March 21, 2023

Dr. Cheryl Laskowski
California Air Resources Board
1001 I Street Sacramento, CA 95812

Dear Dr. Laskowski,

On behalf of the undersigned organizations and companies, we are pleased to submit the following comments for consideration as the California Air Resources Board (CARB) develops updates to the Low Carbon Fuel Standard (LCFS). California's LCFS has been one of the strongest carbon markets in the world, driving significant private investment in achieving the carbon intensity (CI) target. The strength of this market signal is working; however, changes must be made to buttress credit pricing to drive investments necessary to achieve California's 2045 carbon neutrality goal. Additionally, the expansion of infrastructure credits for zero-emission vehicle charging and hydrogen refueling is important to achieve CARB's objectives Advanced Clean Cars II (ACC2) and the developing Advanced Clean Fleets (ACF) rulemaking.

Carbon Intensity Schedule
We support the modeled scenario for carbon intensity schedule as we believe it will drive the market toward an appropriate correction and ambition, while minimizing impacts to consumers and ratepayers as directed in AB 32 (Nunez, Chapter 488, Statutes 2006). Additionally, this scenario sets the trajectory for the increased ambition to achieve carbon neutrality established in the 2022 Scoping Plan and AB 1279 (Muratsuchi, Chapter 337, Statutes 2022).

Significant investments have been driven by the strong market signal set by the LCFS. Progress has exceeded expectations with large-scale projects focused on delivering decarbonized fuels to Californians driving credit prices down toward $60. We believe the proposed 10% increase in ambition will "right-size" the correction, returning a strong signal to the LCFS market that will continue to drive private capital toward this market.

Light-Duty Hydrogen Refueling Infrastructure

The current Light-Duty Hydrogen Refueling Infrastructure (LD HRI) credits are an important driver in the hydrogen refueling sector. Since adoption the LD HRI led to much needed higher capacity stations and has driven station operators to procure the lowest carbon hydrogen available. The combination of these two benefits will be further evidenced as the next generation of stations open over the next several years.

However, inconsistent station funding from AB 8 (Perea, Chapter 401, Statutes 2013) dollars and a global pandemic that created supply chain shortages and construction delays have pushed the timeline to achieving the B-48-18[1] goal of 200 open hydrogen refueling station stations out to 2027[2]. California's ambition has continued to increase with N-79-20[3] and the passage of ACC2. LCFS and AB8 are the only incentives for LD hydrogen refueling and we urge CARB to continue support to ensure we achieve our zero-emission vehicle goals on time.

ACC2 and ACF will require publicly available retail hydrogen refueling infrastructure deployment beyond 2025. A vast majority of medium-duty vehicles access publicly available retail refueling stations today and extending capacity credits will ensure that companies like Ford and General Motors are able to release their medium-duty trucks and allowing hard to decarbonize construction vehicles to transition sooner. However, as stated *"…the [fuel cell Chevrolet Equinox] technology was ready to be commercialized but the lack of hydrogen fueling infrastructure held it back[4]."* We cannot let the lack of hydrogen refueling stations delay the rollout of FCEVs.

According to the Technology Penetration Proposal for ACC2, by 2035, California will need at least the complete daily capacity of 971 hydrogen refueling stations just for the passenger fleet.[5] We urge CARB to extend the existing 2.5% LD HRI to 2035 in alignment with ACC II regulation and to support a transition that enables all Californians to adopt ZEVs.

Additionally, we suggest that station locations be flexible and allow for some market decisions. To this end we believe a radius of within 6-minutes of a disadvantaged community would provide station

[1] https://www.ca.gov/archive/gov39/2018/01/26/governor-brown-takes-action-to-increase-zero-emission-vehicles-fund-new-climate-investments/index.html

[2] The Joint Agency Staff Report on Assembly Bill 8: 2022 Annual Assessment of Time and Cost Needed to Attain 100 Hydrogen Refueling Stations in California

[3] https://www.gov.ca.gov/2020/09/23/governor-newsom-announces-california-will-phase-out-gasoline-powered-cars-drastically-reduce-demand-for-fossil-fuel-in-californias-fight-against-climate-change/

[4] Detroit News, "GM Is Commercializing Its Fuel Cell Business" Accessed May 6, 2022

[5] Based on the uptake scenario a cumulative 1,665,000 passenger FCEVs will be on the road by the end of 2035 with an average certified station capacity of 1,200 kg/day and assumed daily use of 0.7 kg.

developers with flexibility on real-estate and thoroughfare decisions while providing access within the average time limit for most drivers and traditional refueling opportunities.

Heavy-Duty Hydrogen Refueling Infrastructure
We appreciate the time dedicated to developing a Heavy-Duty Hydrogen Refueling Infrastructure (HD HRI) credit. We support the concept presented and will continue working with staff to refine the details on how to model crediting capacities for mixed fleet stations. As proposed, the credit will help launch the initial tranche of heavy-duty stations necessary to achieve the ambitious goals of the proposed Advanced Clean Fleets regulation.

Establishing the HD HRI crediting structure balances two important objectives: (1) stations with sufficient capacity to support commercial fleets adopting FCET (overcoming the “chicken-or-egg" dilemma by offsetting low initial utilization of station capacity needed for ZEV FCET adoption), while (2) expanding fueling station network coverage for convenient and ubiquitous access to hydrogen fuel by maximizing the number of stations supported through HD HRI crediting within the 2.5% of deficits from the prior quarter.

We appreciate the incorporation of a derated 6,000 kg/d capacity which will encourage appropriately sized stations to meet near-term demand as production of commercialized FCETs become available and fleets rapidly adopt zero-emission trucks to comply with the pace of fleet conversion under the proposed ACF regulation.

Book and Claim of Low CI Hydrogen
We support the proposal for book-and-claim (B&C) of low carbon intensity hydrogen. We believe B&C of renewable low-CI hydrogen to be a critical addition to the LCFS.

To streamline processes that will incentivize production and delivery of low-CI hydrogen as a transportation fuel we suggest co-funding the ARCHES hydrogen hub proposal with state incentives designated for "Big ZEVs" in the 2022 ZEV budget package. Allocation of at least 30% of those funds would support fuel cell end-uses and hydrogen refueling infrastructure development. Consequently, providing a market signal for capital investment in new decarbonized hydrogen production for transportation is key, as there will be off-takers and the necessary infrastructure to deliver the fuel.

Beyond capital, permitting is the biggest barrier to construction of new decarbonized and renewable hydrogen production. We encourage CARB to work with the legislature to protect the environmental integrity of permitting processes while simultaneously accelerating decision making to match the ambition, scale, and pace of California's legislative and regulatory mandates.

For the purposes of this proceeding adopting 2030 and 2045 carbon intensity goals for the LCFS program while extending the existing HRI at 2.5% of deficits will allow a robust refueling network for vehicles class 6 and below and establishing the proposed HD HRI will send a strong signal that the construction of refueling infrastructure will support growth and vehicle sales in diverse segments of the vehicle market. This strong market signal will support capital for additional decarbonized and renewable hydrogen production to serve California’s vehicle market.

Conclusion

We appreciate CARB staff's work on the development of these pre-rulemaking concepts and their commitment to improving the Low Carbon Fuel Standard. Successful adoption of battery and fuel cell electric vehicle technologies requires changes in LCFS to reinforce market pricing and encourage deployment of fueling and charging infrastructure for zero-emission fleets. The undersigned associations and companies will continue to develop the vehicles and infrastructure as well as low-carbon, zero-carbon and renewable hydrogen needed to build this market and reduce emissions. We look forward to continuing to work with CARB staff on the necessary details to achieve consensus for the forthcoming rulemaking.

Thank you,

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