Safety Fact Sheet

H2 Blending Demonstration Project
City of Orange Cove

Background

- SoCalGas is proposing to blend up to 5% hydrogen into its natural gas system, a level that has already been recognized by the California Public Utilities Commission (CPUC) and researchers to be considered "generally safe," to serve residential homes and businesses in the City of Orange Cove.[1]
- At 5% blends, the natural gas being provided to a customer's home and work location will continue to have the odorized egg-like sulfur smell that customers are used to, and they will experience no difference in how they use their appliances today.
- The amount of hydrogen in the blend will gradually increase during the demonstration from 0.1% to 5%, with frequent checks on natural gas quality, leakage, equipment, pipelines, and their components.

Hydrogen and General Safety Overview

Blended hydrogen is a fuel that has been safely and reliably utilized around the world for decades. For example, Hawai'i Gas has been using hydrogen in its fuel mix for a half-century and has more than 1,100 miles of pipelines that transport up to 15% hydrogen, serving homes, schools, restaurants, and businesses. Here's what our research found:

- Hydrogen is no more or less dangerous than other flammable fuels, including gasoline and natural gas. In fact, some of hydrogen's differences actually provide safety benefits compared to gasoline or other fuels.[2]
- If a pipeline is leak-tight for natural gas, it would also be leak-tight for a hydrogen blend.[3]
- Hydrogen is the most abundant element in the universe and is both non-toxic and non-poisonous.[4]
- Hydrogen is lighter than air and diffuses rapidly.[5]
- The US currently produces about 10 million metric tons of hydrogen each year.[6]

Hydrogen has been blended into existing natural gas infrastructure to help decarbonization efforts by a variety of localities around the world for decades:

Up to **20%** underway in Europe

Up to **15%** in Hawaii

Up to **5%** underway in continental United States

5% underway in Canada

Up to **10%** underway in Australia

The above showcases hydrogen blended at various percentages by volume

Popular Misconception

The infamous Hindenburg airship disaster of 1937 gave hydrogen a bad reputation. In the 1990s, researcher Addison Bain investigated the event and concluded the fire was sparked by an electrostatic charge in the atmosphere that ignited the coating of the airship's outer fabric. This conclusion was later confirmed by The Zeppelin Company, the original builder of the Hindenburg airship.[7]

SoCalGas to Implement Robust Safety Plans for Orange Cove

We understand that those working and residing near the demonstration project locations may have concerns. Here's how we plan to help address them:

- Install remote methane/hydrogen monitoring systems within the production facility that are active 24/7 and monitored in real-time.
- Perform leak surveys before, after, and on a quarterly basis during implementation.
- Survey customer equipment to confirm it is operating safely.
- Conduct safety and operational tests on a monthly, quarterly, and yearly frequency based on manufacturer recommendations.
- Provide hydrogen safety education for emergency personnel.
- Create specific hydrogen blending customer protocols and emergency response plans.

SoCalGas History in Orange Cove

For over 90 years, SoCalGas has proudly served the Orange Cove community, both as an energy provider and as a neighbor.

Our employees live and work in Orange Cove, and we're committed to delivering safe, reliable, and affordable energy to local residents and businesses. Our deep roots in the community are reflected in our long-standing involvement, from celebrating at local events to supporting families through our customer assistance programs.

Find out more at: **socalgas.com/OrangeCove** or email ProjectInfo@socalgas.com

[H2] INNOVATION EXPERIENCE

Hydrogen Blending Underway in Downey, California

- Blending up to 20% clean renewable hydrogen with natural gas.
- Fully functional 1,920 sq ft home has six natural gas appliances receiving a blended gas.
- Appliances were not modified.
- The natural gas appliances at the [H2] Innovation Experience home include a stove/oven, water heater, clothes dryer, indoor fireplace, outdoor BBQ, and outdoor fire pit. All models are commonly available at local retail stores.
- When natural gas is blended with 20% hydrogen, it still contains the same odorant as 100% natural gas, which helps alert occupants to any potential leaks.
- Appliances are frequently used and are regularly tested.
- Over 7,000 visitors since January 2023, including students, elected officials, and community organizations.

For more information, visit: **socalgas.com/H2IE**

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[1] Source: CPUC Website. https://www.cpuc.ca.gov/news-and-updates/all-news/cpuc-issues-independent-study-on-injecting-hydrogen-into-natural-gas-systems

[2] Source: U.S. Department of Energy (DOE). Hydrogen Safety Fact Sheet. https://www1.eere.energy.gov/hydrogenandfuelcells/pdfs/h2_safety_fsheet.pdf

[3] Source: GTI Energy. Climate Impacts of Fugitive Hydrogen Emissions. Center for Methane Research. https://www.gti.energy/wp-content/uploads/2025/01/CMR-Climate-Impacts-of-H2-Emissions.pdf

[4] Source: U.S. DOE. Safety, Codes and Standards [Fact Sheet]. Fuel Cell Technologies Office. https://www.energy.gov/eere/fuelcells/articles/safety-codes-and-standards-fact-sheet

[5] Source: U.S. DOE. Hydrogen Safety Fact Sheet [Fact Sheet]. https://www1.eere.energy.gov/hydrogenandfuelcells/pdfs/h2_safety_fsheet.pdf

[6] Source: U.S. DOE Hydrogen Production Website. https://www.energy.gov/eere/fuelcells/hydrogen-production

[7] Source: U.S. DOE. Hydrogen Safety Fact Sheet [Fact Sheet] https://www1.eere.energy.gov/hydrogenandfuelcells/pdfs/h2_safety_fsheet.pdf