



September 27, 2021

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**Re: 45-Day Comment Period for the 2021 California Green Building Standards Code Adoption**

The Electric Vehicle Charging Association (EVCA)<sup>1</sup>, California Electric Transportation Coalition (CalETC)<sup>2</sup>, CALSTART<sup>3</sup>, Tesla<sup>4</sup>, and the Alliance for Automotive Innovation<sup>5</sup> respectfully submit the following comments regarding both the Building Standards Commission (BSC) and Department of Housing and Community Development's (HCD) proposed California Green Building Standards Code (CALGreen) amendments for electric vehicle (EV) charging, as outlined in the revised Express Terms for the 2021 Triennial Code Adoption Cycle.

We appreciate the extensive work of BSC, HCD, California Air Resources Board (CARB), and the various supporting agencies in developing these code proposals with stakeholders. This coalition has been active throughout the 2021 CALGreen Code cycle by providing input at stakeholder working sessions and multiple written comments. As outlined in previous comments, California has a long way to go to meet our ZEV and charging goals, as well as the air quality and climate change targets underpinning these goals. EV-ready building codes, both for residential and non-residential buildings, are a powerful and important public

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<sup>1</sup> EVCA is a non-profit trade association representing twelve electric vehicle service providers (EVSPs), software and equipment manufacturers, autonomous fleet operators, and installation and maintenance providers.

<sup>2</sup> CalETC is a non-profit trade association committed to the successful introduction and large-scale deployment of all forms of electric transportation.

<sup>3</sup> CALSTART is a nationally and internationally recognized clean transportation nonprofit founded over 25 years ago.

<sup>4</sup> Tesla is an American manufacturer of advanced electric vehicles and battery energy storage systems with the mission to accelerate the world's transition to sustainable energy.

<sup>5</sup> The Alliance for Automotive Innovation members include vehicle manufacturers that produce about 95% of the new vehicle sold in California, in addition to original equipment suppliers, technology companies, and other automotive-related companies and trade associations. <http://www.autosinnovate.org>

policy tool that state and local jurisdictions must use to reduce the cost of and increase the ease of access to EV charging for all Californians. We offer the following comments on the 2021 CALGreen proposed revised Express Terms for both nonresidential and residential buildings.

**I. We continue to strongly support the proposed increases to EV-capable, EV-ready, and EV Supply Equipment (EVSE) installed for both residential and non-residential building codes, while acknowledging the need for more.**

BSC's proposed mandatory non-residential building codes of 20% EV-capable and 5% EVSE installed are an essential next step in providing new non-residential buildings, such as grocery stores and shopping malls, the necessary direction to prepare for EVs and avoid costly retrofits. In future code cycles, we recommend that BSC continue to significantly expand EV-ready requirements to lower installation costs and accelerate EVSE installation for the millions of EVs that will be on the road by 2030.

HCD's proposed mandatory residential building codes for multi-unit dwellings (MUDs) are vital to providing more equitable EV charging access to Californians, regardless of dwelling type. Solving the challenge of enabling charging access at home in MUDs is key to achieving wide-spread, mass-market adoption of EVs and to reduce the cost of installing EV charging. HCD's proposed mandatory codes for new MUDs of 10% EV-capable, 25% EV-ready, and 5% EVSE are an important first step. However, to meet California's near-term EV goals and to adequately future proof for an equitable transition away from internal combustion engine vehicles, all parking spaces in MUDs will need access to EV charging. We recommend continued ambition in this and future code iterations, including intervening code cycles, to increase these requirements to expand access to EVs for all Californians. We also recommend that safety be a consideration when using receptacles for EV charging, particularly for exposed outdoor areas.

**II. We support establishing minimum power levels, however EV-ready requirements in new MUDs must not be restricted to provide only minimum power levels.**

We support HCD's proposal for new multifamily dwellings, hotels, and motels with new residential parking facilities. HCD's proposal for a minimum of low-power Level 2 with a 208/240-volt 16-amp branch circuit would provide around 10-15 miles of range in an hour and roughly 100 miles in a workday or overnight. Low-power Level 2 may be adequate for some drivers and inadequate for others depending on vehicle type, driving needs, and alternative access to charging. Generally, we support proposed EV-capable and EV-ready

codes that require 208/240 volt and a minimum of 40-amp circuits, while providing flexibility to allow for low-power Level 2 charging if desired and appropriate.

Importantly, HCD's proposal for EV-ready requirements for new MUDs as well as both Tier 1 and Tier 2 requirements, as written, would require low-power Level 2, instead of establishing it as a floor, which would allow developers to choose to provide higher power levels if desired and appropriate. We strongly recommend that a small, but impactful revision be added for new MUD requirements and Tier 1 and Tier 2 codes, as outlined in the redline below and in Attachment 1. This change allows for the flexibility to provide traditional Level 2 charging, which is desired by most EV drivers, while establishing a floor of low-power Level 2 as we believe HCD intended.

2. **EV Ready.** Twenty-five (25) percent of the total number of parking spaces shall be equipped with a minimum of low power Level 2 EV charging receptacles. For multifamily parking facilities, no more than one receptacle is required per dwelling unit when more than one parking space is provided for use by a single dwelling unit.

### **III. We generally support the definition of Automatic Load Management Systems (ALMS) as well as the flexibility and limitations established.**

The definition of ALMS, outlined in both BSC and HCD code proposals, accurately defines the technology use while providing enough room for future technology evolution. ALMS is already allowed under California Electrical Code Article 25<sup>6</sup> and is a developing technology that will be an important tool for managing charging with high levels of EV penetration. We recommend BSC and HCD work with ALMS manufacturers, a safety standards organization such as Underwriters Laboratories (UL), and relevant stakeholders to develop a standard listing of certified ALMS systems in order to facilitate local jurisdictions in their review of ALMS design and installation.

For new commercial buildings, the proposed code would allow use of ALMS while requiring that a minimum of 30 amps be provided to a single EVSE and a minimum of 3.3kW while simultaneously charging multiple EVs. For new residential buildings, HCD's proposal to allow ALMS after minimum requirements are met, with at least 3.3kW per EV charging space and a capacity of no less than 30 amps per installed EVSE is prudent and ensures adequate power levels for residential EV drivers. These minimum floors are important to ensure sufficient charging access while the EV market grows. Less than low-power Level 2, or less than HCD's proposed 3.3 kW insufficiently serves EV drivers.

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<sup>6</sup> [https://up.codes/viewer\\_export/juris\\_key/california/pub/california\\_electric\\_code\\_2019/ref/625](https://up.codes/viewer_export/juris_key/california/pub/california_electric_code_2019/ref/625)

**IV. 10% EV-capable in existing residential buildings is a critical first step and we recommend considering expanded triggers for both existing residential and commercial buildings.**

We strongly support HCD's proposal to trigger a 10% EV-capable requirement when existing residential buildings undergo additions and alterations that require a building permit for work at the parking facility. HCD's proposal is a critical first step in reducing the cost and expanding access to charging at existing residential buildings, which make up the vast majority of the housing stock in California today. Given HCD's expressed statutory limitations, these proposals for existing buildings are narrow and limited to a small segment of existing buildings and potential alterations. EV-readiness for existing residential buildings must be ultimately expanded to incorporate a broader range of the housing stock in California, which will need to be electrified to support EV charging. This may include expanding the current trigger for a building permit to also include work that requires an electrical permit. Additionally, electrical retrofits that occur outside of the parking facility may also warrant being included in these triggers because a building's electrical upgrade may result in or provide the opportunity to expand panel capacity that is capable of supporting EV charging or reducing the make ready costs for future EV charging. We strongly recommend that these options, among others that will reduce costs by installing infrastructure at the time of significant alterations, be evaluated in future code making cycles.

Relatedly, the proposed EV-capable codes for existing buildings are limited to residential buildings, MUDs specifically. Existing commercial buildings and associated parking structures frequently go through retrofits and renovations and should equally be considered for EV-capable requirements. We strongly recommend BSC consider similar requirements for existing non-residential buildings in this and future code cycles. If limited statutory authority is determined, the agencies should explore avenues to expand necessary authority outside of the code making process.

**V. We support the Direct Current Fast Charging (DCFC) compliance pathway that provides new non-residential buildings the option to meet compliance with charging that mirrors dwell times, and request reconsideration of the one Level 2 EVSE requirement.**

Depending on the type of non-residential building and the typical dwell time a vehicle is parked, a higher power level for charging beyond a standard Level 2 charger may be most beneficial. BSC's proposed DCFC compliance pathway would allow new non-residential buildings the option to meet EV-capable and EVSE compliance either through Level 2 or DCFC. A DCFC compliance option is important as it provides building owners with the incentive to go beyond minimum EVSE requirements and the flexibility to install the level of

EV charging, either Level 2 or DCFC, that best fits customer needs. This flexibility also results in a more efficient use of state and private infrastructure investment given more optimal charging station usage based on driver dwell times.

As proposed, BSC would allow non-residential buildings if desired due to short dwell times, such as grocery stores, the ability to use a DCFC compliance ratio of 5:1 EVSE installed if minimum requirements are met and at least one Level 2 EVSE is installed. While we support the proposed compliance pathway, we encourage further evaluation on the necessity of the Level 2 minimum requirement for a few key reasons. Primarily, requiring Level 2 charging in a location with short dwell times where DCFC is most appropriate is counter to the intent of this compliance pathway option and results in added complexity for building owners. Additionally, as many DCFC EVSE providers provide only DCFC, this requirement would, in some cases, require multiple EVSE providers to partner to satisfy the DCFC *and* one Level 2 EVSE requirement. Finally, since DCFC can serve significantly more EVs per day than Level 2, requiring one of the parking stalls to be Level 2 significantly diminishes the benefits of the make ready infrastructure cost investment to support the greatest number of EVs possible. As such, we encourage BSC to consider allowing flexibility to waive the Level 2 requirement for non-residential buildings where average dwell times are expected to be less than two hours.

Additionally, in order to ensure the alternative compliance provision has its intended effect, we encourage the code to define DCFC as EVSE with a minimum power capability of 50 kW or above, as is the widely understood definition of DCFC in the industry today. This definition will avoid blurring the line between Level 2 charging and DCFC at lower power levels.

**VI. We support the BSC’s intent to encourage medium- and heavy-duty vehicle (MHDV) charging and recommend further study and coordination to ensure effectiveness.**

Given the nascent stage of the MHDV market and the incredible diversity of vehicle types and vocations, there is a lot to still be learned and observed regarding private and public MHDV charging infrastructure. Many MHDVs today rely primarily on depot charging, with some “opportunity charging” along routes. As the market develops, we will learn more about MHDV charging trends and use requirements to best design policy solutions to support these vehicle needs. We support the intent of BSC’s proposal for MHDV charging requirements and recommend that BSC continue to collaborate with CARB, utilities, fleets, and other stakeholders to further develop these requirements in future code cycles. This should be informed by and coordinated with the development of CARB’s Advanced Clean Fleets rulemaking and fleet data collected by CARB under Advanced Clean Trucks. We support the provisions intention to reduce the costs of future EVSE installation to support MHDVs,

however, the additional capacity required for raceway, busway, transformer, and panel capacity is low compared to the expected power requirements of many medium-and heavy-duty vehicles who will use off-street loading docks. We are concerned that the codes could result in the requirement of make ready infrastructure that is undersized and underutilized by MHDVs.

Furthermore, the usage patterns for MHDVs and associated charging are varied from the typical usage for light-duty passenger EVs that CALGreen EV-ready codes have historically been designed to support. MHDVs will predominately operate as fleet vehicles and have specific duty cycles and desired domicile locations depending on fleet operations. As such, a one-size-fits-all approach will not be the best way to support MHDV charging. Therefore, we recommend that BSC continue to coordinate with CARB and stakeholders, by holding MHDV specific workgroup meetings on targeted fleet types and vocations, and potentially coordinating with the California Energy Commission and the Lawrence Berkeley National Lab to study the MHDV charging market, so that these code provisions can be amended appropriately in future triennial and intervening code cycles.

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Sincerely,

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