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Modern Hydrogen CEC Distributed Hydrogen Solicitation Concept Comments 22-ERDD-03

Additional submitted attachment is included below.

Re: Distributed Hydrogen Solicitation Concept 22-ERDD-03

California Energy Commission Staff:

Thank you for the opportunity to provide comments on the distributed hydrogen grant solicitation and your support of the commercialization of a hydrogen market in California.

Modern Hydrogen's mission is to make energy cleaner and cheaper. We utilize unique methane pyrolysis technologies to produce clean hydrogen on-site and capture solid carbon efficiently.

Below are responses to your request from comments. We are available to clarify and discuss at any time.

Regards,

Mothusi Pahl,

Vice President, Business Development & Government Affairs

Modern Hydrogen

Comments:

2. What would be the appropriate level of project funding that would leverage private investments associated with the work proposed in this draft concept, and why? a. How would limiting the use of grant funds to Eligible Project Costs in Section III impact the project? What changes do you recommend if any, and why?

> The stated minimum of $7M and maximum of $10M in matching funds are a sufficient incentive.
>
> Modern Hydrogen's methane pyrolysis process uses thermal energy from methane sources (including digester gas and landfill gas) to initiate the pyrolysis process, which decomposes methane (CH_4) into hydrogen (H_2) and carbon (C). During operation, methane is the feedstock and recycled hydrogen fuels the ongoing production process. Methane is a feedstock and should not be defined as the "onsite power acquisition for the project." This "turquoise" hydrogen approach is distinct from "green" and "blue" hydrogen technologies.
>
> Modern Hydrogen's approach to cracking natural gas is equivalent to pre-combustion carbon capture, which is the effective removal of carbon from methane prior to combustion. Modern Hydrogen utilizes the resulting solid carbon in separate commercial applications (e.g., to reduce embodied carbon and increase performance of asphalt). Modern Hydrogen carbon management services are not included in hydrogen production and customer costs. Pre-combustion carbon capture should not be defined as part of the traditional "carbon capture, utilization, and storage (CCUS) equipment."

5. What type of technical assistance is needed to ensure equitable participation and project success, if any?

Life cycle assessment and EM&V methods and standards setting to provide consistency and clarity in comparison across hydrogen production technologies and business models.

6. Are there specific end uses we should target with the one to five metric ton hydrogen capacity? If so, why?

Distributed-scale, low-GHG hydrogen is of most immediate value in hard-to-electrify sectors such as industrial operations (e.g., heat, steam, cogen), particularly at sites with capacity constrained electric grids. It can also be blended by local distribution companies (LDCs) for distributed access and adoption benefits across different fossil gas end users.

7. Are there any concerns with this solicitation allowing the use of CCUS for a project to be carbon neutral? If so, why?

We request support of low-GHG hydrogen production from any source based on full lifecycle accounting. We support the proposed requirement that "projects must use 100 percent renewable energy resources onsite or a PPA with bundled Renewable Energy Credits (RECs) to source renewable energy in California."

8. Please provide relevant comments regarding other considerations not explicitly listed above.

A full lifecycle assessment of CO_2 intensity from fuel (or feedstock source) to end use is essential to accurately determine actual kg CO_2e/kg H_2. This will help ensure the program achieves the stated goal of Section 25664.1 to "help reduce sector-wide emissions."