

# 2019 Carbon Neutral Action Report

**Organization:** British Columbia Institute of Technology

**Declaration statement:** This Carbon Neutral Action Report for the period January 1, 2019 to December 31, 2019 summarizes our emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2019 to reduce our greenhouse gas emissions and our plans to continue reducing emissions in 2020 and beyond.

## **Overview:**

Actions taken in 2019 to reduce emissions

- Installation of high-efficiency condensing boilers in the NE12 Ironworkers instructional building
- Retro-commissioning of the NE1 building HVAC system, the largest building by floor area on Burnaby campus, as well as the Royal Oak buildings on the south side of Burnaby campus.
- Installation of a heat-recovery system in the SE8 central compressed air system, allowing year-round use of a modern, efficient air compressor and re-using recovered heat for domestic hot water production.
- Summer 2019 pilot project, shutting down central heating plant completely.
- Purchase of a Chevrolet Bolt for low-emission staff transportation between campuses and to off-site meetings.

Plans to continue reducing emissions in 2020 and beyond

- Construction of a new Health Sciences Centre building, designed to operate using only hydroelectricity and geexchange thermal energy.
- Commissioning of a closed-loop wood-waste district energy system that will heat woodworking shops that produce clean wood waste. Natural gas use in those buildings is expected to be 100% displaced once the project is fully operational.
- Installation of a heat-recovery system in the Downtown Campus data centre to improve resiliency, and re-use recovered heat for space heating within the building, displacing district steam use.
- Retro-commissioning of the SW9 building HVAC system to improve energy efficiency.
- Electrification of the NW6 CNC Machining instructional building, eliminating natural gas use for that building.

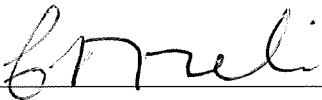
**Emissions and Offset Summary Table:**

<b>British Columbia Institute of Technology GHG Emissions and Offsets for 2019</b>	
<b>As per the <u>Directive</u> issued March 31, 2020, each PSO will use their 2018 GHG Emissions as a placeholder for the purposes of their 2019 CNAR.</b>	
Total Emissions (tCO <sub>2</sub> e)	8350
Total BioCO <sub>2</sub>	6.66
Total Offsets (tCO <sub>2</sub> e)	8343
Offset Investment (\$25 per tCO <sub>2</sub> e)	\$208,575

**Retirement of Offsets:**

In accordance with the requirements of the *Climate Change Accountability Act* and Carbon Neutral Government Regulation, British Columbia Institute of Technology (**the Organization**) is responsible for arranging for the retirement of the offsets obligation reported above for the 2019 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 (**the Ministry**) 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:**

	May 22/20.
Signature	Date
Lorcan O'Melinn	VP, Administration & CFO
Name (please print)	Title

Please scan and email the completed form to [Carbon.Neutral@gov.bc.ca](mailto:Carbon.Neutral@gov.bc.ca)

**Confirmation number:** 00C21CAB

**Submitted date:** 2020-06-23 12:42:01 Pacific Daylight Time

# Carbon Neutral Action Report Survey - 2019

Public sector organizations (PSOs) are required to complete this survey, in addition to a Carbon Neutral Action Report (CNAR) as mandated by BC's [Climate Change Accountability Act](#) and the [Carbon Neutral Government Regulation](#).

Due to the COVID-19 pandemic, the following [Directive](#) was issued on March 31, 2020. Certain deadlines were also extended for the 2019 reporting year (see below).

## **March 31, 2020 Directive:**

*Under my authority as the Director for the purposes of the Act, and under the authority delegated to me in Section 6 of the Carbon Neutral Government Regulation, I hereby direct that all ministries and Public Sector Organizations covered by the Carbon Neutral Government requirement shall use their 2018 GHG emissions as a temporary estimate for their actual 2019 GHG emissions, for the purposes of the 2019 Carbon Neutral Action Reports and 2019 Carbon Neutral Government reporting required under the Climate Change Accountability Act.*

Neil Dobson, Executive Director, Clean BC Implementation  
Climate Action Secretariat

Although 2018 emissions data will be used as a placeholder for 2019, **all other (qualitative) components of the CNAR and CNAR Survey are to be completed with information from 2019 (e.g., actions taken or planned to reduce emissions)**. The only change to the survey is that the deadline was extended by one month to June 30, 2020.

This survey is divided into two parts:

**Part 1** - Will be made public on the Climate Action Secretariat (CAS) [website](#) after June 30, 2020; however, it will not be appended directly to each individual PSO CNAR as was done in previous years. This section collects details about actions taken or planned to reduce emissions and is intended to supplement the legislative requirements in your CNAR.

**Part 2** - Will NOT be made public. Information you provide in this section is important and will be used internally to help CAS staff with planning for emissions reduction and climate change adaptation initiatives. Although not required, PSOs are highly encouraged to complete Part 2.

**Note:** Survey progress can be saved at any time by clicking the "Save and continue later" button at the bottom of each page. A new window will open and you will be asked to provide your name and email. An email will be sent to you from [Carbon.Neutral@gov.bc.ca](mailto:Carbon.Neutral@gov.bc.ca) with the subject line: "Questionnaire Link", which will include a hyperlink for the "Project: Carbon Neutral Action Report Survey – Broader Public Sector 2019". You can then continue responding at another time or email the hyperlink to a colleague to complete remaining section(s).

May 29, 2020	<ul style="list-style-type: none"><li>The final, signed version of the <b>CNAR</b> (or Small Emitters Form) must be submitted by email to: <a href="mailto:Carbon.Neutral@gov.bc.ca">Carbon.Neutral@gov.bc.ca</a></li></ul>
June 30, 2020*	<ul style="list-style-type: none"><li>Ministry of Environment and Climate Change Strategy must post a final CNAR for each organization on the BC Government's CNG <a href="#">website</a> and each PSO is encouraged to post the report on their website.</li><li>The <b>CNAR Survey</b> (optional for Small Emitters) must be completed and submitted online. *Deadline extended from May 29, 2020.</li><li><u>All offset invoice payments must be submitted to CAS.</u></li></ul>
Sept 30, 2020*	<ul style="list-style-type: none"><li><b>Clean Government Reporting Tool (CGRT) Data Entry</b> must be completed for the 2019 reporting year.</li></ul>

	*Deadline extended from April 30, 2020.
Oct 15, 2020*	<ul style="list-style-type: none"> <li>• <b>Self-Certification checklist</b> must be completed, signed and submitted by email to: <a href="mailto:Carbon.Neutral@gov.bc.ca">Carbon.Neutral@gov.bc.ca</a>.</li> </ul> *Deadline extended from May 15, 2020.

\*See the [Carbon Neutral Government – Program Requirements website](#) for more information on program requirements, timelines and templates.

## PART 1 - Included as part of your public CNAR report.

Reminder that Part 1 will be made public on the CAS [website](#).

<b>Contact Name:</b>	<i>Colin Chan</i>
<b>Contact Email:</b>	<i>cchan462@bcit.ca</i>
<b>Organization Name:</b>	<i>British Columbia Institute of Technology</i>
<b>Role – Please select the best category for your current role with your organization. If more than one individual completed the survey, multiple categories may be selected:</b>	<i>Energy Manager</i>
<b>Please select your sector:</b>	<i>Post Secondary (PS)</i>

## Stationary Sources (e.g. Buildings, Power Generators): Fuel Combustion, Electricity use, Fugitive Emissions.

Actions taken by your organization in 2019 to support emissions reductions from buildings

<b>Do you have a strategy to reduce emissions from stationary sources?</b>	<i>Yes</i>
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Whether you have a strategy or not, briefly describe your organization's plans to continue reducing emissions from stationary sources:

<b>Over the medium-term term (1-5 years)</b>	<i>Building HVAC retrofits to improve efficiency and replace end-of-life fossil-fuel equipment with electric/renewable energy equivalent.</i>
<b>Over the long term (6-10 years)</b>	<i>Ensuring all new buildings are constructed with electricity or renewable energy as primary energy source, building more renewable energy districts on campus.</i>
<b>Please describe your strategy's goals (if any) related to energy audits.</b>	<i>Going through our existing older building stock to conduct energy audits, starting from least-efficient.</i>

What % on average of your building portfolio has an energy audit completed each year (if any)?

5

Please describe your strategy's goals (if any) related to building retrofits.

- Minimize/eliminate energy waste causing GHG emissions
- Improve building performance for occupants as well as for GHG reductions
- Strategically deploy electrification and new technologies to further reduce GHG emissions

What % on average of your building portfolio is retrofitted each year in the following categories (if any) - click here for further information:

20

Minor retrofits (e.g. low cost, easy to implement measures including caulking, lighting, adding roof insulation, etc.)

10

Major retrofits (e.g. replacing windows and doors, equipment replacement such as boilers, etc.)

5

Deep retrofits (e.g. replacing roof, replacing the heating, ventilation and air-conditioning system with a renewable technology like a ground-source heat pump, etc.)

5

Please describe your strategy's re/retro-commissioning goals (if any)?

- Minimize/eliminate energy waste causing GHG emissions
- Improve building performance for occupants as well as for GHG reductions

What % on average of your building portfolio do you recommission each year?

5

Do you keep records of Refrigerant gases<sup>1</sup> category and refilling volumes?

[1] Fugitive emissions from stationary cooling equipment are attributed to the leakage and loss of HFC and PFC based coolants from air conditioning and commercial type refrigeration systems. Coolant loss can occur during the manufacturing, operation, and disposal of such equipment. Gases that may be reported via CGRT include HFC R-134, HFC R-134a, HFC R-404a, HFC R-407c, HFC R-410a.

No

How many newly constructed buildings received at least LEED Gold certification in 2019?

0

How many newly constructed buildings did not receive LEED Gold certification?

0

Please explain why LEED Gold certification was not obtained for those new buildings.

N/A

## Mobile Sources (Fleet Vehicles, Off-road/portable Equipment): Fuel Combustion:

Actions taken by your organization in 2019 to support emissions reductions from mobile

## sources?

Do you have a strategy to reduce emissions from mobile sources?

Yes

Whether you have a strategy or not, briefly describe your organization's plans to continue reducing emissions from mobile sources:

Over the medium-term term (1-5 years)

*Retire fossil-fuel vehicles at end of life and replace with electric equivalent as available*

Over the long term (6-10 years)

*Retire fossil-fuel vehicles at end of life and replace with electric equivalent as available*

How many fleet vehicles did you purchase from the following categories:

Electric Vehicle – EV - (e.g., Nissan Leaf, Chevy Bolt)

1

“Plug In” Electric Vehicle – PHEV (e.g., plug-in Prius, Chevy Volt)

0

Hybrid vehicle – HEV – non “Plug In”- (e.g., Toyota Highlander Hybrid)

0

Hydrogen fuel cell vehicle

0

Natural gas/propane

0

Gas/diesel vehicle

2

If you purchased new gas/diesel vehicles, can you briefly explain why vehicles from the other categories were not chosen?

*These were large cargo vans with no current practical electric equivalent*

Actions taken by your organization in 2019 to support emissions reductions from mobile sources? (Continued)

How many existing EV charging stations does your organization have in each category:

Level 2?

26

Level 3?

2

How many level 2 stations (if any) are specifically for your fleet vehicles?  
As defined as Level 2 stations only your organization's fleet vehicles may use

2

How many level 3 stations (if any) are specifically for your fleet vehicles?  
As defined as Level 3 stations only your organization's fleet vehicles may use

0

How many EV charging station(s) did you install in 2019 in each category:

Level 2?

4

Level 3?

1

How many level 2 stations (if any) were installed specifically for your fleet vehicles?  
As defined in the previous section

1

How many level 3 stations (if any) were installed specifically for your fleet vehicles?  
As defined in the previous section

0

Please briefly describe any other related actions, (e.g. charging station feasibility studies, electrical panel upgrades, etc.)

*Charging station feasibility study for new parkade - accommodating 60 new EV chargers planned for 2021*

Please indicate the total number of the vehicles in the following vehicle classes that are in your current fleet

**Definitions:**

- Light duty vehicles (LDVs) are designated primarily for transport of passengers <13 and GVWR<3900kg
- Light duty trucks (LDTs) are designated primarily for transport of light-weight cargo or that are equipped with special features such as four-wheel drive for off-road operation (include SUVs, vans, trucks with a GVWR<3,900kg )
- Heavy duty vehicles (HDV) includes vehicles with a GVWR>3,900 kg (e.g. ¾ tonne pick-up truck, transport trucks)

Light duty vehicles (LDVs)

Electric Vehicles – EV - (e.g., Nissan Leaf, Chevy Bolt)

28

“Plug In” Electric Vehicle – PHEV -- (e.g., plug-in Prius, Chevy Volt)

0

Hybrid vehicles – HEV – (e.g., non “Plug In”- older Toyota Prius, Toyota Camry hybrid)

0

Hydrogen fuel cell vehicles

0

Natural gas/propane

0

Gas/diesel

0

#### Light duty trucks (LDTs)

Electric Vehicles – EV

0

“Plug In” Electric Vehicle – PHEV

0

Hybrid vehicles – HEV – (e.g., non “Plug In”- older Ford Escape Hybrid, older Chevrolet Silverado pickup hybrid, etc)

0

Hydrogen fuel cell vehicles

0

Natural Gas/propane

0

Gas/diesel

14

#### Heavy duty vehicles (HDV)

Electric Vehicles – EV

0

“Plug In” Electric Vehicle – PHEV

0

Hybrid vehicles – HEV – (e.g., non “Plug In”)

0

Hydrogen fuel cell vehicles

0

Natural Gas/propane

0



Gas/diesel

4

Actions taken by your organization in 2019 to support emissions reductions from paper supplies.

Briefly describe your organization's plans to continue reducing emissions from paper use:

Over the medium-term (1-5 years)

*Switching to Sugar Sheet paper, manufactured using sugar cane pulp instead of forest sources  
Implementing a printing tracking system to identify large users of paper and developing solutions to reduce paper use.  
Implementing a system that would minimize abandoned printing and wasted paper use.*

Over the long term (6-10 years)

*Same as above*

Do you have an awareness campaign focused on reducing office paper use?

No

Purchased alternate source paper (bamboo, hemp, wheat, etc.)

Yes