2019 CARBON NEUTRAL ACTION REPORT

BOARD OF EDUCATION
BURNABY SCHOOL DISTRICT 41

*artist rendering of Burnaby North Secondary Campus est. Completion 2022

BOARD OF EDUCATION
BURNABY
SCHOOL DISTRICT

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DECLARATION STATEMENT

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.

By June 30, 2020 Burnaby School District's final 2019 Carbon Neutral Action Report will be posted to our website at www.burnabyschools.ca

OVERVIEW

On behalf of Burnaby Schools, we are pleased to submit our Carbon Neutral Action Report for 2019. This report has been created during the 2020 COVID-19 pandemic and therefore has been adjusted to the current workplace conditions. As per the directive of the Climate Action Secretariat, the reconciliation of the 2019 year will happen in the 2020 report. These unique times have created an environment unlike any this generation has experienced. Moving forward, sustainability will be at the core of our recovery.

Burnaby School District's continued commitment to energy efficiency and emission reduction has made healthy headway in 2019. The district put in motion four boiler projects, two lighting upgrades, and expanded the energy department team. These ongoing projects support the work started in 2008 with the goal of reducing the District's carbon impact.

The District's, like most organizations', greatest carbon footprint contributor is natural gas. It is unavoidable that we use natural gas for the District's space heating however, lowering emissions is achievable, while keeping occupant comfort paramount. This has been made possible through maintaining existing boiler systems, ensuring accurate building scheduling, and where applicable system retrofits. The District's ongoing efforts have demonstrated year after year project implementation with no sign of slowing down.

In efforts to further decrease our carbon influence, the District has made holistic choices in adopting and supporting green technologies. Over the years this has included, early adoption of high-efficiency boilers, two solar panel arrays, two geothermal heated high schools, in 2018 two electric fleet vehicles, 21 electric vehicle charging stations, and various water conservation initiatives.

With that in mind, the District's on-going commitment to reducing emissions cannot be stated without mentioning efforts to promote sustainability, community stewardship, and accountability at every level. This ranges from various Green Teams, the local chapter of Environmental Educators Provincial Specialist Association, school gardens, and many other groups. All working toward proliferating awareness and education initiatives that have generated strong ties within the community and its guardianship.

ENVIRONMENTAL POLICY

In 2010, Burnaby School District was one of the leaders to implement an official Environmental Sustainability Policy which in part states:

> *"The Board acknowledges that Environmental Sustainability is a joint responsibility of trustees, students and staff and is committed to sound practices that focus on minimizing pollution and refuse, reducing energy use and water consumption, and promoting a healthy environment for students and staff within the limited financial resources available."*[1]

Furthering this policy, in 2019 the Burnaby Board of Education released its 5-year Strategic Plan which includes as part of its directives, "(a) Modern, Safe, and Sustainable Learning Environment." As part of this Strategic Priority, the District has stated:

> *"...Increase District awareness of climate change and decrease the District's environmental impact*
>
> *I. Reduce the overall green-house gas output and carbon footprint of the District.*
>
> *II. Reduce the District's overall physical waste, diversion, and consumption.*
>
> *III. Engage the Burnaby Youth Sustainability Network (BYSN) to deliver quantifiable environmental outcomes*
>
> *IV. Build awareness of the efforts undertaken by the Burnaby School District as a model for environmental awareness and sustainability.*
>
> *V. Review and strengthen policies and practices related to environmental impact."*[2]

This platform will guide the District in its manner of conducting business moving forward and the stewardship of the micro communities tied to the District and city of Burnaby.

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[1] https://burnabyschools.ca/wp-content/uploads/2014/08/770.pdf
[2] https://burnabyschools.ca/wp-content/uploads/2019/10/StrategicPlan2019-24_Detailed_Web.pdf

ACTIONS TAKEN IN 2019

Four of sites within the district had existing heating infrastructure upgraded in 2019. Brentwood Park Elementary received a high efficiency boiler plant and domestic hot water tanks. Morely Elementary received two roof top units to augment the existing heating plant. Inman Elementary received a high efficiency boiler plant and six unit-ventilators for improved ventilation. Riverway West Community and Continuing Education Centre received a high efficiency furnace with heat recovery and integration of DDC control Riverway West. Benefits garnished from these changes are decreased carbon emissions, increased comfort levels in the buildings, and lower gas costs; which may go unnoticed to most but are a top priority.

The City of Burnaby presented Environmental Star awards in the category of youth to both the University Highlands Elementary Green Team and the District's Burnaby Youth Sustainability Network (BYSN) for their efforts. University Highlands was recognized for its Green Teams successes in affecting positive change and environmental awareness in their community. Focusing to "Conserve and Manage", their campaigns homed in on waste reduction, management and impact awareness. The BYSN was acknowledged for their Do It Green 2019 Conference and awareness campaigns. Shedding light on environmental and sustainability topics like microplastics, the impact of palm oil, gardening, and local food productions, the BYSN 2019 cohort had a busy and effective year.[3]

In October, the Energy Department gained an Energy Foreman FTE. This position has proven to be invaluable to the ongoing efforts of the department and has seen remarkable success.

Byrne Creek Community Secondary School upgraded its lighting, both interior and exterior to LED as well as upgrading the lighting control to ensure energy savings without jeopardizing user comfort.

South Slope Elementary and BC school for the Deaf also went through a lighting upgrade to LED. The Philips control has provided a near seamless introduction to tunable lighting and wireless adaptability

[3] https://www.burnaby.ca/Things-To-Do/Be-Involved/Citizen-Recognition/Environmental-Awards-Program.html

In 2018, the District introduced two electric vehicles (EV) to its fleet. Thus in 2019, the ongoing installation of electric charging stations will help support this movement into EVs and champion the province's Clean Transportation policy and the Zero-Emission Vehicles Act (ZEV Act).

Over the 2019 summer the District water conservation measures went on at 9 elementary schools to ensure the protection British Columbia's valuable resource

LOOKING FORWARD

In 2020 Edmonds Community Elementary School will have two high efficiency Roof Top Units (RTU) with heat recovery installed to augment an overworked boiler system that services a school and City of Burnaby community support services within South Burnaby. This new technology pilot project was partially funded with the support from the FortisBC's Gas Technology Demonstration Pilot Program funding.

2020 will also see the start of two major construction projects. The replacement of both Burnaby North Secondary and the Burnaby School Board Office; and the redevelopment of Schou Education Centre, a heritage building. The average age of the three building being impacted by this construction is around 75 years old. These buildings typically are high on the energy intensity range of consumers within the District. The geothermal technology being used to heat buildings will demonstrate reductions to the District's overall GHG emissions in the years ahead.

The construction of the new Burnaby School District Admin Office started in summer of 2019 and is scheduled to be ready for move in in fall of 2021. The Board Office will be relocated to the Schou Education Centre and redeveloped to meet the District's growing needs. The building's geothermal plant will be the third installation of its kind in the District, joining the company of Burnaby Mountain Secondary and Burnaby Central Secondary.[4]

New construction of Burnaby North will start in the Spring of 2020. This highly sophisticated school will be attended by the largest student body in the province. It will also be a geothermal installation making it the fourth in the District. This project is scheduled for completion in 2022[5].[6]

2020 will see the continued integration of electric charging stations in the District; a total of 24 stations will have been installed. The remaining sites to have charging stations installed are Burnaby North Secondary and the Board Office, estimated completion in 2022 and 2021 respectively.

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[4] https://burnabyschools.ca/wp-content/uploads/2018/05/NewAdminOffice_OpenHouse_May.18_web.pdf
[5] https://burnabyschools.ca/wp-content/uploads/2018/10/Press-release-Burnaby-North.pdf
[6] https://www.burnabynow.com/news/breaking-minister-announces-79-million-to-replace-burnaby-north-secondary-1.23462453

In early March of 2020, the Energy Team hosted a district wide, student led, sustainability visioning conference: "We mean GREEN". The intent of this student directed meeting, with stakeholder engagement from the School Board Trustees, the Senior Management Team, various environmental groups within the District, post-secondary organizations, and greater Burnaby community was to gather information and envision a more sustainable district. From this session a Sustainability Strategy Plan will be created and will usher a blueprint for the District to follow and imbibe in the coming 5 years. The student driven initiatives will have both short- and long-term objectives impacts at every level of the organization. [7]

Burnaby South Secondary School and Moscrop Secondary's interior lighting is being converted to LED as well as upgrading the lighting control. These projects will begin in the summer of 2020.

[7] https://burnabyschools.ca/blog/2020/03/11/we-mean-green-our-first-sustainability-plan/

2019 FORTISBC EFFICIENCY IN ACTION AWARD

In October, the District was honoured as one of eight recipients of the FortisBC Efficiency in Action Awards, specifically the Large Commercial Customer award. This annual event seeks to "highlight the positive work underway to lower emissions through energy efficiency." The Facilities / Energy Department was recognized for their on-going energy efficiency efforts throughout the District beginning in 2008. [8]

"Burnaby School District No.41 received the Large Commercial Customer award for a decade of continual focus on energy efficiency, which includes identifying , planning, and managing energy conservation projects on a day-to-day basis; building and upgrading its schools to high-efficiency standards, and promoting energy efficiency with its staff and students." [9]

[8] https://burnabyschools.ca/blog/2019/10/15/district-awarded-for-environmental-impact/

[9] https://www.fortisbc.com/news-events/media-centre-details/2019/10/30/eight-organizations-honoured-at-fortisbc-s-2019-efficiency-in-action-awards

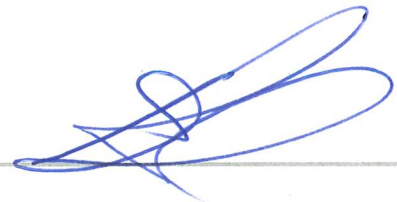
EMISSIONS AND OFFSET SUMMARY TABLE

Burnaby School District (#41) GHG Emissions and Offsets for 2019	
As per the Directive issued March 31, 2020, each PSO will use their 2018 GHG Emissions as a placeholder for the purposes of their 2019 CNAR.	
Total Emissions (tCO_2e)	**8 + 5259 = 5267**
Total $BioCO_2$	**8**
Total Offsets (tCO_2e)	**5259**
Offset Investment ($25 per tCO_2e) *[Total Offsets x $25/$tCO_2e$]*	**5259 X $25** **$ 131,475**

RETIREMENT OF OFFSETS

In accordance with the requirements of the *Climate Change Accountability Act* and Carbon Neutral Government Regulation, *Burnaby School District* **(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



June 01, 2020

Signature | Date

Russell Horswill | Secretary Treasurer

Name (please print) | Title

Confirmation number: 00C1E17A
Submitted date: 2020-06-30 17:29:55 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	• 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*	• 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. *Deadline extended from May 29, 2020. • All offset invoice payments must be submitted to CAS.
Sept 30, 2020*	• **Clean Government Reporting Tool (CGRT) Data Entry** must be completed for the 2019 reporting year.

	*Deadline extended from April 30, 2020.
Oct 15, 2020*	• **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:

Matt Foley

Contact Email:

energy@burnabyschools.ca

Organization Name:

The Board of Education of School District No. 41 (Burnaby)

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:

Energy Manager

Please select your sector:

School District (SD)

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)

The strategy is to stay the course with the multi-year program of upgrading the boiler systems to high-efficiency equipment and modernizing the mechanical systems; automated control, high-efficiency motors, pumps, high-efficiency lighting, and new innovative technology.

Over the long term (6-10 years)

The strategy is to stay the course with the multi-year program of upgrading the boiler systems to high-efficiency equipment and modernizing the mechanical systems; automated control, high-efficiency motors, pumps, high-efficiency lighting, and new innovative technology.

The district's Energy Management team is involved with new building design from the beginning to ensure a collaborative effort between the architects, mechanical designers, and the district. This approach hopes to achieve the best long-term solution for the long service life of a new school.

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

Energy audits have been completed on every major site in the district. Where needed, there are also detailed audits being conducted by third-party engineers and lighting consultants.

The district engages the best consultants in their field to ensure that well rounded cohesive decisions are made based on sound information and a consistent approach

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

15

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

Burnaby School District has been fortunate to have a long-running energy management program. The long-term plan continues on the path to modernizing our buildings through boiler system upgrades and other HVAC and lighting retrofits. Post COVID-19 will now affect progression with interior LED Retrofits and boiler upgrades. Any projects will be dependant upon annual capital allowances.

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

no answer required in this section.

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

15

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

10

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)?

Typically there is a methodical evaluation of schools that have shifted from the optimal operational range and are no longer demonstrating efficiencies in energy consumption. Whether that means getting qualified controls specialists involved, evaluating the heating plant, or the lighting audit, there are almost always savings found. After this point, the District then decides on the strategy for re-commissioning and how it will proceed.

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

5

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

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

Generally, we try to avoid the use of refrigerant-based systems whenever possible, both for environmental as well as safety reasons.

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 - no new building construction in 2019

Other actions? Please describe briefly:

none.

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)

The district has invested in the infrastructure to support the eventual electrification of the fleet. This is through installing charging stations throughout the district, focusing on the high-schools, Maintenance Services Centre, and the new Board Office Administration building (estimated completion in 2021). This will also mean investing in more EVs to join the 2 already in the fleet. This will also include PHEV and Hybrid's where capabilities allow.

The district will also be looking into electric lawnmowers and other gas or diesel maintenance vehicles/equipment that can be integrated into the District's infrastructure.

Over the long term (6-10 years)

The district has invested in the infrastructure to support the eventual electrification of the fleet. This is through installing charging stations throughout the district, focusing on the high-schools, Maintenance Services Centre, and the new Board Office Administration building (estimated completion in 2021). This will also mean investing in more EVs to join the 2 already in the fleet; purchased in 2018. This will also include PHEV and Hybrid's where capabilities allow.

The district will also be looking into electric lawnmowers and other gas or diesel maintenance vehicles/equipment that can be integrated into the District's infrastructure.

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?

none were purchased

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?

15

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

7

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?

0

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.)

2019 projects for outfitting the remaining sites with EV charging stations moved into 2020.

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)

2

“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

1

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

36

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

12

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)

Continued awareness campaigns focusing on paper reduction. A strategic Sustainability Plan is being created in 2020 and will cover paper reduction and emission impacts from paper.

Over the long term (6-10 years)

Continued awareness campaigns focusing on paper reduction. A strategic Sustainability Plan is being created in 2020 and will cover paper reduction and emission impacts from paper.

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

none.