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PG&E Comments RE IEPR Workshop on Firm Zero Carbon Resources

Additional submitted attachment is included below.



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California Energy Commission
Docket Number 25-IEPR-04
715 P Street
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RE: CEC IEPR Commissioner Workshop on Firm Zero-Carbon Resources

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to comment on the California Energy Commission's (CEC) Integrated Energy Policy Report (IEPR) Commissioner Workshop on Firm Zero-Carbon Resources and Hydrogen held on July 29, 2025.

PG&E thanks the CEC for continuing to analyze the state of the market for firm zero-carbon resources to support reliability and affordability. The CEC staff's analysis and stakeholder presentations were insightful and helped underscore why a diverse portfolio will be critical to achieve an affordable, clean, reliable energy system in California. Below, we offer some reflections on the workshop.

PG&E encourages the CEC to continue broadening its analysis of hydrogen pathways from production to end-use.

The California Public Utilities Commission (CPUC) and load serving entities (LSEs), including PG&E, participate in the integrated resource planning (IRP) process to produce new portfolios and plans (CPUC every year, LSEs every 2-3 years).¹ The focus of the IRP process is to create resource plans that optimize for reliability, sustainability, and affordability.

Within the state's ambitious energy goals, PG&E believes there is potential for hydrogen to play a role in seasonal and long duration energy storage (LDES). To better understand how to maximize the affordability of hydrogen the CEC should study all pathways for production, transportation, infrastructure, storage, and end use options for both the energy and transportation sectors.

For instance, PG&E believes that biomass pyrolysis² and methane (renewable natural gas (RNG) and fossil natural gas) pyrolysis³ have merit for further exploration. Both options use less water and are more affordable than electrolytic hydrogen production and steam methane reformation with Carbon

¹ Presentation - Incorporating Clean, Firm Resources into PG&E's Integrated Resource Planning, TN# 265059, Kurtis Kolnowski, PG&E

² [Redding Rancheria's Biomass to Hydrogen](#), TN#265058, Jeremy Hayward, Redding Rancheria; [IEPR Commissioner Workshop – H Cycle Waste to Hydrogen](#), TN#265060, Matt Franzen, H Cycle

³ [Hydrogen Potential - Electric Generation and Transportation \(2025 IEPR\)](#), TN#265050, Sammy Sallam, CEC

Capture and Storage. Using RNG or biomass also provides a zero or negative emissions production process. Methane pyrolysis, especially when powered by renewable electricity, can offer zero CO₂ emissions and produces a solid carbon byproduct instead of gaseous CO₂. This solid carbon is easier to store and can be repurposed for other applications such as strengthening construction materials or serving as an additive in batteries and electrodes.⁴ There are also other emerging hydrogen production opportunities, such as engineered mineral hydrogen (EMH). EMH leverages naturally occurring geochemical reactions in the subsurface to produce hydrogen by stimulating these reactions in a controlled scalable way.⁵

PG&E agrees that electric generation (EG), pipelines, and zero emissions vehicles (ZEVs) are critical areas for continued CEC focus.

PG&E agrees with the CEC that the bookends of hydrogen demand that should be addressed in the 2025 IEPR hydrogen analysis for zero-carbon resources are EG and ZEVs.⁶ Hydrogen and RNG/bioenergy can help meet these demands in California if policies are structured to provide certainty to these markets. Programs such as the Low Carbon Fuel Standard (LCFS), the Hybrid and Zero Emission Truck and Bus Voucher Incentive Program (HVIP), and the Hydrogen Refueling Station (HRS) grants/incentive program are sending the right market signals for the transportation sector.

Likewise, PG&E believes there should be increased consideration for sending market signals that would incentivize decarbonization of the existing gas pipeline system and gas fired EG using hydrogen and RNG. PG&E encourages the CEC to perform more analysis on repurposing existing gas fired electric generation to produce firm power using hydrogen and RNG. As demonstrated by the Palomar Energy Center (PEC)⁷, existing gas fired turbines can already blend some percentages of hydrogen (under 10%)⁸. Most gas fired turbines can also be modified to take higher percentages (above 50%).⁹

In fact, PG&E owns gas fired turbines similar to those at the PEC which are able to use a blend of hydrogen and RNG to provide clean firm electricity. Hydrogen could potentially be produced on-site near an existing gas fired EG plant using methane pyrolysis, used seasonally and potentially stored in subsurface reservoirs or aboveground vessels. This could help to minimize the total cost of ownership (TCO) of the pyrolysis unit and the EG. If existing infrastructure can be repurposed to use a clean firm feedstock, this approach could also contribute to affordability. However, improving viability will be contingent on additional incentives for the methane pyrolysis hydrogen production pathway and storage, regulatory clarity around hydrogen use in EG, and policies that support infrastructure repurposing.

As noted in the workshop, it is the CPUC's responsibility to ensure that any requests for ratepayer funds—such as those supporting hydrogen blending pipeline demonstrations—are considered “just and

⁴ Methane Pyrolysis for Zero-Emission Hydrogen Production: A Potential Bridge Technology from Fossil Fuels to a Renewable and Sustainable Hydrogen Economy, <https://doi.org/10.1021/acs.iecr.1c01679>

⁵ [VEMA Hydrogen | Engineered Mineral Hydrogen](#)

⁶ [Hydrogen Potential - Electric Generation and Transportation \(2025 IEPR\)](#), Sammy Sallam, CEC

⁷ Hydrogen Enabling Reliable, Carbon-Free Electrification - Palomar Energy Center, TN# 252169, Melanie Davidson, 23-IEPR-06

⁸ Neville, J. (2023). *Hydrogen as gas turbine fuel: Feasibility and considerations (Rev. 5)*. ENTRUST Solutions Group. https://entrustsol.com/wp-content/uploads/2023/02/Hydrogen_as_Gas_Turbine_Fuel_Feasibility_and_Considerations_JN_R5.pdf

⁹ Ibid.

reasonable.” The CPUC needs objective data from the IEPR and SB 1075 research, along with certainty around hydrogen investments in production, transportation, and adoption. Because these elements are interdependent, uncertainty in any one area can compound risks across the entire hydrogen value chain.¹⁰

PG&E encourages the CEC to help the CPUC with their request of clear and realistic assessments that inform them of the financial risks involved in committing public resources,¹¹ while also balancing these risks against California’s urgent decarbonization needs. As noted by the CEC, “pipelines would be needed to meet hydrogen demand beyond limited transportation end uses whose requirements can be met with hydrogen deliveries by trucks.”¹² Hydrogen pipelines, both blended with natural gas and dedicated, can help support the development of affordable decarbonization options, broadening the tools available in the state’s “toolbox” for reaching carbon neutrality. The CEC’s unique role positions it to help California both foster and drive progress across the spectrum of clean firm resources.

Finally, PG&E also supports the CEC incorporating upcoming load growth from data centers and difficult-to-electrify industrial facilities into the 2025 IEPR. These energy demands are shifting the landscape of load growth and have the potential to support affordability for customers if they are connected to the California energy system.

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PG&E appreciates the opportunity to comment on this workshop and looks forward to continuing to collaborate with the CEC. Please reach out to me if you have any questions.

Sincerely,

Josh Harmon
State Agency Relations

¹⁰ [Hydrogen-Related Activity at the CPUC](#), TN#265042, Sasha Cole, CPUC

¹¹ Ibid.

¹² [Hydrogen Potential - Electric Generation and Transportation \(2025 IEPR\)](#), TN#265050, Sammy Sallam, CEC