



University of Victoria | 2013 Carbon Neutral Action Report



University
of Victoria



Sustainability in action.



Executive Summary

In 2013 the University of Victoria continued its work to reduce its greenhouse gas emissions through a variety of programs and initiatives. This work included building retrofit projects with funding and support from the BC Hydro Continuous Optimization Program. The annual greenhouse gas reductions from phase 1 of this program were more than 770 tCO₂e in 2013, and the remaining two phases of the program will be implemented in 2014/15. UVic has also funded energy efficiency, emission reductions and water savings initiatives through the Revolving Sustainability Fund, which provides funding to projects with relatively short payback periods. Finally, UVic continued to work with its campus community to conserve energy and reduce emissions through behaviour change programs in offices, labs and student residences. All of these activities contribute to the reductions referenced in this report.

UVic's efforts to reduce its greenhouse gas emissions helped, in part, to its achievement of a Gold rating in the Sustainability, Tracking, Assessment & Rating System (STARS), administered by the Association for the Advancement of Sustainability in Higher Education (AASHE). UVic was the fifth Canadian university to achieve a Gold rating under the STARS program. Only 56, or approximately 18 per cent, of the 300 post-secondary institutions in Canada and the United States who have participated in STARS have received a Gold rating. This illustrates the progress UVic has made in advancing sustainability and greenhouse gas emission reductions over the last few years.

Kristi Simpson

Associate Vice-President, Financial Planning and Operations
University of Victoria

2013 Greenhouse Gas Emissions

The total GHG emissions for the University of Victoria are 12,764 tCO₂e for the 2013 calendar year. Emission categories are outlined in Table 1 below.

REPORTING CATEGORY	2012 tCO ₂ e	2013 tCO ₂ e	PERCENT CHANGE
University Owned Buildings and Leased Spaces: Natural Gas	11,978.3	11,237.5	-6.2%
University Owned Buildings and Leased Spaces: Electricity ¹	1746.8	1006.3	-42.4%
Mobile Combustion/Fleet	306.5	334.6	9.2%
Paper Supplies ²	135.5	185.6	36.9%
Total	14,167.1	12,763.9	-9.9%

Table 1. Greenhouse gas emissions for the University of Victoria.

The primary source of greenhouse gas emissions for UVic is from the energy systems in buildings on campus, which is powered primarily by natural gas. Natural gas accounts for over 88% of the total emissions, while electricity accounts for 8%. Emissions associated with fleet vehicles and paper purchases make up the remainder.

Offsets Applied to Become Carbon Neutral in 2013

The total greenhouse gas emissions for the University of Victoria in the year 2013 is 12,764 tCO₂e which includes all properties owned by the university on and off campus, and properties leased from other entities for university business.

This total excludes fugitive emissions as it was estimated that stationary fugitive emissions from cooling do not comprise more than 1% of the University of Victoria's total emissions and an ongoing effort to collect or estimate emissions from this source would be disproportionately onerous. For this reason, emissions from this source have been deemed out-of-scope and have not been included in the University of Victoria's total greenhouse gas emissions profile.

As required by section 5 of the Carbon Neutral Government Regulation, 12 tCO₂e emissions resulting from the use of bio-fuels were reported as part of our greenhouse gas emissions profile in 2013. However, they were not offset as they are out-of-scope under section 4(2) (c) of the Carbon Neutral Government Regulation. The total offsettable emissions are 12,752 tCO₂e. Including the 80 credits owing from the PCT at the end of 2012, the total UVic emissions for offset for the 2013 calendar year are 12,672 tCO₂e.

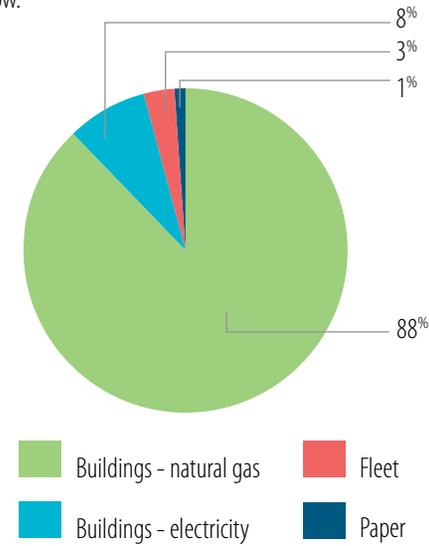


Figure 1: 2013 Greenhouse Gas Emission Breakdown University of Victoria

¹ As a result of a high water year, the emission factor for hydro electricity purchased in 2013 from BC Hydro was down from the 2012. Hydro electricity use in 2013 resulted in 4 kgCO₂e/GJ, whereas it resulted in 6.9 kgCO₂e/GJ in 2012.

² It is important to note that total copy paper purchases, which are reported in the GHG inventory, have decreased 29% between 2011 and 2013. A change in the reporting criteria between 2012 and 2013 resulted in the emissions increase from paper supplies. In 2013 an independent review of the data used for GHG emissions measurement determined that UVic's practice of subtracting paper that had been sold to students (i.e. either through photocopying or course-packs) from its emissions inventory data was an incorrect interpretation of the regulations. The Climate Action Secretariat provided guidance that paper, which is purchased by UVic and sold to students, should remain within the reporting scope. The firm that conducted the review, Deloitte LLP, confirmed that "while immaterial to UVic's total emissions, the current process results in an understatement." Therefore, emissions from paper supplies in previous years were not recalculated and the change in scope was implemented for the 2013 GHG inventory.

Emission Reduction Activities

UVic's commitment to sustainability and greenhouse gas reductions is part of a comprehensive institutional effort guided by the Sustainability Action Plan: Campus Operations 2009 – 2014. The University strives to integrate sustainability into teaching, research, campus operations and community partnerships. This approach allows us to find synergies across disciplines and departments to assist in advancing campus sustainability and reductions in greenhouse gas emissions from university operations.

Actions Taken to Reduce Greenhouse Gas Emissions in 2013

- The implementation of 60-plus projects through phase 1 of the BC Hydro Continuous Optimization Program was completed in 2013 in six of the largest buildings on campus, including the Bob Wright Centre. The projects included, but were not limited to, the installation of energy efficient lights, HVAC control changes, and the installation of photo sensor lighting controls. The verified energy savings of these projects were 1,600,000 kWh of electricity and 4,600,000 kWh of natural gas, which translates into approximately 770 tCO₂e.
- With financial assistance from BC Hydro, UVic conducted a detailed energy study for phase 2 of the Continuous Optimization Program. This report recommended more than 70 projects, six additional campus buildings, including the MacKinnon and the Petch buildings. Recommendations included the installation of variable speed fan drives in HVAC systems, lower wattage lamps and the installation of Douglas lighting control panels that allow lights to be efficiently regulated. Project opportunities will be selected for implementation by UVic in 2014.
- With the financial assistance of Fortis BC, UVic conducted energy studies of several buildings not heated by the district heating system. The report, delivered to UVic in late 2013, indicated significant energy and GHG savings could be achieved by replacing boilers with high efficiency models in buildings such as Fine Arts and the Phoenix Theatre. Those recommendations are currently under review and funding sources are being explored.
- The Sustainability Action Team program, with funding from BC Hydro Power Smart's Workplace Conservation Awareness program, continued with behaviour change programs involving staff, students and faculty in 5 additional campus buildings (10 buildings participated in between 2011 and 2012). Office building occupants in the Sedgewick building were provided with basic information on how to conserve energy and reduce waste in the workplace, and teams competed by committing specific sustainable behaviours, such as turning out the lights and riding to campus by bike, over a one month period. Students living in Gordon Head, Cluster East Block and the 294 Bed residence buildings were provided with training on demand, and residence staff were given a program that they used to educate students about plug load and phantom power. Lab users in the Bob Wright Centre were engaged in initial conversations about the use of fume hoods. The information collected in 2013 was used to augment the made-in-UVic Green Lab program planned for implementation in early 2014.
- The Revolving Sustainability Fund, which provides financing for electricity, natural gas and water use reduction projects that demonstrate cost savings to the university, continued to provide funding for projects that would not have otherwise been completed under normal budget scenarios. Two energy saving projects were implemented in 2013. New lighting standards were installed on campus adjacent to the Campus Services Building. This retrofit provided long lamp life, maintenance savings and better colour quality. This project was estimated to save 10,000 kWhs of electricity. Secondly, staff at the Enterprise Data Centre upgraded the firmware that operates the UPS (Uninterruptable Power Supply) system, which is necessary to maintain a data centre. This increased the efficiency of the UPS from 80% to approximately 99% and resulted in the savings of an estimated 500,000 kWhs. These two projects prevented more than 7 tCO₂e of greenhouse gases from being emitted and is estimated to save the university approximately \$40,000 in annual utility costs.
- Due to the age of the campus central boiler plant, the university's Department of Facilities Management began reviewing several options for its replacement. These options included a new high efficiency natural gas plant, fuel-switching to a biomass plant and other alternative energy options. This review was ongoing as of the end of 2013.



Plans to Continue Reducing Greenhouse Gas Emissions 2014-2015

The University of Victoria has a strong history in sustainability and is committed to achieving progress on our electricity and GHG emissions reduction goals. The university employs a range of methods to reach these goals, which extend from sustainable purchasing policies to the Continuous Optimization Program for energy use.

Priorities for the university in 2014-2015 will be greenhouse gas reductions through:

- Utilizing the Revolving Sustainability Fund to provide capital for innovative energy reduction projects. This may include re-commissioning work in the Student Union Building and the implementation of several boiler plant upgrades which are outside of the main campus district heating system.
- Engaging faculty, staff and students with behaviour change initiatives and programs, such as our Sustainability Action Team program.
- Completing phase 2 and initiating phase 3 of the BC Hydro Continuous Optimization Program. These two phases are targeted to match the electrical and natural gas savings associated with phase 1 of the program.
- Proceeding through the year-long coaching stage associated with phase 1 of the Continuous Optimization Program. This stage utilizes continued assistance of engineering consultants to train internal Facilities Management Department employees to continue to monitor and optimize the consumption patterns of the six buildings that were included in phase 1. This will reinforce the reduced energy use in those buildings over their lifespan.
- Submitting applications to the new Carbon Neutral Capital Program, administered by the Ministry of Advanced Education for further greenhouse gas reducing projects, including submissions for heating plant upgrades and renewable energy projects.
- Undertaking continued assessments of high efficiency and alternative energy options for the replacement of the campus central boiler plant.

For additional information on sustainability at the University of Victoria, please see our website at www.uvic.ca/sustainability

www.uvic.ca/sustainability





uvic.ca/sustainability

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

Created Thursday, May 08, 2014

Updated Friday, May 30, 2014

<https://fluidsurveys.com/surveys/cas-z/2013-cnar-form-bps-actions/6450a1b439196104cfaafe9133729e5a/>

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.

Organization Name

University of Victoria

Actions Taken to Reduce Emissions

1) Stationary Fuel Combustion, Electricity (Buildings):

Indicate which actions were taken in 2013:

Performed energy retrofits on existing buildings

Yes

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

Yes

Undertook an evaluation of overall building energy use.

Yes

Please list any other actions taken to reduce emissions from Buildings:

The Sustainability Action Team program, with funding from BC Hydro Power Smart's Workplace Conservation Awareness program, continued with behaviour change programs involving staff, students and faculty in 5 additional campus buildings (10 buildings participated in between 2011 and 2012). Office building occupants in the Sedgewick building were provided with basic information on how to conserve energy and reduce waste in the workplace, and teams competed by committing specific sustainable behaviours, such as turning out the lights and riding to campus by bike, over a one month period. Students living in Gordon Head, Cluster East Block and the 294 Bed residence buildings were provided with training on demand, and residence staff were given a program that they used to educate students about plug load and phantom power. Lab users in the Bob Wright Centre were engaged in initial conversations about the use of fume hoods. The information collected in 2013 was used to augment the made-in-UVic Green Lab program planned for implementation in early 2014.

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

Indicate which actions were taken in 2013:

Do you have a fleet?

Yes

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

Yes

Replaced existing vehicles with hybrid or electric vehicles

Yes

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:

FMGT staff are encouraged to commute around campus on bikes and Congress 2013 conference participants requiring assistance commuting around campus were transported in electric vehicles (golf carts) instead of full sized cars.

3) Supplies (Paper):

Indicate which actions were taken in 2013:

Used less paper than previous year

Yes

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:

UVic continues to promote the use of electronic data management tools on campus. This includes, promoting the distribution of course materials electronically, using electronic business forms such as invoices to inter-departmental billings and T4 slips, providing executives with tablet computers and promoting the use of laptops, which also has energy reduction implications. UVic promotes the use of shared drives within all departments and is currently in the process of upgrading its Sharepoint Software, which will increase the ability of staff to share information electronically across departments. This work has led to a 29% decrease in paper purchases between 2011 and 2013, and the University hopes that the above strategy will continue to reduce paper use.

UVic is also examining the effectiveness of wheat paper. This type of paper reduces the need for forestry products, and also reportedly has a lower carbon footprint per ream than does 100% post-consumer paper.

UVic continues to set employee and student computers to print double sided by default.

Actions Taken to Reduce Emissions - continued

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

Priorities for the university in 2014-2015 will be greenhouse gas reductions through:

- Utilizing the Revolving Sustainability Fund to provide capital for innovative energy reduction projects. This may include re-commissioning work in the Student Union Building and the implementation of several boiler plant upgrades which are outside of the main campus district heating system.*
- Engaging faculty, staff and students with behaviour change initiatives and programs, such as our Sustainability Action Team program.*
- Completing phase 2 and initiating phase 3 of the BC Hydro Continuous Optimization Program. These two phases are targeted to match the electrical and natural gas savings associated with phase 1 of the program.*
- Proceeding through the year-long coaching stage associated with phase 1 of the Continuous Optimization Program. This stage utilizes continued assistance of engineering consultants to train internal Facilities Management Department employees to continue to monitor and optimize the consumption patterns of the six buildings that were included in phase 1. This will reinforce the reduced energy use in those buildings over their lifespan.*
- Submitting applications to the new Carbon Neutral Capital Program, administered by the Ministry of Advanced Education for further greenhouse gas reducing projects, including submissions for heating plant upgrades and renewable energy projects.*
- The university's Department of Facilities Management will continue to assess high-efficiency and alternative energy options for the replacement of the campus central boiler plant.*

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

Yes

Actions to Promote Sustainability and Conservation - Optional

The following are actions that fall outside the scope of the *Carbon Neutral Government Regulation*, but which many organizations still undertake and may wish to report on. This section is optional for reporting.

Business Travel

Created a low-carbon travel policy or travel reduction goal (Low-carbon: Lowest emission of greenhouse gases per kilometre per passenger)

No

Virtual Meeting Technology

Installed web-conferencing software (e.g., Live Meeting, Elluminate, etc.)

Yes

Made desktop web-cameras available to staff

Yes

Encourage alternative travel to meetings (e.g., bicycles, public transit, walking)

Yes

Encourage carpooling to meetings

Yes

Education and Awareness

Have created Green, Sustainability, Energy Conservation, or Climate Action Teams.

Yes

Provided resources and/or dedicated staff to support these teams

Yes

Provided behaviour change education/training for these teams (e.g., community-based social marketing)

Yes

Established a sustainability/green awards or recognition program

Yes

Support green professional development (e.g., workshops, conferences, training)

Yes

Planning for Climate Change

Have assessed whether extreme weather events and/or long term changes in climate will affect our organization's business areas

No

Long term changes in climate have been incorporated into our organization's decision making.

No

Actions to Promote Sustainability and Conservation - Optional (continued)

Staff Awareness and Education

Provided education to staff about the science of climate change

Yes

Provided education to staff about the conservation of water, energy, and raw materials

Yes

Provided green tips on staff website or in newsletters

Yes

Alternate Work/Commuting Options

Allow for telework/working from home

Yes

Staff have the option of a compressed work week

No

Commuting by foot, bicycle, carpool or public transit is encouraged

Yes

Shower or locker facilities are provided for staff/students who commute by foot or by bicycle

Yes

Secure bicycle storage is provided

Yes

Other Sustainability Actions

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

Yes

Put in place a potable water management strategy to reduce potable water demand of building-level uses such as cooling tower equipment, toilet fixtures, etc. and landscape features

Yes

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

Yes

Have implemented a hazardous waste reduction and disposal strategy (Hazardous Waste: E.g., electronics including computer parts and monitors, batteries, paints, fluorescent bulbs)

Yes

Have incorporated minimum recycled content standards into procurement policy for consumable, non-paper supplies (e.g., writing instruments, binders, toner cartridges, etc.)

No

Established green standards for goods that are replaced infrequently and/or may require capital funds to purchase (e.g., office furniture, carpeting, etc.)

Yes

Incorporated lifecycle costing into new construction or renovations

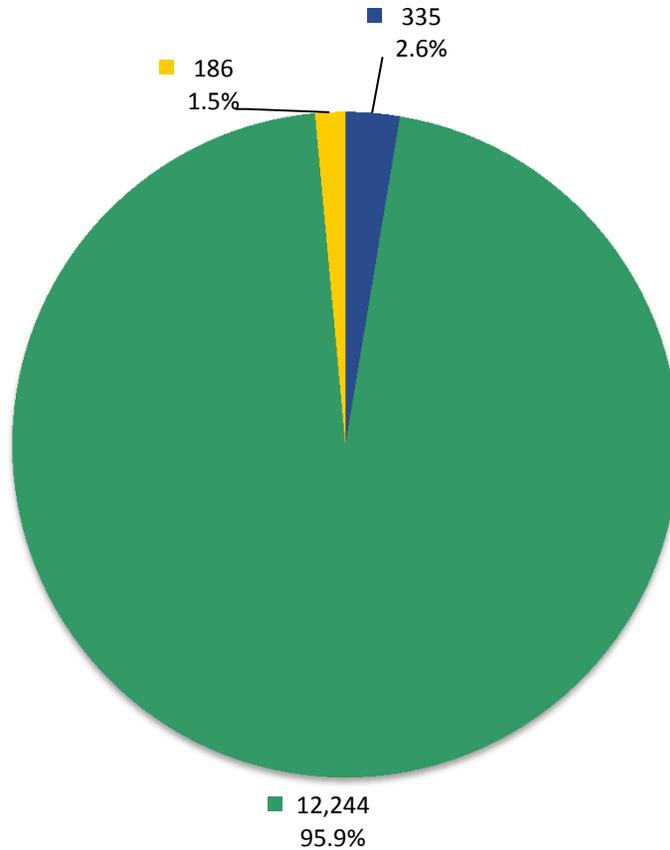
Yes

Please list and other sustainability actions you wish to report not included in the previous list.

UVic regularly conducts waste reduction initiatives focused on changing purchasing patterns. For example, the University promotes the use of reusable mugs via "Love-a-Mug" week and held a "free store" in association with student groups to promote the reuse of unwanted item at the end of term.

There is also a concentration on greening events, such as conferences, at UVic. For example, the Congress of the Humanities and Social Sciences held at UVic in 2013 made use of more than 20 volunteers to make the event as close to zero waste as possible. Volunteers helped delegates compost and sort their waste to achieve this. UVic also includes as a matter of policy, a "Travel Green" tip attached to event materials. The tip reads as follows: "Travel Green: UVic is accessible by many modes of sustainable transportation including Regional transit, cycling, walking and by taxi. Should you choose to drive, pay parking is in effect for a \$2.25 evening rate."

**University of Victoria
Greenhouse Gas Emissions by Source
for the 2013 Calendar Year (tCO₂e*)**



Total Emissions: 12,764

- 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 2013 (Generated May 21, 2014 3:07 PM)

Total offsets required: **12,752**. Total offset investment: **\$318,800**. Emissions which do not require offsets: **12** **

*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.