



2019

CARBON **N**EUTRAL **A**CTION **R**EPORT

Executive Summary

The Vancouver Board of Education (VBE) - SD#39 has a long-standing commitment to sustainability. Students, teachers, and staff have initiated actions that address energy conservation, carbon emissions, food and natural systems, transportation and active commuting.

Education is our core function and our students and teachers connect sustainability to their learning experiences daily. Throughout the District, at dozens of schools, our community acts on sustainability - from waste reduction to food gardens to energy conservation.

In 2019, implementation projects included retrofitting old lighting systems at several school sites, optimizing energy use at two high schools, and installing new heating plants at an elementary school. These projects improve the comfort and learning environment and will save on utility costs for years to come.

As part of the Provincial mandate for BC's public sector to be carbon neutral, the District tracks and offsets its greenhouse gas (GHG) emissions. By Ministry directive, GHG Emissions from 2018 of 14,903 tonnes of CO₂e are used as a placeholder for the purposes of the 2019 CNAR. As required by Provincial legislation, the District purchases certified carbon credits to offset these emissions.

Our efforts will continue in 2020. We are initiating more classroom lighting retrofits, two

heating plant replacements, optimization review of a secondary school, and developing energy efficiency into our seismic mitigation projects.

We will be updating our energy management plan during 2020 to a 10-year strategy to 2030. Our goal is to set a pathway to meet the Provincially mandated carbon emission reduction target of 50% by 2030.

Our District has set a vision for our school district to be the "greenest, most sustainable school district in North America." In May 2018, our Board of Trustees approved our first ever "Environmental Sustainability Plan." Implementation measures began in the 2018/19 school year and will continue for years to come.

As the Superintendent of Schools for the VBE, I am excited about the District's movement on sustainability, energy conservation, and climate action. These are made possible by the diligent work on the part of VBE staff and students.



Suzanne Hoffman
Superintendent of Schools / CEO
Vancouver Board of Education



1 Introduction

For many years, the Vancouver Board of Education (VBE) has implemented energy conservation activities and retrofits. These have decreased our carbon footprint, reduced our utility bills, and improved our operating practices. As well, teachers and students have led the way in their classrooms to incorporate sustainability into our schools.

Provincial Policy

In 2007 the Province enacted what is now known as the Climate Change Accountability Act CCAA (formerly the *Greenhouse Gas Reduction Targets Act* GGRTA 2007). The CCAA requires, among other things, that public sector organizations (PSOs) be carbon neutral beginning in 2010, and for each year thereafter. The VBE is subject to this requirement.

Being carbon neutral requires that an organization:

- Take action to reduce its GHG emissions,
- Measure and report its carbon emissions (or carbon 'footprint'), and
- Purchase carbon offsets for any remaining emissions in order to effectively 'neutralize' the environmental impact of these emissions.

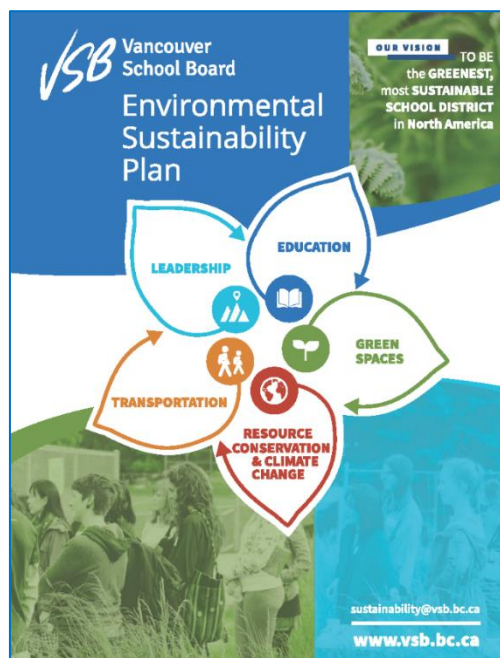
The Province has defined criteria for reporting and has developed an internet-based system for tracking and reporting emissions.

VBE Policy and Action on Sustainability

In 2010, the VBE approved a "Sustainability Framework" which provided principles for the District's action on sustainability. This framework informed the development of the 2018 Board approved VSB Environmental Sustainability Plan – our first-ever district sustainability plan.

The VBE has been active in energy management for more than 17 years. Conservation activities over the past decade have resulted in energy savings of over \$950,000 annually to the District operating budget. Many projects have received incentive grants from our energy utility providers.

Moreover, these upgrades have improved the learning environment for our students through better lighting conditions, and improved thermal comfort.



View the VSB Sustainability Plan at:
govsb.ca/sustainability

2 Greenhouse Gas Emissions

The VBE uses the provincial Clean Government Reporting Tool (CGRT) to track and report its emissions as required by legislation for all public sector entities in BC.

Emissions Sources

Reportable sources of GHG emissions within the VBE are:

- Natural gas consumption to run heating and hot water systems
- Electricity consumption within facilities
- Vehicle fuel consumption of the VBE-owned fleet vehicles
- Paper consumption

2019 Emissions and Offsets

For the 2019 calendar year, our offset-requiring emissions were 14,903 tonnes of CO₂ equivalent. As per the Directive issued March 31, 2020, GHG Emissions from 2018 are used as a placeholder for the purposes of the 2019 CNAR.

As required, we purchase certified carbon credits to offset these emissions through the Ministry of Environment. Carbon offsets are currently priced at \$25 per tonne of CO₂ resulting in a cost of \$372,575 (+ GST).

VBE Greenhouse Gas Emissions and Offset Requirements for 2019 (tonnes of CO₂ equivalent)

GHG Emissions requiring offsets in Calendar Year 2019 [Notes 1, 2]	GHG emissions (2018 placeholder inventory) (tonnes of CO ₂ e)
Total Emissions of carbon (all types) (tCO ₂ e) [Notes 3, 4]	14,924
Total BioCO ₂	21
Total Offsets (tCO ₂ e)	14,903
Total Offset (\$25 per tCO ₂ e) Investment [Note 4]	\$372,575

Notes:

- [1] Greenhouse Gas (GHG) emissions are measured in tonnes of CO₂ 'equivalent' (t CO₂e).
- [2] The table presentation format is as per Provincial reporting requirements.
- [3] Total GHG emissions includes the emissions from the biofuel component of vehicle fuels - which do not require the purchase of offsets. Offsets are only purchased for the fossil fuel component of emissions.
- [4] There may be adjustments and corrections to utility bill statements that occur following the offset calculations for each calendar year. These are reported as adjustments in the following year.

3 Emissions Reduction Activities 2019

Actions to Reduce Reportable Emissions in 2019

Several actions were taken in 2019 to reduce energy use and GHG emissions, including:

- Upgrading lighting systems at 16 school sites.
- Auditing 5 facilities to identify future lighting retrofit opportunities.
- Designing heat plant replacements for two elementary schools – to be implemented in 2019 and 2020.
- Installing high efficiency boilers in two new elementary schools through the seismic mitigation project.
- Implementing a 'building energy tune-up' at two secondary schools through the BC Hydro Continuous Optimization program.
- Obtaining City permit approval for an expansion to a solar panel installation at Tupper Secondary.



New LED Lighting installed at an elementary school

The District has taken several steps to reduce emissions related to paper consumption, including:

- Continuing to roll out a Print Reduction Strategy to all VBE locations.
- Reducing the availability of virgin paper by limiting the purchase of paper to 30%, 50% or 100% recycled content (from contracted suppliers).
- Reducing transport costs and emissions by limiting paper deliveries to District sites to once weekly.

Additionally, we have achieved the following conservation actinos:

- Reduced or avoided electricity consumption of 600,000 kWh annually.
- Reduced or avoided utility bill spending of over \$100,000 annually – which will continue for many years to come.
- Improved occupancy/building comfort.
- Improved lighting within upgraded classrooms.
- Improved seismic restraint of lighting fixtures within the District.

Actions to Reduce Out-of-Scope (non-VBE) GHG Emissions in 2019

The VBE has participated in several activities that reduce GHG emissions in the community that are not specifically “in scope” for our carbon neutral required reporting. These typically focus on active transportation such as bike to school/work week events, corporate membership in Vancouver’s bike share program, and working with the City of Vancouver’s School Active Travel Planning Program to reduce congestion and improve active commuting to and from school sites.



A new outdoor learning area installed at Brock Elementary

Actions to Enhance Overall Sustainability in 2019

The VBE has taken actions that improve the overall sustainability of our District and community.

These include:

- Offered Pro-D and resource guide to teachers for educational gardening.
- Revised the District’s Garden Guide as educational gardens continue to gain popularity.
- Continued supporting students to organize the District-wide Sustainability Conference (VSBSC) to network with each other and learn from leading sustainability thinkers.
- Provided sustainability grants to 24 elementary and 12 secondary schools to support student-led initiatives at schools.
- Facilitated numerous non-profit environmental organizations in offering their programs to students and teachers throughout the District.



VSB student-created Sustainability Conference

4 Future Activities

In 2020 and beyond, numerous activities are underway to continue to reduce our energy use and carbon emissions, and to improve the overall sustainability of our District.

Actions to Reduce Reportable Greenhouse Gas Emissions in 2020

Actions planned for 2020 include:

- Replacing more old lighting systems at several schools.
- Conducting further lighting audits to evaluate opportunities for future lighting projects.
- Upgrading the heating plants at two elementary schools.
- Optimizing energy efficiency at another large consumption secondary school.
- Continuing with new facility design to ensure low carbon, low cost, and low energy facilities become the standard for the VBE.
- Completing the new installation of a Solar PV extension at Tupper Secondary.
- Continue upgrading building control systems to improve building controls.

Actions to Reduce Out-of-Scope GHG Emissions in 2020 and onward

Several activities help reduce carbon emissions in our community that are not considered 'in scope' for our carbon neutral reporting requirements. These include:

- Promoting active transportation initiatives like 'Bike to School/Work Week.'
- Working with the City of Vancouver through its School Active Travel Planning Program to increase awareness and understanding of active travel opportunities for students.

Actions to Enhance Overall Sustainability in 2020

Our efforts will continue in 2020. Specific actions include:

- Implementing the Environmental Sustainability Plan.
- Continuing to support student- and teacher-led sustainability initiatives.



Teachers at a VSB garden Pro-D event

5 Closing

The VBE is proud to maintain its commitment to promoting sustainability within the District and our community. We are working to reduce energy use and our GHG emissions. We continue to build on past efforts and work to incorporate sustainability into all aspects of our operations.

Declaration Statement:

In accordance with the requirements of the BC Climate Change Accountability Act (CCAA) Reduction Targets Act and Carbon Neutral Government Regulations, the VBE makes the following declaration,

This Carbon Neutral Action Report for the period January 1st, 2019 to December 31st, 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.

Retirement of Offsets:

In accordance with the requirements of the Climate Action Accountability Act and Carbon Neutral Government Regulations, VBE 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. 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.



Superintendent Suzanne Hoffman with elementary school students

Executive sign-off:

May 25th, 2020

Signature

Date

Suzanne Hoffman

Superintendent / CEO

Name (please print)

Title

Confirmation number: 00C18478

Submitted date: 2020-06-02 11:34:45 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 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">The final, signed version of the CNAR (or Small Emitters Form) must be submitted by email to: Carbon.Neutral@gov.bc.ca
June 30, 2020*	<ul style="list-style-type: none">Ministry of Environment and Climate Change Strategy must post a final CNAR for each organization on the BC Government's CNG website and each PSO is encouraged to post the report on their website.The CNAR Survey (optional for Small Emitters) must be completed and submitted online. <p>*Deadline extended from May 29, 2020.</p> <ul style="list-style-type: none"><u>All offset invoice payments must be submitted to CAS.</u>
Sept 30, 2020*	<ul style="list-style-type: none">Clean Government Reporting Tool (CGRT) Data Entry must be completed for the 2019 reporting year.

	*Deadline extended from April 30, 2020.
Oct 15, 2020*	<ul style="list-style-type: none"> • Self-Certification checklist must be completed, signed and submitted by email to: Carbon.Neutral@gov.bc.ca. *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>Ron Macdonald</i>
Contact Email:	<i>rmacdonald@vsb.bc.ca</i>
Organization Name:	<i>SD39 - Vancouver Board of Education</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:	<i>Energy Manager</i>
Please select your sector:	<i>School District (SD)</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

Do you have a strategy to reduce emissions from stationary sources?
<i>Yes</i>

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)
<ul style="list-style-type: none"> - currently developing a 10 year climate reduction strategy to meet the Provincial 50% reduction target. - retrofitting existing schools to replace old, inefficient equipment with new efficient equipment. Achieving 30-50% carbon reduction per site. - building new sites with heat pump or heat pump - compatible technology
Over the long term (6-10 years)
<ul style="list-style-type: none"> - evaluating opportunities to retrofit heating systems to allow for low carbon heating systems.

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

- we are implementing a program of recommissioning existing sites.
- lighting audits to identify inefficient lighting to be upgraded.
- mechanical energy studies at large sites.

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

5-10%

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

- continued electricity conservation
- increasing focus on natural gas conservation

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

5%

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

2%

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.)

0%

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

- plan to recommission one - two sites annually

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

2%

Do you keep records of Refrigerant gases¹ 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?

n/a

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

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?

No

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)

- continue to right size vehicle fleet in replacement cycle
- exploring electrification of equipment

Over the long term (6-10 years)

- continue medium-term activities

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

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

- suitability and availability of product not

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?

18

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?

3

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 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)

0

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

3

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

4

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

1

Gas/diesel

46

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

18

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)

- print reduction strategy based on consolidating printing to multi function devices
- standard 30% recycled content paper

Over the long term (6-10 years)

- *continue with medium-term activities*

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

No

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

No