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BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Application of Southern California Gas Company (U 904 G), San Diego Gas & Electric Company (U 902 G), Pacific Gas and Electric Company (U 39 G), and Southwest Gas Corporation (U 905 G) to Establish Hydrogen Blending Demonstration Projects

Application 22-09-006
(Filed September 8, 2022)

**OPENING BRIEF OF
SOUTHWEST GAS CORPORATION
(U 905 G)**

Andrew V. Hall
Assistant General Counsel
Stephanie J. Smith
Associate General Counsel
8360 S. Durango
Las Vegas, NV 89113
Telephone: (702) 364-3227
Facsimile: (702) 364-3446
Email: andrew.hall@swgas.com
Email: stephanie.smith@swgas.com

Attorneys for Southwest Gas Corporation

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I. INTRODUCTION.

Southwest Gas Corporation (Southwest Gas) respectfully submits its Opening Brief to the California Public Utilities Commission (Commission) in the above-referenced docket concerning the application of Southern California Gas Company (SoCalGas), San Diego Gas & Electric Company (SDG&E), Pacific Gas and Electric (PG&E), and Southwest Gas (collectively, the Joint Utilities) to establish hydrogen blending demonstration projects. This Opening Brief primarily addresses the areas referenced in the E-mail Ruling Directives and Guidance for Final Briefing (Briefing Ruling) dated March 9, 2026. In particular, the Briefing Ruling instructs parties to relate arguments to those identified by the Assigned Commissioner within the most recent scoping memorandum, as well as directing parties to address how an individual project will or will not add to the body of existing knowledge of hydrogen blending. Further, the Briefing Ruling encourages parties to set forth the relevancy or irrelevancy of references to blending projects outside of California with respect to California gas infrastructure, as well as to address public safety concerns.

Ultimately, the Commission should approve Southwest Gas' proposed hydrogen blending project with phased increases in hydrogen blending amounts in Truckee (Pilot Project) with respect to both its location and with respect to other proposed projects, as it proposes a phased

gradual increase in blending amounts while being monitored and analyzed by a third-party consultant. The Pilot Project also will test hydrogen blending specifically in both higher elevations, and likely within a range of cold temperatures, as well as California gas system pipes in a closed loop which will provide for the ability to closely monitor and track any potential safety issues, as well as impacts of the project itself.

II. BACKGROUND.

Southwest Gas is a public utility engaged in the retail distribution, transportation, and sale of natural gas for domestic, commercial, agricultural, and industrial uses. Southwest Gas currently serves approximately 2.2 million customers in the states of California, Arizona, and Nevada, and serving approximately 206,000 California customers.

Southwest Gas has three California rate jurisdictions: (1) Southern California; (2) Northern California; and (3) South Lake Tahoe.¹ The Southern California rate jurisdiction comprises various communities and areas in San Bernardino County. The Northern California rate jurisdiction covers communities and areas in Placer, El Dorado, and Nevada Counties and the South Lake Tahoe rate jurisdiction is entirely within El Dorado County. The Pilot Project will occur within the Northern California rate jurisdiction.

The Pilot Project proposed by Southwest Gas is a result of the Commission investigating and exploring hydrogen blending as a viable means of reducing greenhouse gas emissions and meeting statewide energy goals in California. The instant docket is intended to provide additional information and ultimately, if deemed appropriate to inform, an injection standard or acceptable hydrogen blending percentage. The Commission's Decision (D.) 21-07-005 issued July 15, 2021 in Application (A.) 20-11-004, instructed the Joint Utilities to each propose live hydrogen blending demonstration projects (the Project(s)). In D.21-07-005, the Commission

¹ Southwest Gas' Application and supporting testimony proposed consolidation of the Northern California and South Lake Tahoe rate jurisdictions. Cal Advocates and SBUA did not oppose this request.

1 dismissed without prejudice A.20-11-004, which SoCalGas, SDG&E, PG&E, and Southwest
2 Gas, filed requesting, inter alia, authority to establish memorandum accounts to record
3 incremental costs to implement a hydrogen blending demonstration program. In dismissing the
4 application, the Commission advised that a future application would need to show, inter alia,
5 (1) improved collaboration with University of California (UC) Riverside, the California Energy
6 Commission (CEC), and other stakeholders; (2) how the results would apply to all of the Joint
7 Utilities' gas pipeline networks and include a detailed timeline, budget for Commission
8 approval, and details about each of the Program's components; (3) the extent research will be
9 conducted on "distribution or transmission pipelines to test the effect of hydrogen embrittlement
10 and the durability and integrity of pipeline materials" and components; (4) how interim reporting
11 will be conducted; and (5) reasonable attempts to use existing Commission-authorized funding
12 and other funds, including the CEC R&D Program and federal funding, to the extent possible.
13 In the instant docket, the Joint Utilities proposed individualized projects within their respective
14 rate jurisdictions with varying parameters. In December 2022, the Commission issued D.22-
15 12-057 in Rulemaking (R.) 13-02-008, which directed the Joint Utilities to propose pilot projects
16 to fill in gaps from the 2022 UC Riverside study on hydrogen blending (Hydrogen Blending
17 Impact Study).²

18 The instant application in this proceeding sets forth the Projects which are intended to
19 add to the body of knowledge and enhance the understanding of hydrogen blending into
20 California's natural gas infrastructure. Accordingly, Southwest Gas supports and joins in the
21 arguments of the other Joint Utilities regarding the necessity of the projects proposed within
22 the underlying application in this docket.

24 ² Final Decision Directing Biomethane Reporting And Directing Pilot Projects To Further Evaluate And
25 Establish Pipeline Injection Standards For Clean Renewable Hydrogen at
<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M500/K055/500055657.PDF>

III. SOUTHWEST GAS' PROPOSED PILOT PROJECT

The Assigned Commissioner's Scoping Memorandum issued June 12, 2025 (Scoping Memo) in this docket, addresses the extensive briefing by the parties with respect to a motion to dismiss, and the Hydrogen Blending Compendium Report (Compendium Report) which was ordered in Paragraph 10 of D.22-12-057, and filed on February 14, 2025, as well as the Hydrogen Blending Impact Report. The Scoping Memo raised several issues generally to the Joint Utilities. Primarily, issues were raised by the Assigned Commissioner regarding compliance with the applicable decisions, the usefulness and knowledge from the proposed projects, and safety concerns for the communities in which the proposed projects were selected to take place. Additionally, specific topics within the Scoping Memo's Appendix B were aimed towards each of the Joint Utilities with respect to their individualized projects.

Southwest Gas' Pilot Project meets the criteria set forth in D.22-12-057 and will enhance the body of knowledge that is presently available to the Commission, particularly in light of the California natural gas infrastructure, while managing safety concerns that may arise.

Southwest Gas' proposed project will address key knowledge gaps not covered in the Hydrogen Blending Impact or Compendium Reports by generating real-world data from an active commercial setting. Specifically, the Truckee, California site, due to its manageable scale, isolated infrastructure, and climate diversity, will provide unique and valuable data to assess any potentially unforeseen impacts of the proposed graduated hydrogen blending.

The findings will complement existing research by testing theoretical models under practical field conditions unique to the infrastructure of Southwest Gas present in California. Further, testing on legacy appliances and the retention of a third-party consultant to review the graduated blending steps, will provide additional insight into higher hydrogen blends and any impacts, including safety issues, it may have within real-world applications.

1 **A. Southwest Gas' Pilot Project Will Add to the Existing Body of Existing Knowledge**
2 **Regarding Hydrogen Blending**

3 The Pilot Project is designed to generate California-specific, real-world operational data on
4 hydrogen blending in a high-altitude, cold-weather environment, directly addressing the
5 knowledge gaps identified in D.22-12-057 and reinforced in the Scoping Memo's call for
6 controlled, representative field demonstrations.³ Southwest Gas' Pilot Project's scope is unique
7 as it contemplates testing the technology on commercial customers with different natural gas
8 appliances including a back-up natural gas generator, a range, gas lights, radiant heaters,
9 furnaces, boilers, and water heaters.

10 As reflected in the Commission's independent study summary, "it is critical to conduct
11 real-world demonstrations of hydrogen under safe and controlled conditions to build on the [UC
12 Riverside Hydrogen Blending] Study's findings and determine the appropriate blend
13 percentage suitable to mitigate operational risks such as ignition."⁴ Consistent with this
14 direction, the project evaluates system integrity, material compatibility, leak detection, metering
15 accuracy, and end-use appliance performance under incremental hydrogen blends of up to
16 20%. Unlike the largely lab-based findings in the reports, this project tests hydrogen blends on
17 legacy appliances, actual distribution materials, and customer usage patterns. The findings will
18 complement existing research by testing theoretical models under practical field conditions
19 unique to the Company's infrastructure.⁵ Southwest Gas also evaluated laboratory-scale
20 testing and modeling as alternatives to the Pilot Project; however, these approaches lacked

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23 ³ Proposed Exhibit SWG-01, Testimony of Kevin M. Lang, 3:1-5.

24 ⁴ California Public Utilities Commission, Press Release, San Francisco, "CPUC ISSUES
INDEPENDENT STUDY ON INJECTING HYDROGEN INTO NATURAL GAS SYSTEMS" pg. 2 (2022
July 21).

25 ⁵ Proposed Exhibit SWG-06, Response to California Public Utilities Commission Public Advocates Office
01-001; Motion to Admit Exhibits filed 4/22/26.

1 the real-world variability and complexity of an in-system pilot as proposed.⁶ A controlled field
2 project was determined to be the most effective way to gather actionable data relevant to
3 infrastructure and operational conditions. The Truckee site was selected due to its manageable
4 scale, isolated infrastructure, and climate diversity, in particular the fact that the Pilot Project is
5 centered on Southwest Gas premises and also will not involve residential infrastructure. These
6 factors allow controlled testing while maintaining relevance to broader California conditions.
7 The experimental design enables end-to-end observation of hydrogen's behavior in a real-
8 world distribution system and end-use appliance.

9 This approach aligns with the Scoping Memo's emphasis on collecting empirical data
10 across diverse infrastructure, operating conditions, and customer applications. The project
11 further responds to National Renewable Energy Laboratory (NREL) findings that "additional
12 research across the entire hydrogen and natural gas supply chain will be needed to fill current
13 knowledge gaps and better inform decision makers on future blending projects," and that
14 blending compatibility must be evaluated for the specific network and its components.⁷

15 **B. Out-of-State and International Hydrogen Blending Projects Provide Additional**
16 **Evidence, but are Not Conclusive for California's Natural Gas Infrastructure.**

17 Out-of-state and international hydrogen blending projects provide relevant technical
18 evidence regarding system performance, materials compatibility, and operational
19 considerations; however, their applicability to California is inherently constrained by differences
20 in infrastructure, climate, elevation, and operating conditions, as reflected in the Scoping
21 Memo. In R.13-02-008 Order Instituting Rulemaking to Adopt Biomethane Standards and
22 Requirements, Pipeline Open Access Rules, and Related Enforcement Provisions, Southwest

23 ⁶ Id.

24 ⁷ National Renewable Energy Laboratory (NREL), Hydrogen Blending into Natural Gas Pipeline
25 Infrastructure: Review of the State of Technology. Technical Report NREL/TP-5400-81704 (October
2022), pg. vi, pg. 43

Gas, in conjunction with SoCal Gas and SDG&E filed a Petition for Modification wherein hydrogen blending projects from other jurisdictions outside of California were relied upon to suggest that there was a baseline level of potentially safe hydrogen blending.⁸ As reflected in the Declaration of Katrina Regan and Attachment A-1 to the Petition for Modification, the existing national and international body of research and real-world demonstrations collectively supports the technical feasibility and safety of low-level hydrogen blending, particularly at concentrations of up to 5% by volume in gas distribution systems.⁹ At the same time, the National Renewable Energy Laboratory (NREL) has observed that many existing demonstrations establish feasibility only “under very specific scenarios with limited end-usage applications,” indicating that such projects alone do not fully resolve California-specific safety and operational questions.¹⁰ Consistent with the Scoping Memo’s directive to rely on controlled, representative field demonstrations, California-specific validation remains necessary. The Southwest Gas Truckee Pilot Project complements the broader national and international record by generating localized data under system conditions representative of more extreme operating environments in California, thereby producing evidence intended to inform the Commission’s evaluation of regulatory, safety, and policy considerations.

C. Southwest Gas Has a Comprehensive Safety Program, and the Pilot Project Will Have Multiple Safeguards to Address Public Safety Concerns.

Safety is paramount at Southwest Gas and is the primary focus of the proposed Truckee Demonstration Project. Southwest Gas will retain hydrogen safety experts and research

⁸ Joint Petition for Modification of Decision 22-12-057, filed February 3, 2026; <https://docs.cpuc.ca.gov/SearchRes.aspx?DocFormat=ALL&DocID=597710574>.

⁹ Id at attachment A-1.

¹⁰ National Renewable Energy Laboratory (NREL), Hydrogen Blending into Natural Gas Pipeline Infrastructure: Review of the State of Technology. Technical Report NREL/TP-5400-81704 (October 2022), pg. vi, pg. 43.

1 experts to provide specialized oversight, review operating conditions, and support monitoring
2 throughout the demonstration. This approach is consistent with the Scoping Memo's direction
3 that hydrogen blending demonstrations be conducted under safe and controlled conditions with
4 continuous monitoring and oversight.

5 The Pilot Project's phased blending methodology, together with comprehensive leak
6 detection planning, system isolation capabilities, and the ability to revert to 100 percent natural
7 gas operations, is designed to maintain and elevate existing system safety while generating
8 the operational data necessary to evaluate potential risks associated with hydrogen blending
9 in a natural gas distribution system. This approach is further supported by NREL findings
10 identifying unresolved issues related to materials, meters, valves, storage, and other system
11 components that require validation through live system testing rather than reliance on analytical
12 assumptions alone.¹¹

13 Southwest Gas will also apply its Pipeline Safety Management System (PSMS), based on
14 API RP 1173, to guide risk monitoring throughout the Truckee Pilot Project (Project). The
15 PSMS framework ensures that risks are reassessed as hydrogen is incrementally blended
16 (from 5% up to 20%) and that appropriate actions are taken to maintain the highest levels of
17 system safety and integrity throughout the demonstration. Further, due to the high level of
18 oversight by both Southwest Gas' internal processes and protocols, as well as the third-party
19 consultant/expert that will be retained, Southwest Gas' proposed project does not have any
20 anticipated heightened safety risks to the community. Notably, the Reply Comments on
21 Appendix B Responses filed by the Sierra Club on July 10, 2025, note that the Company's
22 proposed project takes into consideration precautions for equipment.¹²

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25 ¹¹ Id. at section 7.3, pg. 43.

¹² Sierra Club Reply Comments on Appendix B Responses, Filed July 10, 2025, p.12.

1 Based on existing information, Southwest Gas does not anticipate a significant increase
2 to the baseline risk of the current system, and to reiterate, the third-party consultant will be
3 hired to perform a hazard analysis and system evaluation under existing natural gas conditions
4 (non-hydrogen blended natural gas). The comprehensive approach to evaluating the Pilot
5 Project, and monitoring through both the established Southwest Gas protocols as well as an
6 outside consultant should assuage safety and risk concerns if the Pilot Project is approved.

7 **D. Southwest Gas' Pilot Project did not Face Strong Public Opposition**

8 During the pendency of this proceeding, the Commission ordered for the Joint Utilities to
9 hold public participation hearings (PPH) within the jurisdictions where the Projects were
10 proposed. Southwest Gas held its PPH for the Pilot Project on August 20, 2025, in the city of
11 Truckee.¹³ At the time of the Southwest Gas PPH, none of the intervening parties to this
12 proceeding were present and made comments regarding the Pilot Project. An individual from
13 a company identified as Caltrol (who was represented to have over a half a dozen offices in
14 California) spoke in favor of the Pilot Project.¹⁴ There was no strong opposition from the
15 surrounding community regarding the Pilot Project. Although the director of "Neighborhood
16 Services and Sustainability" for the town of Truckee spoke regarding concerns that Truckee
17 had, which were similar to those generally raised regarding overall benefit and costs by
18 intervenors, no other members of the public spoke directly against the Pilot Project.¹⁵

19 Southwest Gas' Pilot Project, which was proposed due to the directive of the
20 Commission, is not anticipated to pose any increased risk to the surrounding community and
21 will add to the body of knowledge regarding hydrogen blending, and a potential future injection
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24 ¹³ August 20, 2025 Public Participation Hearing- Pages 157-190 – Volume 2; Transcript published
10/22/2025; at <https://docs.cpuc.ca.gov/SearchRes.aspx?DocFormat=ALL&DocID=584702442>

25 ¹⁴ Id. At 169-171.

¹⁵ Id. At 171-190. One individual spoke against natural gas usage generally.

1 standard for hydrogen blending in California. As such, the Commission should approve the
2 Pilot Project.

3 **IV. CONCLUSION**

4 The Pilot Project was specifically designed pursuant to the directives of the Commission
5 within D. 22-12-057, and was tailored to fill in gaps in knowledge with real-world applications of
6 hydrogen blending within California's gas infrastructure. Southwest Gas' Pilot Project will serve
7 to inform the Commission of unanticipated risks or concerns of hydrogen blending in a unique
8 and varied climate contained in Truckee, California while observing comprehensive safety
9 procedures. Accordingly, the Commission should authorize the Pilot Project to commence.

10 Respectfully submitted this 4th day of May, 2026.

11 SOUTHWEST GAS CORPORATION

12 /s/ Stephanie J. Smith

13 Andrew V. Hall

14 Assistant General Counsel

Stephanie J. Smith

Associate General Counsel

Southwest Gas Corporation

PO Box 98510

Las Vegas, NV 89193-8510

Telephone: (702) 364-3227

Facsimile: (702) 364-3446

Email: andrew.hall@swgas.com

Email: stephanie.smith@swgas.com