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SDGE Comments on CEC IEPR Commissioner Workshop on Zero Carbon Resources and Hydrogen

Additional submitted attachment is included below.



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California Energy Commission
Docket Unit, MS-4
Docket No. 25-IEPR-04
715 P Street
Sacramento, CA 95814-5512

Submitted via electronic mail

Subject: Comments on the CEC IEPR Commissioner Workshop on Zero Carbon Resources and Hydrogen

Dear Commissioners,

San Diego Gas & Electric Company (SDG&E) appreciates the opportunity to provide comments on the California Energy Commission's (CEC) July 29, 2025, Integrated Energy Policy Report (IEPR) Commissioner Workshop on Firm Zero-Carbon Resources and Hydrogen ("Workshop").¹ We commend the CEC for convening a diverse and informative set of speakers and stakeholders representing a range of technologies, projects, and perspectives, and for fostering a thoughtful dialogue on the role of clean fuels and firm zero-carbon resources in California's decarbonization strategy.

We respectfully submit the following comments:

- SDG&E applauds the SB 1075 analysis for considering a diverse set of clean hydrogen production pathways and feedstocks;
- Dedicated hydrogen pipelines connecting centers high volume of aggregated hydrogen production and aggregated demand will be critical; for other parts of the state with smaller and/or more geographically dispersed demand for hydrogen, collocated hydrogen production and offtake that utilizes existing pipeline infrastructure should be considered;
- Hydrogen blending in existing natural gas pipelines supports hydrogen market development and decarbonization goals

¹ CEC IEPR Workshop on Zero Carbon Resources and Hydrogen, July 29, 2025, available at: <https://www.energy.ca.gov/event/workshop/2025-07/iepr-commissioner-workshop-firm-zero-carbon-resources-and-hydrogen>.

Diverse Hydrogen Production Pathways & Feedstocks

SDG&E appreciates the CEC's broadened assessment of hydrogen feedstocks under SB 1075 as described in Sammy Sallam's presentation on the 2025 Integrated Energy Policy Report (IEPR). The preliminary SB 1075 analysis prepared by the California Air Resources Board's (CARB) and Energy and Environmental Economics (E3) shows that hydrogen will be produced, transported, and used in multiple ways across the industrial, transportation, and electric generation sectors, which makes hydrogen a crucial component of achieving California's decarbonization goals. It is appreciated that future reports, including the 2025 IEPR, will continue to build on this analysis and survey a diverse set of clean hydrogen production pathways. Findings from SB 1075 may be informative for the California Public Utilities Commission (CPUC) as it proceeds through its procurement and planning processes.

SDG&E supports a technology-neutral approach that includes a range of clean hydrogen production pathways and feedstocks. In particular, SDG&E was pleased to see pyrolysis included. Pyrolysis is a promising hydrogen production pathway because the process uses very little water, requires less land compared to other production types, can leverage existing pipeline infrastructure, and has the ability to permanently sequester carbon in a solid state that can be sold to various industries. The SB 1075 analysis presented by E3 in February 2025 found that pyrolysis offers a carbon intensity ranging from less than 2 kg CO₂/kg H₂ to carbon negative, and that it can achieve a very competitive levelized cost of hydrogen, ranging from \$2-\$5/kilogram.²

In terms of resource intensity, the preliminary SB 1075 analysis indicates that extensive land and water resources will be required to produce all hydrogen in California via electrolysis paired with solar energy.³ Given the precious and expensive nature of these resources, California should adopt a feedstock-neutral and technology-neutral approach that enables other low-carbon hydrogen production options to participate in its energy future.

In future SB 1075 discussions, SDG&E also seeks clarification around some parameters used in the analysis, especially in the "Balanced" portfolio of hydrogen production pathways:

- (1) Distinction between fossil gas reforming and pyrolysis, as these technologies have different emissions profiles, electricity and water requirements, and geographical requirements and state the assumptions.
- (2) Differentiation between carbon capture and *underground* storage (CCUS) and carbon capture and storage (CCS). CCUS requires a pipeline connection to suitable underground geologic formations, which are not available in all locations; CCS can refer to and include the capture of carbon in a solid form, in which case it is permanently sequestered from the atmosphere.

² Energy and Environmental Economics, Inc. "Analysis of Hydrogen in California for Senate Bill 1075 Report." California Air Resources Board Public Workshop Materials. February 25, 2025. Page 14-16. Available at <https://ww2.arb.ca.gov/sites/default/files/2025-02/sb-1075-workshop-022525-presentation-e3.pdf>

³ Ibid at page 17.

- (3) Break out fossil gas sources by technology type (e.g., SMR vs. pyrolysis) and indicate where water recycling is feasible.

Hydrogen Transportation, Storage, and Distributed Production

SDG&E appreciates that CEC staff acknowledges the need for hydrogen pipeline infrastructure, and that trucking liquid hydrogen alone will not be sufficient to meet future demand to support power plants, ports, and industrial offtake. Dedicated hydrogen pipelines will play a crucial role in connecting areas of scaled hydrogen production with regions of high hydrogen demand, such as the proposed Angeles Link pipeline.

For parts of the state with smaller and/or more geographically dispersed demand for hydrogen, a distributed hydrogen production and offtake model could make sense, whereby production and demand are collocated. Collocation can lower cost and emissions related to trucking by leveraging the existing gas system infrastructure. For example, existing natural gas pipelines could transport gas to facility with a collocated pyrolysis plant. The pyrolysis plant could decarbonize the gas prior to delivery to the end user, delivering low carbon hydrogen to the meter. This process can be considered “pre-combustion carbon removal”.

Hydrogen Blending in Existing Natural Gas Pipelines

Outside of the CPUC presentation on ongoing proceedings, there was little discussion on blending hydrogen in existing natural gas pipelines.⁴ Pipeline blending can allow low-carbon hydrogen to be used and delivered across the state via existing infrastructure. This reduces hydrogen transportation costs while allowing market participants to benefit from the low carbon attributes and energy delivery. Hydrogen blending would also de-risk and accelerate investment in clean hydrogen production, because it would ensure that there would be place for hydrogen to go as demand ramps and dedicated pipeline activity progresses.

As CARB Deputy Executive Director Rajinder Sahota stated in her opening remarks, “We know we need hydrogen. We know we need electricity, and it all needs to be clean and sustainable. We know that from modeling the Scoping Plan that hydrogen demand will be substantial for hard-to-electrify sectors.”⁵ CARB’s 2022 Scoping Plan calls for 20% hydrogen blending by volume starting in 2030 to meet California’s greenhouse gas reduction goals.⁶ However, blending in the system is contingent upon the CPUC’s approval of a safe hydrogen injection standard.⁷ The CARB 2022 Scoping Plan adopted in its reference scenario renewable

⁴ CPUC, Hydrogen-Related Activity at the CPUC, July 29, 2025, Sasha Cole, available at: <https://efiling.energy.ca.gov/GetDocument.aspx?tn=265042>.

⁵ CEC IEPR Workshop on Zero Carbon Resources and Hydrogen, July 29, 2025, available at: <https://www.energy.ca.gov/event/workshop/2025-07/iepr-commissioner-workshop-firm-zero-carbon-resources-and-hydrogen>.

⁶ California Air Resources Board, 2022 Scoping Plan for Achieving Carbon Neutrality, <https://ww2.arb.ca.gov/sites/default/files/2022-11/2022-sp.pdf>.

⁷ A.22-09-006, Joint Amended Application of Southern California Gas Company, San Diego Gas & Electric, Company, Pacifica Gas & electric Company, and Southwest Gas Corporate to Establish Hydrogen Blending Demonstration Projects

hydrogen blended in fossil gas pipeline at 7% energy (~20% by volume), ramping up between 2030 and 2040.⁸ At a 20% hydrogen blend by volume, hydrogen's typical carbon dioxide (CO₂) reduction potential is 6.3%. Given the scale of the gas system today, a 6.3% CO₂ reduction would be significant- the equivalent to removing ~1.5 million gasoline-powered passenger vehicles from the road.⁹

In conclusion, SDG&E appreciates that the CEC continues taking a balanced and inclusive approach to evaluating hydrogen and zero-carbon technologies across a variety of parameters. We look forward to continued collaboration with the CEC and stakeholders to advance California's clean energy goals.

Respectfully,

/s/ Megan Silva

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Regulatory Affairs Manager

⁸ CARB's 2022 Scoping Plan for Achieving Carbon Neutrality (Nov. 16, 2022), available at https://ww2.arb.ca.gov/sites/default/files/2022-12/2022-sp_1.pdf.

⁹ U.S. Energy Information Administration, Natural Gas Delivered to Consumers in California, *available at*: <https://www.eia.gov/dnav/ng/hist/n3060ca2m.htm>; U.S. Environmental Protection Agency, Greenhouse Gas Emissions from a Typical Passenger Vehicle, *available at*: <https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle>; California Department of Motor Vehicles, Estimated Vehicles Registered by County for the Period of January 1 through December 31, 2020, *available at*: https://www.dmv.ca.gov/portal/uploads/2021/02/estimated_fee_paid_by_county_report.pdf; Calculation: (2,019 BCF of natural gas consumed in CA 2020)*(0.0552 kg CO₂/CF) produces 112.16 MMT CO₂/year from natural gas system. If 20% of the natural gas by volume had been replaced by hydrogen: 6.3%*111MMT CO₂ = 7.0 MMT of CO₂ emissions could have been avoided. In passenger vehicle equivalency, (7.0 MMT of CO₂*10⁶)/4.5 MT CO₂/car/year (per EPA average) = 1,524,280 cars removed from the road. As there were 25,507,660 registered cars in California in 2020, this is equivalent to removing 6% of all cars from the road in California.