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EVgo Comments on CEC EVSE Reliability Workshop

Please see attached document.

Additional submitted attachment is included below.

April 1, 2022

Dustin Schell
Fuels and Transportation Division
California Energy Commission
715 P Street
Sacramento, CA 95814

RE: CEC EV Charging Infrastructure Reliability Workshop

Dear Mr. Schell and Staff:

EVgo thanks the California Energy Commission (CEC) for its continued leadership in supporting California's climate and zero emission vehicle (ZEV) goals through sustained investment in infrastructure and thoughtful planning and programs. A positive customer experience and access to reliable charging infrastructure is imperative to successful electrification. EVgo appreciates the CEC's consideration of charging infrastructure uptime and reliability to ensure that Californians who make the switch to electric vehicles have access to reliable, accessible charging infrastructure.

EVgo is the nation's largest public fast charging network for electric vehicles (EVs) and the first to be powered by 100% renewable energy. EVgo's owned and operated network spans more than 850 fast charging locations across the country, including more than 330 sites and 820 fast charging stalls across California. EVgo serves more than 340,000 customer accounts who can access more than 38,000 chargers across the US through the EVgo App. EVgo's owner-operator model aligns charging network interests with those of its EV driving customers. Thus, reliability is key to EVgo's network economics and the driver's ability to receive a charge. EVgo prides itself on its reliability and is committed to a 98% uptime rate across its network.

As California works to achieve 100% ZEV sales beginning in 2035, and 1.5 million charge ports by 2030, infrastructure reliability will become increasingly important for transitioning drivers to EVs.^{1 2} EVgo respectfully offers the following comments in response to the questions posed by CEC staff during its public workshop.

1. EVgo applauds the CEC for collecting reliability metrics in its most recent funding solicitations to bolster consumer confidence in EVs.

Robust, reliable charging infrastructure is critical to underpinning a successful electrified transportation system. Many drivers today – and those who will be switching to EVs shortly – will lack access to home charging given persisting barriers to installing charging at multi-unit dwellings or due to a lack of onsite parking, and will thus rely on public charging as their prime fueling source.³ EVgo applauds the CEC for launching funding programs geared towards infrastructure accessibility and already beginning to collect

¹ Executive Order N-79-20, <https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-Climate.pdf>

² Assembly Bill 2127 Electric Vehicle Charging Infrastructure Assessment -Analyzing Charging Needs to Support Zero-Emission Vehicles in 2030 (Commission Report), California Energy Commission, July 2021.

³ Evaluating Multi-Unit Resident Charging Behavior at Direct Current Fast Chargers, UCLA Luskin Center for Innovation, February 2021.

uptime reporting for its most recent solicitations such as Charging Access for Reliable On-Demand Transportation Services (CARTS); Reliable, Equitable, and Accessible Charging for multi-family Housing (REACH); and Rural Electric Vehicle Charging (REV) to help bolster consumer confidence in EV charging investments and holding providers and site hosts accountable to maintain reliability for EV drivers.⁴

2. EVgo recommends the CEC heed the parameters and implementation timelines outlined in state legislation upon passage and ensure alignment with other state funding programs to promote uniformity.

California has two active legislative items this session, AB 2061 (Ting) and AB 2703 (Muratsuchi), that specifically address charging station reliability.^{5 6} Each of these bills call for the CEC to develop uptime metrics and apply uptime requirements to the future publicly funded chargers; however, they currently call for different timelines of implementation. As the exact requirements in the legislation may evolve, EVgo recommends that CEC follow the implementation timeline and path laid out if legislation upon passage.

State agency coordination will also be critical. EVgo notes that other agencies, including the Air Resources Board (ARB), have expressed interest in the topic of reliability, and the incoming federal National Electric Vehicle Investment (NEVI) funds will require that implementing states put forth programs that seek to “achieve a high-level of reliability.” As such, coordination with Caltrans will also be paramount to ensure uniformity across state funding programs.

3. The CEC should consult owner-operators – including electric vehicle service providers (EVSPs) and site hosts – to better understand how they track uptime.

With a fully owned and operated network, EVgo is naturally incentivized to maintain strong reliability standards and is committed to 98% uptime across its network. EVgo accomplishes this through following rigorous testing standards provided by Nationally Recognized Testing Laboratory (NRTL), including Underwriters Laboratories Inc.

The development of an uptime formula should be done so in consultation with EVSPs and site hosts who own and operate infrastructure and will ultimately report the uptime data to better understand their own internal tracking and metrics. Different entities will have a different level of sophistication and likely methodologies, and the CEC staff should seek to learn and understand.

For example, based on EVgo’s own experience in operating a convenient and reliable network for drivers, we recommend a metric for charger uptime should take into account the following principles:

- **Take a driver centric approach by calculating uptime based on stalls in line with the latest technology trends, such as power sharing.** While conversation around uptime has primarily

⁴ CARTS requires a 95% EVSE uptime requirement for grant recipients, with REACH and REV requiring a 97% EVSE uptime requirement.

⁵ Assembly Bill 2061 Transportation electrification: electric vehicle charging infrastructure. (Ting), 2022. https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220AB2061

⁶ Assembly Bill 2703 Zero-emission fueling station reliability standards: transportation: low-income and disadvantaged community financial assistance. (Muratsuchi), 2022. https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202120220AB2703

revolved around individual EVSE, the technology is rapidly advancing and some EVSE (including some currently deployed) are capable of charging multiple vehicles simultaneously.

- **Calculate uptime based on minutes rather than hours to ensure precision.** By taking a more granular unit of measurement, EVSPs and in turn the CEC will be able to calculate uptime more precisely.
- **Determine what constitutes “outage”.** If a charger can produce a charge utilizing any given payment method prescribed in the ARB’s EVSE standards, that EVSE should be deemed operable. The spirit of intent of the EVSE standards was to accommodate many varying payment options including credit cards, membership ID cards, mobile applications, and 1-800 numbers to ensure optionality for drivers; thus, this should also be reflected in the CEC’s uptime metrics.

4. As the CEC defines reliability and uptime, it should factor in the variable layers of control the owner-operator has in terms of charger uptime.

While the ultimate responsibility of delivering a successful charge to a driver is that of the EV charging network provider, there are two layers to inoperability of EVSE: (1) stall outages related to hardware and software malfunction that are within the owner-operator’s control and (2) “excluded” stall outages which are upstream events that are outside of the owner-operator’s control.

Stall outage that should be considered “downtime” in metrics are hardware and software issues that are squarely within the jurisdiction and responsibility of the owner-operator, such as broken connectors (including those from customer accidents) as well as equipment malfunctions, i.e. broken fuses.

Excluded stall outages are upstream events and issues that affect the charging infrastructure’s ability to deliver a successful charge that are outside the scope of control of the network provider. These items should be reported to the CEC as it studies reliability and should also be excluded from any uptime calculations as they do not reflect an owner-operator EVSP or site host’s ability to maintain an operative charger. Establishing this list of exclusions should be considered preliminary to development of a reliability metric, and the CEC should work collaboratively with owner operator EVSPs and site hosts to further refine this list.

- **Upstream infrastructure failures:** The unavailability of, or any interruptions in, power supply or the supply of other commodities necessary for the operation of the EV Charging Station. This includes, but is not limited to, power outages, Public Safety Power Shut offs (PSPS), and cellular network outages.
- **Force majeure:** Any failure or delay caused by natural disaster, fire, flood, explosion, war, embargo, vandalism and abuse, government requirement, civil or military authority, epidemic, quarantine, or other similar causes beyond an owner-operator’s control.
- **Site/charger access restrictions:** As permitted under incentive agreement, stations can be inaccessible due to factors relating to parking garage hours or planned preventative maintenance. Additionally, site hosts may request that the chargers be closed off or shut down due to other construction happening at the property.

5. Encourage automakers to do charger testing before putting vehicles on the market.

It would be remiss to note an issue that was flagged during the workshop: vehicle interoperability. Prior to vehicle launch, it is critical that automakers execute interoperability testing in coordination with EVSPs to ensure that their vehicle software is compatible with all available installed charging infrastructure in the field, including legacy infrastructure, to ensure that drivers will have a positive EV experience. While rare, there have been instances of automakers launching vehicles that have not been tested in collaboration with the networks that drivers are then unable to charge. EVgo supports the CEC's upcoming Vehicle Interoperability Testing Symposium (VOLTS), where automakers and charging providers can do one stop-shop vehicle testing.⁷ EVgo also has a lab in El Segundo where EVgo engineers, technologists, and partners collaborate and test hardware, software, and vehicle technologies for the current and next generations of charging infrastructure and EV models.⁸

6. The CEC should provide funding to upgrade legacy charging infrastructure.

Legacy charging infrastructure is often less reliable than newer technologies being deployed today. EVgo recommends the CEC pursue incentives for upgrades and replacements of legacy infrastructure that may be less reliable. The CEC's current CALeVIP program currently allows for usage of funds for EVSE upgrades; this is a best practice that should be utilized in the CEC's successor light duty block grant programs. Additionally, the CEC should consider a one-off solicitation that designed to upgrade existing infrastructure. An example of this in another state is North Carolina, the North Carolina Department of Environmental Quality has created a funding program dedicated to upgrading existing sites.⁹

Conclusion

EVgo thanks the CEC for the opportunity to provide feedback as it studies EV charging uptime and reliability and monitors the progress of further action on reliability as related to active legislation. EVgo looks forward to continuing partnering with the state in order to deliver a fully electrified transportation sector.

Best,



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⁷ Vehicle Interoperability Testing Symposium (VOLTS), <https://www.energy.ca.gov/solicitations/2021-09/rfp-21-601-vehicle-interoperability-testing-symposium-volts>

⁸ EVgo Expands Innovation Platform with Opening of New Lab in Southern California, <https://www.evgo.com/press-release/evgo-expands-innovation-platform-opening-new-lab-southern-california/>

⁹ State of North Carolina Volkswagen Mitigation Plan Phase 2, Department of Environmental Quality, December 2021. <https://deg.nc.gov/media/26567/download?attachment>

