

DOCKETED

Docket Number:	20-EPIC-01
Project Title:	Development of the California Energy Commission Electric Program Investment Charge Investment Plans 2021-2025
TN #:	239371
Document Title:	Green Hydrogen Coalition Comments - on Draft Initiatives for EPIC 4 Workshop
Description:	N/A
Filer:	System
Organization:	Green Hydrogen Coalition
Submitter Role:	Public
Submission Date:	8/18/2021 3:14:36 PM
Docketed Date:	8/18/2021

*Comment Received From: Green Hydrogen Coalition
Submitted On: 8/18/2021
Docket Number: 20-EPIC-01*

**08182021_ GHC Comments on Draft Initiatives for EPIC 4
Workshop**

Additional submitted attachment is included below.



August 18, 2021

Email to: docket@energy.ca.gov
Docket Number: 20-EPIC-01
Subject: EPIC 4 Investment Plan

Re: Comments of the Green Hydrogen Coalition (GHC) following the August 4, 2021, Draft Initiatives for EPIC 4 Workshop

Overview

The Green Hydrogen Coalition (GHC)¹ appreciates the opportunity to provide comments on the *Draft Initiatives for Electric Program Investment Charge (EPIC) 4 Workshop*. GHC seeks to offer insights on the benefits and opportunities green hydrogen represents for California's statewide reliability and decarbonization efforts and provide actionable comments to the CEC's posed workshop questions.

GHC is a California educational non-profit organization founded in 2019 to facilitate policies and practices to advance the production and use of green hydrogen at scale in all sectors to accelerate a carbon-free energy future. GHC defines green hydrogen as hydrogen produced from non-fossil fuel feedstocks that do not produce incremental new (non-biogenic) GHG emissions. This definition is inclusive of, but not limited to 1) renewable hydrogen produced from Renewable Portfolio Standard (RPS) eligible feedstocks, and 2) zero-carbon Senate Bill (SB) 100 eligible hydrogen produced from renewable and SB 100 eligible feedstocks. GHC believes that prioritizing green hydrogen project deployment at scale is fundamental to reduce cost and meet California's climate and carbon goals.

GHC commends the CEC's efforts, including green hydrogen as an initiative under EPIC. This effort will enable the at-scale production, transport, and storage of green hydrogen to benefit California's power sector and accelerate decarbonization in multiple hard-to-abate sectors. In these comments, GHC provides insights to help the CEC's green hydrogen initiative better support reliability needs and achieve California's decarbonization goals.

¹ <https://www.gccoalition.org/>

Responses

- *What is your top priority initiative where you believe the most funding and emphasis should be placed because it could have the most significant impact (and why)?*

GHC believes the *Green Hydrogen Roadmap Implementation to Support Grid Reliability Initiative* should be the top priority for the CEC.

Green hydrogen is fundamental to helping California achieve the goals of SB 100, support future energy demand, realize zero-carbon transportation solutions, and provide an alternative to natural gas and diesel fuel for backup generation and microgrid solutions.

Creating pathways for scaling production and use of green hydrogen can provide a cornerstone of technology and storage that supports accelerated reliability and decarbonization across many sectors, including power, transportation, and industrial systems. Expanding production and utilization of green hydrogen as a critical resource for meeting the demands for California's clean energy system will promote reduced energy cost, increased reliability and resiliency, fuel diversity, and job creation.

Given the diverse and multi-sector uses of green hydrogen and its unique capability to provide for flexible energy storage, further applied research and investment in technology demonstration to advance green hydrogen is warranted as a top priority of this EPIC investment plan.

- *Are there any gaps in the proposed research?*

Definition of Green Hydrogen. GHC submits the first research gap is the definition of green hydrogen. GHC defines green hydrogen broadly as hydrogen that is not produced from fossil fuel feedstocks. While this may include green electrolytic hydrogen, as defined in SB 1369, it also provides hydrogen produced from eligible organic waste feedstocks via steam methane reforming, autothermal reforming, or methane pyrolysis of renewable gas thermochemical conversion of biomass. While a broader definition supports market development and resource diversity for green hydrogen production, it can also bring co-benefits in other sectors. To illustrate, converting agricultural and municipal solid waste to green hydrogen can help tackle California's waste problem. As such, GHC strongly recommends that the CEC incorporate GHC's more inclusive definition of green hydrogen, which extends beyond electrolytic hydrogen.

CEC Programs Coordination. GHC believes that the second research gap is scoping a coordinated approach across the CEC's various programs and teams. GHC considers an increased level of coordination is necessary to facilitate the use and production of green hydrogen to reach the CEC's research and planning objectives.



One priority area of coordination should be to align green hydrogen RD&D funding between the Natural Gas Research and EPIC to the extent possible. Studying potential applications and scale of green hydrogen for reliability and decarbonization across several sectors is a complex project that requires considering how to aggregate demand in strategic locations and leverage these large-scale "hubs" to support infrastructure development. In particular, the ability to move mass-scale green hydrogen from regions of low-cost production to areas of multi-sectoral demand is critical to achieving low delivered costs. The ability to use or repurpose California's extensive gas pipeline system is foundational to this goal.

Another priority area of coordination should be to consider electric system planning alongside gas system planning. The interface of these two large, complex systems is nothing new; however, GHC believes green hydrogen needs to reflect both system planning efforts. Notably, the SB 100 modeling effort did not consider green hydrogen storage and transport using the existing natural gas infrastructure, which GHC believes to be a critical misstep given the opportunity to leverage existing infrastructure in the near- and mid-term. The CEC should consider joint electric and gas system planning to develop a more comprehensive understanding of how green hydrogen can help optimize the broader energy system.

The CEC should also consider aligning its efforts to promote fuel cell electric vehicle (FCEV) refueling infrastructure through the Clean Transportation Program with its green hydrogen RD&D and electric and gas system planning responsibilities. For example, the implementation of local electrolysis at fueling stations is likely a lower-cost means of delivering green hydrogen to fueling stations (in comparison to fueling trucks), provided that an appropriate green electrolytic tariff is developed.

Emissions Certification & Tracking. GHC submits that the third research gap is developing an emissions certification and tracking framework that enables cross-sector accounting for green hydrogen emissions benefits and eligibility toward meeting specific local, state, and national carbon reduction renewable goals energy targets.

The emissions attributes from green hydrogen represent a large, tradeable potential new certificate market, and there are entities today working to establish similar types of standards. In Europe, the CertifHy² organization is developing a Guarantees of Origin (GO) for renewable hydrogen. This GO documents both zero-emissions [green] hydrogen and low-carbon [blue] hydrogen and ensures these commodities meet specific criteria for trading in different European markets. In the US, the Green-e certification program,³ administered by the non-profit Center for Resource Solutions, has announced the development of a new certification program for producers and consumers in the voluntary

² <https://www.certifhy.eu/>

³ <https://www.green-e.org/>



renewable energy market.

Additionally, tracking the production and uses of green hydrogen is another essential policy tool that can be used to expand and support the green hydrogen market. Renewable energy in the US is either tracked by (1) electronic tracking systems or (2) contract-path tracking, which documents the chain of custody from production to final consumption using one or more legally enforceable contract(s). Many electronic tracking systems have developed similar rules and operating procedures, but variance exists both within countries and worldwide.

GHC submits that certification and tracking is critical in new markets to develop an accepted foundation of guidelines and rules. This shared understanding leads to increased trust and stability of the market, high consumer confidence, and overall market growth. For this reason, GHC recommends that the CEC develop a green hydrogen certification and tracking framework to simplify facility registration and validation, document the production, trade, ensure transparency and consistency, prevent double-counting, and boost the integrity of the market.

- *Do you have suggestions on changes to specific initiatives?*

GHC recommends that the CEC incorporate the identified research gaps outlined above.

- *What are your suggestions to promote equity (and to which initiatives should they apply)?*

Green hydrogen offers an opportunity to reduce emissions of greenhouse gases, criteria air pollutants, and toxic air contaminants and improve the health of disadvantaged and low-income communities. Further, the green hydrogen economy offers many net benefits for these communities, such as creating and repurposing jobs, local economic development, energy education, and clean-technology deployment. To promote these equity opportunities, GHC encourages the CEC to align its green hydrogen initiative with key stakeholders, including labor and environmental justice groups from relevant communities in which research is taking place, and prioritize early project demonstration in disadvantaged and low-income communities.

Key green hydrogen equity opportunities the CEC should take into consideration include, but are not limited to:

- Repurpose existing infrastructure (e.g., thermal power plants, gas pipelines) from a climate problem to a climate solution and displace fossil fuels for many applications,



particularly natural gas, gasoline, and diesel, the lifecycle of which disproportionately impacts disadvantaged communities.

- Provide zero-carbon, zero-emission fuel for medium and heavy-duty trucks, as well as port and warehouse equipment, helping to eliminate sources of pollution that mainly burden lower-income communities.
- Provide zero-emissions vehicle options for multi-family unit dwellers and others who cannot easily plug in at home, as well as commuters who rely on fast refueling times to make it to work.
- Displace diesel in backup generators that create pollution hazards in vulnerable locations like wildfire-prone regions and hospitals.
- Create good new green jobs and help retain existing jobs by converting existing gas infrastructure into a low- and zero-carbon hydrogen carrier.

Conclusion

GHC is supportive of the CEC EPIC 4 Investment Plan *Green Hydrogen Roadmap Implementation to Support Grid Reliability Initiative*. GHC also respectfully urges the CEC to prioritize its green hydrogen initiative and incorporate the research gaps and the equity opportunities identified.

GHC appreciates the opportunity to provide these comments and feedback and looks forward to collaborating with the CEC and other stakeholders in this initiative.

Sincerely,

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