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Submitted Electronically

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RE: Tesla Comments on Clean Fuel Standard Informal Comment Period #4

Tesla, Inc. (Tesla)[1] thanks the Washington Department of Ecology (Ecology) for this opportunity to submit comments regarding the Clean Fuel Standard (CFS). Tesla appreciates Ecology's leadership in implementing and updating the CFS to achieve its goals of accelerating emissions reductions and improving public health. We respectfully submit the following recommendations for your consideration to support increased availability of electric vehicle charging infrastructure in Washington, especially on the heavy-duty side.

Tesla Fully Electric Class 8 Truck – the Tesla Semi

In 2017, Tesla introduced the Tesla Semi, a Class 8 truck designed from the ground up to be the most efficient and safest truck on the market. The Tesla Semi focuses on reducing NOx and greenhouse gas (GHG) emissions from goods movement and transportation. The Semi comes in two models with ranges of 300 and 500 miles respectively and demonstrates that an all-electric truck can meet virtually any duty cycle when paired with a megawatt charging system.
The Tesla Semi can help reduce emissions from the combination truck sector, which account for about 16% of U.S. vehicle emissions. With less than 2 kWh per mile of energy consumption, the Tesla Semi can travel up to 500 miles on a single charge, fully loaded. Charging with electricity is approximately 2 times cheaper per mile than refueling with diesel. With remote diagnostics, over-the-air software updates, and fewer moving parts to maintain, operators will spend less time at service centers and more time on the road.

Since unveiling the Tesla Semi, a significant number of fleets with substantial freight needs have placed reservations, indicating broad industry demand for heavy-duty electric vehicles. These fleets will be deploying the Tesla Semi in a wide range of applications, including but not limited to, manufacturing, retail, grocery and food distribution, package delivery, dedicated trucking, rental services, intermodal, drayage, and other applications. Tesla delivered its first Semi electric trucks to PepsiCo at the end of 2022. Since then, Tesla has delivered 48 Semi trucks to Frito-Lay and Pepsi for use in operations in three of their depots in California – Modesto, Sacramento, and most recently, Fresno. Tesla is in the process of delivering an additional 38 trucks to the Pepsi Fresno location and will deliver Semis to additional customers this year. Tesla also operates a private fleet of heavy-duty trucks to move materials used in manufacturing between its facilities. Tesla Semis have accumulated over 3.5 million all-electric miles.

[1] Tesla's mission is to accelerate the world's transition to sustainable energy. To accomplish its mission, Tesla designs, develops, manufactures, and sells high-performance fully electric vehicles and energy generation and storage systems, installs, and maintains such systems, and sells solar electricity. Tesla has also invested in its growing network of retail stores, vehicle service centers, electric vehicle charging stations, and advanced manufacturing facilities.

Allow private fleet depots to generate HD-FCI credits.

We appreciate Ecology's modification in the latest rule draft to allow both public and shared heavy-duty sites to generate fuel capacity infrastructure (FCI) credits in a separate heavy-duty credit pool. Tesla shares Ecology's goal to expand opportunities for enabling heavy-duty (HD) infrastructure access. However, our experience in the market indicates that achieving this shared goal and rapidly scaling up the market for electric HD vehicles will be better served by allowing private depot charging serving a single fleet to generate HD-FCI capacity credits.

We note that private depot charging is eligible to generate FCI capacity credits in the California Low Carbon Fuel Standard (LCFS). Ecology should adopt the same HD-FCI formula as LCFS, which allows crediting of 20% of FCI capacity for public/shared sites and 10% of FCI capacity at private sites.[2]

> **HD-FCI credits for private depot charging will accelerate charging where it is needed most to support early adopters.**

Just as access to home charging was a driver of early EV adopters for the light-duty segment, the buildout of private depot charging will unlock electrification of heavy-duty vehicles for fleet operators. To ease into the transition and gain operational experience with electric vehicles, we expect the earliest applications of long-haul Class 8 electric trucks to serve shorter point-to-point routes between operators' own facilities. For example, Tesla started testing and using the Semi to transport materials from own manufacturing facilities between Fremont, CA and Lathrop, CA, roughly 57 miles. Similarly, early adopters of electric trucks will initially prefer to use their own charging facilities as much as possible, especially at the start or end of a route, and rely on public or shared infrastructure only to fill in gaps for long-haul routes. In addition, many fleets in their current operations rely on fueling their fleet at their depot. Whether this is done for cost savings, efficiency, security concerns, or a desire to control their transportation process to ensure trucks keep to their schedules, many fleets are used to and prefer operating their own fueling/charging infrastructure. Excluding private depot charging from HD-FCI credit generation undervalues the significant role that depot charging will serve to enabling the electrification of long-haul and will not meet the market's largest need.

> **HD-FCI credits for private depot charging will encourage larger upfront site builds, which supports rapid vehicle deployment despite long utility energization timelines.**

Fleets will electrify their operations starting with a few vehicles at a time and then scale up to dozens or hundreds of vehicles covering a variety of routes as they gain more operational experience, become more confident in the technology, and realize the operational cost savings of electrification. Taking the same approach to infrastructure – upgrading chargers and associated grid capacity "just-in time" to accommodate each round of vehicle delivery – may be less costly upfront but will lead to higher long-term costs and will delay getting electric trucks on the road.

While vehicle delivery timelines are typically on the order of a few months, time to build charging infrastructure can exceed multiple years if major upgrades are needed. For this reason, charging infrastructure availability is likely to be the time-limiting step to HD electrification. However, revenue provided by capacity credits creates an opportunity to circumvent the risk of undersizing

[2] https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/lcfs_fro_atta-1.pdf (November 6, 2024)

private depot charging by making it economically feasible for operators to make larger investments in their own facilities' capacity upfront, even if the capacity may not be used immediately. Allowing private fleet depots to generate HD-FCI credits will not only better meet market needs for the initial round of HD vehicle electrification, but also unlock rapid scaling to increase the number of electric trucks on the road over the next several years.

> **HD-FCI credits for private depot charging will encourage efficient grid buildout and avoid costly utility projects to make multiple upgrades to a single site.**

On average, the scale of infrastructure and power to support heavy-duty vehicles will be orders of magnitude larger than light-duty infrastructure. Power needs for heavy duty fleets relying on fast charging are larger and therefore present a greater challenge to integrate into the grid without advance notice to the utility. It is more cost and time efficient for the utility to build and design grid upgrades to accommodate one time capacity increases at private sites, as opposed to piecemeal increases in electrical distribution. Opening HD-FCI credit generation to private depots will encourage rightsizing of private depot infrastructure and hedge against the utility from having to make multiple investments to increase power availability at a single site.

Increase per-port kW caps for HD FCI.

The latest rule draft allows public and shared HD charger sites to claim FCI credits up to 350kW per post and sets a cap of 10 MW per site. Tesla is concerned that a cap of 350 kW per charging post is too low for HD charger applications due to the large battery sizes of HD EVs and demand for short refuel times, particularly for public and shared charging stops. For example, public charging stations designed to serve Tesla Semi will be capable of 1.2 MW per stall output. In addition, the industry is coalescing around a Megawatt Charging System (MCS) as the industry standard for HD charging.[3] Therefore, Tesla recommends that the per post cap be set to 1.5 MW or match the LCFS cap of 2,000 kW. Should Ecology amend CFS to allow private depot charging to generate HD-FCI credits, as recommended in the previous section, it would be appropriate to match the cap for public and shared HD charger sites.

Tesla finds the 10 MW per site cap for public HD chargers to be reasonable to accommodate site needs for the next several years. However, we encourage Ecology to revisit the cap in the future. We note that the per-site cap for MHD-FCI in LCFS was recently raised to 40 MW.[4]

In-person site visits conducted by third party verifiers should be performed at central records-keeping locations, rather than at each individual charging station location.

Tesla appreciates Ecology's revision in the latest rule draft to clarify electricity-based fuels will be eligible for less intensive verification. However, we are concerned that third party verification of credits generated via the EV charging pathway will present a significant burden to EV charging station operators due to the fundamental difference between electric-based fuel pathways and other kinds of fuels.

Unlike liquid and gaseous fuels, which have a relatively small number of centralized distribution facilities, electricity does not become transportation fuel until it is dispensed at an EV charging station. Meaning, the requirement for physical site visits of charging station locations could be

[3] See https://www.charin.global/technology/mcs/
[4] https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/lcfs_fro_atta-1.pdf (November 6, 2024)

interpreted to require a verifier to make stops at dozens of charging sites across the state annually. This is neither practical nor scalable as more charging infrastructure is deployed over time.

Given that a costly verification process will divert CFS proceeds away from reinvestment in clean fuels, Ecology should clarify that in-person site visits of every EV charging station location are not necessary. In-person site visits by third party verifiers should be focused to visiting a single central records-keeping location (such as company headquarters). It is our understanding that per CARB's recent modifications to the LCFS to include third-party verification requirements to EV charging pathways, CARB Staff does not expect verifiers to physically visit each individual charger location. We respectfully request that Ecology set the same expectation in the rule text of Washington's Clean Fuel Standard.

Thank you again for the opportunity to submit comments. Please do not hesitate to reach out with any questions.

Sincerely,

Mal Skowron
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Tesla, Inc.