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Air Quality Program
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RE: Comments on WAC 173-424 Clean Fuels Program Proposed Rule

Dear Rachel:

The above-named organizations appreciate the Department of Ecology's inclusion of provisions related to fuel cell electric vehicles and hydrogen fueling in the draft Clean Fuels Program regulation and would like to take this opportunity to propose some changes as outlined below.

Introduction

Fuel Cell Electric Vehicles (FCEVs), along with Battery Electric Vehicles (BEVs) and Plug-in Hybrid Electric Vehicles (PHEVs), will be essential in both the light-duty passenger car and truck, and the heavy-duty sectors to meet Washington's air quality and climate change goals. The fast, centralized fueling for FCEVs is similar in both process and time to that of conventional vehicles and will be key to meeting the driving needs of individuals who do not have access to convenient charging at home

and/or need the ability to drive long distances with short downtime for fueling. For similar reasons, FCEVs will also be key in the heavy-duty sector where large cargo capacity, long distance travel and short fuel downtime is required.

However, it is important to understand the fundamental difference, particularly in the light-duty sector, of public infrastructure deployment between FCEVs and BEVs. Unlike BEVs in which primary charging is done at home and public infrastructure supports convenience and market expansion, FCEVs require a robust and growing public fueling infrastructure in advance of initial and growing sales. This also means it is important that hydrogen stations for both light- and heavy-duty vehicles are adequately sized to account not for just initial introduction but to meet the fueling need of the growing FCEV fleet.

We have the following specific comments regarding the definition of Electric Vehicle, the Hydrogen Refueling Infrastructure (HRI) pathway, and the inclusion of hydrogen as a regulated fuel.

Definition of Electric Vehicle (EV)

Electric vehicles include Battery Electric Vehicles (BEVs), Plug-in Hybrid Electric Vehicles (PHEVs) and Fuel Cell Electric Vehicles (FCEVs). The draft rule only includes fuel cell vehicle under the abbreviation section (FCV), not in the definition section and not with reference to a fuel cell vehicle being an electric vehicle.

We request that the definition of fuel cell electric vehicle and fuel cell be included in WAC 173-424-100 as follows:

(XX) "Fuel cell electric vehicle" or "FCEV" mean an electric vehicle powered by a fuel cell.[1,2]

(XX) "Fuel cell" means a technology that uses an electrochemical reaction to generate electrical energy by combining atoms of hydrogen and oxygen in the presence of a catalyst.[3,4]

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[1] From Ecology's own web site defining fuel cell vehicles as "fuel cell electric vehicles": https://ecology.wa.gov/Air-Climate/Climate-change/Reducing-greenhouse-gases/ZEV and which also references USDOE's web site which states: " ***Fuel cell electric vehicles (FCEVs)*** are powered by hydrogen."

[2] RCW 82.08.993 (Section Title: **Exemptions—Fuel cell electric vehicles . . .** and subsection (2(a) *Subject to the limitations in this subsection (2), beginning July 1, 2022, with sales made or lease agreements signed on or after this date until the expiration of this section, the entire tax levied by RCW 82.08.020 does not apply to the sale or lease of used **electric** passenger cars, light duty trucks, and medium duty passenger vehicles, that are powered by a fuel cell.*

[3] RCW 82.08.993(7)(b) *"Fuel cell" means a technology that uses an electrochemical reaction to generate electric energy by combining atoms of hydrogen and oxygen in the presence of a catalyst.*

[4] From the recently adopted state transportation budget: https://lawfilesext.leg.wa.gov/biennium/2021-22/Pdf/Bills/,: *(b) "Fuel cell" means a technology that uses an electrochemical reaction to generate electric energy by combining atoms of hydrogen and oxygen in the presence of a catalyst.*

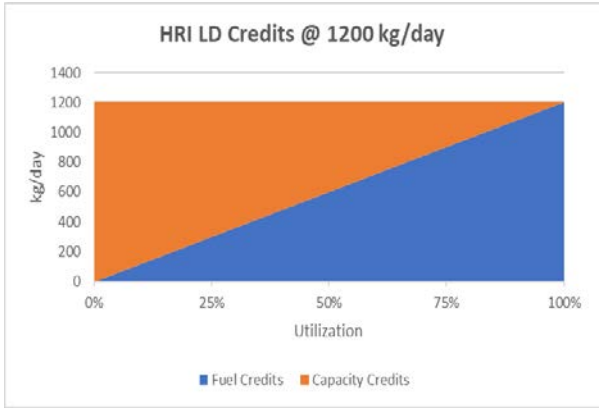
(60) "Electric vehicle (EV)," for purposes of this regulation, refers to battery electric vehicles (BEVs), ~~and~~ plug-in hybrid electric vehicles (PHEVs) and fuel cell electric vehicles (FCEVs).

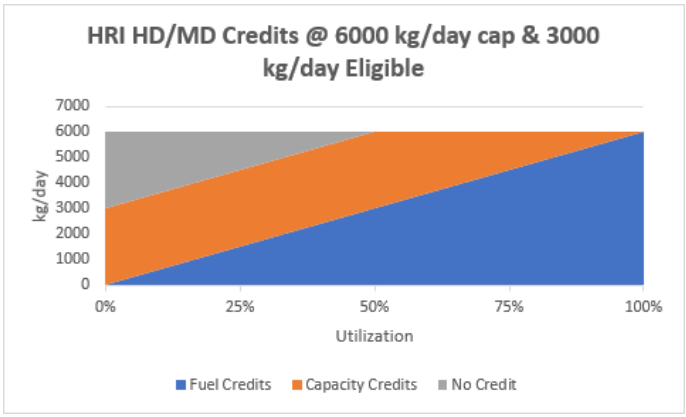
The addition of these definitions would ensure consistency with numerous references in Washington state laws and transportation budgets, California Air Resources Board 2020 Mobile Strategy[5] and overall ZEV strategy, and federal direction and definition. It would provide clarity and consistency in the eligibility and treatment of zero-emission electric vehicle technology, not substantively change the rule, and properly equate the hydrogen molecule as a molecular battery whose energy is released/dispatched as electricity by a fuel cell to power an electric motor to a lithium-based molecule that dispatches electricity to power an electric motor. This also is consistent with the Zero Emission Vehicle regulation under consideration by the Department of Ecology.

Hydrogen Refueling Infrastructure (HRI) Credits

HRI is a very important provision to address the fundamental requirement that hydrogen infrastructure is built out in advance of vehicle deployment. However, as previously mentioned, it is also key that these stations are sufficiently sized to account for the needs of future vehicle deployment as well as to ensure good customer experience and more cost-effective operations. For example, California's implementation of 1,200 kg/day for Light Duty stations HRI capacity limit ensures that stations are built to deliver a user experience that encourages adoption of zero emission vehicles. The success of California's LD HRI Pathway can be seen in the average hydrogen station capacity increasing 2.5 times, and station development programs underway that are 5 times larger than all prior developments.

Therefore, we recommend adopting 1,200kg/day cap with full capacity eligibility for Light Duty, and 6,000 kg/d station cap with 3,000 kg/d crediting eligibility for Heavy and Medium Duty as shown in the figures below.





[5] https://ww2.arb.ca.gov/sites/default/files/2021-12/2020_Mobile_Source_Strategy.pdf, Figures 14 and 15.

In addition, to ensure adequate network coverage of both light- and heavy-duty vehicles, we recommend separate caps for light-and heavy-duty stations, and that each cap be set at 2.5%. California is currently in the process of proposing the same allocation.

Definition of Hydrogen as a Regulated Fuel

WAC 173-424-120(2)(d) includes "compressed or liquid hydrogen (hydrogen)" as a regulated fuel. In the hearing conducted on August 23, 2022, Ecology stated that fuels included as a regulated fuel are those that have a carbon intensity (CI) higher than gasoline. However, we are concerned that including hydrogen in the regulated fuel category under the assumption that its CI is higher than gas places renewable or non-fossil hydrogen in a category it doesn't belong in, requires reporting from hydrogen producers whose hydrogen may never enter the transportation fueling supply chain (hydrogen is also produced as an input into industrial processes, fertilizer manufacturing, food processing, and other non-fuel uses), and lead to duplicative reporting.

Duplicative reporting would result from the producer of the hydrogen being required to report under the program, in addition to the fueling station dispenser, where the reporting requirement for hydrogen used as a transportation fuel is appropriately placed. We request that hydrogen be moved to the opt-in subsection, subsection (3) of this section This will not change any reporting requirement substantively or data used and useful for the Clean Fuels Program, as the data will be reported by the HRI dispenser but will remove unnecessary and duplicative reporting requirements by the hydrogen producer and Ecology processing hydrogen production data that is not entered into the CFP .

Thank you for your consideration and feel free to reach out to Dave Warren at dave@warren-group.net or Michael Lord at michael.lord@toyota.com if you have any questions or concerns.

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