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<th><strong>Docket Number:</strong></th>
<th>22-IEPR-05</th>
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<tr>
<td><strong>Project Title:</strong></td>
<td>Emerging Topics</td>
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<td><strong>Document Title:</strong></td>
<td>Presentation - SOCALGAS CLEAN ENERGY FUTURE AND ROLE OF HYDROGEN</td>
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<tr>
<td><strong>Description:</strong></td>
<td>2C. Yuri Freedman, SoCalGas</td>
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<td><strong>Filer:</strong></td>
<td>Raquel Kravitz</td>
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<td><strong>Organization:</strong></td>
<td>SoCalGas</td>
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Journey To Be the Cleanest, Safest, Most Innovative Energy Company in America

Climate Commitment
- Announced Climate Commitment
- Became the largest gas distribution utility in the nation to include scopes 1, 2, and 3
- Aligned with California’s statewide decarbonization goals and the global Paris Agreement climate emissions

ESG Financing Framework
- Aligns our investments/activities across Sempra with our sustainability goals to help drive our environmental, social and governance (ESG) commitments to support long-term, sustainable value for all shareholders and our other stakeholders

Angeles Link Announcement
- Proposal to develop the nation’s largest green hydrogen energy infrastructure system to deliver clean, reliable energy to the Los Angeles region
- Goal to drive deep decarbonization in hard-to-electrify sectors of the Southern California economy

SoCalGas Clean Fuels White Paper
- A California economy-wide assessment of an integrated energy system
- Key study findings note the importance and requirement of a clean fuels network if we require an affordable, resilient, and risk mitigating solution that supports electrification.

ASPIRE 2045 – SoCalGas Sustainability Plan
- Holistic approach to integrating sustainability across entire business to create positive impact and strengthen business outcomes
- Five focus areas to support our business in being the cleanest, safest, most innovative energy company in America as we advance our climate objectives
Clean Molecules Are Critical for Decarbonization

In a scenario limiting global warming to 1.5°C by 2050, ~50% of global energy needs will be met with clean molecules.

Source: Bloomberg New Energy Finance
Clean Fuels Study Key Findings: Resiliency, Cost, Diversification

- The most affordable, resilient, and technologically proven decarbonization pathways require a clean fuels network.
- A clean fuels network that supports clean, thermal electric generation with carbon management is the most cost-effective solution.
- A clean fuels network supports electrification and reduces risk.
Clean Fuels: Hydrogen Is Well Positioned to Play a Central Role
Project Overview
This project to be developed and studied has the potential to replace natural gas-fired electric generation facilities with clean-burning hydrogen, service hard-to-electrify industrial sectors, provide the fuel needed to convert the heavy-duty trucking industry from diesel to fuel cells, and could assist in facilitating permanent retirement of Aliso Canyon.

Project Attributes
Produced entirely from renewable electricity – the project could expand our renewable energy storage capabilities, allow us to utilize more renewable electricity and avoid curtailment, reduce emissions in hard-to-electrify sectors, protect stakeholders and communities of concerns, and create and maintain thousands of union jobs in the process.

Why SoCalGas?
With 22 million customers, SoCalGas serves as a public utility under a regulated utility framework suitable for a project dedicated to public use, has decades-long relationship with the region’s largest industrial end-users, more than 100,000 miles of transmission and distribution pipelines already in place, local expertise, and an established track record of project development at scale.

The Challenge
California’s ambitious climate and clean air-quality goals will not be achievable unless hard-to-electrify sectors of the economy are fully decarbonized, and we’re running out of time.
Start with 100% renewable electricity

Utilize renewable electricity that is new, on the grid or being curtailed to provide power to electrolyzer

Convert it into green hydrogen with advanced electrolyzers

Electrolysis splits water into hydrogen and oxygen -- with virtually zero greenhouse gas and criteria pollutant emissions

Deliver it into LA Basin by pipeline

SoCalGas will use its expertise in pipeline infrastructure and potential rights-of-way to safely deliver hydrogen from outside of LA Basin to industries that need it most

Use it to decarbonize sectors that can’t be plugged in

Dispatchable electric generation and hard-to-electrify sectors like manufacturing and heavy-duty transportation are the missing links to solving the most challenging aspect of decarbonization; green hydrogen offers the solution

25-35 GW Curtailed/New/Solar/Wind
2 GW Batteries

10-20 GW Electrolyzers

Hydrogen infrastructure

14.3 million tons of CO₂ emissions eliminated

Shaping the Future: How Could Angeles Link Work?
Opportunity to Decarbonize Transportation:
Fuel Cell and Battery EVs Are Complementary
Shaping The Future: Selected SoCalGas RD&D Projects

H2 Hydrogen Home

H2 PureComp

H2 SilverSTARS

H2U Technologies

Hydrogen Fuel Cells for Marine Vessels

Hydrogen for Commercial Transportation

Glad to be of service.
Shaping The Future: H2 Hydrogen Home Demonstration Project

- Demonstrates complementarity of clean hydrogen with renewable power and its long-duration energy storage potential
- Showcases hydrogen’s use for decarbonization of buildings and homes
- Project components
  - Solar panels that generate renewable electricity
  - This electricity is used to produce hydrogen in an electrolyzer
  - Hydrogen is stored on site and used when needed as an energy source for a fuel cell to produce electric power
- Completion late 2022
Thank You!