DOCKETED	
Docket Number:	23-IEPR-06
Project Title:	Hydrogen
TN #:	255806
Document Title:	Improvement Facilitation, LLC Comments - Hydrogen Blending in Southern California Gas Company's Natural Gas Lines
Description:	N/A
Filer:	System
Organization:	Improvement Facilitation, LLC
Submitter Role:	Public
Submission Date:	4/19/2024 11:31:53 AM
Docketed Date:	4/19/2024

Comment Received From: Improvement Facilitation, LLC
Submitted On: 4/19/2024
Docket Number: 23-IEPR-06

Hydrogen Blending in Southern California Gas Company's Natural Gas Lines

Additional submitted attachment is included below.

Original sent to the CPUC:

Dear California Public Utilities Commission (CPUC),

Thank you for considering my concerns regarding the proposed implementation of hydrogen blending in Southern California Gas Company's natural gas lines. While the concept of utilizing hydrogen as a clean energy source holds promise, there are significant safety and efficiency drawbacks associated with its current integration methods, not to mention INCREASED gas utility rates to the rate payers.

Safety Concerns:

- **Hydrogen Embrittlement:** Studies by the Argonne National Laboratory [1] have shown that hydrogen gas can cause embrittlement in metallic pipelines. This process weakens the metal, increasing the risk of leaks and potentially catastrophic failures.

Efficiency Concerns:

- **Low BTU Content:** Hydrogen has a significantly lower energy density (BTU per unit volume) compared to natural gas. Research by the Department of Energy [2] indicates that delivering the same amount of energy with a hydrogen blend would require a substantial increase in flow rate and pressure, potentially exceeding existing pipeline infrastructure capabilities.
- **Energy Consumption in Production:** A significant portion of current hydrogen production utilizes a process called steam methane reforming, which relies on natural gas as a feedstock. This process, as documented by the National Renewable Energy Laboratory [3], generates carbon emissions similar to burning natural gas directly.

Environmental Concerns:

- **Increased Natural Gas Consumption**: Due to the lower energy density of hydrogen compared to natural gas, blending necessitates a higher overall gas volume to deliver the same amount of energy. Additionally, the production of "gray hydrogen" (the most common type derived from natural gas) consumes natural gas and generates emissions. This combined effect leads to **greater total natural gas usage** compared to a pure natural gas system.

Conclusion:

- To truly reduce emissions, any hydrogen blended into the system should be mandated to come from **100% renewable sources**, including the energy used for compression and transportation.
- In light of these concerns and the increased cost to rate payers, I urge the CPUC to thoroughly evaluate the safety and efficiency implications of hydrogen blending before approving its implementation. There may be alternative clean energy solutions that deliver a lower environmental impact without jeopardizing public safety, increasing utility rates, or incurring significant infrastructure upgrades.

Thank you for your attention to this critical matter.

Sincerely,

Wayne D. Alldredge

LEED AP®, WELL AP®, ENV-SP, CEM, CEA, CMVP, CBCP, EBCP, GGP, CalCTP-ATT, HERS Rater

References:

1. Argonne National Laboratory. HyBlend: Opportunities for Hydrogen Blending in Natural Gas Pipelines: https://www.nrel.gov/news/program/2023/hydrogen-blending-as-a-pathway-toward-u.s.-decarbonization.html)
2. Department of Energy. Hydrogen Pipelines: https://www.hydrogen.energy.gov/)
3. National Renewable Energy Laboratory. Hydrogen Production: Renewable and Low-Carbon Pathways: https://www.nrel.gov/hydrogen/)