PREPARED DIRECT TESTIMONY OF SHIRLEY ARAZI AND AMY KITSON ON BEHALF OF SOUTHERN CALIFORNIA GAS COMPANY

(CHAPTER 1 – OVERALL PROGRAMMATIC)

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

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PREPARED DIRECT TESTIMONY OF SHIRLEY ARAZI & AMY KITSON (OVERALL PROGRAMMATIC)

I. PURPOSE AND OVERVIEW OF TESTIMONY

The purpose of our joint direct testimony on behalf of Southern California Gas Company (SoCalGas) is to provide an overview of the prudent and reasonable execution of Phase 1 of Angeles Link (Phase 1). In this Application, SoCalGas seeks cost recovery of \$24.3 million of operating and maintenance (O&M) expenditures reasonably incurred for Phase 1 activities recorded in the Angeles Link Memorandum Account (ALMA).¹ As detailed in our testimony, SoCalGas effectively executed Phase 1 in accordance with California Public Utilities Commission (CPUC or Commission) Decision (D.) 22-12-055 (Phase 1 Decision), including conducting feasibility studies² with robust stakeholder engagement,³ joining the Alliance for Renewable Clean Hydrogen Energy Systems (ARCHES)⁴ – which led to Angeles Link's inclusion in California's successful hydrogen hub application to the U.S. Department of Energy (DOE). In addition, our testimony demonstrates the prudent and reasonable execution of the development of the Angeles Link Phase 1 Framework for Affordability Considerations (Affordability Framework).⁵ Our testimony also describes the Angeles Link organization's establishment and cost management structure to support Phase 1 execution. In accordance with the Phase 1 Decision's requirements, Phase 1 activities are appropriately recorded to the ALMA,

¹ Phase 1 expenditures were incurred from January 2023 through December 2024, with some discrete trailing charges in 2025 as further described in Section IV B below. The incremental costs and interest recorded to the ALMA totals \$24.3 million, which form the basis for the revenue requirements requested for rate recovery. *See* Chapter 6 (Direct Testimony of Jenny Chhour and Michael W. Foster) for a description on how the revenue requirement is trued up for trailing charges.

² Phase 1 Decision at 73-74 (Ordering Paragraph (OP) 1, 3(a), 3(c)). The studies were scoped and conducted in compliance with the Phase 1 Decision in its entirety, which includes broader requirements than those required for cost recovery, including OP 6 (*id.* at 75-77). Phase 1 Decision OP 6 requirements to advance to Phase 2 are being addressed in A.24-12-011.

³ *Id.* at 74-78 (OP 3(e), 3(h), 5(b), 5(d), 7, 8).

⁴ Co-founded by the Governor's Office of Business and Economic Development (GO-Biz), ARCHES is "California's designated U.S. Department of Energy hydrogen hub, established to accelerate the deployment of renewable, clean hydrogen projects and infrastructure to advance a zero-carbon economy." See also Phase 1 Decision at 74 (OP 3(d)).

⁵ *Id.* at 75 (OP 5(a)).

were completed under the authorized \$26 million cost cap,⁶ and were conducted reasonably and prudently to explore Angeles Link's feasibility, including addressing questions regarding project alternatives (including a localized hydrogen hub and other decarbonization options),⁷ public interest benefits and impacts to disadvantaged communities while addressing environmental and social justice concerns (ESJ),⁸ consideration of California environmental law and public policies,⁹ and Angeles Link's potential to advance the State's decarbonization goals. Accordingly, the costs presented in this Application were prudently incurred and should be approved for recovery.

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II. **EVOLUTION OF ANGELES LINK**

As the Commission has recognized, clean renewable hydrogen holds promise as a potential solution to decarbonize California's energy future and bring economic opportunities and new jobs to the Los Angeles region.¹⁰ Angeles Link is envisioned as a utility-owned longterm decarbonization solution to help California achieve its carbon neutrality goals affordably at scale.

On February 17, 2022, SoCalGas filed Application (A.) 22-02-007 (ALMA Application) to track incremental costs associated with stakeholder engagement and engineering, design, and environmental feasibility studies to develop Angeles Link.¹¹ The Phase 1 Application was filed three months after the Infrastructure Investment and Jobs Act (IIJA) was passed on November 15, 2021, which allocated federal funding to kickstart a national network of clean hydrogen

- *Id.* at 73-74 (OP 1, 2, 3(b))
- Id. at 74-75 (OP 3(c), 5(e)).
- 8 Id. at 74-75 (OP 3(e), 5(b)).
- Id. at 75 (OP 5(c)).
- 10 Id. at 2; see also CPUC, CPUC Acts To Advance Understanding of Hydrogen's Role As Decarbonization Strategy (December 15, 2022), available at: https://www.cpuc.ca.gov/news-andupdates/all-news/cpuc-acts-to-advance-understanding-of-hydrogen-role-as-decarbonization-strategy.
- 11 See A.22-02-007, Application of Southern California Gas Company for Authority to Establish a Memorandum Account for the Angeles Link Project (February 17, 2022), available at: https://www.socalgas.com/sites/default/files/A22-02-SOCALGAS-Angeles Link Memorandum Account Application.pdf.

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producers, consumers, and connective infrastructure.¹² In approving the ALMA, the Phase 1 1 2 Decision recognized the potential public interest benefits that Angeles Link could bring to the State^{13,14} and authorized SoCalGas to record the costs of performing feasibility studies for 3 Angeles Link up to a cap of \$26 million for which SoCalGas could seek later recovery.¹⁵ 4 Specifically, the Phase 1 Decision declared that "it serves the public interest for SoCalGas to 5 perform feasibility studies on the Project immediately."¹⁶ The Phase 1 Decision therefore 6 7 authorized SoCalGas to record the costs of certain feasibility studies for, and other activities 8 associated with, Angeles Link to the ALMA. 9 Angeles Link is envisioned as a non-discriminatory, open access pipeline system 10 11

dedicated to public use,¹⁷ that could transport up to 1.5 million metric tons per year (MMPTY) of clean renewable hydrogen from regional third-party production and storage sites to end users across Central and Southern California, including in the Los Angeles Basin and the Ports of Los Angeles and Long Beach. Angeles Link is an integral part of the California Hydrogen Hub,¹⁸ with two pipeline segments, the San Joaquin Valley and Lancaster pipeline segments (Hub Segments), detailed in ARCHES's successful application to DOE for federal funding. These Hub Segments are part of the broader Angeles Link system, facilitating the transition to a hydrogenbased economy and California's sustainable future. Additional details on SoCalGas's coordination with ARCHES during Phase 1 are provided in Section VII.

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¹² IIJA, Pub. L. 117-58, § 40314 (Additional clean hydrogen programs); see also, DOE – Office of Clean Energy Demonstrations, *Regional Clean Hydrogen Hubs*, available at: <u>https://www.energy.gov/oced/regional-clean-hydrogen-hubs-0</u>.

¹³ Phase 1 Decision at 61 (Finding of Fact (FOF) 1).

¹⁴ Pursuant to the Phase 1 Decision OP 3(d), SoCalGas joined ARCHES in October 2022 in support of its application to the DOE for the California Hydrogen Hub. That application was selected by DOE after a competitive process and resulted in ARCHES signing a Cooperative Agreement with DOE for the California Hydrogen Hub to receive up to \$1.2 billion in federal funding.

¹⁵ Phase 1 Decision at 16, 73 (OP 1).

¹⁶ *Id.* at 16.

¹⁷ A pipeline system dedicated to public use will encourage continued investments in clean renewable hydrogen and development of the State's hydrogen economy, particularly by future producers and end users who could take advantage of an open-access pipeline system.

¹⁸ The California Hydrogen Hub consists of a network of clean hydrogen producers and consumers, as well as connective transportation infrastructure such as Angeles Link.

III. PHASE 1 STUDIES OVERVIEW

Consistent with the Phase 1 Decision, the primary objective of the Phase 1 Studies was to evaluate the feasibility of Angeles Link and inform more detailed analyses in future phases while integrating safety, reliability, and affordability considerations throughout. The Phase 1 studies¹⁹ collectively examined the feasibility of designing, permitting, and constructing a safe, reliable, and scalable pipeline system to connect hydrogen producers to points of expected demand as a cost-effective decarbonization pathway (i.e., delivery via pipeline). The studies also examined potential public interest benefits to SoCalGas ratepayers and the broader community.

The Phase 1 Studies commenced in January 2023, focused exclusively on clean renewable hydrogen²⁰ and explored a variety of topics such as cost-effectiveness (including evaluation of potential alternatives), technical feasibility (e.g. safety, routing, environmental), and public interest benefits (e.g. greenhouse gas (GHG) reductions, nitrogen oxides (NOx) reductions, workforce planning). As shown in Figure 1 below, SoCalGas conducted over a dozen studies²¹ consistent with the Commission's directives in the Phase 1 Decision, which consider affordability concerns²² as appropriate for the Phase 1 feasibility stage, impacts on disadvantaged communities,²³ consistency with California law and public policies,²⁴ and stakeholder feedback.²⁵ Phase 1 also provided information and analysis to support the planning and development of Angeles Link in alignment with ARCHES' operational goals.²⁶ An ESJ

¹⁹ The full studies, including the data analysis to support the studies, are publicly available. Also refer to the Phase 1 Consolidated Report available on SoCalGas's website at: <u>https://www.socalgas.com/regulatory/angeleslink</u>.

²⁰ Produced with a carbon intensity equal to or less than four kilograms of carbon dioxide-equivalent produced on a lifecycle basis per kilogram and does not use any fossil fuel in its production process. *See* Phase 1 Decision at 73 (OP 3(a)).

²¹ Studies also refer to evaluations, analyses, and framework(s), where noted.

²² Phase 1 Decision at 75 (OP 5(a)).

²³ Id. at 74-75 (OP 3(e), 5(b)). Also refer to Chapter 2 (Direct Testimony of Frank Lopez), Chapter 4 (Direct Testimony of Jessica Kinnahan Foley), and Chapter 5 (Direct Testimony of Katrina Regan) for additional details.

²⁴ *Id.* at 75 (OP 5(c)).

²⁵ Id. at 74-78 (OP 3(e), 3(h), 5(d), 7, 8). Additional details regarding stakeholder engagement are described in Chapter 2 (Direct Testimony of Frank Lopez).

²⁶ *Id.* at 74 (OP 3(d)).

Plan²⁷ and Affordability Framework²⁸ were also developed, with stakeholder feedback, in compliance with the Phase 1 Decision.

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Figure 1: Phase 1 Studies



The feasibility studies are described in more detail in Chapters 2-5, where the witnesses illustrate the four key milestones associated with gathering stakeholder feedback for each study. These include: (1) initial scopes of work, (2) the technical approach or methodology for conducting each study, (3) preliminary findings based on initial data and results from the analysis, and (4) the draft study. These milestones represented critical points at which the studies were conducted, reflecting an iterative process where stakeholder feedback, interdependencies with other studies, and/or current external data could be incorporated, as appropriate.²⁹ Further details regarding iterations or changes in scope, schedule, and/or cost associated with conducting the Phase 1 Studies are described in Chapters 2-5. SoCalGas completed the Phase 1 Studies, including preliminary contract execution and incorporation of stakeholder input, in approximately 24 months and well under the cost cap.

Phase 1 of Angeles Link also provided opportunities for stakeholders to engage in planning at an early stage—well before such engagement is typically initiated for major utility

²⁷ Id. at 75-76 (OP 5(b)). Additional details regarding the ESJ Plan are described in Chapter 2 (Direct Testimony of Frank Lopez).

²⁸ *Id.* at 75 (OP 5(a)).

²⁹ To facilitate this process, upon the distribution of materials at each milestone, stakeholders were provided between 2 to 6 weeks to review and provide feedback, with the duration varying based on the specific milestone. While the typical comment period was around four weeks, some milestones had longer or shorter timeframes as appropriate. Stakeholder feedback was addressed in the Phase 1 quarterly reports, and feedback was incorporated into the studies as appropriate. Also refer to the Phase 1 Decision OP 3(e), OP 3(h), OP 5(d), and OP 8 (Phase 1 Decision at 74-78). Additional details are provided in Chapter 2 (Direct Testimony of Frank Lopez).

projects. In accordance with the Phase 1 Decision, SoCalGas formed the Planning Advisory Group (PAG), composed of representatives from industry, labor, academia, tribal governments and environmental organizations, and a Community Based Organization Stakeholder Group (CBOSG), composed of community-based organizations. As described further in Chapter 2 (Direct Testimony of Frank Lopez), the Phase 1 Decision required SoCalGas to conduct at least quarterly meetings³⁰ and issue quarterly reports.³¹ The quarterly reports were made available to the public and submitted to the Commission, providing updates on the Phase 1 feasibility studies and ARCHES, reporting preliminary results and findings on the studies, and including stakeholder feedback and responses thereto. In response to stakeholder requests for increased opportunities for engagement, and to keep stakeholders informed throughout the process and allow time to consider, respond to, and incorporate their feedback as appropriate (e.g., in quarterly reports and studies), SoCalGas increased the frequency of stakeholder meetings and extended the Phase 1 schedule to allow for additional engagement.

Through the Phase 1 process, the vision for Angeles Link, and its relationship to the State's commitments to reduce GHG emissions while prioritizing affordable decarbonization, has come into greater focus. At the beginning of Phase 1, SoCalGas examined a broad range of possible configurations of a clean renewable hydrogen energy transport system into the Los Angeles Basin. A more defined vision of Angeles Link was then developed, including a range for pipeline throughput, and a number of potential directional routes based on potential end use sectors (e.g., hard-to-electrify industries and heavy-duty transportation), potential third-party hydrogen production locations, and insights gathered through coordination with ARCHES and other stakeholders.

³⁰ In accordance with Phase 1 Decision OP 3(e), OP 5(d), and OP 8, SoCalGas conducted quarterly stakeholder engagement meetings with the PAG and CBOSG, including inviting participation from disadvantaged communities and ESJ groups to gather and address stakeholder concerns (Phase 1 Decision at 74-78).

³¹ In accordance with the Phase 1 Decision OP 3(h), OP 5(d), and OP 7, SoCalGas was required to submit to the Commission and make available to the public quarterly reports reflecting feedback from parties, and make data, findings, and results of Phase 1 studies available to the public (Phase 1 Decision at 74-77).

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IV.

ANGELES LINK MANAGEMENT OVERSIGHT

A. Organizational Structure and Management Oversight

To plan and implement Phase 1 activities (e.g. studies, stakeholder engagement), develop and track cost estimates and schedule, and conduct reporting (e.g., quarterly reports), SoCalGas established an Angeles Link organization. The Angeles Link organization consisted of project managers and directors from various areas including general administration, market assessment, regulatory reporting and policy, environmental, engineering and design, and regional affairs. Additional internal resources supporting Phase 1 activities on an as-needed basis included personnel from supply management, regulatory, legal, accounting and finance, construction, and environmental.

SoCalGas implemented project management, governance and process controls, which allowed for continued assessment of deliverables, cost, and schedule, throughout Phase 1. These processes also promoted organizational awareness of activities, providing early identification of changes needed to align scope and schedule given the iterative nature of studies. This approach supported cost variance management and the development of mitigation strategies to successfully achieve the objectives outlined in the Phase 1 Decision.

The Angeles Link organization collectively performed project-wide management, oversight, cost tracking, and change management activities, leveraging personnel to support the various feasibility studies. SoCalGas also managed compliance with applicable Commission directives, including reporting requirements, and engaged with ARCHES to support its application to the DOE for the California Hydrogen Hub.

1. Project Management

To proceed with conducting feasibility studies immediately as ordered by the Phase 1 Decision,³² and enable the ramp up of activities during Phase 1, SoCalGas utilized internal and external resources to support project management functions. The market assessment, engineering and design, and environmental groups directly managed the majority of the feasibility studies, with support from the dedicated regulatory and policy, general administration, and regional affairs organizations, and additional resources as needed. Internal and external

³² Phase 1 Decision at 63 (FOF 13) ("Given the confluence of current events, including recent federal statutes, regional initiatives, and local interests, public interest is served in SoCalGas begins conducting feasibility studies of the Angeles Link Project immediately.").

project managers worked closely with a number of organizations and subject matter experts (SMEs) to develop, review, and analyze the necessary deliverables to support the completion of the feasibility studies. Project managers served as the key points of contact for communicating work direction to consultants and communicating progress internally, including activities around contract management, managing project scope and schedule, and providing expertise and progress updates. Project management activities also included document and change control to support the management of documents and deliverables during Phase 1.

2. General Administration, Regulatory Reporting, and Stakeholder Engagement

SoCalGas monitored and tracked Angeles Link Phase 1 costs through a review and approval process. As further described below, the dedicated Angeles Link organization implemented controls processes through review of labor and non-labor charges, SAP transactions, vendor invoice review, and the monthly accrual process. The scope of responsibilities for the Angeles Link general administration organization included: (1) tracking and accounting of costs (labor and non-labor), (2) verifying journal entries and invoices, (3) dedicating specific internal orders to track certain activities, (4) adhering to SoCalGas accrual, procurement, and approval and commitment policies (e.g., review invoices at the project management and management level depending on dollar threshold), and (5) conducting reconciliation of costs booked to the ALMA through review of posted transactions.

During Phase 1, SoCalGas also established reporting standards applicable to Phase 1 activities by developing and implementing project controls including scope management, schedule tracking, program-wide documentation management, and financial reporting. The Phase 1 activities also included engaging with the dedicated project managers, regulatory SMEs, and regional affairs to run the quarterly meetings with PAG and CBOSG groups,³³ making data, findings, and results available via issuing quarterly reports to the Commission and the public,³⁴ managing compliance with regulatory directives and requirements,³⁵ and coordinating with ARCHES to harmonize the scheduled activities, potential directional routes and preliminary

³³ *Id.* at 74-77 (OP 3(e), 5(d), 8).

³⁴ *Id.* at 74-77 (OP 3(h), 7).

³⁵ Refer to Compliance Matrix Application Appendix B, and other reporting requirements (*e.g.*, IIJA reporting per Resolution (Res.) E-5254).

operational requirements of Angeles Link with that of the California Hydrogen Hub. SoCalGas also engaged with the Commission's Energy Division to establish a stakeholder engagement framework for the PAG and CBOSG and a set of procedures to compensate CBOSG members for their participation in the Phase 1 process.³⁶

B. Cost Controls, Reporting, and Tracking

The Phase 1 Decision authorized SoCalGas to record costs associated with feasibility studies in a newly created memorandum account (ALMA).³⁷ The Phase 1 Decision authorized SoCalGas to record up to \$26 million of O&M³⁸ costs. The Phase 1 Decision also authorized SoCalGas to file a Tier 2 Advice Letter to increase the cap by up to 15% (which would result in a cap of approximately \$30 million) if needed to complete the Phase 1 feasibility studies and the additional activities ordered in the Phase 1 Decision.³⁹ As further described throughout our testimony, SoCalGas followed applicable guidance that governed the costs allocated to the memorandum account in alignment with the Phase 1 Decision.

As described in more detail in Chapters 2-5, SoCalGas engaged contractors under Master Services Agreements (MSAs) established through prior competitive solicitations where applicable. The use of pre-negotiated rates provides more cost predictability because the rates typically do not escalate over the life of the contract, which helps minimize cost and support ratepayer affordability in alignment with OP 5(a).

As described herein, Angeles Link established a general administration group to provide support to the project managers, including cost tracking and guidance where appropriate. This organization implemented controls processes whereby they conducted review of labor charges to validate that employees were correctly recording to the appropriate Angeles Link internal orders. The group also reviewed SAP transactions, including back-up documentation in support of journal entries and transactions for non-labor activities. These activities also included contractor

³⁶ Phase 1 Decision at 78 (OP 8(c)). Additional details regarding stakeholder engagement are provided in Chapter 2 (Direct Testimony of Frank Lopez).

³⁷ Id. at 73 (OP 1-2). SoCalGas filed Advice Letter 6070-G in compliance with Phase 1 Decision OP 2 to establish the ALMA.

³⁸ *Id.* at 74 (OP 3(b)).

³⁹ Id. at 75 (OP 4). SoCalGas did not request a cap increase and completed Phase 1 under the \$26 million cap.

invoice review to validate the existence of purchase documents (e.g. contracts, purchase order(s)), accuracy of invoiced rates, cost elements, and monthly accruals.

SoCalGas managed Phase 1 costs through strategies that optimized internal and external resource allocation, maintained financial oversight, and completed the required feasibility studies within the authorized cost cap. Use of internal resources and SMEs, effective project management, efficient vendor selection, contract management, and structured engagement with third-party contractors, allowed for cost controls while enabling effective study completion. As further detailed in Chapters 2-5, changes to scope, schedule, or cost, generally reflected consideration and/or incorporation of stakeholder feedback. Ultimately, the Phase 1 Studies were completed within 24-months, with robust stakeholder engagement and minimal change orders, all under the authorized cost cap.

The Phase 1 costs presented in this Application were incurred from January 2023 through April 2025.⁴⁰ Most of the costs covered the period of January 2023 until December 2024, with some discrete trailing and close-out charges that were incurred in 2025. The Phase 1 costs consist predominantly of internal labor, various miscellaneous expenses and external services for non-labor to support the Phase 1 Studies, PAG and CBOSG activities, preparation and submittal of quarterly reports, and other activities in alignment with the Phase 1 Decision (e.g., evaluating alternatives and associated costs, including localized hub and other decarbonization options⁴¹), and to advance Angeles Link (e.g., coordination with ARCHES⁴²). In addition to company personnel, SoCalGas contracted with third-party contractors to assist with developing the Phase 1 Studies and to facilitate the robust stakeholder engagement process. Notably, SoCalGas leveraged Diverse Business Enterprise (DBE) suppliers to help support Phase 1 activities, incurring approximately 32% of non-labor over 20 DBE suppliers and subcontractors.

Table 1 below summarizes the direct and indirect costs incurred as part of Phase 1.⁴³ The costs include the labor and non-labor associated with conducting the studies, including allocation

⁴⁰ See Chapter 6 (Direct Testimony of Jenny Chhour and Michael W. Foster) for a description on how the revenue requirement is trued up for trailing charges.

⁴¹ Phase 1 Decision at 74-75 (OP 3(c), 5(e)).

⁴² *Id.* at 74 (OP 3(d)).

⁴³ In accordance with the Phase 1 Decision OP 3(f) and OP 3(g), ALMA recorded costs in this Application do not include costs for activities related to public outreach or for activities related to engaging with public officials or legislators.

1 of costs associated with the above-described supporting groups (e.g., general administration,

- 2 regulatory & policy, engineering & strategy and legal support).⁴⁴
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Table 1: Angeles Link Phase 1 Total Costs (2023-2025) (in millions)

Testimony Chapter	Labor	Non-Labor	Overheads ⁴⁵	Total Loaded
				Costs
Chapter 2 - Stakeholder Engagement	\$1.1	\$4.2	\$1.0	\$6.3
Chapter 3 - Market Assessment	\$1.0	\$7.0	\$1.0	\$9.0
Chapter 4 - Environmental	\$0.7	\$3.0	\$0.7	\$4.4
Chapter 5 - Engineering & Design	\$0.9	\$2.0	\$0.8	\$3.7
Total Costs	\$3.7	\$16.2	\$3.5	\$23.4

For details regarding the total ALMA balance of \$24.3 million (includes direct O&M costs,

applicable overheads, interest) and associated revenue requirement requested for cost recovery in

this Application, refer to Chapter 6 (Direct Testimony of Jenny Chhour and Michael W. Foster).

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PHASE 1 AFFORDABILITY FRAMEWORK OVERVIEW

Pursuant to Ordering Paragraph 5(a) of the Phase 1 Decision,⁴⁶ SoCalGas prepared an Affordability Framework⁴⁷ which describes how Angeles Link's planning process considered and identified opportunities to mitigate affordability concerns. The Phase 1 Affordability Framework: (1) described the Commission's general regulatory framework for evaluating affordability and approving rates;⁴⁸ (2) discussed California's projected decarbonization costs

⁴⁷ The Phase 1 reports, including Affordability Framework are *available at*: <u>https://www.socalgas.com/regulatory/angeleslink.</u>

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⁴⁴ Internal labor for general administration, regulatory, and policy, as well as external non-labor and miscellaneous expenses were monitored and tracked using dedicated internal order numbers. These costs were then allocated to each feasibility study and workstream based on a prorated percentage of total Phase 1 Angeles Link costs.

⁴⁵ The overhead rates applied to O&M expenditures are applied according to its classification (i.e., company labor, contract labor, purchases services, etc.). As shown in Chapter 6 (Direct Testimony of Jenny Chhour and Michael W. Foster), the total overheads are adjusted to exclude non-incremental loaders for cost recovery.

⁴⁶ Phase 1 Decision OP 5(a) requires SoCalGas to demonstrate how "the planning process address[es] affordability concerns in the development of the [Angeles Link] Project." (Phase 1 Decision at 72); *see also id.* at 76 (OP 6(k)) (regarding "[p]lans for addressing and mitigating affordability concerns").

⁴⁸ The Framework lists the various Commission proceedings considering affordability for the energy transition, including considerations to evaluate affordability, including cost effectiveness, ratepayer benefits, non-ratepayer funding opportunities, existing ratepayer assistance programs, and bill impacts.

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more broadly to provide context for the proposed investment in Angeles Link;⁴⁹ (3) summarized the Phase 1 work SoCalGas conducted on cost-effectiveness as a building block to consider the affordability of Angeles Link and consider stakeholder feedback; and (4) identified potential strategies for addressing cost-effectiveness and affordability in Angeles Link's development in future phases, including in coordination with the Commission and stakeholders on matters that extend beyond SoCalGas's control (e.g., exploration of potential non-ratepayer funding, potential need for legislative action, or Commission approval). Given that affordability concepts were considered in the studies (e.g., High Level Economic Analysis and Cost Effectiveness (Cost Effectiveness Study)), stakeholder engagement process (PAG/CBOSG meetings and quarterly reports), and in the future considerations portions of relevant studies (as explained in the Affordability Framework), the costs associated with the Affordability Framework are embedded in the Phase 1 Studies.

Throughout Phase 1, SoCalGas received feedback from PAG and CBOSG members about Angeles Link development costs, cost effectiveness, and affordability to customers and ratepayers.⁵⁰ More details regarding SoCalGas's stakeholder engagement process during Phase 1 are discussed in Chapter 2 (Direct Testimony of Frank Lopez). SoCalGas conducted various studies during Phase 1 that pertain to these affordability-related issues, including (i) the cost effectiveness of Angeles Link compared to alternative hydrogen delivery systems and nonhydrogen alternatives,⁵¹ and (ii) cost estimates for constructing potential directional Angeles Link routes.⁵² For example, the Cost Effectiveness Study evaluated hydrogen versus non-

⁴⁹ Describing an energy portfolio that considers traditional renewable energy and clean firm power as a cost-effective path to decarbonize. Also references State plans and policies and third-party studies (e.g., California Air Resources Board (CARB) 2022 Scoping Plan for Achieving Carbon Neutrality, CAISO Electric Transmission Outlook, California Energy Commission Integrated Energy Policy Report (IEPR), various third-party studies (EDF/E3, SCE, SoCalGas, etc.))

⁵⁰ Parties provided feedback on various Affordability topics during 2023-2024. All feedback received, along with SoCalGas responses, is included, in original form, in the Phase 1 quarterly reports. These reports, along with transcripts from the PAG and CBOSG meetings, are submitted to the Commission and published on SoCalGas's website.

⁵¹ Phase 1 Decision at 73-75 (OP 3(a), 3(c), 5(e)). For more details, *see* Chapter 3 (Direct Testimony of Vijai Atavane) regarding the development of the Phase 1 High-Level Economic Analysis and Cost Effectiveness Report (Cost Effectiveness Study) and Project Options & Alternatives Study (Alternatives Study).

⁵² See Chapter 5 (Direct Testimony of Katrina Regan) for more information regarding the development of the Phase 1 Pipeline Sizing and Design Criteria Report (Design Study).

hydrogen alternatives, and hydrogen delivery by pipeline (including the potential for a localized 2 hydrogen hub) versus other methods to achieve the scale and volume needed to serve a portion of 3 projected demand. The results of these studies, PAG and CBOSG feedback, and affordability 4 issues more broadly informed the development of the Affordability Framework. SoCalGas also 5 provided an opportunity for stakeholders to provide feedback on the Affordability Framework itself⁵³ so that interested parties could continue to have an opportunity to contribute ideas during the planning process.

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VI. **BROAD SOCIALIZATION OF PHASE 1 COSTS PROMOTES AFFORDABILITY**

The potential benefits of Angeles Link acknowledged in the Phase 1 Decision.⁵⁴ and confirmed through the Phase 1 studies (e.g. decarbonization and air quality benefits as shown in the GHG and NOx studies, and creation of thousands of jobs in the region as shown in the Workforce study),⁵⁵ warrants broad cost allocation of Phase 1 costs⁵⁶ to all ratepayers, and which also promotes affordability. The Phase 1 Decision found that authorizing a memorandum account to record costs for Phase 1 of Angeles Link was in the public interest,⁵⁷ and that the benefits of clean renewable hydrogen could accrue not only to direct end users, but more broadly to the State, communities in SoCalGas's service territory, and all SoCalGas ratepayers.⁵⁸

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⁵³ The draft Affordability Framework was issued to PAG/CBOSG in September 2024 with a two-week comment window. All feedback received on the draft Affordability Framework, along with SoCalGas responses, is included, in original form, in the Q3 2024 quarterly report. The final Affordability Framework was published in December 2024.

⁵⁴ Phase 1 Decision at 61-62 (FOF 1-2).

⁵⁵ Refer to the Angeles Link Phase 1 Consolidated Report, available at: https://www.socalgas.com/regulatory/angeleslink.

⁵⁶ As described in the Affordability Framework, SoCalGas will also assess potential cost allocation and rate design approaches for Angeles Link in the future, considering Commission requirements and proceedings that may impact cost allocation and rate design.

⁵⁷ Phase 1 Decision at 68 (COL 6) ("Because the Angeles Link Project has the potential to bring public interest benefits and decarbonize the State's energy use, it is reasonable to authorize the Angeles Link Memo Account.").

⁵⁸ *Id.* at 61 (FOF 1) ("The Angeles Link Project has the potential to bring public interest benefits to the state and especially the Los Angeles area, because clean renewable hydrogen has the potential to decarbonize the state's and the Los Angeles Basin's energy use and bring economic opportunities and new jobs to the Los Angeles region."); see also id. at 62 (FOF 3) ("Investing in the Angeles Link Project serves the public interest by potentially bringing hydrogen at scale to lower the costs of hydrogen and creating economic opportunities and new jobs.").

Specifically, the Phase 1 Decision found that the "findings from numerous studies demonstrate that clean renewable hydrogen is a potential solution to help decarbonize the state's and the Los Angeles Basin's energy use because it is one of the only few viable carbon-free energy alternatives for hard-to-electrify industries, electric generation, and the heavy-duty transportation sector."⁵⁹

Additionally, the Phase 1 Decision found that the "data and analyses that SoCalGas plans to share with stakeholders resulting from its Phase One studies should be beneficial to the development of the clean renewable hydrogen industry and thus serve the public interest."⁶⁰ In particular, the Phase 1 feasibility work supports statewide efforts and has been leveraged for broader technical and policy analysis in California. For example, during a California Air Resources Board (CARB) Senate Bill (SB) 1075 Technical Analysis Workshop, the Energy and Environmental Economics Inc. (E3) highlighted Angeles Link as a case study that is being used to inform SB 1075 analysis regarding the development, deployment, and use of hydrogen across all sectors as a key part of achieving the State's climate, air quality, and energy goals.⁶¹ Additionally, a UCLA study⁶² identifies Angeles Link as one of the only in-depth water use reports that provided estimates and other information on the potential water footprint of hydrogen production. These examples demonstrate how the Phase 1 Studies contribute to public knowledge, policy development, and advancement of hydrogen in California.

Accordingly, as described in Chapter 6 (Direct Testimony of Jenny Chhuor and Michael W. Foster), SoCalGas proposes to allocate the costs of Phase 1 to all ratepayers using the equal cents per therm (ECPT) methodology, which was previously authorized by the Commission for activities that result in societal benefits. This methodology reduces the burden on any one class

⁵⁹ *Id.* at 61-62 (FOF 2).

⁶⁰ Id. at 62 (FOF 7); see also id. at 58 (having SoCalGas's Phase 1 studies available to the public "will benefit both the public and parties interested in the emerging clean renewable hydrogen marketplace.").

⁶¹ Energy & Environmental Economics (E3), CARB Public Workshop Materials: Analysis of Hydrogen in California for Senate Bill 1075 Report (February 25, 2025), available at: <u>https://ww2.arb.ca.gov/sites/default/files/2025-02/sb-1075-workshop-022525-presentation-e3.pdf</u>.

⁶² UCLA Luskin Center for Innovation, *Exploring the Water Footprint of "Green" Hydrogen for Power Generation in California* (April 2025), *available at:* <u>https://innovation.luskin.ucla.edu/wp-content/uploads/2025/04/Exploring-the-Water-Footprint-of-Green-Hydrogen-for-Power-Generation-in-CA.pdf</u>.

of customer and recognizes the public interest and benefits received from doing the feasibility work in Phase 1. The transparency of the Phase 1 planning process,⁶³ the active stakeholder engagement from a broad range of interests, and the publicly available data and analysis from the feasibility studies, is beneficial to the overall development of the clean renewable hydrogen industry to support the state's decarbonization goals. Broad cost allocation is appropriate here given the societal benefits from the work conducted in Phase 1, including that Angeles Link would ultimately serve as a key "first mover" non-discriminatory open access clean renewable hydrogen transportation system dedicated to public use, providing the infrastructure for California's hydrogen economy and the certainty that both producers and end users would need to invest in clean renewable hydrogen in large volumes, which in turn promotes affordability by reducing the cost of hydrogen. Authorizing timely and broad recovery of the early development costs for a first-mover project targeting hard-to-electrify sectors will help catalyze California's hydrogen economy, encourage utility investment in decarbonization infrastructure, and uphold affordability by aligning cost-allocation with shared statewide benefits.

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VII. SOCALGAS COORDINATION WITH ARCHES DURING PHASE 1

As discussed herein, the Phase 1 Decision recognized that Angeles Link could "help position California to receive federal funding through the [IIJA]."⁶⁴ Accordingly, the Phase 1 Decision directed SoCalGas to join ARCHES⁶⁵ in support of the State of California's application for federal funding.⁶⁶ To support the success of the California Hydrogen Hub, during the Phase 1 time period, ARCHES focused on efforts to secure DOE funding and gather market insights to advance a shared understanding of the hydrogen market and overall ecosystem.⁶⁷ SoCalGas coordinated with ARCHES, and Angeles Link was included in ARCHES' April 2023 application

⁶⁶ *Id*.

⁶³ Phase 1 Decision 67 (FOF 43) ("Regular reporting and progress updates on the feasibility studies of the Angeles Link Project are beneficial to the Commission, stakeholders, and other interested parties.").

⁶⁴ Phase 1 Decision at 2, 62 (FOF 10).

⁶⁵ Id. at 33. The federal funding referenced was to DOE's September 2022 Funding Opportunity Announcement DE-FOA-0002779 (FOA) to solicit applications for six to ten regional Hydrogen Hubs to receive federal funding from the 2021 IIJA.

⁶⁷ ARCHES H2, *White Paper Overview* (August 2024) at 3, *available at*: <u>https://archesh2.org/wp-content/uploads/2024/08/ARCHES-White-Papers-Overview-8.8.24.pdf</u>.

to DOE, specifically detailing the Hub Segments,⁶⁸ which comprised over 76% of the pipeline infrastructure detailed by ARCHES for the hub in its application.⁶⁹ The two segments would be connected by the broader Angeles Link system to allow efficient movement of clean renewable hydrogen at scale to support meeting California's decarbonization goals.⁷⁰

In October 2023, the DOE selected the California Hydrogen Hub as one of the regional hydrogen hubs to receive federal funding.⁷¹ Following negotiations, ARCHES and DOE signed a \$12.6 billion cooperative agreement in July 2024⁷² with up to \$1.2 billion in federal funding for the California Hydrogen Hub.⁷³ ARCHES has also formed working groups that have been gathering sector insights, with plans to release white papers to provide a foundation for the State's forthcoming Hydrogen Market Development Strategy.

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⁶⁸ The San Joaquin Valley pipeline segment is an approximately 80-mile pipeline expected to connect various producers and end users in the San Joaquin Valley in Central California. The Lancaster pipeline segment would run approximately 45 miles from Lancaster to the Los Angeles Basin.

⁶⁹ ARCHES stated in its application for federal funding: "Similarly, although a large statewide interconnected pipeline network is not included within the hub timeframe and funding request due to the magnitude of funding and timeframe required to realize such an enterprise (although 165 miles of new regional pipelines are included as an initial investment in the network), the initial projects are chosen to be able to realize and use such a common carrier system as it is introduced in parallel efforts of both utility and private companies in the future." ARCHES H2, *ARCHES Technical Submission to DOE* (April 2023) at 8, *available at:* <u>https://archesh2.org/wpcontent/uploads/2024/08/ARCHES-Technical-Volume-Redacted.pdf</u>.

⁷⁰ If approved, SoCalGas expects that Angeles Link would be constructed in stages to support alignment with ARCHES' timing expectations for the California Hydrogen Hub to be operational by the end of 2033, with the broader Angeles Link system connecting both initial segments and holistically providing pipeline infrastructure for delivering clean renewable hydrogen in Central and Southern California.

⁷¹ State of California – Office of Governor Gavin Newsome, *California Selected as a National Hydrogen Hub, available at:* <u>https://www.gov.ca.gov/2023/10/13/california-selected-as-a-national-hydrogen-hub/</u>.

⁷² ARCHES H2, *California's renewable hydrogen hub officially launches* (March 28, 2025), *available at:* <u>https://archesh2.org/arches-officially-launches/</u>.

⁷³ DOE's funding for the California Hydrogen Hub is contingent on certain project milestones being met in accordance with a set timeline, and ARCHES envisions facilities and infrastructure—including portions of Angeles Link—to begin being operational by December 31, 2033.

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During Phase 1, SoCalGas contributed to ARCHES' efforts, and ARCHES has designated SoCalGas a network partner for purposes of the California Hydrogen Hub.^{74,75} SoCalGas participated in ARCHES' working groups, responded to data requests from DOE to assist ARCHES, and coordinated to align timing expectations by sharing relevant market, community, and/or technical information (including information developed in Phase 1) in support of the California Hydrogen Hub. Based on the Angeles Link feasibility work performed in Phase 1, SoCalGas was well-positioned to provide valuable feedback for the benefit of the overall hydrogen economy. Angeles Link is needed both to support the California Hydrogen Hub in the near term and to lay the foundation for California's hydrogen economy and meet longer-term demand through 2045 to help achieve the State's decarbonization goals and deliver public interest benefits.

VIII. CONCLUSION

As outlined herein, SoCalGas prudently and reasonably executed Phase 1 of Angeles
Link in accordance with the Phase 1 Decision and under the Commission-authorized cost cap.
Phase 1 included completion of feasibility studies that considered and evaluated project
alternatives and environmental impacts, affordability considerations, stakeholder feedback,
potential impacts to disadvantaged communities, and California environmental law and public
policies. The established dedicated project team and cost management structure supported
oversight and accountability throughout Phase 1. SoCalGas also actively engaged stakeholders,
shared progress, and incorporated feedback as appropriate throughout the Phase 1 process.
Additionally, SoCalGas joined ARCHES, leading to Angeles Link's inclusion in California's
successful DOE hydrogen hub application. The Phase 1 feasibility work was conducted with
public interest benefits in mind and in support of California's long-term decarbonization goals.

⁷⁴ See ARCHES H2, Networking – Key Founding Members and Partners, available at: <u>https://archesh2.org/network/</u>.

⁷⁵ SoCalGas is not accepting federal funding from the IIJA because the costs of complying with federal standards for receipt of such funds would exceed the amount offered and thus would not be in ratepayers' best interests. In any event, the federal funding offered was for a later phase, not Angeles Link's Phase 1 or 2, and thus would not offset the costs described in the Application. SoCalGas is open to seeking non-ratepayer funding opportunities for Angeles Link should those opportunities arise in the future and are determined to be in the interest of ratepayers.

- 1 Accordingly, the \$24.3 million in costs recorded to the ALMA were reasonably incurred and
- 2 should be approved for recovery.

This concludes our joint prepared direct testimony.

IX. WITNESS QUALIFICATIONS

<u>Shirley Arazi</u>

My name is Shirley Arazi. My business address is 555 West 5th Street, Los Angeles, CA 90013. My title is the Director of Angeles Link – Regulatory and Policy for SoCalGas. I have been employed by the Sempra Companies since June 2006 starting as a business analyst and have held numerous roles with increasing levels of responsibility in Regulatory Affairs, Finance, and Sustainability. In my current position, my responsibilities include overseeing Angeles Link regulatory, policy, and administration activities. I received a Bachelor of Science in Business Administration majoring in Finance and a minor in Psychology from the University of Arizona in 2006. I also received a Master in Business Administration from San Diego State University in 2010.

I have previously testified before the Commission.

<u>Amy Kitson</u>

My name is Amy Kitson. I am employed by SoCalGas as the Director of HydrogenEngineering and Strategy for SoCalGas. My business address is 555 West Fifth Street, LosAngeles, California 90013-1011. I graduated from Michigan State University in 2003 with aBachelor of Science degree in Mechanical Engineering and California State UniversityNorthridge in 2009 with a Master of Science degree in Engineering Management. I joinedSoCalGas in 2005 as an engineer in the Gas Operations organization supporting theTransmission Integrity Management Program. Since that time, I have held numerous positionswith increasing levels of responsibility including Project Manager, Director of Storage RiskManagement, Director of Integrity Management and Strategic Planning and Director of AngelesLink Engineering and Technology. In my current position, my responsibilities includeoverseeing Angeles Link programmatic activities. Prior to joining SoCalGas, I worked atConsumers Energy in Michigan. There, I held several positions including Mechanical Engineer,Employee Development Coordinator, and Engineering Team Leader.

I have previously testified before the Commission.