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May 6, 2022

Barby Valentine
Zero-Emission Vehicle Hub Manager
Director's Office of Sustainability
California Department of Transportation
1120 N Street
Sacramento, CA 95814

Re: AMPLY Power Comments on the State of California's Plan for Implementing the Infrastructure Investment and Jobs Act's National Electric Vehicle Infrastructure Program

Dear Ms. Valentine,

AMPLY Power, Inc. (AMPLY) appreciates this opportunity to submit comments on the California Department of Transportation's plans for implementing the National Electric Vehicle Infrastructure (NEVI) Program included in the Infrastructure Investment and Jobs Act of 2021 (IIJA).

California has established the most ambitious zero-emission vehicle targets in the nation. AMPLY commends Governor Newsom for proposing the largest multi-year investment in electric vehicle (EV) charging infrastructure ever made in the State Budget. Even with this nation-leading investment, California will need longer-term funding that aligns with and advances the State's ambitious zero-emission vehicle goals.

AMPLY Power is a comprehensive electric vehicle charging and energy management provider for fleets operating trucks, buses, vans and other vehicles. As fleets continue to work to meet sustainability goals, AMPLY's fully managed solutions are cost effective and service-focused, reducing fuel costs by as much as 85 percent and making electrification easy for organizations of all sizes. For more information on AMPLY and our proprietary charge management system, OMEGA™ CMS, please visit our website, amplypower.com.

Recommendations

1. Include Fleet Charging in the California Department of Transportation's NEVI Plan

The electrification of high-mileage EV fleets offers California a cost-efficient opportunity for reducing emissions. Commercial fleet vehicles generally log far more miles than comparable passenger vehicles, and vehicles in the medium- and heavy-duty segments are among the highest emitting vehicles per mile.[1] Indeed, AMPLY's internal analysis indicates that for each 15-vehicle fleet, electrification can avoid as much as 2,000,000 kg of CO_2 emissions annually.[2]

[1] United States Department of Transportation Bureau of Transportation Statistics, *Estimated U.S. Average Vehicle Emissions Rates per Vehicle by Vehicle Type Using Gasoline and Diesel*, https://www.bts.gov/content/us-vehicle-miles. See also Krzysztof Zamasz, Jakub Stechly, Aleksandra Komorowska, Przemysław Kaszyński, *The Impact of Fleet Electrification on Carbon Emissions: A Case Study from Poland*, Energies, October 2021, https://www.mdpi.com/1996-1073/14/20/6595.
[2] "Managed Charging Accelerates Cost & Health Benefits of EVs," AMPLY Power, 2021, https://amplypower.com/whitepaper2021/.

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Further, fleet vehicle driving cycles and their concentration in depots allow for charging solutions that require less hardware investment per vehicle than what is needed for private EVs and lower overall charging costs. Managed fleet charging solutions also minimize grid impacts and offer the prospect of turning electrified fleets into grid assets. As the total cost of ownership for EVs continues to decline, the economics of fleet electrification are increasingly compelling.[3] This is especially true for state and municipal fleets.[4]

Fortunately, federal NEVI funding – while primarily targeted at passenger vehicles – can also be used to charge EV fleets. The IIJA explicitly states that NEVI funds may be used for projects "open to the general public ***or to authorized commercial motor vehicle operators from more than one company***."[5] [emphasis added]

In line with that statutory direction, NEVI program guidance released by the Federal Highway Administration (FHWA) February 10 reiterates this point. According to that document, if a state demonstrates that it has built out its designated Alternative Fuel Corridors, it may then use NEVI funds for, among other things, charging infrastructure that is "open to the general public ***or to authorized commercial motor vehicle operators from more than one company.***"[6] [emphasis added]

With that in mind **AMPLY urges the California Department of Transportation to make provisions for in-depot commercial fleet charging in its NEVI plan, including but not limited to, charging infrastructure for municipal fleets, ride hail vehicles, drayage trucks, and school buses.**

Should California include commercial fleet charging options along these lines in its plan, AMPLY will be among several companies eager to partner with state and local agencies to bring these charging depots into existence.

Further, as it considers how to incorporate fleet charging into its NEVI plan, AMPLY encourages California to think broadly about potential applications. Fleets come in a wide variety of use cases and business models. Each of them has unique duty cycle and charging requirements. Accordingly, AMPLY recommends that the California Department of Transportation's plan avoid prescriptive language regarding fleet charging in order to maximize its flexibility when faced with evolving business models.

2. Contract with Multiple Service Providers

When it comes to charging infrastructure, a competitive marketplace for Electric Vehicle Supply Equipment (EVSE), network operators, and energy management providers will deliver the best results

[3] See for instance, Sourcewell, *Public Fleet Electrification Guide*, Sourcewell, October 2021, http://image.email.sourcewell-mn.gov/lib/fe3e15707564047f7d1674/m/2/89c2e257-0568-4f17-9eb6-2f28a71d0a24.pdf; Lilly Paul and Maureen Marshall, *Not Just Smart: the Importance of Managed Charging*, CALSTART, December 2021, https://calstart.org/wp-content/uploads/2022/01/Managed-Charging-Paper-Final.pdf.

[4] Charles Satterfied, Nick Nigro, Eric Wood, Jim Jensen, Conner Smith, Ranjit Desai, Nicole Lepre, and Yanbo Ge, *Electrification Assessment of Public Vehicles in Washington*, Atlas Public Policy, November 2020, https://atlaspolicy.com/wp-content/uploads/2020/12/Electrification_Assessment_of_Public_Vehicles_in_Washington.pdf. See also Sarah Both, Jesse Bennett, Matthew Helm, Devin Arlold, Bridget Baker, Remmy Clay, Mary Till, and Ted Sears, *Impacts of Increasing Electrification State Fleet Operations and Charging Demand*, National Renewable Energy Laboratory, February 2022, https://www.nrel.gov/docs/fy22osti/81595.pdf.

[5] Pub.L 117-58, November 15, 2021, 995, https://www.congress.gov/117/plaws/publ58/PLAW-117publ58.pdf.

[6] Andrew C. Rodgers and Gloria M. Shepherd, "Information: the National Electric Vehicle Infrastructure (NEVI) Formula Program Guidance," U.S. Department of Transportation: Federal Highway Administration, February 19, 2022, 11, https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/nominations/90d_nevi_formula_program_guidance.pdf

for EV users. The California Department of Transportation's engagement with multiple procurement partners - rather than relying on a single company - will nurture that marketplace. Accordingly, we recommend that the California Department of Transportation partner with several different firms to carry out its NEVI plan instead of conducting a winner-takes-all procurement process.

3. Create Robust Uptime Data Reporting Requirements

The FHWA's February 10 NEVI program guidance recommends a minimum uptime requirement of 97 percent per charging station. It seems likely that its upcoming standards and requirements will reinforce this recommendation. With that in mind, AMPLY recommends that the California Department of Transportation build on its guidance as follows:

A. Institute an uptime data reporting requirement for its NEVI-funded investments. Specifically, AMPLY recommends requiring EVSE network operators to report uptime data at the individual charger level (versus site or network level) over a 12-month period for a minimum of five years. Network operators currently collect this data, which makes them the most efficient reporting entity for doing so. When it comes to chargers that can fuel multiple vehicles simultaneously, each charging port should be treated as a separate charger when calculating uptime. Failure to calculate uptime at the port level for these chargers will mask service failures.

B. The California Department of Transportation should instruct its relevant regulatory bodies to develop a standard reporting formula for calculating uptime, including a consistent reporting interval – either by the minute, 15-minutes, or hour. Inconsistent timescales can skew results.

C. Uptime data reporting exclusions should be limited to the following incidents:

   a. *Electricity grid and wireless network failures*: These exclusions should have a cumulative compliance time limit of no more than five percent of any twelve-month period (for example, charging companies could exclude 18.25 days of outages over a twelve-month period). Further, when calculating downtime, charging infrastructure should be counted as down whenever it is unable to communicate with its network provider.

   b. *Scheduled and planned maintenance.*

   c. *Catastrophic weather events*.

D. Require network operators to report their "excluded time," as noted above, with the appropriate categorization.

4. Require EVSE Procured with NEVI Funding to be Open Charge Point Protocol (OCPP) 1.6 Compliant

OCPP is an open-source communication standard for EV charging stations and network software companies. EVSE that is OCPP-compliant can run any similarly OCPP-based software. At a practical level that means the charger can be operated by a variety of network service providers and energy management companies.

By contrast, EVSE running on a non-OCPP, proprietary protocol may be permanently locked into a single network, eliminating competition and making the infrastructure owner a captive customer. If the purchaser of a non-OCPP compliant charger is unhappy with the service they receive from their network provider, their only option is to "rip and replace" the charger itself.

With that in mind, the California Department of Transportation should require EVSE procured with its NEVI funds to be independently verified as OCPP compliant. OCPP promotes competition, which spurs innovation and drives down costs. Competition also promotes better quality service, which translates into greater reliability and uptime – and a better overall customer experience.

5. Require Ten-Year Manufacturer Warranties for NEVI-funded EVSE

EVSE manufacturers generally offer no more than two-year warranties on their equipment. As a result, they pass along extensive – and often expensive – risks to their customers. In the case of NEVI program infrastructure, the California Department of Transportation is the customer. Extended warranties are necessary to ensure that EVSE purchased with NEVI funds remains operational throughout its anticipated minimum service time. Absent such a warranty requirement, California risks investing in stranded assets rather than reliable EV charging equipment.

6. Include Five Years of Operations and Maintenance (O&M) Costs in NEVI-Funded EVSE

The IIJA explicitly allows states to use NEVI funds to cover up to five years of O&M costs for program funded charging infrastructure. As with ten-year warranties, O&M funding is critical to extending the useful life of EVSE and ensuring that it is functioning at a high level whenever EV users need a charge.

When defining O&M, the California Department of Transportation's plan should include:

- Any licensing fees related to charger software and maintenance.
- Monitoring and data reporting costs.
- Regular and preventive maintenance, irrespective of warranty recommendations.

7. Streamline and Standardize Electric Distribution Upgrade and Interconnection Processes for EVSE

Interconnection and energization of charging infrastructure is typically a complex, one-off process that can take up to five years for a single site. This complexity creates uncertainty, raises costs, and discourages investment. To maximize the value of its NEVI investment, California should require its utilities to:

1. *Provide a Single Point of Contact per Customer Portfolio*: Utilities of all types should be required to assign a single project manager for each company's portfolio of charging

infrastructure projects within that utility's service territory. This project manager should be responsible for overseeing dedicated utility engineering and implementation resources across the developer's portfolio irrespective of project type, number, or region.

2. *Clearly Define Customer Requirements and Obligations*: Drawn out approval processes for standard gear, and unforeseen utility requirements and document sign offs can unnecessarily delay service upgrades. Establishing standard review processes and timelines for these matters and addressing them upfront will speed execution and reduce costs.

3. *Create a Dedicated New Service Request Process for EVSE Interconnection and Energization*: Utilities of all types should be required to create a new service request process available for EVSE interconnection and energization. That process may incorporate standard engineering review processes but should also include a threshold of installed EVSE capacity (e.g., 500 kW) below which sites would be exempt from engineering reviews absent separate complicating factors.

4. *Standardize Utility Turnaround Timelines*: Utilities of all types should be required to complete service upgrades and/or interconnection requests within six months of receiving a complete application, absent exigent circumstances.

5. *Automated or Adaptive Load Management ("ALM")*: Utilities of all types should be required to allow third-party ALM solutions to manage coincident EVSE load, which in turn will reduce the required infrastructure investment. ALM refers to load management technologies that allow a ratepayer to safely install more charging capacity than the rated capacity of their connection. The application of these technologies reduces the need for utility-side system upgrades.

Thank you for your thoughtful consideration of our recommendations. Again, AMPLY appreciates this opportunity to submit comments related to the California Department of Transportation's implementation of the federal NEVI Program. We stand ready to work with you to develop and implement your plans. Please do not hesitate to contact us.

Sincerely,

/s/ Vic Shao

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