

**SAN DIEGO GAS & ELECTRIC
SIERRA CLUB DATA REQUEST SC-SCG-03
A.22-09-006**

**DATE REQUESTED: NOVEMBER 7, 2022
RESPONSE SUBMITTED: NOVEMBER 22, 2022**

QUESTION 1:

Please provide a complete list of all buildings that will receive the hydrogen blend during the demonstration project.

RESPONSE 1:

The UCI campus will be isolated such that only certain university buildings will receive the 5% to 20% hydrogen blend. The buildings include Mesa Arts Building, Mesa Court Housing (29 halls and 3 towers), Mesa Office 19 Building, Alumni Center, art studios, and a food court.

Section III. Project Description of Testimony Chapter 2 provided this information.

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QUESTION 2:

Please refer to Testimony Chapter 2, page 10, lines 18–28, which describes SoCalGas’ plans for isolating the participating buildings from the rest of the distribution system.

- a. Please provide a visual diagram of the part of the distribution system described by lines 18–28 of Testimony Chapter 2, page 10. On the diagram, please indicate:
 - i. The locations of the “two cut and capped pipeline locations;”
 - ii. The locations of the “two temporary pressure regulating stations” and which parts of the distribution system they serve;
 - iii. Which parts of the distribution system shown in the diagram will receive the hydrogen blend, and which parts will not;
 - iv. The location of the “700 feet of pipe to provide the medium pressure system with a feed from a high-pressure pipeline.”
- b. Please explain how SoCalGas can be sure that other areas of its distribution system do not receive a hydrogen blend, and whether the Company intends to monitor nearby portions of the distribution system for hydrogen.

RESPONSE 2:

- a) See image below. Pipelines that would receive the blended gas are highlighted in red. Note that this only includes medium pressure pipe – the nearby high pressure pipe will not receive blended gas.

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- b) The purpose of the cut and cap operations as indicated in the above image is to physically separate the specified pipelines from the rest of the existing distribution gas system. Installed caps would be placed so that the isolated portion of the system receiving blended gas will not flow beyond these points. Therefore, it is not necessary to monitor for hydrogen on distribution pipelines not within scope of the project. At the end of the project, the pipeline system will be restored to its pre-project state.

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QUESTION 3:

Please refer to the February 19, 2020 Technical Hydrogen Working Group Report of SoCalGas, SDG&E, PG&E, and Southwest Gas filed in R.13-02-008 (Order Instituting Rulemaking to Adopt Biomethane Standards and Requirements, Pipeline Open Access Rules, and Related Enforcement Provisions), located at <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M333/K499/333499231.PDF>.

- a. Please provide each of the studies listed in *Table 1: SoCalGas Hydrogen Research Partnerships and Key Studies* (page 8 of the Technical Hydrogen Working Group Report); and
- b. Please confirm that SoCalGas considered the data and findings from these studies when it designed the proposed pilot project in this proceeding.

RESPONSE 3:

- a) SoCalGas objects to this request because it seeks documents that contain confidential information, including proprietary information relating to SoCalGas's research and development activities.

Subject to and without waiving these objections, SoCalGas responds as follows: Below is a list of publicly available studies and their internet links. SoCalGas will produce non-public, confidential studies pursuant to its Non-Disclosure and Protective Agreement with Sierra Club.

Partner	Publicly available link
FCHEA/McKinsey/EPRI	https://www.fchea.org/us-hydrogen-study
University of Illinois at Urbana-Champaign (UIUC)	https://www.sciencedirect.com/science/article/abs/pii/S036031991930878X
Sandia National Laboratories	https://www1.eere.energy.gov/hydrogenandfuelcells/pdfs/ihfpv_keller.pdf

For studies that are relevant to the proposed project's scope of work, SoCalGas confirms that the data and findings were considered. These studies include:

- AGA/CGA Blending of Hydrogen into Natural Gas Delivery Systems

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- Gas Technology Institute Hydrogen Blending into the Natural Gas Network
 - Gas Technology Institute of the Effects of Hydrogen Blending in Natural Gas on Properties and Operational Safety
 - HYREADY Engineering Guidelines for the preparation of natural gas systems for hydrogen/NG mixtures
 - University of Southern California Hydrogen Embrittlement Literature Review
 - University of Illinois at Urbana-Champaign Evaluating Hydrogen Embrittlement of Pipeline Steels
 - Sandia National Laboratories Hydrogen Effects on Materials for CNG/H2 Blends
 - NYSEARCH RANGE Interchangeability study for hydrogen-natural gas blends on SoCalGas customer equipment

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QUESTION 4:

Please refer to the August 14, 2020 Technical Hydrogen Working Group Report of SoCalGas, SDG&E, PG&E, and Southwest Gas filed in R.13-02-008 (Order Instituting Rulemaking to Adopt Biomethane Standards and Requirements, Pipeline Open Access Rules, and Related Enforcement Provisions), located at <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M345/K151/345151017.PDF>. Please identify the current status of the following research initiatives, provide all reports related to the research activities, provide all presentations related to findings and lessons learned from the research activities, and explain how SoCalGas incorporated lessons learned from this research into the pilot it proposed in this proceeding:

- a. Investigation into the effect of hydrogen blends on the ability to make safe in-service welds (discussed in Section 3.1.6.);
- b. Project on hydrogen impacts on residential and commercial combustion equipment (discussed in Sections 3.1.7.); and
- c. Evaluation of methane detection technologies with hydrogen-methane blends and the evaluation of gas chromatographs capable of detecting hydrogen (discussion in Section 3.1.8.).

RESPONSE 4:

- a) SoCalGas objects to this request to the extent it seeks information or documents that are irrelevant and not reasonably calculated to lead to the discovery of admissible evidence. SoCalGas further objects to this request on the grounds that it is overbroad, vague and ambiguous as to the meaning of the terms “reports” and “presentations” in relation to the research initiatives. SoCalGas also objects to this request to the extent that it seeks documents that contain confidential information, including proprietary information relating to SoCalGas’s research and development activities.

Subject to and without waiving these objections, SoCalGas responds as follows: SoCalGas interprets the term “reports” as only including final reports and does not include draft reports. Based on these interpretations, there are no presentations. SoCalGas will produce the non-public, confidential report pursuant to its Non-Disclosure and Protective Agreement with Sierra Club.

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Section 3.1.6. DNV GL – In Service Welding onto Methane-Hydrogen Mixture Pipelines: This study was completed in 2022. However, the study findings were not definitive and a second phase of research is being considered. SoCalGas did not consider the report’s findings in the demonstration project proposal because there is no intention to conduct in-service welding of steel pipelines pressurized with hydrogen blended gas.

- b) SoCalGas objects to this request to the extent it seeks information or documents that are irrelevant and not reasonably calculated to lead to the discovery of admissible evidence. SoCalGas further objects to this request on the grounds that it is overbroad, vague and ambiguous as to the meaning of the terms “reports” and “presentations” in relation to the research initiatives. SoCalGas also objects to this request to the extent that it seeks documents that contain confidential information, including proprietary information relating to SoCalGas’s research and development activities.

Subject to and without waiving these objections, SoCalGas responds as follows: SoCalGas interprets the term “reports” as only including final reports and does not include draft reports. Based on these interpretations, there are no presentations.

3.1.7. GTI – Hydrogen Blending Impacts on Residential & Commercial Combustion Equipment

This project was completed in December 2021. Test results demonstrated that the appliances’ ignition and operation were not impacted by hydrogen blends up to 30 vol%. Results also showed that there were no significant impacts to carbon monoxide and nitrogen oxide emissions. It is available at <https://www.mdpi.com/1996-1073/15/5/1706>.

- c) SoCalGas objects to this request to the extent it seeks information or documents that are irrelevant and not reasonably calculated to lead to the discovery of admissible evidence. SoCalGas further objects to this request on the grounds that it is overbroad, vague and ambiguous as to the meaning of the terms “reports” and “presentations” in relation to the research initiatives. SoCalGas also objects to this request to the extent that it seeks documents that contain confidential information, including proprietary information relating to SoCalGas’s research and development activities.

Subject to and without waiving these objections, SoCalGas responds as follows: SoCalGas interprets the term “reports” as only including final reports and does not include draft reports. Based on these interpretations, there are no presentations. SoCalGas will produce the non-public, confidential report pursuant to its Non-Disclosure and Protective Agreement with Sierra Club.

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3.1.8. SoCalGas – Evaluation of Methane Detection Technologies with Hydrogen-Methane Blends, Evaluation of Gas Chromatographs Capable of Detecting Hydrogen

The evaluation of methane detection technologies with hydrogen-methane blends was completed in 2021. The findings from this study will help SoCalGas' considerations for utilizing various detection technologies when developing a detailed test plan for leak detection and surveying. A copy of this report will be provided.

The evaluation of gas chromatographs capable of detecting hydrogen is estimated to be complete in Q2 2023.