

2020 BC TRANSIT Climate Change Accountability Report



Executive Summary

BC Transit's total 2020 Greenhouse Gas (GHG) emissions were 61,391 tonnes carbon dioxide equivalent (tCO₂e), with fleet operations contributing to 98% of reported emissions. Total GHG emissions dropped 8.9% between 2019 and 2020.

Conventional GHG emissions, excluding biofuels, dropped 10.5% between 2019 and 2020. Conventional emission reductions are largely driven by a 19% increase in the biofuel content of the diesel fuel supply, an expansion to the Compressed Natural Gas (CNG) bus fleet and Covid-19 related service reductions.

The Low Carbon Fleet Program (LCFP), announced in 2019, continued to rollout with key steps which set the foundation to advance the development of a comprehensive deployment strategy of a zero-emission fleet across the Province.

A Request for Proposal (RFP) for the first purchase of battery electric buses was also released in 2020 and supports the deployment of the first 10 heavy duty battery electric buses in the Victoria Regional Transit System in 2022. This RFP and initial deployment is integral to positioning BC Transit to only acquiring electric Heavy-Duty buses as of 2023, and achieving a 100% zero emission fleet by 2040.

Three new transit facilities were completed in 2020, with energy efficient design considerations and infrastructure for low carbon fleet technologies. A variety of facility retrofits were completed to reduce the carbon emissions of existing buildings, with additional projects planned for the near future. Initial design work for the Victoria handyDART facility is underway. This facility will be the first BC Transit building built to achieve a Leadership in Energy and Environmental Design (LEED) Gold rating.

Between the innovative work of the Low Carbon Fleet Program and fleet renewal to lower carbon options, investments in facilities and facility upgrades, and ongoing improvements to its operations, BC Transit remains aligned to and consistent with the *Climate Change Accountability Act*.



Aaron Lamb,
Vice President Asset Management
and Chief Sustainability Officer

May 31, 2021

Declaration statement

This Climate Change Accountability Report for the period January 1, 2020 to December 31, 2020 summarizes BC Transit's emissions profile, the total offsets to reach net-zero emissions, the actions that have been taken in 2020 to reduce greenhouse gas emissions and plans to continue reducing emissions in 2021 and beyond.

By June 30, 2021 BC Transit's final 2020 Climate Change Accountability Report will be posted to its website at www.bctransit.com/corporate-reports

Emissions and Offset Summary Table:

BC Transit 2020 GHG Emissions and Offsets	
GHG Emissions created in Calendar Year 2020	
Total Emissions (tCO ₂ e)	61,391
Total BioCO ₂	4,465
Total Offsets (tCO ₂ e)	1,374
Adjustments to Offset Required GHG Emissions Reported in Prior Years	
Total Offsets Adjustment (tCO ₂ e)	210
Grand Total Offsets for the 2020 Reporting Year	
Grand Total Offsets (tCO ₂ e) to be Retired for 2020 Reporting Year	1,584
Offset Investment (\$25 per tCO ₂ e)	\$39,600

Note, BioCO₂ is included in Total Emissions but not Total Offsets.

Retirement of Offsets:

In accordance with the requirements of the *Climate Change Accountability Act* and Carbon Neutral Government Regulation, BC Transit (the Organization) is responsible for arranging for the retirement of the offsets obligation reported above for the 2020 calendar year, together with any adjustments reported for past calendar years (if applicable). The Organization hereby agrees that, in exchange for the Ministry of Environment and Climate Change Strategy ensuring that these offsets are retired on the Organization's behalf, the Organization will pay within 30 days, the associated invoice to be issued by the Ministry in an amount equal to \$25 per tonne of offsets retired on its behalf plus GST.

Executive sign-off:



Aaron Lamb,
Vice President Asset Management
and Chief Sustainability Officer

May 31, 2021

Actions Taken in 2020 to Minimize Emissions:

Total GHG emissions (conventional + biogenic) decreased 8.9% between the 2019 and 2020 reporting year. This impact is primarily related to Covid-19 related service reductions along with expansion of the Compressed Natural Gas (CNG) bus fleet.

Conventional GHG emissions (excluding biofuels) dropped 10.5% year over year. This decrease is 1.6% larger than that of total emissions due to conventional diesel being replaced by a 19.3% increase in the biofuel content of the BC Transit diesel supply.

Mobile Emissions – Low Carbon Fleet Program

In 2020 BC Transit continued the rollout of the Low Carbon Fleet program which was announced the previous year. The program aligns with the Province of BC's CleanBC plan, supports provincial targets for greenhouse gas (GHG) emissions, and supports local government climate action goals. The program is moving BC Transit towards a bus fleet powered by cleaner and more efficient technologies, providing customers and communities with cleaner, quieter, and more comfortable transit fleets they can rely on.

Key areas of progress have been made across 2020:

- Low Carbon Fleet Program was expanded to allow more in-depth focus on fleet deployments, infrastructure investment, and systems.
- In September 2020, a Concept Screening Report was completed to support the deployment strategy and establish preliminary program cost estimates.
- In November 2020, a Request for Proposal was released for an Integrated Solution for Heavy Duty Buses, Chargers, Infrastructure, and Supporting Systems.

The above updates set the stage for an effective rollout of the Low Carbon Fleet Program in the coming years.



Mobile Emissions – Compressed Natural Gas (CNG)

In spring of 2020, CNG fueling infrastructure was commissioned at the Langford Transit Centre, allowing for the first CNG fleet in the Victoria Regional Transit System to operate. 35 Heavy-Duty New Flyer CNG and 25 Medium-Duty Vicinity CNG buses were deployed to this system when the fueling infrastructure became operational.

BC Transit also continued toward the commissioning of CNG fueling infrastructure at the new Central Fraser Valley Transit Centre, which will allow for the introduction of a CNG fleet to the local community. CNG operations will commence at the beginning of 2021.

In addition to the above new facilities, three Heavy-Duty CNG buses were added to the fleet operating out of the Whistler Transit Centre.

BC Scrap-it Program

The Victoria Regional Transit System offers a monthly pass incentive for vehicle owners to scrap their older, heavier-polluting vehicles and adopt transit. 15 of these eco-passes were issued in 2020. Implementation of this program removed 179.5 tCO₂e that would have otherwise been emitted in 2020.

Stationary Emissions

New facilities in Cowichan Valley and Campbell River were commissioned, with improved energy efficiency compared to older facilities, and are further designed to be CNG-ready for future development. To reduce water consumption, the Cowichan Valley facility includes a rain-barrel collection system that is used for irrigation of the road frontage. The Cowichan Valley facility also includes an electric vehicle (EV) charging station for public use.

A new Central Fraser Valley Transit Centre was commissioned in December of 2020. This facility is expected to have significantly lower emissions per square foot than its predecessor. CNG fueling infrastructure is in place at this facility, with a fleet of 45 CNG buses being rolled-out in 2021.

Improvements to administration spaces included retrofitting some areas with both LED flat panel and occupancy sensors to minimize emissions and wasted energy. Further modifications planned to make administration areas more efficient include the addition of occupancy controls, and air curtain retrofits to reduce heating load. LED lighting upgrades were additionally performed at the Dawson Creek Transit Centre.

Initial design work for the Victoria handyDART facility is underway, which will be the first BC Transit building being built to achieve a Leadership in Energy and Environmental Design (LEED) Gold rating.

Several heating systems at the Langford Transit Centre were overhauled, with five Heating Ventilation & Air Conditioning (HVAC) units being replaced.

A radiant boiler additive pilot at the Vernon and Kamloops Transit Facilities was completed. An analysis of the project yielded averaged savings between the two facilities of 11%. This additive, which improves heat transfer by reducing surface tension of water in boiler systems, is being considered for further expansion to other facilities.



Plans to Continue Reducing Emissions in 2021 and Beyond:

Mobile Emissions

Immediate expansions to BC Transit’s CNG fleet are ongoing, with 35 CNG buses being the first additions to the new Central Fraser Valley facility at the beginning of 2021. A further 10 buses are planned for later in the summer.

The Victoria Regional Transit System is also receiving a CNG fleet expansion with 10 additional heavy-duty buses being added to the Langford Transit Centre’s CNG fleet in summer 2021.

The deployment of the first 10 heavy duty battery electric buses in the Victoria Regional Transit System in 2022 is integral to positioning BC Transit to only acquiring electric Heavy-Duty buses as of 2023. By 2028, electric buses will be the only type of bus purchased across all classifications¹ to achieve a 100% zero emission fleet by 2040.

Stationary Emissions

Design work is underway on the upcoming Victoria handyDART facility. This facility marks a new direction for BC Transit construction as it will be the first building constructed to LEED Gold New Building standards (or equivalent).

A number of facility retrofits are planned to save energy and reduce stationary emission. These retrofits include lighting upgrades at the Chilliwack Transit Centre, an updated parts cleaner to reduce heavy natural gas load at the Langford Transit Centre, the completion of lighting and HVAC retrofits in the corporate administration building, additional HVAC retrofits at the Langford Transit Centre, and future energy and emissions projects that are currently being explored.

Expansion of the boiler additive pilot to other boiler-equipped facilities is being considered.

The BC Transit Green Team is preparing environmentally focused activities including educational campaigns and events such as an Energy Conservation Day.

A number of policies and procedures to reduce carbon emissions and environmental impacts are being implemented. The development of a Green Procurement Policy Guidelines document is underway with near term completion, as is an update to BC Transit’s Environmental Management System (EMS).

Data for BC Transit’s energy and water consumption as well as waste management will be collected and reviewed to establish EMS baseline data.

BC Transit is planning for a deeper integration of carbon impacts into core business practices by incorporating GHG analysis into business case and the capital planning process to more effectively inform decisions and drive reductions. A Facility Energy Management Plan will be developed to identify pathways to decarbonize the future of Stationary Emissions, and a Climate Adaptation Plan will identify risks and develop strategies to respond to the changing climate.



1 Note: purchasing of electric buses will be in alignment with low carbon fleet program objectives, fleet replacement needs, market readiness of the fleet types for transit service needs, and will be supported by business cases.

Links to other BC Transit Information Relevant to Sustainability

BC Transit Sustainability

<https://bctransit.com/about/sustainability>

Government Mandate Letter – 2019/2020

<https://www.bctransit.com/documents/1529703094471>

BC Transit Service Plan 2019/20 – 2020/21

<https://www.bctransit.com/documents/1529703095612>

BC Transit 2019 – 2020 Annual Report

<https://www.bctransit.com/documents/1529710288414>

BC Transit Strategic Planning

<https://www.bctransit.com/transforming-your-journey>

BC Transit is a member of the Community Energy Association

<http://communityenergy.bc.ca/>

BC Transit Victoria Regional Transit System is member of BC Scrap It Program

<https://scrapit.ca/otherincentivechoices-2-2/>

BC Transit is a member of the Canadian Urban Transit Research & Innovation Consortium (CUTRIC)

<http://cutric-crituc.org/>