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H2U Comments on the CEC Clean H2 Program

Additional submitted attachment is included below.

RE: Docket #22-ERDD-03 Clean Hydrogen Program

Subject: H2U Technologies comments on Docket #22-ERDD-03 Clean Hydrogen Program

Response Date: December 16, 2022

Contact:

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H2U Comments on the Proposed Implementation of the California Energy Commission (CEC) Clean Hydrogen Program

H2U Technologies[1] submits the following comments to the CEC on their proposed implementation of the Clean Hydrogen Program created under Assembly Bill (AB) 209 (The Energy and Climate Change budget bill, Chapter 251, enacted in September 2022).[2]

H2U Technologies is a California-based developer of low-capital cost, iridium-free proton exchange membrane (PEM) electrolyzers that are particularly suited for pairing with renewable energy sources. We leverage our ultra-high speed Catalyst Discovery Engine™ (CDE™) to develop low-cost non-iridium catalysts for use in our electrolyzer systems. The world-class technology featured in our products stems from ten years of research and development at Caltech within the Joint Center for Artificial Photosynthesis (JCAP) Energy Innovation Hub, funded by the U.S. DOE. Overall, H2U supports the CEC's efforts to stimulate increased production and use of clean hydrogen in California through strategic demonstration and deployment. To improve the proposed implementation, however, we recommend a few key changes.

First, we recommend that CEC funding is directed toward distributed, onsite hydrogen production and federal cost share, instead of funding large scale, centralized hydrogen production. The amount of funding available will not make a substantial difference for the expansion of centralized hydrogen production but will have a large impact on both the development of distributed hydrogen production and the amount of federal funds brought into the state through the cost-share program. Furthermore, mature, centralized production technologies are already receiving significant financial support through the federal hydrogen hubs program. There are many opportunities for distributed hydrogen production in the state of California, through applications like onsite generation at hydrogen fueling stations. However, as compared to centralized hydrogen production, distributed hydrogen production is less mature. Supporting the development of distributed projects will help the state to meet its climate goals and be at the cutting edge of hydrogen technology development. For federal cost-share, the passage of the Bipartisan Infrastructure Law made available significant funds for scale-up, research, development, and demonstration of hydrogen projects. Federal cost-

[1] See https://www.h2utechnologies.com
[2] See https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202120220AB209

share programs such as those implemented by the CEC make it more likely that these federal funds are awarded to California's companies and universities, which will in turn help to develop new in-state jobs and boost the California economy. For these reasons, we recommend that the CEC prioritize funding both distributed, onsite hydrogen production and federal cost share within the Clean Hydrogen Program.

We also recommend removing the requirement that energy efficiencies be on par with or improved over current pathways and lowering the requirement for hydrogen output for the funding for pilot-scale, distributed, onsite production of hydrogen. In the proposed implementation, the CEC specifies that the onsite, distributed applications will focus on technologies at the pilot scale. These newer technologies, which will provide many benefits including reduced cost, use of readily available materials, and/or novel design innovations, may initially operate at lower efficiencies than existing technologies. In funding such projects, the CEC will help these technologies to develop to the point where they can perform at efficiencies on par with traditional technologies. To allow these innovative technologies to develop, it is imperative that the CEC lowers the initial efficiency requirements, with the understanding that efficiencies will improve during the development process. Furthermore, H2U recommends that the CEC allow flexibility to accommodate a wide range of hydrogen production levels at the pilot-scale and remove the minimum hydrogen production requirement for the distributed applications. With these changes, the CEC will leave the playing field open for cutting edge hydrogen technologies that will dramatically reduce the costs of hydrogen production.

H2U supports the CEC's efforts to develop the Clean Hydrogen Program and believes the funding outlined therein will contribute substantially toward the realization of California climate goals. To further improve the program, H2U recommends prioritizing the funding of distributed applications and federal cost share and reducing the technology limitations with regards to both efficiency and scale for the distributed, pilot-scale applications. We appreciate the opportunity to provide comments and welcome opportunities to continue to engage as the CEC continues to develop this program. Please do not hesitate to contact us with any questions.

Respectfully submitted,

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