SOUTHERN CALIFORNIA GAS COMPANY (SOCALGAS)
SIERRA CLUB DATA REQUEST 7 (SIERRA CLUB DR-07)
HYDROGEN BLENDING DEMONSTRATION APPLICATION (A.22-09-006)
DATE REQUESTED: July 28, 2025
RESPONSE DUE: August 11, 2025

QUESTION 1:

Please refer to slide 4 of the August 4, 2023, Orange Cove Hydrogen Blending presentation SoCalGas produced in Attachment 22.b to SoCalGas's Response to Data Request Sierra Club-SCG-04, Q. 22 (PDF p. 294 of the response document). Please provide the basis for the statement that studying hydrogen blending is an opportunity to "Maintain energy reliability and affordability for Californians."

RESPONSE 1:

Leveraging the existing natural gas system for hydrogen blending promotes affordability and reliability because it allows utilities to adapt its existing reliable gas network to diversify its energy mix using low carbon fuels that can be applied to various end use applications with minimal modifications needed. Further, it is a scalable pathway for hydrogen adoption and integration.

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QUESTION 2:

Please refer to the "fact sheet" in Attachment 22.b of SoCalGas's Response to Data Request Sierra Club-SCG-04, Q. 22 (PDF p. 332 of the response document). Please provide the basis for the statement that hydrogen blending "could reduce greenhouse gas emissions and improve air quality."

RESPONSE 2:

Research has shown that hydrogen blending can reduce Carbon Dioxide (CO2) and Carbon Monoxide (CO) emissions from end-use equipment due to the lower concentration of carbon molecules in the gas supplied to end-use equipment.[1] Further, research shows that hydrogen blending can result in steady or declining Nitrogen Oxide (NOx) from common end-use equipment, particularly in pre-mixed combustion burner conditions.[2]

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[1] Hydrogen Blending Compendium Report, Literature Review at 60-65, available at https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M556/K896/556896659.PDF *see also* California Air Resources Board 2022 Scoping Plan for Achieving Carbon Neutrality at 78, available at https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf

[2] McDonell, Vincent, Zhao, Yan, Choudhury, Shiny. 2020. ***Implications of Increased Renewable Natural Gas on Appliance Emissions and Stability.*** California Energy Commission. Publication number: CEC-500-2020-070 at 30-33, *available at* https://www.energy.ca.gov/sites/default/files/2021-05/CEC-500-2020-070.pdf; *see also:* Glanville, P.; Fridlyand, A.; Sutherland, B.; Liszka, M.; Zhao, Y.; Bingham, L.; Jorgensen, K. Impact of Hydrogen/Natural Gas Blends on Partially Premixed Combustion Equipment: NOx Emission and Operational Performance. at 1 Energies2022, 15, 1706. https://doi.org/10.3390/en15051706

QUESTION 3:

Please refer to Testimony Chapter 2, the Prepared Direct Testimony of Blaine Waymire, regarding the Open System Project, page 23. Mr. Waymire states that "NOx, CO2, CO, and Oxygen will be measured from "select end-use equipment to monitor the emission performance." a. How many end-use appliances will receive monitoring for the pollutants listed above, and how old are the appliances that will be subject to monitoring? Please break down your response by appliance type (e.g., stoves, furnaces, etc.).
b. How many residential buildings will receive monitoring for these pollutants?
c. How many commercial buildings will receive monitoring for these pollutants?
d. What percentage of total buildings receiving the hydrogen blend will receive monitoring for these pollutants?
e. If SoCalGas has not yet determined the numbers or percentages of buildings and/or appliances that will be tested, please explain how and when SoCalGas plans to do so.

RESPONSE 3:

a. As outlined in Chapter 2 Testimony, SoCalGas will perform measurement on emissions from various end-uses in community, to be determined based on a comprehensive customer survey.[3] As such, how many end-users, end-use appliances, their age, and appliance type have yet to be determined, until a comprehensive survey is performed.
b. Please see response to question 3(a)
c. Please see response to question 3(a)
d. Please see response to question 3(a)
e. Comprehensive customer survey would be issued during Phase 1 of the demonstration.

[3] Prepared Direct Testimony of Blaine Waymire on behalf of Southern California Gas Company (SoCalGas's Hydrogen Blending Demonstration - Open System Project) at 13

QUESTION 4:

Please refer to Testimony Chapter 2, the Prepared Direct Testimony of Blaine Waymire, regarding the Open System Project, page 15. Mr. Waymire states: "In the event that decommissioning shall occur, SoCalGas can . . . donate the solar array and associated battery energy storage equipment to the city for its own use".
a. Has SoCalGas committed to the City of Orange Cove that it will donate this equipment if decommissioning occurs? If so, please provide SoCalGas' agreement with the city or any other records of such a commitment.
b. How much does SoCalGas expect to spend to procure the solar array?
c. How much does SoCalGas expect to spend to procure the battery energy storage equipment?
d. Please provide any estimates of the salvage value of this equipment after its use in the pilot.

RESPONSE 4:

a. SoCalGas has proposed donating the solar and battery energy storage equipment within Chapter 2 testimony.[4] Final terms and conditions could be considered after receiving approval and final decision requirements from the CPUC.
b. The estimate includes unit cost of the solar array as $8.1 Million
c. The estimate includes unit cost of the battery energy storage as $4 Million
d. SoCalGas has not performed estimates on salvage value at the end of its useful life, as proposed options include donation to the city, or continued operations.

[4] Id. at 15

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QUESTION 5:

Please refer to PDF p. 6 of the Workpaper Supporting the Direct Testimony of Blaine Waymire Chapter 2, which states that the basis of SoCalGas' estimate "Includes 24 months of land leasing for project through decomissioning [sic]". Will SoCalGas be leasing land from the City of Orange Cove for this pilot? If so, what is the total amount SoCalGas expects to transfer to the City under the land lease?

RESPONSE 5:

SoCalGas has not yet determined what the specific legal arrangements will be to convey rights to use the land for the pilot project, but the class 5 estimate includes a preliminary cost assumption for a lease of the land. Final arrangements, including cost, would be determined upon receiving approval and decision requirements from the CPUC.