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Tesla 24-EVI-01 Comments

Additional submitted attachment is included below.

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June 10, 2024

California Energy Commission
Docket Unit, MS 4
715 P Street
Sacramento, CA 95814-5512

RE: Docket No. 24-EVI-01
Request for Information on the Project Proposal Ideas and Considerations for California, Oregon, and Washington's Medium- and Heavy-Duty Joint Application for the U.S. Department of Transportation's Charging and Fueling Infrastructure Discretionary Grant Program
Submitted via E-Comment Portal: https://efiling.energy.ca.gov/EComment.

Tesla, Inc. (Tesla) appreciates the opportunity to respond to the Tri-State request for information (RFI) on the California, Oregon, and Washington's Medium- and Heavy-Duty Joint Application for the U.S. Department of Transportation's Charging and Fueling Infrastructure Discretionary Grant Program. With our industry-leading electric vehicles and innovative charging solutions, Tesla is well-positioned to contribute valuable insights and technological advancements to support the electrification of medium-and-heavy duty trucks in the Tri-State region. This response will detail the capabilities of the Tesla Semi charging system and the critical role of public charging infrastructure in achieving efficient and sustainable freight transportation.

I. Tesla Fully Electric Class 8 Truck – the Tesla Semi[1]

Tesla's mission is to accelerate the world's transition to sustainable energy. This will require directly reducing air pollutant emissions— including carbon dioxide and other greenhouse gases—from the transportation and power sectors.[2] To accomplish its mission, Tesla designs, develops, manufactures, and sells high-performance fully electric vehicles, direct-current fast chargers, and solar energy generation and storage systems. Tesla also installs, maintains, and operates charging and energy systems.[3] Consistent with this effort, Tesla was recently ranked as the world leader in the transition to vehicle electrification.[4]

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 GHG emissions from goods movement and transportation. The Semi comes in two models with ranges of 300 and 500 miles respectively and will demonstrate 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 combination trucks, 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.[5] Operators can see estimated fuel savings of up to $150,000 within their

[1] See Tesla, Semi.
[2] Tesla, Master Plan Part 3 (Apr. 5, 2023).
[3] Tesla, Impact Report 2022 (Apr. 24, 2023)
[4] International Council on Clean Transportation, The Global Automaker Rating 2022: Who is Leading the Transition to Electric Vehicles? (May 31, 2023).
[5] Tesla, Impact Report 2023 (May 23, 2024).

first three years of ownership. 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 in late 2017, 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. Companies with operations throughout North America representing every major trucking sector and category of the economy have reserved the Tesla Semi, ranging from food service to logistics to retail. Tesla delivered its first Semi electric trucks to PepsiCo at the end of 2022.[6] Since then, Tesla has delivered 41 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 45 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. Tesla Semis have accumulated over 3.5 million all-electric miles.

To charge the Tesla Semi, Tesla has developed innovative, high-power 1 MW+ Semi chargers. This level of power represents an advancement in the commercial, goods movement industry that enables longer range electrification than previously possible when paired with long-range electric vehicles. Tesla is committed to interoperability and intends to align with the industry high-power standard once established.

II. RFI Questions

a. *Please disclose your business type and vehicle class, if applicable. Are you a driver, fleet operator, truck stop operator, installer, manufacturer, utility, public agency, or other? Are you part of a small, veteran-owned, woman-owned, or minority-owned business?*

- Tesla is a manufacturer that combines world-class engineering, technology, and design with state-of-the-art manufacturing to create a new generation of unparalleled electric vehicles, vehicle charging equipment, and energy storage systems. The Tesla Semi is a fully electric, Class 8 truck. Tesla also operates a private fleet of heavy-duty trucks to move materials used in manufacturing.

b. *Would you consider applying for CFI grant funding for site development if the tri-state agencies are awarded funding?*

- Yes.

c. *Do you already operate or are you planning to use zero-emission battery electric MDHD vehicles in the next five years? Please use a 1-5 rating scale where 1= least likely and 5= most likely. Please add additional information regarding your (planned) use of zero-emission battery electric MDHD vehicles as desired.*

- Tesla's own fleet of electric Semis has shipped and transported more than 20,000 battery packs out of Gigafactory Nevada to support Fremont, California vehicle builds. Tesla intends to electrify additional existing heavy-duty truck routes across its value chain.

d. *What type of MDHD ZEV public charging do you anticipate being most important in the next three years (2024-2027) – en route or overnight charging? For what purposes do you anticipate needing public charging infrastructure – drayage, last-mile, delivery, long-haul freight, other?*

[6] The Wall Street Journal, Tesla Delivers Semi Trucks to PepsiCo, Expanding Beyond Passenger Vehicles (Dec 1, 2022).

- Charging speed is a critical consideration for fleets with tight schedules and complex routes that are seeking to maximize uptime. Tesla believes megawatt charging can and should be used both for public depot and en-route charging. Megawatt charging allows customers to maximize usage of their charging infrastructure to get the quickest return on their investment. It also enables trucks to quickly recharge during short breaks, effectively extending their operational range without long interruptions. This is crucial for maintaining the pace of operations, meeting delivery deadlines, and keeping electrified trucks competitive with diesel counterparts. We anticipate public charging infrastructure will be necessary to support drayage operations, which typically involves frequent and short hauls, such as transporting goods between ports and nearby distribution centers. To maintain this high turnover rate, drayage trucks will need to recharge quickly and get back on the road without significant delays. Megawatt charging also provides flexibility for longer routes or unexpected detours, allowing drivers to extend their range and complete trips that exceed their initial charge capacity. Additionally, delivery, short regional haul, and long-haul freight will benefit from public charging to enable range extension and resilience to grid interruptions.

e. *From 2024-2027, what is your first priority for power level and number of charging ports for public en route charging at a station? For public overnight charging? Do you have a second or third configuration preference?*

- Tesla's priority for public charging is en-route with 1 MW+, and a minimum of 9-12 chargers at a station. While Tesla can offer an overnight charging solution, in most cases, fast charging provides better financial and operational value. Where overnight charging infrastructure provides value is for multiple-day trips away from a domicile, when the regulated 10-hour driver break could be used for charging.

f. *Please identify the percentage of pull-in or pull through parking preferred and other desired station configurations at a given site. Describe the vehicle class and vocation considered when making this recommendation if it differs from the information provided in question*

- A pull-through configuration for 1 MW+ charging serving Class 8 tractors offers the best logistical flow for trucks. However, we understand that not all sites have enough space. If the public charging location is a depot, back-in bobtail parking may even be feasible, but public en-route charging should be either pull-through or nose-in, given the trailers. We do not recommend sharing charging stalls between HD and LD equipment because the equipment would be underutilized by the smaller equipment. Co-location of HD and LD equipment is acceptable if pedestrian safety is prioritized in the site design.

g. *What distance should separate charging stations to support zero-emission trucks along the I-5 corridor? Provide description of typical route or use-case considered when making this recommendation. Describe the vehicle class and vocation if it differs from the information provided in question 1.*

- Tesla offers a 300-mile and 500-mile variant of the Tesla Semi. Given the varying origin and destination of routes leveraging the I-5 corridor, we recommend charging stations every ~100 miles between major cities and every 10-20 miles within major cities. The urban areas can serve both depot and en-route public charging, while rural can prioritize en-route charging.

h. *What amenities are you seeking at a charging facility? Is there a desire for additional parking at a facility beyond charging stalls? Is there a desire for reservation options?*

- Considerations when designing each site include the availability of on-site amenities, such as restrooms and a rest area, which will be designed and constructed as a part of the broader site development.
- Additional parking, some with overnight charging, will be required at en-route charging stations where drivers may need to spend their regulated breaks. Parking for trucks waiting to charge is also recommended.
- Customers will rely on these charging stations for their business. Ensuring that they have reliable access to charging when they need it is critical. Reservations and/or dynamic routing based on charger availability is recommended.

i. If possible, provide any general cost estimates for MDHD charging stations you have designed, built, or have experience with, including charger power levels and number of chargers installed. Please provide a range of public cost share as a percentage of total project cost that would be necessary to support more public charging stations to serve zero-emission trucks along freight corridors.

- Estimates for both Tesla Semis and charging can be provided to support an application once the site(s) have been scoped. Generally, as part of any project under the CFI program, Tesla proposes to provide any of the following equipment as a part of an application:
    1. Semi charging hardware – 750+ kW Semi posts, cabinets, and supporting electrical equipment
    2. Supercharger hardware – 250 kW NACS or CCS-1 posts, cabinets, and supporting electrical equipment
    3. Megapack BESS – 2.5 MWh

j. Use the maps under the "Corridor Segments" section below to identify locations within the National Zero-Emission Freight Corridor Strategy hubs along I-5 (identified in the map segments below) you anticipate needing EV charging in the next three years (2024-2027)

- WA Segment 1: Seattle
- WA Segment 2: Mid-corridor, Vancouver
- OR Segment 1: Portland
- OR Segment 2: Eugene
- CA Segment 1: Red Bluff, Zamora
- CA Segment 2: Los Banos
- CA Segment 3: Santa Clarita

k. You may identify sites where you plan to or would be interested in building charging stations or where you would like to see charging as a consumer. Please detail preferred locations across California, Oregon, and Washington. For each location, please provide desired site characteristics including number of chargers, power levels, type of charging desired (overnight or en route), and vehicle class and vocation if the information differs across locations or differs from the information provided in the questions above.

Locations along I-5	**1 MW+ Chargers**	**~100 kW Overnight Chargers**
San Diego, CA	X	
Vernon, CA	X	
Anaheim, CA	X	
Santa Clarita, CA	X	X
Bakersfield, CA	X	X
Los Banos, CA	X	X
Kettleman City, CA	X	

Sacramento, CA	X	
Stockton, CA	X	
Tracy, CA	X	
Zamora, CA	X	X
Red Bluff, CA	X	X
Medford, OR	X	X
Eugene, OR	X	X
Portland, OR	X	
Vancouver, WA	X	
Oxley, WA	X	X
Seattle, WA	X	

III. Conclusion

Tesla appreciates the opportunity to respond to this RFI and share our vision for a sustainable, electrified future in the medium-and heavy-duty transportation sector. We believe that the Tesla Semi, combined with megawatt charging technology, offers a transformative solution for reducing emissions and enhancing operational efficiency for freight operations. By leveraging megawatt charging infrastructure, fleets can maximize uptime, reduce costs, and meet the demands of modern logistics. Tesla is committed to working with industry partners and public agencies to build the necessary infrastructure and support the transition to zero-emission transportation across California, Oregon, and Washington.

Sincerely,

Emily Conway
Business Development Manager
Tesla