



School District No. 23 (Central Okanagan) – 2016 Carbon Neutral Action Report

“Together We Learn”

As the finalized, This Carbon Neutral Action Report for the period January 1st, 2016 to December 31st, 2016 summarizes our emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2016 to reduce our greenhouse gas emissions and our plans to continue reducing emissions in 2016 and beyond. By June 30th, 2016, the School District No.23 final CNAR will be posted to our website at www.sd23.bc.ca

In March 2016, the Service Delivery Project Steering Committee (SDPC) endorsed an energy management business case, including a recommendation to pilot a shared energy management resource for school districts in underserved regions of the Province. Implementation of methods to manage energy consumption and provide sustainable practices has the ability to achieve cost savings and efficiencies for school districts. A number of school districts have already demonstrated savings and efficiencies in these areas through involvement with BC Hydro, Fortis BC, the Carbon Neutral Capital Program or programs they have created themselves. The business case specifically identified implementation of LED lighting projects as one area where there were easily quantifiable benefits in energy reduction and savings for school districts.

School District No.23 (Central Okanagan) has a key role in the energy management pilot project. SD23 has hired the shared energy manager for a one year term. The energy manager position will be co-funded by the Ministry of Education and BC Hydro. The pilot will provide an opportunity to shape and identify, in a collaborative manner, the key attributes of a co-funded energy manager role for the more rural and remote areas of the province.

Our planned outcome will provide a shared energy management resource for five K-12 school districts in the Kootenay/Boundary, Thompson/Okanagan, and North Coast/Northern Interior regions of the Province:

- School District 87 (Stikine)
- School District 5 (Southeast Kootenay)
- School District 22 (Vernon)
- School District 8 (Kootenay Lake)
- School District 74 (Gold Trail)

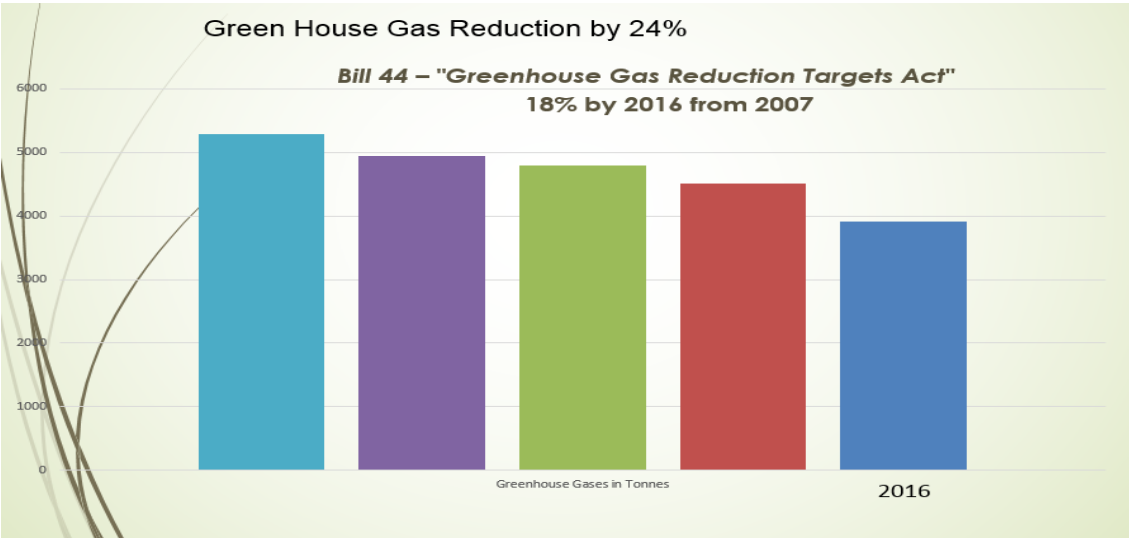


The Educational Facility Managers' Association, BC Hydro, School District No. 23 (Central Okanagan) and school districts interested in taking part in the pilot will be key supports to and members of an Energy Management Pilot Advisory Committee. The Ministry of Education's Service Delivery area will provide project management support. As a first step in resourcing this pilot, discussions took place amongst the Facilities Management Working Group (FMWG), Educational Facility Managers' Association (EFMA), BC Hydro and the Service Delivery team. The ministry and BC Hydro have agreed to co-fund a strategic shared energy manager role.

Our foremost accomplishment is that SD23 has lowered its greenhouse gas emissions by 24 per cent below 2007 levels. British Columbia's [Greenhouse Gas Reduction Targets Act \(GGRTA\)](#) legislated in 2007 by the Province of British Columbia, the GGRTA requires all of BC's public sector organizations (PSOs) by law to be carbon neutral by 2010 – this includes all BC school districts and post-secondary institutions. The GGRTA sets aggressive targets for reducing greenhouse gas emissions (GHGs). In 2007, Environment Minister Barry Penner announced that the B.C. Government has reviewed and accepted the recommendations of the Climate Action Team (CAT) for interim greenhouse gas reduction (GHG) targets. School District No.23 has exceeded 2016 expectations by 6% and is well on track to meet our 2020 GHG targets.

GHG reduction target;

- 6 per cent below 2007 levels by 2012
- 18 per cent below 2007 levels by 2016
- 33 per cent below 2007 levels by 2020





Compressed natural gas (CNG) school bus fleet expands and continues to hold the promise in reducing carbon emissions and saving Diesel costs.

CNG school buses are also appealing because the maintenance on these engines is reduced and the slow-fill fueling system is efficient by saving labour hours. Currently, CNG is priced 24% less than diesel. The price of a diesel litre equivalent (DGE) of CNG has become increasingly lower than the price of a litre of diesel. Although the market price of natural gas was fairly volatile in the previous decade, it is expected to stabilize at a level highly



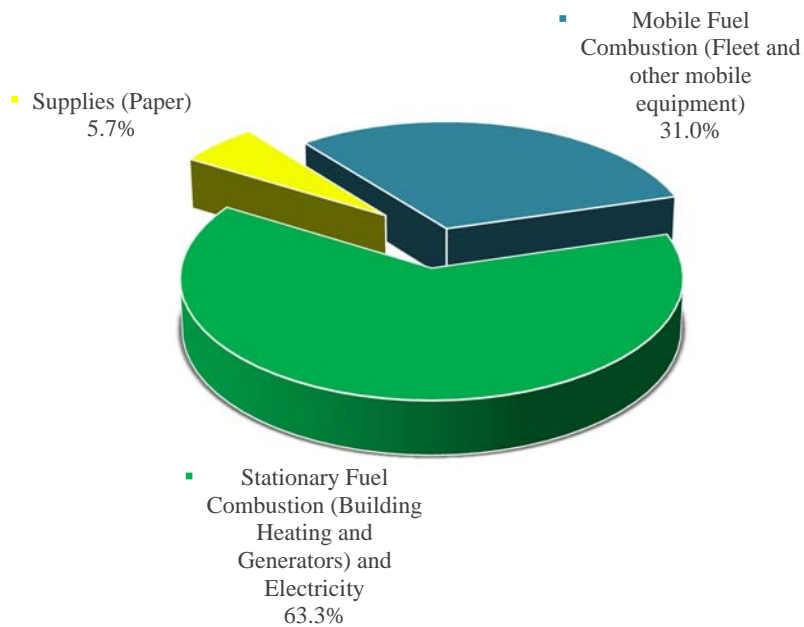
competitive with diesel. It now appears the price of natural gas has decoupled from diesel prices. Although financial viability is an important determinant of the achievable potential, several of these segments/scenarios have other important advantages that improve CNG School Buses prospects. For example, the environmental advantage of a CNG School Bus is calculated at 19% in greenhouse gas (GHG) emission reductions. In the context of operating vehicles in the Okanagan Valley, these environmental advantages translate into health advantages which can be fundamental to our environmentally conscious citizens.

In 2016, continuing old boilers replacement with condensing boilers results in less natural gas used. Highly efficient made in British Columbia condensing boilers use less fuel and have lower running costs than other boilers. Higher efficiency levels are made possible by extracting heat contained in the combustion gases, which would otherwise have been lost to the atmosphere. Watson Road Elementary Condensing Boiler project achieved an amazing 30% natural gas reduction level the first year of operations. Energy saving equivalent of one 150 student school per year of natural gas usage. A total of 300Gj of natural gas was saved. It is concluded that some standardized low temperature boiler designs and good maintenance practices, as well as the development of control standards for energy demand and greenhouse gas emissions are necessary to improve the energy efficiency in all school buildings. School District No.23 is committed to learn from these energy results and share its knowledge in a collaborative environment.

In 2017, LED lighting upgrades will reduce SD23's electrical consumption. LED lighting projects are estimated to reduce the exterior lighting energy costs for those facilities by 80%. School District No.23 is excited about the significant energy savings we will achieve and the positive impact on our annual operational costs as a result of this electrical energy initiative.

Emissions and Offsets Summary:

School District 23 - Central Okanagan (Kelowna) Greenhouse Gas Emissions by Source for the 2016 Calendar Year (tCO₂e*)



Total Emissions: 5,480

Offsets Applied to Become Carbon Neutral in 2016 (Generated June 22, 2017 2:00 PM)

Total offsets required: **4,129**. Total offset investment: **\$103,225**. Emissions which do not require offsets: **1,351** **

*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.

Fig 1) Emissions Source Report

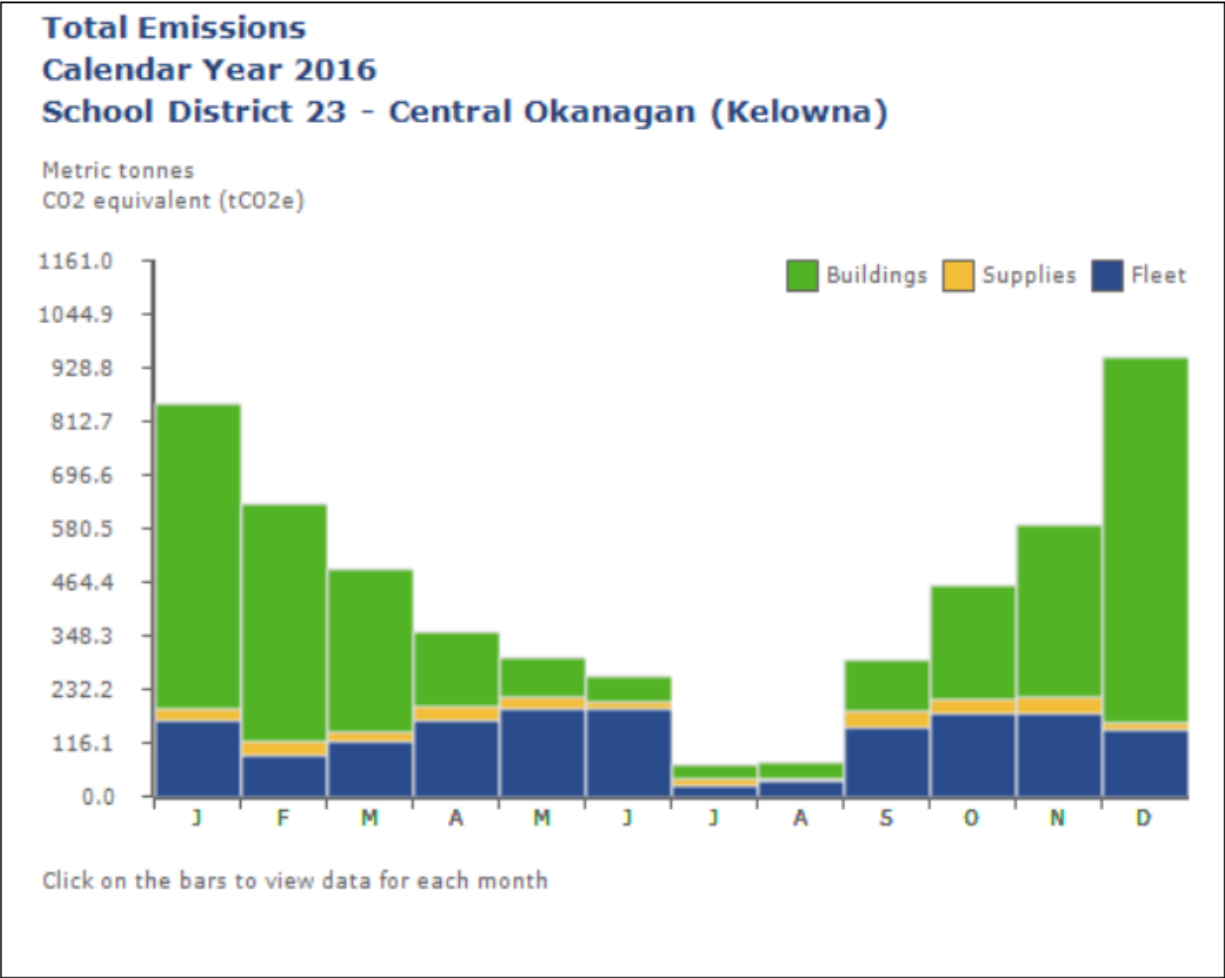


Fig 2) Green House Gas Emission from Fleet, Supplies & Buildings




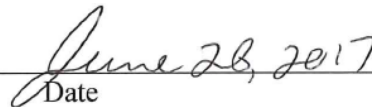
School District 23 - Central Okanagan GHG Emissions and Offsets for 2016 (TCO2E)	
GHG Emissions created in calendar year 2016	
Total Emissions	5480 tCO ₂ e
Total Emissions for Offsets	4129 tCO ₂ e
Adjustments to GHG Emissions Reported in Previous Years	
Total Emissions	0 tCO ₂ e
Total Emissions for Offsets	0 tCO ₂ e
Total Emissions for Offset for the 2016 Reporting Year	
Grand Total Offsets (tCO ₂ e)	4129 tCO ₂ e

Retirement of Offsets:

In accordance with the requirements of the Greenhouse Gas Reduction Targets Act and Carbon Neutral Government Regulation, *School District 23 - Central Okanagan* is responsible for arranging for the retirement of the offsets obligation reported above for the 2016 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 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

Larry Paul CPA, CA
CFO/Secretary-Treasurer
School District No.23
(Central Okanagan)

Name (please print)

Title

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Part One (external)

Contact Name(s):

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Contact Email(s):

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Organization Name:

School District No. 23 (Central Okanagan)

Please select your sector:

- School District

1) Stationary Sources (Buildings, Power Generators): Fuel Combustion, Electricity use, Fugitive Emissions.

During 2016, did your organization take any of the following actions to support emissions reductions from buildings?

Select all that apply

- Conducted an energy audit/study of building(s) in the organization's portfolio
- Performed energy retrofits of the organization's buildings.: Watson Road Elementary,
- Other actions? Please describe briefly.: Hired a Regional Energy Manager to help other school districts

Briefly describe your organization's plans to continue reducing emissions from its stationary sources in future years.

We have an Energy management team that includes an Energy Manager, Energy Specialist, and an educational staff liaison. The BC Hydro WCA program to help with behavioral changes. Included energy conservation projects in our Routine Capital submissions.

During 2016, did your organization participate in utility-sponsored energy demand management program(s) (e.g. BC Hydro's Energy Management (Manager))?

Yes

If yes, please describe briefly:

SD23 has hired the shared energy manager for a one year term. The energy manager position will be co-funded by the Ministry of Education and BC Hydro. The pilot will provide an opportunity to shape and identify, in a collaborative manner, the key attributes of a co-funded energy manager role for the more rural and remote areas of the province.

2) Mobile Sources (Vehicles, Off-road/Portable Equipment): Fuel Combustion.

During 2016, did your organization take any of the following actions to support emission reductions from its mobile sources?

Select all that apply

-
- Replaced existing vehicles with more fuel efficient vehicles (gas/diesel).: 5 Vehicles
 - Took steps to drive less than previous years.

Briefly describe your organization's plans to continue reducing emissions from its mobile sources in future years.

SD23 is planing for two electric charging stations in 2017.

3) Supplies (Paper):

During 2016, did your organization take any of the following actions to support emissions reductions from paper supplies?

Select all that apply

-
- Awareness campaign focused on reducing office paper use.
 - Policy requiring the purchase of recycled content paper.: yes, 30%

Briefly describe your organization's plans to continue reducing emissions associated with its office paper use in future years.

Shared benchmarking paper data (packages purchased/student/school) with all schools. Worked with print fleet manager to ensure that copies were default to double-sided print. Purchasing department is pursuing the procurement of a new Document Management System which would reduce overall paper consumption.

4) Other Sustainability Actions:

Business Travel:

During 2016, did your organization take any of the following actions to support emissions reductions from business travel?

Select all that apply

-
- Encouraged alternative travel for business (e.g. bicycles, public transit, walking)
-

Education Awareness:

During 2016, did your organization have any of the following programs or initiatives to support sustainability education and awareness?

Select all that apply

-
- Green, Sustainability or Climate Action Team
 - Support for professional development on sustainability (e.g. workshops, conferences, training)
 - Supported or provided education to staff about the science of climate change, conservation of water, energy and/or raw materials
-

Other Sustainability Actions:

During 2016, did your organization have any of the following programs or initiatives to support sustainability?

Select all that apply

-
- A water conservation strategy which may include a plan or policy for replacing water fixtures with efficient models
 - An operations policy or program to facilitate the reduction and diversion of building occupant waste (e.g., composting, collection of plastics, batteries) from landfills or incineration facilities
 - Green procurement standards for goods (e.g., office furniture, etc.)
 - Lifecycle costing of new construction or renovations
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