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**CHBC comments to Large-Scale Centralized Hydrogen Solicitation
Concept**

Additional submitted attachment is included below.

June 9, 2023

California Energy Commission
Docket Unit, MS-4
715 P Street
Sacramento, CA 95814

RE: Docket No. 22-ERDD-03: Large-Scale Centralized Hydrogen Solicitation Concept

California Energy Commissioners and Staff,

The California Hydrogen Business Council (CHBC)¹ appreciates the opportunity to provide comment on the Large-Scale Centralized Hydrogen Solicitation Concept. With over 140 member companies, agencies, and individuals involved in the business of hydrogen, the CHBC's mission is to support the commercialization of hydrogen in the energy and transportation sectors to achieve California's climate, air quality, and decarbonization goals.

The CHBC enhances market commercialization through effective advocacy and education of the public sectors; is the go-to resource on hydrogen and fuel cell technology for policymakers and policy influencers; and accelerates market growth via networking opportunities and information exchange for the industry and its customers.

We support this draft solicitation with the **recommendation that large-scale central production is not limited to electrolysis**, noting that in the staff presentation from December 2022, there are three (3) categories under the definition of "eligible hydrogen" – including hydrogen produced from eligible renewable energy resources. This is more agnostic, and more efficient than only water using eligible renewable energy resources. Additionally, the onsite/distributed hydrogen production portion of the Clean Hydrogen Program is technology neutral. And further, AB 209 as referenced in this program, allows for more than only electrolysis.²

Thermochemical conversion feedstock is biomass and waste, and California authorities do see this pathway as being at least equally as relevant as electrolysis. Support for this pathway is essential to meet the requirements of SB 1383³ or SB 32⁴ for a 40 percent reduction in methane emissions and a 50

¹ <https://californiahydrogen.org/>

² https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220AB209 Article 4, Section 25664 and 25664.1

³ https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB1383

⁴ https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB32

percent reduction in black carbon emissions by 2030⁵ while also reducing landfilling, pile and decay, and open burning of organic waste.

CHBC recommends the commission explicitly **include eligibility of thermochemical biomass conversion systems**. Per the 2022 Climate Change Scoping Plan Update “the solution will have to include transitioning existing energy production and transmission infrastructure to produce zero carbon electricity and hydrogen and utilizing biogas resulting from wildfire management or landfill and dairy operations, among other substitutes.”⁶

Biomass and waste are ubiquitous, and available wherever there is human activity. SB 1383 demonstrates the need to rethink the current waste processing pathways and to find outlets for these materials streams. The U.S. Department of Energy’s draft guidance on Clean Hydrogen Production Standard explicitly includes biomass and biogas as eligible feedstocks for hydrogen production.⁷

Hydrogen from organic waste is an urgent climate solution in that it reduces short-lived climate pollutant emissions.⁸ The California Air Resources Board has determined that reductions in short-lived climate pollutant emissions not only are an immediate method to meet the state’s climate goals but are cost-effective.^{9,10}

While electrolytic hydrogen is needed, we must keep in mind that the renewable electricity for this is also needed for conventional uses; the existing power grid to offset fossil-based power generation, but also for the growing BEV charging supply.

Regarding stakeholder questions from the December 2022 workshop:

Question 2. Are the proposed scales and funding allocations feasible and effective?

Thermochemical biomass conversion systems are very scale sensitive and must be deployed at a scale on the order of 20,000 kg per day or greater to be cost effective and to properly demonstrate technical performance at scale. To be financeable, thermochemical systems must establish an operating history at a scale consistent with what will be seen in widescale commercial deployment. The commission should prioritize funding at one or more thermochemical conversion systems and focus technical selection and performance requirements on demonstrating that the technology can perform reliably at scale. A per project funding level of

⁵ [Health and Safety Code section 39730.5](#)

⁶ [2022 Climate Change Scoping Plan](#)

⁷ [42 U.S.C. 16166\(b\)](#).

⁸ [United Nations Environment Program, Urgent Steps Must be Taken to Reduce Methane Emissions This Decade, May 6, 2021 Press Release.](#)

⁹ [Short-Lived Climate Pollutant Reduction Strategy](#)

¹⁰ [2022 Climate Change Scoping Plan](#)

\$20M may be adequate to attract such proposals but a funding level of \$40M per project would be more appropriate given that such a project would cost on the order of \$200M to construct.

Question 3. Are clean hydrogen technologies sufficiently mature or should we focus more on early stage and emerging technologies?

The CHBC supports a focus on commercial deployment, with additional opportunities for some early stage and emerging technologies to facilitate both market growth and ongoing innovation.

Regarding the questions on Proposed Requirements and Considerations:

Question 5. What safety considerations should CEC include as requirements?

Please refer to the established technical resources located at the Center for Hydrogen Safety¹¹, including for overall hydrogen properties and safety, a codes and standards directory and the Hydrogen Safety Panel, along with other useful resources.

In conclusion, CHBC recommends that Large-Scale Centralized hydrogen production also **include thermochemical biomass conversion systems and supports a technology agnostic solicitation** to enable all potential solutions that can support the achievement of deep decarbonization in California, and across market sectors.

Sincerely,

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¹¹ <https://www.aiche.org/chs>