CLEAN ENERGY CANADA

# CONSULTATION SUBMISSION

**Date:** July 2025 | **Prepared by:** Jana Elbrecht, Senior Policy Advisor

## Comments on CBHCC Phase 1: Embodied GHG draft policy positions

**Attached**: Clean Energy Canada (2025): *Building Toward Low Cost and Carbon*.

### Overarching comments

**Clean Energy Canada is supportive of embodied carbon requirements in the 2030 model code**

- Embodied carbon makes up a **significant portion of a new building's emissions**, especially as we build more efficient buildings that are operated with clean electricity, reducing the share of operational emissions.
    - Analysis by the Canada Green Building Council shows embodied carbon can make up over 90% of the lifetime emissions of a high-performance building in Vancouver and over 80% in Toronto.[1]
- The national model building codes are the appropriate instrument for setting an upper limit on embodied carbon in new construction, in order to avoid unnecessary pollution in the buildout of new homes and community and commercial buildings.
- In addition to reducing emissions, embodied carbon requirements in the building code can also create demand for lower-carbon construction materials and facilitate innovation in construction, which presents an opportunity for Canadian industries, including the steel, cement, and forestry sectors, which are currently facing challenges caused by trade tensions.
- **Recent research** by Clean Energy Canada, in collaboration with Chandos Construction and Ha/f Climate Designs, shows that **building with lower embodied carbon through improved design and use of lower-carbon materials does not need to cost more. In fact, in many cases cutting embodied carbon can reduce the overall cost of construction projects.**
    - The table below shows an overview of material-specific emissions reductions achievable at no or negligible price increase. Design interventions that reduce overall material quantities can achieve both lower carbon and lower cost.
- Our research does not stand alone, but echoes findings by the Rocky Mountain Institute,[2] a study commissioned by the City of Vancouver,[3] and several Canadian case studies[4] of

[1] CAGBC, 2022
[2] RMI, 2021
[3] Morrison Hershfield, 2023
[4] CLF B.C., 2024 4th & MacDonald
CLF B.C. 2024 Heather Place B

buildings that have been built with reduced embodied carbon, as well as previous research conducted in Europe.[5]

- Designing for lower embodied carbon can also create other efficiencies, for example in avoiding underground construction or simplifying envelopes, and thereby has the potential to speed up construction timelines.

Table 1: Overview of cost impacts of using lower-carbon material use[6]

| | CONCRETE | STRUCTURAL STEEL | REBAR | DRYWALL | INSULATION |
|---|---|---|---|---|---|
| Emissions reduction | 3% to 32% | 10% to 100% | 3% to 53% | 4% to 55% | 2% to 98% |
| Cost increase per material unit | **Generally 0%;** Some premiums between 1-16% | **Generally 0%;** Instances of a 5-25% premium | **Variable from 0% to 25%;** one outlier of 80% premium | **Consistently 0%** | **Generally 0%;** Instance of a 30% premium |
| Cost increase as share of budget | 0% to 0.55% of foundations budget; 0% to 0.28% of structure budget | 0% to 1.1% of structure budget | 0% to 5.7% of structure budget | 0% of envelope budget | 0% to 0.06% of envelope budget |

* The last row shows cost increases relative to the relevant budget category to put any "premiums" into perspective. The structure budget, for example, is the cost of materials and labour for constructing the structure, including the wood or steel frame. For the multi-unit residential and commercial buildings, the structure budget was around 5-15% of the total project budget.

## Comments on draft policy direction

### The proposed tiered approach is the right policy design choice, but needs small changes to ensure effectiveness

In the policy position paper, we were pleased to see:

- the national model codes take a tiered approach to embodied carbon requirements;
- the intention to align the framework and methodology with existing embodied carbon standards, both procurement standards set by the federal government and standards developed through private sector initiatives.

We further recommend that:

- the code references the National wbLCA Practitioner's Guide as a methodology to assess and demonstrate reductions in the estimated embodied carbon of designs for new construction or renovation of buildings, and as a guideline to demonstrate compliance, in order to align with existing policies and practice;

[5] Shifting Paradigms, 2023
[6] Clean Energy Canada, 2025

- tiers are of increasing levels of ambition, but that each tier has the same scope of application, rather than including additional life cycle stages and building elements with higher tiers. Instead, we recommend the use of placeholder values for lower tiers where insufficient data is available, as detailed in the section below;
- tier requirements are aligned with existing requirements in the federal government's Greening Government Strategy, for example starting at a 10% reduction below a baseline (aligned with the Standard on Embodied Carbon in Construction requirement for ready-mix concrete), with higher tiers requiring up to a 30% reduction from a baseline (aligned with the Standard on Embodied Carbon in Construction whole-building reduction requirement). These existing requirements have been shown to be achievable in real construction projects and so can serve as a starting point.

### A slightly broader scope is reasonable and achievable

In the policy position paper, we were pleased to see:

- operational carbon addressed separately from embodied carbon;
- embodied carbon requirements applying to both Part 3 as well as Part 9 buildings;

We further recommend that:

- performance pathways be made available for both Part 3 and Part 9, with a prescriptive pathway available for Part 9, to allow designers to find the most efficient solutions, while providing a simple compliance pathway for small-scale homebuilding;
- embodied carbon performance requirements apply to the envelope as well as structural elements, as is the practice in multiple jurisdictions across Canada. Cost-effective lower-carbon alternatives are already available for common envelope materials and design, usually without increasing cost, as shown in our research;
- the methodology for reporting cover embodied carbon in all cradle-to-grave life cycle stages, i.e. A1-A5, B1-B5, and C1-C4.
    - The methodology for including these life cycle stages is already built into LCA tools and so expanding the scope will not add complexity for practitioners.
    - Where insufficient data is available for A4, A5, and B and C life cycle stages, placeholder values or default assumptions should be included in the National Model Codes (or accompanying reference documents).
    - Including all life cycle stages (with placeholder values where necessary) will allow for a full comparison of construction options and make it easier to expand requirements in future iterations of the national model codes.

## Contact

**Jana Elbrecht**
jana@cleanenergycanada.org
(437) 324-9323

**Ollie Sheldrick-Moyle**
oliver@cleanenergycanada.org
(647) 999-2992