

Economic and Fiscal Impact Statement (Form 399)

Attachment A1 - EV regulations - Light-duty vehicles 45day

Amend the 2022 California Green Building Standards Code, CCR, Title 24, Part 11

BACKGROUND

This proposed action by the California Building Standards Commission (BSC) adopts mandatory green building standards for occupancies within its authority, building upon a framework of voluntary measures adopted by BSC in 2008 and makes modifications and clarifications to the 2022 Triennial CALGreen Code. The intent of the code continues to: (1) reduce greenhouse gas (GHG) emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; and (3) respond to the directives by the Governor in 2008 to develop a green building code.

California adopted Senate Bill 32, *California Global Warming Solutions Act of 2006: Emissions Limit*, which mandates the state reduce its greenhouse gas emission levels to 40% below 1990 levels by 2030. California's transportation sector comprises 41% of the greenhouse gas emissions statewide when considering mobile source direct emissions.¹ Reducing emissions from the transportation sector not only helps California reach its greenhouse gas emission goals but can also lead to better air quality through the reduction of criteria pollutants. BSC's proposed action will support the implementation of the Governor's Executive Orders B-16-2012, B-48-2018 and N-79-2020 to achieve the goals of having over 1.5 million zero-emission vehicles (ZEVs) on California roadways by 2025, 5 million ZEVs on California roadways by 2030, and 100% sales of electric vehicles by 2035, respectively. The California Air Resources Board (CARB) adopted the Advanced Clean Cars II Regulation on August 25, 2022 and estimates that as a result there will be approximately 5.8 million ZEVs and PHEVs on California roads by 2030. By 2035, CARB staff estimates there will be 12.6 million. CARB staff expects drivers to continue to rely on home charging if available and supplement their charging needs with public charging stations. Currently, early ZEV adopters typically have a higher income and may live in a single-family home with consistent access to home charging. However, as ZEV driver demographics shift away from early adopters to the majority of the market, there may be an increased demand for public and workplace charging.

As of April 2022, CEC estimates that there are 28,671 public level 2 chargers and 6,695 public DCFCs. Per the California Energy Commission's (CEC) recent AB 2127 staff report², California has a gap in the number of level 2 chargers expected to be installed by 2025 to support California's 1.5 million ZEV target under Executive Order B-16-2012. The gap only widens over longer time horizons. The CEC's AB 2127 staff report estimates 186,403 to 189,564 workplace chargers and 17,476 to 17,934 DCFCs are needed statewide to support 5 million ZEVs by 2030. Additionally, the CEC's AB 2127 staff report found that mandating the installation of EV charging infrastructure in new construction will continue to increase the number of chargers available to support plug-in vehicles. Furthermore, existing buildings provide an opportunity for the state to continue to bridge the gap of currently available chargers and ensure that the state has enough chargers to support the growing number of ZEVs, thereby helping to meet the goals of Executive Orders B-48-2018 and N-79-2020.

The proposed changes to the building standards with statewide application will lead to substantial environmental benefits through reduction in energy use, GHG emissions, criteria pollutants, and fossil fuel dependency leading to improved public health, and potentially result in significant cost savings (avoided costs) associated with future installation of EV charging stations at nonresidential buildings.

Objectives of the Proposed Amendments

The objectives of the proposed amendments are to further advance the potential for EV preparedness and provide clarity to the code user in consistent reference nomenclature to other parts of Title, 24.

¹ [Current California GHG Emission Inventory Data | California Air Resources Board](#)

² <https://efiling.energy.ca.gov/getdocument.aspx?tn=236237>

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ECONOMIC IMPACT STATEMENT

Items:

A. ESTIMATED PRIVATE SECTOR COST IMPACTS

2. Estimate the economic impact of the proposed amendments:

BSC is proposing the following amendments to the 2022 Triennial Code Cycle

- Give developers the opportunity to install low power level 2 receptacles, as defined by HCD and BSC, to replace EV capable spaces.
- Existing facilities undergoing additions and alterations will be subject to meeting the mandatory EV charging requirements for 10 or more impacted spaces.
- Add an alternative compliance table to promote greater charging flexibility for new construction of nonresidential buildings.

BSC proposes in newly constructed nonresidential buildings giving developers the option to install low power level 2 charging receptacles instead of EV capable spaces. The statewide cost estimate for this allowance is \$126.0 million to \$294.1 million. BSC also proposes that in existing buildings undergoing a qualifying addition and alteration, the site must meet the requirements of Table 5.106.3.1 for the number of spaces being added or altered. The annual average statewide cost estimate for mandating the installation of EV charging infrastructure during additions and alterations to existing buildings ranges from \$42.5 million to \$79.2 million. Statewide costs estimated for the proposed amendments were calculated over an 18-month period, from July 1, 2024 to the end of 2025. Over the 18-month period, staff estimates the statewide cost of both proposed amendments to range from \$189.7 million to \$413.0 million, assuming developers fully utilize the proposed option of low power level 2 charging receptacles in place of EV capable installations.

Pursuant to the definition in Section 2000 of Title 1, Division 3, Chapter 1 of the California Code of Regulations, a “major regulation means any proposed rulemaking...that will have an economic impact...exceeding fifty million dollars (\$50,000,000) in any 12-month period”

Since the purpose of Section A2 is to identify whether or not the proposed rulemaking is considered a major regulation, the cost estimates specified in this section are estimated on an annual basis. Annual costs of the proposed amendments are between \$126.5 million to \$275.3 million. Based on this annual cost estimate, the category “Over \$50 million” was selected.

For all cost calculations, staff have assumed that the building developers or owners directly bear the costs to install EV infrastructure. However, Electric Vehicle Service Providers (EVSPs) in today’s market often operate with different business structures. The EVSPs may therefore bear all or some of the upfront costs calculated here and have various business models for charging for ongoing electric vehicle charging service at the installation site.

3. Describe the types of businesses (Include nonprofits):

The types of businesses impacted by the EV charging infrastructure provisions are any businesses funding the development of new nonresidential buildings and businesses funding additions and alterations to parking facilities in existing buildings. These businesses could be in retail, grocery, restaurants, small and large offices, warehouses, hospitals, etc. However, EV charging requirements for public schools and community colleges are addressed separately. Nonresidential new construction projects with parking facilities with 10 or more parking spaces would be affected. These businesses could be in retail, grocery, restaurant,

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small and large offices, warehouse, hospital etc. Like new construction, EV charging requirements for public schools and community colleges are addressed separately.

Total Number of Businesses Impacted

Based on Construction Industry Research Board data on projections for new construction developments in California, a total of around 500 businesses were planning new construction development projects between 2020 and 2025. According to California's Employment Development Department, there are 1,665,060 businesses located in California.³

Total Number of Small Businesses Impacted

California Government Code defines small business as an entity that is independently owned and operated with 100 or fewer employees or an average gross receipt of \$15 million or less, over the last three tax years. BSC assumes that small businesses are in nonresidential buildings between 1,001 to 5,000 square feet. Approximately 48 percent of new nonresidential buildings impacted by the proposed amendments are projected to be less than 5,000 square foot in size. Staff estimates approximately half of these projects will be subject to these proposed amendments. Therefore, an estimated 240 (i.e., 500 x 0.48) small businesses are likely to be impacted by the proposed amendments.

BSC assumes that existing small businesses are in buildings between 1,001 to 5,000 square feet. According to California's Employment Development Department, approximately 1.6 million businesses have under 100 employees. Therefore, an estimated 787,919 (i.e., 1.6 million x 0.48) businesses will be impacted by the amendments.

4. Enter the number of businesses that will be created/eliminated:

Unknown/None. Some special trade construction businesses may be created. No businesses are expected to be eliminated.

6. Enter the number of jobs created/eliminated:

Unknown/None. Some jobs may be created for the installation, maintenance and manufacturing of electric vehicle supply equipment (EVSE). No jobs are expected to be eliminated.

B. ESTIMATED COSTS

1. Estimated Statewide Dollar Costs for Businesses and Individuals

- **Existing Facilities**

The proposed amendment would require all existing nonresidential buildings undergoing a qualifying addition or alteration to meet the requirements of Section 5.106.3.4 and Table 5.106.3.1. The proposed amendment would only apply to buildings that would add or alter at least 10 spaces.

Staff used 14 years of data (2016-2030) to estimate the number of spaces that may be impacted by the proposed amendment. Staff reviewed previous CALGreen code EV building standards to estimate the number of existing EV capable spaces. Staff assumed property owners knew which spaces were already EV capable and would use the remaining spaces to meet the proposed code requirements. Staff multiplied an estimated annual average number of EV capable spaces by 1.5 years to estimate the total number of retrofitted EV capable spaces over the lifetime of the proposed amendment. Staff estimates that 44,285 to 54,619 spaces would become EV capable. The cost of level 2 EV capable infrastructure (raceway and panel capacity) is estimated to range from \$675.07 to \$1,021.87. Staff estimates a

³ [Size of Business Data for California \(Quarterly\)](#)

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statewide construction cost ranging from \$29.9 million (44,285 EV capable spaces x \$675.07) to \$55.8 million (54,619 EV capable spaces x \$1,021.87).

Using the same data, staff estimates that 13,035 to 16,241 spaces would be required to install level 2 EVSE. The average cost of a level 2 charger ranges from \$1,597.80 to \$2,054.89⁴. The cost of other components (wiring, panel capacity, conduit, protective bollards) adds another \$998 - \$1,828⁵ per level 2 EVSE space, bringing the total cost for level 2 EVSE to \$2,595.80 to \$3,882.89 per space. Staff estimates that requiring 25% of EV capable spaces to have level 2 EVSE will have a construction cost ranging from \$33.8 million (13,035 level 2 EVSE x \$2,595.80) to \$63.1 million (16,241 level 2 EVSE x \$3,882.89).

In existing nonresidential buildings, staff estimates 57,320 (44,285 EV Capable + 13,035 Level 2 EVSE) to 70,861 (54,619 EV capable + 16,241 level 2 EVSE) total spaces would be subject to the proposed amendments. Staff estimates a statewide construction cost ranging from \$63.7 million to \$118.8 million for property owners installing EV charging infrastructure during qualifying additions and alterations to existing parking facilities.

Developers will be given the option to install low power level 2 charging receptacles instead of EV capable spaces. Over the 1.5-year lifetime of these amendments, staff estimates a maximum of 88,571 to 109,239 spaces with low power level 2 charging receptacles will be constructed. Staff estimates a construction cost for the installation of the low power level 2 charging receptacles to be \$69.2 million to \$161.3 million. Altogether, staff estimates a construction cost of \$94.6 million to \$208.6 million when installing low power level 2 charging receptacles and level 2 EVSE.

Developers may use the power allocation method, as illustrated in Table 5.106.5.3.6. Staff ran two analyses based on Table 5.106.5.3.6, one with the installation of DCFCs and one without the installation of DCFCs. Mandatory existing building EV requirements will be required when 10 or more spaces are added or altered. For existing buildings with 10 or more parking spaces, staff estimated for existing sites without DCFCs, the cost ranges from \$6,395.07 to \$88,322.34 per site and for locations with DCFCs the cost ranges from \$6,395.07 to \$112,813.87 per site. However, the actual costs are highly dependent on the site developer, the building's function, and the charging level distribution (number of EV capable, level 2 EVSE, low power level 2 receptacles and DCFC).

Staff could not estimate the construction cost of the alternative DCFC pathway, since staff has no way to estimate the number of DCFCs that would be installed or the power levels that developers may be likely to install.

- **New Construction:**

BSC proposes that in newly constructed nonresidential buildings, site developers have the option to install low power level 2 charging receptacles instead of EV capable spaces, resulting in a maximum of 161,318 to 199,196 spaces that may have low power level 2 charging receptacles. The cost of low power level 2 charging receptacles (raceway, panel capacity, wiring, receptacles, protective bollards) is estimated to range from approximately \$781.05 to \$1,476.60. Staff estimates that if all EV capable spaces now have low power level 2 charging receptacles, the statewide initial construction cost would range from \$126.0 million (161,318 spaces x \$781.05) to \$294.1 million (199,196 spaces x \$1,476.60), an increase in the initial construction cost of \$71.5 million to \$192.5 million.

BSC staff has proposed adding an alternative compliance table based on the power allocation of EV capable spaces. This new table gives developers more flexibility when

⁴ Staff took the average of over 30 non-networked and networked chargers to estimate an average cost of a nonnetworked level 2 charger and a networked level 2 charger

⁵ 2021 National Construction Estimator, 67th Edition, Edited by Richard Pray, Craftsman Book Company, October 2020.

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implementing EV charging requirements. BSC proposes a maximum of 85% of the power allocated can be used for EV capable spaces. BSC believes that this limitation will help incentivize the installation of low power level 2 charging receptacles, level 2 EVSE, and DCFCs during new construction. During BSC's workgroup meetings, stakeholders raised concerns that site developers would install DCFCs in locations that may be better served with level 2 EVSE or low power level 2 receptacles. Staff does not believe that to be a major concern with site developers, given that most EV charging providers are installing DCFCs at 50 kW or higher, and given that DCFC costs are high, developers will only install them if there is a demand for that level of charging.

Staff ran two analyses based on the power allocation method, Table 5.106.5.3.6., one without the installation of DCFCs and one with the installation of DCFCs. The mandatory EV requirements go into effect when there are at least 10 total parking spaces. For parking lots with 10 or more parking spaces, staff estimated for sites without DCFCs, the cost ranges from \$ \$5,508.04 to \$90,254.67 per site and for locations with DCFCs the cost ranges \$6,541.75 to \$105,157.51 per site. However, the actual costs are highly dependent on the site developer, the building's function, and the charging level distribution (number of EV capable, level 2 EVSE, low power level 2 receptacles and DCFC).

Staff could not estimate the construction cost of the alternative DCFC pathway, since staff cannot way to estimate the number developers that would use elect to use the alternative DCFC pathway.

The proposed amendments would also require the following:

a) Costs to Small Business

BSC assumes that small businesses are in nonresidential buildings between 1,001 to 5,000 square feet. Approximately half of these buildings typically have 9 parking spaces or fewer, which would not be subject to the amendments. Staff used the low estimates for the smaller buildings and the high estimates for the larger buildings. Small businesses in existing buildings located in the 2,501 to 5,000 square foot range would install 1 to 3 EV capable spaces. For these businesses staff estimates a cost of \$675.07 (1 EV capable spaces x \$675.07) to \$3,062.61 (3 EV capable spaces x \$1,020.61). Property owners would also have the option of installing low power level 2 charging receptacles instead of EV capable spaces. For existing buildings with 2,501 square feet of space, property owners could install a maximum of 2 low power level 2 charging receptacles, at an estimated cost of \$1,562.10 (2 low power level 2 charging receptacles x \$781.05). For existing buildings of 5,000 square feet, property owners could install a maximum of 6 low power level 2 charging receptacles, at an estimated cost of \$8,859.60 (6 low power level 2 charging receptacle's x \$1,476.60).

For new construction, buildings in the 2,501 to 5,000 square foot range could install a maximum of 0 to 6 low power level 2 charging receptacles spaces, with a cost estimate ranging \$0 (0 low power level 2 receptacle x \$781.05) from to \$8,859.60 (6 low power level 2 charging receptacles x \$1,476.60).

b) Costs to Typical Business

Typical businesses are assumed to be constructing new nonresidential buildings in the 5,001 to 100,000 square foot size range. These businesses account for 52% of affected businesses. Staff used the low estimates for the smaller buildings (5,000 square feet) and the high estimates for the larger buildings (100,000 square feet).

- **Existing Buildings**

Existing buildings with 5,001 square feet would be required to install 3 EV capable spaces, when completing any additions or alterations, at an estimated cost of \$2,025.21

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(3 EV capable spaces x \$675.07). Existing buildings with 100,000 square feet would be expected to install 70 EV capable spaces and 23 level 2 EVSE for a total cost of \$160,767.28 ((70 EV capable spaces x \$1,020.87) + (23 level 2 EVSE x \$3,882.89)).

Property owners have the option of installing low power level 2 charging receptacles instead of EV capable spaces. In 5,001 square foot buildings, property owners could install a maximum of 6 low power level 2 charging receptacles at an estimated cost of \$4,686.30 (6 low power level 2 charging receptacles x \$675.07). Existing buildings with 100,000 square feet could install a maximum of 140 low power level 2 charging receptacles and 23 level 2 EVSE, at an estimated cost of \$296,030.38 ((140 low power level 2 charging receptacles x \$1,476.60) + (23 level 2 EVSE x \$3,882.89)).

- **New Construction**

In newly constructed nonresidential buildings of 5,001 square feet developers could install a maximum of 6 low power level 2 charging receptacles, with a cost of \$4,686.30 (6 low power level 2 charging receptacles x \$781.05). For newly constructed buildings of 100,000 square feet, a developer could install a maximum of 130 low power level 2 charging receptacles, with a cost estimate of \$191,958.00 (130 low power level 2 charging receptacles x \$1,476.60).

- c) In newly constructed buildings, allowing low power level 2 charging receptacles will account for 0.78% to 0.92% of the total new construction costs.
- d) Describe other economic costs that may occur: The proposal encourages the increased market penetration of electric vehicles (EVs); thus, potentially reducing gasoline consumption and greenhouse gas and criteria pollutant emissions.

2. If multiple industries are impacted, enter the share of total costs for each industry:

- **Existing Buildings**

100 percent of costs for businesses that add or alter existing nonresidential facilities with parking facilities.

- **New Construction**

100 percent of costs for businesses constructing new nonresidential facilities with parking.

5. Explain the need for State regulation given the existence or absence of Federal regulations:

Currently there are no federal regulations for mandatory electric vehicle infrastructure installations during additions and alterations made to existing buildings. Assembly Bill 1092 (Ch. 410, Stats of 2013) directed BSC to develop mandatory EV standards for nonresidential buildings. In addition, these amendments support the implementation of the Governor's Executive Orders B-48-2018 and N-79-2020 to achieve a benchmark for having over 5 million zero-emission vehicles (ZEVs) on California roadways by 2030 and 100% sales of electric vehicles by 2035.

California's National Electric Vehicle Infrastructure (NEVI) Plan was approved on September 15, 2022. California will receive \$384 million in federal funding, over the next 5 years, to install direct current fast chargers throughout selected highway corridors.⁶ While the funding from the NEVI program will help California support zero-emission vehicles, it only addresses a specific charging need, drivers that need charging on long-distance commutes. End-point charging locations, such as workplaces, meet a different charging need. These charging

⁶ [National Electric Vehicle Infrastructure Program \(NEVI\) | California Energy Commission](#)

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locations provide drivers with convenient access to charging, without having to travel to locations outside of their normal driving routes. However, nonresidential site developers may have opportunities to reduce the out-of-pocket cost of installing EV charging infrastructure via NEVI funds. Staff cannot estimate the total cost reductions because it depends on the eligibility requirements of the funding opportunity.

C. ESTIMATED BENEFITS

1. Explain the estimated benefits to be derived from this proposal:

The benefits of these amendments include sustaining California's natural resources by reducing energy, greenhouse gas emissions, criteria pollutants, and dependency on fossil fuel. For existing nonresidential buildings, CARB staff estimates an annual greenhouse gas emissions reduction potential between 129,000 to 205,000 metric tons of CO₂ equivalent through the implementation of the proposed amendments. If property owners installed all low power level 2 charging receptacles and level 2 EVSE, staff estimates an annual greenhouse gas (GHG) emissions reduction ranging from 281,000 to 444,000 metric tons CO₂ equivalent.

In newly constructed nonresidential buildings, CARB staff estimates an annual GHG emissions reduction potential between 592,000 to 934,000 metric tons CO₂ equivalent through the implementation of the proposed new construction amendments.

Staff cannot estimate the greenhouse gas emissions reduction benefits total statewide greenhouse gas emissions benefits based on the power allocation method, Table 5.106.5.3.6., because staff cannot estimate how many developers will implement the table or the combination of the various EV chargers.

Staff cannot estimate the greenhouse gas emissions reduction benefits of the alternative DCFC pathway. Staff cannot predict how many developers would elect to use the alternative DCFC pathway.

2. Are the benefits the result of specific statutory requirements, or goals developed by the agency based on broad statutory authority?

The benefits are the result of the specific statutory requirements. AB 1092 (2013) and SB1473 (2008) direct BSC to develop EV standards and green building standards.

3. What are the total statewide benefits (avoided costs) from this regulation over its lifetime?

- **Existing facilities**

The EV capable requirement for additions and alterations would result in 44,285 to 54,619 spaces being able to support future EV charging infrastructure. Existing buildings comprise a large portion of California's building stock. If the proposed amendment was not adopted staff assumes property owners would still retrofit existing parking spaces to support an increased demand in EV charging. Based on a 2019 report by CARB⁷, adding panel capacity and conduit alone to support Level 2 charging in existing buildings costs \$7,000 to \$8,000 per space, with an annual estimated retrofit cost ranging from \$310.0 million (44,285 x \$7000) to \$437.0 million (54,619 x \$8000). Staff estimates a statewide benefit of \$280.1 million to \$381.2 million by requiring businesses to install EV capable spaces during qualifying additions and alterations to existing parking facilities.

⁷ Electric Vehicle (EV) Charging Infrastructure: Nonresidential Building Standards. CARB, Sacramento, CA: 2019.

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Staff estimates an avoided retrofit cost ranging from \$620.0 million to \$873.9 million when installing low power level 2 charging receptacles. Staff estimates a statewide benefit of \$550.8 million to \$712.6 million for the installation of low power level 2 charging receptacles.

The level 2 EVSE requirement for additions and alterations would result in 13,035 to 16,241 spaces with level 2 EVSE installed. If the proposed amendment was not adopted CARB assumes that these spaces would be retrofitted later to meet an increased demand for EV charging. Based on a 2019 report by CARB⁸, adding panel capacity and conduit alone to support Level 2 charging in existing buildings costs \$7,000 to \$8,000 per space, with an average retrofit rate of \$91.2 million (13,035 level 2 EVSE x \$7000) to \$129.9 million (16,241 level 2 EVSE x \$8000). Staff estimates a statewide benefit of \$57.4 million to \$66.9 million by requiring businesses to install level 2 EVSE in impacted spaces during qualifying additions and alterations.

Staff cannot estimate the total statewide benefits based on the power allocation method, Table 5.106.5.3.6., because staff cannot estimate how many developers will implement the table or how developers will install EV charging infrastructure.

Staff cannot estimate the total statewide benefits of allowing 1 DCFC to substitute for 5 EV capable or 5 level 2 EVSE. Staff cannot predict how many developers would elect to install DCFCs and the power level of the installed DCFCs.

- **New Construction**

BSC proposed to allow developers the option to install low power level 2 charging receptacles instead of EV capable spaces, resulting in 161,318 to 199,196 spaces with low power level 2 charging receptacles. If the proposed amendment was not adopted these spaces would still need to be retrofitted in the future to support EV charging infrastructure. CARB has estimated that adding panel capacity and conduit to support Level 2 charging costs \$7,000 to \$8000, resulting in a statewide retrofit cost estimate of \$1,129.2 million (161,318 x \$7000) to \$1,593.6 million (199,196 x \$8000). Staff estimates that with this amendment, the average statewide benefit of allowing low power level 2 charging receptacles during new construction would range from \$1,003.2 million to \$1,299.4 million.

Staff cannot estimate the total statewide benefits based on the power allocation method, Table 5.106.5.3.6 because staff cannot estimate how many developers will implement the table or how developers will install EV charging infrastructure.

Staff cannot estimate the total statewide benefits of allowing 1 DCFC to substitute for 5 EV capable or 5 level 2 EVSE. Staff cannot predict how many developers would elect to install DCFCs and the power level of the installed DCFCs.

4. Briefly describe any expansion of businesses currently doing business within the State of California that would result from this regulation:

The proposal is likely to promote the expansion of businesses currently involved in EV Supply Equipment (EVSE) manufacturing, installation, maintenance, use and technology development.

D. ALTERNATIVES TO THE REGULATION

1. List alternatives considered and describe them below. If no alternatives were considered, explain why not:

⁸ Electric Vehicle (EV) Charging Infrastructure: Nonresidential Building Standards. CARB, Sacramento, CA: 2019.

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BSC considered the following two alternatives in an effort to further advance the potential for EV preparedness. Alternatives 1 and 2 were initially considered during the workshops. However, based on comments received, they were rejected in favor of more restrictive EV proposals.

Alternative 1:

For existing spaces undergoing a qualifying addition or alteration, 10% of spaces added or altered will need to be EV capable spaces. Staff estimates over the lifetime of this amendment, 29,524 to 36,413 spaces would be EV capable spaces. Staff estimates a statewide construction cost of \$19.9 million (29,524 EV capable x \$675.07) to \$37.2 million (36,413 EV capable x \$1,020.87). Staff estimates a statewide benefit of \$186.7 million to \$254.1 million. If this proposal was adopted, CARB staff estimates a decrease in greenhouse gas emissions reductions ranging from 66,000 to 103,500 metric tons of CO₂ equivalent, over the 1.5-year lifetime of this amendment.

Alternative 2:

In newly constructed buildings, staff proposed to give developers the option of installing low power level 2 charging receptacles instead of EV capable spaces in a maximum of 10% of spaces.

For newly constructed nonresidential buildings, staff estimates a maximum 53,773 to 66,399 spaces could have low power level 2 charging, with a construction cost of \$42.0 million (53,773 low power level 2 charging receptacles x \$781.05) to \$98.0 million (66,399 low power level 2 charging receptacles x \$1,476.60). Staff estimates a statewide benefit of \$334.4 million to \$443.1 million. Over the 1.5-year lifetime of this amendment, staff estimates a potential greenhouse gas reduction ranging from 297,000 to 468,000 metric tons of CO₂ equivalent.

BSC considered the following two alternatives for the voluntary measures in an effort to further advance the potential for EV preparedness. **These alternatives are being considered as part of this rulemaking.**

Alternative 3:

For newly constructed nonresidential buildings, BSC proposes to allow the substitution of low power level 2 charging receptacles instead of EV capable spaces to apply to Tier 1 measures. Staff estimates that if all developers used this option, 216,166 to 266,922 spaces would have low power level 2 charging receptacles, with a construction cost ranging from \$168.8 million (216,166 low power level 2 charging receptacles x \$781.05) to \$394.1 million (266,922 low power level 2 charging receptacles x \$1,476.60). Staff estimates a statewide benefit of \$1,344.3 million to \$1,741.2 million. If this proposal was adopted, CARB staff estimates greenhouse gas emissions reduction of 1,189,500 to 1,878,000 metric tons CO₂ equivalent over the 1.5-year lifetime of this amendment.

In newly constructed nonresidential buildings, staff ran two analyses on the table, one without the installation of DCFCs and one with the installation of DCFCs. Staff estimated for sites without DCFCs, the cost ranges from \$5,508.04 to \$90,254.67 per site and for locations with DCFCs that cost ranges from \$4,157.90 to \$164,741.07 per site. However, the actual costs are highly dependent on the site developer, the building's function, and the charging level distribution (number of EV capable, level 2 EVSE, low power level 2 receptacles and DCFC).

Staff cannot estimate the total statewide cost and benefits of allowing 1 DCFC to substitute for 5 EV capable or 5 level 2 EVSE. Staff cannot predict how many developers would elect to install DCFCs and the power level of the installed DCFCs.

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Alternative 4:

For new construction, BSC proposed allowing the substitution of low power level 2 charging receptacles for EV capable spaces to apply to Tier 2 measures. Additionally, BSC's proposed alternative compliance table will be applied to the new construction Tier 2 EV charging infrastructure requirements.

Staff estimates 324,249 to 400,384 could have low power level 2 charging receptacles, with a construction cost ranging from \$253.3 million (324,249 low power level 2 charging receptacles x \$781.05) to \$591.2 million (400,384 low power level 2 charging receptacles x \$1,476.60). Staff estimates a statewide benefit of \$2,016.5 million to \$2,611.9 million. Staff estimates a greenhouse gas emissions reduction of 1,785,000 to 2,815,500 metric tons of CO2 equivalent over the 1.5-year lifetime of this amendment.

In newly constructed nonresidential buildings, staff ran two analyses on the table, one without the installation of DCFCs and one with the installation of DCFCs. Staff estimated for sites without DCFCs, the cost ranges from \$4,832.97 to \$188,548.61 per site and for locations with DCFCs that cost ranges from \$4,832.97 to \$242,918.78 per site. However, the actual costs are highly dependent on the site developer, the building's function, and the charging level distribution (number of EV capable, level 2 EVSE, low power level 2 receptacles and DCFC).

Staff cannot estimate the total statewide cost and benefits of allowing 1 DCFC to substitute for 5 EV capable or 5 level 2 EVSE. Staff cannot predict how many developers would elect to install DCFCs and the power level of the installed DCFCs.

3. Briefly discuss any quantification issues that are relevant to a comparison of estimated costs and benefits for this regulation or alternatives:

Other benefits such as a greater use of EVs, a reduction in criteria pollutants, and a reduction in fossil fuel dependency were not quantified. Only GHG reduction benefits were quantified.

The building code prescribes specific technology to provide clarity to building developers. However, this proposed code provides new flexibilities to developers.

FISCAL IMPACT STATEMENT

Items:

A. FISCAL EFFECT ON LOCAL GOVERNMENT

6. Other. Explain.

Currently, local government building departments are responsible for enforcing the California Green Building Standards Code, Title 24, Part 11. There should not be any major fiscal effect on local governments to enforce a mandatory EV charging infrastructure installation during additions or alterations to existing parking facilities. However, if there is a minor increase of costs to local governments to review and check plans for compliance, any increase in costs can be recovered from increases in permit fees.

Some local governments may incur additional costs when they perform additions or alterations to their own parking facilities. There is very limited data on the number of buildings that undergo construction work that would result in EV Capable spaces to be added. However, most local government buildings are under 5,000 square feet. BSC estimated that if and when a local government may perform an addition or alternation to an existing building subject to these amendments, they would need to install between 0 and 3 EV capable spaces. The average cost to local governments ranges from \$0 to \$3,062.61 per site.

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Some local governments may incur additional costs when they construct new buildings. There is no data available on how many total new buildings will be constructed by local governments on an annual basis. However, most local government buildings are under 5,000 square feet. BSC estimated that if and when a local government may construct a new building subject to these amendments, they could install a maximum of 0 to six low power level 2 spaces, with an average construction cost of \$0 to \$8,859.60 (6 low power level 2 x \$1,020.87).

B. FISCAL EFFECT ON STATE GOVERNMENT

4. Other. Explain.

All new state buildings are subject to these requirements. BSC has not specifically identified the number new state buildings being planned for new construction during the effective date of the new proposals. However, a typical business of 5,000 to 100,000 square feet may install 6 to 130 low power level 2 charging receptacles for a cost range of \$4,686.30 to \$191,958. Staff assumed that these new buildings would fall in the same size range as a typical business.

All existing buildings will be subject to the proposed amendments. BSC has not specifically identified the number existing state buildings or parking lot facilities being planned and permitted for renovation during the effective date of the new proposals. BSC assumes a typical business is in a 5,000 to 100,000 square foot building. The cost for a typical existing business is \$2,700.28 to \$163,629.29. Staff assumes that these state buildings will fall in the same category.