029**	**Direct Costs**	-	-	-	391,930	3,171,300	206,525	-
PSEP-SL38-952-P2A			*Direct Labor*	-	-	-	9,900	11,880	3,000	-
PSEP-SL38-952-P2A			*Non-Labor*	-	-	-	382,030	3,159,420	203,525	-

Risk Chapter: **SCG-Risk-2 High Pressure Gas System**

Risk ID: **2OR02**

Appendix A: Forecast Methodology

Mitigation ID	Mitigation Name	Labor	Non-Labor	NSE	Units
A171	DIMP - High Pressure Pipeline In-Line Inspections	Zero-Based	Zero-Based	Zero-Based	Zero-Based
C010	Pipeline Monitoring Technologies	Zero-Based	Zero-Based	Zero-Based	Zero-Based
C013	Gas Transmission Safety Rule - MAOP Reconfirmation	Base YR Rec	Base YR Rec	Base YR Rec	Base YR Rec
C014	Storage HP Field Maintenance – Aboveground Facilities	3-YR Average	3-YR Average	3-YR Average	3-YR Average
C016	Storage HP Field Maintenance – Aboveground Piping	3-YR Average	3-YR Average	3-YR Average	3-YR Average
C103	Cathodic Protection Base Activities	Base YR Rec	Base YR Rec	Base YR Rec	Base YR Rec
C105	SCADA Operations	Base YR Rec	Base YR Rec	Base YR Rec	Base YR Rec
C108	Cathodic Protection - Maintenance	Base YR Rec	Base YR Rec	Base YR Rec	Base YR Rec
C109	Control Room Monitoring Operation and Fatigue Management	Base YR Rec	Base YR Rec	Base YR Rec	Base YR Rec
C116	M&R Station and EPM Inspection and Maintenance	5-YR Average	5-YR Average	5-YR Average	5-YR Average
C117	Leak Survey & Patrol	Base YR Rec	Base YR Rec	Base YR Rec	Base YR Rec
C132	Pipeline Maintenance	Base YR Rec	Base YR Rec	Base YR Rec	Base YR Rec
C134	Pipeline Monitoring	Base YR Rec	Base YR Rec	Base YR Rec	Base YR Rec
C142	Compressor Station - Maintenance	Base YR Rec	Base YR Rec	Base YR Rec	Base YR Rec
C145	Class Location (Hydrotest)	Base YR Rec	Base YR Rec	Base YR Rec	Base YR Rec
C155	Measurement & Instrumentation Maintenance	Base YR Rec	Base YR Rec	Base YR Rec	Base YR Rec
C156	Quality Assurance Transmission Assets	Base YR Rec	Base YR Rec	Base YR Rec	Base YR Rec
C157	PSEP Phase 1A	Zero-Based	Zero-Based	Zero-Based	Zero-Based
C160	Odorization	Base YR Rec	Base YR Rec	Base YR Rec	Base YR Rec
C171	Integrity Assessments & Remediation	Base YR Rec	Base YR Rec	Base YR Rec	Base YR Rec
C178	Distribution Leak Survey	Base YR Rec	Base YR Rec	Base YR Rec	Base YR Rec
C179	Distribution Main & Service Leak Repair	Base YR Rec	Base YR Rec	Base YR Rec	Base YR Rec
C186	PSEP Phase 2A	Zero-Based	Zero-Based	Zero-Based	Zero-Based

Risk Chapter: **SCG-Risk-2 High Pressure Gas System**

Risk ID: **2OR02**

Appendix B: Unit Measure

Mitigation ID	Mitigation Name	Unit Measure
A171	DIMP - High Pressure Pipeline In-Line Inspections	Miles of Pipe
C010	Pipeline Monitoring Technologies	FTEs
C013	Gas Transmission Safety Rule - MAOP Reconfirmation	No feasible units
C014	Storage HP Field Maintenance – Aboveground Facilities	Storage Fields
C016	Storage HP Field Maintenance – Aboveground Piping	Storage Fields
C103	Cathodic Protection Base Activities	Work orders
C105	SCADA Operations	No feasible units
C108	Cathodic Protection - Maintenance	No feasible units
C109	Control Room Monitoring Operation and Fatigue Management	No feasible units
C116	M&R Station and EPM Inspection and Maintenance	Work orders
C117	Leak Survey & Patrol	No feasible units
C132	Pipeline Maintenance	No feasible units
C134	Pipeline Monitoring	Work orders
C142	Compressor Station - Maintenance	No feasible units
C145	Class Location (Hydrotest)	No feasible units
C155	Measurement & Instrumentation Maintenance	No feasible units
C156	Quality Assurance Transmission Assets	FTEs
C157	PSEP Phase 1A	Miles of Pipe
C160	Odorization	No feasible units
C171	Integrity Assessments & Remediation	Miles
C178	Distribution Leak Survey	Feet
C179	Distribution Main & Service Leak Repair	Leaks Repaired
C186	PSEP Phase 2A	Miles of Pipe