Zero Carbon Step Code: An Introduction

For the Esquimalt COTW meeting
Jane Devonshire, Chair of SI-CAN
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ZERO CARBON
STEP CODE

Fossil fuels in buildings drive climate change

Relative share of overall carbon pollution
produced by natural gas, fuel oil, and
propane burned in buildings.

29%
City of Kamloops

57%
City of Vancouver

12%
British Columbia

38%
City of
Prince George

Top residential carbon pollution sources

Fossil fuel space and water heating equipment contributes the majority of household carbon pollution.
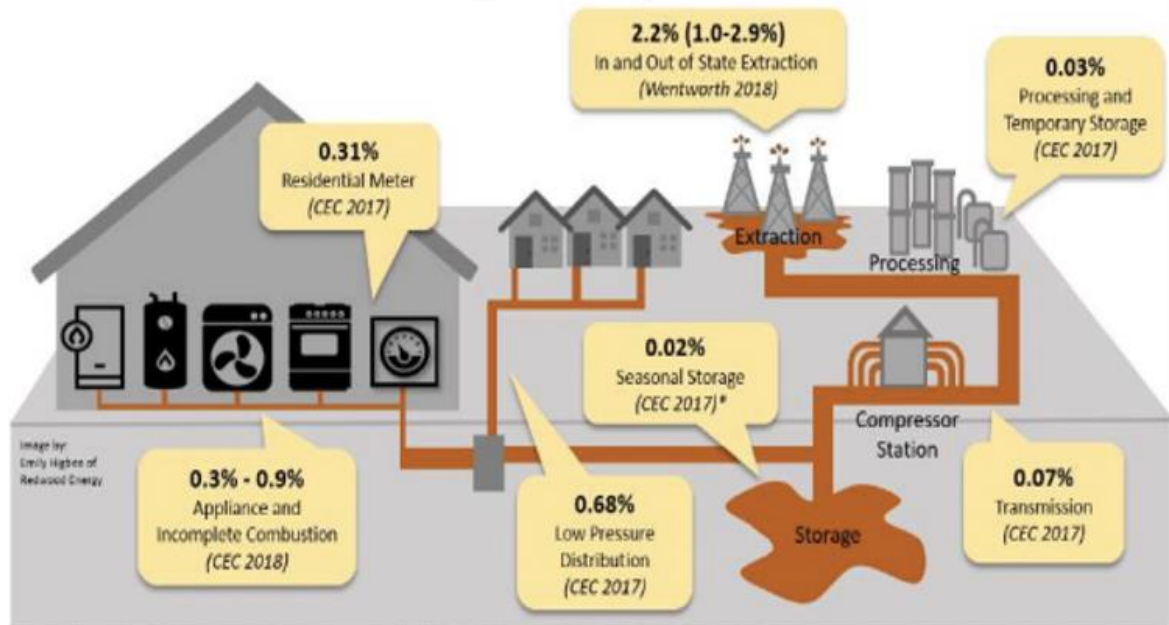
64%
Space heating

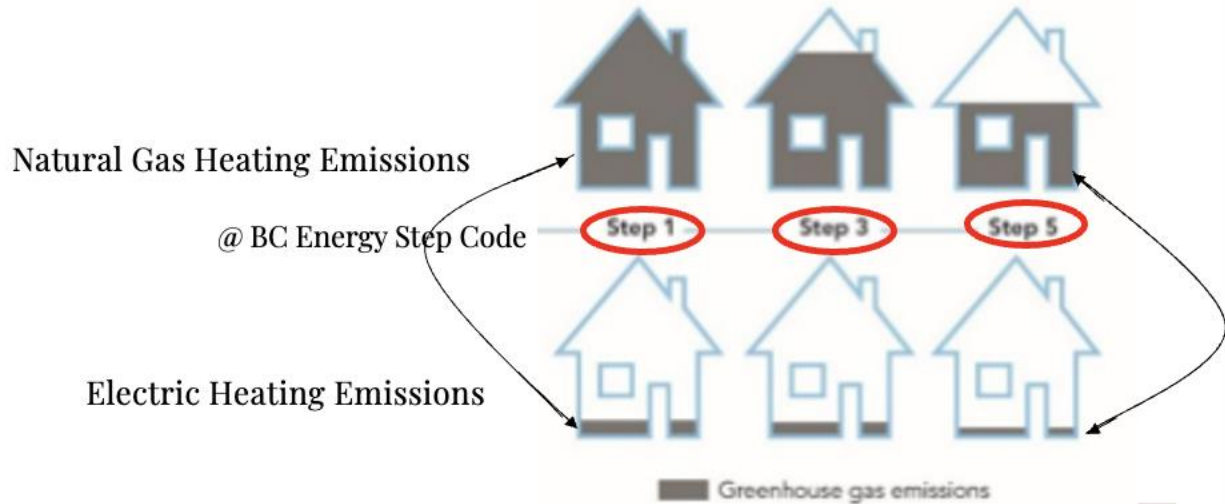**35%**
Water heating

1%
Cooking

Gas can leak methane from Extraction to Combustion

- 1.3 % of the gas used in a stove is emitted as unburned methane

- over 3/4 of methane emissions occur when a stove is turned off.

Residential Natural Gas Methane System Leakage to California Residences: 2.7% - 5.2%

2.2% (1.0-2.9%)
In and Out of State Extraction
(Wentworth 2018)

0.03%
Processing and Temporary Storage
(CEC 2017)

0.31%
Residential Meter
(CEC 2017)

0.02%
Seasonal Storage
(CEC 2017)*

Extraction

Processing

Compressor Station

Image by: Emily Higbee of Redwood Energy

0.3% - 0.9%
Appliance and Incomplete Combustion
(CEC 2018)

0.68%
Low Pressure Distribution
(CEC 2017)

Storage

0.07%
Transmission
(CEC 2017)

Greenhouse Gas Emissions (GHG) by Heating Type

Natural Gas Heating Emissions

@ BC Energy Step Code

Step 1   Step 3   Step 5

Electric Heating Emissions

Greenhouse gas emissions

Zero-carbon electric equipment

Electric heat pump

Electric water heater

Induction stove

Zero carbon energy systems - MURBs

Courtesy Innovation Building Group

Origin of the new Zero Carbon regulation

"**By 2030, all new buildings will be zero carbon**, and all new space and water heating equipment will meet the highest standards for efficiency."

– CleanBC Roadmap to 2030

Many types of buildings can be regulated under the **Zero Carbon Step Code**

Part 9:
Smaller + simpler buildings, specifically…

Part 3:
Larger and more complex buildings, including…
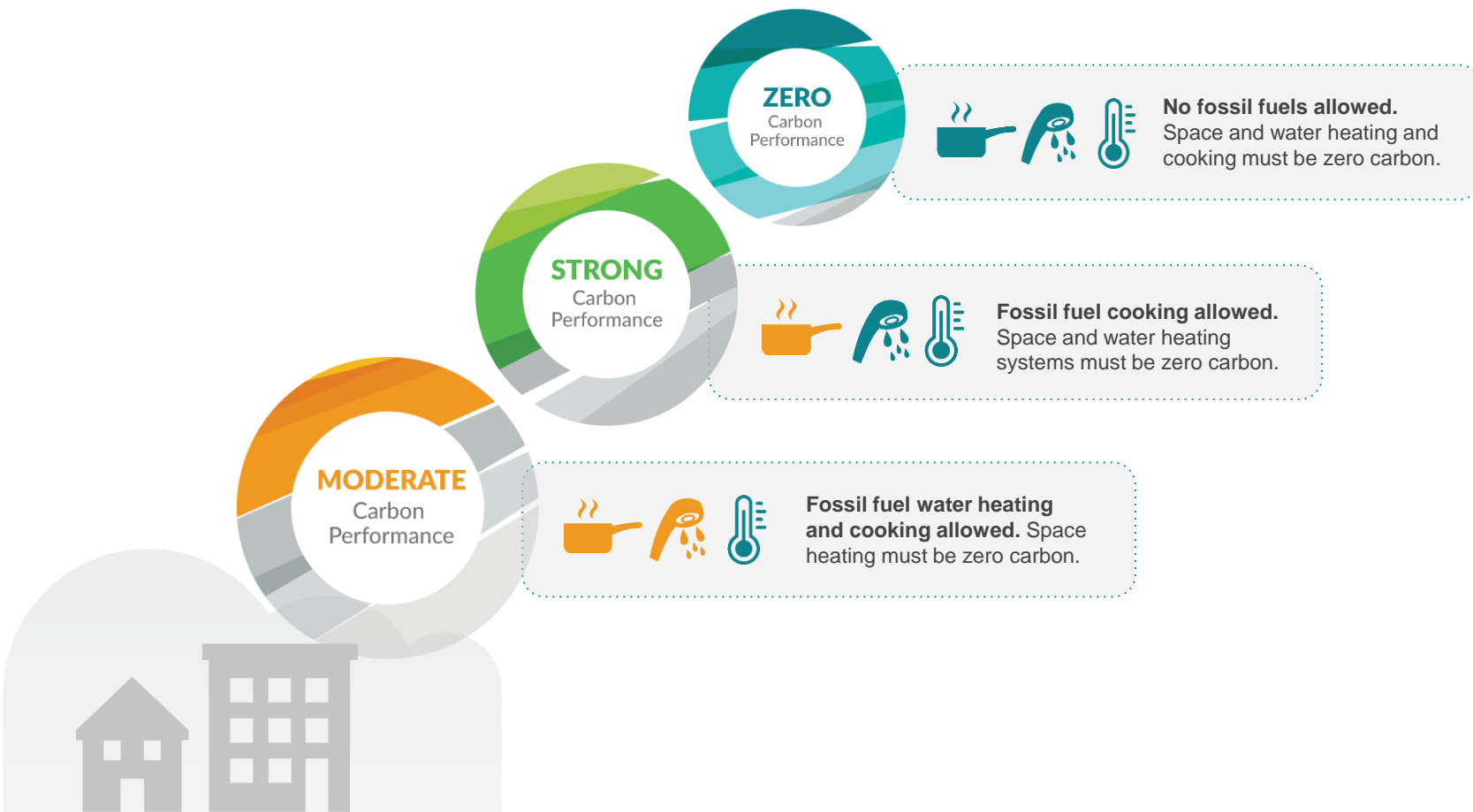
Homes and smaller residential buildings

Offices

Condos + apartments

Financial institutions

Retail + grocery stores

Industry compliance: Homebuilders and the prescriptive approach

ZERO Carbon Performance

No fossil fuels allowed. Space and water heating and cooking must be zero carbon.

STRONG Carbon Performance

Fossil fuel cooking allowed. Space and water heating systems must be zero carbon.

MODERATE Carbon Performance

Fossil fuel water heating and cooking allowed. Space heating must be zero carbon.

Industry compliance: Developers and the performance approach

1.8

3

7

kgCO2e
M²/year

1.5

3

5

kgCO2e
M²/year

**Larger
Residential
Buildings**

Offices

Maximum GHG intensity per building per year
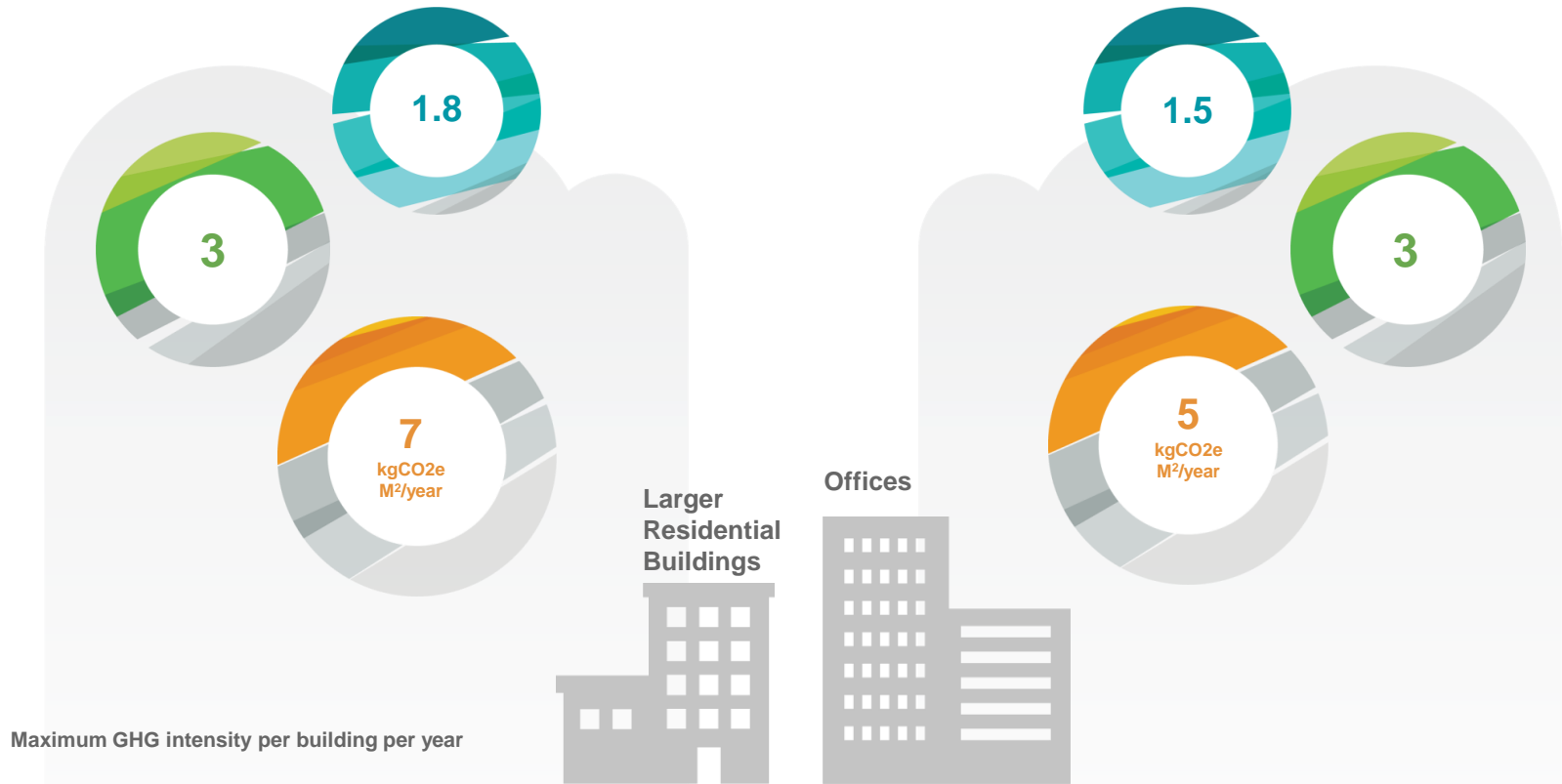
"On Thin Ice"

"Humanity is on thin ice — and that ice is melting fast," United Nations Secretary-General Antonio Guterres said. "Our world needs climate action on all fronts — everything, everywhere, all at once."

Urgent Call to Adopt Zero Carbon Step Code (ZCSC)

Thank you!

Jane Devonshire SI-CAN Chair

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