

Date of Hearing: April 20, 2022

ASSEMBLY COMMITTEE ON UTILITIES AND ENERGY

Eduardo Garcia, Chair

AB 2075 (Ting) – As Introduced February 14, 2022

SUBJECT: Energy: electric vehicle charging standards

SUMMARY: Directs the California Energy Commission (CEC) to adopt, by regulation, electric vehicle (EV) charging standards to be incorporated into other building design and construction standards and submit them to the California Building Standards Commission (BSC) for adoption in the California Building Standards Code. Specifically, **this bill:**

- 1) Directs the CEC to adopt, by regulation, EV charging standards that
 - a. consider costs,
 - b. seek to manage energy loads to help maintain electrical grid reliability,
 - c. ensure the standards are consistent with California's EV charging goals,
 - d. and consider the appropriateness of applying the standards to retrofits of existing buildings
- 2) Directs the CEC to update the EV charging standards in alignment with the updates to Title 24 of the California Code of Regulations and adopt any revision that the CEC deems necessary.
- 3) Directs the CEC to submit the revision to the BSC.
- 4) Requires the BSC to approve the EV charging standards submitted by the CEC, including updates and revisions to those standards, and incorporate the standards into the California Building Code.

EXISTING LAW:

- 1) Establishes the California Building Standards Code as Title 24 of the California Code of Regulations. (Health and Safety Code § 18902)
- 2) Establishes a coordinating council in the office of the executive director of the BSC consisting of representatives appointed by the Directors of multiple state agencies, including the Director of Housing and Community Development (HCD) and the Executive Director of the CEC. The council is responsible for assisting state agencies in proposing and/or adopting building standards, assisting in the elimination of conflicts between proposed building standards with existing building standards, and drafting proposed building standards. (Health and Safety Code § 18926)
- 3) Requires that any building standard adopted or proposed by state agencies to be submitted to, and approved or adopted by, BSC prior to codification. Requires the submitted building standards be accompanied by an analysis which shall, to the satisfaction of BSC, justify the approval of the standards in terms of specified criteria. (Health and Safety Code § 18930)

- 4) Gives the BSC the authority to adopt, approve, codify, update, and publish green building standards for occupancies for which no state agency has the authority or expertise to propose green building standards applicable to a particular occupancy. (Health and Safety Code § 18930.5(a))
- 5) Requires the BSC and other state agencies that propose green building standards to allow for input by other state agencies that have expertise in green building subject areas. The input shall be submitted via a process adopted as administrative regulations in Part 1 of Title 24 of the California Code of Regulations. (Health and Safety Code § 18930.5(b))
- 6) Directs the HCD to propose, and requires the BSC to adopt, approve, codify, and publish, mandatory building standards for the installation of future EV charging infrastructure for parking spaces in multifamily dwellings. Requires the BSC to adopt, approve, codify, and publish such standards for parking spaces in nonresidential development. Requires HCD and BSC to actively consult with interested parties in proposing and adopting such standards. (Health and Safety Code § 18941.10)
- 7) Requires the CEC, working with the Air Resources Board and the Public Utilities Commission, to prepare a statewide assessment of the EV charging infrastructure needed to support the levels of EV adoption required to meet the state's zero-emission vehicle and GHG goals, including existing and future infrastructure needs. (Public Resources Code § 25229)
- 8) Requires the CEC, in coordination with HCD, BSC, and other state agencies, to gather or develop, and publish guidance and best practices to help relevant parties overcome barriers to installation of EV charging equipment including the development of whole building electrification plans to help prepare for future additions of electrical equipment such as EV charging stations. (Public Resources Code § 25233.5)
- 9) Directs the CEC to prescribe, by regulation, building design and construction standards that increase efficiency in the use of energy and water for new residential and nonresidential buildings. Any building standard adopted by the commission shall be submitted to the BSC for approval. (Public Resources Code § 25402 and 25402.2)

FISCAL EFFECT: Unknown. The bill is keyed fiscal and will be referred to the Assembly Committee on Appropriations for their review.

BACKGROUND:

What is an EV charging infrastructure building standard? – The aspects of EV charging infrastructure that are covered in the building codes include raceways, service panels and subpanels, parking spaces capable of supporting EV supply equipment (i.e. the charging station itself), accessibility considerations, and, for non-residential buildings only, on-site distribution capacity. As of the 2019 CALGreen codes, mandatory and voluntary EV charging standards only apply to new construction.

CEC Expertise in EV Charging – As a result of AB 2127 (Ting, Chapter 365, Statutes of 2018), CEC conducts biennial assessments of charging needs to support California's plug in electric vehicles in 2030. The first iteration of this study was published in 2021 and projected that, in 2030, more than 700,000 chargers are needed to support 5 million zero emission vehicles (ZEVs)

and 157,000 chargers are needed to support 180,000 medium and heavy-duty ZEVs. Projections like these help inform requirements on numbers of EV capable spaces that should be included in the building codes. Additionally, projections and modelling regarding different types of EV chargers from the AB 2127 assessment and the CEC's electric load forecasting conducted as part of their integrated energy policy report may help inform the capacity that service panels should be capable of supporting as EV charging needs increase in the future. Within the structure of the CEC, this type of modeling and thinking about future charging needs is conducted by the Fuels and Transportation Division.

The CEC's energy efficiency building standards are an outlier. – As a general rule, state agencies develop and propose amendments to model building codes for the BSC to adopt as appropriate. Explicit authority is given to some state agencies to propose such building standards for relevant buildings. For example, the HCD proposes residential building standards and the Division of the State Architect (DSA) proposes building standards for schools and emergency service buildings. In these cases, the proposals are submitted to BSC which is responsible for approving and adopting the standards prior to codification. This means that the workshops, public comments, and other rulemaking procedures are carried out by the BSC. The CEC is an exception to the general rule. Instead, the CEC adopts their own energy efficiency building standards and submits them to the BSC for approval only (i.e., incorporation into the California Building Standards Code) and CEC, not BSC, manages the rulemaking procedures for these energy efficiency-related building standards. This work is carried out by the Building Standards Office within CEC and includes the regulatory authority over the operating efficiency of appliances. Traditionally, the electricity usage of EVs is considered a load placed on the grid by the automobile rather than by the building at which the automobile charges and as such, EV charging stations are not considered to be appliances in the same way that dishwashers or dryers are.

How do EV charging standards get in the Building Standards Code? – The BSC maintains Part 11 of the California Building Standards Code, known as CALGreen, which contains green building standards. The purpose of CALGreen is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices in five categories: planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality. The CALGreen Code includes both mandatory and voluntary building standards for the installation of EV charging infrastructure in all occupancies of buildings. Additionally, each local jurisdiction retains the administrative authority to exceed the CALGreen standards. In 2013, AB 1092 (Levine, Chapter 410, Statutes of 2013) required HCD and BSC to work with interested parties to adopt mandatory building standards for the installation of future infrastructure for electric vehicle charging in multi-family and commercial developments as part of the 2016 triennial code adoption cycle. The standards were strengthened in the subsequent code adoption cycle for 2019 and in preparing the 2022 intervening code adoption cycle, an EV workgroup has been convened to make recommendations for new standards. CARB requested HCD propose similar building standards for hotels and motels to take effect July 1, 2018. All new single family homes have been required to be EV capable since the implementation of the 2016 edition of the Building Standards Code.

How does the CEC contribute to EV charging standards? – In current statute, CEC has two manners through which they are statutorily required to contribute to non-efficiency building

standards. The first manner is the coordinating advisory council (CAC) established by HSC § 18926 which is responsible for drafting proposed building standards, eliminating conflicts, and assisting other state agencies in proposing and/or adopting building standards. The CAC includes the Executive Director of the CEC. The second manner by which the CEC contributes to EV charging standards is as an agency with expertise in green building subject areas. As CEC is an agency with expertise in EV charging, BSC and any other state agency that proposes EV charging standards are required to allow input from CEC by HSC § 18930.5(b). An example of this consultation is the EV workgroup mentioned above. The working group was assembled by the CAC for the 2022 intervening code adoption cycle and is led by BSC, HCD, and DSA with CARB and CEC attached as subject matter expert agencies. The first meeting of the working group took place on April 14th, 2022. CEC also presented during the CAC Review stage of the 2021 triennial code adoption cycle in a CAC meeting regarding CALGreen codes. Historically, the Building Standards Office of the CEC has participated in the building standard code adoption cycles and, in the context of EV charging, offered perspective on local ordinances, charging technologies, various stakeholders, etc.

COMMENTS:

- 1) *Author's Statement.* According to the author, "Although the California Energy Commission (CEC) is the state's EV charging expert, it has no formal role in developing EV charging standards for multifamily buildings, commercial buildings, or retrofits. Currently, the Building Standards Commission (BSC) consults the Energy Commission for recommendations on EV charging standards when they update their regulations every three years. With the exception of single-family homes, nothing in current statute requires that the Energy Commission adopt electric charging standards for new construction and retrofits. AB 2075 empowers the CEC to use their expertise to develop necessary and cost-effective EV charging standards for all buildings prior to final BSC adoption."
- 2) *Unintended Consequences.* The opposition claims that this bill as written will transfer the authority to propose and adopt building standards for EV charging from HCD and BSC to the CEC. This interpretation of the existing language is not unrealistic. However, the Committee is unaware of evidence that the BSC and HCD neglect EV charging standards or unduly reject suggestions from subject matter expert agencies that would justify transferring this authority. For example, in the 2021 triennial code adoption cycle, CARB suggested increases to the mandatory requirements for charging stations in new nonresidential buildings and a mandatory requirement for "make-ready" infrastructure to support chargers for heavy- and medium-duty ZEVs in new warehouses, grocery stores, and retail buildings with loading docks. These suggestions were made to support the achievement of CARB's regulations on emissions reduction. BSC and DSA moved forward with CARB's suggestions, acknowledging CARB's role as a subject matter expert agency with expertise in air quality, climate change, and EV charging infrastructure. In addition, this transfer of authority in this bill's current language is not aligned with the author's stated intent. *Therefore, the committee may wish to consider striking the provision that requires the BSC to approve EV charging standards proposed and adopted by the CEC.*
- 3) *Does Energy Efficiency include EV Charging Infrastructure?* The CEC is directed to prescribe, by regulation, building design and construction standards that increase efficiency in the use of energy and water for new residential and nonresidential buildings.

While this includes regulations for minimum operating efficiency of appliances, this bill would include the adoption, by regulation, of EV charging standards to be incorporated into other building design and construction standards. In a conservative interpretation of this language, the CEC would have the authority to adopt standards on the EV charging station itself. Even so, the bill makes no mention of the CEC regulating the energy efficiency of EV charging stations as appliances. On the other hand, a generous interpretation of the bill language authorizes the CEC to adopt standards for all aspects of EV charging, including raceways, service panels and subpanels, parking spaces capable of supporting EV supply equipment, and accessibility considerations. This is an expansive interpretation of the CEC's authority in adopting energy efficiency building standards that may create duplication in requiring the CEC to adopt standards for EV charging that HCD and BSC are also currently required to adopt. *Given that the intent of the bill is not well-aligned with energy efficiency building standards and is more focused on broader aspects of EV charging building standards, the committee may wish to consider moving provisions regarding the role of the CEC in determining EV charging to a more appropriate code section.*

- 4) *More than Counting EV Chargers.* As mentioned above, EV charging standards include much more than the number of chargers that must be installed in parking lots of various sizes. Additionally, more is considered in adopting EV charging standards than statewide EV deployment goals. One key consideration is housing affordability. When the HCD is proposing mandatory green building standards for multi-unit dwellings, the department must balance climate goals against cost. For example, in the HCD statement of reasons for the 2021 triennial code adoption cycle, HCD acknowledged the report compiled pursuant to AB 2127 (Ting, 2018) that projected a shortfall in the number of chargers needed to support the state's ZEV goals. The HCD also acknowledged the CEC assessment on SB 1000 that found that only 18-48% of multi-family dwelling EV owners charged their EVs at home (as compared to 94% of EV owners in single-family homes). However, HCD also pointed out that adding panel capacity and conduit space for EV chargers in existing buildings cost six times more than in new construction. And, in an example of balancing state EV goals against access to affordable housing, the codes adopted from the 2021 cycle did not mandate EV charging capacity be added to existing buildings.

In contrast, as part of its regulation of building energy efficiency, the CEC adopted a requirement for the installation of solar PV capacity on all new low-rise residential buildings in May of 2018. The CEC is required to ensure that such mandates are cost-effective and in 2018, the CEC calculated in their Rooftop Solar PV System Report that the PV systems would create an average initial cost of \$9500 but would save \$19000 over the 30-year span of an assumed mortgage. However, this cost-effectiveness calculation was highly dependent on energy policy, which despite the CEC's acknowledged expertise in energy projections, is subject to change. Specifically in the case of the solar PV mandate, the CEC relied on the compensation structure of the NEM 2.0 tariff throughout the entire 30-year timeframe. Considering the current discussion surrounding the NEM 2.0 tariff, it may be fair to say that viewing housing affordability through the narrow lens of energy alone does not capture all necessary considerations. As an agency more broadly focused on housing as a whole, rather than energy efficiency alone, HCD may be the more appropriate agency to have final say on building standards for residential buildings, including EV charging. The same can be said for other types of building occupancy and

the state agencies tasked with designing their respective building standards. *Therefore, the committee may wish to consider amending the provisions regarding the role of the CEC in determining EV charging standards relative to the authority of the BSC, HCD, DSA, or other agencies with authority over building standards for the relevant building occupancy.*

- 5) *Ambitious Goals Require Coordination.* California has set ambitious goals for emissions reduction and transportation electrification and interagency coordination will absolutely be necessary to achieve these goals. The existing statutes regarding this interagency coordination in the context of EV charging standards includes the CAC and required allowance of input from agencies with subject matter expertise. These considerations have resulted in the formation of the EV Workgroup in the most recent code adoption cycle. To ensure the continued interagency coordination and focus on EV charging standards, this Workgroup or a similar collaboration could be a formal requirement of all future code adoption cycles. As a required participant in this collaboration and with specific authority to make recommendations based on its expertise on EV charging, CEC can ensure that the most up-to-date projections of EV charging needs and other expert knowledge is taken into consideration when adopting EV charging standards. *Therefore, the committee may wish to consider an amendment formalizing a workshop or similar collaboration on EV charging standards to be a component of each triennial code adoption cycle. As part of this collaborative effort, CEC shall be included and consideration shall be given to projected demand for electric vehicle charging infrastructure based on the state's goals.*
- 6) *Double Referral.* This bill was previously heard in the Assembly Committee on Natural Resources on March 21st, 2022, where it passed with an 8-0-3 vote.
- 7) *Prior Legislation.*

AB 2127 (Ting) required the CEC to assess the amount of EV infrastructure—including chargers, make-ready electrical equipment, and supporting hardware and software—needed to meet the goals of putting at least five million ZEVs on the road and reducing GHG emissions 40 percent below 1990 levels by 2030, to be updated at least once every two years. Status – Chapter 365, Statutes of 2018.

AB 1239 (Holden, 2017) would have required HCD and BSC to research, develop, and propose building standards for EV capable parking spaces as specified, including during any additions, significant repairs, or alterations of existing parking areas. Would have required HCD and BSC to consult with CARB and CEC in proposing and adopting EV capable parking space standards in multifamily housing. Status – Vetoed

AB 341 (Dickinson) allows state agencies that propose green building standards to allow for input by state agencies that have expertise in green building subject areas. Status – Chapter 585, Statutes of 2013.

AB 1092 (Levine) required HCD and BSC to develop mandatory EV charging standards for the 2016 Triennial Code Adoption Cycle and onwards. Status – Chapter 410, Statutes of 2013.

AB 2644 (Butler, 2012) would have required BSC to adopt building standards for the construction, installation, and alteration of electric vehicle charging stations for parking spaces in single-family residential real property. Status – Died, Assembly Committee on Housing and Community Development.

REGISTERED SUPPORT / OPPOSITION:**Support**

350 Sacramento
350 Silicon Valley
California Environmental Voters (formerly CLCV)
California Solar & Storage Association
California Travel Association (CALTRAVEL)
Elders Climate Action, Norcal and Socal Chapters

Opposition

Building Owners and Managers Association of California
California Apartment Association
California Building Industry Association
California Business Properties Association
Institute of Real Estate Management (IREM)
International Council of Shopping Centers
NAIOP of California

Oppose Unless Amended

California Building Officials

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