

# 2019 CARBON NEUTRAL ACTION REPORT

Learning to Adapt at Capilano University



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# DECLARATION

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.

By June 30, 2020, Capilano University's final 2019 Carbon Neutral Action Report will be posted to our website at [www.capilano.ca/student-life/campus-community/sustainability](http://www.capilano.ca/student-life/campus-community/sustainability).

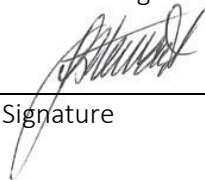
## EMISSIONS AND OFFSET SUMMARY TABLE

Capilano University GHG Emissions and Offsets for 2019	
As per the <a href="#">Directive</a> issued March 31, 2020, like all PSOs, Capilano University is using their 2018 GHG Emissions as a placeholder for the purposes of their 2019 CNAR.	
Total Emissions (tCO <sub>2</sub> e)	1,476
Total BioCO <sub>2</sub>	1.15
Total Offsets (tCO <sub>2</sub> e)	1,475
Offset Investment (\$25 per tCO <sub>2</sub> e)	\$36,875

## RETIREMENT OF OFFSETS

In accordance with the requirements of the *Climate Change Accountability Act* and Carbon Neutral Government Regulation, Capilano University (**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:

  
\_\_\_\_\_  
Signature  
  
Jacqui Stewart  
\_\_\_\_\_  
Name (please print)

May 28, 2020

\_\_\_\_\_  
Date

Vice President, Finance and Administration

\_\_\_\_\_  
Title

# OVERVIEW

## CLIMATE MITIGATION ACTIONS TAKEN IN 2019

### Reductions

- Completion of electrification of Birch building (175 tCO<sub>2</sub>e/yr)
- Design of electrification of Centre for Sport and Wellness (30 tCO<sub>2</sub>e/yr)

### Enabling infrastructure

- Installation of 3 gas sub-meters
- Installation of sheltered racks for 22 bikes
- Installation of 2 Type II EV charging stations (4 heads)

### Change management

- Sustainability week: Climate Crisis
- Studies for:
  - Domestic hot water electrification in 12 buildings
  - Space heating electrification for 5 buildings
  - Pre-feasibility study for district energy
  - High speed electric vehicle charging
  - Power supply and demand forecast

## MITIGATION PLANNING (Q1, 2020)

- Energy and emissions forecasting tool development
- A 10 year climate energy and emissions plan (CEEP)
- Addition of 2 Type II EV charging stations (4 heads)

## ADAPTATION PLANNING (Q1, 2020)

- Wildfire Smoke and Interface Fire Adaptation Plan

## FUTURE ACTIONS 2020 AND BEYOND

- Heating electrification of 3 buildings: Children's Centre, Library and Centre for Sport & Wellness
- Partial heating and domestic hot water electrification of 2 buildings: Arbutus and Cedar
- Installation of Type III EV charging
- Envelope improvements to most existing buildings
- Accelerated STEP Code adoption for new buildings
- Micro district energy system exploration for north campus plateau



# INTRODUCTION

Late in 2018, Capilano University (CapU) turned its attention to identifying all climate change risks at all campuses, excluding building overheating. At the end of the 2019/20 academic year, CapU received a draft work plan from a team of three consulting firms to address two of our greatest risks, interface fire and wildfire smoke. CapU also completed a review of all Main Campus building space temperatures.

This initial adaptation planning work recommends a range of actions from applying BC Fire Smart principles and altering utility infrastructure, to working with local community to coordinate action.

While preparing to address the worst environmental consequences, CapU continues to working to prevent climate change. Our intent is to exceed Green BC targets. With study support from BC Hydro and the Ministry of Energy, Mines and Petroleum Resources, Capilano University produced a 10 year Campus Energy and Emissions Plan (CEEP) to support our 2030 Vision and the campus master planning process.

**By implementing the CEEP, Capilano University will exceed provincial GHG targets even with assertive growth.**

Our Facilities staff have prioritized planning efforts to ensure delivery of projects that mitigate or adapt to climate change.

2019 was the first full academic year of space heating electrification for our flagship Birch Building. And, we took early advantage of CEEP study findings to begin applying heat pump technology in two smaller buildings: the Centre for Sport and Wellness and the Children's Centre. Both buildings were seeing a growing need for cooling, representing an opportunity for heating electrification at a reduced incremental cost.

Perhaps our most important mitigation effort will be adopting STEP Code ahead of the regulatory curve. We have begun the process of designing new on-campus residences to STEP Code 4. After completion (ETA 2022), new residences will replace leased facilities, eliminating an estimated 165 tonnes of net annual CO<sub>2</sub>e.

Finally, Capilano University recognizes that we can be more impactful through our role as educators and community members, than by further reducing our modest operational emissions. We continue to emphasize engaging our community on climate change through academic program, enabling personal action, and non-curricular educational events.

Our intent is to ensure that every alumnus of Capilano University is empowered to take personal and collective action to address climate change.

# KEY ACTIONS TAKEN IN 2019 TO MINIMIZE EMISSIONS

## BIRCH ELECTRIFICATION

Built in 1996, the Birch is a classic BC architectural style, utilizing exposed concrete, steel and glass. Originally designed to house 4 pipe VAV boxes and separated cooling and heating systems, no cooling was provided during construction. As the frequency of warmer nights increased, so called free-cooling became ineffective and costly.

### Solution

Existing rooftop AC piles offered an ideal opportunity to add 150 tons of cooling while driving electrified heating to the main air handling units. This allows shoulder season heating without the use of gas and saves a relatively young building from succumbing to climate change 4-8 weeks out of every year. The project finished in March 2019.



## CENTER FOR SPORT AND WELLNESS

Our manager of athletic programs had become accustomed to taking virtually all of his holidays in August to avoid sweltering conditions in staff offices. With recent warmer weather, more of the west side of this facility began to succumb to overheating, including the weight rooms and corridors. As a facility key to final exams, convocation and orientation activities as well as a summer revenue generator, exceeding ASHRAE temperature guidelines for prolonged periods of time was not an option.

### Solution

Plans to replace natural gas heating on the west side of the building were completed in December 2019 and phase 1, a variable refrigerant flow heat pump system, was installed in Q1 of 2020. A 93% heat recovery unit is expected to follow, enabling 35 tons of reversible air-conditioning units to heat half of the building 365 days a year.

## DOMESTIC HOT WATER EMISSIONS

Most of Capilano University's domestic hot water systems are served by resistance electric tanks, or high efficiency condensing natural gas instant hot water boilers. Today, the market is shifting to hot water heat pumps for greater efficiency through the use of ambient heat in the indoor or outdoor environments. CapU studied all of our domestic water systems seeking attractive business cases.

### Solution

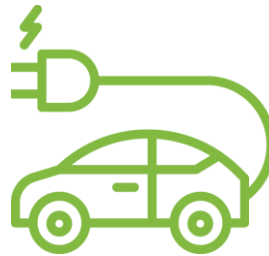
Our Sechelt campus' system was badly in need of replacement. A heat pump system was selected in 2019. In the future, similar systems will be deployed in two buildings on our Main Campus.

# PLANS TO CONTINUE REDUCING EMISSIONS

## CAMPUS ENERGY & EMISSIONS PLAN (CEEP)

CapU partnered with BC Hydro to attempt a more holistic approach to emissions reduction, one that included evaluating the impacts of new BCBC STEP Code, zero emissions vehicle adoption, regional power supply and a full range of options for reducing existing building energy use and resulting emissions. The result is a 10 year plan that anticipates:

- Enrollment growth
- Growth of electric vehicle sales
- New buildings
- STEP Code adoption rate
- Existing building envelope improvement needs
- Climate impacts on space occupants
- Renewable energy cost and availability
- Electrification of natural gas end uses
- Future access to additional power supply
- Interim measures for managing peak power



The plan keeps CapU performing at the 50% GHG reduction level, from 2007 baseline emissions, on an absolute emissions basis until 2030 while assuming growth in enrollment and new buildings.

## MICRO DISTRICT ENERGY SYSTEM

Part of the research involved in developing the CEEP involved exploring campus-wide district energy. While the common renewable resources (geo-exchange and sewer heat) are not sufficiently abundant at CapU, both biomass and ambient loop systems appeared to be more promising.

### Solution

CapU intends to further explore both small scale biomass and ambient loop systems once decisions have been made about space use and envelope renewal for Fir, Willow and Dogwood buildings. The intent would be to leverage existing infrastructure connecting these buildings, and attaching any new construction within 100 meters.



## NON-INVENTORY EMISSIONS

The CEEP also sets out to introduce management of indirect (Scope 3) emissions that are not part of Carbon Neutral Government inventories. In particular, it introduces the concept of tracking and reporting on:

- Business travel
- Fugitive emissions from refrigerant
- Employee and student commute emissions
- Scope 3 construction emissions from materials use



To start educating the CapU community on scope 3 emissions, CapU Works, a student sustainability employment program (see below), conducted CapU's first student transportation emissions survey. This survey used mode split data to measure CO<sub>2</sub>e per trip and residential postal cost to measure distance and estimate total student commute emissions.





# PREPARING FOR CLIMATE CHANGE

## INTRODUCTION

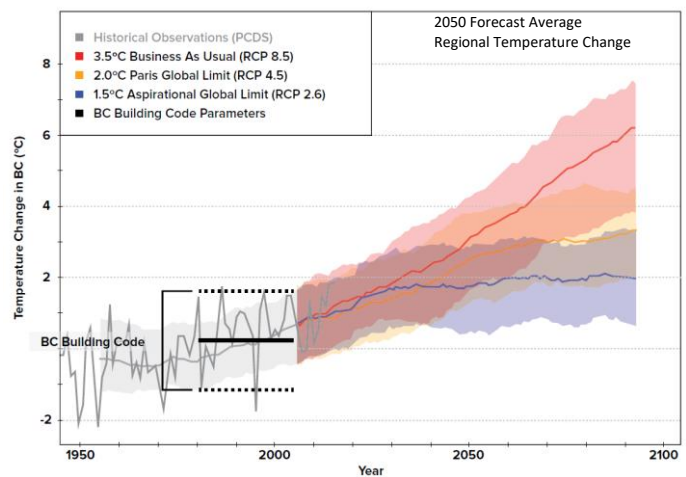
While Capilano University is proud of our mitigation efforts and expects to keep pace with provincial goals for further reduction, we recognize that not everyone will attain emissions reductions at the level demanded by the Paris Accord. The impacts of climate change are being felt and will increase. This requires actions of a different kind; actions that assess climate change risk to our campuses' assets and communities, and make adjustments to policy, operations and infrastructure to eliminate or significantly reduce these risks.

Broadly speaking, climate risks on campus can be divided into two categories, those external to our buildings (such as flood and fire), and space comfort issues driven by higher temperatures and more frequent "tropical nights" (nights when after-hours mechanical ventilation is no longer able to sufficiently cool buildings).

Our actions taken to date are outlined below.

## EARLY 2019

Capilano University had the foresight to employ the PIEVC High Level Screening Tool, a procedure developed by Engineers Canada to identify interactions between infrastructure and projected climate events, to three campuses in North Vancouver, Sechelt and Squamish. By focusing on issues other than interior space comfort, Capilano was able to identify the highest risk areas for each campus.



## LATER 2019

As part of a project examining electrification as a mitigation strategy and the development of our Ten Year Campus Energy and Emissions Plan, we explored existing space temperature anomalies and measured existing buildings' ability to maintain regulated space temperatures. This served as a first step to identify where envelope remediation or mechanical enhancements might address the effects of planetary warming.

## EARLY 2020

Finally, in an effort to keep pace with climate change, Facilities prepared a plan to address two key risks on the main campus in North Vancouver; namely, wildfire smoke and interface fire. This is a long term plan designed to prepare Capilano University for drier, hotter summers and more frequent wildfire smoke "seasons", like those experienced in 2017 & 2018. Actions range from infrastructure changes to local government collaboration.

## NEXT STEPS

While our momentum has been somewhat interrupted by the advent of COVID-19, we continue to make progress on preparing for climate change by:

- Holding internal workshops on key findings and recommendations
- Incorporating adaptation measures into new construction designs
- Prioritizing building renewal resources to secure adaptation co-benefits, and
- Contemplating new policies to enhance campus resiliency



# SUSTAINABILITY INITIATIVES

Capilano University carries out a variety of sustainability initiatives to promote a greener campus across its operations, curriculum and programs. The climate crisis was top of mind in 2019 and saw students and employees participate in climate action on campus and beyond.

## ENERGY WISE NETWORK

Capilano University is a member of BC Hydro's Energy Wise Network program which supports energy conservation behaviour-change efforts on campus. This year a thermal comfort/space heater pilot program investigated employees' knowledge and habits around heating and comfort issues in their building. This information will be used to develop a behaviour change campaign next year, or similar engagement activity, with adjustments made to accommodate social distancing practices.



## CAPU WORKS

CapU Works is a student employment program that provides opportunities for students to lead outreach activities on sustainability issues, including energy conservation.

The theme for this year's Sustainability Week was the Climate Crisis which saw 11 events organized across campus. These ranged from an Electric Vehicle users meeting to presentations from Preserve Our Snow (POS) talking about predictions of reduced snow pack from increasing global temperatures on B.C.'s resort mountains.

CapU Works students led a series of other events including the ever popular Winter Market, the new Waste Reduction Week, Mobilizing Resources for Environmental Activism and the annual Waste Audit.



CapU Works students (2019/20) promote Waste Reduction Week's events and offer free coffee to passersby who bring a reusable mug.

## BIKE TO WORK WEEK

The Well-being group promoted the HUB's spring and fall Bike to Work Week event on campus. The spring event saw 33 riders log over 170 trips which was estimated to save 351 kg of GHGs from avoided vehicle commutes.

## BIKE STORAGE

A new secure bike storage area with 22 spots opened in September 2019. To date, the bike storage has been trialed with employees on a first come, first serve basis. The data shows there are 27 bike storage users and it was accessed 263 times in the fall semester (Sep - Dec 2019) with the highest use in September and October.

## CAPILANO STUDENTS' UNION

The CSU passed their Climate Advocacy policy which will allow them to advocate for actions that commit to limiting a global temperature increase no higher than 1.5 °C from University administration and all levels of government. The policy recognizes that Indigenous sovereignty and climate justice are inextricably linked.

## CAPU MAIN CAMPUS

2055 Purcell Way  
North Vancouver, B.C.  
Canada V7J 3H5  
Tel: 604 986 1911

## FACILITIES SERVICES & CAMPUS PLANNING

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Icons made by Payungkead, Freepik, Monkik &  
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[CAPILANO.U.CA](http://CAPILANO.U.CA)

@capilanoU





**Confirmation number:** 00C5A1EF

**Submitted date:** 2020-06-29 15:30:22 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.</li></ul> <p>*Deadline extended from May 29, 2020.</p> <ul style="list-style-type: none"><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](#).

Contact Name:	<i>William Demopoulos</i>
Contact Email:	<i>williamdemopoulos@capilano.ca</i>
Organization Name:	<i>Capilano University</i>
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:	
Other - Please Specify: <i>Sustainability Manager</i>	
Please select your sector:	
Post Secondary (PS)	

## 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

Do you have a strategy to reduce emissions from stationary sources?
Yes

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

Over the medium-term term (1-5 years)
<p><i>Capilano University completed a draft 10 year Campus Energy and Emissions Plan (CEEP) in the fiscal year ending March 31, 2020. While Covid – 19 is consuming much of the attention of our executive and administrative resource, we expect to approve this complement to our Main Campus Master Plan before March 2021. The plan identifies the lowest lifecycle cost measures to maintain current, absolute emissions levels (50% below 2007) and off-set any new emissions created by any campus growth through additional projects. At Capilano University, master planning for energy and emissions is treated separately from traditional energy management; the CEEP is about adjusting supply and demand, while traditional energy management focuses on conservation and efficiency.</i></p>

### Over the long term (6-10 years)

Over the 10 year period of our CEEP, the following actions, which will contribute to emissions reductions, are expected:

- Electrification of heating systems in our library
- Partial electrification of our sports facility
- Electrification of all new construction
- Adoption of tight envelope requirements for new construction (Step Code 4)
- Tightening of some existing building envelopes
- Replacement of our library envelope
- Electrification of two domestic hot water systems
- Partial electrification of our small fleet
- Exploration of deep retrofit of our main arts and sciences building
- Exploration of thermal energy sharing and storage feasibility

### Please describe your strategy's goals (if any) related to energy audits.

Energy audits are not part of our strategic goals or targets. Through 11 years of participation in traditional energy management while partnered with BC Hydro and Fortis BC, Capilano University has developed a full inventory of lighting and mechanical equipment to which we are able to apply technology changes. Rather than conducting audits, we are generally able to conduct energy studies to evaluate the application of a specific technology. Real-time and utility company monitoring of energy use, continuous optimization and preventative maintenance are part of our operational and traditional energy management practice and do not require further auditing.

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

If substantial changes have occurred in more than one building, we may commission an audit to update our inventory.

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

Our goals for both emissions and energy management programs are:

1. Maintain an emissions reduction of 50% from baseline.
2. Improve occupant health and comfort.
3. Optimize operating and lifecycle costs.

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

We do not measure by % of building portfolio.

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

N/A

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

Schedule is driven by system life.

### 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.)

We are considering one large building for renewal down to the steel & concrete structure.

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

We have a two year plan for recommissioning or revisiting recommissioning projects in 6 buildings out of 14 on our main campus. As a percentage, this represents more than 70% of the campus. Continuous optimization is a multi-year effort for each building and we hope to revisit every five years.

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

N/A

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.

Yes

If yes, have you quantified and reported the associated emissions? What, if any, mitigation approaches have been considered? Please describe

*Our fugitive emissions data tracking and mitigation efforts are driven by Carbon Neutral Government reporting requirements and equipment condition monitoring. As refrigerants are scheduled for phasing out, we replace equipment ahead of new legislation.*

What, if any, mitigation approaches have been considered? Please describe.

*Preventative maintenance.*

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

*N/A We did not build a new building in 2019.*

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

*N/A*

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

*N/A*

Other actions? Please describe briefly:

*Modelling all possible measures including STEP Code early adoption, electrification, deep retrofit and district energy to develop our CEEP and provide flexible forecasting.*

## 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)

*Our fleet consists of 18 vehicles of the following types and quantities: Cars (3), Cargo Vans (7), Pick-up Trucks (4), Specialized Off-road Maintenance (3), and an SUV (1). Our strategy is to replace these vehicles with battery electric as they reach end of life, provided an economic case can be made that is comparable to other cost surplus emissions reductions strategies. Currently, this means that the life cycle cost of the replacement electric vehicle must be less than a \$150 per tonne of carbon equivalent emissions premium over the equivalent gasoline vehicle.*

*As a result of implementing this strategy in 2014, all three cars are now 100% plug in electric (~17% of our fleet) It is likely that our single security SUV will be replaced within the next 2-3 years and that existing electric vehicles will need replacement within 5 years; making 22% of our fleet electric.*



### Over the long term (6-10 years)

*Unfortunately, there are no commercially available vehicles on the Canadian market to replace the Cargo Vans or Pick-ups. These make up 61% of our fleet.*

*We are currently considering the following strategies to make up for market failures:*

- Custom manufacturing*
  - Importing from the EU or Asia*
  - Awaiting for industry performance*
  - Monitor hydrogen fuel stations for green hydrogen availability*
- If bio diesel becomes available, off-road vehicles (17% of our fleet) can be greened.*

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

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

0

“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

0

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

N/A

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?

14

Level 3?

0

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?

0

How many level 2 stations (if any) were installed specifically for your fleet vehicles?

As defined in the previous section

0

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.)

*Underground conduit and panel upgrade. Research into type 3 viability and location preliminary investigation. Application for federal funding of a type 3 station.*

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)

3

“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
12

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
0

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)

*Maintain our existing 33-50% reduction via printer control and PC/Laptop build.  
(double sided printing)  
Further reduce our use through digital (paperless) systems.*

Over the long term (6-10 years)

*Utilize routine monitoring system by user to change behaviours.  
Switch to lower carbon paper. Current cost per tonne of CO<sub>2</sub>e is too high.*

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

Yes

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

No

Other 2019 actions, please specify

*Met with buyers and performed total cost/tCO<sub>2</sub>e analysis.*