



Attachment 7

Energy, Emissions and Climate Change Chapter

4.0 Energy, Emissions and Climate Change

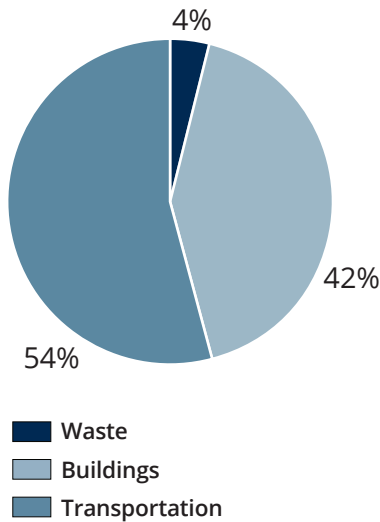


Figure 9.
Where Are We Now:
Community-wide GHG
Inventory

Source: Province of BC Current
Community Energy and Emissions
Inventory data, February 2025

New Westminster is committed to taking bold action on climate change. Improving energy efficiency and taking action on climate change is vital for creating a sustainable city where community members, organizations and businesses thrive. In 2019 the City declared a climate emergency and identified Seven Bold Steps for Climate Action, which established a framework for ensuring that the climate impacts of all City decisions are considered and weighed, and efforts are strategically focused. In 2022, a new Community Energy and Emissions Plan (CEEP) 2050 was endorsed, helping to chart the course for reaching net-zero emissions by 2050, and achieving significant gains by 2030 (45% below 2010 levels).

Community members have been feeling the impacts of hotter and drier summers, and more precipitation in fall, winter, and spring. To adjust to these new realities, climate adaptation is critical in addition to mitigation-focused action on reducing emissions. Climate adaptation actions such as re-introducing wetlands and rain gardens to help control flooding, planting trees to lower air temperature, and adding cooling to homes to improve human health have co-benefits such as cleaner air, enhanced biodiversity, and improved health and wellbeing. Strategically coordinating climate adaptation and mitigation helps ensure that climate actions do not unintentionally create new problems.

Figure 10.
Projected Change in GHG
Emissions and Electrical
Consumption Through
Implementation of CEEP 2050

Source: For 2021 – BC Community
Energy and Emissions Inventory; For
2030 and 2050 – Community Energy
and Emissions Plan 2050

New Westminster	2021	2030	2050
Population Growth	82,940	106,580	142,790
GHG Emission (tCO ₂ e)	277,383	150,738 (-30% below 2010 levels)	7,249 (-97%)
Per capita (tCO ₂ e)	3.5	1.6	0.06
Electrical Consumption (GJ)	1,606,791	1,892,267	2,298,252
Per Capita (GJ)	20.4	20.2	19.6
Total Energy Consumption	6,361,980	5,931,246	4,482,993
Per Capita (GJ) Total Energy Consumption	80.62	63.43	38.28

ENERGY, EMISSIONS
AND CLIMATE CHANGE

Energy, Emissions and Climate Change in the Official Community Plan

Goal 4: New Westminster is an energy-efficient and net-zero emissions community that takes equitable and bold climate action to reduce greenhouse gas emissions and is resilient to the impacts of climate change.

- Policy 4.1: Support a shift to sustainable transportation modes, helping to reduce transportation greenhouse gas emissions.
- Policy 4.2: Encourage retrofitting existing buildings and require new buildings be built to high energy efficiency and low carbon standards.
- Policy 4.3: Pursue energy conservation and demand management, and encourage local renewable energy systems.
- Policy 4.4: Prepare for and reduce the impacts and risks to the natural environment, property, and public health due to climate change.

This Plan... is consistent with policy direction from the Community Energy and Emissions Plan 2050 and recognizes the importance of energy efficiency and GHG reduction. It also reflects new initiatives that have been launched in the community since the previous Official Community Plan.

Achieving the targets set out in the Community Energy and Emissions Plan requires shifting to sustainable transportation modes, retrofitting existing buildings, and constructing more efficient new buildings. Drawing down emissions to zero will depend on proactive participation by all community members. The placement of land uses and density on the Land Use Designation Map helps to encourage walking and biking by locating a higher number of residents near frequent transit. Locating new housing, jobs, and amenities in close proximity to transit also supports the provision of more frequent service.

This Plan supports energy upgrades and electrification during building renovation, and higher performance standards, such as the BC Energy Step Code and Zero Carbon Step Code, for new building construction. Towards this, development permit guidelines included in this Plan encourage the construction of buildings that reduce energy use. Residents are also encouraged to take initiative to make changes to their homes, transportation modes and waste management practices above and beyond what is laid out in this Plan.

As well, this Plan acknowledges the impacts and risks associated with climate change and supports measures to help the City adapt to the effects that climate change will have on community members and the built environment.

Policy 4.1: Support a shift to sustainable transportation modes, helping to reduce transportation greenhouse gas emissions.

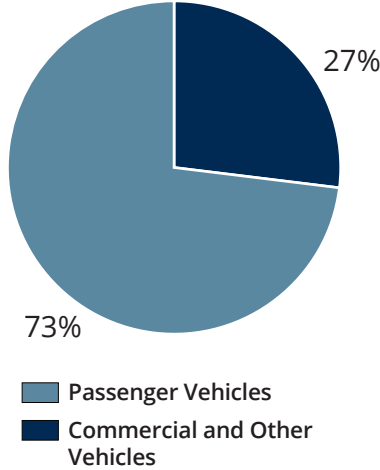


Figure 11. City-wide Vehicle GHG Emissions

Source: Province of BC Current Community Energy and Emissions Inventory data, 2022

Vibrant neighbourhoods include places to live and work, and make it easy to get around without a vehicle.

The City’s Master Transportation Plan and Community Energy and Emissions Plan endeavor to improve transportation choices for local residents while reducing transportation related greenhouse gas emissions. Transportation is a major source of GHG emissions in the city (accounting for 54% of all emissions), and both plans recognize that there are three primary ways to reduce such emissions:

1. Create transit oriented neighbourhoods where residents can live close to where they work and shop.
2. Develop programs and infrastructure that support walking, cycling, rolling, and taking transit as the preferred ways of getting around.
3. Support the use of efficient and low-carbon mobility options, including electric mobility (eMobility).

Neighbourhood design has a major impact on facilitating a wider range of transportation choices. Active transportation increases when communities include a mix of housing sizes, types and densities, diverse services, and a range of employment opportunities. New Westminster is fortunate to already have vibrant neighbourhoods with commercial services within walking distance of most homes. This Plan builds on this strength by encouraging a further mixing of land uses in each neighborhood. This Plan also supports the Master Transportation Plan and Community Energy and Emissions Plan by including policies that seek to manage transportation demand and make it easier and more attractive to walk, cycle, roll, or take transit to a destination.



Encouraging a wider range of efficient and low-carbon travel options decreases vehicle use, reduces transportation-related GHG emissions, improves air quality, and is beneficial to residents and businesses. This includes eMobility options such as electric vehicles and electric bicycles, which the City can support by investing in public charging stations and by supporting similar initiatives on private property. In 2024, the City launched an e-bike share service, enabling e-bikes to be rented across the city. Car-sharing options are also encouraged, to provide local residents with quick, on-demand access to a car or truck without the cost of owning a vehicle.



Electric vehicle and charging stations at City Hall.

Actions

The City should continue to...

- 4.1a** Work with the Province, Metro Vancouver, and regional and local partners to fund programs such as Plug In BC that advance infrastructure to support clean energy vehicles.
- 4.1b** Implement the actions and policies of the Master Transportation Plan and Community Energy and Emissions Plan related to active transportation and transit oriented neighbourhoods as key strategies to improve quality of life while reducing transportation related GHG emissions.
- 4.1c** Implement the eMobility Strategy, which outlines actions the City can take to support the community's transition to electric modes of transportation.

Policy 4.2: Encourage retrofitting existing buildings and require new buildings be built to high energy efficiency and low carbon standards.

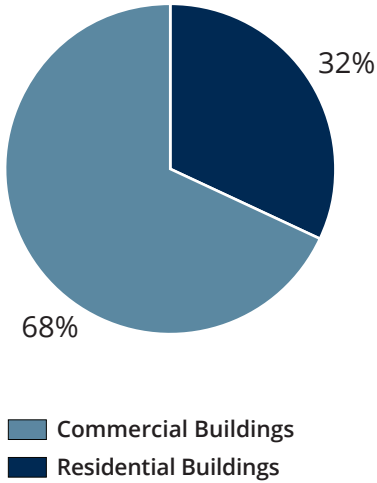


Figure 12.
City-wide Building GHG Emissions

Source: Province of BC Current Community Energy and Emissions Inventory data, 2022

Buildings are a significant source of GHG emissions in the city (42%), and they represent a major part of the City’s annual electricity and natural gas consumption. Buildings are where community members spend most of their time –at home, at work, or accessing community services – making indoor comfort and air quality very important. The Community Energy and Emissions Plan sets objectives to increase the energy efficiency of existing buildings and promote the most energy efficient and low carbon new buildings.

The City can influence energy use and GHG emissions in the built environment by establishing policy direction, zoning requirements, and development permit guidelines for new buildings with respect to energy efficiency, and it can inspect buildings for compliance. The City also supports programs that help advance the technical skills and knowledge of local homebuilders and architects in designing and constructing energy efficient and low-carbon homes and communicating the benefits to homebuyers. As well, the City endeavours to lead by example, such as with the t̄m̄əsew̄txw Aquatic and Community Centre which was the first aquatic centre in Canada to achieve the Canada Green Building Council’s Zero Carbon Building-Design Standard.

WHAT ARE THE BC ENERGY STEP CODE AND ZERO CARBON STEP CODE?

The BC Energy Step Code and Zero Carbon Step Code are two independent but related building code standards that aim to improve energy efficiency and reduce carbon emissions in new buildings in BC. Local governments, such as the City of New Westminster, may choose to adopt one or both Step Codes. The Step Codes establish progressively increasing performance targets (steps) that support market transformation from current energy efficiency and GHG emission requirements in the BC Building Code, to zero-carbon and net-zero energy ready buildings. New Westminster’s Building Bylaw establishes the City’s Step Code requirements, and includes a timeline for reaching top tiers of the Step Codes by 2027.

In 2013, the City launched Energy Save New West, a community energy-efficiency and GHG reduction program for new and existing homes and businesses. Energy Save New West provides concierge services that make it easier for local residents and businesses to retrofit their house or building, and access rebates and incentives through Better Homes BC. The program provides free technical advice and guidance when considering an energy upgrade. It also provides support to local homebuilders and architects through a variety of learning events, technical advisory services, and peer engagement in advanced building practices.

Designing and constructing a new building provides an ideal opportunity to achieve a higher standard of energy efficiency, and to reduce GHG emissions during construction and the lifetime of a building. Buildings with advanced energy performance also deliver co-benefits such as reduced operating costs, higher levels of occupant comfort, and improved acoustic dampening from outside noise. Buildings with better thermal comfort and indoor ventilation have beneficial impacts on the health and productivity of those who live and work within them.



Exterior solar shading designed to shade during the summer and allow light in during the winter.

Actions

The City should...

- 4.2a** Support development of the upcoming provincial Existing Buildings Renewal Strategy and once released by the Province, develop a New Westminster-specific implementation strategy.

The City should continue to...

- 4.2b** Implement the actions and policies of the Community Energy and Emissions Plan 2050 to reduce energy use and related GHG emissions in new and existing buildings.
- 4.2c** Implement the adopted timeline to reach the highest tiers of the BC Energy and Zero Carbon Step Codes by 2027.
- 4.2d** Improve the energy efficiency of City-owned buildings, through implementing the Corporate Energy and Emissions Reduction Strategy, and adhering to the Green Buildings and Energy Efficient Equipment Policies.

Policy 4.3: Pursue energy conservation and demand management, and encourage local renewable energy.

WHAT IS A DISTRICT ENERGY SYSTEM?

District energy systems connect multiple buildings to a single heating or cooling network. They deliver clean, renewable sources of building heating or cooling across an entire neighbourhood at prices competitive with conventional energy sources. These low-carbon systems simultaneously reduce GHG emissions across the entire network of connected buildings, thus dropping emissions faster and potentially with less cost than if each building had to do it on its own.



District energy system in City of Vancouver's Olympic Village neighbourhood.

Energy conservation is a key strategy in managing the transition to a low-carbon future. As the City, community and industry continue to move towards broad electrification, reducing overall energy consumption and improving demand management will be critical to maintaining grid resilience and minimizing energy supply constraints. Energy conservation measures – such as high-efficiency building design, demand-response technologies, and smarter energy use – can reduce household costs while minimizing the need for new infrastructure.

The City continues to explore opportunities to generate clean, renewable energy, including ground-source geo-exchange systems, waste heat recovery (including sewage), bio-energy from clean, urban-sourced wood waste, solar thermal heating, and photovoltaic arrays, to lead the reduction in local GHG emissions.

The Community Energy and Emissions Plan encourages new developments to take advantage of opportunities to use on-site renewable energy sources where feasible. While the Step Codes prioritize improvements in the building envelope as a key strategy to reduce energy use, which includes design choices to increase energy conservation. Building-scale renewables also play a key role in the transition towards ultra-low energy buildings in the city.

The City's own Electrical Utility has a direct interest in conserving energy and supporting local energy-efficiency programs. The Electrical Utility is working toward programs that manage peak demands of the electrical grid and increase availability of renewable and low-carbon energy services to local customers. The utility also supports the installation of solar photovoltaic arrays in buildings.

The City supports district energy as a long-term commitment to sustainable energy infrastructure. Identifying viable opportunities for neighbourhood renewable energy systems in the city is one of the implementation priorities from the Community Energy and Emissions Plan.

Actions

The City should continue to...

- 4.3a Implement the actions of the Community Energy and Emissions Plan related to energy conservation and demand management, and local renewable energy systems.

Policy 4.4: Prepare for and reduce the impacts and risks to the natural environment, property, and public health due to climate change.

The impacts from climate change are being felt globally as well as in New Westminster. These impacts will continue to worsen as sea levels continue to rise and weather patterns change, resulting in longer droughts, more extreme heat events, varied precipitation patterns, and more wildfires. The City must become more resilient using a range of adaptation measures.

Unpredictable and extreme weather events negatively affect public health and disproportionately affect vulnerable groups, such as seniors and those who are unhoused. For example, low-income households may not have access or the ability to pay for home cooling, putting them at risk of serious health complications during extreme heat events.

Increasing the integration of the natural environment within the public realm (for example, in parks and on boulevards) can help mitigate some of the impacts of climate change. Curbside features such as rain gardens filter and stormwater, infiltrate it into the soil to support plants and trees, and can also mitigate the urban heat island effect, cooling the air and improving air quality, and fostering biodiversity.

Across the Metro Vancouver region, climate change is anticipated to impact a number of other factors that influence population growth and livability, including water supply and demand, sewage and drainage, ecosystems and agriculture, air quality and human health, buildings and energy systems, transportation, recreation, and tourism. A Climate Change Adaptation and Resilience Plan will provide detailed guidance for integrating adaptation measures and improving community resiliency.