

VCC
CA



2013 Carbon Neutral Action Report

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

VANCOUVER
COMMUNITY
COLLEGE

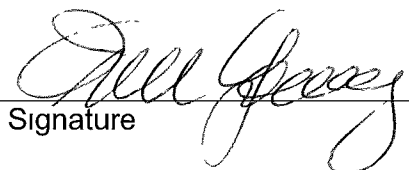


This is the 2013 Carbon Neutral Action Report (CNAR) for Vancouver Community College. This report contains our 2013 emissions profile, offsets purchased, the actions we have taken in 2013 to reduce our GHG emissions and our plans to continue reducing emissions in 2014 and beyond.

By June 30, 2014, Vancouver Community College's final CNAR will be posted to our website at www.vcc.ca

Emissions and Offsets Summary:

Vancouver Community College GHG Emissions and Offsets for 2013 (TCO2E)	
GHG Emissions created in calendar year 2013 (from SMARTTool Homepage)	
Total Emissions	2,537
Total Emissions for Offsets	2,537
Adjustments to GHG Emissions Reported in Previous Years (from SMARTTool Homepage)	
Total Emissions	0
Total Emissions for Offsets	0
Credit owing from PCT at end of 2012 reporting year (if applicable – from May 15 Invoice):	
Credit Owing	0
Total Emissions for Offsets for the 2013 Reporting Year (from Offset Invoice)	2,537



Signature

May 30, 2014

Date

Irene Young

Name (please print)

VP, Admin and CFO

Title

Executive summary

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. Last year, for example, over 1,000 students graduated from VCC and are living and working in the Lower Mainland. It is our hope to inspire these graduates to contribute to sustainability in their homes, communities and workplaces.

VCC has been promoting responsible stewardship of the environment for decades and formalized our approach in our Environmental Policy which was adopted in 1998. In 2011, environmental sustainability was included as an initiative in the 2011-2014 Strategic Plan. In this plan, VCC committed to building and implementing a college-wide environmental sustainability plan with the following objectives:

- Bring sustainability principles into the thinking, actions, culture and everyday operations of VCC.
- Demonstrate our respect for the environment as we educate students, staff and faculty about environmental stewardship.
- Seek innovations and improved practices that reduce our carbon footprint.

In addition, VCC's 2011-2016 Education Plan includes a commitment to promote and model environmental sustainability practices in all areas of teaching and learning.

VCC has made considerable progress on these objectives over the past three years and have now renewed our environmental commitments in our 2014/15 – 2016/17 Environmental Sustainability Strategy.



Our progress

In only three years, VCC has made strides in achieving our environmental sustainability goals. A director now implements environmental objectives, a full-time manager of environmental sustainability was hired, the environmental sustainability policy was updated and a review of opportunities to embed sustainability into campus governance was conducted. In addition, the Environmental Sustainability Advisory Group (ESAG), a leadership team made up of staff, faculty and student representatives was created to lead and champion VCC's environmental efforts. Working together across the college, staff, faculty and students have achieved a number of milestones.

Energy

VCC's goal is to reduce our carbon footprint by 10 per cent below 2010/11 levels by 2015/2016. In order to meet this target, VCC has developed and is implementing a Strategic Energy Management Plan in partnership with BC Hydro. This plan identifies opportunities to reduce energy use and greenhouse gas emissions and their associated costs. Since 2010 VCC has been offsetting greenhouse gas emissions to be carbon neutral

Success indicator: As of December, 2013, VCC has reduced its greenhouse gas (GHG) emissions from energy use (weather adjusted) by 12 per cent below 2010/11 levels, meeting the target ahead of schedule and achieving savings of \$79,000. As such, VCC has set a new target to reduce campus energy (and GHG emissions) intensity in existing buildings by 20 per cent from 2010/11 fiscal year levels by 2016/17 fiscal year.

Waste

VCC's goal is to minimize its production of waste and maximize landfill diversion. In order to meet this goal, VCC completed its first waste management plan (WMP), which included conducting a waste assessment and audit, expanding recycling systems, establishing organics recycling (composting), and developing a green procurement policy to minimize waste and reduce packaging. In 2013, the VCC Salon & Spa became the largest Green Circle Salon in Canada by recycling metals, plastics, hair and chemicals from VCC's onsite salon and spa. By 2016/17, VCC hopes to increase diversion to 90 per cent.

Success indicator: In the first nine months of the new WMP, VCC's waste-diversion rate jumped from 11 per cent to 73 per cent.

Water

VCC's goal is to practice water conservation and ensure free access to potable water on campus. In order to meet this goal, the sale of bottled water has been eliminated on both campuses, a water audit was conducted to identify opportunities to use water more efficiently, and VCC has committed to reduction projects where economically feasible.

Success indicator: VCC eliminated the sale of bottled water, renovated 25 existing water fountains and added nine new fountains with automatic bottle fillers. As of the end of 2013, the automatic bottle fillers have been used to fill over 135,000 reusable water bottles



Food systems

VCC's goal is to increase the availability of local and organic food on campus. In order to meet this goal, VCC is working toward establish a garden on campus, where students and staff can grow their own food and offer local and organic food in the cafeteria and food kiosks.

Success indicator: Feasibility studies have been completed on two options to grow food on campus (one at the Downtown campus and one at the Broadway campus) and VCC is exploring community partnerships to enable a garden to be available to students.

Education and engagement

VCC's goal is to engage and educate the VCC family and local community to help realize a sustainable future. In order to identify initiatives to meet this goal an Institutional Sustainability Review was conducted to assess current strengths in environmental sustainability in our programs and to determine how to strengthen curriculum in this area. VCC is implementing initiatives to raise awareness and reduce environmental impact supported by the Environment and Sustainability Advisory Group (ESAG), the VCC Green Team and the Student Union.

Success indicator: VCC's new Education Plan includes a commitment to ensuring that students graduate with a competency in sustainability. VCC holds many successful events to engage students, staff, faculty and the community including Green Living Fairs, Bike to Work Week, Great Canadian Shoreline Cleanup and a Lights Out Campaign.

Through these actions, VCC is engaging and empowering students, faculty, staff and the local community to help realize a sustainable future.

A photograph of a man with a beard and short brown hair, wearing a dark blue t-shirt, smiling and holding a baby. The baby is wearing a blue patterned onesie and has its hand near its mouth. They are in a modern building with large windows and a yellow wall in the background.

“I just turn ‘em off.

How hard can it be? These baby steps move us towards bigger and better ways to save energy. Turning off the lights, when you don't need them, it's all part of growing up. ”

– Daniel Rohloff (with Elliott)
Graphic Designer, VCC's Marketing Department



Lights Out October

2013 greenhouse gas emissions

In 2013, VCC emitted 2,537 tonnes of carbon dioxide equivalent (tCO₂e)¹ from sources covered under the Carbon Neutral Government Regulation (see figure one). This is a 15 per cent reduction over 2012 levels. Of the total emissions for 2013, 94 per cent come from heating, cooling and lighting buildings and the remaining 6 per cent come from the use of paper.

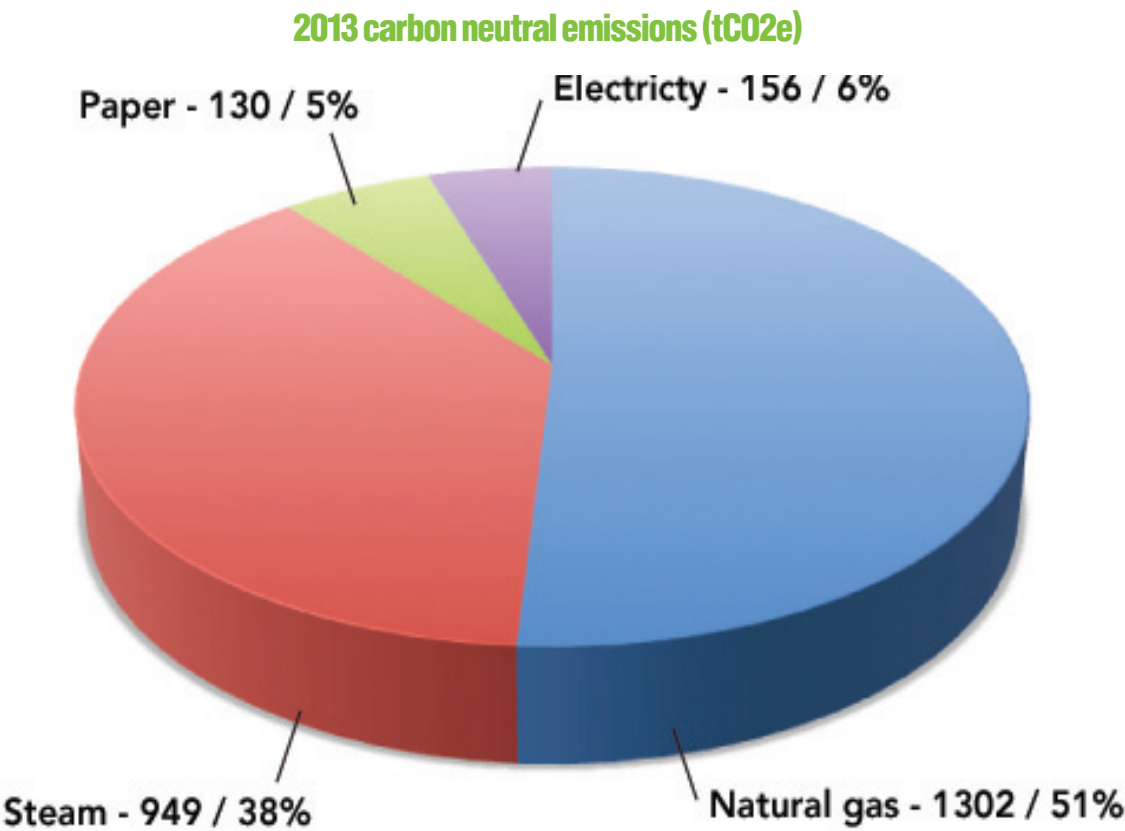


figure one

It was estimated that stationary fugitive emissions from cooling do not comprise more than 0.01 per cent 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 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.



VCC 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 comprise more than 0.01 per cent 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.

Offsets applied to become carbon neutral in 2013

VCC has purchased 2,537 tonnes of carbon offsets from the Ministry of the Environment at a cost of \$63,435 (\$25 per tonne) to achieve carbon neutrality, as required by the Greenhouse Gas Reduction Targets Act.

Actions taken to reduce greenhouse gas emissions in 2013

In 2013, VCC partnered with BC Hydro in their 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.

In order to better monitor energy usage and utility costs, VCC utilizes Prism's online energy management software program, PUMA to analyze and manage energy consumption and GHG emissions using utility billing data.

The following specific projects were undertaken during 2013 to reduce energy use and GHG emissions:

- **Make up air units (MUAs):** In March 2013, VCC replaced 21 gas-powered MUAs for the kitchens at the Downtown campus with new energy-efficient units. In addition, programming was installed to record and monitor kilowatt hour usage. The MUAs were also placed on two direct digital control (DDC) units. Natural gas use at the Downtown campus, largely as a result of this project, decreased 34 per cent in 2013 from the previous year and saved the college approximately \$25,000 dollars.
- **Direct digital controls:** In 2013, DDCs were installed on existing heat pumps and lighting systems on three floors of the Downtown Campus (tower 8, Dunsmuir 4 and 5). At this time, occupancy sensors were installed in the classrooms on these three floors. Estimated savings of 30 per cent were achieved from these measures.



- **Steam traps:** A project to test and replace faulty steam traps at the Downtown campus was completed in November and December of 2013 and a yearly preventative maintenance schedule was established. Approximately 20 of 90 units were replaced and savings from this measure should be realized in early 2014

- **Chiller:** In 2013, the chiller cooling tower at the Broadway campus was replaced with a more energy efficient unit.

- **Energy conservation and awareness:**

Working with the ESAG and the VCC Green Team, a Lights Out Campaign was run in October of 2013. The campaign consisted of digital posters of VCC staff, faculty and students talking about the importance of energy savings, booth at Student Welcome Days (voted most popular booth), lighting audits and a pledge system. Results indicated an 8 per cent decrease in lights left on in targeted areas.



Plans to continue reducing greenhouse gas emissions 2014 – 2016

As part of VCC's 2011-2014 Strategic Plan, a preliminary target of a 10 per cent reduction in greenhouse gas emissions from energy for VCC was selected. However, by the end of December 2013, results of energy monitoring indicated that the 10 per cent reduction target had been achieved. Based on a review of the current campus operations, a detailed review of energy usage and opportunities identified by the VCC energy management team, a new energy reduction target was set. The new energy reduction target for VCC is as follows:

VCC will reduce campus energy intensity in existing buildings by 20 per cent from 2010/11 fiscal year levels by 2016/17 fiscal year.



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:

- **Lighting upgrades:** Lighting upgrades are planned for both campuses including converting compact fluorescent and metal halide downlights to LED modules, daylight controls, occupancy sensors for long corridors, new LED exit signs, and de-lamping in some hallways and entrances.
- **Continuous optimization program:** VCC has been approved to participate in Continuous Optimization, a BC Hydro and Fortis BC program. This will involve the installation of an energy management information system which will allow VCC to conduct a detailed investigation to identify potential control focused projects. Projects with a payback period of less than two years will be actioned by the college.
- **Demand controlled ventilation for kitchens:** This project will enable VCC to vary the exhaust and makeup fan speeds based on the level of cooking activity taking place in the kitchens used by our culinary arts and baking and pastry arts programs. Savings will be achieved through reduced outdoor air ventilation heating requirements and fan electrical savings.
- **Direct digital controls:** DDC controls have not yet been installed on existing heat pumps and lighting systems in all parts of the Downtown campus. We will continue to install DDC's in the remaining eight sections as budget allows.
- **Energy conservation and awareness:** Building on our successful "Lights Out Campaign", 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 2 per cent per year.



Actions to reduce provincial emissions and improve sustainability

VCC recognizes the role it plays in working to reduce provincial greenhouse gas emissions and improve sustainability. In April, 2014, VCC released its Environmental Sustainability Strategy for 2014/15 to 2016/17.

VCC will strive to bring its long-term environmental sustainability vision to life over the next ten years. By 2023, our approach to environmental sustainability will be a key reason we are an educational institution of choice. Over ten years we will advance towards zero - and in some cases restorative - environmental impact. We will be a green community hub, catalyst and partner. Our students will graduate with the competencies, connections, and inspiration to play a leadership role in the region's transformation to sustainability.

Follow our activities and progress on our social media channels:



VCC-Sustainability



@GreenVCC

For more information on VCC's Environmental Sustainability Plan, please visit

VCC.ca



2013 Carbon Neutral Action Report (CNAR) - Part 2 ACTIONS

Created Monday, May 12, 2014

Updated Friday, May 30, 2014

<https://fluidsurveys.com/surveys/cas-z/2013-cnar-form-bps-actions/7930605118b49396fdc9f5841e0c6bca/>

Page 1

Please complete the following sections of the 2013 Carbon Neutral Action Report form. Save your work frequently to prevent it from being lost. You can also save a copy for your own use as either a WORD or PDF file using the buttons at the bottom of each page.

This is Part 2 of the Carbon Neutral Action Report form. This section reports on actions taken to reduce emissions during the 2013 calendar year. This information will be included in your final Carbon Neutral Action Report posted on the Ministry of Environment website.

When the form is complete press the submit button on the last page to automatically submit the information to the Climate Action Secretariat (CAS). Do not press submit before you are ready – this may result in a loss of work.

In addition to completing this survey (Part 1 2), you are required to submit your completed Overview (Executive Summary) and Self-Certification Checklist. The 2013 Overview template was included in the email sent and can also be found on the LiveSmart leaders Community.

Please ensure you meet the following reporting deadlines:

A DRAFT 2013 CNAR is due to CAS by March 31, 2014. The draft is comprised of the Overview ONLY (no executive sign-off required).

The FINAL 2013 CNAR is due to CAS by May 30, 2014. The final 2013 CNAR includes Part 1 Part 2 survey form and Overview.

The Self-Certification Checklist is due to CAS by May 15, 2014.

For more information about the Carbon Neutral Government process, please refer to *Becoming Carbon Neutral 2013*, or should you have any questions please contact climateactionsecretariat@gov.bc.ca.

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Organization Name

Vancouver Community College

Actions Taken to Reduce Emissions

1) Stationary Fuel Combustion, Electricity (Buildings):

Indicate which actions were taken in 2013:

Performed energy retrofits on existing buildings

No

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:

In March 2013, VCC replaced 21 gas-powered MUAs for the kitchens at the Downtown campus with new energy-efficient units. In addition, programming was installed to record and monitor kilowatt hour usage. The MUAs were also placed on two direct digital control (DDC) units. Natural gas use at the Downtown campus, largely as a result of this project, decreased 34% in 2013 from the previous year and saved the College approximately \$25,000 dollars.

In 2013, DDCs were installed on existing heat pumps and lighting systems on three floors of the Downtown Campus (tower 8, Dunsmuir 4 and 5). At this time, occupancy sensors were installed in the classrooms on these three floors. Estimated savings of 30% were achieved from these measures.

A project to test and replace faulty steam traps at the Downtown campus was completed in November and December of 2013 and a yearly preventative maintenance schedule was established. Approximately 20 of 90 units were replaced and savings from this measure should be realized in early 2014.

In 2013, the chiller cooling tower at the Broadway campus was replaced with a more energy efficient unit.

2) Mobile Fleet Combustion (Fleet and other vehicles):

Indicate which actions were taken in 2013:

Do you have a fleet?

No

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 2013:

Used less paper than previous year

No

Used only 100% recycled paper

No

Used some recycled paper

Yes

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

Yes

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

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

Actions Taken to Reduce Emissions - continued

Explain how you plan to continue minimizing emissions in 2014 and future years:

As part of VCC's 2011-2014 Strategic Plan, a preliminary target of a 10% reduction in greenhouse gas emissions from energy for VCC was selected. However, by the end of December 2013, results of energy monitoring indicated that the 10% reduction target had been achieved. Based on a review of the current campus operations, a detailed review of energy usage and opportunities identified by the VCC energy management team, a new energy reduction target was set. The new energy reduction target for VCC is to reduce campus energy intensity in existing buildings by 20% from 2010/2011 fiscal year levels by 2016/2017 fiscal year through implementation of cost-effective energy management initiatives.

To enable VCC to achieve this reduction target, cost-effective energy management initiatives will be undertaken and a three-year Strategic Energy Management Plan has been completed. 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:

Lighting upgrades: Lighting upgrades are planned for both campuses including converting compact fluorescent and metal halide downlights to LED modules, daylight controls, occupancy sensors for long corridors, new LED exit signs, and de-lamping in some hallways and entrances.

Continuous optimization program: VCC has been approved to participate in Continuous Optimization, a BC Hydro and Fortis BC program. This will involve the installation of an energy management information system which will allow VCC to conduct a detailed investigation to identify potential control focused projects. Projects with a payback period of less than two years will be actioned by the College.

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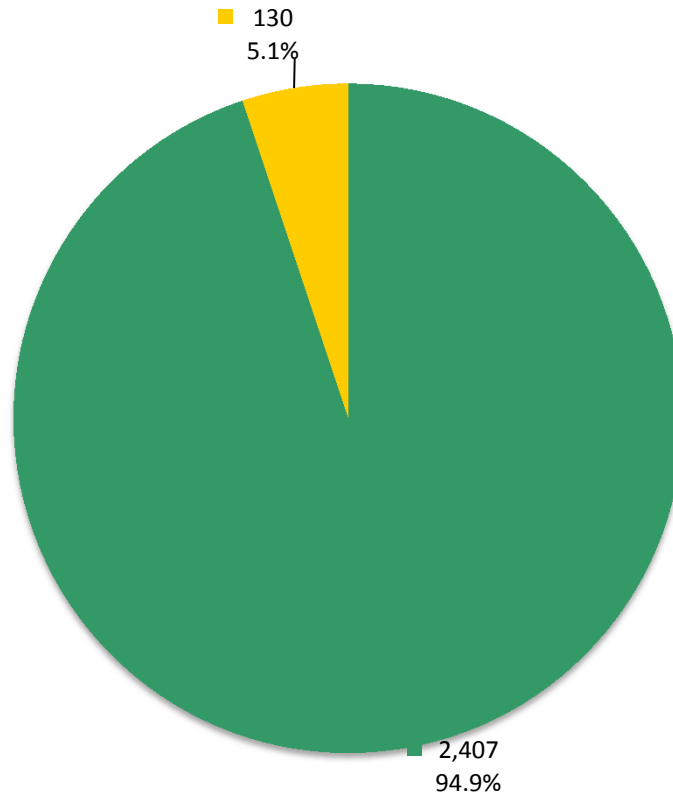
Direct digital controls: DDC controls have not yet been installed on existing heat pumps and lighting systems in all parts of the Downtown campus. We will continue to install DDC's in the remaining eight sections as budget allows.

Energy conservation and awareness: Building on our successful "Lights Out Campaign", 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 2% per year.

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

No

**Vancouver Community College
Greenhouse Gas Emissions by Source
for the 2013 Calendar Year (tCO₂e*)**



Total Emissions: 2,537

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

Offsets Applied to Become Carbon Neutral in 2013 (Generated May 21, 2014 3:08 PM)

Total offsets required: **2,537**. Total offset investment: **\$63,425**. 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.