

STAFF REPORT TO COUNCIL

PRESENTED: June 7, 2022
FROM: Environmental Stewardship
SUBJECT: IMPLEMENTATION OF THE BC ENERGY STEP CODE AND LOW CARBON ENERGY SYSTEMS PATHWAY

REPORT: 22-079
FILE: 5290

RECOMMENDATION FROM THE CHIEF ADMINISTRATIVE OFFICER

That the recommendation of the General Manager of Resort Experience be endorsed.

RECOMMENDATION(S):

That Council receive the Information Report No. 22-079 regarding progress on the Resort Municipality of Whistler's plans to adopt the BC Energy Step Code for Part 3 buildings and incentivize the installation of low carbon energy systems in Whistler.

PURPOSE OF REPORT

The purpose of this report is to provide an update on the Resort Municipality of Whistler's (RMOW) plans to adopt the BC Energy Step Code (Step Code) for Part 3 buildings and incentivize the installation of low carbon energy systems (LCES) in Whistler. In addition the report covers an anticipated inclusion of greenhouse gas (GHG) targets to the BC *Building Code* by the Province of BC.

☒ Information Report ☐ Administrative Report (Decision or Direction)

DISCUSSION

Background

In December 2020, the RMOW Council adopted Whistler's 2020 Climate Action Big Moves Strategy (Big Moves Strategy) and a new target of reducing Whistler's GHG emissions by 50 per cent below 2007 levels by 2030. Buildings accounted for 38 per cent of Whistler's emissions in 2019 and 50 per cent in 2020. To meet Whistler's climate targets, GHG emissions from buildings must be reduced. While the currently monitored GHG emissions come from buildings that already exist, it is imperative to move towards low carbon building construction going forward. Local governments have greater authority over new construction and many newly constructed buildings will have a lifespan far beyond mid-century, when Whistler must be near zero emissions. Implementing low carbon building requirements now will avoid building-related GHG emissions or expensive retrofitting in the future.

The primary tool for regulating new building emissions in BC is the Step Code, which provides an incremental approach to energy efficient building design. It allows local governments to show leadership by implementing higher levels of the Step Code ahead of the provincial timeline, with an eventual province-wide requirement for all new buildings to be net-zero energy-ready by 2032. Whistler

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has shown early leadership by adopting the Step Code at Step 3 for Part 9¹ buildings in 2019 (Step 4 with In-Ground Basement Floor Area Exclusion). As outlined in the Big Moves Strategy, the next steps towards increased energy efficiency will be to adopt the Step Code to Part 3 buildings starting at step 3 with the goal to achieve the top step of Step Code by or before 2030.

While the Step Code specifies increasing levels of energy efficiency, it does not currently specify the building's operational GHG emissions. To address this gap, many local governments are implementing the Step Code with a LCES pathway, which provides buildings with the option of a one or two-step "relaxation" of the Step Code (i.e. a building can be built at a lower step than otherwise required) when they incorporate an LCES into the design. To date, 10 municipalities have implemented an LCES pathway as part of their Step Code implementation. There is some variation among municipalities with respect to the metrics used to define what can be considered an LCES and the level of relaxation they offer for pursuing an LCES pathway (see Appendix A for more detail). RMOW staff conducted research to identify the most successful approach implemented in BC to date and connected with the respective municipal governments on lessons learned during planning, engagement and implementation of the approach. Based on this research, a proposed approach for the RMOW was developed as outlined in Appendix A.

On November 24, 2021, RMOW staff workshopped these plans with the local building sector and provided a month-long commenting period on the RMOW website for stakeholders to provide further feedback on the plans. The main feedback heard from stakeholders was that the proposed RMOW approach will result in significant GHG emission reductions while providing flexibility to the building sector on how to achieve them. Many stakeholders agreed that the Whistler building sector is ready to build highly efficient buildings and that heat pumps will increase a building's resilience as they provide cooling and air filtration. Discussed challenges were the need for the high electrical capacity in new buildings and supply chain shortages for LCES and other energy-efficient equipment such as heat pumps or windows. Generally, the importance of providing clear implementation and technical guidelines was emphasized throughout the discussions.

All feedback from the buildings sector was discussed and addressed with RMOW staff and has to date been incorporated into the RMOW plans. The timeline and goal to implement these plans was to present the final approach to Council for approval of the building bylaw amendment in summer 2022 with implementation of the new bylaw in place on January 1, 2023.

Provincial GHG intensity (GHGI) approach and anticipated changes to the BC Building Code

During the planning phase of the RMOW approach in 2021, the Province of BC announced a new commitment to introducing GHG reduction targets for new buildings into the BC *Building Code*, which local governments could reference in their building or zoning bylaws. These targets will enable local governments to regulate the emissions of new construction in their communities.

While the specific approach and GHG reduction targets were not announced at the time of the RMOW workshop, the RMOW approach was developed to ideally align with the Provincial approach and to adopt the Provincial GHG reduction targets once the Province grants local governments this authority. The Province has now circulated a first draft of its approach and GHG reduction targets for new buildings and is scheduled to have final approval and engagement materials for local governments ready in the summer of 2022 and implementation by January 2023.

¹ The B.C. Building Code regulates building in two main categories: simple buildings and complex buildings, commonly called Part 9 and Part 3 buildings. In general, a single family home is a good example of a Part 9 building while a shopping mall is an example of a Part 3 building. A more detailed definition can be found [here](#).

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While the draft approach provided from the Province of BC is generally in line with the RMOW plans, the Provincial approach is more detailed and potentially more effective in reducing GHG emissions from new buildings in Whistler. Specifically, the Provincial approach allows municipal governments to implement a GHG emissions cap for the entire building, which does have the potential to be one of the most efficient measures to reducing GHG emissions in new buildings in Whistler.

The main aspects of the provincial approach and GHG reduction targets for Part 3 buildings², i.e. complex buildings over three stories high, and Part 9 buildings, i.e. simple buildings under three stories, are currently proposed as follows:

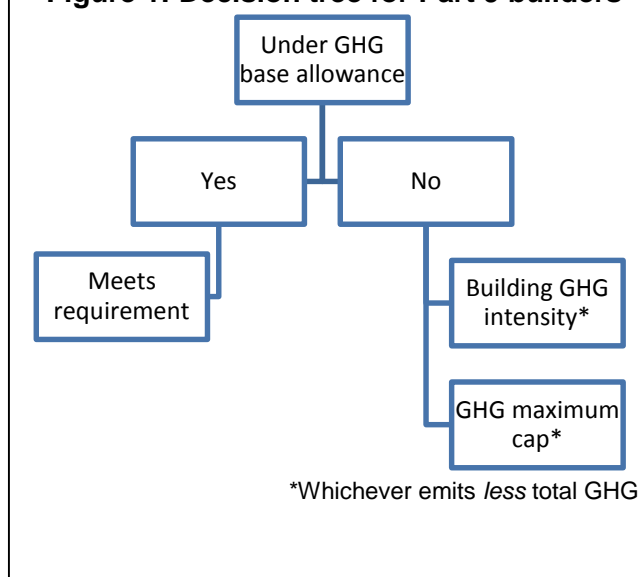
For Part 3 buildings, the new provincial approach builds on the approach currently used by the City of Vancouver, where buildings must meet a GHGI of 6, 3, or 1 kg CO₂e/m² of floor area³. The BC *Building Code* will include similar targets for buildings to perform below a certain GHGI, but differentiated between occupancy types and adjusted for different climate zones. In most cases, GHGIs are slightly increased, with the exception of office. These GHGI performance targets are developed to be achievable at Step 2 in all climate zones in B.C.

For Part 9 buildings, the new provincial approach is proposed to be a combination of implementing GHGI performance targets from the City of Vancouver with some additional maximum GHG emissions values, which is meant to combine the benefits of the GHGI and total GHG cap approaches (see Fig. 1).

Each dwelling unit gets a minimum GHG emission allowance associated with a Medium, Low, and Zero-Carbon target. If the dwelling unit exceeds the GHG emission allowance, it must meet either a total GHG emissions cap or a certain GHGI performance target, whichever emits *the least total GHG emissions*.

Real world and modelled analysis showed that small homes greatly exceeded GHGI performance targets of 6/3/1 yet have lower total GHG emissions than larger homes, by nature of their small size. On the other hand, some large homes could meet the GHGI performance targets without the intended level of decarbonization. By combining both an absolute GHG emissions cap and a GHGI performance target, GHG emissions from both types of homes are being addressed effectively.

Figure 1: Decision tree for Part 9 builders



² The B.C. Building Code regulates building in two main categories: simple buildings and complex buildings, commonly called Part 9 and Part 3 buildings. In general, a single family home is a good example of a Part 9 building while a shopping mall is an example of a Part 3 building. A more detailed definition can be found [here](#).

³ GHGI is a primary metric used to define a building's GHG performance using fuel type emissions factors established in the energy modelling guidelines referenced by the Step Code. GHGI is a calculated value determined through energy modeling of a building and reported in kilograms carbon dioxide- equivalent per square metre per year (kgCO₂e/m²a).

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Next steps and timeline

RMOW staff analyzed the differences between the RMOW plans and the anticipated addition of GHGI performance targets in the BC *Building Code* and evaluated advantages and risks moving forward. As a result, RMOW identified that adopting the provincial approach including a total GHG emissions cap in addition to Step Code energy efficiency improvements will be the more effective regulatory approach to reduce Whistler GHG emissions from new buildings and hence achieving Whistler's climate goals. Adopting the provincial GHGI performance targets is also anticipated to result in lower RMOW staff time required at time of implementation as technical guidance documents for implementation challenges will be provided by the Province. In addition, it is anticipated that many BC municipalities will be adopting the provincial approach which not only increases acceptance by the building sector but also puts Whistler in an early adopter/leadership position.

Given the advantages of adopting the Province's targets and the impending finalization of the Province's approach, RMOW staff is recommending a three-month delay in the originally planned timelines and to pursue next steps in September 2022. It is anticipated that all details on the provincial GHGI performance targets and recommended approach will be publically available then. If so, a stakeholder engagement workshop will be held to inform the Whistler building sector about the provincial approach and the RMOW plans to adopt it. Current timelines provided by the Province are that engagement materials will be published in June 2022 with finalized plans ready for adoption and implementation by December 2022. In the case that further significant delays occur, RMOW staff will pursue the implementation of its previously developed approach with a presentation to Council before the end of the year.

POLICY CONSIDERATIONS

Relevant Council Authority/Previous Decisions

The proposed path forward to adopt the Step Code for Part 3 buildings and incentivize the installation of low carbon energy systems directly supports the Big Moves Strategy, in particular the following:

Big Move 4, "Build zero emission buildings", with the 2030 goal all new buildings achieve the top step in the Step Code, use only low carbon heating systems, and embodied carbon emissions drop by 40 per cent.

- Key initiative 1: "Adopt progressively higher steps on the Step Code to address new building envelope improvements."
- Key Initiative 2: "Collaborate with the Province on low carbon performance requirements and GHG emission limits for new buildings."
- Key Initiative 3: "Incentivize LCES within new buildings by using regulatory tools such as allowing for higher density or lower Step Code."

Corporate Plan

The RMOW Corporate Plan is updated annually and articulates strategic direction for the organization. This section identifies how this report links to the plan.

Council Focus Areas

☐ Community Balance

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Effectively **balance resort and community needs** through deliberate planning, partnerships and investment

☒ Climate Action

Provide leadership to **accelerate climate action and environmental performance** across the community

☐ Housing

Advance strategic and innovative initiatives to enable and **deliver additional employee housing**

☐ Not Applicable

Corporate Goals

☐ Community character and mountain culture is reflected in municipal initiatives

☒ Municipal decision-making supports the effective stewardship of natural assets and ecological function

☐ Corporate policies and operations ensure continuous excellence in infrastructure, facility and program management

☐ A high level of accountability, transparency and community engagement is maintained

☐ Corporate financial health is optimized to ensure long-term community success

☒ A vibrant local economy and safe, resilient resort community is effectively reinforced by organizational activities

☐ Pandemic recovery

Community Vision and Official Community Plan (OCP)

This initiative directly supports Whistler's Community vision and the following OCP goals:

5.4. Goal: Reduce the environmental and energy impacts of residential neighbourhoods to improve the quality of life and sustainability of the resort community.

10.1. Goal: Municipal decision-making is well-structured to achieve energy efficiency goals and GHG reduction targets.

10.3. Goal: Substantially reduce GHG emissions from buildings and infrastructure.

BUDGET CONSIDERATIONS

The adoption of the Step Code for Part 3 buildings and incentivizing the installation of LCES does not have direct budget implications, beyond the dedication of staff time.

LIL'WAT NATION & SQUAMISH NATION CONSIDERATIONS

The RMOW is committed to working with the Lil'wat People, known in their language as *L'il'wat7úl* and the Squamish People, known in their language as the *Skwxwú7mesh Úxwumixw* to: create an enduring relationship; establish collaborative processes for Crown land planning; achieve mutual objectives; and

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enable participation in Whistler's resort economy. This section identifies areas where RMOW activities intersect with these relationships.

Both the Squamish and Lil'wat Nations will be informed about the changes to the RMOW building bylaw.

COMMUNITY ENGAGEMENT

Level of community engagement commitment for this project:

☐ Inform ☒ Consult ☐ Involve ☐ Collaborate ☐ Empower

Stakeholders and the building sector were engaged in a virtual workshop on November 24, 2021 where the RMOW plans and timeline were presented. Participants were invited to provide comments and feedback on the plans in general and implementation thereafter.

In addition to the workshop, a month long commenting period was open on the RMOW website for building sector stakeholders to provide further feedback on the plans.

All comments and feedback were carefully considered and changes to the RMOW plans were made accordingly.

REFERENCES

Appendix A – RMOW BC Energy Step Code and Low Carbon Energy Systems Pathway Implementation

SUMMARY

Over the last year, RMOW staff developed an approach to adopt requirements for progressively higher steps of the Step Code and incentivize the installation of LCES in new buildings in Whistler. The main goal of this approach is to reduce GHG emissions in new buildings to achieve our Big Move 4 goal that by 2030 all new buildings achieve the top step in the Step Code and use only low carbon heating systems.

Due to pending GHG targets by the Province of BC to the BC *Building Code*, RMOW recommends a delay in its current plans by three months. Adopting the provincial GHG targets has the potential to be more effective in reducing GHG emissions from new buildings in Whistler and thereby achieving Whistler's climate targets.

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SIGN-OFFS

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