



September 12, 2024

California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812
[submitted electronically]

RE: Electric Hydrogen Comments on the Low Carbon Fuel Standard at the Joint Meeting of the California Air Resources Board and the Assembly Bill 32 Environmental Justice Advisory Committee

Dear California Air Resources Board,

Electric Hydrogen¹ appreciates the opportunity to submit comments to the California Air Resources Board (CARB) on the Low Carbon Fuel Standard (LCFS) as discussed at the Joint Meeting of the California Air Resources Board (CARB) and the Assembly Bill 32 Environmental Justice Advisory Committee (EJAC) on September 12, 2024.

With significant facilities, management groups, and employees in California and Massachusetts, Electric Hydrogen manufactures the world's most powerful electrolyzers for critical industries to produce low-cost green hydrogen. Our 100 MW electrolyzer plant is designed to generation-follow variable renewable energy resources and enable customers to efficiently convert renewable electrical energy into clean molecular energy in the form of hydrogen. Electric Hydrogen's mission is to make green hydrogen cost competitive with fossil hydrogen in a timeframe that matters. Put another way, the company exists to make green hydrogen an economic inevitability, giving hard to decarbonize industries, like heavy-duty transportation, aviation, and maritime transport, a viable and cost-effective solution to meet their urgent net-zero climate objectives. Green hydrogen is a necessary tool in the energy transition to a net-zero economy.

Given that the LCFS is fundamental to reducing carbon emissions from the transportation sector, Electric Hydrogen is appreciative of the proposed near-term increase in stringency to a 9% carbon intensity (CI) reduction in 2025.² This is an important step in helping to realize the climate benefits needed to reach California's environmental and clean energy goals.

¹ See <https://eh2.com/>

² *Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information: Proposed Low Carbon Fuel Standard Amendments*. California Air Resources Board, Aug. 2024, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/15day_notice.pdf.



To effectively leverage hydrogen for decarbonization, the state must significantly boost demand for green hydrogen. The LCFS program is essential in driving this demand within the transportation sector, fostering industry scale, and reducing green hydrogen costs across the economy. Scaling the industry is vital to supporting the 2022 California Scoping Plan for Achieving Carbon Neutrality, which indicates that California must increase green hydrogen production by 1700-fold to meet its net-zero goal by 2045.³ Additionally, the LCFS program is crucial for advancing statewide clean energy objectives, including the clean hydrogen hub through the Alliance for Renewable Clean Hydrogen Energy System. Since California's LCFS program frequently serves as a model for other low-carbon initiatives across the U.S., it is crucial to ensure it sends the right market signals to effectively expand the clean hydrogen economy.

As stated in the comments submitted in response to previous LCFS workshops, Electric Hydrogen recommends that CARB make the following two amendments to ensure that the LCFS is fully optimized to drive green hydrogen production, displace fossil fuels, and deliver air quality benefits:

- **Amendment 1:** Allow book-and-claim delivery of low-CI electricity for electrolytic hydrogen production used as a feedstock in transportation fuel.
- **Amendment 2:** Allow book-and-claim delivery of low-CI hydrogen in dedicated hydrogen pipelines outside of California.

The first amendment is critical to encouraging the replacement of natural gas with green hydrogen as a feedstock, specifically in the production of sustainable aviation fuel (SAF). Over 30 refineries around the country, including seven in California, produce renewable diesel and/or SAF for the California transportation market. These refineries currently use steam methane reformers (SMRs) to reform natural gas into hydrogen for fuel processing and production. The recent 15-Day Changes' prohibition on the use of book-and-claim delivery of low-CI electricity for the production of electrolytic hydrogen used as a feedstock effectively locks in the use of SMRs and prohibits these refineries from switching their hydrogen source to electrolytic hydrogen. This prohibition perpetuates significant local air pollution and greenhouse gas (GHG) pollution for communities adjacent to these refineries. The median SMR in California emits as much as 80 tons of fine particulate matter, 132 tons of NO_x, and 777,274 tons of CO₂ annually. While the recent 15-Day Changes allow these refineries to utilize book-and-claim accounting to source renewable natural gas (RNG) to mitigate GHG emissions, sourcing RNG at these facilities does nothing to reduce local air pollution for vulnerable communities adjacent to the refineries. Extending book-and-claim accounting beyond RNG to renewable electricity would

³ 2022 *Scoping Plan for Achieving Carbon Neutrality*. California Air Resources Board, Dec. 2022, <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf>.



allow these facilities the option to replace their SMRs with electrolyzers to lower or eliminate both local air pollution and GHG emissions.

Failing to provide equal treatment to RNG and renewable electricity as it relates to the use of book-and-claim accounting is also a missed opportunity to drive investment in the green hydrogen industry into California. Under the European Union's (EU) third Renewable Energy Directive (RED III), the EU is requiring industrial users of hydrogen to use at least 42% green hydrogen by 2030 and 60% by 2035. This policy is driving significant investment into the EU. For example, just last month green hydrogen developers in the EU took final investment decisions (FID) on 730 megawatts of green hydrogen projects in the EU. Allowing refineries to utilize book and claim delivery of low-CI electricity for electrolytic hydrogen production could unlock similar investment in California.

The second amendment would provide fuel producers with greater access to green hydrogen to lower the carbon intensity of their liquid transportation fuels. Today, California has only 16 miles of dedicated hydrogen pipelines. However, nationwide there are about 1,600 miles of dedicated hydrogen pipelines, 90% of which are concentrated in the Gulf Coast.⁴ Since this existing hydrogen pipeline infrastructure network serves a variety of industrial customers, it can also be a tool to help ensure California has access to the low-cost and low-carbon fuels needed to support the state's climate and air quality goals. As the proposed changes are currently written, however, the vast network of Gulf Coast hydrogen pipelines would not be eligible for book-and-claim within the LCFS. As a result, the state's access to low-cost, low-carbon fuels is restricted, which runs counter to the findings of the 2022 Scoping Plan and the state's broader climate goals. However, if amended as outlined, the LCFS program would help facilitate an influx of clean fuels, such as SAF made with green hydrogen, to reduce emissions in California.

In summary, Electric Hydrogen is appreciative of CARB's near-term increase in stringency for the LCFS but believes it must better support the development of a robust electrolytic hydrogen market. Amending the book-and-claim pathways as outlined will help California become a leader in the green hydrogen economy by supporting clean technology innovation, encouraging the transition away from natural gas, and improving local air quality for front-line communities. In this way, the LCFS would help support the statewide clean hydrogen hub and underpin the state's broader climate and air quality goals. Electric Hydrogen appreciates CARB's consideration of the proposed amendments and looks forward to continuing to work with CARB on this critical effort.

⁴ Justin Bracci, Adam Brandt, Sally M. Benson, Gireesh Shrimali and Sarah D. Saltzer, "Pathways to Carbon Neutrality in California: The Hydrogen Opportunity", Stanford Center for Carbon Storage and Stanford Carbon Removal IniKaKve, February 2022, page 25.



Sincerely,

/s/ Paul Wilkins

Paul Wilkins

Vice President for Policy and Government Engagement

Electric Hydrogen