

2022 PSO Climate Change Accountability Report

5/31/2023



Heather Park Elementary—Boiler Replacement Summer 2022

Prince George school district wins energy efficiency award

School District 57 was the winner of FortisBC's 2023 Efficiency in Action Award in the medium commercial category.



Learning that Enriches the Life of Each Student

School District No. 57 (Prince George)
PROVINCE OF BRITISH COLUMBIA



www.sd57.bc.ca

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2022 PSO Climate Change Accountability Report

School District No. 57 (Prince George)

This Climate Change Accountability Report for the period January 1, 2022 to December 31, 2022 summarizes our emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2022 to reduce our greenhouse gas emissions and our plans to continue reducing emissions in 2022 and beyond.

By June 30, 2023, School District No. 57 (Prince George) final 2022 Climate Change Accountability Report will be posted to our website at:

<https://www.sd57.bc.ca/Programs/DistrictDepts/Maintenance/>

or can be found on the government website at:

<https://www2.gov.bc.ca/gov/content/environment/climate-change/public-sector/cnar/annual-reports-cnars-table>

Executive Summary

School District No. 57 (Prince George) has been carbon neutral since 2010.

In 2022 we have continued our efforts to reduce our carbon footprint by;

- Upgrading inefficient, atmospheric type gas fired boiler systems with high efficient condensing units in 3 schools.
- Replacement of domestic hot water systems with condensing on-demand units in 2 schools.
- Installed new low temperature fan coils and terminal units in one school as part of a final phase HVAC upgrades.
- Added piping insulation in various schools.

By reducing our gas emissions and electricity consumption we have reduced our carbon footprint. We will return the cost savings to use on more sustainability projects, which will result in further reductions to our carbon emissions. For 2022 and beyond we plan on continuing on the success of our past actions.

For the year 2022 our District's total emissions were 5768 tCO₂e plus 0 tCO₂e for emissions to be included for prior years.

I am pleased to present the following report outlining our efforts, to become carbon neutral.

Barry Bepple
Energy & Sustainable
Conservation Coordinator

Emissions and Offsets Summary Table:

School District No. 57 (Prince George) GHG Emissions and Offsets for 2022 (TCO ₂ E)	
Total BioCO ₂	12
Total Emissions (tCO ₂ e)	5780
Total Offsets (tCO ₂ e)	5768
Adjustments to Offset Required GHG Emissions Reported in Prior Years	
Total Offsets Adjustment (tCO ₂ e)	0
Grand Total Offsets for the 2020 Reporting Year	
Grand Total Offsets (tCO ₂ e) to be Retired for 2022 Reporting Year	5768
Offset Investment (\$25 per tCO ₂ e)	\$ 144,200 + GST

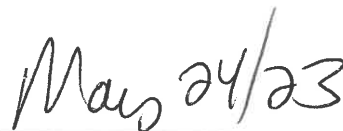
Retirement of Offsets:

In accordance with the requirements of the *Climate Change Accountability Act* and Carbon Neutral Government Regulation, School District No. 57 (**the Organization**) is responsible for arranging for the retirement of the offsets obligation reported above for the 2022 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 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



Date

Pam Spooner

Acting Superintendent

Name (Print)

Title

2022 Greenhouse Gas Emissions

Out of Scope Emissions

Out-of-Scope Emissions include refrigerants:
R-22 (HCFC), R-401a (HCFC), MP-39 (HCFC).

Fugitive emissions are estimated to be less than one percent of the District's emissions based on the refrigerant recharge amounts of R-134a and R-404a (HFCs) in the year 2021. Thus, these emissions are deemed to be out of scope and have not been included in the total District's greenhouse gas emissions profile.

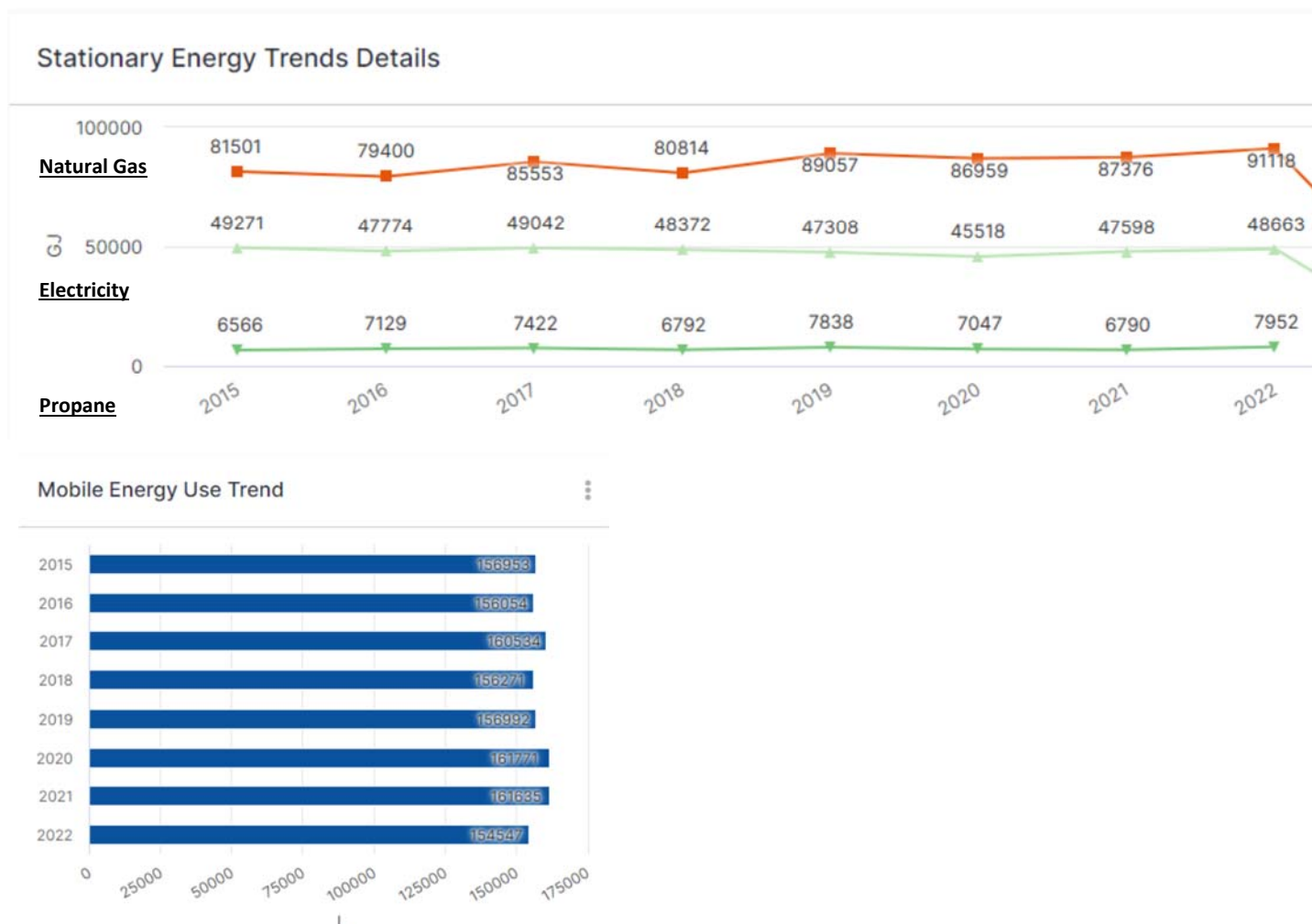
Emissions

Direct Fuel Combustion, natural and propane gas emissions, account for the majority of GHG emissions in our district at 87.2%. Electricity, mobile fuel and paper only amount to 12.8% combined.

Our focus has been on reducing natural and propane gas consumption through modernization and efficiency improvements of the equipment.

Unfortunately, COVID ventilation requirements impacted both direct and indirect fuel consumption for 2021 and 2022. We no longer utilize CO₂ demand based strategies and the electric fan and heating systems run on a longer schedule to protect the health of occupants. Multiple school facilities have HEPA ventilation fans that run 24x7, filtering the air continuously.

Mobile fuel use was 4.4% less than 2021 and 2020.



Graphics and charts courtesy of the Clean Government Reporting Tool

Emissions Reduction Programs

Low Temperature Terminal Units/Fan Coils/Boilers—Van Bien Elementary

4 Herman Nelson unit ventilators at Van Bien Elementary were replaced with new Apollo unit ventilators supplying 1200 cfm of conditioned air each in the summer of 2022. A small air handler serving the library and the training and development centre was installed in March 2023, completing the renovations. This last phase of HVAC upgrades means that we can now operate the condensing boiler system installed in 2021 at condensing temperatures.

Along with the ventilators, new piping, insulation, and controls were added so that each classroom has its own ventilation unit for the space. Although the past 6 months of data for the schools shows an overall drop from the previous 5 years on average, we expect a further decline in consumption once COVID ventilation requirements are relaxed to ASHRAE standards and the boiler temperatures are reduced to condensing temperatures.

Boiler Replacements—Buckhorn Elementary, Heather Park Elementary & Pineview Elementary

3 facilities received new condensing boiler plants to replace the existing mid-efficient and atmospheric boilers. Along with the boilers the domestic hot water heating systems were converted to utilize tankless water heaters and the building management system controls operating them were changed over. All of these systems now utilize variable frequency drives operating the hydronic system pumps to save energy.

Pineview Boilers



Buckhorn—System pumps being installed during construction.



Emissions Reduction Programs—(continued)

Lighting Projects

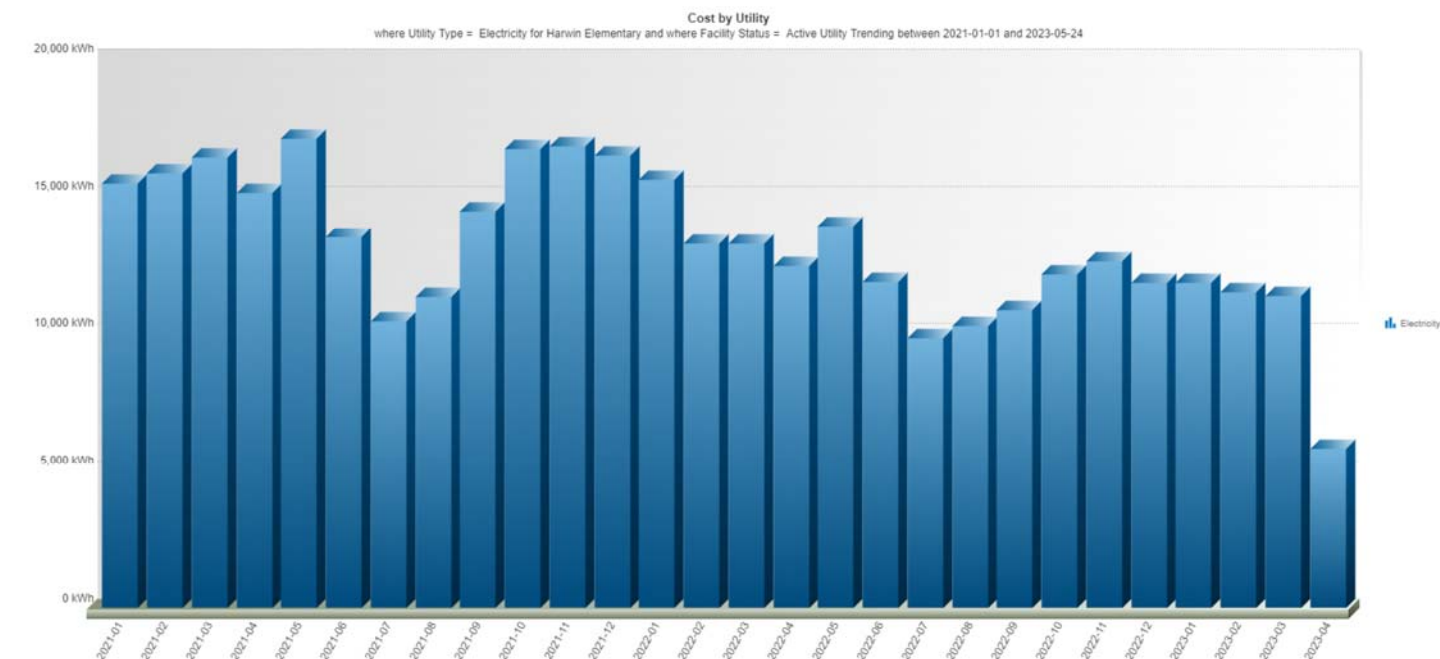
Completion of the lighting projects at Valemount Secondary, McBride Centennial Elementary, McBride Secondary, Harwin Elementary, Hart Highlands Elementary and Heritage Elementary started in 2021 were finally fully operating in 2022.

Installation of dimmable LED troffer fixtures at Harwin Elementary, with occupancy controls and selective zoning in the classrooms has resulted in significant consumption savings, while improving the teaching environment for use with technology.

Similar results for the other schools were achieved. Hart Highlands and Heritage Elementary facilities were only partially converted to LED as the main school portions were converted in a prior project.

Our standard is to provide a new learning experience to classrooms with the choice of occupancy sensors, dimmable LED lights and providing zoning control for different lighting for different areas of the classroom.

Harwin Elementary—Electrical Consumption History



FortisBC—Efficiency in Action Award 2023

Although the award was received in May 2023, the award was for implementing more than 25 different applications across the district in 2021 and 2022.



FortisBC—Article from their website

[School District No. 57](#) (SD57) has demonstrated that it's a strong advocate for energy efficiency, which is why it's our winner in the Medium Commercial category. Supported by its energy and sustainable conservation policy, it takes a systems approach to its schools to balance energy efficiency and economics. SD57 received approximately \$245,000 in incentives for implementing more than 25 different applications across the district. These energy-efficiency upgrades are expected to save approximately 8,900 GJ annually.



SD57 used some of the funding it received to install new high-efficiency condensing boilers and a tankless water heater in one of its schools. It also used funds for further improvements to HVAC ventilation, controls and more.

In Conclusion

In 2022 we continued to reduce our carbon footprint by installing more efficient heating systems and then controlling the operation and schedule of them. One further boiler replacement project is planned for 2023, along with 14 low temperature unit ventilator installations and DDC controls upgrades. For one of our Secondary Schools we are planning to purchase Renewable Natural Gas (NRG) from FortisBC to finalize the transition to alternative energy sources for the heating systems.

In 2022, the COVID pandemic was still creating additional energy use as we provided more ventilation and longer facility operating times impacting the emissions and cost to the district.

We continue to strive for the most efficient operation of the facilities and will be engaging our partners in education - the Principals, Staff and Students - to accomplish our goals.

We will look forward to another year as we look back at the accomplishments in 2022.

Sincerely,



Barry Bepple
Energy and Sustainable Conservation Coordinator
School District No. 57, Prince George



* MEASURE * REDUCE * OFFSET * REPORT * PLAN *

