



BIG MOVE 4

ZERO-CARBON HOMES & BUILDINGS



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Buildings account for 29% of GHG emissions in Kamloops and are the second largest source after transportation. Homes have been growing in size, with residential energy consumption increasing concurrently in recent decades.

However, high-performance, energy-efficient buildings can be built cost-effectively while simultaneously improving indoor air quality, health, comfort, and resilience to the effects of climate change, such as extreme weather events. In BC, the Energy Step Code outlines a schedule of increasing steps of energy efficiency leading to all new buildings being “net-zero energy ready” by 2032 or sooner. In addition to high-efficiency new buildings, most existing buildings will need to be retrofitted, and electrification of heating systems, primarily through cold climate heat pump technologies, will be critical to reaching zero emissions.

In Kamloops, switching heating systems from natural gas (a fossil fuel mostly comprised of methane) to

electricity (primarily from hydropower in BC) or other renewable energy sources will be the largest contributor to reducing emissions in most buildings. This Big Move aims to leverage the Energy Step Code’s increasing efficiency standards to reduce energy consumption while spurring innovation in building design and increasing the use of low carbon energy systems and high-performance building materials. Existing homes and buildings will need to be retrofitted at a rapid pace, backed by incentives and supporting programs. This scale of construction and retrofit activity will boost the local economy by creating green jobs in construction, energy efficiency equipment and material sales, and energy advising services.

CO-BENEFITS



Green Economy
and Innovation



Enhanced
Resilience



Improved
Public Health

TARGET

All new homes and buildings in the community will be net-zero energy ready by 2030 and zero carbon by 2040. Retrofitting 2% of existing dwelling units per year to achieve, on average, 50% GHG emissions reductions per unit.



4A - New Homes and Buildings - Community-Wide

GOAL:

To support the transition to high-performance, energy-efficient, and zero-carbon homes and buildings.

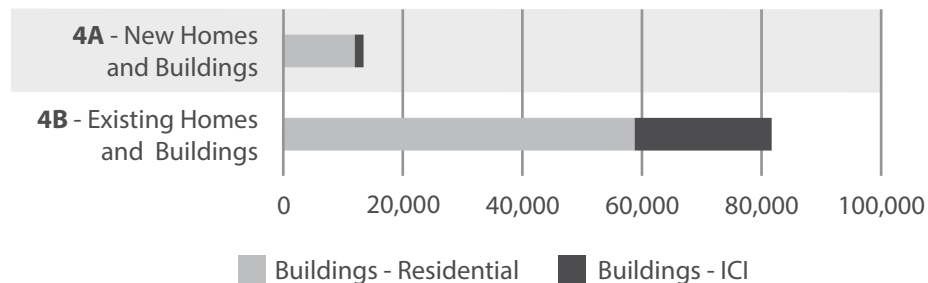
ECONOMIC CONSIDERATIONS:

- Reducing the GHG emissions intensity of construction could result in cost premiums of between 2.85% and 3.24%.ⁱ
- The economic impact of measures to reduce the emissions intensity of new construction could be over \$20 million per year and stimulate the local green building industry.ⁱⁱ
- Requiring larger than average homes to pursue greater energy efficiency or the use of low-carbon energy sooner than the rest of the market will help drive innovation and identify the most cost-effective practices ahead of wider-scale applications.

ACTIONS:

- ❑ Develop a strategy to implement the higher steps of the BC Energy Step Code in advance of the provincial schedule allowing for alternative compliance pathways (e.g. lower steps for developments using a low-carbon energy system and/or meeting a specified GHG intensity). Include provisions for new single-family homes with larger than average floor areas (e.g. $\geq 325 \text{ m}^2$) to exceed standard requirements.
- ❑ Develop municipal incentive programs that “top up” existing government and utility-based rebate programs for high-performance buildings and low-carbon energy systems, etc.
- ❑ Build local capacity in high-performance construction and low-carbon energy systems in partnership with the building industry and TRU.

PROJECTED ANNUAL GHG REDUCTIONS BY 2050:



13,500
tCO₂e
(High)



4B - Existing Homes and Buildings - Community-Wide

GOAL:

To support rapid and large-scale retrofits to existing homes and buildings that result in energy efficiency improvements and switching to low-carbon energy sources.

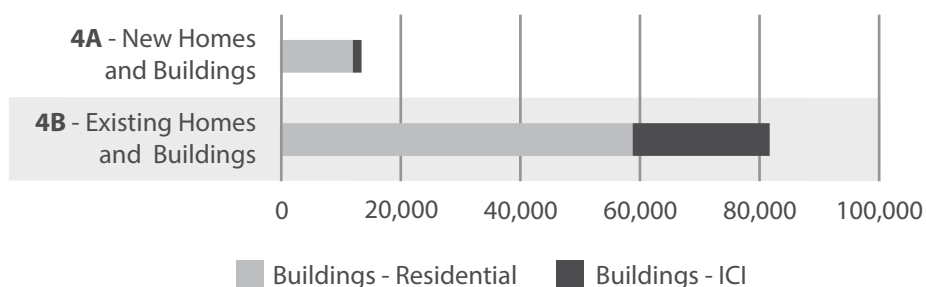
ECONOMIC CONSIDERATIONS:

- A key barrier to retrofitting homes and buildings is the long payback periods typical of more substantial energy efficiency improvements.
- Provincial retrofit rebates could be up to \$14,800 per household,ⁱⁱⁱ with additional federal grants of up to \$5,000,^{iv} based on 2021 programs. Municipal top-up incentives further benefit homeowners.
- Energy-efficiency retrofits can decrease energy bills and lead to healthier homes with better ventilation and thermal comfort levels. Based on 2019 Kamloops average household spending on energy, a 50% improvement in energy efficiency post-retrofit will result in average savings of \$970 per year.^v
- Retrofits add value to homes. According to the 2020 CHBA Homebuyer Preferences Study, home efficiency was the second most mentioned “must have” when buying a home in Canada.
- Large-scale retrofit activity will create local employment opportunities and generate substantial economic activity, estimated at \$96 million per year.^{vi}

ACTIONS:

- ❑ Develop incentives, financing tools, and marketing campaigns to encourage and promote residential and ICI building retrofits.
- ❑ Partner with education and capacity-building organizations (e.g. TRU and the Canadian Home Builders' Association [CHBA] Central Interior) to provide industry training on low-carbon energy systems, such as heat pump technology and installation, and develop local case studies and demonstration projects.

PROJECTED ANNUAL GHG REDUCTIONS BY 2050:

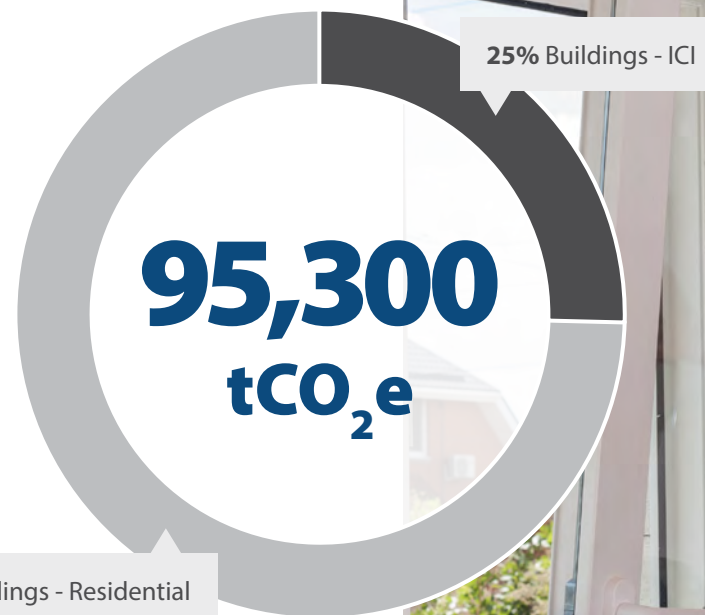


81,800
tCO₂e
(Very High)

TOTAL BIG MOVE 4

PROJECTED ANNUAL EMISSIONS REDUCTIONS

(tCO₂e) BY 2050, BY SECTOR



Emissions reductions from zero-carbon homes and buildings are the most substantial of all of the Big Moves. Emissions reductions in new buildings will require going above and beyond the BC Energy Step Code's energy efficiency measures (these emissions are accounted for under existing policies), largely through the integration of low-carbon space and water-heating systems. Retrofitting existing buildings represents the largest single opportunity to meet the CCAP targets but also a substantial challenge, as this would require enabling legislation for all existing residential, institutional, commercial, and small to medium industrial buildings to be retrofitted with low-carbon energy systems and energy efficiency measures by 2050.

ⁱ "CCAP Economic Analysis Summary," City of Kamloops.

ⁱⁱ Ibid.

ⁱⁱⁱ "Rebate Search Tool," CleanBC Better Homes, accessed March 18, 2021, <https://betterhomesbc.ca/rebate-search-tool/>.

^{iv} "Greener Homes," Government of Canada, last modified March 16, 2021, <https://www.nrcan.gc.ca/science-and-data/funding-partnerships/funding-opportunities/funding-grants-incentives/our-action-starts-home-home-energy-retrofit-initiative/23230>.

^v "CCAP Economic Analysis Summary," City of Kamloops.

^{vi} Ibid.

