SOUTHERN CALIFORNIA GAS COMPANY (SOCALGAS)
CAL ADVOCATES-SCG-A2209006-002
(DR-001) Orange Cove
DATE REQUESTED: July 1, 2025
RESPONSE DUE: July 21, 2025

QUESTION 1:

a) What specific knowledge gap(s) does SoCalGas' pilot project address that are not covered in the Hydrogen Blending Impact Report and Hydrogen Blending Compendium Report? How would the findings of SoCalGas' Open Project complement the research summarized in those reports?

b) How will any additional knowledge, contributed by SoCalGas' Open Project, be useful to utility operators and state policy makers?

c) How will SoCalGas define and measure the success of SoCalGas' Open Project? How will SoCalGas' Open Project's progress toward the desired outcome be reported to the Commission?

d) What, if any, alternative approaches were considered for studying the specific problem being addressed by SoCalGas' Open Project?

e) Why was this specific site and experimental design of SoCalGas' Open Project chosen?

f) Were alternative sites and designs considered?

g) How does SoCalGas plan to collect and document the ultimate findings from these pilot projects? In addition, how will these results be documented, validated, and shared with stakeholders and the Commission?

h) What would be needed to move from a pilot project to full implementation if the pilot project was successful?

RESPONSE 1:

SoCalGas objects to this request's prefatory instruction seeking the identity of "the person providing the answer to each data request and his/her contact information" as irrelevant and not reasonably calculated to lead to the discovery of admissible evidence. SoCalGas also objects to such instruction because the response to the data request is not testimony.

Without waiving and subject to these objections, SoCalGas responds as follows:

a. The Orange Cove demonstration offers a valuable opportunity to gather more information on hydrogen-natural gas blending specific to an existing California and US-based medium pressure pipeline system; to assess different pipe vintages, joining methods, and sealing materials under live operating conditions with a hydrogen-natural gas blend. The demonstration will also validate the effectiveness of leak detection technologies and the performance of various residential gas appliances in a typical user setting utilizing a hydrogen-natural gas blend. Lastly, both the Hydrogen Impacts Study and Compendium Report identified the need for demonstrations in California specific conditions under real world conditions.[1]

   The demonstration will support the development of tailored operating procedures and emergency response protocols for a typical SoCalGas (California) medium pressure gas distribution system using hydrogen-natural gas blends, supporting the promotion of safety, reliability, and readiness in the incorporation of clean renewable hydrogen to support decarbonization This includes evaluation of throughput and compression needs based on hydrogen blends operating in larger natural gas system segments.

   This focus on field validation and operational readiness develops information further beyond published reports.

b. SoCalGas objects to this request on the grounds that it calls for speculation regarding the extent to which results from the project may be useful to utility operators and state policy makers. Without waiving and subject to this objection, SoCalGas responds as follows:

   The Orange Cove demonstration has been coordinated with respect to the other Joint Utilities Projects, to minimize redundancy while simultaneously gathering necessary data to support a statewide hydrogen blending standard compatible with the varied gas system infrastructure and end-user equipment and applications. Information gathered within this demonstration would contribute to informing other utility operators and state policy makers to determine if existing frameworks are sufficient or require modification to implement hydrogen blending at 0.1-5% concentrations into the gas distribution system.

   The Orange Cove demonstration will provide proof of concept for the economical and safe use of blended hydrogen in the gas system with a specific focus on operational readiness, data collection, and validation of existing research within an existing California medium-pressure pipeline system of mixed materials under real-world conditions, serving residential and commercial customers with varied end uses.

[1] Hydrogen Blending Compendium Report, Literature Review at 3; *see also* CPUC, *Hydrogen Blending Impacts Study* (July 18, 2022) at 5, *available at:*https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M493/K760/493760600.PDF.

See Table 3, below, from Chapter 2 testimony for the areas of focus for SoCalGas's proposed data collection plan for the Open System Project:[2]

Table 3: Preliminary Data Collection Plan

Area	Objective	Frequency	Pre-Demo	During Demo	Post-Demo
Odorant sampling	Confirm hydrogen does not affect efficacy of current natural gas odorant	Monthly	✓	✓	
Leak surveys	Safety checks; repair any leaks prior to starting demo; determine if hydrogen blends affect leakage from fittings, valves, etc.	Quarterly; And as needed for customer service calls	✓	✓	✓
Leak survey equipment	Evaluate performance of new leak survey equipment	Quarterly; And as needed for customer service calls		✓	
Heating value measurement	Monitor and Analyze changes to heating value of gas supplied	Monthly	✓	✓	
Customer meters	Analyze and validate select meter performance	Quarterly		✓	✓
Customer equipment evaluation	Confirm equipment is working properly; validate gas interchangeability	As needed for customer service calls	✓	✓	✓
Customer equipment checks for emissions, including NOx	Perform measurement on emissions from various end-uses in community	To be determined based on comprehensive customer survey	✓	✓	

[2] Prepared Direct Testimony of Blaine Waymire on behalf of SoCalGas (SoCalGas's Hydrogen Blending Demonstration - Open System Project) (Chapter 2) at 12.

c. SoCalGas defines success of the Orange Cove demonstration project by completion of the proposed demonstration, the completion of a final report that contains data collected alignment with the Data Collection Plan, and continued engagement within the Orange Cove Community.
Success will be measured in the following ways:
    - Completion of the proposed demonstration project
    - Completion of the final report containing data collected from the demonstration project
    - Implementation of the American Petroleum Institute's Recommended Practice 1173 (API RP 1173) Pipeline Safety Management System (PSMS) Plan-Do-Check-Act approach throughout the project life cycle.
    - Continued community engagement throughout the demonstration project cycle, including engagement with first responders
    - Construction, commissioning, and operation of the demonstration equipment
    - Hands-on experience for workforce and end-users
    - Completion of the data collection plan, which includes scoping with an independent third party and collection of data in alignment with the approved plan
    - Research to help advise the creation of a statewide hydrogen injection standard[3]

d. SoCalGas interprets "approach" in this question to mean the decision to blend into a larger portion of the natural gas distribution system, while still utilizing a portion of the distribution that could remain isolated in nature. To this end, other approaches were not considered. SoCalGas interpreted the requirements set out in D.22-12-057 to mean blending to an actual portion of the larger distribution system while still maintaining control to an isolated area. The Orange Cove demonstration has been coordinated with respect to the other Joint Utilities Projects, to minimize redundancy while simultaneously gathering necessary data to support a statewide hydrogen blending standard compatible with the varied gas system infrastructure and end-user equipment and applications.

[3] *Id.* at 1.

e. As outlined in testimony, the distribution system included in the demonstration scope has one natural gas feed coming into it, which allows for full control of the hydrogen blend that it receives because there will be only one point of interconnection to the pipeline system.[4] The size and makeup of the system was identified as an ideal candidate due to the variety of pipeline materials and vintages it contains.[5] Other factors considered included constructability, community location, and customer makeup. Additionally, SoCalGas has served the Orange Cove community safely and reliably for 90 years. City leadership welcomed and supported the project concept in their community, making Orange Cove an ideal partner for a demonstration project supporting decarbonization.[6]

The design of the Open Project allowed for the incorporation of clean renewable hydrogen produced on-site for use within the demonstration, and open land was accessible for the necessary dedicated solar array and hydrogen production and blending facilities. The design was chosen to size hydrogen production and storage vessels for sufficient hydrogen blends of up to 5% based on historical gas volume for the community. The design components of an electrolyzer, hydrogen storage vessel, solar array, and battery energy storage were primarily sized to produce enough electricity for production of clean renewable hydrogen to meet a 5% hydrogen blend at max flow conditions.[7]

f. SoCalGas evaluated more than 300 pipeline areas. The overall design of the blending demonstration equipment was considered specifically to the final site selected. Various solar array sizes were considered to minimize space and maximize power availability for reliable production of clean renewable hydrogen.

g. The preliminary data collection plan can be found in Chapter 2 testimony in Table 3, and Exhibit 2A. SoCalGas will contract an independent party as directed to finalize a research plan for assessment, measurements, monitoring, and reporting.[8]

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4 *Id.* at 2.

5 *Id.*

6 *See* Attachment A: Orange Cove City Council Resolution No. 2024-04 in Joint Opposition of Southern California Gas Company, San Diego Gas & Electric Company, Pacific Gas and Electric Company, and Southwest Gas Corporation to Joint Motion to Dismiss, *available at:* https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M537/K060/537060074.PDF.

7 Prepared Direct Testimony of Blaine Waymire on behalf of SoCalGas (SoCalGas's Hydrogen Blending Demonstration - Open System Project) (Chapter 2) at at 9.

8 *Id*. at 24.

h. SoCalGas cannot presuppose what the Commission or other stakeholders would require to transition to full implementation, which SoCalGas interprets to mean blending more broadly in the California natural gas system. SoCalGas anticipates that there will be a proceeding, similar to or within the Biomethane Proceeding (R.13-02-008), that establishes standards and requirements relative to safety, facility integrity, and operations for hydrogen injected into the common carrier natural gas pipeline system. This is commonly referred to as a "system-wide hydrogen injection standard".[9] This may be similar to D.14-01-034, which adopted injection standards for safely injecting biomethane into the common carrier pipeline system.

[9] D.22-12-057 at 37.

QUESTION 2:

a) What is the detailed cost breakdown for SoCalGas' Open Project, including equipment, monitoring, safety system, and administration?

b) What specific benefits will gas ratepayers receive from investment in SoCalGas' Open Project?

c) What cost-sharing arrangements have been made or pursued with potential non-ratepayer beneficiaries of this research?

d) How will cost overruns be handled?

RESPONSE 2:

SoCalGas objects to this request's prefatory instruction seeking the identity of "the person providing the answer to each data request and his/her contact information" as irrelevant and not reasonably calculated to lead to the discovery of admissible evidence. SoCalGas also objects to such instruction because the response to the data request is not testimony.

Without waiving and subject to these objections, SoCalGas responds as follows:

a. SoCalGas provided a level 5 cost estimate as it pertains to these demonstration projects, that is completed in accordance with AACE recommended practices and does not break down project costs by "equipment, monitoring, safety systems, and administration", specifically. Detailed cost estimate breakdowns can be found in Work paper 2, accompanying Chapter 2 testimony.[10]

b. SoCalGas Orange Cove Project proposes to use clean renewable hydrogen sourced from a dedicated solar array. This will contribute to greenhouse gas reductions during the demonstration period and increased use of renewable energy resources in the community. The successful completion of these demonstration projects aims to advise the creation of a statewide hydrogen injection standard for the natural gas pipeline system.[11] Should the demonstration projects lead to an injection standard, ratepayers could see benefits such as widespread GHG emission reductions and increased transport of renewable fuels through existing natural gas pipeline assets. This investment will further the State's understanding on how the state can continue to decarbonize our existing $15

[10] Refer to Workpaper Supporting the Direct Testimony of Blaine Waymire, Chapter 2 (WP-2).

[11] Prepared Direct Testimony of Blaine Waymire on behalf of SoCalGas (SoCalGas's Hydrogen Blending Demonstration – Open System Project) (Chapter 2) at 1.

billion gas system.

At the conclusion of the demonstration project, SoCalGas intends to turn the Solar Array over to the City of Orange Cove, if the Commission ultimately rules that the blending facility should not remain in place for the long term.

c. SoCalGas responded to a similar question in a data request for Sierra Club on October 12, 2022. Please see response to Question 12 of their data request, which is available on the SoCalGas website:[12]

> Please refer to A.22-09-006, Joint IOU Hydrogen Blending Demonstration Application Page 11.
>
> APPLICANTS' REASONABLE ATTEMPTS TO USE EXISTING COMMISSION FUNDS AND FROM OTHER SOURCES
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> In D.21-07-005, the Commission directed Applicants to make reasonable attempts to use existing Commission-authorized funding and other funds, including the CEC R&D Program and federal funding, to the extent possible. First, Applicants are unaware of Commission authorized funding for hydrogen blending pilot projects. Similarly, Applicants could not have secured funding from the CEC R&D Program. Although the CEC has issued two hydrogen blending solicitations, they were focused on the power generation and industrial sectors; these solicitations have also explicitly excluded "hydrogen blending in live pipelines due to the lack of a pipeline hydrogen injection standard in California." Applicants are also unaware of any federal funding opportunities for live blending pilot projects in natural gas pipelines; the existing federal funds under the Infrastructure Investment and Jobs Act of 2021 (IIJA) are focused on fostering the development of clean hydrogen hubs, advancing equipment manufacturing and recycling, and improving the efficiency of electrolysis. Therefore, Applicants did not have other available funding for their proposed Projects.

d. SoCalGas interprets "cost over runs" to mean costs that are incurred that exceed the amount approved by the CPUC. In this instance, "cost overruns" would be handled dependent on the cost recovery mechanism approved in the Joint IOU Hydrogen Blending Application. The Joint IOUs currently request a two-way balancing account in their application.[13]

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[12] SoCalGas, *SoCalGas Response to Sierra Club Data Request SC-SCG-01* (October 12, 2022) at 13, *available at:* https://www.socalgas.com/sites/default/files/2025-06/Sierra_Club_DR_SC-SCG-01_A.22-09-006_Response_FINAL.pdf

[13] A.22-09-006, Joint Amended Application to Establish Hydrogen Blending Demonstration Projects (March 1, 2024) at 16.

QUESTION 3:

a) What comprehensive risk assessment has been conducted:
(i) for SoCalGas' Open Project;
(ii) for the specific hydrogen blend percentages attempted in SoCalGas' Open Project; and
(iii) for each segment of the California gas infrastructure for which the pilot project was designed?

b) Beyond monitoring, what automated safety systems and shutdown protocols are in place for SoCalGas' Open Project?

c) What baseline testing of infrastructure integrity has been and will be completed prior to pilot project implementation?

d) How have emergency response plans been updated specifically for hydrogen incidents at SoCalGas' Open Project?

e) What specific outreach has been conducted with communities potentially affected by each pilot project and how has informed consent been documented?

f) How does SoCalGas plan to monitor and assess hydrogen embrittlement of the gas components within SoCalGas' Open Project?

RESPONSE 3:

SoCalGas objects to this request's prefatory instruction seeking the identity of "the person providing the answer to each data request and his/her contact information" as irrelevant and not reasonably calculated to lead to the discovery of admissible evidence. SoCalGas also objects to such instruction because the response to the data request is not testimony.

Without waiving and subject to these objections, SoCalGas responds as follows:

a. SoCalGas objects to this request because it seeks information substantially similar to Questions 1 and 8 in Appendix B to the Scoping Memo issued on June 12, 2025 with a current due date of August 11, 2025. SoCalGas will provide a response on such date.

b. A completed control philosophy of the site will be generated during the 60% design phase of the project and will include a cause and effect matrix detailing emergency shutdown procedures and controls. These are some of the automated safety systems and shutdown protocols that are planned for the open system project:
    1. Fire detection monitoring which would isolate all production equipment including hydrogen storage, shutdown hydrogen production, stop compression, and

return the community to 100% natural gas. SoCalGas would be alerted immediately, would send out a technician, and would create a call out to the fire department.

2. Gas detection monitoring for hydrogen, natural gas, and blended gas on site with the blending facilities. If an alarm is triggered for a gas leak, the system will enter shutdown mode, isolating equipment, stop hydrogen production and return the pipeline system to 100% natural gas. SoCalGas would be alerted immediately and would send out a technician to the site to fully remedy the issue before putting the site back into service.
3. Notification of a drift in blend percentage that signals the system may not be blending to the correct blend percentage would result in immediate shutdown of the hydrogen injection line, resulting in 100% natural gas delivery to the community. SoCalGas would be alerted immediately and would send out an operator to the site to fully remedy the issue before putting the site back into service.

c. Prior to the introduction of hydrogen, SoCalGas will conduct an asset review and inspection, and will baseline the demonstration area with natural gas.[14] The following baseline testing will be performed prior to the demonstration, as outlined in Table 3 of Chapter 2 Testimony:[15]
   - Odorant Sampling to confirm current efficacy of the gas
   - Leak Surveys of the pipeline system to verify the pipeline system is free of leakage prior to the demonstration, or repair leaks present
   - Heating Value Measure to create a baseline of the existing natural gas
   - Customer equipment evaluation to confirm equipment is free of leakage, in working order, and determine a baseline of existing equipment emission profile.

d. SoCalGas objects to this request because it seeks information substantially similar to Question 17 in Appendix B to the Scoping Memo issued on June 12, 2025 with a current due date of August 11, 2025. SoCalGas will provide a response on such date.

e. SoCalGas objects to this request because it seeks information substantially similar to Question 9 in Appendix B to the Scoping Memo issued on June 12, 2025 with a current due date of August 11, 2025. SoCalGas will provide a response on such date.

[14] Prepared Direct Testimony of Blaine Waymire on behalf of SoCalGas (SoCalGas's Hydrogen Blending Demonstration - Open System Project) (Chapter 2) at 11.

[15] *Id.* at 12-13.

f. The medium pressure distribution system operates at a maximum pressure of 60 psig, with Orange Cove's distribution system operating at even lower pressures, with a maximum operating pressure of 36 psig. There is minor pressure cycling and stress levels are low, mitigating the risk of pipeline impacts from potential hydrogen embrittlement. To further enhance safety, SoCalGas is proposing to conduct more frequent leak surveys during the demonstration period.

QUESTION 4:

In its Chapter 2 Testimony SoCalGas states with regard to its injection into the distribution pipeline system in the community of Orange Cove:[16]

> The purpose of this Open System Project is to demonstrate operational, live blending and collect system performance data for blending from 0.1% to 5% hydrogen gas by volume1 in an open portion of a medium pressure2 plastic and steel distribution pipeline system. Project data will inform the feasibility of developing a hydrogen injection standard for distribution systems that serve existing natural gas-powered appliances found in residential and commercial facilities.

For all segments of distribution pipeline affected by SoCalGas' Open Project, please provide all the information requested in Table 1 in the attached Excel spreadsheet (*see* "Atch1.xlsx").

Table 1 – Requested information for Distribution Pipe in SWG's Pilot Project

A.	Utility
B.	Line Number;
C.	Engineering Station Start
D.	Engineering Station End
E.	Cumulative Station Start
F.	Cumulative Station End
G.	Length of Segment (in feet)
H.	Wall Thickness (in inches)
I.	Outer Diameter of Pipe Segment (in inches)
K.	SMYS-
L.	Percent SMYS
M.	Year Installed
N.	Pipe Material
O.	MAOP (in psig)
P.	MOP (highest pressure which SoCalGas or SDG&E operates the segment, in psig)

RESPONSE 4:

SoCalGas objects to this request's prefatory instruction seeking the identity of "the person providing the answer to each data request and his/her contact information" as irrelevant and not reasonably calculated to lead to the discovery of admissible evidence. SoCalGas also objects to such instruction because the response to the data request is not testimony.

[16] *Id.* at 1 (citations omitted).

For several items listed in Table 1, the parameters are the same across all of the pipelines involved in the Orange Cove demonstration project. Those are as follows:

A. Utility: SoCalGas

L. %SMYS: <20% as defined by U.S. Department of Transportation[17]
O. MAOP: 36 psig
P. MOP: SoCalGas interprets this as the segment's "Set Pressure": 31 psig

Below, SoCalGas provides information on distribution mains in the project areas by Material type, Outer Diameter, Installation year, and segment length, as requested in G., I., M., and N., respectively. Approximate mileage is rounded to the nearest 100th decimal.
For steel pipes:

Nominal Size (in)	Installation Year	Mileage (mile)
1	1962	0.03
	1964	0.08
	1965	0.02
	1966	0.04
	1967	0.02
	1969	0.02
	1946	5.54
	1947	1.19
	1948	0.54
	1949	0.31
	1950	0.13
	1951	0.04
	1952	0.17
	1954	0.07
	1955	0.03
	1956	0.06
	1958	0.03
	1959	0.01
	1960	0.04
	1962	0.07
	1963	0.08
	1964	0.44
	1965	0.05

[17] U.S. Department of Transportation (DOT) – Pipeline and Hazardous Materials Safety Administration (PHMSA), *Interpretation Response #PI-16-0015* (July 12, 2018), *available at:*https://www.phmsa.dot.gov/regulations/title49/interp/pi-16-0015.

	1967	0.03
	1969	0.14
	1971	0.02
	1972	0.08
	2017	0.24
3	1946	2.14
	1948	0.20
	1958	0.01
	1961	0.18
	2017	0.14
6	2006	0.01

For plastic pipes:

Nominal Size (in)	Installation Year	Mileage (mile)
1	1976	0.04
	1980	0.01
	1983	0.01
2	1973	0.19
	1975	0.16
	1981	0.05
	1982	0.02
	1983	0.13
	1984	0.01
	1986	0.09
	1987	0.03
	1990	0.04
	1991	0.28
	1993	0.64
	1994	0.08
	1995	0.28
	1999	0.08
	2000	0.55
	2002	0.29
	2005	0.47
	2006	0.18
	2007	1.15
	2008	0.39
	2009	0.01
	2013	0.05
	2015	0.12
	2017	0.01

	2022	0.12
3	1980	0.02
	1982	0.03
	1983	0.10
	1984	0.36
	1995	0.17
	1991	0.08
	1993	0.11
	1995	0.06
	1997	0.29
	2000	0.43
	2005	0.35
	2006	0.25
	2015	0.24
	2006	0.28
	2008	0.26
	2014	0.08

B – Line number: SoCalGas does not assign specific line numbers for the medium pressure distribution system.
C-F – Engineering station start and end, and cumulative station start and end: SoCalGas does not record engineering stationing for the medium pressure distribution system.
H – Wall thickness: SoCalGas does not record wall thickness for individual pipes in the medium pressure distribution system. Industry standards for pipe installation, based on industry code at the time of installation can be used to provide a conservative minimum assumptions for wall thickness. As such, minimum wall thickness for steel pipes can be assumed to be of SCH10 for carbon steel pipes (0.109" for 1" and 2" NPS, 0.125" for 3" and 4" NPS, and 0.134" for 6" NPS). Similarly, for plastic pipes, SDR 11 for 1" and 2" pipes, SDR 11.5 for 3" pipes, and SDR 13.5 for 4" and 6" pipes.
K-L – SMYS: U.S Department of Transportation defines medium pressure pipelines as those operating at less than 20% SMYS.[18] SoCalGas does not record the SMYS for medium pressure distribution pipeline. Using conservative minimum assumptions for wall thickness and 24,000 psi for the yield strength (per 49 CFR 192.107), all pipes in the Orange Cove demonstration project are operating at less than 20% SMYS. Please note: %SMYS only applies to steel pipelines, as plastic pipes are not evaluated on SMYS.

[18] *Id.*

QUESTION 5:

In its Chapter 2 Testimony, SoCalGas discusses its method to monitor hydrogen leaks at the hydrogen production and storage facility:

"Continuous remote monitoring of hydrogen production, storage, and blending areas… Automatic and remote shutdown capabilities for the hydrogen production and blending facility in the case an alarm is triggered or a leak is detected."

No such continuous monitoring or alarm is mentioned in Chapter 2 Testimony for segments of pipe outside the hydrogen production, storage, and blending areas.

a) What is the frequency of monitoring for hydrogen leaks along: (i) The Hydrogen production and storage facility?

(ii) The pipeline carrying the hydrogen blend?
(iii) The end user appliances of customers in Orange Cove?

b) Why is SoCalGas opting for continuous monitoring of hydrogen leaks in its production and storage areas but not along the pipeline or at the end user appliances for customers in Orange Cove?

c) How frequently will hydrogen monitoring equipment be placed, or how many miles between pieces of hydrogen monitoring equipment is needed, to maintain continual leak monitoring of the SoCalGas' Open Project?

RESPONSE 5:

SoCalGas objects to this request's prefatory instruction seeking the identity of "the person providing the answer to each data request and his/her contact information" as irrelevant and not reasonably calculated to lead to the discovery of admissible evidence. SoCalGas also objects to such instruction because the response to the data request is not testimony.

Without waiving and subject to these objections, SoCalGas responds as follows:

a. SoCalGas outlines monitoring frequency in Chapter 2 Testimony:
(i) The hydrogen production and storage facility will be monitored for leaks on a continuous basis (i.e., 24/7).[19]

[19] Prepared Direct Testimony of Blaine Waymire on behalf of SoCalGas (SoCalGas's Technical Presentation - Open System Project) (Chapter 2) at 16.

(ii) SoCalGas's distribution pipeline system will be surveyed for leaks on a quarterly basis, and as needed for customer call.[20]

(iii) End user appliances will be offered a courtesy inspection prior to the introduction of hydrogen, and also at the conclusion of Phase 2 where hydrogen blending would occur.[21] After that, surveys will be conducted on a customer dependent basis, either established via a comprehensive customer survey[22], or in response to a customer call.[23]

b. SoCalGas currently operates and maintains Electronic Pressure Monitors (EPMs) at discrete points throughout its distribution system on pipeline and regulation assets, which can help detect fluctuations in pressure on a real-time basis. Continuous monitoring of the entire pipeline or all end-user appliances for leakage could not feasibly leverage the same controller and wired connections that can be used at the demonstration site production location due to the excess of wired connections needed and distance limitations. Continuous monitoring of the pipeline system would require alternative technology, such as fiber optic leak detection. Like most medium pressure distribution systems, pipelines in Orange Cover are underground. It would require excavation of more than 100,000 feet of existing distribution pipe network to install fiber optic leak detection along all pipelines in Orange Cove, which would have substantial costs associated. Existing research identifies that hydrogen blends up to 5% would not impact safety[24], which suggests leak detection protocols over and above existing protocols are not necessary.

c. SoCalGas is implementing continuous, remote monitoring surrounding the hydrogen blending, production, and storage facility. Leak detection protocols being considered for the Open System project are outlined in Exhibit 2A, which will be determined during Phase 1. These potentially include portable gas detectors, ground vehicle, and aerial detection methodologies.[25]

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[20] *Id.* at 12

[21] *Id.* at 11

[22] *Id.* at 13

[23] *Id.,* Exhibit 2A: Preliminary Data Collection Plan.

[24] *see* CPUC, *Hydrogen Blending Impacts Study* (July 18, 2022) at 4, *available at:*https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M493/K760/493760600.PDF.

[25] *Id.*, Exhibit 2A: Preliminary Data Collection Plan.

QUESTION 6:

Ordering Paragraph 7c of Decision D.22-12-057 requires that the pilots, "Avoids end user appliance malfunctions".

a) Please explain how SoCalGas' Open Project injecting hydrogen into the community of Orange Cove meets OP 7c of D.22-12-057?

b) If end user appliances are affected by SoCalGas' Open Project, how will SoCalGas compensate those affected?

c) Does SoCalGas suspect these costs would be borne by ratepayers?

RESPONSE 6:

SoCalGas objects to this request's prefatory instruction seeking the identity of "the person providing the answer to each data request and his/her contact information" as irrelevant and not reasonably calculated to lead to the discovery of admissible evidence. SoCalGas also objects to such instruction because the response to the data request is not testimony.

Without waiving and subject to these objections, SoCalGas responds as follows:

a. SoCalGas outlines how the Open System project complies with each subsection of Ordering Paragraph 7 of D.22-12-057 in Chapter 2 Testimony. Please see response laid out in Chapter 2 Testimony, Section IV.C:[26]

> OP 7c
>
> *Avoids end user appliance malfunctions*
>
> SoCalGas will work with the community, including the business customers, to analyze the various end-uses and make sure there are no known processes that would be impacted by hydrogen blends, even at low percentages. SoCalGas will offer equipment inspections prior to the introduction of hydrogen to verify the appliances are in working order and will provide contact information for customers to use should they experience difficulties with their appliances. SoCalGas will work with City staff to ensure that once blending commences,

[26] *Id.* at 21 (citations omitted).

any reports of appliance malfunction are documented and, if necessary, SoCalGas will provide operational support.

Additionally, research shows that common appliances can operate safely with blends above 20% hydrogen. A study from GTI, which tested various partially premixed combustion equipment with no adjustments, has shown that heating equipment "…was successfully operated up to 30% hydrogen-blended fuels." This demonstration is designed to further validate previous research findings.

b. SoCalGas objects to this request because it seeks information substantially similar to Question 5,6, and 9 in Appendix B to the Scoping Memo issued on June 12, 2025 with a current due date of August 11, 2025. SoCalGas will provide a response on such date.

c. SoCalGas objects to this request because it calls for speculation regarding whether such costs would be borne by ratepayers. SoCalGas further objects to this request because it seeks information substantially similar to Question 5 and 6 in Appendix B to the Scoping Memo issued on June 12, 2025 with a current due date of August 11, 2025. SoCalGas will provide a response on such date.