Considered at March 12, 2019 Regular Council Meeting

Council Agenda Information
☒ *Regular Council March 12, 2019*

Item 9.6

City of Port Moody
Report/Recommendation to Council

Date:	February 26, 2019	File No. 01-0360-20-55-00
Submitted by:	Climate Action Committee	
Subject:	Union of BC Municipalities Resolution – Greenhouse Gas Limits for New Buildings	

Purpose / Introduction

To bring forward a Union of British Columbia Municipalities resolution regarding greenhouse gas limits for new buildings and seek Council endorsement to advance the resolution to the Lower Mainland Local Government Association (LMLGA) and the Union of British Columbia Municipalities (UBCM) for consideration, as recommended by the Climate Action Committee.

Recommended Resolutions

THAT the following resolution regarding Greenhouse Gas Limits for New Buildings be submitted to the Lower Mainland Local Government Association, for subsequent submission to the Union of BC Municipalities, as recommended in the report dated February 26, 2019 from the Climate Action Committee regarding Union of BC Municipalities Resolution – Greenhouse Gas Limits for New Buildings:

> **WHEREAS climate change is recognized to be an urgent concern requiring rapid decarbonization of energy across all sectors, including buildings, in order to achieve 45% GHG emissions reductions by 2030 and net-zero GHG emissions by mid-century, as noted by the IPCC Special Report on 1.5C;**
>
> **AND WHEREAS the British Columbia Energy Step Code establishes targets for increasing energy efficiency of new construction, but these may not result in the necessary levels of GHG emissions reductions to support local government GHG reduction targets nor BC's legislated GHG emissions reduction targets;**
>
> **AND WHEREAS new buildings can last for many decades and are difficult, expensive, and disruptive to retrofit for renewable energy after construction;**
>
> **AND WHEREAS near-zero GHG emissions mechanical systems are well proven and can be cost-effectively incorporated in new buildings, while also improving efficiency;**

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> **THEREFORE BE IT RESOLVED THAT the Province include GHG limits for new construction as an enforceable element in Division B of the British Columbia Building Code, including a pathway to achieve zero GHG emissions for new construction in a timeline commensurate with the science of climate change and BC's reduction targets;**
>
> **AND BE IT FURTHER RESOLVED THAT the Province's goal in the CleanBC Plan to "make every new building constructed in BC "net-zero energy ready" by 2032" be revised to "make every new building constructed in BC "zero emissions" and "net-zero energy ready" by 2032";**

AND THAT a request be sent to local governments in British Columbia for staff to advise their Councils to support the City of Port Moody's forthcoming resolution "Greenhouse Gas Limits for New Buildings" at the Lower Mainland Local Government Association conference on May 8-10, 2019 and the Union of BC Municipalities conference on September 23-27, 2019.

Executive Summary

The Province of British Columbia (BC) has committed to reducing greenhouse gas (GHG) emissions by at least 40% below 2007 levels by 2030, 60% by 2040, and 80% by 2050. In BC, most GHG emissions come from creating and using energy. Major energy-related sources of GHG emissions include transportation, such as driving cars, and stationary combustion sources, such as heating buildings.

New buildings can last for many decades and are difficult, expensive, and disruptive to retrofit for renewable low-carbon energy solutions after construction. The sooner new buildings achieve near zero emissions, the fewer buildings there will be that require costly and challenging deep energy retrofits to achieve GHG reduction targets.

While the BC Energy Step Code establishes a provincial framework for reducing energy use in new buildings, it does not explicitly address GHG emissions from buildings. As buildings represent up to half of GHG emissions at the community level, there is a need to develop an effective policy framework to achieve emissions reductions.

The Climate Action Committee recommends advancing a resolution to the LMLGA and subsequently to the UBCM, calling on the Province to mandate GHG limits for new buildings as an enforceable element of Division B of the British Columbia Building Code (BCBC). The resolution also asks that the provincial goal in the CleanBC Plan "to make every new building constructed in BC net-zero energy ready by 2032" be revised to "make every new building constructed in BC net-zero energy ready and zero emissions by 2032".

As the proposed resolution will support other BC communities in achieving GHG emissions reductions, the Climate Action Committee further recommends that local government staff in BC be requested to advise their Councils to support the City of Port Moody's forthcoming resolution

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"Greenhouse Gas Limits for New Buildings" at the LMLGA May 8-10, 2019 and UBCM September 23-27, 2019 conferences.

Background

At the February 25, 2019 Climate Action Committee meeting, staff provided a presentation on the BC Energy Step Code (Step Code), including an overview of GHG emissions modelling in relation to the Step Code, how greenhouse gas intensity (GHGI) is calculated, the reasoning for focusing on GHGs in new buildings, and introduced the proposed UBCM resolution (**Attachment 1**).

After the staff presentation, the Climate Action Committee passed a resolution in support of the proposed UBCM resolution and seeking support from other municipalities. This resolution is included as the recommended resolution in this report.

Discussion

Climate Change and Greenhouse Gas Emissions

In October of 2018, the Intergovernmental Panel on Climate Change (IPCC) published a special report on the impacts of global warming of 1.5°C[1] above pre-industrial levels and related global greenhouse gas emission pathways. The report states that human activities are estimated to have caused approximately 1.0°C of global warming above pre-industrial levels and that global warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate. Global warming reflecting current nationally stated mitigation goals until 2030 is estimated to result in global warming of about 3°C by 2100, with warming continuing afterwards due to past and ongoing emissions.

Impacts on natural and human systems from global warming have already been observed as many land and ocean ecosystems and some of the services they provide have already changed due to global warming. In addition, climate-related risks to health, livelihoods, food security, water supply, and economic growth are projected to increase with global warming of 1.5°C and increase further with 2°C and 3°C (**Attachment 2**).

Warming from anthropogenic emissions from the pre-industrial period to the present will persist for centuries to millennia and will continue to cause further long-term changes in the climate system, such as sea level rise. The IPCC special report states that reaching and sustaining net zero global anthropogenic CO_2 emissions is necessary to halt anthropogenic global warming on multi-decadal time scales.

The IPCC advises that pathways limiting global warming to 1.5°C would require rapid and far-reaching transitions in energy, land, urban, and infrastructure, including transportation and buildings, and industrial systems in order to achieve 45% GHG emissions reductions by 2030 and net-zero GHG emissions by mid-century.

[1] https://www.ipcc.ch/site/assets/uploads/sites/2/2018/07/SR15_SPM_version_stand_alone_LR.pdf

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Provincial Goals

The Province has committed to reducing GHG emissions by at least 40% below 2007 levels by 2030, 60% by 2040, and 80% by 2050. In BC, most GHG emissions come from creating and using energy. Major energy-related sources of GHG emissions include transportation, such as driving cars, and stationary combustion sources, such as heating buildings.

Building-related emissions account for almost half of community GHG emissions in most of B.C. As such, reducing building-related emissions can have a significant impact on meeting provincial and community GHG emissions reduction targets.

New buildings can last for many decades and are difficult, expensive, and disruptive to retrofit for renewable low-carbon energy solutions after construction. The sooner new buildings achieve near zero emissions, the fewer buildings there will be that require costly and challenging deep energy retrofits to achieve GHG reduction targets. Low-carbon mechanical systems that provide space heating, cooling, and domestic hot water heating are available in the market today for all of BC's climate and building needs. Most low-carbon energy systems can be cost-effectively incorporated into new buildings.

The BC Energy Step Code

The BC Energy Step Code was introduced in April 2017 as a voluntary energy-efficiency standard in the *British Columbia Building Code* (*BCBC*). As an optional compliance path within the *BCBC*, any builder can choose to build to the requirements of the Step Code, and local governments can implement bylaws or policies that require compliance with the Step Code. To comply, builders must use energy modelling software and on-site testing to demonstrate that both their design and the constructed building meet the energy efficiency requirements of the Step Code. The Step Code establishes targets for increasing energy efficiency of new construction, but does not explicitly address GHG emissions.

Greenhouse Gas Emissions in BC Buildings

Rapidly reducing GHG emissions is an important objective for BC and local governments to reach GHG emission reduction targets consistent with the science of climate change. While Step Code establishes a framework for reducing energy use in new buildings, it does not explicitly address GHG emissions from buildings.

There are many examples of buildings constructed throughout the region using a variety of low-carbon heating and cooling systems. These include air source heat pumps, ground source heat pumps, waste heat recovery systems, biomass systems, and solar collectors. There are multiple options for most building types including single-family, multi-family and commercial buildings, including building-scale and district energy systems. These systems are cost-competitive with more carbon-intensive systems, and can be reliably designed, installed, and operated.

The City of Vancouver has requirements to limit GHG emissions in new buildings, and a number of other local governments have introduced Step Code policies that include a low-carbon energy system option with a lower step (including Surrey, Richmond, Burnaby, New Westminster, and

the Township of Langley), while others are considering a similar approach. This low-carbon system "option" approach may result in more low-carbon buildings, but GHG reduction is not guaranteed, and a more rigorous and standardized approach is needed.

In order to better understand the relationship between energy efficiency performance and GHG emissions, as well as policy options, the Provincial Ministry of Housing and Affairs is commissioning a study to explore the range of possible GHG emission reductions in new buildings at each step of the Step Code in relation to common and/or emerging energy systems in buildings, and to provide policy options on how to optimize GHG emission reductions from new buildings.

CleanBC Plan

CleanBC, released in December 2018, outlines the Province's plan for a more prosperous, balanced, and sustainable future. CleanBC includes a target for GHG reduction for buildings of 40% by 2030, and notes the need for further electrification of buildings and support of low-carbon approaches. The CleanBC plan also recognizes the benefits of living and working in greener buildings, like greater comfort, lower energy use, and better air quality – both indoors and in communities. The plan establishes a goal to make every new building constructed in BC net-zero energy ready by 2032.

However, CleanBC does not specifically outline a policy pathway to achieve the 40% target, nor state a long-term goal of zero-carbon buildings. Therefore, policies and regulations that achieve GHG reduction as well as energy efficiency are consistent with both provincial and local government interests.

Encouraging Zero-Carbon Buildings

Although population growth in Port Moody has been moderate in the past, the number of development applications has increased with the addition of the Evergreen Line extension in recent years, making Port Moody an attractive and accessible location. With minimal opportunity for new development, redevelopment has become the focus. As redevelopment in Port Moody continues to grow, an opportunity exists to reduce community GHG emissions by ensuring replacement buildings are equipped with low-carbon solutions.

There is no current governing plan or policy that outlines Port Moody's targets or commitments to building-related emissions reduction. Local governments in BC are required through the *Green Communities Statutes Amendment Act* (Bill 27) to include targets, policies, and actions for the reduction of GHG emissions in their Official Community Plans (OCP). Both the OCP and the Master Transportation Plan (MTP) refer to a community emissions database that is outdated, as well as an interim GHG reduction target of 10% below 2007 levels by 2017, that is past due.

The City has identified a number of climate action goals and initiatives in the OCP that signal Council's commitment to a low-carbon building stock, outlined in **Attachment 3**.

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Port Moody continues to show support for zero-carbon buildings by encouraging and prioritizing low-carbon development applications using the Sustainability Report Card, exploring early adoption of the Step Code, and leading by example through investments in energy efficient upgrades to civic facilities.

Clear direction and leadership in climate policy will strengthen Port Moody's local green economy, and contribute to reaching climate change goals.

Next Steps
The Climate Action Committee is recommending to advance a resolution to the LMLGA and subsequently to UBCM, calling on the Province to mandate GHG limits for new buildings as an enforceable element of Division B of the *British Columbia Building Code*. The resolution also asks that the provincial goal in the CleanBC Plan "to make every new building constructed in BC net-zero energy ready by 2032" be revised to "make every new building constructed in BC net-zero energy ready and zero emissions by 2032".

As the proposed resolution will support other BC communities in achieving GHG emissions reductions, the Climate Action Committee recommends that local government staff in BC be requested to advise their Councils to support the City of Port Moody's forthcoming resolution "Greenhouse Gas Limits for New Buildings" at upcoming 2019 LMLGA and UBCM conferences.

Other Options
THAT the report dated February 26, 2019 from the Climate Action Committee regarding Union of BC Municipalities Resolution – Greenhouse Gas Limits for New Buildings be received for information.

Financial Implications
There are no financial implications associated with the recommendations in this report.

Communications and Civic Engagement
No communications or civic engagement initiatives are required by the recommendations in this report.

Council Strategic Plan Objectives
Advancing the UBCM resolution regarding GHG limits in new buildings is consistent with the strategic outcomes in the areas of Community Planning and Preserving the Environment identified in the 2015-2018 Council Strategic Plan.

Attachments:
1. UBCM Resolution Regarding GHG Limits in New Buildings.
2. Global Warming Impacts Based on the IPCC Special Report.
3. OCP Policies to Support Zero-Emission New Buildings.

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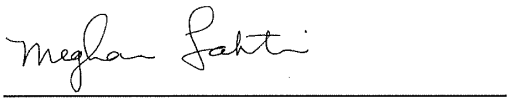
Prepared by:
 Councillor Meghan Lahti Chair

UBCM Resolution

Greenhouse Gas (GHG) limits in the British Columbia Building Code

City of Port Moody

WHEREAS climate change is recognized to be an urgent concern requiring rapid decarbonization of energy across all sectors, including buildings, in order to achieve 45% GHG emissions reductions by 2030 and net-zero GHG emissions by mid-century, as noted by the IPCC Special Report on 1.5C;

AND WHEREAS the *British Columbia Energy Step Code* establishes targets for increasing energy efficiency of new construction, but these may not result in the necessary levels of GHG emissions reductions to support local government GHG reduction targets nor BC's legislated GHG emissions reduction targets;

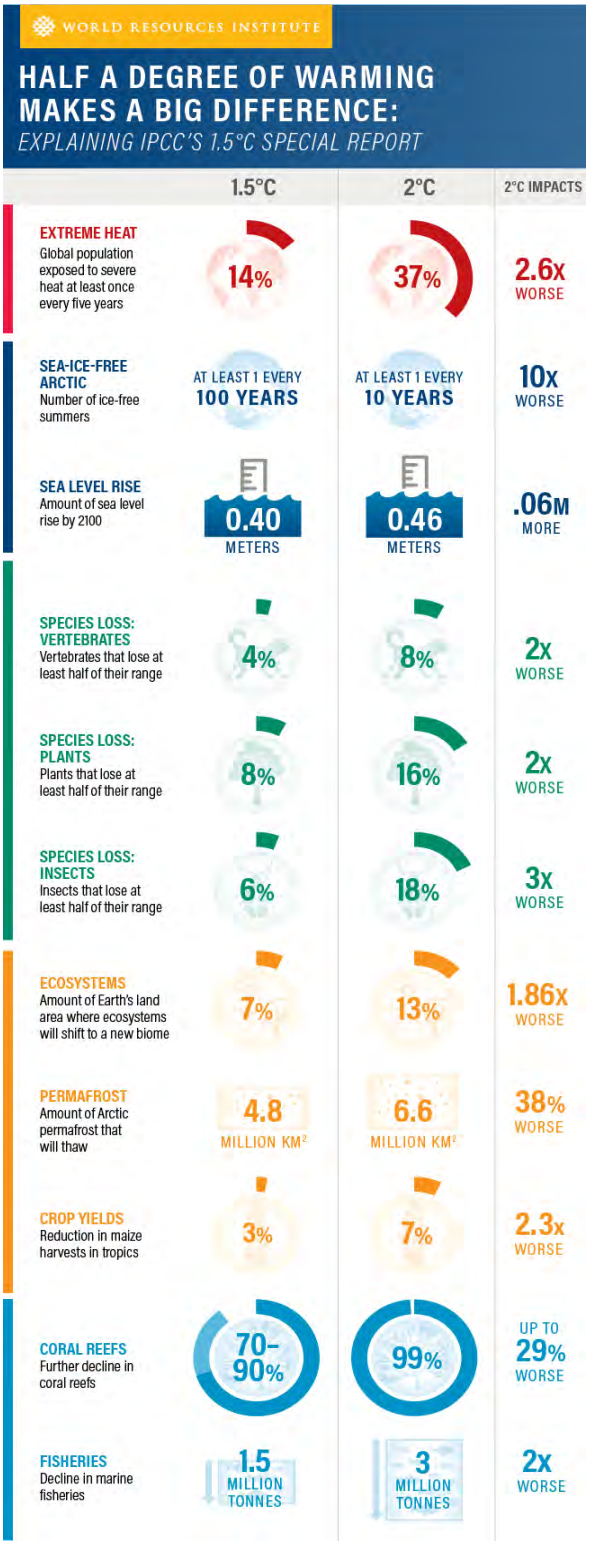
AND WHEREAS new buildings can last for many decades and are difficult, expensive, and disruptive to retrofit for renewable energy after construction;

AND WHEREAS near-zero GHG emissions mechanical systems are well proven and can be cost-effectively incorporated in new buildings, while also improving efficiency;

THEREFORE BE IT RESOLVED THAT the Province include GHG limits for new construction as an enforceable element in Division B of the British Columbia Building Code, including a pathway to achieve zero GHG emissions for new construction in a timeline commensurate with the science of climate change and BC's reduction targets;

AND BE IT FURTHER RESOLVED THAT the Province's goal in the CleanBC Plan to "make every new building constructed in BC "net-zero energy ready" by 2032" be revised to "make every new building constructed in BC "zero emissions" and "net-zero energy ready" by 2032".

Attachment 2 – Global Warming Impacts based on the IPCC Special Report



Attachment 3 – OCP Policies to Support Zero-Emission New Buildings

Chapter 5 – Sustainable Resource Use and Climate Change Response

3. The City will develop a Community-wide Sustainable Building Policy to encourage the renovation of existing buildings and the creation of new development that meets a high standard of sustainable building performance with features that may include but are not limited to:

(d) Passive building systems;
(e) Energy efficiency technology;
(f) On-site renewable energy technology;
(g) District renewable energy systems;

5. The City will develop, implement and regularly update a community GHG and energy management plan as a means to plan for an energy-wise and low-carbon future where energy demand is reduced and needs are met through sustainable practices through the community and by sustainable energy systems (e.g., renewable, affordable, reliant, efficient, etc.).

10. The City will encourage the planning, design and construction of efficient neighbourhoods and buildings to minimize resource consumption, increase use of renewable resources, increase alternative modes of transportation, reduce greenhouse gas emissions and prepare for climate change.

11. The City will encourage local low carbon energy systems, including district energy, as part of larger developments and within areas expected to experience significant redevelopment.

12. The City will encourage sustainable project development by applying the Sustainability Checklist, including energy considerations, to assess the relative strengths of a development proposal from a sustainability perspective and encourage the most sustainable project possible.

14. To encourage strong energy performance, the City will consider incentives for developers including variances, density bonusing, modified/alternative development standards or other appropriate mechanisms available under the Local Government Act.

15. The City will work to provide information to local developers, builders and homeowners about energy efficient building practices and available incentives and funding programs.