



2016

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 2016 a number of projects were implemented including retrofitting old lighting systems at several existing school sites, and a number of energy efficient features at new schools - 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 2016 calendar year, our offset-requiring emissions were 14,709 tonnes of CO₂. As required by Provincial legislation, we purchased certified carbon credits to offset these emissions.

Our efforts will continue in 2017. We are initiating 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 District has 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 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 it's 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 identifies 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 \$800,000 annually. Many projects have received incentive grants from our utility companies.



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⁾

2016 Emissions and Offsets

For the 2016 calendar year, our offset-requiring emissions were 14,709 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 \$367,725 (+ GST).

Greenhouse Gas Emissions and Offset Requirements for 2016 (tonnes of CO₂e)

Total Emissions (tCO ₂ e)	14,733
Total Offsets (tCO ₂ e)	14,709
...plus adjustments to previous year reporting	0
Grand Total Offset purchase for the 2016 Reporting Year:	14,709

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. Offsets are only purchased for the fossil fuel component of emissions.
- (3) There may be 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.

Declaration Statement:

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 2017 and beyond.

By June 30, 2017 the VBE's final Carbon Neutral Action Report will be posted on our website at www.vsb.bc.ca



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 2016

A number of actions were taken in 2016 to reduce energy use, and GHG emissions including:

- Upgrading lighting systems at several schools, thereby reducing electricity consumption by over 600,000 kWh.
- Auditing several facilities to identify future lighting retrofit opportunities.
- Implementing boiler upgrades showing substantial energy savings.
- Upgrading Digital Direct Controls at existing schools to more proactively manage energy consumption.



Dimmable LED lighting is supplemented by natural light at a newly built school.

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

- Continuing to roll out a Print Reduction Strategy to all VBE locations 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.
- Reduced deliveries of paper to sites to two times weekly to reduce transport costs and emissions.

For the actions implemented in 2016, we anticipate benefits of:

- Reduced or avoided electricity use of over 600,000 kWh
- 25% reduction in NG consumption at sites where boilers upgrades were implemented.
- Avoided utility bill costs of over \$60,000 annually.
- Improved occupancy/building comfort.
- Improved lighting within affected classrooms.
- Improved seismic restraint of lighting fixtures within the District.

Actions to Reduce Out-of-Scope (non-VBE) GHG Emissions in 2016

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.
- Active transportation will be promoted to students through planning and cycling education

Actions to Enhance Overall Sustainability in 2016

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 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 (VSBSC) to learn from leading sustainability thinkers in BC.
- The district has participated with the City on initiatives to encourage active transportation to and from school.



Biking is a popular example of active transportation within our District.

4 Future Activities

In 2017 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 2017

Action planned or proposed for 2017 include:

- Replacing old lighting systems at several schools.
- Conducting lighting audits to evaluate opportunities for further exterior lighting projects.
- Incorporating LED lighting into our first classroom setting as part of our seismic projects.
- Upgrading heating control and communications systems.
- Continuing 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 2017 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:

- Promoting 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.

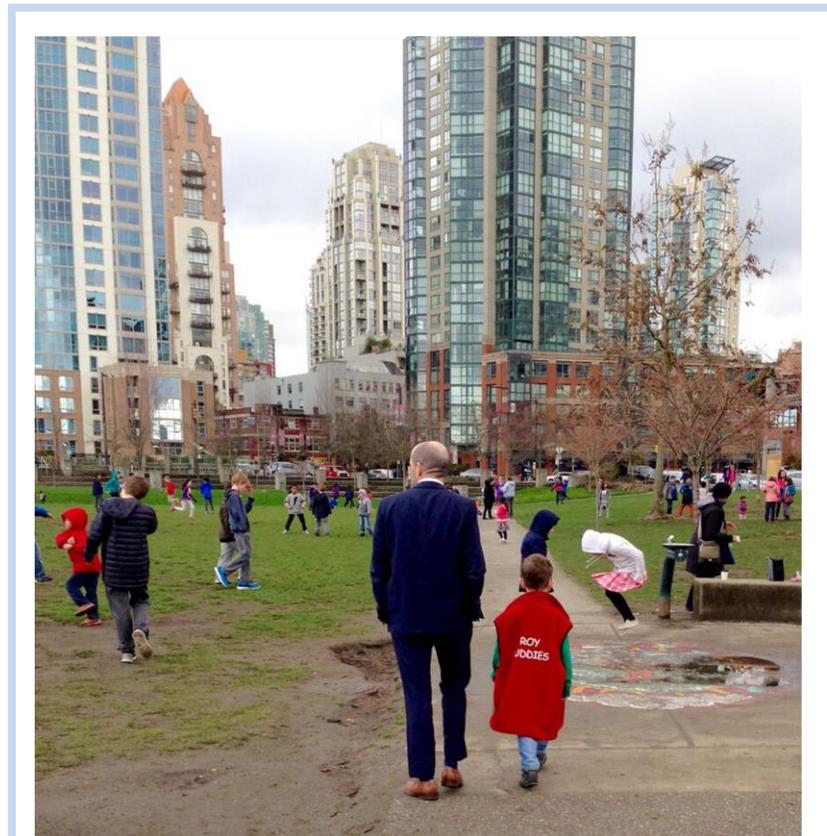
Actions to Enhance Overall Sustainability in 2017

Our District has 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 2017. Specific actions include:

- Approve and implement a Sustainability Action Plan in 2017.
- Continue to support student and teacher led sustainability initiatives to encourage focus on issues, actions and solutions to climate change issues and learn from sustainability leaders.

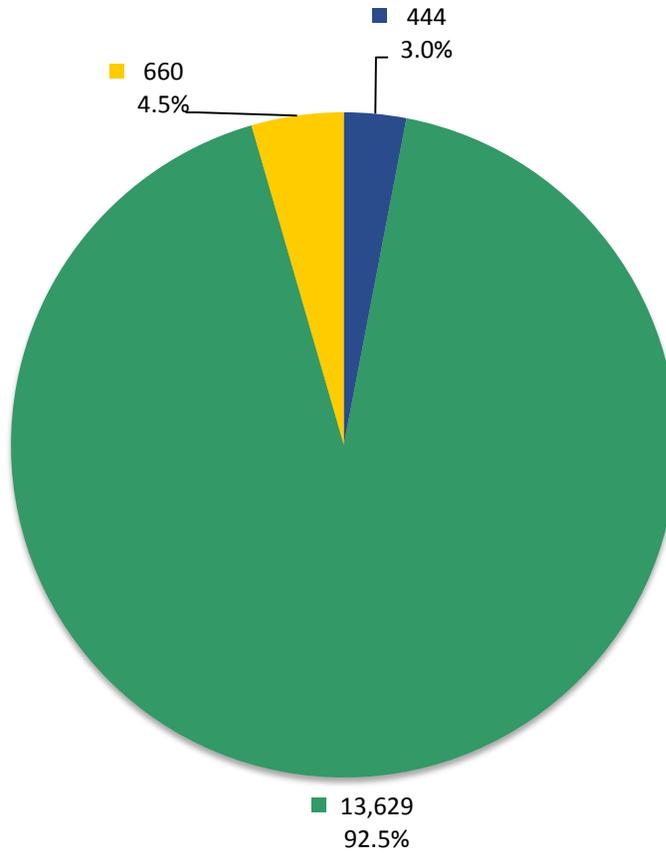
5 Closing

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 being toured by one of the district's elementary school students.

**School District 39 - Vancouver
Greenhouse Gas Emissions by Source
for the 2016 Calendar Year (tCO₂e*)**



Total Emissions: 14,733

- 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 2016 (Generated May 15, 2017 4:09 PM)

Total offsets required: **14,709**. Total offset investment: **\$367,725**. Emissions which do not require offsets: **23** **

*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.

2016 Carbon Neutral Action Report Survey

Part One (external)

Contact Name(s):

Ron Macdonald

Organization Name:

Vancouver School District

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.: 8
- Built, or are building new LEED Gold or other "Green" buildings.: 3
- Other actions? Please describe briefly.: updating construction standards to include energy efficiency.

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

Future Energy Management activities will include greater focus on:

- heat plant retrofits*
- DDC tune-ups*
- new construction efficiency*
- updating 5 year Energy Management plan*

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:

VSB has a BC Hydro supported Energy Manager

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

(No response)

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

(No response)

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

-
- Other actions? Please describe briefly.: -implemented print management software -currently piloting at head office.
-

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

(No response)

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

-
- Other, please describe briefly: piloting use of car sharing service at head office for pool vehicles
-

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)
-

Other Sustainability Actions:

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

Select all that apply

-
- 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
 - Lifecycle costing of new construction or renovations
-