DOCKETED	
Docket Number:	20-TRAN-04
Project Title:	Electric Vehicle Infrastructure Project Funding
TN #:	236246
Document Title:	Tesla Comments - Staff Workshop on Funding Allocations for Future Electric Vehicle Infrastructure Projects
Description:	N/A
Filer:	System
Organization:	Francesca Wahl
Submitter Role:	Public
Submission Date:	1/8/2021 3:19:52 PM
Docketed Date:	1/8/2021

Comment Received From: Francesca Wahl
Submitted On: 1/8/2021
Docket Number: 20-TRAN-04

Tesla Comments - Staff Workshop on Funding Allocations for Future Electric Vehicle Infrastructure Projects

Additional submitted attachment is included below.

January 8, 2021

California Energy Commission
Re: Docket No: 20-TRAN-04
1516 Ninth Street
Sacramento, CA 95814

RE: Staff Workshop on Funding Allocations for Future Electric Vehicle Infrastructure Projects – December 17, 2020

Dear Energy Commission Staff:

Tesla appreciates the opportunity to provide feedback on the recent workshop hosted by the California Energy Commission (Energy Commission) on potential future electric vehicle (EV) infrastructure projects which could be funded from the light-duty vehicle allocation under the Clean Transportation Program.

During the workshop, Staff presented several potential project categories for infrastructure funding including: 1) rural charging, 2) transportation network companies (TNC) friendly airport charging, 3) advanced technologies, and 4) Level 1 and Level 2 charging at Multi-Unit Dwelling (MUDs). Staff also presented several additional concepts including mobile charging, curbside chargers, and e-Mobility Depots/Hubs for charging. Tesla's comments below focus on three key areas discussed during the workshop which includes considerations for mobile charging projects, alternatives to conventional home charging, and better defining the opportunities for providing access to charging at MUDs. These are all important areas to prioritize for potential future funding allocations that are aiming to either address solutions not currently being focused on under existing statewide Energy Commission programs or to build off these existing programs. The latter two categories on alternatives to home charging and access to charging at MUDs are closely related and not new issues to solve, yet can benefit from additional consideration for new technology or program design options to solve these challenges.

I. Mobile Charging and Distributed Energy Resources for Building Resilient Charging Infrastructure

Under the advanced technology options, Staff includes a proposal on mobile charging which could "include mobile distributed energy resources (DER) systems, charging packaged into another vehicle etc."[1] Mobile charging infrastructure along with DERs generally will likely play an important role in the future to ensure a resilient infrastructure network exists across California. Other states agencies, including the California Public Utilities Commission (CPUC), have started discussions regarding how resilience will play a role for charging infrastructure especially in the context of wildfire risk and public power shutoff events. From a resilience perspective, it will be important to demonstrate the ability to deploy DERs such as solar and storage with EV charging infrastructure in key areas. Staff also mentions "rescue charging" in

[1] Staff Workshop, December 17, 2020, Slide 59.

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the context of mobile charging. In the case of an extreme weather event, such as a wildfire, if access to existing charging infrastructure is not available, there may be also be an opportunity to demonstrate and evaluate deploying mobile charging units to temporarily assist EV drivers.

At the same time, mobile charging units may be able to serve a role beyond rescue charging and resilience. For instance, during holidays and peak travel times, existing direct current fast charging (DCFC) stations may be become congested due to increased customer demand. This issue has the potential to become more severe if EV charging infrastructure deployment does not keep pace with increasing EV adoption grow. As an interim solution while larger and more DCFC stations are being built, having mobile charging solutions available that can mitigate congestion during peak travel times could be helpful. Tesla, for example, has utilized its mobile Megapack, an energy storage solution, as a mobile charging unit in key areas across California to help relieve network congestion.[2]

II. Alternatives to Conventional Home Charging

Staff presented concepts regarding alternative to home charging given that "as EVs move into the mainstream market, many drivers will not have access to conventional home charging."[3] Two specific ideas referenced at the workshop include downtown core curbside charging and high-powered fast charging hubs. Exploring both of these options and other potential innovative business models is worthwhile, yet should not come at the expense of continuing to build out providing charging access to where EV drivers already park for long periods of time including at home, an apartment complex or at work. Providing access to charging where drivers park at MUDs and workplaces should continue to be pursued, as discussed further below. In order to meet future EV deployment goals for California, both strategies will be necessary.

To provide flexibility in this particular project category, it may be helpful to structure this item to allow for applicants to bring forward new innovative solutions that may fall outside traditional fast charging hubs and/or curbside charging and provide a competitive solicitation element rather than a first come first served basis. Alternatively, this concept could be broken into several sub-categories with specific funding allocated for each. Curbside charging, for instance, has been challenging to implement yet there may be models from cities in California or even outside the U.S., such as Amsterdam's curbside program which is demand driven by EV drivers, to utilize in scaling this effort.

III. Level 1 and Level 2 Charging for MUDs

At the workshop, Staff presented several considerations for evaluating deployment of Level 1 and lower power Level 2 charging at MUDs as a new funding category. These considerations include charge time, building codes, load management, and vehicle grid/building integration opportunities.[4] While we see value in providing access to existing Level 1 charging for customers in the near term, it is unclear whether this will be a cost-effective long term solution for providing greater access to EV charging infrastructure. As Staff has already highlighted, it is important to consider factors such as charge time, cost, load management, and site host engagement, among other items. From a cost perspective, on the electrical side, there is little distinction between installing a circuit that will serve a Level 1 EVSE versus make-ready for

[2] Temporary Megacharger is a mobile EV charging solution that includes a trailer with 8 EV charge posts powered by a large battery that can be quickly set-up on site during peak charging periods and removed when not needed
[3] Staff Workshop, December 17, 2020, Slide 62.
[4] Staff Workshop, December 17, 2020, Slide 69.

Level 2 EVSE in a MUD.[5] The more costly component will be the actual charging hardware that is then utilized to serve the EV driver.

While it may be more cost effective in the near term to just be able to plug an EV into a 110 Level 1 wall outlet, this comes with tradeoffs. First, property owners will not be able to recover the costs for electricity to charge the vehicles with Level 1 given the separate metering infrastructure to enable this will be extremely costly. Therefore, a property owner will either have to give electricity for charging away for free or add some additional general charge for the renter to be able to have access to the electricity. Second, from a grid and load management perspective, EV drivers will likely need to plug in as soon as they arrive at a destination with Level 1 charging in order to get a full charge and there will be limited opportunity to utilize price signals to encourage drivers to charge off-peak. While Level 1 represents a lower load, as EV deployment grows, this may be challenging from a management and cost perspective for the property owner or site host at a MUD. Moreover, Level 2 is better suited to integrate more renewable energy as it can take advantage of times when there is excess solar or wind. Finally, instead of focusing on how to encourage Level 1, the focus should be on continuing to drive down the cost of Level 2 charging hardware, which comes with many more advanced management capabilities and will be necessary as EV adoption grows. Discussions on upfront costs should be focused on lowering Level 2 hardware costs, which may be driven today by incentive levels generally being too high in the Level 2 space in order to drive true cost reductions.

Therefore, while we agree that Level 1 can serve drivers in the short term and should be made more accessible as an interim option for certain EV users, Level 1 should not be incentivized under the guise of providing greater EV access when the long term need lies in driving down the costs of Level 2 and enabling access for all at MUDs to Level 2 charging where you park to the extent feasible.

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Tesla appreciates the opportunity to provide feedback on the potential future funding allocations for EV charging infrastructure. In this context, we support consideration of alternative to conventional home charging as a potential project funding category as well as exploring opportunities for mobile charging and other DERs for building more resilient infrastructure networks. Tesla looks forward to continuing to work with Staff to provide feedback as these proposals are refined.

Sincerely,

Francesca Wahl
Senior Charging Policy Manager
Business Development and Public Policy

[5] Both require conduit, electrical panels, circuit breakers and an equal amount of labor to install. Cost differences arise from differences in wire gauge, circuit breaker and electrical panel sizes.