In The Matter of the Application of Southern California Gas Company (U 904 G) for Authorization to Implement Revenue Requirement for Costs to Enable Commencement of Phase 2 Activities for Angeles Link	)

Application: A.24-12-XXX

Exhibit No: _____

[PUBLIC]

WORKPAPER TO

PREPARED DIRECT TESTIMONY OF

AMY KITSON

ON BEHALF OF

SOUTHERN CALIFORNIA GAS COMPANY

(CHAPTER 4 – PROJECT DEVELOPMENT & PROGRAMMATIC ACTIVITIES)

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

December 20, 2024

Workpaper Supporting Chapter 3
(Project Development & Programmatic Activities)

Table 1: Total Chapter 3 Angeles Link Phase 2 Cost by Category (in millions)

Phase 2 Angeles Link Costs	2026	2027	2028	Total
Engineering, Technology, & Economics (Non-Labor)	[redacted]	[redacted]	[redacted]	[redacted]
Hydrogen Supply & End Uses (Non-Labor)				
Regulatory & Project Management (Non-Labor)				
Stakeholder Engagement (Non-Labor)				
Company Labor	$4.5	$4.5	$2.2	$11.2
TOTAL DIRECT O&M COSTS	**$15.7**	**$15.7**	**$7.8**	**$39.2**
TOTAL FULLY LOADED O&M COSTS	**$19.7**	**$20.1**	**$10.2**	**$50.0**

Overall Description

The Project Development and Programmatic Activities Workpapers include the costs for certain analyses and evaluations, management, technical, and administrative supportive activities, including continued stakeholder engagement and supplemental activities to be completed during Phase 2 of Angeles Link, considering the results from Phase 1.

Forecast Methodology

- A zero-based forecast methodology was selected for these workpapers. Angeles Link Phase 1 activities have only recently incurred costs (e.g., 2023-2024) and, therefore, have minimal cost history to inform future forecasts. When available, SoCalGas used 2023 & 2024 incurred costs to guide forecast development.
- When historical costs were not available, SoCalGas used costs from similar historical projects or proposals from contractors & consultants to guide forecast development.
- SoCalGas used labor escalation factor[1] of 3.242% for 2026, 3.019% for 2027, and 2.820% for 2028.
- SoCalGas used labor escalation factor[2] of 0.880% for 2026, 1.340% for 2027 and 1.890%

[1] S&P Global Market Intelligence; Pricing & Purchasing; Copyright © S&P Global Limited, Q2 2024. All rights reserved.

[2] *Id.*

for 2028.

- SoCalGas forecasted an average of $5,000 per employee for miscellaneous non-labor expenses per year, consistent with the Test Year (TY) 2024 General Rate Case (GRC) forecast.
- Non-labor loaded costs in this workpaper include a contingency factor of 20%.

Schedule

These cost forecasts assume that Phase 2 will have a total duration of 30 months. However, some of the tasks will be completed in a shorter period of time, such as those tasks that will inform selection of a preferred route during Phase 2.

Angeles Link Engineering, Technology, and Economics (Labor and Non-Labor)

Project Description: The Engineering, Technology, and Economics activities will focus on identifying a preferred system route and configuration and conducting refined design, engineering, safety, and cost evaluations for the proposed clean renewable hydrogen transport system. Evaluations and analyses will include, but are not limited to:

- **Pipeline Route Selection:** This activity will develop and implement a comprehensive, multistep evaluation process that utilizes both qualitative and quantitative reasoning to assess and compare multiple pipeline routes across extensive geographic areas, ultimately narrowing down to a single optimal route within the first 6 months of work, in parallel to separate on-going Pre-Front-End Engineering Design (FEED) analysis. Subsequent strategic infrastructure planning for the optimal route will be completed and updated, as appropriate, in parallel to FEED. This activity will integrate data from the Third-Party Connection Evaluation and Pipeline Route Selection and supports traditional Pre-FEED/FEED deliverables, which will be completed separately.
- **Compressor Station Siting and Selection:** This activity will develop and conduct a multistep evaluation process that utilizes both qualitative and quantitative reasoning to identify and assess preliminary options for compressor stations based on feasibility-level information.
- **Hydrogen Gas System Evaluation:** This activity will utilize updated production and end-use information, location-specific details, and specific operability constraints to inform the preferred system route identification process, in conjunction with the pre-FEED activities. The evaluation will include transient hydraulic modeling and evaluation of pipeline system operations, design, and capabilities under a variety of scenarios.
- **Preliminary Material Evaluation:** This activity will evaluate compatible materials for hydrogen pipeline and equipment considering design factors such as embrittlement and leakage, constructability factors such as material handling and sourcing/supply chain, and development of material selection criteria.
- **Preliminary Integrity Program Assessment:** This activity will develop preliminary planning and framework for a future hydrogen integrity program to support design specifications, material considerations, assessment of threats and cycle planning, and maintenance and operations procedure development as applicable to hydrogen infrastructure and assets.
- **Risk Management Plan:** This activity will develop a programmatic Risk Register that covers the proposed hydrogen pipeline system at the project and enterprise level and incorporates a Construction-Level Risk Register produced independently within the scope of the FEED activities described in the Testimony of Brian Walker. This approach will identify, assess, and develop management of risks across the enterprise. A

corresponding Risk Management Plan (RMP) would then be developed, addressing potential risk categories. The Risk Register and RMP will integrate a Site-Specific Construction Risk Register and RMP, both of which will be produced outside the scope of this activity as part of the FEED activities described in the Testimony and Workpapers of Brian Walker.

- **Angeles Link Enterprise Safety Plan:** This activity will develop a comprehensive Angeles Link Enterprise Safety Plan that covers the proposed hydrogen pipeline system at the project and enterprise level. This plan will cover the sites, technologies, and the hydrogen pipeline system, and will be structured around best practices and framework for API 1173 and is expected to be reviewed by the Hydrogen Safety Panel.
- **Engineering Design Specification Development:** This activity will develop Line Class and Material Specifications (MSP) of necessary groups of standard piping components that need to be pre-approved by SoCalGas for specific hydrogen system use during the FEED activities.
- **Workforce Company Standards Development:** This activity will evaluate approximately 1,600 Company Operations Standards to categorize, prioritize, and schedule the necessary revisions and/or creation of relevant documents necessary to maintain the schedule for Angeles Link. The development would identify specific impacts, required updates, and new content needed for Angeles Link.
- **Workforce Development Plan:** This activity will involve creation of a comprehensive Workforce Development Plan addressing the transition to a new hydrogen pipeline system while considering the existing natural gas pipeline assets to establish the necessary structure and separation for setting up initial operations.
- **Initial Operations Plan:** This activity will develop a comprehensive preliminary Initial Operations Plan, encompassing both staffing and processes for initial startup and sustained operations. It will be integrated with the overall asset timeline and detail produced via external FEED activities.
- **Workforce Training Plan & Programs:** This activity will develop a comprehensive workforce training plan specifically for the implementation of a new hydrogen pipeline system and a comprehensive hydrogen-focused education and training curriculum, including course materials, for SoCalGas employees involved in pre-FEED and FEED activities.
- **Employment Impact Analysis:** This activity will update the employment impact numbers identified in the Phase 1 Workforce Planning & Training Evaluation with more precise construction-related direct and indirect job generation once a preferred route is identified.
- **Data Management & Information System Assessment:** This activity will involve conducting an assessment followed by the development of a remediation plan to evaluate

the existing IT (information technology) and OT (operational technology) architecture that currently supports pipeline and pipeline system assets to determine what changes will be needed for managing new hydrogen assets.

- **Technology Readiness Assessment:** This activity will evaluate and assess the technologies to be used for the proposed new pipeline system and associated assets.
- **Affordability Considerations and Economic Analysis:** This activity will assess the potential cost allocation and rate design approaches for Angeles Link, based on information developed in Phase 2, including updated project cost estimates. This activity will also include a refined economic analysis integrating updated hydrogen market data and information about the selected preferred route to estimate the expected levelized cost of hydrogen delivered by Angeles Link.

Table 2: Phase 2 Direct Cost Estimate (in millions)

Engineering, Technology, and Economics	2026	2027	2028	TOTAL
DIRECT LABOR	$1.6	$1.6	$0.7	$3.9
DIRECT NON-LABOR	[redacted]	[redacted]	[redacted]	[redacted]
TOTAL DIRECT O&M COSTS	[redacted]	[redacted]	[redacted]	[redacted]

Assumptions:

- SoCalGas anticipates using 13.5 full-time equivalents (FTEs) for these efforts. Labor costs include employee time spent on evaluations and analyses related to workforce training curriculum development, hydrogen safety, gas standard development, workforce development, engineering design, pipeline routing, and economics.
- Non-labor costs include contractors or consultants required to provide technological expertise related to workforce training curriculum development, reliability and resiliency, hydrogen safety, gas standard development, workforce development, engineering design, pipeline routing, and economics. Non-labor costs also include training curriculum development, as well as contractors to assist in the efforts of updating Gas Standards and MSPs, in addition to coordination with the Hydrogen Safety Panel in its review of the Safety Plan.

Angeles Link Hydrogen System Supply and End Uses (Labor and Non-Labor)

Project Description: Angeles Link Hydrogen Supply and End Uses activities are intended to further develop information on hydrogen demand and hydrogen production planning in order to support identifying and designing a preferred system route and configuration. These activities include, but are not limited to:

- **Third Party Connection Evaluation (First/Last Mile Delivery):** This activity will comprehensively evaluate first-mile to receipt points and last-mile delivery to offtake points from the proposed pipeline system. The activities will include developing criteria, cost analyses, options, and impact assessments for connecting clean renewable hydrogen production sites with proposed routes. The evaluation will also cover options for connecting to producers, and offtake points, including laterals and on-site independent compression.
- **Hydrogen Demand Evaluation:** This activity will build off the Phase 1 Demand Study to perform a more in-depth analysis to identify operational characteristics and geographical locations of potential end users to help inform the preferred route with more precision and defined throughput. This activity will also incorporate hydrogen pricing into the demand curve, assess demand associated with potential market subsectors, perform refined demand projections specifically for specific industries and sectors, and produce a more refined demand forecast based on current market information. This analysis will also include economic modeling of demand elasticity to understand the impact to demand volumes due to future changes in the cost of hydrogen and the cost of current fuels (due to carbon pricing programs).
- **Production Planning Assessment:** This activity will identify actual and potential production supply locations in Central and Southern California, which could impact the selection of a preferred route and system throughput and hydraulics. This activity will also further analyze clean renewable hydrogen production technologies in terms of their development and ability to meet gas quality expectations for pipeline integration and delivery for interconnection to the Angeles Link system, locations, production profiles, development plans, etc.

Table 3: Phase 2 Direct Cost Estimate (in millions)

Hydrogen System Supply and End Uses	2026	2027	2028	TOTAL
Direct Labor	$0.5	$0.5	$0.3	$1.3
Direct Non-Labor	[redacted]	[redacted]	[redacted]	[redacted]
TOTAL DIRECT O&M COSTS	[redacted]	[redacted]	[redacted]	[redacted]

Assumptions:

- SoCalGas anticipates using 2 FTEs to manage the Phase 2 Hydrogen System Supply and End Use activities.
- Non-labor costs include third-party consultants required to provide technological expertise, material costs, modeling various potential scenarios, market assessments, interview support, and other analysis required to understand hydrogen demand and production.

Angeles Link Regulatory & Project Management (Labor and Non-Labor)

Project Description: The Regulatory & Project Management activities will focus on continued compliance with applicable directives and reporting requirements, including CPUC requirements. These activities include overseeing project-wide management, strategy, and oversight, and involve developing and implementing processes and procedures for managing scope, schedule, financials, risk analysis, and change management with the goal of mitigating risks and increasing the likelihood of project success for Angeles Link.

Table 4: Phase 2 Direct Cost Estimate (in millions)

Regulatory & Project Management	2026	2027	2028	TOTAL
Direct Labor	$1.7	$1.7	$0.9	$4.3
Direct Non-Labor	[redacted]	[redacted]	[redacted]	[redacted]
TOTAL DIRECT O&M COSTS	[redacted]	[redacted]	[redacted]	[redacted]

Assumptions:

- SoCalGas anticipates using 15 FTEs to manage the Phase 2 Regulatory and Project Management activities. Labor costs in the department include employee time spent on regulatory and project management matters, in addition to providing oversight at a programmatic level by developing and implementing controls including scope management, master program schedule tracking, program-wide documentation management, and financial reporting with the goal of mitigating risks and increasing the likelihood of project success.
- The non-labor expenses incurred by this group include miscellaneous employee expenses, administrative services, and consultant support.

Angeles Link Stakeholder Engagement (Labor and Non-Labor)

Project Description: SoCalGas will expand its stakeholder engagement activities to meet with and solicit input from a broader range of stakeholders, including the communities, their representatives, and tribal governments along potential routes. SoCalGas will provide updates and solicit feedback on its Phase 2 activities. SoCalGas plans to provide potentially impacted communities along potential directional routes where field work will be conducted opportunities to provide feedback on route selection, community benefits, and other programmatic activities via public meetings to solicit input from nearby communities. Additionally, public officials along the preferred routes may inquire about Angeles Link and want to provide input on Phase 2 activities. Therefore, stakeholder engagement activities in Phase 2 will encompass soliciting feedback from local and regional governments on proposed routes.

Table 5: Phase 2 Direct Cost Estimate (in millions)

Stakeholder Engagement	2026	2027	2028	TOTAL
Direct Labor	$0.7	$0.7	$0.3	$1.7
Direct Non-Labor	[redacted]	[redacted]	[redacted]	[redacted]
TOTAL DIRECT O&M COSTS	[redacted]	[redacted]	[redacted]	[redacted]

Assumptions:

- SoCalGas anticipates using 11.5 FTEs to manage the Phase 2 Stakeholder Engagement activities.
- In 2023-2024, SoCalGas held 27 stakeholder engagement meetings. The number and scope of stakeholder engagement meetings needed in Phase 2 is anticipated to increase as the Angeles Link preferred system route is identified. Phase 1 stakeholder engagement activities were largely focused within the Los Angeles Basin. As a preferred route is defined in Phase 2, SoCalGas is planning to do more direct community outreach and will convene route-specific stakeholder groups comprised of community-based and environmental justice organizations, business associations, civic leaders, tribal leaders and other potentially impacted groups outside of the Los Angeles Basin to engage them in the project development process.
- SoCalGas forecasts an increase in dollars needed to host additional stakeholder engagement meetings in communities across a larger geographic area, as compared to Phase 1.

- The stakeholder engagement activities will also require consultants to prepare materials for and facilitate the proposed PAG and community meetings that will be running in parallel. To forecast these costs, SoCalGas took the current spend for the PAG and CBOSG consultants in Phase 1 and estimated an average monthly spend for an increased scope of work as described above. SoCalGas also added in anticipated spend for facility and technology rental to host stakeholder engagement meetings throughout Central and Southern California.
- SoCalGas compensates CBOs for participation in Phase 1PAG and CBOSG meetings. SoCalGas forecasts include compensation for an increased number of CBOs for participating in an increased number of meetings and for assistance hosting and facilitating community meetings.
- Labor costs include hosting technical and community workshops, regional workshops, stakeholder review groups, meetings with stakeholders, route-specific stakeholder groups, business associations, public agencies, civic leaders, and other potentially impacted groups to solicit input on project design, mitigation measures, and the assessment of community benefits.
- SoCalGas may host stakeholders at non-SoCalGas facilities along proposed routes.
- Non-labor costs associated with this activity include meeting facilitation expenses, informational materials, and compensating organizations for hosting and participating in meetings.