



## CARBON NEUTRAL ACTION REPORT

### School District #27 Cariboo Chilcotin

#### Declaration

This Carbon Neutral Action Report for the period January 1st, 2018 to December 31st, 2018 summarizes our emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2018 to reduce our greenhouse gas emissions and our plans to continue reducing emissions in 2019 and beyond. By the end of 2018 SD27 will have reduced its Carbon by **1992 tCO<sub>2</sub>e** compared to 2008 or a 46% reduction.

By June 30, 2018 "Cariboo Chilcotin School District #27's 2018 Carbon Neutral Action Report will be posted to our website at <http://www.sd27.bc.ca/energy-conservation-program/>.

#### 2018 Actions

In 2018, School District 27 took action to reduce GHG emissions through the following initiatives:

Location	Action
Horse Lake Elementary	<b>Complete mechanical retrofit</b> – The "end of life" water to air heat pump loop, alongside its heating and cooling plant, was fully replaced. Each space was equipped with specific zone heating and control via individual unit ventilators and single zone air handlers for the Gymnasium. The configuration enables a "demand based" hot water re-set increasing the efficiency of the natural gas fired primary boilers. The upgrade also included a new DDC system enabling better facility control. The project is expected to offset <b>150,000 kWh (50%)</b> of Electricity and <b>53 GJ</b> of natural gas or <b>6 tCO<sub>2</sub>e</b> annually.
Peter Skeene Ogden Secondary	<b>Primary hot water boilers replacement</b> – High efficiency condensing units were installed. Piping configuration was altered to decouple the domestic hot water from the primary system. This configuration enables the primary heating loop to run based on demand and therefore increases unit efficiency. Two stand-alone domestic hot water units were installed. This project is expected to offset <b>210 GJ</b> of natural gas or <b>10 tCO<sub>2</sub>e</b> .
100 Mile Elementary	<b>Furnace Replacement</b> – All thirteen (13) natural gas furnaces were replaced with "high-efficiency" units. This project is expected to reduce natural gas consumption by <b>379 GJ</b> or <b>19 tCO<sub>2</sub>e</b> annually.
Various Sites	<b>Lighting Upgrades</b> – Hallway lighting was upgraded in multiple sites to LED technology by tube and ballast replacement. Further savings were achieved by installing occupancy sensors. This project is expected to offset <b>200,000 kWh</b> in Electricity or <b>5 tCO<sub>2</sub>e</b> .

#### 2019 Planning





Cariboo Chilcotin School District #27 has an ongoing contract for energy management services with Rede Energy Solutions. Rede is an integral part of the school district's facilities and operations team. Responsible for establishing and implementing the overall energy management strategy for the school district, Rede works with facilities leadership and staff to set energy and GHG emissions reduction targets, identify improvement opportunities, conduct building energy studies, secure grants and incentive funding, and oversee the implementation of improvement projects. Energy savings and GHG emissions reductions are evaluated annually and new targets are set annually.

The following projects are approved/ being considered for 2019 and beyond:

<b>Location</b>	<b>Project</b>
Naghtaneqed – <b>APPROVED</b>	<b>Fuel Switching</b> – This remote site currently operates a diesel fired generator for electricity needs. Funding via <b>CNCP</b> will enabled the installation of a 450,000 \$capacity solar photovoltaic array as well as an upgraded back-up diesel generator. This project is expected to reduce diesel consumption by 33,000 <b>litres</b> or <b>87 tCO<sub>2</sub>e</b> annually.
District Wide – <b>APPROVED</b>	<b>Lighting Upgrade</b> - Full LED lighting replacement will continue in the majority of classrooms and remaining hallways.
150 Mile Elementary – <b>APPROVED</b>	<b>AHU Upgrade</b> – This project will replace the primary two air handling units. This retrofit will enable a more demand-based hot water temperature improving the facility's heat plant efficiency.
Lake City – Columneetza Campus and Nesika Elementary	<b>District Energy Biomass</b> – It is proposed to install a further biomass fueled boiler and supply hot water to the two sites. Proximity of the facilities enable a single unit to service both sites. The local production of biomass pellets in Williams Lake makes this a perfect candidate for fuel switching. This project should reduce natural gas consumption by <b>5,110 GJ</b> or <b>225 tCO<sub>2</sub>e</b> annually.
Mile 108 Elementary	<b>GeoExchange Optimization</b> – A detailed review has shown that the existing ground source heat pump system is not operating at full capacity due to "piping issues" of the buffer tank. A proposal to remedy the issues has been studied and designed. This project is expected to reduce natural gas consumption by <b>317 GJ</b> or <b>16 tCO<sub>2</sub>e</b> annually.
Lake City – Williams Lake Lake City – Columneetza Campus	Full Building Automation System Upgrade

### Emissions and Offset Summary



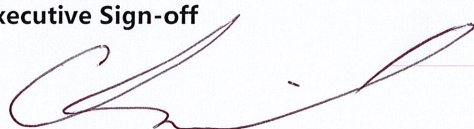


GHG Emissions and Offsets for 2018(tCO2e)	
GHG Emissions created in Calendar Year 2018:	
Total Emissions (tCO2e)	3,678
Total Offsets (tCO2e)	2,302
Adjustments to GHG Emissions Reported in Prior Year (2017):	
Total Emissions (tCO2e)	33
Total Offsets (tCO2e)	33
Grand Total Offsets for the 2018 Reporting Year:	
Total Offsets (tCO2e)	2,335

### Retirement of Offsets

In accordance with the requirements of the Greenhouse Gas Reduction Targets Act and Carbon Neutral Government Regulation, *Cariboo Chilcotin School District #27 (the Organization)* is responsible for arranging for the retirement of the offsets obligation reported above for the 2018 calendar year, together with any adjustments reported for past calendar years. The Organization hereby agrees that, in exchange for the Ministry of Environment 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 \$35 per tonne of offsets retired on its behalf plus GST.

### Executive Sign-off



Signature

*Chris vander Mark*

Name (Please print)

*June 3, 2019*

Date

*Superintendent*

Title





# Part 1: CNAR Survey

## 1. General Information

**Name:** Alex Telford

**Contact Email:** alex.telford@sd27.bc.ca

**Organization Name:** School District 27

**Sector:** School District

**Role** - Please select your role(s) below.

*If more than one individual completed the survey, multiple categories may be selected:*

Energy Manager: No

Sustainability Coordinator: No

Administrative Assistant: No

Facilities/Operations Manager/Coordinator: Yes

CEO/President/Exec Director: No

Treasurer/Accounting: No

Superintendent: No

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

#### 1. Actions taken by your organization in 2018 to support emissions reductions from buildings.

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

Yes

If yes above, what are the main goals?: Continuing District wide lighting upgrade, Installing a stand alone solar system at one site

##### b) Whether you have a strategy or not (1.a), briefly describe your organization's plans to continue reducing emissions from stationary sources:

###### I. Over the medium-term term (1-5 years)

DDC upgrades  
an additional bio-mass boiler system  
building envelope studies and projects

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

building envelope upgrades

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

we have been very active in doing energy audits in the past and will continue to do them where needed

I. What % on average of your building portfolio has an energy audit completed each year (if any)?: 20

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

all building upgrades are undertaken with best energy practices in mind

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

Minor retrofits (e.g., low cost, easy to implement measures including caulking, lighting, adding roof insulation, etc.) (%): 10

Major retrofits (e.g., replacing windows and doors, equipment replacement such as boilers, etc.) (%): 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.) (%): 10

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

we have been re-commissioning for several years and will continue going forward

I. What % on average of your building portfolio do you recommission each year?: 20

**f) Do you keep records of Refrigerant gases category and refilling volumes?**

No

I. If yes, have you included the associated emissions in your reporting?

No

II. Please explain why LEED Gold certification was not obtained.

no new construction

**B. Mobile Sources (Vehicles, Off-road/portable Equipment): Fuel Combustion:****3. Actions taken by your organization in 2018 to support emissions reductions from mobile sources.****a) Do you have a strategy to reduce emissions from mobile sources?**

No

**b) Whether you have a strategy or not (3.a), briefly describe your organization's plans to continue reducing emissions from mobile sources:**

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

continue with no idling policy

purchase right size vehicles, with higher energy efficiency

continued bus route planning

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

Gas/diesel vehicle: 3

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

current technology will not work in our area, we travel great distances with little infrastructure in place for the new types of vehicles

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

level 2: 0

level 3: 0

How many level 2 stations (if any) are specifically for your fleet vehicles: 0

How many level 3 stations (if any) are specifically for your fleet vehicles: 0

**e) How many EV charging station(s) did you install in 2018 in each category:**

level 2: 0

level 3: 0

How many level 2 stations (if any) were installed specifically for your fleet vehicles: 0

How many level 3 stations (if any) were installed specifically for your fleet vehicles: 0

**4. Please indicate the number of the vehicles in the following vehicle classes that are in your current fleet (including any purchased in 2018):**

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)

**a) 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) : 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

**b) 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: 2

**c) 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: 1

**5. Please indicate the number of the vehicles you plan to replace in your fleet:**

How much do you budget per LDV?: 0

How many LDVs do you plan to procure annually over the next 5 years?: 0

How much do you budget per LDT?: 35000

How many LDTs do you plan to replace annually over the next 5 years?: 15

How much do you plan to spend per HDV?: 0

How many HDVs do you plan to replace annually over the next 5 years?: 0

**b) Whether you have a strategy or not (6.a), briefly describe your organization’s plans to continue reducing emissions from paper use:**

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

default setting on all copiers is 2 sided  
continued use of recycled paper

**c) Have an awareness campaign focused on reducing office paper use**

No

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

No