DOCKETED	
Docket Number:	22-ERDD-03
Project Title:	Clean Hydrogen Program
TN #:	252811
Document Title:	Lawrence Berkeley National Laboratory - Berkeley Lab Comments - Onsite Distributed Hydrogen Production & End Use Solicitation
Description:	Lawrence Berkeley National Laboratory - Berkeley Lab Comments - Onsite Distributed Hydrogen Production & End Use Solicitation Concept
Filer:	System
Organization:	Lawrence Berkeley National Laboratory
Submitter Role:	Public Agency
Submission Date:	10/27/2023 4:08:57 PM
Docketed Date:	10/27/2023

Comment Received From: Lawrence Berkeley National Laboratory
Submitted On: 10/27/2023
Docket Number: 22-ERDD-03

Berkeley Lab Comments - Onsite Distributed Hydrogen Production and End Use Solicitation Concept (22-ERDD-03)

Please see comments attached.

Additional submitted attachment is included below.

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October 27th, 2023
Jonah Steinbuck
California Energy Commission
715 P Street
Sacramento, California 95814

Re: Lawrence Berkeley National Laboratory Comments on Onsite Distributed Hydrogen Production and End Use Solicitation Concept

Jonah Steinbuck,

Commission staff has requested feedback on a Draft Solicitation Concept for Distributed Clean Hydrogen Production with Onsite End Use (H2ONSITE). Berkeley Lab is pleased to present our comments regarding this draft solicitation concept.

Berkeley Lab suggests the following regarding question 1: Are the Project Elements in Section IV of this document realistic, reasonable, and feasible?

- 9 - 13.5 kg of water per kg of hydrogen should be reconsidered. If 1 gallon is 3.79 kg, and a very efficient electrolysis site uses ~5 gallons, then the expectation should be closer to 18-20 kg.
- Projects that claim to dispose of wastewater generated from the DI process in evaporation ponds should be discouraged.
- System payback is highly dependent on the market price of hydrogen, which is different from the production cost for hydrogen. Care should be taken when reviewing proposals.
- The solicitation's target carbon intensity can only be achieved with solar powered electrolysis using assumptions of 0 carbon emissions from solar PV and electrolysis manufacturing. That is the default assumption of the GREET model, but not accurate or representative of literature that accounts for life cycle emissions of PV production. The solicitation notes that the GREET model is recommended, but it might be worth noting that preference is given to carbon intensity calculations that explicitly list assumed emissions from renewables and local grids. This is especially important for systems with electricity consumption for compression/liquefaction that may not be powered by renewables.
    - To claim the H2 production tax credits, projects need to exhibit a carbon intensity of 0.45 kilograms of carbon dioxide equivalent per kilogram of hydrogen produced and demonstrate technologies that can enable a project to achieve a carbon intensity of 0.00 kilograms of carbon dioxide equivalent per kilogram of hydrogen produced with a well-to-gate assessment.

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Berkeley Lab appreciates the opportunity to provide these comments in response to the Draft Solicitation Concept for Distributed Clean Hydrogen Production with Onsite End Use (H2ONSITE).

The following individual contributed comments: Hanna Breunig

Sincerely,
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