



2015

CARBON NEUTRAL ACTION REPORT

Executive Summary

The Vancouver Board of Education (VBE) - SD#39 has a long standing commitment to sustainability. Students, teachers, and staff have initiated actions that address energy conservation, carbon emissions, food and natural systems, transportation and active commuting.

Education is our core function and our students and teachers connect sustainability to their learning experiences daily. Throughout the District, at dozens of schools, our community acts on sustainability - ranging from waste reduction, to ecosystems, to food gardens, to energy conservation. The District has taken substantial action to reduce energy consumption and associated greenhouse gas (GHG) emissions that cause climate change.

In 2015 a number of projects were implemented including retrofitting old lighting systems at several existing school sites, and initiating construction of new schools that included a number of energy efficient features - thereby using less energy than a base-model school. These projects will produce utility cost savings for years to come.

As part of the Provincial mandate for BC's public sector to be carbon neutral, the District tracks and offsets its greenhouse gas (GHG) emissions. For the 2015 calendar year, our

offset-requiring emissions were 14,486 tonnes of CO₂. As required by Provincial legislation, we purchased certified carbon credits to offset these emissions.

Our efforts will continue in 2016. We are initiating a multi-year building optimization initiative to review a number of our existing schools. Other projects include more classroom lighting retrofits, a review of the opportunities to upgrade our exterior lighting systems with new LED technologies, and an expansion of our heating control systems.

Our trustees have set a vision for our school district to be the "greenest, most sustainable school district in North America". Our action on carbon neutrality is one part of achieving this vision - and we are on our way!



Scott Robinson
Superintendent of Schools / CEO
Vancouver Board of Education



1 Introduction

For many years the Vancouver Board of Education has implemented energy conservation activities and retrofits. These have reduced our utility bills, decreased our carbon footprint, and improved our operating practices. As well, teachers and students have led the way in their classrooms to incorporate sustainability into numerous components of our schools.

Provincial Policy

In 2007 the Province enacted the *Greenhouse Gas Reduction Targets Act* (GGRTA) also known as Bill 44 (2007). The GGRTA requires, among other things, that public sector organizations (PSOs) be carbon neutral beginning in 2010, and for each year thereafter. The VBE is subject to this requirement.

Being carbon neutral requires that an organization:

- Take action to reduce its GHG emissions,
- Measure and report its carbon emissions (or carbon 'footprint'), and
- Purchase carbon offsets for any remaining emissions in order to effectively 'neutralize' the environmental impact of these emissions.

The Province has defined criteria for reporting and has developed an internet-based system for tracking and reporting emissions.

VBE Policy and Action on Sustainability

In 2010, the VBE approved a "Sustainability Framework" which provides a set of key principles for District action, and identify six key result areas as themes for action. These key areas include resource conservation, reducing our carbon footprint, and connecting our sustainability efforts to education.

The VBE has been active in energy management for more than a decade. Reduction activities over this time have cumulatively resulted in energy savings of over \$700,000 annually. Many projects have been implemented through incentive programs of the utility companies - BC Hydro and Fortis Gas.



2 Greenhouse Gas Emissions

The VBE uses the Provincial greenhouse gas emissions reporting system SMARTTool to track and report its emissions. This is required by the GGRTA (2007) for all public sector entities in BC.

Emissions Sources

Reportable sources of GHG emissions within the VBE are:

- Natural gas consumed to run heating and hot water systems
- Electricity consumption within facilities
- Vehicle fuel consumption of the VBE-owned fleet vehicles
- Paper consumption ⁽¹⁾

2014 Emissions and Offsets

For the 2015 calendar year, our offset-requiring emissions were 14,486 tonnes of CO₂. As required, we purchase certified carbon credits to offset these emissions through the Ministry of Environment. Carbon offsets are currently priced at \$25 per tonne of CO₂, so this is a cost of \$362,150 (+ GST).

The VBE's GHG emissions were lower in 2015 than in previous years. This reflects lower building heating requirements due to the unseasonably warm winter heating season.

Greenhouse Gas Emissions and Offset Requirements for 2015 (tonnes of CO₂e)

Total 2015 Emissions for offset	14,478
...plus adjustments to previous year reporting	8
Total Offset purchase for the 2014 Reporting Year:	14,486

Notes:

- (1) Greenhouse Gas (GHG) emissions are measured in tonnes of CO₂ equivalent (CO₂e)
- (2) Total GHG emissions includes the emissions from the biofuel component of vehicle fuels - which do not require the purchase of offsets.
- (3) There are commonly adjustments and correction to utility bill statements that occur following the offset calculations for each calendar year. These are reported as adjustments in the following year.
- (4) Values may not sum precisely due to rounding.

¹ Specific paper consumption and the reporting methodology is defined within the Greenhouse Gas Reduction Targets Act (GGRTA) also referred to as Bill 44- 2007.

3 Emissions Reduction Activities 2015

A number of actions were taken in 2015 to reduce energy use, and GHG emissions including:

- Upgrading lighting systems at several schools, thereby reducing electricity consumption by over 578,000 kWh.
- Auditing several facilities to identify future lighting retrofit opportunities.

The District has taken several steps to reduce emissions related to paper consumption including:

- Initiating a Print Reduction Strategy to reduce printing costs.
- Limiting the purchase from contracted suppliers of paper to 30%, 50% or 100% recycled content reducing the availability of virgin paper.
- Reducing deliveries of paper to sites to two times weekly to reduce transport costs and emissions.

For the actions implemented in 2015, we anticipate benefits of:

- Reduced or avoided electricity use of over 578,000 kWh.
- Utility bill avoided costs of over \$50,000 annually.
- Improved building comfort.
- Improved lighting within affected classrooms.
- Improved seismic restraint of lighting fixtures within the District.



*Lighting upgrades improve the learning environment.
Before (left) and after (right) upgrading.*

Actions to Reduce Out-of-Scope (non-VBE) GHG Emissions in 2015

The VBE has participated in a number of activities that reduce GHG emissions in the community that are not specifically “in scope” for our carbon neutral required reporting. These include:

- Plans for new schools will be developed to include electric vehicle charging capabilities.
- Promotion of active transportation for students through planning and cycling education

Actions to Enhance Overall Sustainability in 2015

The VBE has taken actions that improve the overall sustainability of our District and community. These include:

- Initial development of a district Sustainability Action Plan
- Students at Windermere Secondary organized and ran the fifth annual C3 Conference (Climate Change Conference) in November. This conference focuses on issues, actions and solutions to climate change issues.
- Students organized a district-wide Sustainability Conference to learn from leading sustainability thinkers in BC.
- To encourage cycling to school for staff and students, bike racks have been installed at each site, and where possible, indoor bike storage and showers have been provided.



Queen Mary Elementary seismic project incorporates traditional and new elements in the design'

4 Future Activities

In 2016 and beyond, a number of activities are underway to continue to reduce our energy use and carbon emissions, and to improve the overall sustainability of our District.

Actions to Reduce Reportable Greenhouse Gas Emissions in 2016

Action planned or proposed for 2016 include:

- Replacement of old lighting systems at several schools.
- Conducting lighting audits to evaluate opportunities for LED exterior lighting projects.
- Initiating our participation in the BC Hydro Continuous Optimization program.
- Upgrades to heating control and communications systems.
- Continued effort with new facility design to ensure low carbon, low cost, and low energy facilities become the standard for the VBE.

Actions to Reduce Out-of-Scope GHG Emissions in 2016 and onward

A number of activities help reduce carbon emissions in our community that are not considered 'in scope' for our carbon neutral reporting requirements. These include:

- Promotion of active transportation initiatives like 'Bike to School' week.
- Working with the City of Vancouver through its Active Travel Planning initiative to increase awareness and understanding of active travel opportunities for students.

Actions to Enhance Overall Sustainability in 2016

Our trustees have set a vision for our school district to be the “greenest, most sustainable school district in North America”. Our action on carbon neutrality is one part of achieving this vision. These efforts will continue in 2016. Specific actions include:

- Development of a Sustainability Action Plan in 2016.
- Working to understand our water consumption levels and conservation opportunities. This could develop into a broader water conservation strategy.
- Continue to support student led sustainability initiatives to encourage focus on issues, actions and solutions to climate change issues and learn from sustainability leaders.

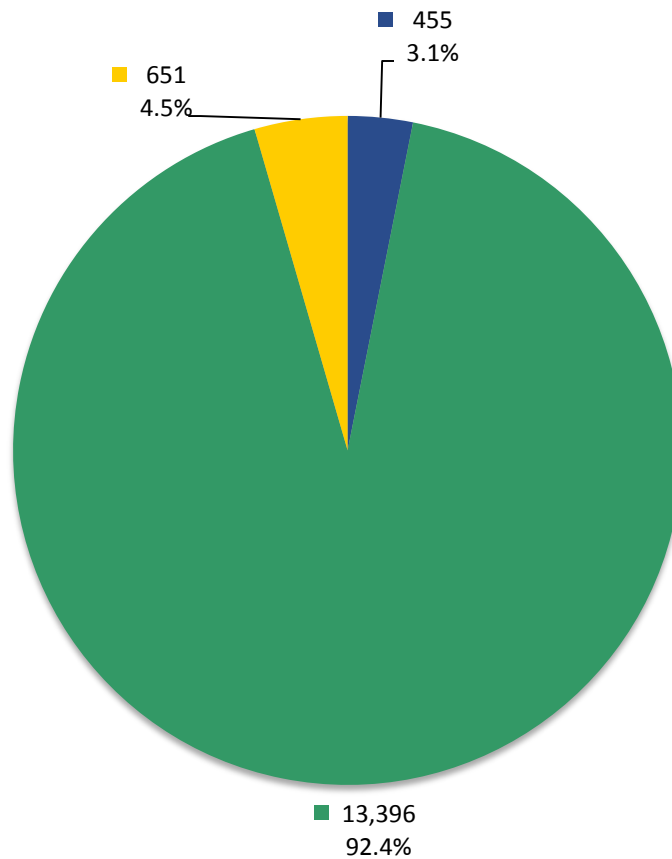
5 Closing

The VBE is proud to maintain its commitment to promoting sustainability within the District and our community. We are working to reduce energy use and our GHG emissions. We continue to build on past efforts and work to incorporate sustainability into all aspects of our operations.



Superintendent Scott Robinson meets students at Sir James Douglas Elementary School Annex

School District 39 - Vancouver Greenhouse Gas Emissions by Source for the 2015 Calendar Year (tCO₂e*)



Total Emissions: 14,501

- 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 2015 (Generated May 25, 2016 10:00 AM)

Total offsets required: **14,478**. Total offset investment: **\$361,950**. Emissions which do not require offsets: **24** **

*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.

2015 Carbon Neutral Action Report Survey

Organization Name:

Vancouver Board of Education - SD39

Please select your sector:

- School District

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

Please indicate which actions your PSO took in 2015:

Have developed an overall strategy/plan to reduce energy use in your organization's buildings inventory:

Yes

If Yes, please describe:

Five year Energy Management plan. 2015 was year three.

Undertook evaluations of building energy use:

Yes

Performed energy retrofits on existing buildings:

Yes

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

Yes

Please list any other actions, programs or initiatives that your organization has introduced that support emissions reductions from buildings:

Participation in BC Hydro programs.

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

Indicate which actions your PSO took in 2015:

Have put in place an operations policy/program to support systematic reductions in fleet related emissions:

(e.g., program to convert fleet to renewable fuels)

Yes

If Yes, please describe:

Continue to "crew up" vehicles - thereby reducing the use of single occupant vehicle trips.

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

Yes

Replaced existing vehicles with hybrid or electric vehicles:

Yes

Took steps to drive less than previous years:

Yes

Please list any other actions, programs or initiatives that your organization has introduced that support emissions reductions from fleet combustion:

- Investigate CNG motor fuel options
- Pursue "green fleet certification"

3) Supplies (Paper):

Indicate which actions your PSO took in 2015:

Have put in place an operations policy/program to facilitate a systematic reduction in paper-related emissions:

(e.g., policy to purchase 100% Recycled Content; default to double-sided printing)

Yes

If yes, please describe:

- Purchasing a print management output software that will be implemented in 2016

Have put in place an operations policy/program to facilitate behavioural changes from paper use:

(e.g. awareness campaign to reduce paper use):

Yes

If yes, please describe:

- continued communication to schools on the choice of preferred paper type
- pilot testing of 100% recycled paper at some sites

Used only 100% recycled paper:

No

Used some recycled paper:

Yes

Used alternate source paper:

(e.g., bamboo, hemp, wheat etc.)

No

Please list any other actions, programs or initiatives that your organization has introduced that support emissions reductions from paper supplies:

- evaluating alternate source paper sheets

4) Other Sustainability Actions:

Please note that this section is optional

Business Travel

Created a low-carbon travel policy or travel reduction goal:

(low-carbon = lowest emission of greenhouse gas per kilometer per passenger)

(No response)

Encouraged alternative travel for business:

(e.g. bicycles, public transit, walking)

(No response)

Encouraged or allow telework/working from home:

(No response)

Other:

(No response)

Education Awareness

Have a Green/Sustainability/Climate Action Team:

(No response)

Supported green professional development:

(e.g. workshops, conferences, training)

Yes

Supported or provided education to staff about the science of climate change, conservation of water, energy and/or raw materials:

(No response)

Other:

(No response)

Adaptation Planning for Climate Risks

Have assessed whether increased frequency of extreme weather events and/or long term changes in climate will affect your organization's infrastructure, its employees and/or its clients:

(No response)

Have incorporated these anticipated changes in climate into your organization's planning and decision making:

(No response)

Other:

(No response)

Other Sustainability Actions

Established a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models:

(No response)

Have put in place an operations policy/program to facilitate the reduction and diversion of building occupant waste stream from landfills or incineration facilities:

(e.g., composting, collection of plastics, batteries)

(No response)

Established green standards for goods that are replaced infrequently and/or may require capital funds to purchase:

(e.g., office furniture, carpeting, etc.)

(No response)

Incorporated lifecycle costing into new construction or renovations:

(No response)

Please list any other sustainability actions your organization has taken not listed above:

- promoted student led sustainability actions and educational initiatives
- continuing partnerships with urban farmers to grow food on VSB school land
- Farm2school - through the Learning Lab project we are looking at ways to increase the amount of local food that the VSB purchases.