

2016 Carbon Neutral Action Report

Submitted under the Carbon Neutral Government Regulation
of the BC Greenhouse Gas Reduction Targets Act



This Carbon Neutral Action Report for the period January 1, 2016 to December 31, 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, VCC's final *Carbon Neutral Action Report* will be posted to our website at www.vcc.ca.

Emissions and Offset Summary Table:

Vancouver Community College GHG Emissions and Offset for 2016 (tCO ₂ e)	
GHG Emissions created in Calendar Year 2016:	
Total Emissions (tCO ₂ e)	2,077
Total Offsets (tCO ₂ e)	2,077
Adjustments to GHG Emissions Reported in Prior Years:	
Total Emissions (tCO ₂ e)	0
Total Offsets (tCO ₂ e)	0
Grand Total Offsets for the 2016 Reporting Year:	
Grand Total Offsets (tCO ₂ e)	2,077

Retirement of Offsets:

In accordance with the requirements of the Greenhouse Gas Reduction Targets Act and Carbon Neutral Government Regulation, *Vancouver Community College* 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 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

Dr. Peter Nunoda
Name (please print)

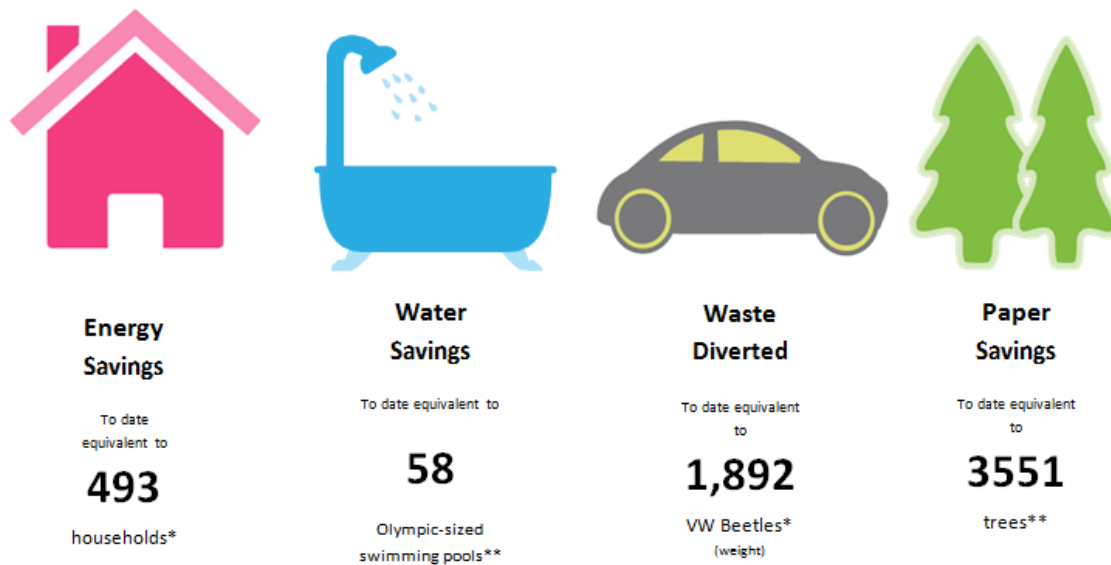
President and CEO
Title

Overview

Vancouver Community College (VCC) believes that a healthy environment is essential for the health and well-being of present and future generations. At VCC, we are concerned about the quality of the natural environment and building a sustainable society and are committed to making a difference.

VCC takes the responsibility of ensuring our students are prepared to play their role in a sustainable future very seriously. It is our hope to inspire these graduates to contribute to sustainability in their homes, communities, and workplaces.

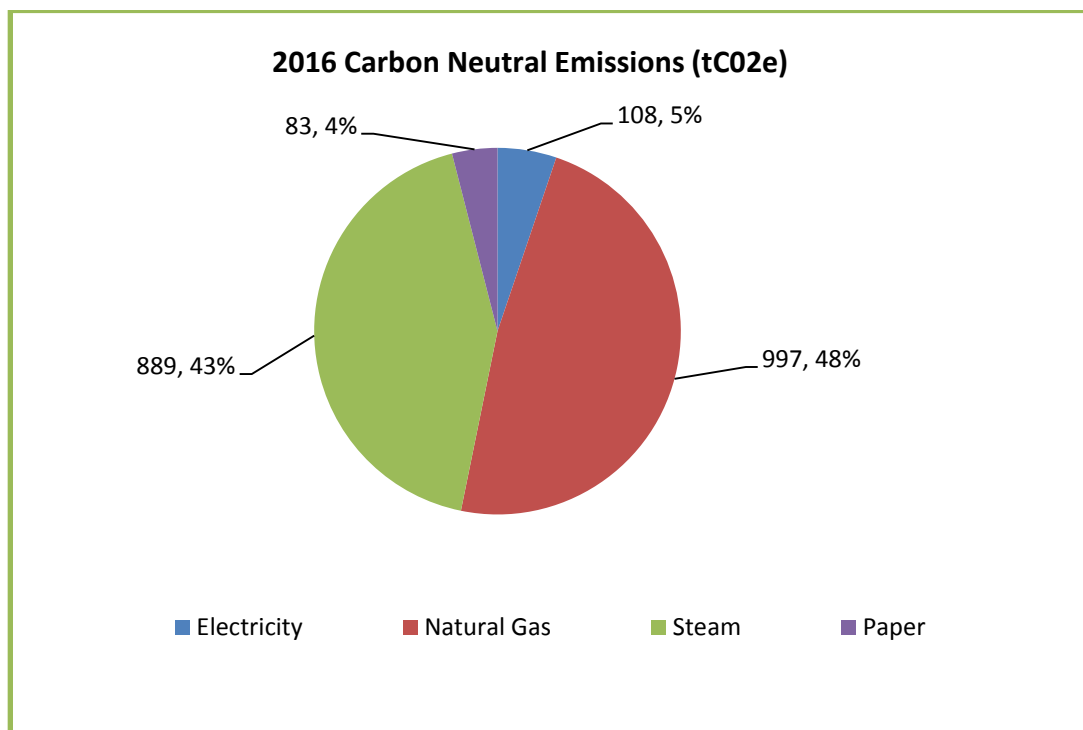
VCC has made strides in achieving our environmental sustainability goals over the past six years. The Environmental Sustainability Advisory Group (ESAG), a leadership team made up of staff, faculty and student representatives, leads and champions VCC's environmental efforts. As part of BC Hydro's Energy Management Program, VCC has created a three-year Strategic Energy Management Plan to reduce energy consumption. Working together across the college, staff, faculty and students have achieved a number of milestones.



2016 Greenhouse Gas Emissions

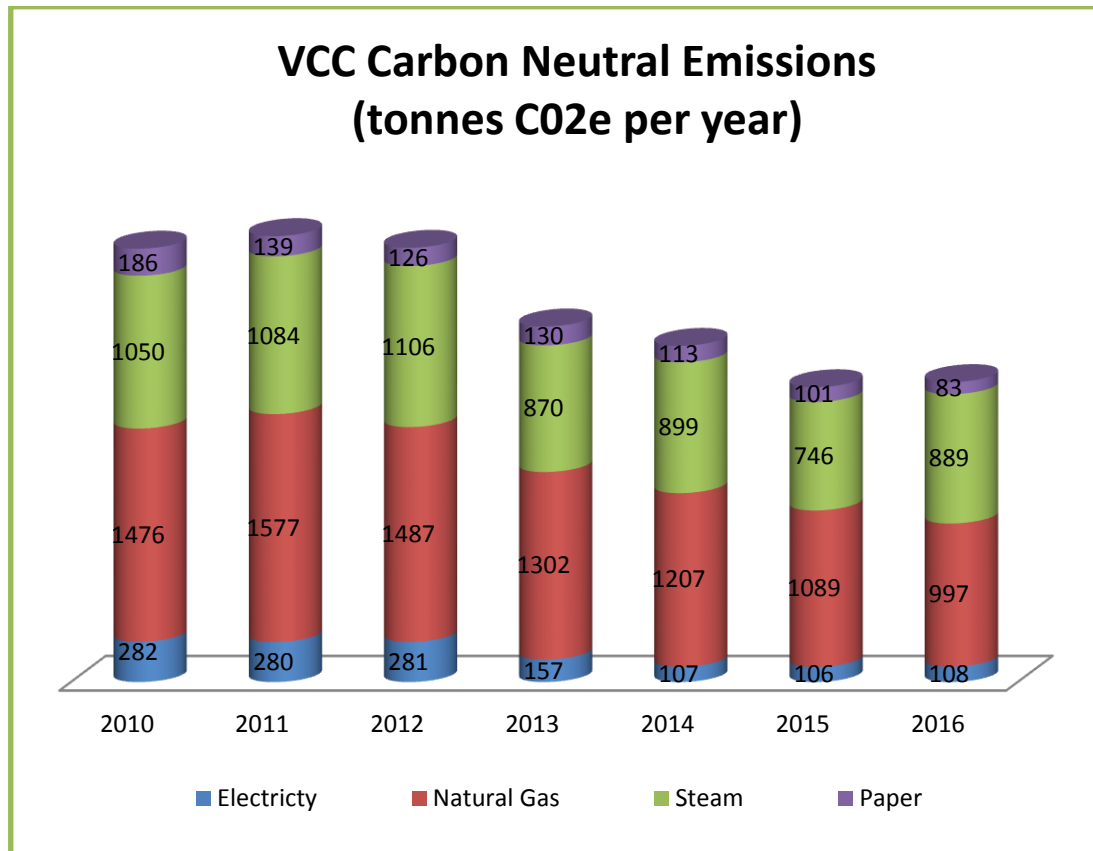
In 2016, VCC emitted 2,077 tonnes of carbon dioxide equivalent (tCO₂e) from sources covered under the Carbon Neutral Government Regulation (see Figure One). This is a 1.7% slight increase over 2015 levels and a 31% reduction over 2010 levels. Of the total emissions for 2016, 96% come from heating, cooling, and lighting our buildings and the remaining 4% come for the use of paper.

It was estimated that stationary fugitive emissions from cooling do not comprise more than 0.01% of VCC's total emissions and to collect data for emissions from this source was not feasible. For this reason, emissions from this source have not been included in VCC's total greenhouse gas emissions profile.



¹VCC owns six diesel trucks, five diesel excavators, three diesel bull dozers, five diesel front end loaders and several diesel engines on stands used for training purposes in the School of Transportation Trades. Emissions from the use of these engines do not compromise more than 0.01% of VCC's total emissions and to collect data for emissions from this source was not feasible. For this reason, emissions from this source have not been included in VCC's total greenhouse gas emissions profile.

¹ The tonne 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.



Offsets applied to become carbon neutral in 2016

VCC has purchased 2,077 tonnes of carbon offsets from the Ministry of the Environment at a cost of \$51,925 (\$25 per tonne) plus GST to achieve carbon neutrality, as required by the Greenhouse Gas Reduction Targets Act.

Actions taken to reduce greenhouse gas emissions in 2016

Since 2013, VCC has partnered with BC Hydro in an Energy Manager Program and engaged the services of Prism Engineering to work with the college in developing and implementing a Strategic Energy Management Plan (SEMP). The SEMP supports VCC's commitment to energy efficiency and conservation by providing a framework for reducing energy consumption and its associated environmental impacts. It includes a specific energy reduction target and an action plan of how the target will be achieved.

**VCC will reduce campus energy intensity in existing buildings by
25 percent from 2010/11 fiscal year levels
by 2019/20 fiscal year.**

The following specific projects were undertaken during fiscal year 2016/17 to reduce energy use and GHG emissions:

- **Downtown Campus - Lighting Upgrades:**

The lighting upgrades to the Downtown campus were completed in March 2017. The project involved installing new LED lights in the lobby and exterior. In addition, occupancy sensors were installed in the washrooms. This upgrade will result in annual savings of over 67,000 kWh per year.

- **Broadway Campus - Lighting Upgrades:**

The Automotive Shop in Building A and corridors in Building B were re-lamped with LED technology lamps. The upgrades were complete by March 2017. This upgrade will result in annual savings of over 45,000 kWh per year.

- **Downtown Campus - Direct Digital Controls (DDC):**

In 2016, 15 heat pumps serving tower floor 9 classrooms were added to the existing DDC system. At this time, occupancy sensors were also installed in the classroom. Estimated energy savings for this upgrade are over 57,000 kWh.

In addition to the heat pumps, the two rooftop units serving the JJ Restaurant and the adjacent storage room were added to the existing DDC system with an estimated savings over 13,000 kWh per year.

- **Downtown Campus - Implementation of Measures recommended in Continuous Optimization Program Study:**

Recommended measures in the continuous optimization study report were implemented by March 2017 resulting in electrical energy savings of 70,000 kWh and fuel energy savings of 1,800 GJ per year.

- **Energy Conservation and Awareness:**

Working with the ESAG and the VCC Green Team, VCC produced two green e-newsletters in 2016. In addition, a “Take the Stairs” campaign was planned and implemented.

Plans to continue reducing Greenhouse gas emissions 2017 and beyond

Full details on VCC's three-year strategy to reduce energy use can be found in the Strategic Energy Management Plan. See http://www.vcc.ca/media/vancouver-community-college/content-assets/documents/reports-publications/SEMP_VCC_Final_Y4_March2017.pdf

To enable VCC to achieve this reduction target, cost-effective energy management initiatives will be undertaken. In addition to energy savings potential, the initiatives taken will be selected based on non-energy benefits, including occupant comfort, equipment reliability, maintenance costs, and operational improvements. The following initiatives are planned for the next three years:

- **Downtown Campus - Lighting Upgrades**

Capital funds will be requested to complete a lighting upgrade and achieve further annual energy savings of 51,500 kWh. The capital cost of this upgrade is \$75k and would include converting incandescent and T8 fluorescent with LED luminaires in select areas such as lecture theatre, carpentry shop, bakery sales, stairways and hallways.

- **Broadway Campus - Lighting Upgrades**

Capital funds will be requested to complete a lighting upgrade and achieve further annual energy savings of 116,500 kWh. The capital cost of this upgrade is \$165k and would include converting T8 fluorescent with LED luminaires in Building B classrooms and select areas in Building A such as cafeteria kitchen, IT department and staff lounge.

- **Broadway Campus - Continuous Optimization Program**

The study of DDC and mechanical systems for Broadway Campus will be complete in June 2017. This project will be conducted under the Continuous Optimization Program sponsored by BC Hydro. Projects with a payback of less than two years will be actioned by the college.

- **Energy Conservation and Awareness**

Building on our successful previous campaigns such as "Lights Out", "Random Acts of Green" and "Take the Stairs", VCC will continue to work to engage staff, students and faculty through campaigns to support behaviour change across both campuses. The annual savings from changing behaviour is estimated at 0.5% per year.

Take the Stairs & Save Energy

VCC ENCOURAGES WELLNESS
& ENERGY CONSERVATION

Take the stairs

Introduction

The VCC campuses have many floors, and only a few elevators. The wait times can be long, and energy can be saved from reducing elevator trips.

Campaign Goals

To reduce the number of elevator trips by staff, students and faculty taking the stairs whenever possible.

Thanks for your help in moving towards VCC's energy conservation goals and greenhouse gas reduction targets. Every action counts!



Campaign

From February 20-24, 2017 VCC's Environmental Sustainability Advisory Group and the Facilities department encouraged everyone to change their habits and start taking the stairs whenever possible. Taking the stairs not only conserves energy, but it also burns calories and could contribute to better bone density. The campaign installed ballot boxes in stairwells, where staff, faculty and students could enter to win a prize each time they took the stairs.

Overview of Campaign Activities:

1. **Article in e-newsletter:** Article for e-newsletter in January
2. **Write-up for Intranet Site:** An internal webpage for the Facilities intranet explaining the need to take the stairs whenever possible.
3. **Ballot Boxes:** Physical boxes were installed in the main stairwells on Broadway and Downtown.

Success Metric

- Number of times staff, students, faculty climbed the stairs.

Take the stairs

Results

During the challenge, the VCC community took the stairs and entered 1490 times! In a random draw, there were six winners, and here are the three winners:

Joy and Beatrice won a FitBit, and Mariska won a gift certificate.

The Facilities Department also had a pizza celebration for the success of the event.

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The Energy Wise Network was launched in 2016 to help organizations in their energy engagement programs.

The network is made up of Advanced Education, Government, Schools (K-12), Hospitality, Municipalities, Property Management, and Retail sectors.

We're working together to help B.C. save energy.



Save Energy & Remember to Cancel Room Bookings

VCC SAVES ENERGY ON WEEKENDS

Introduction

VCC Facilities monitors room bookings and adjusts HVAC systems to align with occupancy when rooms are in use. Doing so minimizes the unnecessary use of air handling units. However, inaccuracies in the room booking schedule cause incorrect input data and may result in wasted energy with an impact on utility costs and GHG emissions.

In addition, users may not realize that both campuses are closed on Sundays and so the only weekend bookings that are allowed are on Saturdays.

Thanks for your help in moving towards VCC's energy conservation goals and greenhouse gas reduction targets. Every action counts!



Campaign Goals

To reduce the amount of time that VCC rooms are booked and supplied with heating, cooling and lighting when they are not in use on Saturdays.

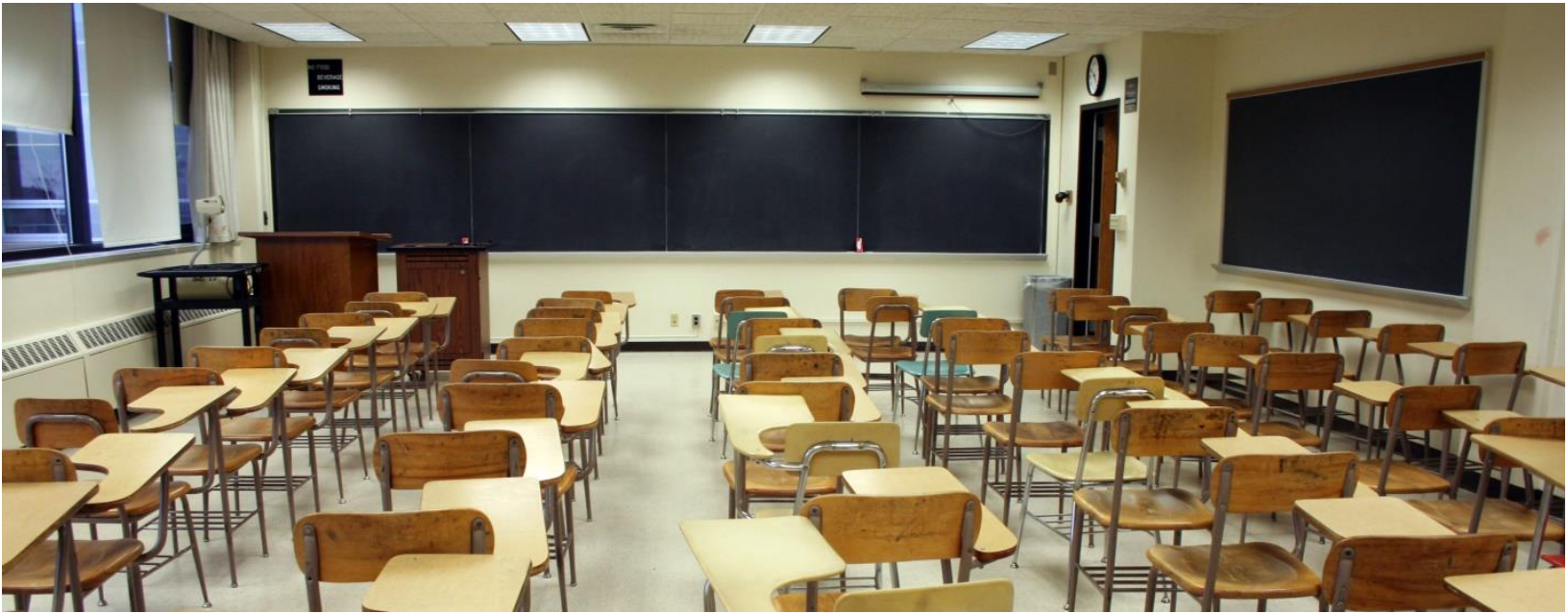
Campaign

The Room Booking campaign targeted the behaviour of VCC staff accurately enter room booking information into the room booking software including editing information as needs change. The target audience included Program Assistants, Dean Assistants and Department Assistants who input room booking needs for weekends.

Overview of Campaign Activities

1) Campaign Tallies

Prior to the launch of the campaign, Security was asked to check room bookings on their nightly and weekend rounds to confirm if booked rooms are in use. A similar sweep post-campaign was carried out to determine if the number of unused rooms has decreased.



2) Campaign Activities

1. **Text on Room Booking auto-response:** Text for auto-response from the room booking system with reminder to edit information as needs change.
2. **Email to Targeted staff:** E-mail to be sent to those who are primarily responsible for booking rooms explaining the campaign. Director of Facilities sends e-mail to target audience.
3. **Write-up for Intranet Site:** An internal webpage for the Facilities intranet explaining the need to accurately enter information into the room booking system.
4. **Phone call to Room Booking Software Operators:** A phone call to those who manage the room booking software to find out if any other reminder or suggestions can be made.
5. **Article in e-newsletter:** Article for e-newsletter in January.

Success Metric

- 20% decrease in unused rooms, based on before and after tallies by Security

Results

A weekend survey on October 2016 was done and discovered that booked rooms in the Downtown campus were all occupied. However, 67% of the booked rooms were vacant or unused at the Broadway campus.

But, after the reminders, ally on a Saturday in December 2016 revealed that all of the rooms booked were in use (100%).

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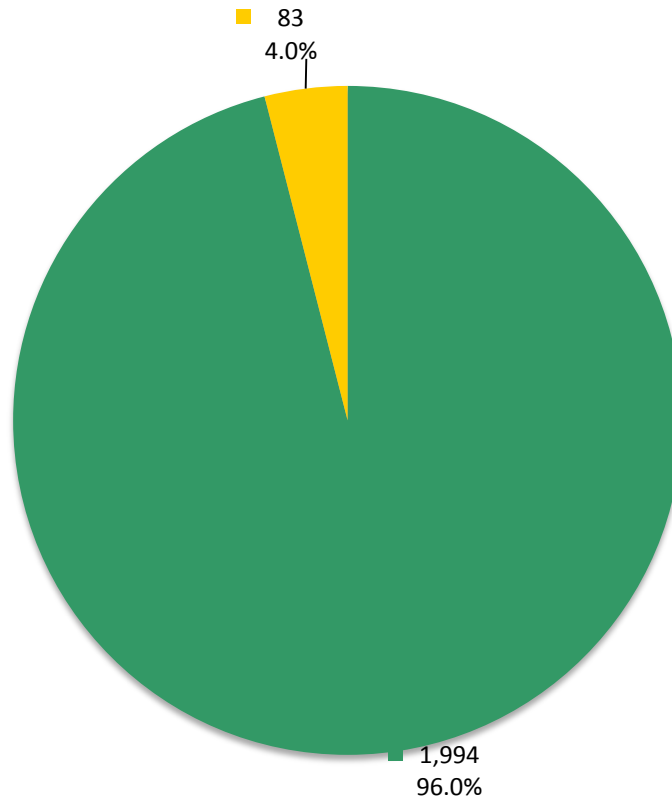
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**Vancouver Community College
Greenhouse Gas Emissions by Source
for the 2016 Calendar Year (tCO₂e*)**



Total Emissions: 2,077

■ Stationary Fuel Combustion (Building Heating and Generators) and Electricity ■ Supplies (Paper)

Offsets Applied to Become Carbon Neutral in 2016 (Generated May 15, 2017 4:21 PM)

Total offsets required: **2,077**. Total offset investment: **\$51,925**. Emissions which do not require offsets: **0** **

*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):

Ria Salonga

Organization Name:

Vancouver Community College

Please select your sector:

- Post-Secondary Institution

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.: 2

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

Downtown Campus - Lighting Upgrades were completed in March 2017. The project involved installing new LED lights in the lobby and exterior. In addition, occupancy sensors were installed in the washrooms. This upgrade will result in annual savings of over 67,000 kWh per year.

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Downtown Campus - Implementation of measures recommended in Continuous Optimization Program Study: recommended measures in the continuous optimization study report were implemented by March 2017 resulting in electrical energy savings of 70,000 kWh and fuel savings of 1,800 GJ per year.

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:

*BC Hydro's Energy Manager Program
Energy Wise Network
COp program*

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.: Registrar's Office - Electronic Letter of Acceptance
-

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

VCC uses 30% recycled paper and all printers are set to double-side as a default. All printers have stickers on them to remind users to save paper.

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

(No response)

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
-
- Green procurement standards for goods (e.g., office furniture, etc.)
-