Economic and Fiscal Impact Statement (Form 399)

Attachment C - CCRC regulations 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 and voluntary green building standards for occupancies within its authority, building upon a framework of mandatory and voluntary measures within CALGreen. The intent of the proposed regulation:

1. reduces greenhouse gas (GHG) emissions from buildings and construction of buildings
2. promotes environmentally responsible, cost-effective, healthier places to live and work
3. responds to the directives by the Governor in 2008 to develop a green building code as well as current legislation and executive mandates

BSC's proposed action will support the implementation of the Assembly Bill 32 (2006), which requires California to reduce GHG emissions to 1990 levels by 2022; Senate Bill 1389 (2002) which requires the California Energy Commission to develop assessments and forecasts to advance energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety; Assembly Bill 2446 (2022) requires State Air Resources Board to develop a framework for reducing the average carbon intensity of the materials used in the construction of new buildings, including those for residential uses; Senate Bill 596 (2021) established the intent of the Legislature that attaining net-zero or net-negative emissions of greenhouse gases from the cement and concrete sector become a pillar of the state's strategy for achieving carbon neutrality; Executive Order B-55-18 ordered a statewide goal to achieve carbon neutrality as soon as possible, but no later than 2045, and achieve and maintain net negative emissions thereafter.

The proposed changes to the building standards with statewide application will lead to substantial environmental benefits through reduction in GHG emissions leading to improved public health and a more sustainable built environment.

Objectives of the Proposed Amendments
The objectives of the proposed amendments are to further reduce greenhouse gas emissions when buildings 50,000 square feet and greater are reused and modernized, or newly constructed. The purpose, need, and benefit of these regulations is a first step to address the impact of building materials on carbon emissions.

ECONOMIC IMPACT STATEMENT

Items:

A. ESTIMATED PRIVATE SECTOR COST IMPACTS

2. Estimate the economic impact of the proposed amendments:

The proposed regulations contain three compliance paths for new or reused buildings 50,000 square feet or greater. Cost estimates are included below for each path.

- Building Reuse; 45 percent building reuse of the structural systems and exterior skin
- Whole building life cycle assessment (WBLCA)
- Prescriptive compliance of specific, high carbon containing building materials meeting prescribed carbon content based on the Buy Clean California Act.

Building Reuse: This compliance option could be used when an existing building is being reused, modernized, altered or expanded, and is 50,000 square feet or greater. Forty-five (45) percent of the structural elements and enclosure must be maintained to comply with this path. This compliance path would not have a significant increase in project costs and may have a reduction in costs through material conservation.

WBLCA: The Rocky Mountain Institute (RMI), an independent, non-partisan, nonprofit organization of experts across construction disciplines, and the American Institute of Architects California (AIACA) estimated that the WBLCA method of compliance, on average, would increase the professional service fee by $10,000 to $15,000 per project. Regional variations and project scale differences are the cause of this range. Free software used to complete the WBLCA is available. GHG emission quantities used in the software is registered and listed in third-party databases and U.S. Life Cycle Inventory Database (USLCI) generated by the National Renewable Energy Laboratory (NREL) is available publicly. It has not been shown that there will be a cost increase to materials overall as these are materials readily available on the market. The only additional estimated cost is through the creation and management of the WBLCA reports. Www.levelset.com estimates construction costs at $313 to $378 per square foot for a single-story office building constructed in the western United States. A mid-rise commercial building averages $481 - $607 per square foot. Using the average of these per square foot costs, $10,000 to $15,000 of the overall project cost for a 50,000 square foot building is 0.0675 percent of the total construction cost.

Prescriptive path: This path would also not increase material costs directly. Compliance with this path is based upon the Buy Clean California Act enacted in 2017 Public Contract Code Sections 3500-3505. Historically high carbon containing materials are listed and prescriptively limited in their allowable carbon content. The limits set in these regulations are 175% of the limits required in the Buy Clean California Act making compliance of the materials less difficult. A material that meets the Buy Clean California Act limits would automatically comply with these proposed regulations. Factory and product specific Environmental Product Declarations (EPD) for specified materials used in the project are required to validate compliance. The generation of factory and product specific EPDs included in the Buy Clean California Act have been required since the Act was passed in 2017. Should a manufacturer need to generate a new factory or product specific Type III EPDs to comply it has been estimated, based on information provided by the California Construction and Industrial Materials Association (CALCIMA), to cost material manufactures approximately $10,000 with an estimated $2,000 annually for recertification. These costs would be spread across all non-residential projects statewide resulting in a negligible increase per project. Cement and concrete are historically high carbon containing materials but were not initially included in the Buy Clean California Act. The proposed regulations include an exception for cement/concrete to achieve compliance with the prescriptive path. The exception permits concrete to be considered one product category and a weighted average of the maximum GWP for all concrete mixes, shall be less that the weighted average of the GWP limits in Table 5.409.3. This exception also permits industry wide EPD, rather than product-specific or factory-specific. This allowance was included to mitigate the lack of available local cement producers that have established EPDs. A critical component to these negligible material costs is that the limits for compliance can be and in most cases are being met by the current market.

The Assembly Appropriations Committee analysis of Assembly Bill 966 (Bonta, 2019), “Cement or concrete plants typically hire consultants or pay for software to produce the Environmental Product Declarations (EPD). Climate Earth, the company owns the EPD software, charges $10,500 for a single plant, plus a $2,400 annual fee for continued access to create new EPDs for different cement mixes or update existing documents. Rates are discounted for companies that pay for EPDs for multiple plants (EPDs for 10 plants costs $24,700 plus a $6,180 fee).” Statewide private sector costs per year, if owners of all buildings subject to the proposed regulation choose this compliance option, would be approximately $2,471,320. However, per an analysis provided by the California Construction and Materials Association (CalCIMA), there are approximately 300 concrete mixing plants without EPDs and the total cost for those plants to obtain EPDs is about $1.5 million. As noted above, it is

unlikely that all affected parties throughout the state subject to this regulation would choose this compliance path therefore reducing the annual cost of compliance.

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 the proposed rulemaking is considered a major regulation, the cost estimates specified in this section are estimated on an annual basis. Projected annual costs of the proposed regulation, considering the three compliance options, are below $50 million. Based on this annual cost estimate, the category “Below $50 million” was selected for the estimated economic impact.

Additionally, 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.

3. Enter the total number of businesses impacted:

   Unknown.

   Describe the types of businesses impacted (Include nonprofits):
   The types of businesses impacted by these proposed regulations are businesses developing and/or managing commercial real estate, the architecture/engineering/construction industries, sustainability consultants, material/product manufacturers, LCA and EPD analysts.

   Enter the number or percentage of total businesses impacted that are small businesses:
   Unknown.

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

   Unknown/None. There may be a need for additional businesses to perform LCA and create EPDs.

6. Enter the number of jobs created/eliminated:

   Unknown/None. Real estate developers/managers, architecture/engineering/construction industry, sustainability consultants, material manufacturers, EPD analysts.

7. Will the regulation affect the ability of California businesses to compete with other states by making it more costly to produce goods or services here?

   There is a chance that the cost to produce products such as concrete, steel, glass, mineral wood board insulation, and mineral wood board may see a marginal increase to offset the cost of obtaining and certifying EPDs. However, as EPDs become more common, desirable, and required to comply with regulations in other states and possibly federal regulations, this regulation may *not* affect the ability of California to compete with other states in the manufacture of these products in the future.

B. ESTIMATED COSTS

1. Estimated Statewide Dollar Costs for Businesses and Individuals.

The proposed regulation requires compliance with one of three options: building reuse, whole building life cycle assessment, or a product global warming potential (GWP) compliance-prescriptive path.

a) Costs to Small Business:

Due to the various types of businesses that may be affected by this regulation, and due to the compliance options provided, it was not possible to determine how many affected small businesses exist and which compliance method they may choose. Therefore, the initial costs, ongoing costs, and years affected for a small business cannot be determined.

b) Costs to Typical Business:

Due to the various types of businesses that may be affected by this regulation, and due to the compliance options provided, it was not possible to determine an exact dollar amount for initial and ongoing costs of a typical business. Based on the data provided, compliance with the building reuse option cannot be forecasted. Compliance with the whole building life cycle assessment option would increase the professional service fee by $10,000 to $15,000 per project. Regional variations and project scale differences are the cause of this range. Free software used to complete the WBLCA is available. When complying with the product GWP compliance-prescriptive path, an analysis by the Assembly Appropriations Committee indicates that businesses with concrete mixing plants may incur anywhere from $12,500 in initial costs of obtaining an EPD and ongoing membership fees of $2,400, to $28,700 in initial costs for obtaining an EPD plus an annual fee of $6,180, depending on the number of concrete mixing plants a business is seeking to have analyzed. The annual fee is assessed to maintain access to data and create new EPDs. An analysis provided by California Construction and Industrial Materials Association (CalCIMA) (available upon request) indicated that it would cost approximately $1.5 million for concrete mixing plants in California that do not currently have EPDs to obtain EPDs. However, it is unlikely that all concrete mixing plants, nor all other affected product manufacturers in California, will seek to obtain EPDs at once in the following year. Data was not provided by the glazing, steel, or mineral wood board industries. Data was not provided by the glazing, steel, or mineral wood board industries but these industries have been required to provide EPDs's for State projects through the Buy Clean California program beginning in 2018.

c) Cost to an Individual:
There are not costs to an individual.

d) Describe other economic costs that may occur:
Unknown..

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

Unknown.

5. Are there comparable Federal regulations?

No.

Explain the need for State regulation given the existence or absence of Federal regulations:
Recent legislative and executive mandates require California to reduce greenhouse gas emissions, including the carbon intensity of materials used in construction of buildings.

C. ESTIMATED BENEFITS

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

The benefits of this regulation include reduced greenhouse gas emissions, construction waste management, building reuse, life cycle assessment, the use of global warming potential product declarations, mitigation for extreme heat impacts that result from already locked in climate deterioration, and options for reducing the carbon impacts of high use, high impact materials such as cement and concrete, as well as worker safety, health and welfare of California residents, and an improvement in the State's environment.

2. The benefits are the result of goals developed by the agency based on broad statutory authority?

This proposal is in response to a petition received by BSC. The American Institute of Architects California (AIACA), submitted a petition in 2019 requesting that California adopt the Zero Code, a reach code to supplement the California Energy Code. The petition requested the Zero Code be included as a voluntary path to decarbonization in the CALGreen Code, allowing local jurisdictions to adopt it as a means forward for building decarbonization. The Zero Code integrates cost-effective energy efficiency standards with on-site and/or off-site renewable energy, resulting in Zero-Net-Carbon (ZNC) buildings. Due to the energy component, BSC forwarded the petition to the California Energy Commission because BSC-CG does not have authority to promulgate regulations pertaining to energy, but the California Energy Commission denied the petition. Therefore, BSC-CG entered into discussions with stakeholders to ascertain how the goals of the petitioners and stakeholders could be integrated into CALGreen, for which BSC-CG has authority broad authority pursuant to Health and Safety Code Section 18930.5.

Building Standards Commission – CALGreen (BSC-CG) and the Division of the State Architect (DSA) continued conversations with the AIACA and other sustainable and design professional organizations, such as the Carbon Leadership Forum, Rocky Mountain Institute (RMI), New Building Institute, California Construction and Industrial Material Association, and the U.S. Green Building Council to find a path forward to include carbon reduction practices in CALGreen. According to these organizations and other research identified in the technical documents relied upon section of this ISOR, "In the building industry, embodied carbon refers to the greenhouse gas emissions arising from the manufacturing, transportation, installation, maintenance, and disposal of building materials. In contrast, operational carbon refers to the greenhouse gas emissions due to building energy consumption. Approximately 30% of all global carbon emissions are attributed to the building sector, with at least 8% resulting from the manufacturing of construction materials. An additional percentage of global emissions can be attributed to embodied carbon from the industry and waste sectors." Architecture 2030 data indicates that for the 2020-2040 period, the gigatons of CO2 emitted will be 57% from embodied carbon, and 43% from operational [energy use] carbon.

To make the most meaningful impact, building characteristics data from the Commercial Buildings Energy Consumption Survey (CBECS) was analyzed and compared the number of all new buildings in the U.S. built in 2018 by size and by floorspace. A targeted analysis reflects 6% of all buildings are greater than 50,000sf and account for 48,469,000 sf, which is 50% of the total building floorspace. Targeting buildings over 50,000 sf has the potential to reduce the impact of embodied carbon by 50% across the US while only targeting 6% of buildings. This shows the greatest reduction potential with the lowest number of buildings being targeted. This documentation is available upon request.

To achieve California's decarbonization objectives that are mandated by California law, significant reductions in both operational and embodied carbon will be required.

3. What are the total statewide benefits from this regulation over its lifetime?

Unknown.

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

The business type that is most likely to expand are those businesses that specialize in data analysis pertaining to the assessment of sustainable materials and creation of EPDs, as well as life cycle analyses of buildings (LCAs). According to an analysis performed by RMI, "…we can expect to see about half of all new [commercial] construction square footage to be in projects larger than 50,000 square feet." New commercial construction larger than 50,000 square feet must comply with either the lifecycle assessment option or the prescriptive GPW option, which means that more analysts who specialize in lifecycle assessments for buildings or analysis and development of EPDs may be necessary. Businesses that employ these people in-house may need to hire additional staff.

D. ALTERNATIVES TO THE REGULATION

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

BSC considered the following alternative in an effort to further advance the petitioner's request.

Alternative 1:
The American Institute of Architects California (AIACA), submitted a petition in 2019 requesting that California adopt the Zero Code, a reach code to supplement the California Energy Code. The Zero Code integrates cost-effective energy efficiency standards with on-site and/or off-site renewable energy, resulting in Zero-Net-Carbon (ZNC) buildings. Due to the energy component, BSC forwarded the petition to the California Energy Commission because BSC does not have authority to promulgate regulations pertaining to energy, but the California Energy Commission denied the petition. Subsequently, BSC entered into discussions with stakeholders to ascertain how the goals of the petitioners and stakeholders could be integrated into CALGreen, for which BSC has broad authority pursuant to Health and Safety Code Section 18930.5.

2. Summarize the total statewide costs and benefits from this regulation and each alternative considered:

Unknown.

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

There are 3 compliance options for this regulation. BSC cannot predict which option an owner/developer might choose, and therefore cannot forecast a cost to the regulated community.

4. Rulemaking law requires agencies to consider performance standards as an alternative, if a regulation mandates the use of specific technologies or equipment, or prescribes specific actions or procedures. Were performance standards considered to lower compliance costs?

No. Of the three compliance options, one is a prescriptive path whereby buildings of 50,000 square feet or greater may comply with prescriptive Environmental Product Declarations (EPDs). A second compliance path is a performance path allowing a whole building life cycle assessment.

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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 this regulation. 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. Local governments may also retain up to 10% of what is due to the Building Standards Administration Special Revolving Fund pursuant to Health and Safety Code Section 18931.6 to cover administrative costs, training, and code enforcement.

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. If a local government constructs a new building subject to this regulation, and if that jurisdiction chooses the WBLCA compliance method, the professional service cost may increase by $10,000 to $15,000 per project.. However, the other two compliance paths permit a local jurisdiction to choose an option that does not increase the project cost.

B. FISCAL EFFECT ON STATE GOVERNMENT

4. Other. Explain.

All new non-residential state buildings 50,000 square feet or greater are subject to this regulation. However, as previously stated, there are three compliance options for this regulation: building reuse, the WBLCA method, and the product GWP compliance prescriptive path. The building reuse compliance option does not apply to new buildings.

According to the Department of General Services, Real Estate Services Division, it is safe to assume that there may be 10 to 15 buildings statewide to which this regulation applies annually. Assuming that the state opts to use the WBLCA compliance method for all buildings subject to this regulation this year and through FY 24/25, there may be up to 40 projects that incur an additional cost of $15,000, which totals $600,000. If this cost is split among the 2023 year, FY 23/24, and FY 24/25 it may be approximately $200,000 per year. If the state opted for the product GWP compliance-prescriptive path for one-half of the 40 buildings, the additional cost to the state to comply with this regulation may be reduced by approximately one-half.