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18-TRAN-01 SB 114 Funding Available for Zero Emission School Buses and Infrastructure

Additional submitted attachment is included below.

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California Energy Commission
715 P Street
Sacramento, CA 95814
By Email

RE: 18 -TRAN - 01 SB 114 Funding Available for Zero Emission School Buses and Infrastructure (ZESBI)

Dear CEC Commissioners and Staff,

BorgWarner has been manufacturing vehicle propulsion products in the United States for over 130 years. The company's world headquarters is in Auburn Hills, Michigan, and we employ over 6,000 people in 20 facilities in nine U.S. states, including R&D centers in California, Indiana, Michigan, New York, and North Carolina. Our products improve vehicle performance, propulsion efficiency, and air quality. We manufacture and sell technologies and systems solutions worldwide, primarily to original equipment manufacturers of passenger cars, SUVs, vans, and light trucks, as well as commercial vehicles, off-highway vehicles, and the aftermarket. We are an original equipment supplier to nearly every major automotive original equipment manufacturer in the world and operate manufacturing facilities, serving customers in Europe, the Americas, and Asia. BorgWarner's Direct Current Fast Chargers (DCFCs) are developed at our technical center in San Diego, California and manufactured in Dearborn, Michigan.

We appreciate this opportunity to offer our input on 18 -TRAN - 01 SB 114 Funding Available for Zero Emission School Buses and Infrastructure (ZESBI). We believe CARB and CEC can make a positive impact on grid resiliency and sustainability with this deployment – in addition to transforming the school bus fleet – and help advance California's zero emissions energy goals. We are pleased to see the inclusion of DCFCs and bidirectional chargers in the funding of California's school bus electrification programs and offer the following recommendations:

- 1. Require proven real-world interoperability between vehicle, charger and software platforms:** Bidirectional Vehicle-to-Grid (V2G) vehicles and chargers are becoming more widely available. But bidirectional capability does not in itself guarantee interoperability or readiness to charge and discharge energy in a real-world setting. Successful V2G installations are integrated

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solutions that require a bidirectional capable vehicle to interact with a bidirectional capable charger under the control of a production software platform to successfully discharge from the vehicle to the grid. A vehicle can be “bidirectional capable,” but if it is unable to send and receive commands in coordination with a charger and software platform, then V2G cannot be executed. Therefore, the ZESBI program should require electric vehicle supply equipment (EVSE) vendors to demonstrate successful interoperability. We recommend EVSE vendors provide interval data for three one-hour charge and discharge sessions. Each session would show charge and discharge performance and use the same bidirectional vehicle, bidirectional charger, and software identified in the Local Educational Agency’s (LEA) application. This requirement will ensure that LEAs select machinery that can deliver the expected bidirectional functionality and support the CEC’s goals in the program.

2. **Require UL-1741 SA certification for chargers and establish a preference for UL-1741 SB-certified chargers:** UL-certified inverters and bidirectional electric vehicle supply equipment (EVSE) comply with utility industry standards and provide consistency, quality, and safety when exporting power. Chargers that have a UL Certificate of Compliance have passed a series of rigorous tests and the manufacturer meets the required standards. UL certification also offers efficiency, standardization, and safety for the individuals responsible for installation and maintenance of EVSE. ZESBI awards should apply a higher scoring weight for chargers that are UL-1741 SB certified because this accelerates adoption of the most advanced bidirectional charging technologies.

3. **Prioritize deployment of DCFCs to futureproof vehicle and infrastructure investments and promote site readiness for bidirectional DCFCs:** We appreciate ZESBI’s support and focus on DCFC and bidirectional chargers. While Level 2 (L2) charging plays an important role in many use cases, such as at-home and workplace charging for light-duty passenger vehicles, school bus fleet operations need DCFCs to encourage EV bus adoption. DCFCs bring significant benefits to school fleet applications:
 - a. Schools can avoid future duplicative infrastructure costs and maximize the value of today’s investments if they incorporate DCFCs in their electrification plans now. Installing DCFCs at the outset is cost efficient because it avoids having to redesign, replace lower power chargers, or rebuild a site in the future as higher power machinery increasingly becomes the norm.
 - b. Vehicle batteries are quickly improving in size, chemistry, energy density, and efficiency in order to enhance operating flexibility and increase EV range. As school bus OEMs incorporate larger batteries into their vehicles, these vehicles will need faster charging speed and more kilowatt power.
 - c. DCFCs enable LEAs to diversify their charger portfolio and benefit from the operational flexibility afforded by fast chargers. Higher rates of charge and discharge enhance a fleet operator’s flexibility to manage operational contingencies. For example, bus fleets will encounter unforeseen issues such as user error or short-term grid outages, which could render a school bus unavailable to perform. DCFCs are indispensable in these situations because the vehicle can be rapidly charged by a DCFC and quickly placed back into service.

4. **Align California IOU's transportation electrification and medium-and-heavy duty make-ready programs with ZESBI program goals of increasing DCFC and bidirectional charger deployment:** CEC should mandate that IOUs provide make-ready support to any projects that receive a ZESBI award. School bus fleet customers are increasingly interested in electric vehicles and innovative solutions that maximize the value of their investments by supporting the power grid. Purchasing decisions, however, often default to low-powered, unidirectional charging solutions. It appears that existing make-ready programs favor L2 charging solutions to maximize the number of ports installed. DCFC and bidirectional projects, by contrast, face two obstacles. First, they cost more on a per port basis. This is a significant barrier to their adoption since make-ready funding is premised on maximizing port count irrespective of power level or other features. Second, although port count is central to make-ready programs, DCFCs equipped with multiple dispensers are not funded differently from those with a single dispenser. The per port cost of multi-dispenser chargers that are available today are similar in cost to a L2 with a single port. Make ready programs, however, do not account for these advancements in DCFC design. Without more intentional alignment between the CEC and IOUs on make-ready funding, California's EV network could become a system of predominantly low power, unidirectional L2 chargers and miss the opportunity to futureproof with the leading DCFC technologies. We recommend CARB and CEC:
 - a. **Coordinate IOU and CEC funding program goals:** CEC and IOUs share the same ambition for school bus electrification. Therefore, they should develop state goals and program milestones to implement a minimum of 50% of ZESBI awards as V2G DCFC. There should also be an annual review process through the development of the Low Carbon Transportation Funding Plan and Clean Transportation Investment Plan to assess and adjust allocations within the program.
 - b. **Create a set-aside, needs-based "DCFC infrastructure project closing fund" within the ZESBI program:** This fund would provide flexibility and agility to address unforeseen project barriers and mitigate gaps in funding. While we are pleased to see that ZESBI's proposed eligible infrastructure costs include "site upgrades (transformers, breakers, stub outs), project management, site design, and technical assistance," we have encountered unforeseen site-specific issues that make-ready programs do not cover and that can derail a project. A flexible "closing fund" that addresses "to-the-meter" and "behind-the-meter" costs will ensure the full implementation of DCFC and DCFC V2G charging solutions.
5. **Clarify "Bi-directional" Charger Type as "DCFC Bidirectional" in Proposed Infrastructure Award Amounts¹:** For charging infrastructure awards, the program considers L2, DCFC, and bidirectional charger types. The bidirectional category needs to clarify that these chargers must be DCFC to qualify for the bidirectional award amount. The only commercially available V2G chargers in the U.S. today are DCFCs. L2 bidirectional chargers are still in development. More significantly, DCFCs allow for discharge rates that are multiple times faster than L2 chargers. The ability to discharge quickly is critical for efficiently managing peak demand and during time-sensitive and emergency events, such as providing backup power during an outage, public safety power shutoffs, or during natural disasters. As EV adoption accelerates, this technology becomes essential to support increased electricity demand.

- 6. Allow third-party transportation service providers that have explicit permission from LEAs to submit ZESBI applications and receive funding on their behalf:** The program should remove barriers for LEAs that want to upgrade to zero emission school buses. The currently proposed program indicates that third-party transportation organizations are not included in the definition of LEAs and are not eligible to apply for the grants. Applying for grant funding is time-consuming and complicated, especially for already capacity-constrained school superintendents and transportation directors that are now tasked with transforming their fleets. Throughout the U.S., third-party transportation organizations and Transportation as a Service (TaaS) providers, play a critical role in helping schools successfully implement clean school bus programs by bringing considerable experience in installing and monetizing V2G services for the benefit of school district customers. TaaS providers assist school districts with value-added solutions that address key obstacles, including finding and applying for project funding. At a minimum, third-party transportation organizations should be permitted to complete applications on behalf of a consenting LEA. **BorgWarner supports and encourages the State to adopt the changes proposed in Assemblymember Garcia’s AB 2480 legislation, which proposes adding private contractors to the definition of LEAs.**

Bidirectional V2G is an increasingly important capability as EVs are adopted at scale to support power flow to and from the grid and allow integration with power storage and non-grid renewable power resources. BorgWarner appreciates the opportunity to provide input on the implementation of the ZESBI program. We look forward to continuing to work with CEC and CARB to drive commercialization of charging technologies and infrastructure.

Sincerely,

DocuSigned by:
William W. Kregel
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ⁱ Slide 31 and 32. Work Group #2 to Discuss the SB 114 Grants for Zero-Emission School Buses and Infrastructure. April 3, 2024.