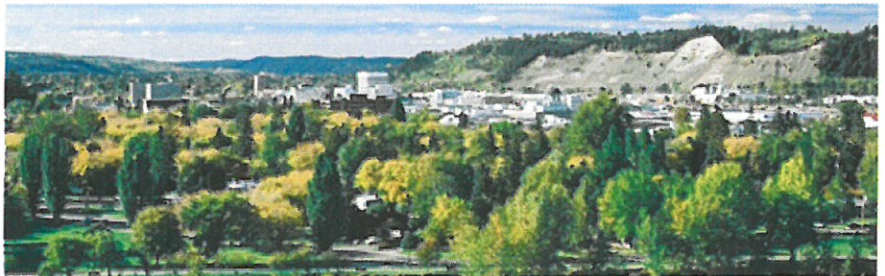


6/1/2015

Carbon Neutral Action Report 2014



Learning that Enriches the
Life of Each Student

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

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2014 Carbon Neutral Action Report

School District No. 57 (Prince George)

This Carbon Neutral Action Report for the period January 1st to December 31st 2014 summarizes our emissions profile, the amount of offsets purchased to reach net zero emissions, the actions we have taken in 2014 to reduce our greenhouse gas emissions and our plans to continue reducing emissions in 2015 and beyond.

By June 30, 2015, School District No. 57 (Prince George) will declare itself to be carbon neutral and this Carbon Neutral Action Report will be posted to our website at www.sd57.bc.ca.

Executive Summary

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

In 2014 we have continued our efforts to reduce our carbon footprint by;

- upgrading inefficient, atmospheric type gas fired boiler systems with high efficient units
- replacing classroom and gymnasium ventilation units thereby improving air quality
- exchanging lighting systems across the district with those that use half the tubes, ballasts and power of the original and outputs a greater amount and quality light as well
- installing occupancy sensors to classrooms and storage areas to reduce wasted electricity
- optimizing the building automations systems to improve operation and reduce energy use

By reducing our gas and electricity consumption we have reduced our carbon footprint. We return these savings for use on more sustainability projects, thereby creating a revolving 'green' fund which will result in further reductions to our carbon emissions and cost savings to the district.

For the year 2014, our District's carbon footprint was 6,085 tCO₂e.

We are pleased to present the following report on our efforts to become carbon neutral.

Brian Pepper
Superintendent
School District No. 57




Barry Bepple
Energy & Sustainable
Conservation Coordinator



Emissions and Offsets Summary Table:

School District No. 57 (Prince George) GHG Emissions and Offsets for 2014 (TCO2E)	
GHG Emissions created in Calendar Year 2014	
Total Emissions (TCO2E)	6085
Total Offsets (TCO2E)	6073
Adjustments to GHG Emissions Reported in Previous Years	
Total Emissions (TCO2E)	-6
Total Offsets (TCO2E)	1
Total Emissions for Offset for the 2014 Reporting Year	
Total Offsets (TCO2E)	6074

Executive sign-off:

 2015.06.01
Signature Date

BRIAN PEPPER SUPERINTENDENT
Name Title

2014 Greenhouse Gas Emissions

For the 2014 calendar year, School District No. 57's greenhouse gas emissions were 6,085 tonnes of CO²e.

The following summarizes the greenhouse gas emissions by source:

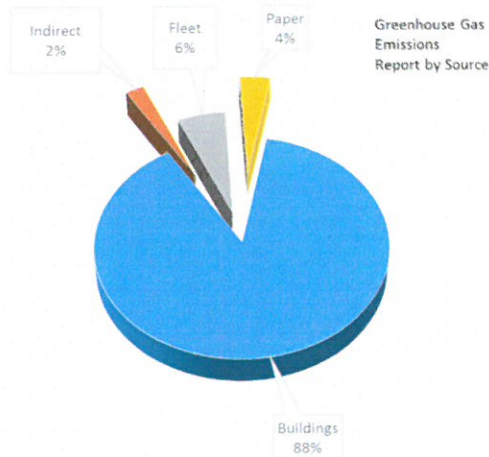
Out of Scope Emissions

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 2014. 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 Sources	2012	2013	2014	2014 vs 2013
Buildings	5176	5296	5369	+1.36%
Indirect	371	203	140	-45%
Fleet	419	405	340	-19%
Office Paper	285	272	225	-21%
Exemption	-13	-13	-11	
Adjustments	-49			
Total Emissions	6189	6163	6074	-1.47%

Offsets Applied to Become Carbon Neutral in 2014

The total emissions offset applied to become carbon neutral is 6,074 tCO²e which includes an offset exemption of 11 tCO²e for Biomass emissions. The net offsets purchased costs the District \$151,875 plus GST.



Emissions Reduction Programs

2014 Calendar Year activities continued some programs from the previous year, as well as new projects for 2014. The projects involved replacing equipment that was end-of-life, had a high cost to operate, and contributed to our overall carbon emissions.

Heating Ventilation and Air Conditioning



Southridge Elementary

Replaced two atmospheric Teledyne Laars Boilers with new Condensing IBC Boilers. Funding from the CNCP program partially made this possible. Savings from this project are estimated to be greater than 1000 Gj per year.

College Heights Elementary

Completion of Phase 2 of the project involved installing Engineered Air classroom unit ventilation units to half of the school which replaced an obsolete multi-zone unit. The entire school project (boilers and classroom ventilation units) has saved approximately 1900 Gj per year over each of the previous two years, in comparison.

Edgewood Elementary,
Hart Highlands Elementary,
Heritage Elementary,
Pinewood Elementary

Replaced gas fired gymnasium air handling units with new Engineered Air units' c/w variable speed drives and modulating gas valves for efficiency.

Lighting



Beaverly Elementary,
Pineview Elementary,
Quinson Elementary,
Spruceland Elementary,
Van Bien Elementary

Replaced T-12 fluorescent lighting fixtures with new T-8 fixtures. Each fixture replaced reduced the number of tubes by half and had a corresponding effect on ballast replacements as well. The lighting output in lumens and the quality of light, as a measurement of the Color Rendition Index, improved throughout. In addition, the installation of occupancy controls in each space has resulted in significant reductions in electricity consumption and of course the cost to operate.

In Conclusion

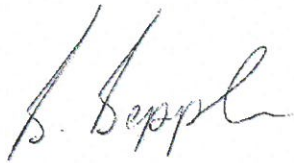
2014 set the stage for further reduction of our carbon footprint by installing more efficient heating systems. An additional four boiler projects are planned for 2015, along with DDC controls upgrades and improved strategies, which should substantially reduce our use of fossil fuels.

Weather continues to play a big part in the effect we have on our carbon emissions, living in the North. The famous 'Polar Vortex' in the winter and spring of 2014 saw temperatures plummet and an inevitable increase in natural gas and propane consumption.

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 exciting year as we look back at the accomplishments in 2014.

Sincerely,

A handwritten signature in black ink, appearing to read 'B. Bepple', with a stylized, cursive script.

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

2014 Carbon Neutral Action Report (CNAR)

- Part 2 ACTIONS

Organization Name

School District No. 57

Actions Taken to Reduce Emissions

1) Stationary Fuel Combustion, Electricity (Buildings): Indicate which actions were taken in 2014:

Performed energy retrofits on existing buildings

Yes

Built or are building new LEED Gold or other "Green" buildings.

No

Undertook an evaluation of overall building energy use.

Yes

Please list any other actions taken to reduce emissions from Buildings:

1. Replaced atmospheric boilers in Southridge Elementary as part of the CNCP program with high-efficient condensing boilers.
2. Replaced a multi-zone gas fired unit ventilator and replaced it with hydronic classroom unit ventilators as part of a multi-phase project at College Heights Elementary.
3. Replaced existing lighting systems at Beaverly Elementary, Pineview Elementary, Quinson Elementary, Spruceland Elementary and Van Bien Elementary.
4. Installed LED outdoor parking lot lighting at John McInnis Resource Centre.

2) Mobile Fleet Combustion (Fleet and other vehicles):Indicate which actions were taken in 2014:

Do you have a fleet?

Yes

Replaced existing vehicles with more fuel efficient vehicles (gas/diesel)

No

Replaced existing vehicles with hybrid or electric vehicles

No

Reduced the overall number of fleet vehicles

No

Took steps to drive less than last year

No

Please list any other actions taken to reduce emission from fleet:

(No response)

3) Supplies (Paper):Indicate which actions were taken in 2014:

Used less paper than previous year

Yes

Used only 100% recycled paper

No

Used some recycled paper

Yes

Used alternate source paper (Bamboo, hemp, etc.)

No

Please list any other actions taken to reduce emissions from paper use:

(No response)

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Actions Taken to Reduce Emissions - continued

Explain how you plan to continue minimizing emissions in 2015 and future years:

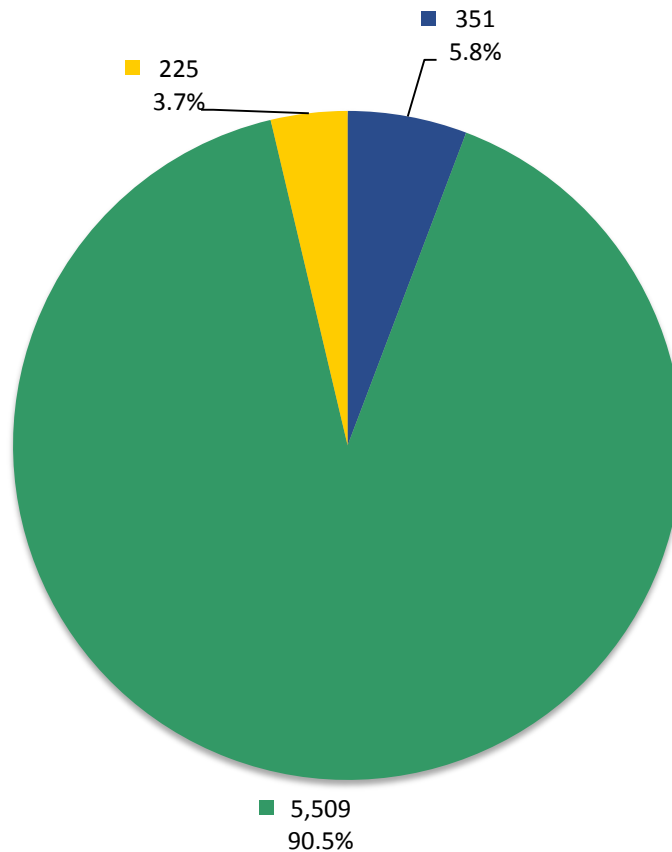
1. Energy and Sustainable Conservation Coordinator will continually monitor, assess, report and determine new energy saving projects.
2. Develop a Strategic Energy Management Plan.
3. Develop Policies and Administrative Procedures relating to energy conservation and awareness.
4. Replace atmospheric boilers at Ecole Lac des Bois Elementary, Nusdeh Yoh Elementary and the Central Administration Office with new high-efficient condensing boilers.
5. Continue replacing old, inefficient atmospheric boiler systems with new boilers.
6. Replace existing inefficient light systems at Southridge Elementary, Malaspina Elementary, Nusdeh Yoh Elementary and the Central Administration Office with new LED lighting.
7. Continue replacing exterior lighting systems at schools with new, high efficient LED lighting systems.
8. Install new Variable Speed Drive systems to large air handling units, along with new Carbon Dioxide sensors and Direct Digital Controls (DDC), to vary the air delivery systems based on demand, temperature, use and Indoor Air Quality requirements.
9. Upgrade and re-program Direct Digital Control (DDC) systems at various schools through an extensive re-commissioning process to fine tune and take advantage of demand based CO2 strategies.
10. Install occupancy controls to classroom lighting systems.
11. Replace boiler and storage tank combination domestic hot water heating systems with either electric or natural gas hot water tanks.

12. Re-program exterior lighting controls to utilize DDC systems, rather than be based on photocell control to take advantage of 'Dark Campus' strategies.
13. Install Variable Frequency Drives on large hydronic pumping systems, including changing 3 way valve systems to 2 way valves.
14. Create a new website for Energy and Conservation Awareness within the School District.

If you wish to list any other "sustainability actions" outside of buildings, fleet, paper and travel check "yes". This reporting is optional.

No

**School District 57 - Prince George
Greenhouse Gas Emissions by Source
for the 2014 Calendar Year (tCO₂e*)**



Total Emissions: 6,085

- Mobile Fuel Combustion (Fleet and other mobile equipment)
- Stationary Fuel Combustion (Building Heating and Generators) and Electricity
- Supplies (Paper)

Offsets Applied to Become Carbon Neutral in 2014 (Generated June 23, 2015 2:57 PM)

Total offsets required: **6,073**. Total offset investment: **\$151,825**. Emissions which do not require offsets: **11** **

*Tonnes of carbon dioxide equivalent (tCO₂e) 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.