DOCKETED	
Docket Number:	22-EVI-04
Project Title:	Electric Vehicle Charging Infrastructure Reliability
TN #:	256387
Document Title:	Beam Global Comments on Revised EVSE Reliability Regulation
Description:	N/A
Filer:	System
Organization:	Beam Global
Submitter Role:	Public
Submission Date:	5/15/2024 11:38:45 AM
Docketed Date:	5/15/2024

Comment Received From: Beam Global
Submitted On: 5/15/2024
Docket Number: 22-EVI-04

Beam Global Comments on Revised EVSE Reliability Regulation

Additional submitted attachment is included below.

May 15, 2024
California Energy Commission
Docket Unit, MS-4
Docket No. 22-EVI-04
715 P Street
Sacramento, California 95814

RE: 22-EVI-04 – Electric Vehicle Charging Infrastructure Reliability

Beam Global is pleased to provide comments on the California Energy Commission's (CEC) Second Draft Reliability Regulation. Beam Global thanks the CEC for its work to provide reliable EV charging to the State.

Founded in 2006, Beam Global is a clean technology leader providing innovative, sustainable products and technologies for the electrification of transportation and energy resiliency. Beam produces sustainable Made-in-America patented products for electric vehicle (EV) charging, energy storage, and energy security.

Off-grid and powered 100% by renewable energy, the EV ARC™ is a rapidly deployed turnkey sustainable EV charging system requiring no construction, no electrical work, and no utility connection. On-board battery storage enables EVs to charge during the day and night, through inclement weather and grid outages, and the Emergency Power Panel can provide vital electricity during disasters and grid outages.

The CEC's Electric Vehicle Charging Infrastructure Reliability draft reports exclude off-grid EV chargers from reporting requirements. For the purposes of eligibility clarity on past and future solicitations that fund EV charging infrastructure using an incentive from a state agency, the CEC should consider including a downtime exclusion for off-grid, renewable charging infrastructure as part of the uptime calculation. Creating an additional exclusion for off-grid renewable charging infrastructure will establish clarity for California's cities and municipalities in their decisions to deploy renewable EV charging systems in state solicitations.

Exclusion language could state, "**Off-Grid, Renewable Charging Infrastructure:** Temporary pauses in electricity dispensed from the charging port to the vehicle due to insufficient renewable energy resource (wind, solar, hydro, etc.) is permitted as excluded downtime, so long as the infrastructure's hardware and software are both online and available for use, and the systems are recouping renewable energy for resumed use of charging port."

Consistent with the proposed definition of uptime, this language will ensure that the hardware and software of a 100% renewable energy EV charging system are both online and available for use, or in use, 97% of the time, but will not penalize a 100% renewable energy EV charging system for factors outside of the charging operators' control (i.e. lack of renewable resource). This proposed exclusion is comparable to the "Grid Power Loss" exclusion. Current exclusions allow charging operators to claim downtime when utility supplied power is not supplied at levels required for minimum function of the charging port. The same principle should be applied to renewable energy sources.

Solar off-grid EV charging systems utilize solar energy with on-board battery storage to power EV charging stations without traditional electrical grid infrastructure, allowing for a non-grid tied connection. Energy storage systems (batteries) are often one of solar EV charging systems' most important components. Accordingly, battery management systems are included in these technology solutions to prolong the lifespan of the batteries, improve performance, and ensure a long and reliable charging experience. Battery lifespans are shortened by frequent cycles of running capacity down to 0% and refilling up to 100%.

Solar off-grid EV charging systems are designed to maintain a minimum of ~20% capacity in the batteries, helping to ensure a good bill of health for prolonged usage. Once the batteries are drained down to a minimum threshold, it is normal for EV charging on the system to temporarily pause. This is done to protect the battery health while simultaneously allowing the system's essential hardware and software operating features, such as the system's sun-tracking technology, safety night light, and remote wireless cellular connection, among other functions, to remain active and functioning. Once the batteries have been replenished by solar energy, to a ~60% threshold on the system, EV charging resumes. If a charging session was commenced prior to reaching the battery cutoff, the session can automatically resume with no action needed from the system operator and/or user (i.e., driver).

Even in scenarios when the EV charging is temporarily paused as described above, all other core components on the system are actively working. This normal operation should qualify as a downtime exclusion. Off-grid systems that are highly utilized will occasionally experience batteries reaching the ~20% threshold, pausing the charging function. There should not be a penalty for high utilization rates on solar off-grid EV charging systems that utilize a finite amount of clean, renewable power.

California communities choosing off-grid, 100% renewable charging infrastructure should have the confidence and clarity needed to deploy these systems using funding from state solicitations. These use cases will have a lower carbon footprint, a greater speed to deployment, the ability to charge during grid outages, and enjoy EV charging at a lower total cost of ownership without drawing power from the grid. Creating an Off-Grid, Renewable Charging Infrastructure exclusion in the uptime calculation will help California meet its EV charging deployment goals on schedule and remove ambiguity on solicitations where California cities and municipalities are interested in deploying off-grid, 100% renewable energy EV charging infrastructure.

Thank you for your consideration,

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