Moving Towards Low-carbon Buildings in Whistler

Building Sector Virtual Workshop November 24<sup>th</sup>, 2021



#### **RESORT MUNICIPALITY OF WHISTLER**

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# Agenda

TIME	AGENDA
9:00 AM	Welcome and session orientation
9:10 AM	Background
9:40 AM	Breakout group discussion #1
10:15 AM	Breakout group discussion #2
10:50 AM	Next steps
11:00 AM	Close

# BACKGROUND



## **Climate Action Big Moves Strategy**



### **Addressing GHG Emissions from New Buildings**

#### **BUILD ZERO EMISSION BUILDINGS**

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By 2030, all new buildings achieve the top step in B.C.'s Energy Step Code, use only low carbon heating systems, and embodied carbon emissions drop by 40%.



### **BC Energy Step Code**

Timeline for Energy Efficiency Regulatory Requirements in the BC Building Code Here's what the province's CleanBC plan will mean for new-construction requirements.



**Current Step for RMOW** 

Image Source: Energy Step Code

### **BC Energy Step Code Does not Limit GHG Emissions**



Greenhouse gas emissions by heating type and energy step (source: Metro Vancouver Climate 2050 Buildings Discussion Paper)

## **Authority to Regulate GHG Emissions**

- Local governments currently have limited authority to directly regulate GHG intensity
- CleanBC Roadmap to 2030 committed the Province to adding a carbon standard into the BC Building Code to support a transition to zero-carbon new buildings by 2030



Roadmap to 2030

### **Province-wide GHGI in Step Code**

Details of the Province's approach to incorporate GHGI in Step Code have not been announced, but it is expected that they will:

- Allow local governments to implement voluntary GHGI limits in advance of the Province-wide requirement
- GHGI metrics will not likely be tied to specific steps of the Step Code



### Reducing GHG Emissions through Low Carbon Energy Systems

Low carbon energy systems ("LCES") provide space heating and hot water for buildings to meet GHG intensity limits



### **Jurisdictions with LCES Pathways in Step Code**



## **Defining Low Carbon Energy Systems**

#### **GHG Intensity Limit**

Limits range from 3-6 kg CO<sub>2</sub>e/m<sup>2</sup>/year Right-size backup heating

Modelling guidelines for appropriately sizing natural gas backup systems

#### COP requirement for heating systems

Efficiency for heating over 200% (i.e. heat pump requirement)

Additional requirement options

## **Implications of GHGI Requirements**

GHGI Level (kgCO <sub>2</sub> e/m²/year)	Implications for Residential Development
6	<ul> <li>Space heating: electric</li> </ul>
<b>D</b>	DHW: may remain gas
3	<ul> <li>Space heating &amp; DHW: electric (backup gas systems possible)</li> <li>Gas fireplaces and cookstoves possible</li> </ul>
1	<ul> <li>Nearly all building systems electric (designing for backup gas system may be possible)</li> </ul>

## **Low Carbon Energy System Policy Design**

#### Jurisdictions vary in their implementation of these relaxations

Local Government	Requirements LCES Option			Effective Date
Part 9 Buildings (Smaller buildings, less than 4 storeys & 600m² in footprint) Step 5 is highest Step; Step 3 is anticipated apprx. performance of 2022 baseline BC Building Code				
D. of West Vancouver	Step 5	OR	Step 3	Mar 2021
City of Vancouver	~Step 5	OR	~Step 4	Jan 2022
City of North Vancouver	Step 5	OR	Step 3	Jul 2021
District of North Vancouver	Step 5	OR	Step 3	Mar 2021
City of Richmond	Step 3	OR	Step 2	In Effect
City of Richmond (proposed)	Step 4	OR	Step 3	Jan 2022
City of Victoria (proposed)	Step 4	OR	Step 3	Jan 2022

## Case study: District of West Vancouver and District North Vancouver

In 2021, both jurisdictions increased their Step Code requirements and introduced LCES pathway

- Part 3: Step 4 or Step 2 with LCES
- Part 9: Step 5 or Step 3 with LCES

#### Lessons learned:

- Majority of new buildings use LCES pathway
- Industry is ready to build to highest step or with LCES



Image source: iStock / Jean-Claude Caprara

# WHISTLER'S PROPOSED LCES PATHWAY

## **Key Principles**

- Designed to meet Whistler's 'Big Move' targets
- Aligned with leading jurisdictions and the Province of BC's plan
- Flexible to allow for implementation of GHGI in the Step Code if the authority is granted by the Province in the short-term
- Provides sufficient lead time and clarity for industry to ease implementation

### **Proposed Definition for Low Carbon Energy Systems**

- GHGI limit of 3 kg CO<sub>2</sub>e /m<sup>2</sup>/year
- Right-sizing backup systems: modelling guidelines to ensure that back-up natural gas equipment is appropriately sized for only peak use
- The Cheakamus district energy system will be considered an LCES for the purpose of this policy

## **Proposed Approach by Building Type**

Building type		Current Building	Interim Proposed Approach
		Bylaw	Step Code with Voluntary LCES Pathway
		January 1st, 2019	January 2023
Part 9	Single Family Dwelling	Step 3	Step 5 or Step 3 with LCES
	SFD or DUP with In-Ground Basement Floor Area Exclusion	Step 4	Step 4 with mandatory LCES
Part 3	Residential	-	Step 4 or Step 2 with LCES
	Commercial	-	Step 3 or Step 2 with LCES
Re-zoning	Initiated by the applicant	-	+1 Step and mandatory LCES

### Alternative approach with Authority to Regulate GHGI in Step Code

	Building type	Current Building Bylaw	Interim Proposed Approach Step Code with Voluntary LCES Pathway	Potential Long- Term Approach With Provincial GHGI for Step Code
		January 1st, 2019	January 2023	January 2023
Dort 0	Single Family Dwelling, duplex or townhomes	Step 3	Step 5 or Step 3 with LCES	Step 4 with GHGI
Part 9	SFD or duplex with In ground basement floor area exclusion	Step 4	Step 4 with mandatory LCES	Step 4 with GHGI
Part 3	Residential	-	Step 4 or Step 2 with LCES	Step 3 with GHGI
	Commercial	-	Step 3 or Step 2 with LCES	Step 3 with GHGI
Re-zoning	Initiated by the applicant	-	+1 Step and mandatory LCES	N/A

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# BREAKOUT GROUP #1

### **Discussion Questions**

We'll break into groups to discuss the following topics:

1

What are some of the benefits of RMOW's proposed approach to Step Code implementation with LCES pathway?

- What are challenges and how might those be avoided or addressed?
- 3

Based on your experience, which pathway (LCES or higher step) would you opt to use? Why?

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# BREAKOUT GROUP #2

## **Discussion Questions**

We'll break into groups again to discuss the following topics:



What are key considerations for phase-in of the proposed approach?



Are any additional supports needed for industry compliance and implementation?

### **Next Steps**

### 30-day window for comments

- Link for comments will be on <u>whistler.ca/stepcode</u>
- ✓ Contact: Luisa Burhenne <u>lburhenne@whistler.ca</u>

 Feedback will be incorporated to the Council report later in 2022

# **THANK YOU**

