California Hydrogen Coalition

October 27, 2022

Ms. Liane Randolph
Chair
California Air Resources Board
1001 I Street
Sacramento, CA 95864

Re: Proposed Advanced Clean Fleets Regulation

The California Hydrogen Coalition (CHC) appreciates the opportunity to provide comments on the Proposed Advanced Clean Fleets Regulation (ACF). We appreciate the work the California Air Resources Board (CARB) has put into the opportunities and investments to support the state's growing fleet of fuel cell electric vehicles. To that end, we provide policy recommendations that could support the ACF in accelerating the transition of California's fleet to zero-emission hydrogen powered fuel cell electric vehicles (FCEV) and bringing additional decarbonized hydrogen into the marketplace.

The mission of CHC is to enable California's transition to zero-emission vehicles (ZEVs) by expanding the availability of dependable, convenient, and affordable hydrogen fueling to support the state's emission reduction goals. We are confident light, medium, and heavy-duty FCEVs will play a critical role in California's transition to a zero-emission transportation sector because of the advantages this technology provides today with respect to range, duty-cycle, and fast refueling, and may soon provide for cost and carbon intensity reductions. CHC is equally confident in the development of a hydrogen fuel market that will continue providing quality jobs, local production, and opportunities to decarbonize locally owned fueling stations throughout California. FCEVs and hydrogen closely emulate existing commercial and vocational driver behavior for the gasoline and diesel vehicle experience, eliminating the pressure to change fleet logistics while decarbonizing the jobs associated with the existing distribution and fuel delivery markets. We are excited and prepared to accelerate the adoption of this ZEV technology.

Success of this rule requires a carefully coordinated effort between multiple state government agencies, local governments, truck manufacturers, their suppliers, hydrogen producers, station developers and fleet operators. The balance of enabling policies, incentives and industry segments deploying projects and vehicles together is unprecedented. The stakes are high as failure is not an option. Disruptions in commercial and municipal fleets will have significant consequences that undermine the public trust. CHC and our members are prepared to tackle this task with hydrogen and FCEVs.

FCEVs and Hydrogen Enable True Transition

Latest news of our members successful commercial pilots proves the capability of FCEVs as direct 1:1 replacements of diesel trucks. Toyota's project "Ocean," 10 Toyota-Kenworth T680 FCEV trucks, successfully demonstrate that fast refueling of hydrogen can allow for multiple shifts to drive upwards

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of 400-500 miles with quick 15-20 refueling in partnership with Shell.[1] This project reduced 74.66 metric tons of CO_2 per truck annually compared to the baseline diesel engine.[2]" Other CHC members teamed up to demonstrate the capabilities of class 8 Hyundai Xcient FCEV trucks fueled by hydrogen from Linde in Switzerland. Over the past two years these twenty trucks have transported goods over 5 million kilometers, reducing 4,000 tons of CO_2.[3] The extreme testing of these trucks further underline why FCEVs will support this ambitious regulation needing only scale to achieve cost parity with diesel.

California is an important authority in this global movement to commercialize FCEVs. Our climate partners in Europe and Asia are rapidly deploying hydrogen refueling to support this future as hydrogen has the potential to become one of the first self-sufficient zero emission technologies. If paired with appropriate investment and policies in the refueling network and FCEVs, this regulation will send an important market signal that will have a line of site to self-sufficiency. However, it is important to kickstart this market segment with strong policy signals and supportive enabling policies.

Enabling Policies

This regulation will need significant support from other programs and policies to ensure success. CHC believes that bolstering the LCFS and including an additional 2.5% deficit for heavy-duty hydrogen refueling infrastructure (HRI) is one of the most important actions CARB can take in the next year to ensure that stations of sufficient size (>6,000 kg/day) are built to meet the near term and long-term objectives of this regulation. Additionally, the extension of the existing HRI pathway is critical for ensuring that the class 2b-4 FCEVs have retail stations to support their operations.

Additionally, it is critical that Clean Transportation Program funds (CTP) and appropriated General Fund (GF) budget monies are focused on supporting the compliance obligations described in this regulation. The pace of grant funding and construction should be accounted for in ACF, and CTP should seek to increase the pace by potentially leveraging multi-year funding from this year's budget to prevent delays in hydrogen station development by requiring multiple application periods. Additionally, HVIP and infrastructure grants should be equitably distributed by CARB and CEC between ZEV technologies accounting for other funding sources like utility rate basing to fairly balance the distribution of funds ensuring optionality for compliance entities.

Alignment of all state funds with the federal Inflation Reduction Act (IRA) and Infrastructure Investment and Jobs Action can provide additional support for the transition envisioned in this regulation. CARB and the Administration should create a strategic alignment of state regulations and funding to win federal funds, which will leverage significant private capital toward achieving the State's goals.

Finally, the California Transportation Commission's SB 671 (Gonzalez, Chapter 769, Statutes 2021) Clean Freight Corridor Efficiency Assessment should help inform and launch near term action on a statewide

[1] https://pressroom.toyota.com/toyota-kenworth-prove-fuel-cell-electric-truck-capabilities-with-successful-completion-of-truck-operations-for-zanzeff-project/
[2] Ibid
[3] https://hyundai-hm.com/en/2022/10/15/on-the-road-together-20-hydrogen-electric-trucks-drive-the-5-millionth-kilometer-together-2/

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hydrogen refueling network supported with CTP and LCFS setting the foundation of our initial heavy-duty hydrogen depot network.

Build to Success: Infrastructure

The availability of reliable hydrogen refueling is necessary to achieve success. We are concerned that the pace of ACF requirements outruns California's ability to build infrastructure. As drafted our members will have to prioritize regions due to limited incentive support and struggling LCFS prices. This means that fleets may not have the option to adopt FCEVs even if that is the best fit for their operations and businesses. Additionally, permitting hydrogen refueling infrastructure at this scale has never been done and based on our light-duty station experience we expect similar timelines which can exceed 500 days.

Based on a simple uptake analysis utilizing CARB staff projected ZEV vehicle numbers in a 25% to 50% adoption of class 4-8 vocational vehicles and class 7-8 tractors, by 2025 California will need 33 to 65 heavy-duty hydrogen depot stations with 6,000 kilograms of daily capacity. By 2030 ACF under these assumptions California will need over two hundred heavy-duty hydrogen depots and an additional 92-184 retail stations to support the class 2b-3 demands. California's record from AB 8 (Perea, Chapter 401, Statutes 2013) does not indicate the ability to achieve this pace or scale of build out. We urge CARB to collaborate with us to identify policies and incentives that will create certainty that the build out of this infrastructure will lead the deployment of ZEVs.

Additionally, CHC would like to work with CARB staff through the winter to identify county by county the needs to hydrogen refueling infrastructure based on ACF policy design, Advanced Clean Trucks reporting, and the Emissions Factor modeling at CARB. Refinement of uptake assumptions and an infrastructure strategy will ensure that adequate hydrogen and stations are available for any fleet that chooses FCEVs pathway for compliance.

Conclusion

CHC and our members stand ready to help enable success for ACF from design, development, and manufacturing of FCEVs, first of their kind rapid refueling equipment, the largest stations the world has ever seen, and new decarbonized hydrogen production at scale. Improvements to landmark policies like LCFS to enable this market and focused acceleration of our grant programs to leverage federal and private funds are necessary to build this new future.

Today it is important that we ask the right questions to design the best policy mix for success. CHC encourages increased and meaningful collaboration between CARB, CEC, CTC, GOBiz, and others like the University of California and Army Corps of Engineers to unlock the opportunity to win Federal Funds to ensure success in launching hydrogen goods movement and vocational fleets with the support they need to be comfortable in transition.

We appreciate the opportunity to comment and look forward to working closely with ARB staff to enable hydrogen throughout the economy. If there are any questions, please contact me at TCooke@BHFS.com or our government affairs representative at the Gualco Group Inc., Mikhael Skvarla at Mikhael_Skvarla@gualcogroup.com.

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Thank you,

/s/

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cc: Steven Cliff, PhD
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