BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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Application of Southern California Gas Company (U904G), San Diego Gas & Electric Company (U902), Pacific Gas and Electric Company (U39G) and Southwest Gas Corporation (U905G) to Establish Hydrogen Blending Demonstration Projects.	Application 22-09-006

OPENING BRIEF OF THE PUBLIC ADVOCATES OFFICE TO THE APPLICATION OF SOUTHERN CALIFORNIA GAS COMPANY, SAN DIEGO GAS & ELECTRIC COMPANY, PACIFIC GAS AND ELECTRIC COMPANY AND SOUTHWEST GAS CORPORATION TO ESTABLISH HYDROGEN BLENDING DEMONSTRATION PROJECTS

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The Public Advocates Office at the California Public Utilities Commission (Cal Advocates) hereby submits this Opening Brief in the above-referenced proceeding pursuant to Rule 13.12 of the California Public Utilities Commission's (Commission) Rules of Practice and Procedure (Rules) and assigned Administrative Law Judge Charles Ferguson's *E-Mail Ruling Directives and Guidance of Final Briefing*.[1]

I. INTRODUCTION

In their joint amended application submitted on March 1, 2024, Southern California Gas Company (SoCalGas), San Diego Gas & Electric Company (SDG&E), Pacific Gas and Electric Company (PG&E), and Southwest Gas Corporation (SW Gas) (each an Applicant, and together, the Joint Applicants) seek authorization for each of the Applicants to undertake a total of five coordinated pilot projects (each, a Project, and collectively the Projects).[2] The Joint Applicants in total are requesting approximately $193.3 million in ratepayer funding for these test projects.

[1] See, *E-Mail Ruling Directives and Guidance of Final Briefing* (Ruling on Briefings), issued by ALJ Charles Ferguson, and dated March 9, 2026.

[2] *See*, *Joint Application of Southern California Gas Company (U 904 G), San Diego Gas & Electric*

Specifically, the Joint Applicants aver that they

> …seek to examine the efficacy of blended hydrogen as an energy source, develop data to support a safe hydrogen injection standard, and obtain Commission authorization to establish Hydrogen Blending Demonstration Project Balancing Accounts (HBDPBA) for each utility to record their respective incremental costs.[3]

The Joint Applicants further state,

> …the five (5) proposed Projects will consist of live hydrogen blending in the Joint [Applicants'] distribution and transmission systems to answer technical, operational, and safety questions that cannot be addressed by literature reviews or bench research alone.[4]

The evidentiary record demonstrates the Joint Applicants' have failed to meet the required burden of proof and hence their claims for the sought for relief are without merit. Cal Advocates recommends the following:

- The Commission should dismiss SoCalGas' application with regard to the Open System Project to be built in Orange Cove, California on the grounds that this Project as described by SoCalGas fails to meet many safety considerations required by the relevant decisions in this proceeding because it would involve the use of blended hydrogen in a pipe supplying gas to thousands of residences, buildings and customers before adequate testing has been conducted to confirm that the system is safe. Moreover, the utility has failed to demonstrate how the pilot would provide new information not already available from the Compendium.
- The Commission should dismiss SoCalGas' application with regard to the UCI Project because this project fail to meet the conditions set out in the relevant decisions in this proceeding for Safety, Leak Detection, GHG, etc. requirements. Moreover, the utility has failed to demonstrate how the pilot

Company (U 902 G), Pacific Gas and Electric Company (U 39 E), and Southwest Gas Corporation (U 905 G) to Establish Hydrogen Blending Demonstration Projects (Amended Application), dated March 1, 2024.

[3] Amended Application at 2.

[4] Amended Application at 2.

would provide new information not already available from the Compendium

- The Commission should dismiss PG&E's application with respect to its proposed Project because there is no justification for why ratepayers should fund PG&E's Project. If the Commission chooses not to dismiss PG&E's application, then PG&E should be required in accordance with the Commission's prior guidance in D.21-07-005 to demonstrate it has secured external funding to the extent possible rather than immediately opting to shift costs onto the shoulders of ratepayers.
- The Commission should dismiss SW Gas's proposed Project in Truckee because the Project fails to meet many safety considerations required by the relevant decisions in this proceeding. Moreover, the utility has failed to demonstrate how the pilot would provide new information not already available from the Compendium.
- The Commission should dismiss SDG&E's proposed Project the Kearny Construction & Operations Center ("Kearny C&O") in San Diego, California because the Project fails to demonstrate how its testing of newer pipeline materials would aid in narrowing the knowledge gap regarding the injection of blended hydrogen into the existing natural gas pipeline system.

Table 1 below provides a summary detailing the various failings of the Projects and why the Commission should not grant the Joint Applicants' requested relief.

Table 1

Project Compliance with Commission Decisions and Pub. Util. Code	**SoCalGas Open System (Orange Cove)**	**SoCalGas Closed System (UC Irvine)**	**SDG&E Kearny**	**SWG Truckee**	**PG&E Lodi**
Must be a Closed System as per D.22-12-057 COL No. 17	Non-Compliant	Compliant	Compliant	Compliant	Compliant
Must avoid malfunction of end user appliances as per D.22-12-057 OP 7(c)	Non-Compliant	Non-Compliant	Compliant	Non-Compliant	Compliant
Must detect any leakage of hydrogen, methane, or methane/hydrogen blends as per D.22-12-057 OP 7(k) and COL No. 34	Non-Compliant	Non-Compliant	Compliant	Non-Compliant	Compliant
Explain and Avoid Duplication of Existing Research as per Pub. Util. Code 740.1(d) and D.21-07-005 COL No. 3	Non-Compliant	Non-Compliant	Non-Compliant	Non-Compliant	Non-Compliant
Fails to meet definition of project as per D.22-12-057	Compliant	Compliant	Compliant	Compliant	Non-Compliant

II. PROCEDURAL BACKGROUND

The Commission opened Rulemaking (R.) 13-02-008 in February 2013 to address biomethane standards and requirements, pipeline open access, and related enforcement provisions (the Biomethane Rulemaking).[5] In that proceeding, the Commission directed California's natural gas utilities to jointly file a proposed standard biomethane interconnection tariff and designated that tariff as the "Standard Renewable Gas Interconnection Tariff (SRGIT)."[6] The Commission approved the SRGIT in Decision (D.) 20-08-035.[7] In December 2020, the Commission also approved a Standard Renewable Gas Interconnection Agreement, added an additional $40 million of funding for the biomethane monetary incentive, and ordered the Joint Applicants to file updates to the injection standards for constituents of concern relating to pipeline integrity.[8]

In November 2020, the Joint Applicants filed Application (A.) 20-11-004, proposing hydrogen-related additions and revisions to the SRGIT.[9] The Commission subsequently issued Decision (D.) 21-07-005 dismissing A.20-11-004 without prejudice and provided additional guidance for any future applications to develop any new or improved hydrogen demonstration program(s).[10]

On September 8, 2022, SoCalGas, SDG&E, and SW Gas filed joint Application A.22-09-006 to establish hydrogen blending demonstration projects (Original

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[5] See, *Order Instituting Rulemaking Into Biomethane Issues, Pipeline Open Access, and Related Enforcement Provisions* (Rulemaking Order), dated February 21, 2013, at 2.

[6] See, *Assigned Commissioner's Amended Scoping Memo and Ruling*, dated July 5, 2018, at 11 ("Within 90 days from this scoping ruling, Pacific Gas and Electric Company, Southern California Gas Company, and San Diego Gas & Electric Company shall jointly file a proposal for a standard biomethane interconnection tariff and pro forma forms.").

[7] See, Decision (D.) 20-08-035, *Decision Adopting the Standard Renewable Gas Interconnection Tariff* (SGRIT Adoption Decision), dated August 27, 2020.

[8] See, Decision (D.) 20-12-031, *Decision Adopting the Standard Renewable Gas Interconnection and Operating Agreement*, dated December 21, 2020.

[9] Application (A.) 20-11-004, *Joint Application of Southern California Gas Company (U 904 G), San Diego Gas & Electric Company (U 902 G), Pacific Gas and Electric Company (U 39 E) and Southwest Gas Corporation (U 905 G) Regarding Hydrogen-Related Additions or Revisions to the Standard Renewable Gas Interconnection Tariff*, dated November 20, 2020.

[10] Decision (D.) 21-07-005, *Decision Dismissing Application*, dated July 15, 2021, Conclusions of Law (COL) Nos. 1-6, at 31-32.

Application).[11] The Commission's Public Advocates Office (Cal Advocates) timely filed its protest to the Original Application on October 12, 2022.[12]

On December 15, 2022, the Commission approved Decision (D.) 22-12-057 (the Biomethane Decision) in Phase 4 of R.13-02-008.[13] In the Biomethane Decision, the Commission directed the Joint Applicants to propose pilot projects that would help fill the gaps in research and understanding from the 2022 UC Riverside study (Hydrogen Blending Impact Study)[14] on hydrogen blending in natural gas pipelines.[15] D.22-12-057 also mandated that any future hydrogen blending pilot projects should evaluate hydrogen injection at blends between 0.1 and 5 percent, and between 5 and 20 percent.[16] The Commission further directed the Joint Applicants either to amend the existing joint application in the instant proceeding, A.22-09-006, or file an entirely new joint application seeking authority to conduct pilot projects within two years.[17] Three months later the Assigned Commissioner in the Original Application proceeding, Commissioner Darcie L. Houck, issued a Scoping Memorandum directing the Joint Applicants to meet and confer and then file a comprehensive joint amended application.[18]

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[11] *Joint Application of Southern California Gas Company (U 904 G), San Diego Gas & Electric Company (U 902 G), and Southwest Gas Corporation (U 905 G) to Establish Hydrogen Blending Demonstration Projects* (Original Application), September 8, 2022. PG&E launched its own hydrogen demonstration project in May 2022 but did not join the Original Application. It did, however, file a response in support of the Original Application. See, *Pacific Gas and Electric Company's (U 39 G) Response to Application of Southern California Gas Company, San Diego Gas & Electric Company, and Southwest Gas Corporation to Establish Hydrogen Blending Demonstration Projects*, dated October 12, 2022.

[12] *Protest of the Public Advocates Office*, dated October 12, 2022.

[13] See, Decision (D.) 22-12-057, *Decision Directing Biomethane Reporting and Directing Pilot Projects to Further Evaluate and Establish Pipeline Injection Standards for Clean Renewable Hydrogen*, dated December 15, 2022.

[14] UC Riverside, Hydrogen Blending Impacts Study (July 2022), available at https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M493/K760/493760600.PDF.

[15] D.22-12-057, Ordering Paragraph (OP) No. 7, at 68-69.

[16] D.22-12-057 at 27 ("Consistent with the UC Riverside Study, we find that pilot projects should be used to evaluate hydrogen injection at blends between 0.1 and five percent, and between five and twenty percent, as further specified in this decision.").

[17] D.22-12-057, OP No. 7, at 68-69.

[18] *Assigned Commissioner's Scoping Memorandum and Ruling*, dated March 3, 2023, at 3.

On March 1, 2024, the Joint Applicants filed a joint Amended Application in this proceeding.[19] Cal Advocates timely filed its protest to the Amended Application on April 19, 2024.[20] Commissioner Houck later issued an *Assigned Commissioner's Scoping Memo and Ruling* on June 12, 2025, that, *inter alia*, scheduled evidentiary hearings in this proceeding to take place between October 29 – November 10, 2025.[21]

On July 15, 2024, the Environmental Defense Fund ("EDF"), Sierra Club, Utility Consumers' Action Network ("UCAN"), and Climate Action Campaign (CAC, and collectively, the "Moving Parties") filed a Joint Motion to Dismiss the Amended Application.[22] The Motion to Dismiss asserted, *inter alia*, that: (1) each of the five pilot projects proposed by the Joint Applicants, if constructed as proposed, would violate Commission directives; (2) it would be an unacceptable waste of ratepayer money to build any one of the five proposed projects much more so if all five were constructed; and (3) to build and operate the five pilot projects would be an imprudent use of hydrogen.[23] The Moving Parties further noted the Commission had already ruled on two previous rounds of deficient hydrogen blending proposals and that there was a growing body of evidence showing hydrogen blending in the gas distribution system would be neither a just use of ratepayer funds nor a viable climate solution.[24] The Moving Parties' request for relief also included a recommendation that the Commission address vital hydrogen blending policy questions in other proceedings that would "not impose undue costs on ratepayers."[25] Cal Advocates timely filed its response in support of the Motion to Dismiss on July 30, 2024.[26] That same day the Joint Applicants filed their Joint

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[19] Amended Application at 1.

[20] *The Public Advocates Office's Protest to the Joint Application of Southern California Gas Company, San Diego Gas & Electric Company, Pacific Gas and Electric Company, and Southwest Gas Corporation to Establish Hydrogen Blending Demonstration Projects*, dated April 19, 2024.

[21] *Assigned Commissioner's Scoping Memo and Ruling*, dated June 12, 2025, at 14.

[22] *Joint Motion to Dismiss* (Motion to Dismiss), filed July 15, 2024, at 1.

[23] Motion to Dismiss at 8-15.

[24] Motion to Dismiss at 1-2.

[25] Motion to Dismiss at 2.

[26] See, *Public Advocates Office's Response in Support of Joint Motion to Dismiss the Joint Amended*

Opposition Brief to oppose the Motion to Dismiss.[27] On August 9, 2024, the Moving Parties filed a Joint Reply Brief in support of their Motion to Dismiss.[28]

On October 28, 2024, ALJ Ferguson denied the Motion to Dismiss in its entirety.[29] ALJ Ferguson explained his decision focused on whether the Amended Application met the pleading requirements under Commission Rule 2.1.[30] In his ruling, ALJ Ferguson explained Commission Rule 2.1 requires only a "concise" statement of a project's features with enough basic information to conceptualize and differentiate the elements of each project.[31] He further noted, "there are no orders from the Commission to the Joint Applicants to include additional information beyond the concise descriptions of the five projects that were provided in the Amended Joint Application."[32] Hence, ALJ Ferguson's analysis of the Motion to Dismiss focused on whether the Amended Application failed to conform to mandatory pleading requirements under Commission Rule 2.1.[33] ALJ Ferguson further directed the parties to meet and confer, and thereafter file a joint list of all issues proposed by the parties to be included in a Scoping Memo for this proceeding.[34]

Pursuant to ALJ Ferguson's direction, the parties submitted the required *Joint Proposed List of Issues for Scoping Memorandum* on November 27, 2024.[35]

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, filed July 30, 2024.

[27] See, *Joint Opposition 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 Joint Motion to Dismiss*, filed July 30, 2024.

[28] See, *Joint Reply to Party Responses to Motion to Dismiss*, filed August 9, 2024.

[29] See, *Administrative Law Judge's Ruling Denying Motion to Dismiss* (Ruling on Motion to Dismiss), dated October 28, 2024, at 16.

[30] Ruling on Motion to Dismiss at 6-9.

[31] Ruling on Motion to Dismiss at 7.

[32] Ruling on Motion to Dismiss at 7.

[33] Ruling on Motion to Dismiss at 9.

[34] Ruling on Motion to Dismiss at 16.

[35] See, *Joint Proposed List of Issues for Scoping Memorandum*, filed November 27, 2024.

Commissioner Houck thereafter issued an *Assigned Commissioner's Scoping Memo and Ruling*, which described each of the Projects, set forth a list of issues to be addressed in this proceeding and provided a schedule for this proceeding that tentatively scheduled evidentiary hearings from October 29 – November 10, 2025.[36]

On September 24, 2025, ALJ Ferguson issued a ruling directing all parties to attend a status conference on October 7, 2025, in preparation for the anticipated evidentiary hearings scheduled to commence on October 31.[37] After the October 7, 2025, status conference was concluded, ALJ Ferguson issued an additional ruling cancelling the evidentiary hearing originally scheduled to commence on October 31.[38] The Evidentiary Hearing Ruling also directed the parties to serve final data requests electronically no later than October 9, 2025, and responses to such requests were to be delivered electronically no later than October 16, 2025.[39] In addition, ALJ Ferguson directed all parties participating in that day's status conference to file and serve a joint status report no later than October 17, 2025.[40] Pursuant to the Evidentiary Hearing Ruling, the parties submitted a Joint Status Report ten days later.[41] The Joint Status Report stated all the parties agreed to mutual waiver of cross-examination of witnesses, the withdrawal of the Joint Applicants' pending Motion in Limine to Exclude Evidence Regarding Hydrogen Blending as a Matter of Macro-Level Decarbonization Policy filed on October 3, 2025,[42]

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[36] See, *Assigned Commissioner's Scoping Memo and Ruling* (Scoping Memo), issued June 12, 2025, at 6-14.

[37] *E-Mail Ruling Taking Prehearing Conference Off Calendar and Setting Remote-Only Status Conference for October 7, 2025*, dated September 24, 2025.

[38] *E-Mail Ruling Canceling the Evidentiary Hearing on October 31, 2025, and Making Further Adjustments to the Schedule for This Proceeding* (Evidentiary Hearing Ruling), dated October 7, 2025.

[39] Evidentiary Hearing Ruling at 4.

[40] Evidentiary Hearing Ruling at 4.

[41] *Joint Status Report*, dated October 17, 2025.

[42] See, *Southern California Gas Company (U 904 G), San Diego Gas & Electric Company (U 902 G), Pacific Gas and Electric Company (U 39 E), and Southwest Gas Corporation (U 905 G) Joint Motion in Limine To Exclude Evidence Regarding Hydrogen Blending As a Matter of Macro-Level Decarbonization Policy* (Motion in Limine), filed October 3, 2025. In their Motion in Limine, the Joint Applicants sought to strike testimony from various intervenors making broad policy arguments challenging the need hydrogen blending in general. Motion in Limine at 5. The Joint Applicants agreed to withdraw their

the filing of a joint motion by all the parties for the admission of each party's testimony and exhibits into the record,[43] and the Joint Applicants' responding in good faith to data requests and the admission of those data request responses into the record.[44] ALJ Ferguson thereafter issued a ruling vacating all dates for the evidentiary hearings.[45] ALJ Ferguson issued his Ruling on Briefings four months later and Cal Advocates submits this opening brief in accordance with that ruling.[46]

III. THE JOINT APPLICANTS' PROPOSED PROJECTS

The Joint Applicants have proposed five Projects for Commission approval.[47] In their Amended Application, the Joint Applicants maintain the proposed Projects are consistent with D.22-12-057 and D.21-07-005 and will inform the development of a future systemwide hydrogen injection standard that allows for blending up to 20%.[48] The Amended Application further states the Joint Applicants "…seek approval of the Projects along with a revenue requirement required to implement the Projects taking place in each of the Joint Utilities' respective service territories."[49]

A. SoCalGas's Orange Cove Distribution Project (Open System).

This project is one of two proposed by SoCalGas in the Amended Application.[50] The Amended Application states this Project's purpose is to serve as a test to "show what happens when hydrogen is blended into the distribution system and served to many

joint Motion in Limine as described in the parties' October 17, 2025, Joint Status Report.

[43] A Joint Motion to Admit Exhibits Into the Evidentiary Record was filed by SDG&E on behalf of all parties on April 21, 2026.

[44] Joint Status Report at 1-2.

[45] *E-Mail Ruling Vacating All Dates for Evidentiary Hearings in This Proceeding*, dated October 27, 2025.

[46] Ruling on Briefings at 3-4.

[47] Amended Application at 12-15.

[48] Amended Application at 6.

[49] Amended Application at 6-7.

[50] Amended Joint Application at p. 13.

customers with varied end uses."[51] SoCalGas explains that it will develop a parcel of land in an agricultural area on the outskirts of the City of Orange Cove, California.[52] The parcel will contain a 1.1 megawatt (MW) solar farm to produce electricity that will power an electrolyzer that separates hydrogen from water and a blending apparatus.[53] The blending apparatus will then direct the hydrogen/natural gas mixture into pipelines currently serving approximately 10,000 Orange Cove residents through a total of 2,000 residential gas meters and 100 commercial enterprises.[54] SoCalGas promises this set up will simultaneously prevent the hydrogen blend from entering the gas distribution and transmission lines outside the City of Orange Cove.[55] SoCalGas intends to test the delivery of a blended natural gas and hydrogen mixture at volumetric levels between 1% and 5% hydrogen.[56] SoCalGas' "unloaded direct cost estimate" is in the amount of $48,411,032.[57]

B. SoCalGas's Gas UC Irvine Distribution Project (Closed System).

SoCalGas also seeks authorization to conduct a second and a much smaller test Project in conjunction with the University of California at Irvine.[58] In the Amended Application and its testimony, SoCalGas asserts the purpose of this Project is to "demonstrate operational, live-blending and collect system performance data for blending from 5% to 20% hydrogen gas by volume in an isolated portion of a medium pressure steel and plastic distribution pipeline system."[59] The Closed System Project will take

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[51] Amended Joint Application at p. 13.

[52] Exhibit (Ex.) SCG-02, *Prepared Direct Testimony of Blaine Waymire on Behalf of Southern California Gas Company (SoCalGas's Hydrogen Blending Demonstration – Open System Project)* (Waymire Testimony Ch. 2), served March 1, 2024, at 5. See also, Amended Joint Application at p. 13.

[53] Ex. SCG-02, Waymire Testimony Ch. 2, at 8-10. See also, Amended Joint Application at p. 13.

[54] Ex. SCG-02, Waymire Testimony Ch. 2, at 1, fn. 3. See also, Amended Joint Application at p. 13.

[55] Amended Joint Application at p. 13.

[56] Ex. SCG-02, Waymire Testimony Ch. 2, at 7:8-9, 8:1-2. See also, Amended Joint Application at p. 13.

[57] Ex. SCG-02, Waymire Testimony Ch. 2, at 27.

[58] Amended Application at 12-13.

[59] Exhibit (Ex.) SCG-01R, *Corrected Revised Direct Testimony of Blaine Waymire on Behalf of Southern California Gas Company (SoCalGas's Hydrogen Blending Demonstration – Closed System Project)*

place over four chronological phases.[60] These phases include first a planning and then a demonstration phase span approximately three years to allow for the collection and evaluation of data across time and seasonal operating conditions.[61] The last two phases will consist of decommissioning the Project followed by analysis and reporting on the project data and results.[62] SoCalGas proposes to isolate the gas supplied to the university's gymnasium and recreation complex so that only the buildings in this portion of the campus will receive a blend of hydrogen and natural gas.[63] SoCalGas estimates the unloaded direct cost for this Project over its lifetime will be in the amount of $24,420,406.[64]

C. SDG&E's Isolated Distribution Project.

SDG&E plans an Isolated Distribution Project that it claims "will contribute information useful for developing a statewide hydrogen blending standard for polyethylene pipes in the California gas infrastructure that could then deliver blends of hydrogen gas from 5% to 20% by volume at moderate (50 – 70 psi) pressures."[65] SDG&E states that the Project's purpose is "blending of hydrogen gas in an isolated custom-built medium-pressure polyethylene (PE) distribution pipe loop in a moderate coastal climate."[66] In its proposal, SDG&E initially planned to locate the Project on the University of California at San Diego (UCSD) campus.[67] However, UCSD informed

(Waymire Testimony Ch. 1), served June 3, 2025, at 1:24-27. See also, Amended Application at 12-13.

[60] Ex. SCG-01R, Waymire Testimony Ch. 1, at 8-15. See also, Amended Application at 12-13.

[61] Ex. SCG-01R, Waymire Testimony Ch. 1, at 8-14. See also, Amended Application at 12-13.

[62] Ex. SCG-01R, Waymire Testimony Ch. 1, at 14-15. See also, Amended Application at 12-13.

[63] Ex. SCG-01R, Waymire Testimony Ch. 1, at 8-14. See also, Amended Application at 12-13.

[64] Ex. SCG-01R, Waymire Testimony Ch. 1, Tale 6 – Unloaded Direct Cost Estimate, at 27.

[65] Exhibit (Ex.) SDGE-03, *Revised Prepared Direct Testimony of Pooyan Kabir* (Kabir Testimony Ch. 3R), served May 28, 2025, at 1:13-20. See also, Amended Application at 13.

[66] Ex. SDGE-03, Kabir Testimony Ch. 3R, at 1:13-16 ("Testing PE pipe is critical for SDG&E as this is the most common pipeline material in our system."). See also, Amended Application at 14.

[67] Exhibit (Ex.) SDGE-01, *Prepared Direct Testimony of Pooyan Kabir* (Kabir Testimony Ch. 3), served March 1, 2024, at 1:19-20. Amended Application at 14.

SDG&E that the school is no longer willing to act as the host location for the Project[68] and SDG&E subsequently testified that it will locate the Project on its own property at the Kearny Construction & Operations Center ("Kearny C&O"), located at 5488 Overland Avenue, San Diego, California 92123.[69] SDG&E's total direct cost estimate for the Project is $16.1 million.[70]

D. SW Gas's Cold Climate Distribution Project.

SW Gas proposes to build and conduct a hydrogen blending demonstration Project in Truckee, California.[71] SW Gas claims this Project aims to "establish critical knowledge complimentary to the other gas utilities' demonstration projects while uniquely targeting hydrogen blending in extremely cold weather conditions in Northern California.[72] SW Gas further asserts "demonstrations of hydrogen blending in *real-life* conditions, such as California's extremely cold alpine region, are necessary to develop a holistic hydrogen injection standard that accounts for the conditions of the state."[73] The SW Gas project is similar to SoCalGas' Orange Cove project in one critically important way: SW Gas' Project will inject blended hydrogen-natural gas into a distribution line that serves three large buildings located in one of Truckee's business districts.[74] In other words, members of the general public will be exposed to a distribution system that is not closed and will supply their buildings with a hydrogen and natural gas blend, which contravenes the Commission's prior guidance for these Projects.[75] The three proposed buildings in Truckee that would receive such blended gas are SW Gas' own local office

[68] Scoping Memo at 9.

[69] Ex. SDGE-03, Kabir Testimony Ch. 3R, at 1:20 and 2:18-20.

[70] Amended Application at 14.

[71] Exhibit (Ex.) SWG-01, *Prepared Testimony of Kevin M. Lang on Behalf of Southwest Gas Corporation (Southwest Gas' Hydrogen Demonstration Project)*(Lang Testimony Ch. 4), served March 1, 2024, at 1:5-7. See also, Amended Application at 14-15.

[72] Ex. SWG-01, Lang Testimony Ch. 4, at 1:13-15. See also, Amended Application at 14-15.

[73] Amended Application at 15.

[74] Ex. SWG-01, Lang Testimony Ch. 4, at 4:18-22.

[75] Ex. SWG-01, Lang Testimony Ch. 4, at 4:18-22.

building, the California Highway Patrol's Office local station, and a newly constructed multi-use commercial/residential building.[76] SW Gas contemplates conducting such testing in a new and emerging technology in one of the coldest regions in California.[77] The two initial planning and demonstration phases span approximately 3.5 years.[78] The two final phases consist of decommissioning the Project, removing Project equipment, and analyzing and publicly reporting the Project data and results.[79] SW Gas contends such testing will serve as a threshold to discover the optimal percentage blend at this extreme end of the weather spectrum in California.[80] SW Gas' total direct cost estimate for the Project is $10.21 million.[81]

E. PG&E's Gas Transmission Project.

PG&E asserts that its Project will Project focus on "blending and transportation of hydrogen at transmission pressure in PG&E's stand-alone and new natural gas transmission system."[82] PG&E also contends that it "cannot feasibly perform this Project on its existing transmission system because no representative portion of the transmission system can be isolated."[83] PG&E further maintains that its Project is a possible solution for the lack of operational data on the effects of hydrogen blending at transmission pressures on California's existing natural gas transmission infrastructure.[84] The Project's planned location is in Lodi, California where the Northern California Power Agency

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[76] Ex. SWG-01, Lang Testimony Ch. 4, at 4:18-22.

[77] Ex. SWG-01, Lang Testimony Ch. 4, at 3:5-13. See also, Amended Application at 15.

[78] Ex. SWG-01, Lang Testimony Ch. 4, at 9-11. See also, Amended Application at 15.

[79] Ex. SWG-01, Lang Testimony Ch. 4, at 9-11. See also, Amended Application at 15.

[80] Ex. SWG-01, Lang Testimony Ch. 4, at 3:18-19.

[81] Ex. SWG-01, Lang Testimony Ch. 4, at 27.

[82] Exhibit (Ex.) PGE-001, *Prepared Direct Testimony of Danielle Mark on Behalf of Pacific Gas & Electric Company (PG&E's Hydrogen Blending Demonstration Project)*(Mark Testimony Ch. 5), served March 1, 2024, at 9:4-5. See also, Amended Application at 15.

[83] Amended Application at 15.

[84] Ex. PGE-001, Mark Testimony Ch. 5, at 1:19-23.

(NCPA) power generation plant, Lodi Energy Center (LEC), is situated.[85] PG&E's proposed project will operate for a period of ten years, which is a much longer period than the anticipated testing durations of the four other proposed Projects in this proceeding.[86] Thus, PG&E avers that it designed this Project to avoid duplication of other global efforts, in addition to all aspects of the four other Projects at the center of this proceeding.[87] PG&E plans to build this Project's infrastructure on a 130-acre parcel of unimproved land leased from the City of Lodi and located away from the residential portions of Lodi.[88] PG&E also testifies that it will begin with a blend of 5% hydrogen by volume and gradually work up to a blend containing 20% hydrogen.[89] PG&E forecasts a revenue requirement for its Project of $94.2 million.[90]

IV. THE APPLICABLE LEGAL STANDARD FOR THE PLANNED HYDROGEN BLENDING PROJECTS

Public Utilities Code § 451 provides, in part, that "…all charges demanded or received by any public utility … shall be just and reasonable."[91] Public Utilities Code § 454 further provides that, "[N]o public utility shall change any rate or so alter any classification, contract, practice or rule as to result in any new rate, except upon a showing before the commission and a finding by the commission that the new rate is justified."[92] Based on the foregoing statutory language, it is undisputed that the Joint Applicants bear the burden to establish that their requests for approval of the proposed projects and the authority to establish HBDPBAs with future recovery from ratepayers are just and reasonable.

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[85] Ex. PGE-001, Mark Testimony Ch. 5, at 9:5-7.

[86] Ex. PGE-001, Mark Testimony Ch. 5, at 2:7-22.

[87] Ex. PGE-001, Mark Testimony Ch. 5, at 2:4-6.

[88] Ex. PGE-001, Mark Testimony Ch. 5, at 12:13-17. See also, Ex. PGE-001, Mark Testimony Ch. 5, Figure 2 – Aerial view of proposed Project site, at 12.

[89] Ex. PGE-001, Mark Testimony Ch. 5, at 28:17-18.

[90] Amended Application at 18. See also, Ex. PGE-001, Mark Testimony Ch. 5, at 37-38.

[91] Pub. Util. Code §451.

[92] Pub. Util. Code §454.

The evidentiary standard the Joint Applicants must meet to prove their requests are just and reasonable is by a preponderance of the evidence.[93] A preponderance of the evidence exists when "such evidence as, when weighed with that opposed to it, has more convincing force and the greater probability of truth."[94] Even where an applicant is the only party to have introduced evidence on an issue, it still "…must meet its burden of proof to establish by a preponderance of the evidence that its proposal, if adopted, will result in fair and reasonable rates at a just and reasonable rate of return."[95]

More specifically to this proceeding, the California Public Utilities Code requires the Commission to consider certain guidelines in evaluating research, development, and demonstration programs proposed by electrical and gas corporations.[96] Public Util. Code Section 740.1(d) states, "Projects should not unnecessarily duplicate research currently, previously, or imminently undertaken by other electrical or gas corporations or research organizations."[97]

Pursuant to this statutory requirement, the Commission instructed the Joint Applicants that certain legal and factual requirements must be demonstrated before it will authorize these projects.[98] For example, in D.21-07-005 the Commission commented that dismissing A.20-11-004 would permit the Joint Applicants "to focus on coordinating with the existing studies and stakeholders to ensure that the Program does not duplicate, but rather supplements and complements, already funded research."[99] D.21-07-005 also

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[93] Decision (D.) 19-05-020, *Decision on Test Year 2018 General Rate Case for Southern California Edison*, dated May 16, 2019, at 7.

[94] *People v. Garcia* (1975) 54 Cal.App.3d 61, 69. See also, *In re Angelica P.*, [1981] 28 Cal.3d 908, 918 ("A preponderance of the evidence standard…simply requires the trier of fact 'to believe that the existence of a fact is more probable than its nonexistence before [he] may find in favor of the party who has the burden to persuade the [judge] of the fact's existence.'") and *Union Pacific Railroad Co. v. State Bd. of Equalization*, [1991] 231 Cal.App.3d 983, 1000 (explaining that at a reassessment hearing the taxpayer's burden is proof by a preponderance of the evidence…[the] burden is 'weight of the evidence,' i.e., more than 50 percent proof…").

[95] D.19-05-020 at 7.

[96] Public Util. Code § 740.1.

[97] Public Util. Code § 740.1.

[98] D.22-12-057, OP No. 7, at 68-70.

[99] D.21-07-005 at 10-11. See also, D.21-07-005, COL No. 3, at 31-32 ("A new program that the Joint

provided six requirements for future applications to meet in order for such applications to be successful, including a requirement for the Joint Applicants to "explain and justify duplicative tasks."[100]

In D.22-12-057, the Commission further outlined twelve requirements for the proposed hydrogen blending pilot projects in Ordering Paragraph No. 7.[101] The Commission required each of the proposed hydrogen blending projects:

a. Ensures the long-term safety of the California pipeline, the prevention of hydrogen leakage, the inclusion of hydrogen monitoring, the consideration of the dilution rate, and the monitoring and reporting of all mechanical characteristics of hydrogen blends in the natural gas pipeline stream;

b. Prevents hydrogen from reaching natural gas storage areas and electrical switching equipment directly or through leakage;

c. Avoids end user appliance malfunctions;

d. Evaluates hydrogen injection at blends between and five percent and five to twenty percent; such evaluations must adhere to approved monitoring, reporting, and long-term impact study in accordance with the approval of the pilot project application, and must include validation programs to confirm performance;

e. Specifies the amounts of funding necessary to complete all aspects of the proposal and proposes testing durations adequate to draw meaningful conclusions;

f. Is consistent with all directed courses of action specified in D.22-12-057 relevant to leakage, reporting, heating value, system safety, environmental considerations, end-use emissions, and all other elements enumerated in D.22-12-057;

[Applicants] develop in collaboration with stakeholders that is supplemental and complementary to the existing studies would likely yield better results than the Program, and would likely be a reasonable alternative to granting this Application."). The context of this requirement arose in light of existing state programs such as the then ongoing UC Riverside Study and California Energy Commission research efforts.

[100] D.21-07-005 at 23-26.

[101] D.22-12-057, OP No. 7, at 68-70.

g. Proposes rigorous testing protocols consistent with the UC Riverside Study;

h. Takes into account intervenor parties' comments and further stakeholder input and includes the opportunity for compensation for parties and for community-based organizations;

i. Proposes a methodology for performing a Hydrogen Blending System Impact Analysis that can ensure that any hydrogen blend will not pose a risk to the common carrier pipeline system;

j. Includes new or revised heating values and discusses whether heating values would be modified through the use of propane or other means and whether such modifications to heating value can be done safely;

k. Demonstrates the ability to reliably detect leakage of any hydrogen, methane, or hydrogen/methane blends and describes rigorous hydrogen leak testing protocols that are consistent with leak testing and reporting elements identified in the University of California at Riverside's 2022 Hydrogen Blending Impacts Study, identifies and addresses the comments presented by parties in this proceeding regarding leak issues, and identifies and addresses the comments presented by workshop stakeholders in this proceeding regarding leak issues; and

l. Contains an independent research plan for assessment, measurement, monitoring, and reporting through an independent party, which must be engaged in such activities during the development, construction, operational life, and decommissioning of the pilot project.[102]

Ordering Paragraph 10 in D.22-12-057 further directed the Joint Applicants to monitor the national and international ongoing research and within two years of that date's decision to jointly file a Hydrogen Blending Compendium Report (Compendium Report) identifying existing studies

[102] D.22-12-057, OP No. 7, at 68-70.

and regulatory proceedings that are complete and underway and to include findings related to eight identified technical and safety issues.[103]

V. ARGUMENT

The evidentiary record reveals that all of the Joint Applicants' proposed projects do not comply with all of the requirements set forth by the Commission in prior rulings regarding hydrogen blending in California.[104] In particular, the Joint Applicants failed to provide sufficient evidence that demonstrates how these four pilot projects will protect existing pipelines and customer safety.[105] The Joint Applicants' claims to the contrary are not supported by the evidentiary record and in fact are based on faulty evidence that has no merit in light of current renewable hydrogen market realities.[106]

A. The Proposed Projects Fail to Demonstrate How They Will Protect Existing Pipeline Infrastructure in California.

D.22-12-057 directed the Joint Applicants to undertake pilot projects that would satisfy a number of prescribed conditions.[107] Among these conditions, D.22-12-057 requires each Applicant to design either a closed system or a mockup of a real world system using typical equipment in its respective pilot project.[108] The rationale for this requirement is that using a closed system or a mock-up of a real-world system is a safety-protective measure to ensure that gas customers are not exposed to risks in the course of evaluating the safety of a new technology.[109] In addition, using equipment and materials

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[103] D.22-12-057 at 30. See also, D.22-12-057, OP No. 10, at 71.

[104] D.22-12-057.

[105] Exhibit (Ex.) CADV-01, *Prepared Testimony on Application of Southern California Gas Company (U 904 G), San Diego Gas & Electric Company (U 902 G), Pacific Gas and Electric Company (U 39 E), and Southwest Gas Corporation (U 905 G) to Establish Hydrogen Blending Demonstration Projects* (Cal Advocates Testimony), dated August 29, 2025, p. 1-1, ln. 14-18.

[106] Ex. CADV-01, Cal Advocates Testimony, p. 1-1, ln. 14-18.

[107] D.22-12-057, OP No. 7, at 68-70.

[108] D.22-12-057, COL No. 17, at 62.

[109] D.22-12-057 at 27 ("Real-world pilot projects should be performed in either a closed system or in a mock-up of a real-world system using typical equipment and materials found in California gas infrastructure. Additionally, the pilot projects must be designed to evaluate whether hydrogen blending will pose minimal risk to distribution and transmission pipeline integrity and whether blending fuel use

found in the existing natural gas transmission and distribution system ensures that data generated by the projects will be relevant to informing a potential statewide renewable hydrogen injection standard for California's aging gas infrastructure.[110]

SoCalGas in its testimony described how it plans to develop a parcel of land in an agricultural area on the outskirts of the City of Orange Cove, California.[111] SoCalGas requests the Commission allow it to "demonstrate operational, live blending and collect system performance data for blending from 0.1% to 5% hydrogen gas by volume in an open portion of a medium pressure plastic and steel distribution pipeline system."[112] Put another way, SoCalGas proposes to experiment with blended hydrogen deliveries through an "open portion of the natural gas distribution system" to several thousand customers in the City of Orange Cove.[113] Such a proposal is neither a closed system nor a mockup of real-world system as required by D.22-12-057 and does not meet either requirement.[114]

In addition, both SoCalGas's Closed System project and SW Gas's Truckee project put end user appliances at risk of damage.[115] SoCalGas' Closed System project envisions initial appliance inspections but only commits to document and provide operational support should appliance malfunctions occur.[116] There is nothing in SoCalGas' testimony that describe any prophylactic measures to be undertaken to prevent such appliance malfunctions. Similarly, SW Gas' Truckee project will "…include the generation of electrolytic hydrogen, the seamless flow of hydrogen-blended gas through diverse infrastructure, a phased increase in hydrogen blending levels for injection into an isolated system serving Southwest Gas' Truckee Operations Office, a new commercial

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will result in end user appliance malfunctions.").

[110] D.22-12-057 at 27.

[111] Ex. SCG-02, Waymire Testimony Ch. 2, at 2:14-25.

[112] Ex. SCG-02, Waymire Testimony Ch. 2, at 1:22-24.

[113] Ex. SCG-02, Waymire Testimony Ch. 2, at 1:9.

[114] D.22-12-057, COL No. 17, at 62. See also, Ex. CADV-01, p. 1-2, ln. 7-8.

[115] Ex. CADV-01, Cal Advocates Testimony, p. 1-3 thru 1-5.

[116] Ex. SCG-02, Waymire Testimony Ch. 2, at 21:9-14.

development and the California Highway Patrol."[117] SW Gas further describes the Truckee project as intended "to rigorously examine and document the hydrogen blending process in a high-altitude, cold weather climate" and "contemplates testing the emerging technology in one of the coldest regions in California."[118] In other words, SW Gas anticipates end user appliances in the CHP office in Truckee and a commercial development will be connected to the project. But nowhere in SW Gas' testimony does it propose preventative measures to avoid appliance malfunctions caused by the hydrogen-blended gas its customers will receive during the course of the project. Both SoCalGas's Closed System project and SW Gas' Truckee project also contemplate operating at higher blend percentages, which increases the probability of appliance malfunctions.[119]

D.22-12-057 explicitly mandated the Joint Applicants proposed pilot projects must avoid malfunctions of end user appliances.[120] At higher blend percentages, both SoCalGas' Closed System project and SW Gas' Truckee project will expose their customers to the risk of hydrogen leaks and appliance failures in direct contradiction of D.22-12-057.[121]

B. The Projects Unnecessarily Duplicate Ongoing Federal and State Research Efforts.

As noted above, D.21-07-005 dismissed earlier iterations of these hydrogen blending Projects because the Commission found these proposed projects were duplicative of each other and other ongoing hydrogen research in California and elsewhere.[122] Pursuant to D.22-12-057, the Joint Applicants released the hydrogen blending Compendium Report on February 14, 2025.[123] The Compendium Report details

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[117] Ex. SWG-01, Lang Testimony, at 4:18-22.

[118] Ex. SWG-01, Lang Testimony, at 3:5-13.

[119] Ex. SCG-02, Waymire Testimony Ch. 2, at 3:6-8 and Ex. SWG-01, Lang Testimony, Table 2, at 10. See also, Ex. CADV-01, Cal Advocates Testimony, p. 1-3 thru 1-4.

[120] D.22-12-057, OP No. 7(c), at 69.

[121] Ex. CADV-01, Cal Advocates Testimony, p. 1-4, ln. 8-10.

[122] D.21-07-005 at 10-11.

[123] Ex. CADV-01, Cal Advocates Testimony, p. 3-6, ln. 3-4.

a number of similar, existing hydrogen projects that provide information and insights that are relevant and arguably duplicative of those to be gained in the proposed Projects.[124]

The Joint Applicants also have failed to provide any meaningful update to the Commission and stakeholders since the release of the Compendium Report.[125] The closest the Joint Applicants have come to updating the Compendium Report is when three of the four Joint Applicants (Joint Movants) filed a Petition for Modification of D.22-12-057 (Petition).[126] In their Petition, the Joint Movants asked the Commission to modify D.22-12-057 so as to eliminate the requirement they demonstrate hydrogen blending from 0.1% to 5% in the medium-pressure distribution system prior to proposing a renewable hydrogen injection standard for the Commission's consideration.[127] The Petition includes what the Joint Movants describe as "significant research" found both within the Compendium Report as well as some newer data (since August 2024) to argue the Commission now has enough information to set the hydrogen injection standard to a maximum of 5%.[128]

As explained in Cal Advocates' response to the Petition, the Petition assumes the information presented in the Compendium Report and other "significant research" justifies eliminating the lower hydrogen injection standard range (0.1% to 5%) identified in the Decision without a fuller review by other parties and the Commission.[129] A quick review of the studies cited in the Petition reveals that several of those studies were

[124] Ex. CADV-01, Cal Advocates Testimony, p. 3-6, ln. 13-14.

[125] Ex. CADV-01, Cal Advocates Testimony, p. 3-6, ln. 15-17.

[126] See, *Petition for Modification (PFM) of Decision 22-12-057 by Southern California Gas Company, San Diego Gas & Electric Company, and Southwest Gas Corporation* (Petition), dated February 3, 2026. PG&E did not join in the filing of the Petition and so the moving parties will be referred to separately as the Joint Movants.

[127] Petition at 1.

[128] Petition at 2.

[129] See, *Public Advocates Office's Response to the Petition for Modification of Decision 22-12-057 by Southern California Gas Company, San Diego Gas & Electric Company and Southwest Gas Corporation* (Cal Advocates' Response), filed March 5, 2026, at 1.

completed and made available within the one-year limit imposed by Rule 16.4(d).[130] The Joint Movants provided no justification for why they did not file their Petition within the one-year limit imposed by Rule 16.4(d).[131] More importantly, these studies do not constitute "new" information and the Compendium Report cannot reasonably be construed as "new or changed circumstances" that warrant modification of the Decision because the Compendium Report is a product of the Decision.[132]

More to the point, the Joint Applicants' failure to properly update the Compendium Report leaves all parties to this proceeding in the dark as to whether any ongoing hydrogen blending research projects listed therein have generated information that confirms whether or not the Joint Applicants' Projects are duplicative.[133] This failure inevitably begs the question of whether the proposed Projects are duplicative and therefore should not be funded at ratepayers' expense. Given the Joint Applicants' failure to demonstrate the Projects are not duplicative, the Commission should dismiss the Amended Application[134]

C. Hydrogen Blending Conflicts with California's Policies Favoring Electrification and Decommissioning of Gas Infrastructure.

California is a leader in fighting climate change and has one of the most aggressive climate change agendas in the world.[135] The California Legislature has passed various statutes to reduce anthropogenic greenhouse gas (GHG) emissions relative to 1990 levels by 40 percent in 2030 and 85 percent in 2045, as well as achieving carbon neutrality in 2045.[136] For example, California's Legislature passed Senate Bill 1221 (SB 1221) requiring the CPUC to create a voluntary zonal decarbonization program and

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[130] Cal Advocates' Response at 6.

[131] Cal Advocates' Response at 6.

[132] Cal Advocates' Response at 6.

[133] Ex. CADV-01, Cal Advocates Testimony, p. 3-6, ln. 15-17.

[134] Ex. CADV-01, Cal Advocates Testimony, p. 3-6, ln. 18-20.

[135] Ex. CADV-01, Cal Advocates Testimony, p. 3-1, ln. 20-21.

[136] The State of California's Draft Priority Climate Action Plan at 15, at https://www.epa.gov/system/files/documents/2024-03/california-cprg-priority-climate-action-plan.pdf.

designate priority neighborhood decarbonization zones.[137] SB 1221's stated purpose is to foster conversion of residential and commercial gas customers to electrical services and to develop a process for retiring elements of the natural gas distribution system.[138]

In accordance with these legislative mandates, the California Air Resources Board (CARB) and the Commission's staff have identified electrification as the most efficacious way to achieve GHG reductions for decarbonization generally and more specifically with respect to the design, construction and maintenance of buildings and structures.[139], [140] Implementing the Joint Applicants' proposed hydrogen blending strategy is diametrically opposed to the pursuit of this electrification strategy because it prolongs the use of the existing natural gas distribution system while also introducing new safety concerns.[141]

Furthermore, hydrogen as a fuel is not inherently a "zero-carbon" resource. Hydrogen functions as an indirect greenhouse gas and when released, intentionally or accidently, can have a warming effect in every layer of the atmosphere.[142] Moreover, hydrogen gas is produced, transported, and ultimately used in a variety of ways with varying impacts on GHG and CO_2 production.[143] For example, there will be a higher level of hydrogen in the atmosphere due to pipeline leakage and such leakages will indirectly have a detrimental climate impact.[144] Only hydrogen produced using

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[137] Senate Bill 1221 (Min), Stats. 2024, ch. 602.

[138] Senate Bill 1221 (Min), Stats. 2024, ch. 602.

[139] Ex. CADV-01, Cal Advocates Testimony, p. 2-2, ln. 1-3.

[140] Ex. CADV-01, Cal Advocates Testimony, p. 2-2, ln. 3-4 (citing 2024 Joint Agency Staff Paper: Progress Towards a Gas Transition, in R.20-01-007, February 22, 2024, at 14 https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M525/K660/525660391.PDF).

[141] Ex. CADV-01, Cal Advocates Testimony, p. 2-2, ln. 6-10.

[142] Ex. CADV-01, Cal Advocates Testimony, p. 3-3, ln. 2-4. See also, Exhibit (Ex.) EDF-01, *Prepared Direct Testimony of Michael Colvin on the Application of Southern California Gas Company (U 904 G), San Diego Gas & Electric Company (U 902 G), Pacific Gas and Electric Company (U 39 E), and Southwest Gas Corporation (U 905 G) to Establish Hydrogen Blending Demonstration Projects* (Colvin Testimony), served August 29, 2025, at 4:7-8.

[143] Ex. CADV-01, Cal Advocates Testimony, p. 3-2, ln. 6-20.

[144] Ex. CADV-01, Cal Advocates Testimony, p. 3-3, ln. 2-4.

electrolysis powered by renewable electricity has a zero carbon footprint.[145] This is why the Commission defines "clean renewable hydrogen" in D.22-05-017 as "…hydrogen which is produced through a process that results in a lifecycle (i.e., well-to-gate) greenhouse gas emissions rate of not greater than 4 kilograms of CO_2 per kilogram of hydrogen produced and does not use fossil fuel as either a feedstock or production energy source."[146]

Currently 95% of commercially produced hydrogen in the United States is derived from steam methane reformation, a process that uses methane, a greenhouse gas, as a feedstock.[147] At least one US study demonstrated that for each kilogram of H_2 produced using the steam methane reformation process resulted in emissions of between 9.35 and 11.2 kilograms of CO_2, well above the Commission's definition of clean renewable hydrogen.[148] The International Energy Agency (IEA) has also found that the "process of converting hydrogen…for transport incurs energy losses of 45-70%" and that GHG emissions attributable to the production of hydrogen "increases by a factor of 2-3 in terms of the final hydrogen delivered."[149] The transportation of hydrogen itself poses further concerns if the hydrogen gas is shipped in a vehicle rather than a pipeline due to the resulting carbon footprint of such transportation and the consequent GHG impact.[150] The bottom line is the potential GHG and climate impacts of injected hydrogen are unknown but carry serious climate risks that are not outweighed by the potential benefits.

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[145] Ex. CADV-01, Cal Advocates Testimony, p. 3-2, ln. 13-14.

[146] D.22-12-057, OP No. 4, at 67.

[147] Ex. CADV-01, Cal Advocates Testimony, p. 3-2, ln. 13-16 (citing Hydrogen Production: Natural Gas Reforming, United States Department of Energy, at https://www.energy.gov/eere/fuelcells/hydrogen-production-natural-gas-reforming.)

[148] Ex. CADV-01, Cal Advocates Testimony, p. 3-2, ln. 16-18 (citing Hannah Hyunah Cho, Vladimir Strezov, Tim J. Evans. Environmental impact assessment of hydrogen production via steam methane reforming based on emissions data, at https://www.sciencedirect.com/science/article/pii/S2352484722019874.).

[149] Ex. EDF-01, Colvin Testimony, at 4:13-16.

[150] Ex. CADV-01, Cal Advocates Testimony, p. 3-2, ln. 18-20.

The current state of the renewable hydrogen market also weighs against encouraging the Joint Applicants' pursuit of hydrogen blending projects at ratepayer expense.[151] Renewable hydrogen remains costly as evidenced by research showing that by 2030 hydrogen is likely to remain between 1.5 and 6 times more expensive than natural gas.[152] This assessment does not account for potential changes in renewable hydrogen production given that the IRA Section 45V Hydrogen Tax Credits end in 2027.[153]

The inescapable conclusion is that the Joint Applicants' proposed hydrogen projects will create additional risks of unwanted GHG emissions with no documented evidence that such risks will be outweighed by any benefits of using hydrogen as a fuel. Given this uncertainty of climate benefits from encouraging expansion of the hydrogen market, the Commission should dismiss the Amended Application. The Joint Applicants' have failed to demonstrate that the proposed pilots approach to hydrogen production, transportation, end-uses, and leakage through lifecycle analysis aligns with California's energy and climate goals.[154]

D. All of the Joint Applicants' Projects Lack Sufficient Testing for GHG Impacts Which Could Provide Insights for Future Implementation of Hydrogen Blending.

As noted above, California has adopted a very aggressive policy seeking to reduce GHG emissions.[155] While California's draft Priority Climate Action Plan (PCAP) mentions potential applications of hydrogen in decarbonizing California's energy, it does not adopt a comprehensive approach towards accelerating hydrogen use.[156] The PCAP is

[151] Ex. CADV-01, Cal Advocates Testimony, p. 2-2, ln. 13-18.

[152] Ex. CADV-01, Cal Advocates Testimony, p. 2-2, ln. 13-15 (citing Emerging Economics of Hydrogen Production and Delivery Brattle Group February 2024, at 19 https://www.brattle.com/wp-content/uploads/2024/02/Emerging-Economics-of-Hydrogen-Productionand-Delivery-2-2024.pdf).

[153] Ex. CADV-01, Cal Advocates Testimony, p. 2-2, ln. 15-18.

[154] Ex. CADV-01, Cal Advocates Testimony, p. 3-3, ln. 10-14.

[155] Ex. CADV-01, Cal Advocates Testimony, p. 3-1, ln. 20-21.

[156] Ex. CADV-01, Cal Advocates Testimony, p. 3-1, ln. 23-25.

also silent on the question of the common carrier pipeline or researching a preferred blended concentration of hydrogen and natural gas to achieve decarbonization.[157] Thus, to answer the critical question of whether any of the Projects align with broader state energy and climate goals the Commission must know injected hydrogen's potential to decarbonize the gas system.[158] In short, the Joint Applicants' Projects must include GHG lifecycle analysis.

D.22-12-057 explicitly envisions the development of these Projects as a means to narrow the knowledge gap between existing scientific literature and the real-world experienced by California's natural gas utilities.[159] The proposed Projects, however, are all deficient with respect to testing for GHG impacts and therefore narrowing this knowledge gap.

For example, SoCalGas' Closed System Project, SDG&E's Kearny Project, and Southwest Gas' Truckee Project all plan to only use new pipe for testing the impacts of hydrogen blending.[160] SDG&E testified that it plans to test "new, state-of-the-art PE meeting current industry standards and specifications."[161] SoCalGas intends to test new pipe materials "representative of at least the last decade of steel infrastructure and of steel assets anticipated for installation in coming years" and rejects the idea of testing existing pipeline.[162] Newer pipeline materials are not suitable replacements for testing existing pipeline.[163] Projects that do not test existing pipe therefore cannot provide insights into

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[157] Ex. CADV-01, Cal Advocates Testimony, p. 3-1, ln. 26 and p. 3-2, ln. 1-2.

[158] Ex. CADV-01, Cal Advocates Testimony, p. 3-2, ln. 3-5.

[159] D.22-12-057 at 9 ("To address knowledge gaps in several areas, the UC Riverside Study emphasizes the need to conduct real world demonstrations of hydrogen blending under safe and controlled conditions"). See also, Ex. CADV-01, Cal Advocates Testimony, p. 4.

[160] Ex. CADV-01, Cal Advocates Testimony, p. 3-4, ln. 13-15.

[161] Exhibit (Ex.) CADV-02, *Responses of Southern California Gas Company, Southwest Gas Corporation and Pacific Gas and Electric Company to Cal Advocates' Data Requests with Regard to Hydrogen Blending Demonstration Projects* (Applicants' Responses to DRs), dated November 17, 2025, SDG&E Response to AB-1900-Bio-MethaneOIR_DR_CalAdvocates_001, Question 4(a).

[162] Ex. CADV-02, Applicants' Responses to DRs, SoCalGas Response to AB-1900-Bio-MethaneOIR_DR_CalAdvocates_001, Question 5(a) and (b).

[163] Ex. CADV-01, Cal Advocates Testimony, p. 3-5, ln. 3-4.

how the existing system would perform if hydrogen blending were ever adopted.[164] Moreover, not testing existing pipeline denies the Commission the needed information to ensure safer injection standards, or if there even is a safe level of hydrogen blending for California's gas system.[165]

E. PG&E's Pilot Project Exceeds the Scope Permitted Under D.22-12-057

In the Amended Application and its testimony, PG&E describes its Project in Lodi as a research, development and demonstration (RD&D) facility with objectives well beyond the scope of D.22-12-057's requirements.[166] PG&E also boasts its Project is the only one intended to demonstrate hydrogen blending in transmission infrastructure rather than in distribution infrastructure.[167]

PG&E's own description indicates this Project is not a stand-alone project to determine appropriate hydrogen blends for possible future development.[168] Instead, the Project is part of a larger program that will "establish a world-class research, development, and demonstration facility" that will "serve as an open access testing ground and knowledge sharing platform, not only for all of California, but the global industry."[169] In other words, PG&E seeks Commission approval and ratepayer funding

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[164] Ex. CADV-01, Cal Advocates Testimony, p. 3-5, ln. 7-10 ("The knowledge gained by testing older, existing pipe will inform if these natural gas pipelines can tolerate the switch to hydrogen blends or whether these materials will need to be replaced before the end of their used and useful lifespan.").

[165] Ex. CADV-01, Cal Advocates Testimony, p. 3-5, ln. 10-13.

[166] Amended Application at 15-16. See also, Ex. PGE-001, Mark Testimony Ch. 5, at 1:1-3 and Ex. PGE-001, Mark Testimony, at 13:1-2.

[167] Ex. PGE-001, Mark Testimony Ch. 5, at 2:16-19 ("Our Project will close gaps by providing California (and the nation) long-term operational data (e.g., operations and maintenance, integrity, gas quality and measurement, fluid hydraulics, and safety) on the impacts of hydrogen blending in natural gas transmission pipeline systems.").

[168] Ex. PGE-001, Mark Testimony Ch. 5, at 2:11-19.

[169] Ex. PGE-001, Mark Testimony Ch. 5, at 2:11-12. Exhibit (Ex.) CADV-02, *Responses of Southern California Gas Company, Southwest Gas Corporation and Pacific Gas and Electric Company to Cal Advocates' Data Requests with Regard to Hydrogen Blending Demonstration Projects* (Applicants' Responses to DRs), dated November 17, 2025, PG&E Response to AB-1900-Bio-MethaneOIR_DR_CalAdvocates_001 Question 1 ("***The pilot is the RD&D facility as a whole***, which consists of four main parts: (1) the Full-Scale Online Testing Facility in the form of a transmission test loop with testing areas attached, (2) a gas control center facility, (3) a classroom, and (4) a storage

to initiate the first phase of building a world-class RD&D facility and not a limited demonstration project to determine appropriate and safe hydrogen blending levels as directed in D.22-12-057.[170] PG&E provides no adequate justification for why its plan to establish a world-class RD&D facility is consistent with the requirements of D.22-12-057.[171]

The Project will also include non-essential components that are not necessary to achieve D.22-12-057 objectives.[172] For example, PG&E plans to build and use of a "minimum 1-mile length" hydrogen pipeline as part of its "main test loop" for testing the effects of hydrogen blending in natural gas infrastructure.[173] The main test loop itself will not consist of existing natural gas infrastructure but will consist of new materials designed specifically for use with hydrogen, including at least one mile of new pipeline[174] built to hydrogen pipeline standards[175] and a hydrogen-ready compressor.[176] PG&E further testifies that in connecting the blending skid to existing natural gas infrastructure,[177] the main test loop is intended to test in-line inspection tools as well as operational, inspection, and maintenance procedures.[178] PG&E's proposed Project includes both blending equipment and vintage natural gas infrastructure within its

warehouse.")(emphasis added).

[170] Ex. PGE-001, Mark Testimony Ch. 5, at 13:1-2. See also, D.22-12-057 at 68-69 (directing Joint Applicants to "file a new application or amend an existing application in an appropriate proceeding proposing pilot programs to test hydrogen blending in natural gas at concentrations above the existing trigger level…").

[171] Ex. CADV-01, Cal Advocates Testimony, p. 4-3, ln.1-2.

[172] Ex. PGE-001, Mark Testimony Ch. 5, at 13:17-18.

[173] Ex. CADV-02, Applicants' Responses to DRs, PG&E Response to AB-1900-Bio-MethaneOIR_DR_CalAdvocates_001 Question 2.

[174] Ex. PGE-001, Mark Testimony Ch. 5, at 13:17-18.

[175] Ex. CADV-02, Applicants' Responses to DRs, PG&E Response to AB-1900-Bio-MethaneOIR_DR_CalAdvocates_001 Question 1.

[176] Ex. PGE-001, Mark Testimony Ch. 5, at 21:14-15.

[177] Ex. PGE-001, Mark Testimony Ch. 5, at 10:5-9.

[178] Ex. CADV-02, Applicants' Responses to DRs, PG&E Response to AB-1900-Bio-MethaneOIR_DR_CalAdvocates_001 Question 1.

relatively large work area.[179] Hence, PG&E's proposed Project would not be subject to the constraint of delivering blended gas to existing infrastructure but would require delivery of blended gas to the LEC, which is beyond the scope of the Amended Application.[180]

PG&E acknowledges it originally designed this RD&D program subsumed into the Project as a non-ratepayer funded program designated as "Hydrogen-to-Infinity" with an estimated capital cost of $340 million and annual operating and maintenance expenses estimated at $13 million.[181] PG&E concedes, however, that it failed to secure funding from either the federal government or capital markets for this RD&D facility.[182] PG&E now clearly intends to use its planned Project as a way to secure ratepayer funding for the much larger RD&D program.[183]

On top of all these deficiencies, PG&E plans for the Project's RD&D facility infrastructure to serve third parties during and after the ten-year duration of the Project.[184] PG&E confirmed in its testimony that it plans to use this new infrastructure to provide blended gas to NCPA's LEC and would permit other third parties to connect to the test loop to obtain operational data in a hydrogen blending environment.[185] Put another way, PG&E's Project includes significant capital expenditures that will not only benefit Californians but "all gas utilities and customers across the United States."[186] Such use of the Project's infrastructure does not fall within the Commission's guidelines on hydrogen blending projects.[187]

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[179] Ex. CADV-01, Cal Advocates Testimony, p. 4-5, fn. 123

[180] Ex. CADV-01, Cal Advocates Testimony, p. 4-5, ln. 14-19.

[181] Ex. CADV-01, Cal Advocates Testimony, p. 4-3, ln. 3-5. See also, Ex. CADV-02, Applicants' Responses to DRs, PG&E Response to AB-1900-Bio-MethaneOIR_DR_CalAdvocates_001 Question 3.

[182] Ex. CADV-01, Cal Advocates Testimony, p. 4-3, ln. 6-18.

[183] Ex. CADV-01, Cal Advocates Testimony, p. 4-3, ln. 6-18.

[184] Ex. PGE-001, Mark Testimony Ch. 5, at 22:13-15.

[185] Ex. PGE-001, Mark Testimony Ch. 5, at 9:5-10.

[186] Ex. PGE-001, Mark Testimony Ch. 5, at 36:6-7.

[187] D.22-12-057 at OP No. 7, at 68-70.

Finally, PG&E's Project does not include any collection of data or information on lifecycle GHG emissions.[188] The Commission requires the Projects to be "consistent with all directed courses of action specified in this decision relevant to leakage, reporting, heating value, system safety, environmental considerations, end-use emissions, and all other elements enumerated in this decision."[189] This is a considerable oversight for a Project intended to determine the environmental and climate impacts of hydrogen blending.[190]

Given these details regarding the Project's planned RD&D purpose, the Project's structure and possible use by third parties, the lack of and the failure to secure alternative financing, the lack of proper collection of data or information on lifecycle GHG emissions, and other deficiencies, there is no justification for why ratepayers should fund PG&E's Project. PG&E should be required to submit a detailed plan and secure financial guarantees from outside entities rather than be permitted to shift the cost of such capital expenditures onto the shoulders of ratepayers. This plan and commensurate funding should be required to be submitted in PG&E's next General Rate Case, should PG&E seek ratepayer funding for any part of its proposed project.

[188] Ex. CADV-01, Cal Advocates Testimony, p. 4-9, ln. 5-14.

[189] D.22-12-057, OP No. 7(f), at 69.

[190] D.22-12-057, OP No. 7(f), at 69.

V. CONCLUSION

For the reasons stated above, Cal Advocates requests the Commission adopt its recommendations as stated on pages 2-3 above.

Respectfully submitted,

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