

The BCIT logo is a dark blue square with the letters "BCIT" in white, bold, sans-serif font. A small "TM" trademark symbol is located to the upper right of the square.

BCITTM

2017

**CARBON NEUTRAL
ACTION REPORT**

The background image shows a rooftop solar farm with two workers in safety gear. In the distance, a tall building features a large "BCIT" sign. The sky is blue with some clouds, and a city skyline with mountains is visible in the far background.

BCIT

BRITISH COLUMBIA
INSTITUTE OF TECHNOLOGY

DECLARATION STATEMENT

This Carbon Neutral Action Report for the period January 1, 2017 to December 31, 2017 summarizes our emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2017 to reduce our greenhouse gas emissions, and our plans to continue reducing emissions in 2018 and beyond.

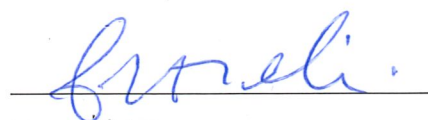
By June 30, 2018, BCIT's final Carbon Neutral Action Report will be posted to our website at bcit.ca/facilities/sustainability/energy

EMISSIONS AND OFFSETS SUMMARY TABLE

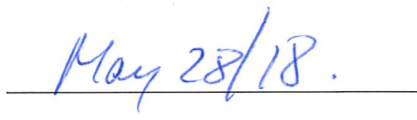
BCIT GHG Emissions and Offsets for 2017 (tCO ₂ e)	
GHG emissions created in calendar year 2017	
Total emissions (tCO ₂ e)	8,915
Total offsets (tCO ₂ e)	8,910
Adjustments to GHG emissions reported in prior years	
Total emissions (tCO ₂ e)	0
Total offsets (tCO ₂ e)	0
Grand Total Offsets for the 2017 Reporting Year	
Grand Total Offsets (tCO ₂ e)	8,910

RETIREMENT OF OFFSETS

In accordance with the requirements of the Greenhouse Gas Reduction Targets Act and Carbon Neutral Government Regulation, BCIT [the Organization] is responsible for arranging for the retirement of the offsets obligation reported above for the 2017-calendar year, together with any adjustments reported for past calendar years. 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.



Lorcan O'Melinn
Vice President, Administration and CFO



Date

- Several BCIT fleet vehicles were upgraded to low/zero-emission models:
 - Two diesel vans were replaced with natural gas models.
 - Two diesel utility vehicles were replaced with three electric utility vehicles.
 - One gasoline van was replaced with a Kia Soul EV.
- Contracted snow removal equipment was kept on site at BCIT during the snow season to offset transportation from the Maple Ridge facility to BCIT for ice and snow events. This offset return transportation of 100 km per vehicle. Each incident could involve a minimum of two vehicles, thus offsetting the carbon footprint daily.
- Heating controls were optimized in many of the trades buildings at the Burnaby Campus, greatly reducing gas use and associated GHG emissions. This initiative aims to reduce energy waste to the lowest possible levels by only heating buildings when they are occupied and optimizing heating start/stop schedules using weather prediction technology.
- The Bookstore has been encouraging instructors to consider using D2L, BCIT's online learning environment, rather than printing course material that students require.

Examples of electric vehicles in the Burnaby Campus Facilities Services fleet.



Actions to Reduce Provincial Emissions and Improve Sustainability

- Facilities Services replaced approximately 50 old drinking fountains with new canteen filling models to reduce disposable bottle use
- Purchased SnowEx 2000 Brine maker, a 5000 gallon brine holding storage tank and a truck mounted applicator system to mitigate ice formation on concrete and asphalt surfaces. This system allows Facilities Services the potential to reduce salt application by up to 75%. This will lower the carbon footprint by using less vehicles to apply product, as well as reduce the salt runoff in winter months.
- Several green space initiatives were undertaken this year:
 - A new rock garden on the stair landing of SE12. This Japanese maple specimen garden includes a new irrigation system equipped with rain sensors and a drip line component to reduce water consumption.
 - A new courtyard between SW01 and SW03. The new garden includes a variety of bee-friendly plants and a water-wise irrigation system equipped with rain sensors.
 - Removal of a large portion of the Willingdon concrete staircase. By removing two-thirds of this large concrete staircase, we created a new, wheelchair-accessible seating area and reclaimed approximately 800 square feet of green space, which was landscaped with bee-friendly, drought-tolerant plantings.
 - On the north side of SE10, we created a 900-square-foot concrete patio, home to the Institute's first exterior wheelchair-accessible tables, self-watering planters, a redesigned front entrance rock garden and over 200 square feet of new drought-tolerant planted beds.
 - In early 2017, we added 200 new mason bee cocoons to our shelter. Those bees successfully hatched in early spring and had a busy summer pollinating.
- A project to replace all urinal flush tanks with sensor flush valves is almost complete, greatly reducing the amount of water used in washrooms.
- The Institute's custodial contractor uses Canadian professional cleaning products which are UL EcoLogo certified. This means the organic ingredients in the products are all readily biodegradable in accordance with OECD standard. The cleaning products also do not require the use of hot water.



Top: A student fills a water bottle at a new canteen filling drinking fountain.

Bottom: A BCIT Burnaby Campus garden is landscaped with bee-friendly and drought-tolerant planting.

Plans to Further Reduce Greenhouse Gas Emissions and Improve Sustainability in 2018 and Beyond

- Continued modernizing of BCIT fleet vehicles with low- or zero-emission models.
- The Smart Microgrid Applied Research Team will complete a research, development, and demonstration initiative aimed at solutions that will reduce barriers to adoption of Electric Vehicles (EVs). The EVID Project has installed six EV chargers on the BCIT Aerospace Technology Campus (ATC). They are installed on the existing streetlight network and share electricity with lamp posts that have been switched over to LED lighting. ATC serves as a model for municipalities to apply this same technique to provide increased, cost-effective opportunities for adding EV charging to the community.
- LED lighting upgrades at Downtown Campus and more buildings at Burnaby Campus.
- Partnering with BC Hydro and FortisBC, BCIT will be undertaking several large HVAC retrofit and efficient control strategy projects.
- Facilities Services plans to replace 50-year-old inefficient boilers with new high-efficiency condensing models.
- Facilities Services is piloting a novel water-treatment technology with the potential to improve energy performance of closed-loop hydronic heating systems.
- Introduction of five new bike stations that will provide repair and pump resources for staff and students at BCIT who take advantage of the health and financial benefits of bicycle commuting.

BCIT Carpentry students work in a shop retrofitted with advanced LED lighting, daylight-controlled to automatically adjust light levels.





- Replacing old window glazing with new, double-glazed windows at two buildings on campus. This will improve the insulation in the winter and the amount of radiated heat in the summer months. This will also help reduce the amount of ambient noise from outdoors.
- Dedicated organics waste streams will be provided in washrooms for paper towels. This will reduce the amount of material sent to landfill.
- Installing more underground irrigation systems with sensors on campus. Rain sensors determine whether enough rainfall has occurred to save water by skipping an irrigation cycle.
- Introducing flowering fruit trees at different locations on campus. This green addition will not only lower carbon, it will benefit the BCIT community and help support the BCIT bee population.
- Facilities Services will be piloting a new measure to improve our waste management system through the installation of in-ground containers manufactured from recycled plastic that take waste streams through above-ground receptacles. The receptacles look like regular waste containers. This cuts down on waste hauling and volume.
- BCIT Imaging has set up a system called Papercut that will require staff to go to printers to “release” their print jobs. This cuts down on abandoned printing.
- The online work request system will be further expanded, reducing the need for printed paper.

The Gateway building at the Burnaby Campus contains bike commuting facilities and a geoechange system.



Electrical foundation students test Solar PV installations that power electrical vehicle charging stations at the Burnaby Campus.

Part 1: CNAR Survey

1. General Information

Name: Colin Chan

Contact Email: cchan462@bcit.ca

Organization Name: British Columbia Institute of Technology

Sector: Post Secondary

2. Stationary Sources (eg. Buildings, Power Generators): Fuel Combustion, Electricity use, Fugitive Emissions.

During 2017, did your organization take any of the following actions to support emissions reductions from buildings? (please select all that apply)

Performed energy retrofits of the organization's building(s)

2. Stationary Sources - Other? Please specify: Installed building level gas meters. Improved building HVAC control strategies.

If you selected "*Performed energy retrofits of the organization's building(s)*":

How many buildings were retrofitted?:

If you selected "*Built, or are building new LEED Gold or other "Green" buildings*":

How many new "Green" buildings?:

Did your Organization perform any retrofits during 2017? Please describe briefly:

2a. Stationary Sources (eg. Buildings, Power Generators): Fuel Combustion, Electricity use, Fugitive Emissions.

Please briefly describe your organization's plans to continue reducing emissions from its stationary sources:

a) Over the next 1-5 years

b) Over the following 6-10 years

3. Mobile Sources (Vehicles, Off-road/portable Equipment): Fuel Combustion:

During 2017, did your organization take any of the following actions to support emission reductions from its mobile sources? (please select all that apply)

Replaced existing vehicles with more fuel efficient vehicles (gas/diesel); Replaced existing vehicles with hybrid or electric vehicles

If you selected "*Replaced existing vehicles with more fuel efficient vehicles (gas/diesel)*":

How many vehicles?: 2

If you selected "*Replaced existing vehicles with hybrid or electric vehicles*":

How many vehicles?: 3

3a. Mobile Sources (Vehicles, Off-road/portable Equipment): Fuel Combustion:

Please briefly describe your organization's plans to continue reducing emissions from its mobile sources:

a) Over the next 1-5 years

Continue to replace fossil fuel burning vehicles with electrical equivalent where applicable. Expand electrical vehicle charging infrastructure on campus.

b) Over the following 6-10 years

Continue to replace fossil fuel burning vehicles with electrical equivalent where applicable. Expand electrical vehicle charging infrastructure on campus.

4. Supplies (Paper): Indicate which actions your PSO took in 2017:

During 2017, did your organization take any of the following actions to support emissions reductions from paper supplies? (please select all the apply)

Had a policy requiring the purchase of recycled content paper

If you selected "*Had a policy requiring the purchase of recycled content paper*":

State the required recycled content here (30%, 50%, 100%): 30

If you selected "*Had a policy requiring the purchase of alternate source paper (bamboo, hemp, wheat, etc)*", which type of alternate source paper did you use?

Please briefly describe your organization's plans to continue reducing emissions associated with its office paper use in future years.

We setup a system called Papercut with Ricoh that will allow us to have a system that will force people to go to printers and "release" their jobs. This cuts down on abandoned print which is when paper is left at a printer and is never picked up. This system is being piloted in select departments and we plan to roll it out campus wide.

Encouraging instructors to use digital content instead of paper where possible.

5. Other Sustainability Actions

a) Business Travel

During 2017, did your organization take any of the following actions to support emissions reductions from business travel? (please select all that apply)

None of the above

b) Education/Awareness

During 2017, did your organization have any of the following programs or initiatives to support sustainability education and awareness? (please select all that apply)

A Green, Sustainability or Climate Action Team; Support for professional development on sustainability (e.g. workshops, conferences, training)

c) Other Sustainability Actions

During 2017, did your organization have any of the following programs or initiatives to support sustainability? (please select all that apply)

A water conservation strategy which may include a plan or policy for replacing water fixtures with efficient models; An operations policy or program to facilitate the reduction and diversion of building occupant waste (e.g., composting, collection of plastics, batteries) from landfills or incineration facilities