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February 17, 2023

The Honorable Janeen Sollman, Chair  
State Senate Committee on Energy and Environment  
Oregon Legislature  
900 Court Street, NE  
Salem, Oregon 97301

RE: Status of California's light-duty hydrogen fueling network

Senator Sollman:

Our colleagues at the Renewable Hydrogen Alliance have requested we provide the Committee on Energy and Environment with an update on the status of California's hydrogen fueling network. In light of the recent [commitment made](#) by California, Oregon, Washington and British Columbia to cooperate and work to "[a]ccelerate the transition to regional zero-emission transportation by investing in electric vehicle charging and hydrogen refueling stations," and our collective desire to accelerate ZEV deployments to address our common environmental objectives, we are happy to do so.

### **Current status**

California currently has 55 light-duty hydrogen retail stations that are open to the public, serving more than 14,000 fuel cell electric cars, including the Honda Clarity, Hyundai NEXO and Toyota Mirai, first and second-generation. Another 38 stations are in various stages of development (proposed, permitting and construction) with 76 more funded but not yet in development. All stations that are open or in development may be found on our map at [www.H2FCP.org/stationmap](http://www.H2FCP.org/stationmap), along with additional stations for transit, heavy-duty trucks and other applications.

While the initial focus of this network was intended solely for cars, including SUVs and pickup trucks, it is recognized this network will serve medium-duty vehicles such delivery vans and utility trucks who regularly utilize the existing consumer fueling infrastructure network.

Stations have grown in size over time from 180-200 kilograms/day capacity with one fueling position to 800-1200 kilograms stations with two-to-four fueling positions. This experience, capacity growth, and cost reductions are readily applicable and supportive of growth in other hydrogen mobility applications.

### **Background**

The State of California has primarily co-funded its light-duty retail stations through Assembly Bill 8 (2013), which was intended to fund up to at least 100 stations. With the addition of the [HRI credit](#) (aka capacity credit) in California's Low Carbon Fuel Standard, this market mechanism will enable California to build more than 160 stations over the next several years.

Since passage of AB 8, private industry's percentage of co-funding has risen from 30% to 70% in the last grant funding opportunity. This progress highlights the ongoing transition of California's hydrogen fuel cell vehicle market from a government-initiated effort to one built on private investment to reach a sustainable ZEV market, the overarching objective of the California ZEV regulation.

### **World’s first self-sustaining ZEV market**

AB 8 also mandated that the California Air Resources Board (CARB) determine what is required to make this network a self-sustaining market and independent of further government funding.

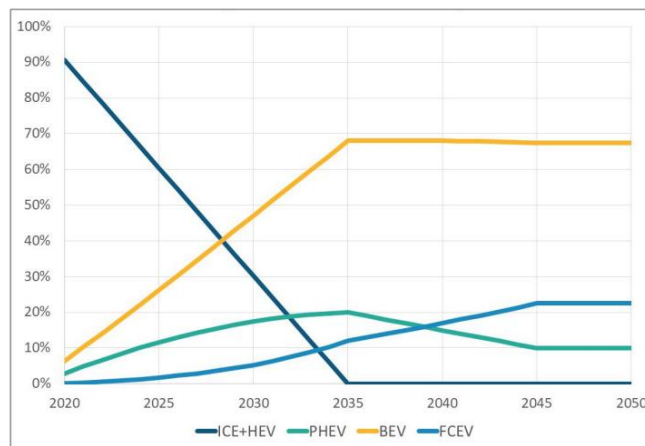
In 2021, CARB published [a report](#) regarding the California’s ability to reach a self-sustaining market for light-duty FCEVs and infrastructure. The report determined that continued government support of ~\$300 million, representing only 10% of the overall cost through 2030, would enable a transition from the early market launch to a self-sustaining light-duty FCEV marketplace in California. The remaining 90% - \$2.7 billion – is expected to be borne by private industry. This study is the first globally reported government-identified pathway to a sustainable ZEV market.

### **A vision of 100% ZEV market**

As part of its ongoing efforts to decarbonize transportation and create a 100% zero-emission future, CARB regularly produces comprehensive reports, including its Mobile Source Strategy. In the most recent [2020 Mobility Source Strategy](#), CARB explored a number of scenarios, including reaching a fully ZEV light-duty market by 2045. Their analysis recognized the need for a strategy that includes battery-electric, fuel cell electric and plug-in hybrid electric vehicles.

“The relative ratio of combined BEV and FCEV sales start at 90% BEV/10% FCEV in 2030, scaling to 75%/25% by 2045 (see Figure 14). The rationale for this assumption reflects increasing FCEV adoption as hydrogen fueling infrastructure expands and a subset of the vehicle market that will still require frequent fast refueling, long-range capabilities, particularly in larger vehicle light-duty classes (SUVs, pickup trucks and vans).” (p94)

Figure 14 – Light-Duty Vehicle Sales Fractions by Technology Type



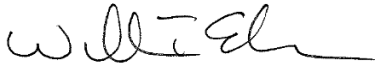
### **Challenges**

Building a self-sufficient ZEV market requires the partnership of private industry and government, and challenges remain to what is envisioned by most stakeholders, including building an eco-system of robust and reliable stations, and renewable and low-carbon hydrogen production. We are aware that California stakeholders are currently working diligently on proving out both ZEV technologies and infrastructures to achieve a 100% ZEV transition, offering up lessons and experiences to other states and regions to accelerate all our collective progress.

If we can be of further assistance in providing additional insights into the light-duty hydrogen fueling network in California, the status of fuel cell electric vehicles and hydrogen production, or the development of heavy-duty truck and transit applications, please do not hesitate to contact either of us or Keith Malone, Public Affairs Director, at [kmalone@H2FCP.org](mailto:kmalone@H2FCP.org).

Thank you for the opportunity to provide this update.

Sincerely,



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cc: Renewable Hydrogen Alliance