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Lisa Williams
California Air Resources Board
1001 I Street
Sacramento, California 95814

Subject: Ford Motor Company's Input on VW Draft Beneficiary Mitigation Plan Appendix D

Dear Ms. Williams:

Thank you for this opportunity for Ford Motor Company to provide input on the use of your state's Environmental Mitigation Trust (EMT) funds.

Vehicle electrification is core to Ford Motor Company. We introduced the Escape Hybrid nearly 20 years ago; our Hybrid and Plug-in vehicles are among the best sellers in the industry, and we recently announced plans to invest more than $11 billion in electrification by 2022. Ford believes that the future of transportation is electrified, and this future will benefit both our customers and the environment.

Substantial challenges must be overcome before this future can be realized. A principal challenge is the significant shortfall in publicly available EV charging.[1] For this reason, **we encourage California to utilize the maximum allowable 15% toward light duty electric vehicle charging infrastructure.**

CHARGER SITING RECOMMENDATIONS

Charging infrastructure must meet both daily driving and long distance travel needs.

Daily Driving: Charge While Parked

While high-speed DC Fast Charging (DCFC) is essential for EVs driving long distance, this 'while you wait' model is a poor solution for day-to-day EV usage. A common 50 kW DC Fast Charger requires **nearly 45 minutes** to add 100 miles of range, significantly affecting the driver's daily routine. Meanwhile, the average vehicle is parked for 22 hours a day.[2] **Charging while parked** is the superior solution.

Charging while parked at home, work, or destinations conveniently incorporates charging into daily routines. It also allows use of lower power Level 2 (L2) AC chargers, which, compared to DCFC, are cheaper to install and operate[3] and provide lower priced electricity to consumers.

Ford recommends that California fund L2 charging **where vehicles park on a routine basis**. While there are several options for more L2 charging, such as on-street charging (e.g., lamppost retrofits) in high density neighborhoods, Ford believes that chargers at workplaces will provide the greatest impact. Therefore, funding of **workplace charging** should be prioritized.

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[1] US DOE. National Plug-In Electric Vehicle Infrastructure Analysis (https://www.nrel.gov/docs/fy17osti/69031.pdf).
[2] Source: AAA and Ford Analytics.
[3] https://www.afdc.energy.gov/uploads/publication/evse_cost_report_2015.pdf

The unique benefits of **workplace charging** include the following:

- **Increased EV adoption.** Workplaces become EV showcases. US DOE data suggests that employees with workplace charging are 6 times more likely to purchase an EV. Ford's own experience installing over 200 L2 chargers at our offices and manufacturing plants demonstrated a clear increase in EV adoption and increased electric vehicle miles driven for plug-in hybrids.[4]
- **Routine.** The majority of drivers park at their workplace for 4-10 hours on Monday through Friday. This parking time is sufficient to meet most drivers' range needs with L2 chargers.
- **Alternative for Multi-Unit Dwelling (MUD) Residents.** Workplace charging gives those with limited 'home charging' options an affordable place to charge, expanding the EV market.

Long Distance Travel: Highway Corridor Charging

While there are several solutions for routine charging, long distance travel is impossible without a 'while you wait' model of DCFC along major highway corridors. A complete intercity DCFC network is required for most drivers to adopt an EV as their only vehicle. Therefore, EMT funds should also be directed towards **highway DCFC fast chargers**. To prevent long lines and impractical charge times, highway DCFC stations should have 100-150 kW capability or greater.

POLICY RECOMMENDATIONS

In addition to our funding allocation recommendations, Ford recommends the following policy items.

Coordinate Efforts

In order to ensure the most cost effective and grid responsible build out of charging infrastructure, Ford encourages California to coordinate with local utilities and other key stakeholders in strategic planning efforts. We encourage California to consider related programs like the VW National ZEV Investment Plan.

California is also in a unique position to increase the impact of EMT funds through concurrent development of EV-friendly policy, including:

- **Building Code** modifications to require new or modified residential and commercial parking be charger 'make ready,' including conduit installation and service panel upgrades.
- **Complementary Incentives** like utility charger installation support (e.g., transformer upgrades) or free permitting.

Ensure a Positive Consumer Experience

In addition to intelligent siting, deploying easy-to-use equipment maximizes the impact of new public chargers. As such, projects should meet the following customer protection principles[5]:

- **Payment Interoperability.** Public chargers should accept a standard method of payment (credit card or mobile app like ApplePay) rather than a dedicated card or key, which can leave drivers stranded.
- **Transparency.** The price of a charge should be clear to the driver, both at the point of sale and also via any charger locator apps.

[4] https://www.slideshare.net/emmaline742/stephanie-janczakcharging-up-at-work-november-2017
[5] Similar comments were provided to Connecticut DEEP by Plug-In America, a non-profit organization that bills itself as the "national consumer voice for plug-in electric vehicles."

- **Mapping Data.** All electric vehicle service providers (EVSPs) should make mapping data for charging locations readily available, including, as noted above, charging costs.
- **Signage.** Even when shown in a mapping app, chargers can be difficult to locate. Charging stations should have adequate signage, from highway visibility down to the last few feet. Signage provides the additional benefit of increasing charger visibility for non-EV drivers considering EV adoption.
- **Accessibility.** Charger installation projects should be designed in accordance with Title III of the Americans with Disabilities Act (ADA), giving people with disabilities the option to 'go electric.'[6]

Provide Competitive Bidding

California can best accelerate sustainable growth of public charging infrastructure by funding a diverse cross-section of the charging industry. To this end, the state should support competition and allow multiple vendors and business models to participate.

In summary, Ford recommends that a **full 15%** of EMT funds be allocated towards light duty charging and be spent primarily on **workplaces** and **highway** corridors. Ford also recommends a number of policy items to support the coordination of efforts to deploy chargers. If you would like to discuss further, please contact Melanie Wiegner, Ford's Government Relations Representative for California, at mwiegner@ford.com or 916-442-0111.

Sincerely,

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[6] Resource: *ADA Requirements to Consider for Workplace Charging Installation* (http://vwclearinghouse.org/resource/ada-requirements-for-workplace-charging-installation/).