

Summary and Key Findings from the Embodied Carbon Policy Workshop

2026 SE 2050 Signatory Summit

The SE 2050 Signatory Summit held during the 2026 Structures Congress in Boston, MA involved a variety of half-day workshops focused on multiple topics related to the intersection of embodied carbon reduction and structural engineering. The Policy task group of SE2050 led an advocacy-focused workshop, which aimed to gather feedback on the typical 3-pronged approach to embodied carbon reduction policies for building construction (Building Reuse, WBLCA, and Product GWP limits). This approach was pioneered by CALGreen¹ and has since become a popular approach for jurisdictions enacting green building policies. The following report summarizes the discussions and recommendations gathered as a result of this workshop.

Overview

The workshop attendees included 8 individuals from a variety of professional backgrounds: embodied carbon nonprofit organizations, environmental consultants, real-estate firms, and structural engineers. Two participants had prior experience working on CALGreen projects, however these projects were in the early stages.

Embodied Carbon Policy

- **Problem:** A number of green building policies across the United States utilize the **3-pronged approach** pioneered by [CALGreen](#) to reduce embodied carbon.
 1. Reuse of Existing Building
 2. WBLCA
 3. Prescriptive Path for Product GWP Compliance

There is a need to gather and publicize the structural engineering community's feedback on this approach.
- **Goal:** Facilitate a discussion to gather the comments SEs have on the 3-pronged approach
- **Resources:**
 - [California Green Building Standards Code \(CALGreen\)](#) (Sections 5.105.2, 5.409.2, 5.409.3)



Figure: Workshop prompt given to participants

Overall feedback was positive on the concept of giving three options to the design team for embodied carbon reductions. A multi-pronged approach helps level the playing field to address

¹ The CALGreen embodied carbon code language can be reviewed online - California Green Building Standards Code (CALGreen) (Sections 5.105.2, 5.409.2, and 5.409.3).
<https://codes.iccsafe.org/content/CAGBC2025P3/chapter-5-nonresidential-mandatory-measures>

multiple different building typologies and the multiple different strategies to reduce carbon. Most importantly, multiple options may lead to less public pushback, and results in legislation that is easier to pass.

Workshop participants also emphasized that embodied carbon reduction policies are still relatively new to the industry – and there is a need to keep refining policy requirements as we learn what works to actually reduce carbon emissions.

Another discussion point was whether any of the workshop participants tended to recommend one policy over another. Per one participant:

“...the 3 approaches are not equally impactful for reducing emissions. Assuming reuse is off the table, we advocate for WBLCA. Our pitch is:

- a) it's more impactful than Prescriptive*
- b) if pursuing LEED, you can get additional credits, and*
- c) while Prescriptive may be a lower bar to achieve, it requires additional documentation and materials to track during procurement.”*

The advantage of gaining LEED credits with the WBLCA approach was a frequent comment from participants, and seems to be a common approach among SE 2050 structural engineers.

The positives and negatives of each approach were then discussed:

Path #1 – Building Reuse

- This path was mentioned as the most difficult to accomplish compared to WBLCA or EPD collection.
 - Cost is a major impediment to the reuse of any building
 - In most cases, the desire to reuse a building initially came from the Owner. It does not seem reasonable or feasible for the design and construction team to convince the Owner to reuse a building for the goal of embodied carbon reductions.
 - The current goal of these 3-pronged policies as written is compliance – not reuse or the scale of reductions. And ‘reuse’ is the most difficult and costly option to achieve compliance with.
 - The carbon reductions of reuse are more difficult to quantify, even though building reuse is almost always the most sustainable option.
- As an alternative – should this path also encourage the reuse of materials?
 - For example: compliance could be through the reuse of structural steel elements, salvaged lumber, etc. from locally demolished structures
 - Code requirements need to be loosened to allow reuse of structural elements vs only architectural elements
 - Note: currently, the benefits of material reuse can be addressed through the WBLCA approach

Path #2 - WBLCA

- This policy does not address the desired level of EPD specificity or EPD coverage per material
 - Which materials should use product-specific EPD data, vs industry average data?
 - How many of the materials on a project should have product-specific EPDs?
- Participants raised concern at the ability of WBLCA to inform reduction solutions, rather than just a tool to quantify reductions associated with strategies that the project team may already have planned to implement.
 - Demonstrating a reduction of 10% from the baseline is required per CALGreen
 - WBLCAs are often conducted once design is completed, rather than being used to influence design at the early stages.
 - In many instances, WBLCAs are conducted using design-level quantities, and not as-built quantities.
- Many of the participants voiced concern at a lack of standardization or a defined process to review the accuracy of WBLCAs
 - In one example raised, the structural engineer realized that the architect had assumed the partition wall studs were made of aluminum, which was not accurate
 - It was unclear who on the project team is reviewing the WBLCAs for accuracy. Or, whether this accuracy is critical - will a higher level of detail in LCA result in greater embodied carbon reductions?
 - Does a licensed engineer or architect stamp imply an approval of the quality of a WBLCA?
- The topic of WBLCA baselines, or Embodied Carbon Intensity limits per square footage of a building, was also discussed.
 - Multiple industry groups are currently developing various baselines for different building types (CLF, for example)
 - The question was raised whether project baselines are even needed, if the goal is to get to net zero.
 - Project budget approach was preferred by some, as opposed to WBLCA baselines

Path #3 – Product GWP Path (Prescriptive)

- It is unclear how effective the Prescriptive approach is at reducing carbon compared to the other two approaches.

- o Effectiveness may be dependent on how strict the GWP limits are set per material category. In California, for example, the GWP limits were set at 175% of industry average values.
- This approach only encourages material-level reductions, not design-level reductions: such as more efficient structural or architectural design, or reductions due to the selection of lower-impact materials.
- The collection of EPDs was noted to be a struggle outside of the larger cities and more populated regions

Key Insights and Recommendations

Following in-depth discussions of these policy approaches, the workshop team determined the following recommendations to improve upon the three-pronged approach.

- Recommendation #1: Consider the additional path of Project Carbon Budgets for a “4-pronged approach”
 - o This approach reduces the need for a WBLCA, and gives more flexibility to the full design and construction team to implement reductions while minimizing impact to project cost or schedule.
 - o This approach is summarized in the [SE 2050 Specifications Guidance](#) document
- Recommendation #2: Consider providing incentives in addition to compliance requirements.
 - o Embodied carbon policies need to be defensible, low cost/ lost burden, and provide value, in addition to reducing carbon. It ideally should not raise any costs, or if it does, *provide other benefits*. Potential strategies discussed include:
 - Allowing a greater square footage in development if certain embodied carbon reductions are reached
 - Implement a carbon ladder – where the carbon footprint will influence bid price based on competitors
 - In Chicago there used to be a clause stating that LEED projects go to the top of the permitting list – could a similar mechanism focused on embodied carbon be introduced?

Looking Ahead

Following discussion of CALGreen, there was unanimous agreement that SE 2050 should have a ‘**2029 Advocacy Plan**’ in place before the next federal administration, regardless of the political party elected. Two approaches could be outlined – for continued success either in a scenario with or without an administration that is supportive of passing climate change legislation.

The following ideas were recommended by the workshop group for development by SE 2050 and/or other organizations before the end of 2028, to prepare for the next era of federal leadership:

SE 2050 Policy Resources

- A Top 10 list of embodied carbon policy approaches encouraged by SE 2050
- EPD Check list: Investigate different configurations of materials, and recommend which EPDs to include.
- Develop an SE 2050 stance on data center construction
 - o Many data centers have used low carbon construction
 - o Many of these have a building life of 25 years maximum, typical is 10-15
- Interview structural engineers who have helped introduce or pass embodied carbon policies in their local region
- Develop recommendations for a given project market sector
- Author a series of 'policy case studies' or other articles reviewing the effectiveness of various policies from the perspective of SE 2050 engineers. Policies to study could include:
 - o States with sales & use tax exemptions for decarbonized building materials
 - o State or local Buy Clean policies

Research Needs

- Within the 3 pronged approach...
 - o How often is the 'reuse' option actually chosen?
 - o Is the WBLCA or the Prescriptive approach more effective for embodied carbon reductions?
- Is there a correlation between accuracy of a WBLCA and achieving embodied carbon reductions?
 - o Does a more detailed WBLCA lead to greater reductions?
- Analyze the potential for "greenwashing" in WBLCA
 - o How many WBLCA's are conducted only at the conclusion of design, vs. at the beginning of design?
 - o In many instances, WBLCA's are conducted using design-level quantities, and not as-built quantities.



Disclaimer: the opinions expressed above are those of the workshop participants and are not necessarily reflective of the opinions of ASCE, SEI, or the SE 2050 Commitment Program.