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*Comment Received From: Steven Kloos
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AquaHydrex comments on Draft IEPR

Please find our comment letter attached. Thank you.

Additional submitted attachment is included below.

November 30, 2022

Commissioner Siva Gunda
Vice Chair
California Energy Commission (CEC)
715 P Street
Sacramento, CA 95814

RE: AquaHydrex Comments on Draft 2022 Integrated Energy Policy Report (IEPR) Update Report

Dear Vice Chair Gunda:

Thank you for the opportunity to comment on the Draft 2022 IEPR Update Report (Draft Report). We appreciate the 2022 IEPR evaluating the growing role for green hydrogen in California's clean energy future, and we look forward to continuing to work with you, other staff and Commissioners at the CEC as you continue to evaluate the promise of green hydrogen in the electricity and other sectors in the coming years.

Low-cost green electrolytic hydrogen practical at scale

AquaHydrex is an American company commercializing a purpose-driven, clean-sheet redesign of electrolysis for producing low-cost green electrolytic hydrogen from intermittent renewables at scale. We see green electrolytic hydrogen, aided by the dramatic reduction in the cost of renewable energy, practical at scale and as a key component of achieving deep decarbonization.

Our own proprietary insights, based on our clean-sheet redesign of electrolysis to create the ideal platform for green hydrogen at scale, show an incredible roadmap for reducing the cost of electrolysis and green hydrogen production, especially when directly tied to inexpensive variable renewable energy. The recent addition of production tax credits under the Inflation Reduction Act will support additional cost reductions and help make green hydrogen a more affordable and widely available clean energy solution than many currently anticipate.

We look forward to working with you and helping the state transition to 100 percent clean energy and achieve carbon neutrality as soon as possible.

Evaluate a complete array of opportunities for hydrogen and its derivatives to achieve carbon neutrality, including a deep dive in the power sector

We support the recommendations included in the Draft Report related to the Role of Hydrogen in California's Clean Energy Future, though we would like to provide some recommendations that we hope you will consider as you complete the Final Report:

- **Develop an agreed-upon and standardized method to measure the climate benefits of hydrogen while accounting for varying feedstocks and production processes.**
 - We encourage such an accounting framework to take into consideration criteria air pollutants associated with hydrogen production processes, as well.
- **Set targets for reducing GHG emissions from directly produced hydrogen production.**
 - There are strong synergies between hydrogen production and decarbonizing the electricity grid. We hope that goals related to hydrogen production will consider these interactions and enable hydrogen to play a growing role in integrating intermittent renewable energy on the electricity grid, while decarbonizing other Hard-to-Abate sectors.
 - We hope the State will consider opportunities to direct curtailed electricity to hydrogen production, to improve operability of the electricity grid while encouraging more clean energy production, and enable electricity tariff structures that support effective grid integration of hydrogen production.
- **Expand Senate Bill 100 analysis of hydrogen.**
 - We strongly support this objective, and note that CEC will have an important opportunity to get to work on it in 2023 through both implementation of SB 423 (Stern, Chapter 243, Statutes of 2021) and through upcoming IEPRs, per SB 1075 (Skinner, Chapter 363, Statutes of 2022). We hope you will develop deep dive evaluations of the role hydrogen can play in decarbonizing the electricity grid through these forums, including in 2023 and ahead of the next SB 100 report.
 - We note that the state's current SB 100 planning continues to rely on existing natural gas power plants, and does not make a significant effort to decarbonize them, resulting in significant, ongoing greenhouse gas emissions – even under SB 100-compliant scenarios. The most recent example is CARB's Scoping Plan, which envisions all existing natural gas power plants remaining operational through at least 2045, and only adds carbon capture and sequestration to decarbonize them in 2045. Hydrogen can be used to help modernize and decarbonize these plants much more quickly than currently envisioned, delivering significant additional greenhouse gas emission benefits, while also supporting the role of hydrogen for long-duration energy storage.
 - We encourage CEC to evaluate scenarios for achieving a truly zero carbon electricity grid, and not just 100% of retail sales, and the role that green hydrogen can play in quickly, reliably, and affordably achieving that outcome.

- **Fully engage in the federal Hydrogen Hub initiative.**
 - We agree that federal Hydrogen Hub initiative offers an exciting near-term boost for hydrogen development in the U.S. We support California’s efforts, through ARCHES, to winning a hydrogen hub, and hope it will bolster green hydrogen development in the State.
 - We note, however, that the budget included a goal to produce or use at least 15,000 tons per day of clean hydrogen in California by 2030, and the State won’t get there just with hydrogen hub funding from the federal government. One of the most compelling actions the state can take to support its Hub application is continued policy support to develop hydrogen demand and green hydrogen production opportunities.
 - We appreciate reference to green ammonia in the recommendation and the Draft Report, and hope that the CEC and other state agencies will consider not just direct use of green hydrogen, but a wide array of its derivatives – including ammonia, sustainable aviation fuels, synthetic methane, green methanol, carbon negative polymers, and other synthetic or derivate products – as it implements its policies and continues its evaluation of green hydrogen opportunities.

Thank you again for the opportunity to comment on the Draft Report and your consideration of these comments. Please do not hesitate to reach out to me with any questions.

Sincerely,



Steven Kloos
Chief Executive Officer
AquaHydrex, Inc.