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SoCalGas Comments on the CEC IEPR Workshop on Firm 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

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

Dear Vice Chair Gunda,

Southern California Gas Company (SoCalGas) appreciates the opportunity to provide comments on the California Energy Commission (CEC) Integrated Energy Policy Report (IEPR) Workshop on Firm Zero-Carbon Resources and Hydrogen (Workshop) held on July 29, 2025. There is broad industry consensus that hydrogen will be needed to help decarbonize the power generation, transportation, and industrial sectors as part of California's transition to carbon neutrality. As California Air Resources Board (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."¹

Our comments on the Workshop focus on the following six points: 1) there is consensus that pipelines will be needed to transport hydrogen at scale, 2) hydrogen will help maintain reliability and resiliency of California's electric grid during times of peak load, 3) clarity on how the California Public Utilities Commission (CPUC) intends to utilize the CEC's Clean Firm Zero Resources Report in long term energy planning can help overcome market uncertainty, 4) the CPUC has jurisdiction over open-access pipelines dedicated to public use for the transportation of hydrogen gas, 5) clarification is needed on the Methodology and Assumptions in 2025 IEPR Hydrogen Bookend Scenarios, 6) the CEC's SB 1075 analysis is commendable, particularly

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>.

because it focuses on developing hydrogen infrastructure in its entirety, including hydrogen transportation and storage.

1) There is consensus that pipelines will be needed to transport hydrogen at scale.

State agency reports by the CEC and CARB have established the need for hydrogen pipeline infrastructure. The CEC's 2023 IEPR identifies hydrogen pipelines as necessary, and the most feasible delivery pathway for applications requiring large volumes of hydrogen.² Similarly, CARB's 2022 Scoping Plan recognizes the need for dedicated hydrogen pipelines to serve certain industry clusters³ by the 2030s, which will help the State to reduce greenhouse gas emissions (GHG).⁴

The Los Angeles Department of Water and Power (LADWP) reinforces this point in its Draft Environmental Impact Report for the Scattergood Generating Station modernization project,⁵ specifically highlighting the need for new hydrogen infrastructure (e.g., production, delivery, storage) to support the facility's planned hydrogen-capable operations. This infrastructure gap is further acknowledged in the findings from the LADWP's Draft LA100 Plan, presented at LADWP's Advisory Group Meeting No. 6.⁶ The plan models a full transition for electric generators from natural gas and coal to green hydrogen by 2035 and projects hydrogen consumption across all in-basin generation facilities from 2035 to 2045, with demand [in the LA basin] approaching 100,000 tonnes⁷ per year. This projection for hydrogen demand is solely for use in the power generation sector within the LA basin. In other words, this demand is only a portion of the total expected hydrogen demand for the power generation, transportation, and hard-to-decarbonize industrial sectors across the State, underscoring that hydrogen infrastructure is required at scale. Meeting this broader demand will be essential to enable dispatchable generation and grid reliability, along with decarbonization across multiple sectors. Such large-scale hydrogen use would necessitate cost-effective and scalable delivery infrastructure such as dedicated hydrogen pipelines to meet operational needs.

² CEC 2023 IEPR, February 2024, p. 69, available at: <https://efiling.energy.ca.gov/GetDocument.aspx?tn=254463>.

³ Industrial processes that require higher-temperature heat are steel forging, glass manufacturing, and industries with calcination processes, such as manufacturing lime and cement. 2022 Scoping Plan, p. 209.

⁴ 2022 CARB Scoping Plan, December 2022, p. 78, available at: https://ww2.arb.ca.gov/sites/default/files/2022-12/2022-sp_1.pdf.

In addition, the 2022 Scoping Plan recognizes the role blended hydrogen and biomethane will play in decarbonizing buildings and industry in the 2030s and 2040s.

⁵ Draft Environmental Impact Report, Scattergood Generating Station Units 1 and 2 Green Hydrogen-Ready Modernization Project. Available at: <https://www.ladwp.com/sites/default/files/2024-10/Scattergood%20Modernization%20Project%20-%20DEIR.pdf>.

⁶ LADWP Draft LA100 Plan, dated December 5, 2024, at slide 65-66 is available at: www.ladwp.com/sites/default/files/2024-12/LA100%20Plan%20AG%206%20SLTRP%20and%20DSA%20Final.pdf.

⁷ 1 tonne is equal to 1 metric ton.

The importance of infrastructure for the transport of hydrogen is also reflected in the E3 analysis conducted for Senate Bill (SB) 1075, which includes infrastructure planning as a key component of California's hydrogen strategy and evaluates the State's role in enabling hydrogen deployment across sectors.⁸ Likewise, the Project Options and Alternatives Study conducted in Phase 1 of Angeles Link (Alternatives Study) concluded, among other things, that pipeline delivery of hydrogen gas, as proposed by Angeles Link, is the most feasible, reliable, resilient, and cost-effective hydrogen gas delivery option at scale across Central and Southern California.⁹

In addition to enabling clean dispatchable power generation and supporting decarbonization of hard-to-electrify sectors, hydrogen pipelines can also support heavy duty transportation. While hydrogen refueling stations are expected to be dispersed along priority freight corridors throughout California as reflected in the SB 671 Clean Freight Corridor Efficiency Assessment from the California Transportation Commission (CTC),¹⁰ hydrogen pipelines can efficiently transport hydrogen gas from production sites to regional hubs, which could then supply last mile deliveries (e.g., via hydrogen trucks for solutions requiring shorter distances and smaller volumes¹¹). As noted in the Angeles Link Phase 1 High-Level Economic Analysis and Cost Effectiveness Study, pipelines are the most scalable transportation option because they are the lowest cost alternative for the end users, which will drive adoption and achieve the scale needed to serve projected demand at the lowest level of logistical complexity.¹² Thus, the CEC's SB 1075 analysis should acknowledge the important role that pipelines will play in delivering hydrogen at scale to support the decarbonization of the transportation sector.

2) Hydrogen will help maintain reliability and resiliency of California's electric grid during times of peak load.

During the Workshop, Vice Chair Siva Gunda highlighted the importance of recognizing the advantages of various energy resources and incorporating their value into the State's planning processes. Multiple presenters and commenters echoed this perspective, noting that hydrogen, due to its firm and dispatchable characteristics, can play an important role in maintaining the reliability and resiliency of the State's energy system, particularly during periods of peak demand. In

⁸ E3 Presentation, February 25, 2025, available at: <https://ww2.arb.ca.gov/sites/default/files/2025-02/sb-1075-workshop-022525-presentation-e3.pdf>.

⁹ SoCalGas's Angeles Link Phase 1 Alternatives Study is available at: <https://www.socalgas.com/sites/default/files/alproject/Angeles-Link-Phase-1-Final-Project-Options-&-Alternatives.pdf> and Angeles Link Phase 1 Consolidated Report available at: www.socalgas.com/sites/default/files/alproject/Angeles-Link-Phase-1-Consolidated-Report.pdf.

¹⁰ SB 671 Final Clean Freight Corridor Efficiency Assessment, CTC, December 6, 2023, available at: [sb671-final-clean-freight-corridor-efficiency-assessment-dor.pdf](https://www.ctc.ca.gov/sites/default/files/assets/sb671-final-clean-freight-corridor-efficiency-assessment-dor.pdf).

¹¹ SoCalGas's Angeles Link Phase 1 Alternatives Study is available at: <https://www.socalgas.com/sites/default/files/alproject/Angeles-Link-Phase-1-Final-Project-Options-&-Alternatives.pdf> and Angeles Link Phase 1 Consolidated Report available at: www.socalgas.com/sites/default/files/alproject/Angeles-Link-Phase-1-Consolidated-Report.pdf.

¹² SoCalGas's Angeles Link Phase 1 Cost Effectiveness Study is available at: [Angeles-Link-Phase-1-Final-High-Level-Economic-Analysis-&-Cost-Effectiveness.pdf](https://www.socalgas.com/sites/default/files/alproject/Angeles-Link-Phase-1-Final-High-Level-Economic-Analysis-&-Cost-Effectiveness.pdf) and Angeles Link Phase 1 Consolidated Report available at: www.socalgas.com/sites/default/files/alproject/Angeles-Link-Phase-1-Consolidated-Report.pdf.

addition, CARB Chair Liane Randolph has highlighted the importance of more stringent reliability standards. She made the point that reliability standards likely need to be more stringent than 1-in-10 as homes and cars are electrified because this would impact their quality of life and livelihoods.¹³ Similarly, North American Electric Reliability Corporation (NERC) President and CEO Jim Robb expressed the belief that the grid design basis needs to be modernized beyond the 1-in-10 reliability standard to a multi-dimensional approach that reflects the realities of limited fuel supply, load growth, and common mode failures.¹⁴

The views expressed during the Workshop align with the U.S. Department of Energy's (DOE) Pathways to Commercial Liftoff: Clean Hydrogen report,¹⁵ which identifies hydrogen's potential contributions to the power sector, including its use as a firm power source, an intermittent resource, a solution for long-duration energy storage, and a tool for enhancing grid resilience. Further support comes from the DOE National Clean Hydrogen Strategy and Roadmap¹⁶, which notes that *"the use of hydrogen in fuel cells or low-NOx turbines is a leading option to enable multi-day, dispatchable power to the grid,"* and emphasizes that in high electrification scenarios, clean hydrogen may be needed to *"provide reliable power and integrate variable renewable energy into the grid for firm, dispatchable power."*

The importance of such dispatchable generation, including hydrogen, is also emphasized in LADWP's Advisory Group Meeting #7 as part of the LA100 Plan,¹⁷ which highlights the need for in-basin firm generation to maintain reliability during stressed conditions such as heat waves, wildfires, and atmospheric river events. As noted in the presentation, *"transmission losses due to natural disasters reduce access to renewables in the transmission grid. In-basin resources must fill the gap,"* underscoring the critical role of dispatchable assets like hydrogen-fueled turbines when solar and battery storage are unavailable. This recognition of hydrogen's role in supporting grid stability is echoed across multiple national and regional analyses, including the National Petroleum Council's Harnessing Hydrogen report¹⁸ and other studies that explore hydrogen's application in firm power generation.

¹³ CEC SB 100 Kickoff Workshop, August 22, 2023, available at: <https://www.energy.ca.gov/event/workshop/2023-08/senate-bill-100-kickoff-workshop>.

¹⁴ FERC Commissioner-led Technical Conference Regarding the Challenge of Resource Adequacy in RTO and ISO Regions, June 4 2025, available at: <https://www.ferc.gov/news-events/events/day-1-commissioner-led-technical-conference-regarding-challenge-resource>.

¹⁵ Pathways to Commercial Liftoff - Clean Hydrogen, available at: https://www.energy.gov/sites/default/files/2025-07/LIFTOFF_DOE_Clean-Hydrogen.pdf.

¹⁶ DOE National Clean Hydrogen Strategy and Roadmap, September 2022, available at: <https://www.hydrogen.energy.gov/docs/hydrogenprogramlibraries/pdfs/clean-hydrogen-strategy-roadmap.pdf>.

¹⁷ LADWP's LA100, Advisory Group Meeting #7, available at: <https://www.ladwp.com/sites/default/files/2025-03/LA100%20Plan%20Advisory%20Group%20Meeting%207%20March%2020%2C%202025.pdf>.

¹⁸ National Petroleum Council's Harnessing Hydrogen available at: harnessinghydrogen.npc.org/files/H2-Ch_5-Demand_Drivers-FINAL.pdf.

3) Clarity on how the CPUC intends to utilize the CEC's Clean Firm Zero Resources Report in long term energy planning can help overcome market uncertainty.

During the SB 423 portion of the Workshop regarding emerging firm zero-carbon resources to support a resilient energy grid, Pacific Gas and Electric Company (PG&E) presented on the CPUC's Integrated Resource Plan (IRP) regulatory process. PG&E described how the CPUC may consider the resources identified by the CEC in their SB 423 report. Unfortunately, the CPUC was not present at this part of the Workshop to explain whether they will consider eligible firm zero-carbon resources in their resource procurement processes. Many of the resources identified by the CEC, such as hydrogen and carbon capture and storage (CCS), are considered long lead-time resources, meaning it may take many years to permit, engineer, construct and become commercially available. Some of these resources are also capital intensive and need to be built at scale. Understanding how the CPUC intends to utilize the CEC's SB 423 report is critical in helping emerging energy technologies overcome market uncertainty.

Integrated state energy planning processes such as the CPUC's IRP and Reliable and Clean Power Procurement Staff Proposal (RCPPP)¹⁹ are needed to provide regulatory certainty and clear market signals to the industry to incentivize the buildout and procurement of clean firm dispatchable resources such as clean renewable hydrogen and RNG. Hydrogen's long-term commercial viability as a clean firm dispatchable energy resource that helps the State meet its stringent reliability goals will depend on a well-structured regulatory framework that will facilitate entities to make the necessary investments to enter into contracts that will support engineering, procurement, construction, and use of hydrogen infrastructure. It is in the public interest for the CEC and CPUC to clarify how the two agencies will work together to include SB 423 eligible resources into the procurement processes.

4) The CPUC has jurisdiction over open-access pipelines dedicated to public use for the transportation of hydrogen gas.

During the CPUC's presentation, the CPUC staff acknowledged its clear and unambiguous authority to regulate hydrogen blending in the natural gas pipeline system but did not convey the same certainty regarding the CPUC's authority to regulate "a pure hydrogen pipeline," noting that neither law nor regulatory decision specifically addressed its jurisdiction thereover.²⁰

With respect to Angeles Link as a pure hydrogen gas pipeline, there is no ambiguity that the CPUC has authority by existing law in the Public Utilities Code to regulate open-access pipelines dedicated to public use for the transportation of hydrogen gas, as Angeles Link is proposed to do. In any event, this very issue, specifically with respect to Angeles Link, was just scoped into the

¹⁹ SoCalGas Opening Comments on RCPMP, July 15, 2025, available at: <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M573/K432/573432168.PDF>.

²⁰ CPUC, Hydrogen-Related Activity at the CPUC, July 29, 2025, Sasha Cole, available at: <https://efiling.energy.ca.gov/GetDocument.aspx?tn=265042>.

Angeles Link Phase 2 proceeding in July 2025,²¹ and thus any remaining ambiguity is expected to be resolved forthwith via a regulatory decision. Notably, the absence of an explicit regulatory decision on the CPUC's jurisdiction has not been a hindrance to the CPUC presuming and exerting such jurisdiction in other areas (including the "clear and unambiguous authority to regulate hydrogen blending" referred to in the CPUC's presentation).

5) Clarification is needed on the Methodology and Assumptions in 2025 IEPR Hydrogen Bookend Scenarios.

Based on the information shared during the Workshop, it appears that the overall bookend scenario framework remains consistent between the two IEPR cycles, referencing the CARB 2022 Scoping Plan for the high scenario and the UC Irvine Study for the low scenario. Yet, the reduction of the high-end estimate suggests that there may have been updates to modeling assumptions, input data, or other methodological refinements. Specifically, the 2023 IEPR hydrogen bookend scenarios for power generation showed the hydrogen demand in 2045 to be 1.88 million metric tons (MMT) on the high end (based on the CARB 2022 Scoping Plan) and 350,000 MMT on the low end (based on a University of California, Irvine study).²² However, the 2025 IEPR showed a change in the high bookend scenario for power generation from 1.88 MMT to 1.59 MMT. Clarification on changes to specific factors or updated assumptions such as heating values, and/or any changes that may have contributed to the downward revision will help reconcile the differences.

6) The CEC's SB 1075 analysis is commendable, particularly because it focuses on developing hydrogen infrastructure in its entirety, including hydrogen transportation and storage.

SoCalGas appreciates the CEC for the rigor of its modeling on how hydrogen infrastructure (including transportation and storage) could potentially impact hydrogen production capacity needs and related capital expenditures. SoCalGas notes it is currently supporting Lawrence Berkeley National Laboratory (LBNL) on a CEC-funded research project that will evaluate the technical and economic feasibility of using existing underground gas storage facilities to store clean renewable hydrogen in California. The project will study underground gas storage facilities in California for their potential to store clean renewable hydrogen, and will estimate levelized costs of hydrogen storage, levelized total capital costs, and operations and maintenance costs. SoCalGas expects this study will help further inform CEC and other state agency analysis.

²¹ Angeles Link Phase 2 Application (A).24-12-011.

²² CEC 2023 IEPR, February 2024, p. 80, available at: <https://efiling.energy.ca.gov/GetDocument.aspx?tn=254463>.

Conclusion

The CEC and CARB's SB 1075 analysis will help show the need for regulatory certainty and clear market signals to industry to incentivize the buildout and procurement of clean firm dispatchable resources such as clean renewable hydrogen. We look forward to continuing to actively engage with the CEC and stakeholders throughout this process. Thank you for your consideration of our comments.

Respectfully,

/s/ Kevin Barker

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