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GHC Comments on 2021 IPER Volume III

Additional submitted attachment is included below.

January 28, 2022

The Honorable David Hochschild, Chair
California Energy CEC
1516 Ninth Street
Sacramento, CA 95814

Re: Draft 2021 Integrated Energy Policy Report Volume III: Decarbonizing the State's Gas System (Docket 21-IEPR-01)

Dear Chair Hochschild:

GHC submits these comments on Volume III of the Draft 2021 Integrated Energy Policy Report ("IEPR"). GHC appreciates the California Energy Commission's ("CEC") recognition that California will need gas for reliability and other purposes, and its progressive, forward-thinking leadership for California's clean energy transition – the CEC's IEPR is critical in this regard. GHC also strongly supports the focus on zero-carbon fuels such as green or renewable hydrogen. However, GHC urges the CEC to amend the IEPR with the following revisions:

- Define "green electrolytic hydrogen" to include the use of electricity produced from RPS and SB 100 eligible resources.
- Establish a broader definition of green hydrogen that is technology-neutral and allows for the production of renewable hydrogen from non-fossil fuel feedstocks, such as organic waste, so long as the production pathway has climate integrity.
- Include a policy recommendation to develop a carbon intensity framework to appropriately categorize all production pathways for hydrogen based on its environmental attributes. Such a carbon intensity framework should, as much as possible, be consistent with federal and regional approaches.
- Modify the definition of "Renewable Gas" to include renewable hydrogen.

The Green Hydrogen Coalition ("GHC")[1] is a California educational 501(c)(3) non-profit organization. GHC was formed in 2019 to recognize the game-changing potential of "green hydrogen" to accelerate multi-sector decarbonization and combat climate change. GHC's mission is to facilitate policies and practices that advance green hydrogen production and use in all sectors of the economy to accelerate a carbon-free energy future. Our sponsors include renewable energy users and developers, utilities, and other supporters of a reliable, affordable green hydrogen fuel economy for all.

[1] https://www.ghcoalition.org/

GHC specific comments on the CEC's IEPR are below.

COMMENTS

Define 'Green Electrolytic Hydrogen' To Include The Use Of Electricity Produced From RPS And SB 100 Eligible Resources.

GHC thanks the CEC for their support of electrolytic pathways. We believe CEC's support is critical to expanding electrolytic applications in California. Regarding the IEPR, GHC asks that the CEC revise its definition of "green hydrogen" to more narrowly refer to "green electrolytic hydrogen." The IEPR defines green hydrogen as hydrogen produced by splitting water using renewable electricity.[2] This definition describes electrolytic hydrogen production and should be defined as such. While GHC supports this production pathway, it is not the only way to produce renewable or green hydrogen. For this reason, GHC asks that the CEC revise this definition to be specific to "green electrolytic hydrogen."

In addition, GHC urges the IEPR's "green electrolytic hydrogen" definition to have more specificity around production eligibility. The definition should ensure that the electricity used to produce the hydrogen aligns with pre-existing California policy and decarbonization goals pursuant to both California's RPS and SB 100 goals. To support this alignment, GHC encourages the Commission to adopt the following definition:

> *"Green electrolytic hydrogen is hydrogen produced via electrolysis of water using RPS eligible or SB 100 eligible energy resources."*

Establish A Broader Category Of Green Hydrogen That Is Technology-Neutral And Allows For The Production Of Renewable Hydrogen From Non-Fossil Fuel Feedstocks, Such As Organic Waste, So Long As The Production Pathway Has Climate Integrity.

As noted above, the CEC's current definition only defines green hydrogen as the hydrogen produced by splitting water using renewable electricity.[3] This definition describes an electrolytic hydrogen production pathway and represents only a subset of green/renewable hydrogen production pathways. For this reason, GHC asks that the CEC include a definition of "green hydrogen" inclusive of all renewable feedstocks and technology pathways. In particular, the CEC should adopt a definition of green hydrogen that considers hydrogen "green" only if the hydrogen

[2] IEPR, p. 66

[3] Ibid.

is produced from non-fossil-fuel feedstocks and emits zero or de minimis[4] greenhouse gas emissions on a life cycle basis. This framework simplifies what is and is not green and does not unintentionally discriminate against other green hydrogen production pathways such as hydrogen from organic waste, including biogas and biomass. Additionally, this broad approach aligns with other green hydrogen production pathways identified in The CEC's Electric Program Investment Charge (EPIC) 2021–2025 Investment Plan, which identified green hydrogen pathways from gasification and pyrolysis of biomass or reformation biomass, photoelectrochemical processes, or waste heat-assisted processes.[5] For this reason, GHC encourages the Commission to adopt the following definition:

> *"Green hydrogen is hydrogen produced from non-fossil fuel resources and has climate integrity - emits zero or de minimis greenhouse gases on a life cycle basis."*

Adopting this definition of green hydrogen will explicitly exclude the use of fossil resources and allow for the possibility for technological innovation to flourish, enabling new pathways to produce green hydrogen to be considered, so long as they have climate integrity. Encouraging innovation will, by definition, increase competition and foster greater private investment for the benefit of California ratepayers.

Include A Policy Recommendation To Develop A Carbon Intensity Framework To Appropriately Categorize All Production Pathways For Hydrogen Based On Its Environmental Attributes

GHC encourages the CEC to include a policy recommendation to develop a carbon intensity ("CI") framework to appropriately categorize all production pathways for hydrogen based on its environmental attributes. Each production pathway for hydrogen includes a feedstock and an energy source. The CI for any given pathway is driven by these two factors – for example, the CI of production pathways that utilize renewable feedstocks could be high if fossil fuels are used for the primary production process energy source. Electrolytic pathways that utilize water as a feedstock would still have a very high CI if the electricity used for the electrolysis process were produced from fossil fuels. A system of characterizing the resulting hydrogen based on a CI framework rather than color coding (e.g., grey hydrogen, blue hydrogen, green hydrogen, etc.) allows for more accurate accounting and comparison.

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[4] "De minimis" means an insignificant amount of non-renewable energy resources (does not exceed 10 percent of the total energy inputs) allowed to be counted as RPS-eligible. See Green, Lynette, Christina Crume. 2017. Renewables Portfolio Standard Eligibility Guidebook, Ninth Edition. California Energy CEC, Publication Number: CEC-300-2016-006-ED9-CMFREV.

[5] Lew, Virginia, Anthony Ng, Mike Petouhoff, Jonah Steinbuck, Erik Stokes, and Misa Werner. 2021. The Electric Program Investment Charge Proposed 2021–2025 Investment Plan: EPIC 4 Investment Plan. California Energy Commission. Publication Number: CEC-500-2021-048-CMF. pp.56-58.

This recommendation could include collaboration with other state agencies such as the California Air Resources Board ("CARB") to create a common life cycle analysis standard for eligible hydrogen and a carbon intensity ceiling that aligns with meeting California's decarbonization goals. A CI framework in California will ensure technology neutrality and encourage competition between various hydrogen production routes that meet the required CI at the lowest costs. In the longer term, a CI framework will provide a mutually agreed approach for a certificate and tracking framework for consumers to track hydrogen's origin and environmental attributes. In short, a well-understood and commonly accepted CI framework is foundational to tracking and compensating green/renewable hydrogen projects for their environmental attributes and is thus foundational to a sustainable business value proposition that can attract investment capital.

Modify the Definition of "Renewable Gas" to Include Renewable Hydrogen.

GHC asks the CEC to correct the definition of renewable gas. Chapter 4 in the IEPR states that *Renewable gas, also known as biomethane, is biogas that has been upgraded to pipeline quality standards*.[6] However, under state law, the definition of renewable gas also includes biogas in addition to biomethane. The definition of renewable gas is also inconsistent with later sections of Chapter 4, which discuss the potential for renewable gas from biomass conversion and renewable hydrogen.[7] For these reasons, the CEC should revise the definition of "renewable gas" to be consistent with state law and include renewable hydrogen. GHC urges the Commission to adopt the following definition:

> *"Renewable gas is gas that is generated from a renewable (RPS and SB100 eligible) feedstock, including biogas, biomethane, and renewable hydrogen."*

CONCLUSION

GHC appreciates the opportunity to submit these comments to the IEPR and looks forward to working with the CEC and stakeholders.

Respectfully submitted,

/s/ Nicholas Connell
Nicholas Connell
Policy Director
GREEN HYDROGEN COALITION

[6] IEPR, p.58.

[7] IEPR, pp.62, 65.