



# STAFF REPORT TO COMMITTEE

**DATE OF REPORT** November 15, 2023  
**MEETING TYPE & DATE** Electoral Area Services Committee of December 6, 2023  
**FROM:** Building Inspection & Bylaw Enforcement Division  
Land Use Services Department  
**SUBJECT:** *Zero Carbon Step Code*  
**FILE:** 4560-20

## **PURPOSE/INTRODUCTION**

The purpose of this report is to inform and to provide the Committee an opportunity to discuss the implementation of the *Zero Carbon Step Code* within the Electoral Areas of the Cowichan Valley Regional District (CVRD).

## **RECOMMENDED RESOLUTION**

That it be recommended to the Board that the CVRD remain consistent with provincial timelines and enforce the *Zero Carbon Step Code* as each phase is incorporated into the *BC Building Code*.

## **BACKGROUND**

The Electoral Areas Services Committee (EASC) received a report regarding the *Zero Carbon Step Code* at the June 7, 2023, meeting. The Committee later received a presentation from the Cowichan Climate Hub delegation at the November 15, 2023, meeting. At the same meeting, a Notice of Motion came forward as a new business item:

*"Director Deck - Notice of Motion:*

*That the CVRD take steps to implement Zero Carbon Step Code Emission Level 3 immediately and Emission Level 4 on July 1, 2024."*

The Committee then resolved to request that a staff report be prepared for the next Electoral Area Services Committee meeting in relation to this topic.

## **ANALYSIS**

The *BC Zero Carbon Step Code* is a new regulation introduced as part of ongoing *BC Building Code* updates to limit greenhouse gas (GHG) emissions resulting from home heating, water heating and cooking in new construction.

It forms part of the *2018 BC Building Code* update that came into effect on May 1, 2023, and will be further enforced upon introduction of the *2023 BC Building Code* this winter with increasing levels of compliance being implemented in 2027 and 2030.

Not to be confused with the *BC Energy Step Code* which regulates the energy efficiency of new buildings regardless of mechanical or appliance fuel type, the *Zero Carbon Step Code* directly regulates the phasing out of fossil fuels in new construction by limiting the GHG output created by home heating, water heating and cooking appliances.

In the fall of 2020, the EASC voted to remain in line with provincial timelines with regard to the adoption of the *Energy Step Code*. As of May 1, 2023, at a minimum, all new homes in BC must meet Step 3 of the *Energy Step Code*. Energy Step 4 is planned for 2027, and Energy Step 5 is expected in 2032.

With regard to the *Zero Carbon Code*, voluntary compliance (Emission Level-1 “EL”) will be included in the *BC Building Code* in the winter of 2023-2024, mandatory electric home heating (EL-2 “Moderate”) will come in the winter of 2024-2025, mandatory electric water heating (EL-3 “Strong”) will follow in 2027 and finally, mandatory electric cooking appliances (EL-4 “Zero”) is forecasted for 2030.

Recognizing the difference between the *Energy Step Code* and the *Zero Carbon Code* in addition to what they regulate and what do not regulate provides a strong foundation for strategic decision making.

What the *Energy Step Code* regulates:

- Building Envelope details;
- Insulation and Mechanical performance requirements; and
- Thermal Gain and Energy Demand.

What the *Energy Step Code* doesn't regulate:

- GHG emissions;
- Fuel or energy sources; and
- Mechanical or appliance model or type.

What the *Zero Carbon Step Code* regulates:

- Electrification of home heating equipment;
- Electrification of home water heating equipment; and
- Electrification of home cooking appliances.

What the *Zero Carbon Step Code* doesn't regulate:

- GHG emissions resulting from the extraction and processing of building materials such as lumber, concrete or insulation;
- Existing fossil fuel equipment or appliances within existing homes;
- GHG emissions associated with electrification caused from mining or manufacturing; and
- Back up or supplemental heating appliances such as gas or wood fireplaces.

As energy and carbon codes have been introduced, discussed in the media, and implemented in the Valley; staff have received a number of questions regarding the scope and extent of the regulations. Recognizing that electrification will also require compliance with provincially enforced regulations including the *BC Gas Safety Regulation* and the *BC Electrical Safety Regulation*, its valuable to understand the function of the *BC Building Code* in addition to the previously noted regulations as they apply to both new and existing homes. Staff sought input from the local Gas and Electrical Inspectors as part of researching for this report.

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What the *BC Building Code* regulates:

- Energy conservation and carbon output compliance for new buildings;
- Structural, Health, Accessibility, Fire Protection and Energy objectives for buildings actively under construction or substantial renovation; and
- Protection for existing buildings not to fall below their existing level of compliance during an alteration or renovation.

What the *BC Building Code* doesn't regulate:

- Occupied or otherwise completed buildings;
- Buildings that are not actively under construction, substantial renovation or repair; and
- Activities or alterations solely within the scope of Gas or Electrical regulations.

Comments from the local Gas Safety Inspector respecting Zero Carbon and electrification:

- The *BC Gas Safety Regulation* does not mandate Zero Carbon;
- Electric boilers serving in floor radiant heat are expensive to buy and expensive to run in comparison to gas fired units;
- The effectiveness of an electric heat pump is reduced and the electrical demand is increased as the outside temperature drops; and
- The most common or typical gas permit request in the rural areas is for the installation of a gas-powered generator due to the frequency of power outages.

Comments from the local Electrical Safety Inspector respecting Zero Carbon and electrification:

- The *BC Electrical Safety Regulation* does not mandate Zero Carbon;
- A 200-amp electrical service can typically handle the inclusion of an electric furnace, water heater, range, heat pump and dryer. However; to add a hot tub or EV charger will often exceed the allowable load of the panel. This may require an owner to upgrade to a 400-amp service adding additional costs including the cost of a Technical Safety BC permit;
- Lithium-Ion energy storage batteries are no longer permitted within dwelling units due to fire and "thermal runaway"; and  
[Information Bulletin: Energy Storage Systems June 20 2023 IB-EL 2023-06](#)
- An increase in unpermitted work has been observed with owners citing costs and regulations as their reasons for proceeding without permits.

With regard to total global carbon emissions; the most recent available data concludes that Canada is responsible for approximately 1.89% of total global emissions, that British Columbia is responsible for 9% of the Canada's total emissions and that the City of Vancouver contributes to roughly 11% of BC's total emissions.

With regard to indoor air quality concerns; in addition to other requirements including compliance with the *BC Gas Safety Regulation*, the *BC Building Code* requires that all new dwellings are equipped with a mechanical ventilation system which includes kitchen and bath fans, return air, as well as the delivery of fresh air. The volume of breathable air within a dwelling unit is required to be replaced at a rate of one-half air change per hour. In addition; new radon gas mitigation requirements further improve indoor air quality in new homes.

Given the unmeasurably low impact that preemptively implementing the *Zero Carbon Step Code* within the Cowichan Valley Regional District would have on total global, domestic or provincial carbon emissions weighed against the potential impacts associated with in-stream developments, unforeseen costs or challenges that could be witnessed on a local level, it is the recommendation of staff that the CVRD remain consistent with provincial timelines and enforce the *Zero Carbon Step Code* as each phase is incorporated into the *BC Building Code*.

**Option 1 (Recommended):**

That it be recommended to the Board that the CVRD remain consistent with provincial timelines respecting the implementation of the *Zero Carbon Step Code* and its enforcement through the *BC Building Code*.

**Option 2 (Notice of Motion):**

That it be recommended to the Board that staff prepare amendments to CVRD Bylaw No. 3422 – Building Regulation Bylaw, 2011 and proposed CVRD Bylaw No. 4433 – Building Regulation Bylaw, 2023 to implement *Zero Carbon Step Code* Emission Level 3 immediately and Emission Level 4 on July 1, 2024.

**FINANCIAL CONSIDERATIONS**

N/A

**COMMUNICATION CONSIDERATIONS**

Should Option 2 be considered, staff recommend that notice of Zero Carbon implementation be forwarded to local media outlets and that changes be made to the CVRD website as soon as possible.

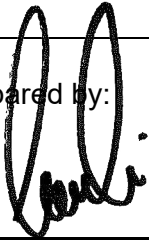
**STRATEGIC/BUSINESS PLAN CONSIDERATIONS**

N/A

**Referred to (upon completion):**

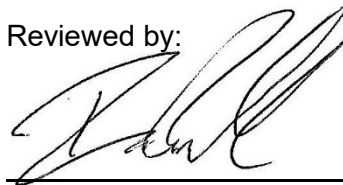
- ☐ Community Services (*Cowichan Community Centre, Cowichan Lake Recreation, South Cowichan Recreation, Arts & Culture, Facilities & Transit*)
- ☐ Corporate Services (*Finance, Human Resources, Information Technology, Legislative Services*)
- ☐ Operations (*Utilities, Parks & Trails, Recycling & Waste Management*)
- ☐ Land Use Services (*Community Planning, Strategic Initiatives, Development Services, Building Inspection & Bylaw Enforcement*)
- ☐ Strategic Services (*Communications & Engagement, Economic Development, Emergency Management, Environmental Services*)

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Reviewed for form and content and approved for submission to the Committee:

Resolution:

☒ Corporate Officer

Financial Considerations:

☒ Chief Financial Officer

**ATTACHMENTS:**

Attachment A – PowerPoint Presentation