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ABB E-mobility Comments on NEVI Pre-Solicitation Joint Workshop

Additional submitted attachment is included below.

September 28, 2022

California Energy Commission and California Department of Transportation
715 P Street
Sacramento, CA 95814

Re: 22-EVI-05 National Electric Vehicle Infrastructure Funding Program

Dear California Energy Commission and Caltrans Staff:

ABB E-mobility appreciates the opportunity to provide the following comments to the California Energy Commission (CEC) and the California Department of Transportation (Caltrans) in response to Docket No. 22-EVI-05: National Electric Vehicle Infrastructure Funding Program as it relates to the state's proposed NEVI solicitation.

ABB E-Mobility is a division of ABB, which has nearly 20,000 employees in the US across 40 manufacturing facilities in dozens of states. ABB has proudly been providing electrification and automation technology and equipment in the US for over 100 years.

ABB E-mobility has been manufacturing EV chargers for the US market for over a decade and is the leading manufacturer of electric vehicle chargers globally, having sold 680,000 electric vehicle chargers, including 30,000 direct current fast chargers (DCFC). To expand our ability to meet the needs of the US market, ABB E-mobility recently announced an expansion of its US manufacturing operations to increase production of DCFC, including Buy America compliant DCFC. The new facility will be capable of producing up to 10,000 chargers per year, ranging from 20kW to 180kW in power, which are ideally suited for public charging, school buses, and fleets.

ABB provides charging technology to owners and operators of charging equipment across the transportation sector including public charging networks, transit bus operators, electric utilities, auto dealerships, auto manufacturers, shipping and logistics fleets, commercial fleets, and more. As a long-time member of the e-mobility industry, ABB is actively involved in developing not only charging technology, but also industry-wide standards for both hardware and software interoperability.

With ABB's focus is on developing, manufacturing, and delivering innovative and reliable charging technologies to the market, ABB does not own or operate chargers available to the public. ABB primarily provides charging owners and operators with the technology needed to deliver seamless and high-quality charging experiences. As part of that commitment, ABB has a robust service and maintenance operation providing 24/7/365 monitoring, troubleshooting, and repair services for ABB chargers in the field.

Figure 1. Examples of ABB EV Chargers in the field

In reviewing the information shared during the pre-solicitation workshop sessions, ABB E-mobility would like to provide the following comments for staff consideration:

Definition of an "experienced" charging network provider

In reviewing which entities will be considered eligible applicants for the NEVI funds, the CEC and Caltrans proposed a requirement that the project team must include an "experienced" charging network, as defined as follows:

> *"A company or organization with a proven track record of overseeing the procurement, permitting, installation and maintenance of at least twenty fast chargers at three or more different property locations, and for three or more different customers in California since January 2018."*

ABB agrees that responsible, responsive, and experienced network operators are integral to delivering high quality charging experiences. This is particularly challenging, however, because the industry is relatively nascent with only a few network operators that have been in operations since 2018. Yet, longevity is not the only indicator of delivering quality charging experiences. Further, the charging market is evolving rapidly, both in technology and business models. Restricting charging deployments to a limited number of existing players and business models limits the ability of EV charging to innovate, scale, and reach ubiquity, while delivering ever improving charging experiences.

As the industry works toward making high-quality charging ubiquitous, ABB encourages CEC and Caltrans to work to ensure that all charging providers, including new entrants, deliver high-quality EV charging experiences. One way to do that is to require that applicants include experienced partners in their development and deployment plans. Doing so, allows new entrants to learn best practices while fostering growth of a charging network ecosystem capable of delivering high quality charging experiences. Allowing new market entrants and business models also encourages innovation in technology, charging experiences, cost, and more.

As an alternative, ABB proposes the following revised definition for consideration by the CEC and Caltrans:

> "*The project team must collectively demonstrate a proven track record of overseeing the procurement, permitting, installation and maintenance of at least twenty DC fast chargers, at three or more different property locations within the United States, with at least one of those locations being in California."*

The proposed definition prioritizes the need for charging experience among a project team and suggests a charging technology metric to ensure that the project team has experience with high power public charging across multiple sites. It also allows for some team experience to be gathered outside of California while still ensuring that there is familiarity with the permitting processes within the state.

ABB E-mobility believes delivering high-quality charging experiences, at scale, requires a multitude of charging operators and business models. These proposed changes attempt to strike the balance between experience and the recognition that the industry needs to scale up significantly if we are to reach ubiquity of charging.

Application evaluation and scoring

In addition to the current proposed scoring criteria categories, ABB recommends the addition of a "Service & Maintenance" category. This category should assess the applicant's ability to meet the operational requirements of a 97% uptime and the robustness of their 5-year operations and maintenance plan.

To achieve 97% uptime per port, a charging operator must implement a well-developed and well-resourced service and maintenance program. The key attributes of a credible and successful service and maintenance program are not a mystery and include tried and true features that are executed well. Here are some examples of the proven techniques that ensure reliability:

- 24/7/365 connectivity and monitoring of the operations of chargers
- 24/7/365 service call center to receive service or repair requests
- Service ticketing, escalation, and tracking process

- Scheduled preventative maintenance
- Detailed documentation and procedures to troubleshoot and repair chargers
- Knowledgeable technicians trained to work on the make and model of charger they operate
- Sufficient number of knowledgeable technicians in the proximate geographic regions of the chargers
- Capability to execute detailed service campaigns hand in hand between owner, operator, and manufacturer
- Sufficient local inventory of spare parts and logistics infrastructure

Without the basic capabilities listed here, achieving 97% uptime per port would be elusive. For example, if an operator does not have a process and staff to remotely monitor chargers and manage reports of charging failures, they cannot know there is a problem within 24-48 hrs. Without sufficient trained technicians located in the geographic region where the chargers are, it is difficult to dispatch a repair crew to a charger within a few days. If an operator does not have sufficient inventory of spare parts for common failures, it could take weeks to order a part, receive it, and install it; particularly during a time of global supply chain constraints.

We strongly encourage the CEC and Caltrans to require the submission of credible maintenance and service programs, which should demonstrate these key attributes and be well-resourced.

Service Level Agreements

Any credible maintenance and service program or plan should provide evidence of an agreement, like a service level agreement (SLA), with the charger original equipment manufacturer (OEM) to provide needed support. This evidence can take many forms, for example, the charging owner, operator, or OCPP network provider could:

(1) be trained and certified by the charger OEM to provide the needed service and maintenance; or
(2) contract with a third-party service provider that is trained and certified by the charger OEM; or
(3) contract directly with the charger OEM.

There are a few reasons why SLAs with charging manufacturers are important to maintain reliability. First, diagnosing and repairing many issues or charger failures often require charging manufacturers to take an action that cannot be performed by the charging owner, operator, or OCPP network provider. An SLA sets an agreed process and procedure for providing that support.

Second, while charger OEMs provide standard warranties for parts and labor for a period of time, an SLA between the charger OEM and the charging owner, operator, or OCPP network provider fills a few important gaps:

(1) Warranties cover manufacturing defects, not replacements of consumable parts, like cables and connectors which are subject to significant wear and tear;
(2) SLAs set a process and expedited timeline for fixing warranty parts and non-warranty parts;
(3) SLAs allow OEMs and operators to plan for the resources needed to perform maintenance;
(4) SLAs set a framework for repairing issues beyond the warranty period and up to the full useful life of a charger;
(5) SLAs set a schedule for preventative maintenance, ensuring higher uptime.

Third, an SLA helps ensure that repairs to chargers are maintained in compliance with manufacturer requirements and performed by trained technicians. Because chargers are complex infrastructure, repairs performed by technicians who are not trained or certified by the charger OEM can void a warranty or lead to significant new problems down the road.

Requiring SLAs with charger OEMs helps make 97% or greater uptime achievable and ensures resources are available to quickly diagnose and resolve problems, resulting in enhanced customer satisfaction for EV drivers in California. The “Service & Maintenance” category will allow for the state to accurately assess applicant’s ability to meet the planned operational requirements.

Open Charge Point Protocol (OCPP)

ABB supports the focus on interoperability between vehicle and charger (CCS1) and charger to “network” (OCPP). OCPP is the most widely implemented protocol for managing a back-end charging network and we support its use across the public charging sector. All ABB charging products are OCPP-ready and we support the requirement that all chargers use OCPP as the basis for the back-end charger network. However, we caution against requiring implementation of OCPP 2.0.1 at this time because the EV charging ecosystem, including charging OEMs, owners and operators, and OCPP network providers, has not widely adopted it yet.

Practically, most of the features available in version 2.0.1 are implemented and available via version 1.6 and its various extensions. Because the differences between the two versions are not significant, industry has been slow to adopt version 2.0.1.

Requiring OCPP 2.0.1 at this time will severely limit the participation and competition in California EV charging programs, like NEVI, because most charging equipment, charging owners and operators, and OCPP network providers have not adopted version 2.0.1. This

will lead to less choice, inability to meet the goals of the program, and poor driver experience. Requiring OCPP 2.0.1 may also make achieving 97% uptime difficult because its implementation in the field is untested.

The most widely adopted version of OCPP is version 1.6 and a vibrant, experienced, and reliable ecosystem has proliferated around it. If California feels compelled to specify a version, we'd encourage it to select version 1.6 and allow the EV charging ecosystem time to implement, test, and ultimately transition to version 2.0.1

350A dispenser

ABB recommends prioritizing the ability of the charger to deliver the minimum of 150kW of power and cautions against being too prescriptive on the amperage of the dispenser. Amperage ratings on dispensers do not necessarily follow a universal nomenclature nor are they the singular determining factor in delivering power. California should allow flexibility in dispenser technology to allow for continued innovation in the market and not lock drivers into particular charger component technology choices.

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Thank you for the opportunity to provide comments on the proposed NEVI solicitation. ABB shares California's commitment to electrifying the transportation sector and creating US jobs and economic growth in the process.

If you have any questions or want to discuss any of these topics further, please do not hesitate to reach out to Alex Ehrett, Public Policy & Market Development Manager, at alex.ehrett@us.abb.com.

Respectfully submitted,

Alex Ehrett
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ABB E-Mobility