



January 7, 2022

California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: GHC Comments on CARB's Public Workshop - Potential Future Changes to the LCFS Program

Introduction

GHC¹ 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.

GHC defines green hydrogen as hydrogen produced from non-fossil fuel resources and has climate integrity – emits zero or de minimis² greenhouse gases on a lifecycle basis. Green hydrogen can be used as a fuel for electricity production and a means for long-duration storage for multi-day and seasonal needs. In addition, once scaled, green hydrogen can help California move away from fossil fuel use in other applications such as transportation, industrial, maritime, and aviation. Considering that hydrogen is a mainstream commodity that can be utilized in many applications across many sectors of the economy, the production and use of green hydrogen will be essential to decarbonize sectors beyond electricity, further enabling the attainment of our climate goals.

GHC applauds the California Air Resources Board's (CARB) potential future changes to the Low Carbon Fuel Standard (LCFS) program. These proposed changes will help enable the at-scale production, transport, and storage of green hydrogen to benefit California's acceleration to decarbonize the transportation sector.

GHC specific comments on CARB's workshop are below.

¹ <https://www.ghcoalition.org/>

² "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 Commission, Publication Number: CEC-300-2016-006-ED9-CMFREV.

I. Book-and-claim accounting for green hydrogen injected into regional hydrogen pipelines

GHC appreciates CARB's thought leadership to include book-and-claim accounting for green hydrogen injected into regional hydrogen pipelines. However, GHC submits that this topic warrants further discussion to ensure an appropriate accounting mechanism is in place to avoid resource shuffling and potential greenwashing. Such a granular accounting mechanism and tools may not exist today, but a future-looking transition to address these concerns will be critical to moving the green hydrogen economy. In addition, GHC submits that CARB's proposal should also include hydrogen blending in natural gas pipelines. Allowing blended pipeline eligibility will ensure the hydrogen market is not stalled until 100% hydrogen pipelines are in place. GHC looks forward to working with CARB on this critical topic.

II. Hydrogen Refueling Infrastructure credit provision to include medium and heavy-duty fleets

Transitioning medium and heavy-duty fleets to zero-emissions is critical for California to achieve its climate and air quality goals. GHC recommends CARB to consider the expansion of its hydrogen refueling infrastructure (HRI) credit to include medium and heavy-duty fleets. GHC recommends that the HRI provision include public and private stations to increase adoption. While GHC realizes the HRI provision for light-duty vehicles is only eligible for public stations, medium and heavy-duty fleets have different needs and use-cases. For private stations, CARB should focus on extensive hydrogen offtake opportunities such as seaports and airports. CARB could also explore different incentive structures based on station ownership models.

III. Electrolyzers for long-duration storage for excess renewable production

GHC supports CARB's proposal to allow entities to generate credits for installing energy storage alongside renewable generation at oil fields and refineries. GHC submits that CARB should allow the inclusion of electrolyzers to support such energy storage needs. Electrolyzers can work like batteries as they can shift the discharge of solar electricity generation from low-carbon intensity hours to high-carbon intensity hours during peak demand. Additionally, unlike batteries, electrolyzers can address multi-day and seasonal storage needs when renewable generation is not available for extended periods. The ability of the electrolyzer to provide long-duration storage will become an increasingly needed tool for CARB to ensure the LCFS program can meet its long-term climate goals. For this reason, GHC recommends that CARB allow electrolyzers as an eligible energy storage product that can generate credits when paired with renewable generation.

IV. LCFS credits for industrial refineries producing synthetic fuels for maritime shipping and aviation

Industrial sites in California that are not used for on-road transportation are also well-positioned to switch from fossil fuels to green hydrogen. These industrial sites are good offtake candidates for large-scale green hydrogen projects since they have significant existing hydrogen demand and related infrastructure in place. Additionally, these plants are often located in geographic clusters, making them convenient off-takers. However, the principal barrier to the greater use of green hydrogen in industry is high costs, investors' confidence, competitiveness, and a lack of policy support. CARB can play a critical role in solving these problems by allowing non-on-road transportation industrial plants such as refineries producing synthetic fuels for maritime shipping and aviation to receive LCFS credits. CARB can use LCFS credits as a policy lever to reduce the price difference, guaranteeing industry investors a better price for green hydrogen than the current prevailing price of fossil fuels. Therefore, it is recommended that CARB expands its LCFS credits to all industrial refineries to ensure California meets its climate and air quality goals.

Conclusion

GHC thanks CARB for its thoughtful leadership in framing potential future LCFS program changes and for this opportunity to comment on the process.

Respectfully submitted,

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