Attachment A

Attachment A-cost analysis 45day

Economic and Fiscal Impact Statement (Form 399) Attachment

Amend the 2019 California Green Building Standards Code, CCR, Title 24, Part 11

BACKGROUND

This proposed action by 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 2019/2020 Intervening 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.

BSC's proposed action will support the implementation of the Governor's Executive Orders B-16-2012, B-48-2018 and N-79-20 to achieve a benchmark for 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. Per the California Energy Commission's (CEC) recent AB 2127 staff report (efiling.energy.ca.gov/getdocument.aspx?tn=238853) 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. This gap widens significantly when looking at 2030 and longer time horizons.

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.

ECONOMIC IMPACT STATEMENT

Items:

A. ESTIMATED PRIVATE SECTOR COST IMPACTS

1. Estimate the economic impact of the proposed amendments:

Statewide cost estimates for the proposed amendments were calculated over a 3-year period between the proposed January 1, 2023 effective date and the end of 2025. Statewide costs over the 3-year life of the amendments were estimated to total between $156 and $304 million.
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…subject to review by AOL…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 $52 million and $101 million. Based on this annual cost estimate, the category "Over $50 million" was selected for the estimated economic impact. It is important to note that building standard regulations are not subject to OAL review, are not considered major regulations, and a Standardized Regulatory Impact Assessment is not required.

2. 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 nonresidential buildings. These businesses could be

in retail, grocery, restaurant, small and large offices, warehouse, hospital, etc. New nonresidential construction projects with parking facilities with 10 or more parking spaces would be affected.

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.

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. Approximately 47 percent of new nonresidential buildings impacted by the proposed amendments are projected to be less than 5,000 square feet in size. Therefore, an estimated 235 (i.e., 500 x 0.47) small businesses are likely to be impacted by the proposed amendments.

B. ESTIMATED COSTS

1. Estimated Statewide Dollar Costs for Businesses and Individuals.

The proposed amendments require new nonresidential buildings with 10-25 parking spaces to install EV capable infrastructure in 20% of the total number of actual parking spaces with no requirement for EVSE. New nonresidential buildings with 26 or greater actual parking spaces shall install EV capable infrastructure in 20% of the total number of actual parking spaces and 25% of the number of required EV capable spaces need to be provided with electric vehicle supply equipment (EVSE). The net resulting percentage for the required EV capable infrastructure is 15% for 26 or more actual parking spaces. The net resulting percentage for the required EVSE is 5% for 26 or more actual parking spaces. The cost of Level 2 EV capable infrastructure (raceway and panel capacity) is estimated to range from approximately $675 to $1,021 (Based on the *2021 National Construction Estimator,* 67th Edition, Edited by Richard Pray, Craftsman Book Company, November 2018) in 56,135 to 69,248 parking spaces (CARB staff estimated based on nonresidential building floorspace projections from CEC and data from U.S. Energy Information Administration, "2012 Commercial Buildings Energy Consumption Survey," 2012, retrieved from eia.gov/consumption/commercial/). This results in an estimated statewide cost of $37.9 million ($675 x 56,135 parking spaces) to $70.7 million ($1,021 x 69,248 parking spaces) over the 3-year life of the amendments above the currently required 10 percent EV capable requirement in CALGreen.

The installation of EVSE, triggered at 26 or greater actual parking spaces used to create electric vehicle charging stations (EVCS), may be Level 2 EVSE with the option for installing direct current fast chargers (DCFC). The cost of Level 2 EV chargers ranges from $1,389 to $1,895 (From California Air Resources Board, "EV Charging Infrastructure: Nonresidential Buildings: 2019/2020 Intervening Code Cycle: CARB Staff Technical and Cost Analysis", Table G1, November 15, 2019. Retrieved from arb.ca.gov/sites/default/files/2020-09/CARB_Technical_Analysis_EV_Charging_Nonresidential_CALGreen_2019_2020_Intervening_Code.pdf).

The cost of other components (wiring, panel capacity, conduit, protective bollards) adds another $998 - $1,828 (based on the *2021 National Construction Estimator,* 67th Edition, Edited by Richard Pray, Craftsman Book Company, November 2018) per L2 EVSE space, bringing the total cost for L2 EVSE to $2,387 - $3,723 in 49,346 to 62,719 parking spaces (CARB staff estimated based on nonresidential building floorspace projections from CEC and data from U.S. Energy Information Administration, "2012 Commercial Buildings Energy Consumption Survey," 2012. Retrieved from eia.gov/consumption/commercial/). This results in an estimated statewide cost of $118 million (i.e. $2,387 x 49,346 parking spaces) to $233

million (i.e. $3,723 x 62,719 parking spaces) over the 3-year life of the amendments to add the Level 2 EVSE requirements.

Altogether, the added statewide cost for all measures affecting new nonresidential buildings is approximately $156 million to $304 million, or between 0.2% and 0.9% of total costs for nonresidential new construction.

The proposed amendments would also require

a) Costs to Small Business:

The suggested code changes require new nonresidential buildings with 10-25 parking spaces to install EV capable infrastructure in 20% of the total number of actual parking spaces with no requirement for EVSE. New nonresidential buildings with 26 or greater actual parking spaces shall install EV capable infrastructure in 20% of the total number of actual parking spaces and 25% of the number of required EV capable spaces need to be provided with electric vehicle supply equipment (EVSE). The net resulting percentage for the required EV capable infrastructure is 15% for 26 or more actual parking spaces. According to the 2012 Commercial Buildings Energy Consumption Survey (CBECS), nearly half of nonresidential buildings are in the 1,001 to 5,000 square foot range (Retrieved from eia.gov/consumption/commercial/). BSC assumes that small businesses are constructing new 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. In these buildings, there would be zero cost to small businesses. However, some small businesses may be constructing buildings in the 2,501 to 5,000 square foot range, which would be required to install 1 additional EV Capable spaces over the current 10 percent requirement. The initial cost to these small businesses, then, is estimated to be $0-1,021 (i.e., $1,021 (high-range L2 capable costs) x 1 additional EV capable spaces).

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 53 percent of affected businesses. Buildings with 5,001 square feet would be required to install 1 additional EV capable spaces above the current 10 percent requirement, at a low range cost estimate of $675 (i.e. $675 (low-range L2 capable costs) x 1 additional EV capable space). Buildings with 100,000 square feet would be required to install 23 additional EV capable spaces above the current 10 percent requirement, at a high range cost estimate of $23,480 (i.e., $1,021 (high-range L2 capable costs) x 23 additional EV capable spaces). Buildings with 100,000 square feet would also be required to install 23 Level 2 EV chargers, at a high range cost estimate of $85,619 ($3,723 (high-range L2 EV charger costs) x 23 Level 2 chargers). Total high--range costs for buildings with 100,000 square feet would then be $109,099 ($23,480 + $85,619). The initial cost to typical businesses, then, is estimated to be $675 to $109,099.

c) The proposed amendments are expected to add between 0.2-0.9 percent to total costs for nonresidential new construction. This small cost increase would have a negligible impact on individuals even if affected businesses are able to pass on the increased cost fully to the consumer.

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. 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-79-20 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

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. CARB staff estimated a GHG emissions reduction potential between 409,000 to 516,000 metric tons of CO_2e annually through the implementation of the proposed amendments.

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

The Level 2 EV capable requirement would lead to an additional 56,135 to 69,248 Level 2 EV capable spaces in nonresidential buildings under BSC authority above the current 10 percent requirement during the 3-year life of the amendments. The Level 2 EV charger requirement would add 49,346 to 62,719 Level 2 chargers under the 3-year life of the amendments. If the proposed requirement is not adopted, CARB staff assumed that every one of these parking spaces would need the basic EV charging infrastructure (raceway and panel capacity) to become EV Capable and support future installation of Level 2 charging stations. Based on a 2019 report by CARB, Electric Vehicle (EV) Charging Infrastructure: Nonresidential Building Standards, CARB, Sacramento, CA: 2019 (retrieved from arb.ca.gov/sites/default/files/2020-09/CARB_Technical_Analysis_EV_Charging_Nonresidential_CALGreen_2019_2020_Intervening_Code.pdf), adding panel capacity and conduit alone to support Level 2 charging in existing buildings costs $7,000 to $8,000 per space. This suggested code change would potentially result in statewide avoided retrofit costs of $738 million (i.e., 56,135 + 49,346 parking spaces x $7,000 retrofit costs) to $1,056 million (i.e., 69,248 + 62,719 parking spaces x $8,000).

With statewide costs of all measures at $156 - $304 million, the net benefit is estimated at $434 million to $900 million.

D. ALTERNATIVES TO THE REGULATION

1. BSC considered the following two alternatives in an effort to further advance the potential for EV preparedness.

a) Alternative 1 Tier 1: Adopt an additional 5% Level 2 EV charging requirement for new nonresidential buildings with 10 or more actual parking spaces and adopt an additional 5% EV capable space requirement.

Alternative 1 Tier 1 analysis: The proposed amendments require new nonresidential buildings with 0-9 actual parking spaces to install EV capable infrastructure in 30% of the total number of actual parking spaces with no requirement for EVSE. New nonresidential buildings with 10 or greater actual parking spaces shall install EV capable infrastructure in 30% of the total number of actual parking spaces and 33% of the number of required EV capable spaces need to be provided with electric vehicle supply equipment (EVSE). The net resulting percentage for the required EV capable infrastructure is 20% for 10 or more actual parking spaces. The net resulting percentage for the required EVSE is 10% for 10 or more actual parking spaces. The incremental percentage increase for EV capable spaces above the proposed mandatory respective code in Table 5.106.5.3.1 is from 20% (net 15%) to 30% (net 20%) and the incremental percentage increase for Level 2 EVSE above the proposed mandatory respective code in Table 5.106.5.3.1 is from net 5% to net 10%. This alternative was rejected at this time as a mandatory requirement at the state level because it is more costly. However, this alternative can still be adopted by local governments as mandatory at the local level as a Tier 1

option and is being proposed in this rulemaking by BSC. This alternative would add 0.3 – 1.0 percent to total costs for nonresidential new construction above the proposed mandatory provisions. This requirement would result in the installation of an additional 56,135 to 69,248 Level 2 EV capable spaces and 62,924 to 75,778 Level 2 EV chargers over the proposed mandatory provisions during the 3-year life of the amendments. Initial construction costs for Alternative 1 were estimated to total an additional $188 to $353 million with avoided retrofit costs of $833 to $1,160 million resulting in a statewide benefit of $481 to $972 million over the 3-year life of the amendments compared to the proposed mandatory provisions. An additional 492,000 to 597,000 metric tons CO_2e emission reduction annually could be achieved compared to the proposed mandatory provisions.

Alternative 2 Tier 2: Adopt an additional 10% Level 2 EV charging requirement for new nonresidential buildings with 10 or more actual parking spaces and adopt an additional 15% EV capable space requirement.

Alternative 2 Tier 2 analysis: The proposed amendments require new nonresidential buildings with 0-9 actual parking spaces to install EV capable infrastructure in 45% of the total number of actual parking spaces with no requirement for EVSE. New nonresidential buildings with 10 or greater actual parking spaces shall install EV capable infrastructure in 45% of the total number of actual parking spaces and 33% of the number of required EV capable spaces need to be provided with electric vehicle supply equipment (EVSE). The net resulting percentage for the required EV capable infrastructure is 30% for 10 or more actual parking spaces. The net resulting percentage for the required EVSE is 15% for 10 or more actual parking spaces. The incremental percentage increase for EV capable spaces above the proposed mandatory respective code in Table 5.106.5.3.1 is from 20% (net 15%) to 45% (net 30%) and the incremental percentage increase for Level 2 EVSE above the proposed mandatory respective code in Table 5.106.5.3.1 is from net 5% to net 15%. This alternative was rejected at this time as a mandatory requirement at the state level because it is more costly. However, this alternative can still be adopted by local governments as mandatory at the local level as a Tier 2 option and is being proposed in this rulemaking by BSC. This alternative would add 0.6 – 2.1 percent to total costs for nonresidential new construction above the proposed mandatory provisions. This requirement would result in the installation of an additional 168,404 to 207,745 Level 2 EV capable spaces and 119,058 to 145,027 Level 2 EV chargers over the proposed mandatory provisions during the 3-year life of the amendments. Initial construction costs for Alternative 2 were estimated to total an additional $398 to $752 million with avoided retrofit costs of $2,012 to $2,822 million resulting in a statewide benefit of $1,260 to $2,424 million over the 3-year life of the amendments compared to the proposed mandatory provisions. An additional 1,047,000 to 1,280,000 metric tons CO_2e emission reduction annually could be achieved compared to the proposed mandatory provisions.

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 Level 2 charger requirement in nonresidential new construction. 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 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 would generally need to install between 0-1 Level 2 EV capable spaces. The average cost to local governments ranges from $0 to $1,021 per new building.

FISCAL EFFECT ON STATE GOVERNMENT

B.4: All new state buildings are subject to these amendments. Based on a ten-year sequencing plan for state buildings in Sacramento, BSC identifies a total of 4 new state buildings that are likely to be constructed between 2023 and 2025 (www.dgs.ca.gov/-/media/Divisions/RESD/Publications/AMB/State-Facility-Long-Range-Planning-Study/sequencingplan1---v2C.pdf). Since Sacramento is the center of State government, these estimates represent total new construction planned in the 2023 to 2025 timeframe. Since the cost to typical businesses is $675 to $109,099 the total cost to state government over the 3-year life of the amendments is estimated at $2,700 to $436,396.