

# 2018

## CARBON NEUTRAL ACTION REPORT



**“Working Together for Student Success”**



# Table of Contents

<b>Executive Summary.....</b>	<b>2</b>
<b>Overview.....</b>	<b>2</b>
<b>2018 Greenhouse Gas Emissions.....</b>	<b>3</b>
<b>Offsets Applied to Become Carbon Neutral in 2018.....</b>	<b>3</b>
<b>2018 Emissions Source Report .....</b>	<b>4</b>
<b>Emissions and Offsets Summary.....</b>	<b>4</b>
<b>Actions Taken to Reduce Greenhouse Gas Emissions in 2018 .....</b>	<b>5</b>
<b>Plans to Continue Reducing Emissions .....</b>	<b>5</b>
<b>Share our Success .....</b>	<b>6</b>
<b>Retirement of Offsets .....</b>	<b>7</b>

# Executive Summary

---

School District No. 67 (Okanagan Skaha) serves the communities of Penticton, Summerland, Naramata, and Kaleden in the south Okanagan region of British Columbia. School District No. 67 is signatory to and supports the Climate Action Charter in the province of British Columbia. The School District supports and practices sustainable initiatives to conserve energy and resources with the goal to reduce carbon emissions; reduce utility costs; and promote a cleaner environment for all students and staff.

District schools continue to practice the sustainable principles introduced through the Destination Conservation program.

Themes for the three years of the program are: energy in year one; water in year two; and waste avoidance in year three.



## Overview

---

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 June 30, 2019, School District No. 67's final CNAR will be posted to our website at [www.sd67.bc.ca](http://www.sd67.bc.ca).



## 2018 Greenhouse Gas Emissions

---

In 2018, operations in School District No. 67 (Okanagan Skaha) produced a total of 1,691 carbon dioxide equivalent tonnes (CO<sub>2</sub>e) of emissions. The school bus fleet produced 97 tonnes of CO<sub>2</sub>e; however, those emissions do not require offset, leaving a total of 1,594 tonnes of CO<sub>2</sub>e requiring purchase of offsets. The majority, 1,363 tonnes of CO<sub>2</sub>e, were derived from heating and lighting school buildings. The remaining balance was derived from vehicle fleet fuel (257 tonnes of CO<sub>2</sub>e) and paper supplies (70 tonnes of CO<sub>2</sub>e).

It was estimated that fugitive emissions from stationary cooling comprise less than 0.01% of School District No. 67 (Okanagan Skaha) total emissions. The ongoing effort to collect or estimate emissions from this source annually is disproportionately onerous, thus, for this reason, emissions from this source have been deemed out-of-scope and are not included in School District No. 67 (Okanagan Skaha) total greenhouse gas emissions profile or offset purchase.

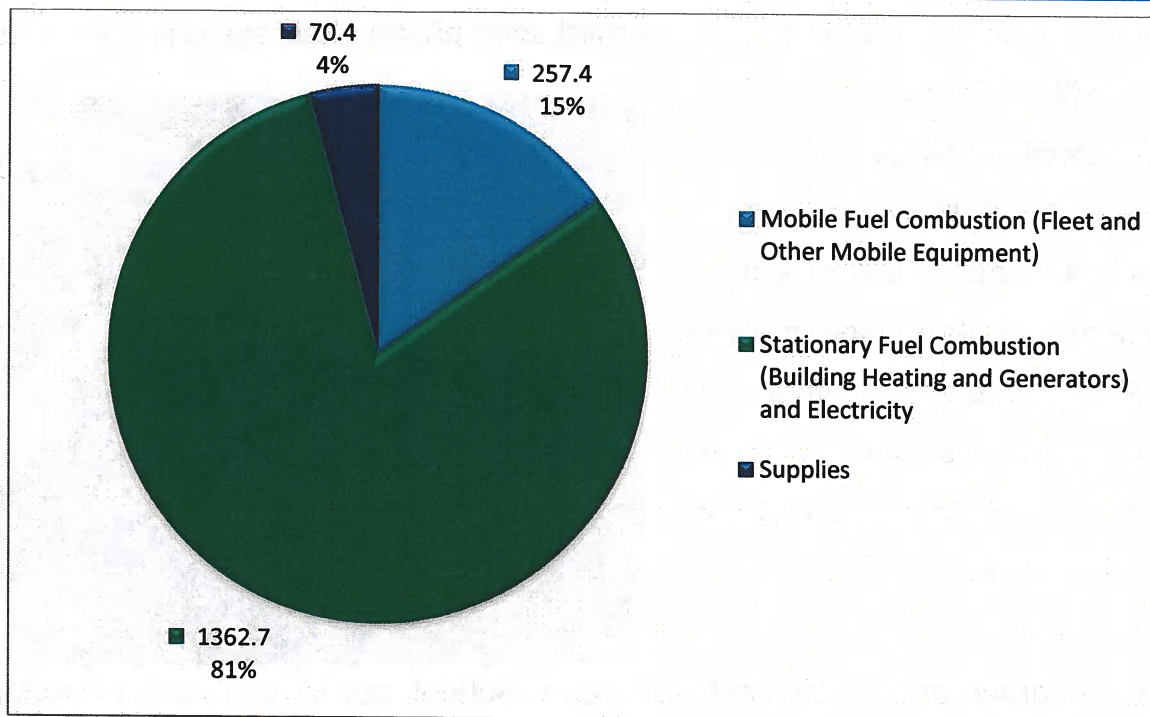
## Offsets Applied to Become Carbon Neutral in 2018

---

In order to become carbon neutral in 2018, School District No. 67 (Okanagan Skaha) was required to purchase a total of 1,594 tonnes of CO<sub>2</sub>e at a cost of \$25 per tonne of CO<sub>2</sub>e. The total cost for purchase of these carbon offsets for 2018 was \$39,850.00 for School District No. 67 (Okanagan Skaha).

As required by section 5 of the Carbon Neutral Government Regulation, 97 tonnes of CO<sub>2</sub>e emissions resulted from the operation of school buses and were reported as part of our greenhouse gas emissions profile in 2018. However, they were not offset as they are determined to be out-of-scope under section 4(2)(c) of the Carbon Neutral Government Regulations.

# 2018 Emissions Source Report (tCO<sub>2</sub>e)



## Offsets Applied to Become Carbon Neutral in 2018

Total offsets required: **1,594**. Total offset investment: **\$39,850**. Emissions which do not require offsets: **97\*\***

\*Tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e) is a standard unit of measure in which all types of greenhouse gases are expressed based on their global warming potential relative to carbon dioxide.

\*\*Under the Carbon Neutral Government Regulation of the Greenhouse Gas Reduction Targets Act, all emissions from the sources listed above must be reported. As outlined in the regulation, some emissions do not require offsets.

## Emissions and Offsets Summary

School District 67 GHG Emissions and Offsets for 2018 (tCO <sub>2</sub> e)	
GHG Emissions created in calendar year	
Total Emissions	1691
Total Emissions for Offsets	1594
Adjustments to GHG Emissions Reported in Previous Years	
Total Emissions	1881
Total Emissions for Offsets	1780
<b>Credit owing from PCT at end of 2017 reporting year (if applicable – from May 15 Invoice):</b>	
Credit Owing	-
Total Emissions for Offsets for the 2018 Reporting Year:	\$39,850.00



# Actions Taken to Reduce Greenhouse Gas Emissions in 2018

In 2018, we completed the installation of our third solar photovoltaic system. The system generated 21 MWh of electricity, offsetting our electrical bill by approximately \$2,500.00 over the final four months of the year. Student and staff excitement grew throughout the year as the installation progressed; other schools are requesting systems for their building so they can incorporate them as part of their curriculum.



A mechanical upgrade at Summerland Secondary School, our largest carbon producer, was undertaken in 2018. We are expecting a substantial reduction of our carbon use in 2019 due to the geo-exchange upgrade as well as an increase in occupant comfort.

The District also continued our investment in LED technology lighting. Over the past year, we replaced an additional 1,000 T-8 tubes with new LED tubes. The update not only reduces power consumption, but also adds to the learning environment by creating consistent lighting levels throughout the educational space.

## Plan to Continue Reducing Emissions

The District is continuing its efforts to reduce carbon offsets through upgrading our mechanical and electrical systems. We are currently in the design phase for a retrofitted mechanical system at Summerland Middle School, which we are hoping to tender in 2020.

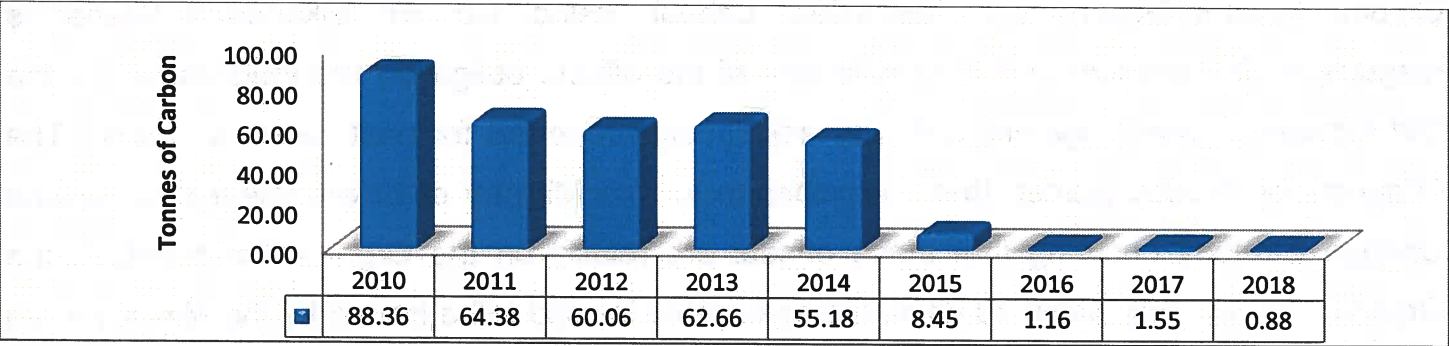


The District is investigating replacing some of our service vehicles and possibly a school bus with electric powered units. This will move us away from burning carbon-rich fuels, such as gasoline and diesel, and towards clean, renewable, electric energy.

The District is also looking to continue investing in solar photovoltaic. Summerland Middle School is being considered for as our next building for a photovoltaic system. The 125 kWh array will increase the existing generation capacity of the School District to reduce operating budgets and carbon creation as well as provide additional educational opportunities to students.

## Sharing our Success

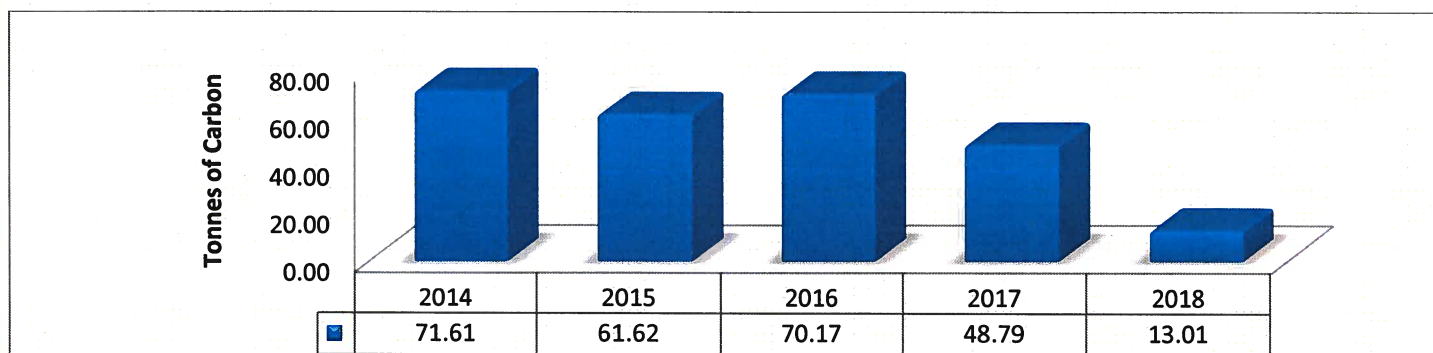
In 2014, the mechanical heating and cooling systems were failing at Wiltse Elementary School. The constant failures and breakdowns were causing a low quality learning environment and draining the resources of the facilities department. In response to these issues, a new mechanical system with geo-exchange was designed and installed. Prior to the upgrades, we were offsetting an average of 66 tonnes of CO<sub>2</sub>e per year.



The upgrade had an immediate impact on the carbon production at the school: the first year with the new system, the emissions reduced to less than nine tonnes CO<sub>2</sub>e. Since the final commissioning, we’ve had a three-year average of less than two tonnes per year. The final impact results in lower operating costs, a far superior learning environment, and points to the environmental stewardship of School District No. 67 (Okanagan Skaha).



As reported in our 2017 Carbon Neutral Action Report, an innovative approach was taken to upgrade our mechanical systems at Columbia Elementary School. A centralized heat pump was installed in the school with the ability to not only to expel heat from the building, but also draw heat in from the outside air, even when the outdoor temperatures are as low as -20°C. The existing cooling infrastructure is now used as an extremely efficient first stage of heating. After a full year of operation, the school is showing an 80% reduction in carbon production pointing to the success of the project.



## Retirement of Offsets

In accordance with the requirements of the Greenhouse Gas Reduction Targets Act and Carbon Neutral Government Regulation, School District No. 67 (Okanagan Skaha) 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 and Climate Change Strategy ensuring that these offsets are retired on the Organization's behalf, the Organization will pay within 30 days, the associated invoice to be issued by the Ministry in an amount equal to \$25 per tonne of offsets retired on its behalf plus GST.

Kevin Lorenz  
Secretary-Treasurer

Wendy Hyer  
Superintendent of Schools



# Part 1: CNAR Survey

## 1. General Information

**Name:** Doug Gorcak

**Contact Email:** dgorcak@summer.com

**Organization Name:** School District # 67 (Okanagan Skaha)

**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: Yes

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?: The main goal is to renovate high carbon producing buildings with more efficient and less carbon intensive fuels.

##### 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)

Our District has invested heavily into large scale efficiency projects. We will continue to attack our large emitters through innovative ways such as geo-exchange and aerothermal thus reducing our reliance on fossil fuels and moving towards renewable energies such as solar PV.

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

We will continue to prioritize our high emitters and move toward renewable forms of energy.

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

We monitor and review our energy consumption on a comparative basis. We compare similar schools to each other to produce a baseline for our District. If a building is high in comparison to the other schools we look into see if we can bring in in line with the other schools.

I. What % on average of your building portfolio has an energy audit completed each year (if any)?: 25

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

When building retrofits occur we replace existing equipment with higher efficiency equipment.

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.) (%): 5

Major retrofits (e.g., replacing windows and doors, equipment replacement such as boilers, etc.) (%): 5

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

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

N/A

I. What % on average of your building portfolio do you recommission each year?: 0

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

No

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

N/A

**g) How many newly constructed buildings received at least LEED Gold certification in 2018: 0**

I. How many newly constructed buildings did not receive LEED Gold certification?: 0

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

N/A

**h) Other actions? Please describe briefly.**

N/A

**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)

We will continue to purchase "right size" vehicles for our service fleet. We are also investigating moving part of our service fleet over to electric units to reduce our carbon output.

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

We will continue to purchase "right size" vehicles for our service fleet. We are also investigating moving part of our service fleet over to electric units to reduce our carbon output.

**c) 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

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

N/A

**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

**f) Other actions, please describe briefly (e.g. charging station feasibility studies, electrical panel upgrades, etc.)**

We are in the early stages of moving to an electrified fleet and we are starting to investigate the feasibility of charging stations.

**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: 26

## **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: 8

## **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?: 30000

How many LDTs do you plan to replace annually over the next 5 years?: 1

How much do you plan to spend per HDV?: 40000

How many HDVs do you plan to replace annually over the next 5 years?: 1

## **C. Office Paper: Indicate which actions your PSO took in 2018:**

### **6. Actions taken by your organization in 2018 to support emissions reductions from paper supplies.**

#### **a) Do you have an Office Paper strategy?**

No

#### **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)**

We monitor and report to staff paper consumption through Papercut. We show staff costs for printing to help staff understand the cost of copying. We are investigating increasing the recycled content in our paper to reduce its carbon intensity. We have gone to centralized multifunction copiers to make it slightly more difficult to print documents in an effort to encourage staff to think before printing.

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

We monitor and report to staff paper consumption through Papercut. We show staff costs for printing to help staff understand the cost of copying.

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

No

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

No