

2014 Carbon Neutral Action Report





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Declaration

This *Carbon Neutral Action Report* for the period January 1 to December 31, 2014 summarizes our emissions profile, the amount of offsets purchased to reach net zero emissions, the actions we have taken in 2014 to reduce our greenhouse gas emissions and our plans to continue reducing emissions in 2015 and beyond.

By June 30, 2015 Vancouver Island University's final *Carbon Neutral Action Report* will be posted to our website at <https://www2.viu.ca/sustainability/CarbonNeutralActionReport.asp>.

Emissions and Offsets Summary Table

Vancouver Island University	
GHG Emissions and Offsets for 2014 (tCO ₂ e)	
GHG Emissions created in Calendar Year 2014 <i>(from SMARTTool Homepage):</i>	
Total Emissions (tCO ₂ e)	2982
Total Offsets (tCO ₂ e)	2943
Adjustments to GHG Emissions Reported in Prior Years <i>(from SMARTTool Homepage):</i>	
Total Emissions (tCO ₂ e)	-2
Total Offsets (tCO ₂ e)	0
Total Emissions for Offset for the 2014 Reporting Year <i>(from SMARTTool Homepage)</i>	
Total Offsets (tCO ₂ e)	2943



Shelley Legin, Vice-President, Administration and Finance

May 28, 2015

Overview

VIU continues to build communities of resilience and action through teaching and learning, procurement, and institutional action.

VIU's Academic Plan and related integrated planning documents guide curriculum development and institutional action in sustainability, and these sustainability themes are woven into both the curriculum and VIU community. Students are encouraged to explore, identify, and address issues in climate change and sustainability topics through the lens of their discipline, and then make a positive local impact. These actions have potential to take on global significance as rich experiential learning opportunities are fostered and developed in all areas including Trades, Academic and Career Preparation, and Master's programs.

Wrack monitoring – Dr. Sarah Dudas (yellow rain pants) and students carry on research



Culinary Arts student demonstrates how to cook with local seasonal vegetables.



*Student-run Farmers' Market
This market provides experiential learning for the WEST program and in other disciplines*



A program's framework impacts student practice and can guide the behaviours students will use in the workplace. VIU's Hairdressing program has recognized this and has partnered with the Green Chair Salon program. GCS strives to "source locally and increase efficiency while redirecting, recycling, and repurposing materials once destined for landfill" (<http://bc.greencirclesalons.ca/Our-Philosophy>). On completion of the program, students then take these sustainable practices with them into the community, and are change agents for sustainable practice.

Similarly, many areas are now leveraging the affordances of web tools for online notes, assignment submission, textbook, and student-instructor, student-student communications. In doing so, students learn to build an effective online community of practitioners. Not only does this help to increase engagement, and help students be more responsive to a wider community, but it creates less dependence on paper, and supports virtual transport thereby decreasing the need for travel. By meeting educational goals and responding to community needs, VIU is developing its leadership role in climate change resilience.





Sustainability Forum Suggestions



Avenues for Action



President & Vice Chancellor Nilson participating in MY Green VIU

VIU provides opportunities for its broader community to engage in carbon reduction activities. Events for more casual education in carbon reduction were engineered to appeal to VIU's diverse community and provided opportunities to engage in sustainable behaviours.

Avenues for Action, a day-long workshop, brought together communities of practitioners from all areas. Participants ranged from students to representatives of local government. VIU partnered with BC Hydro in the Workplace Conservation Awareness (WCA) program. The program's aim is to engage students and staff in activities that help build and reinforce energy-saving behaviours. In addition to the annual WCA events of the *Sustainability Fair* and *Whacky Woolies Week*, *My Green VIU* encouraged participants to turn off lights at VIU and motivate their peers to do the same. VIU's Bike to Work teams saved 293 kg of GhG's from going into the atmosphere and pedalled the most kilometers of any institution in Nanaimo. VIU also hosted a Sustainability Forum. Students, staff, and faculty were invited to share ideas on what actions VIU could take in order to further decrease its carbon footprint.

Student-led engagement groups such as The Campus Food Strategy Group, ACER (Awareness of Climate change through Education and Research), and Solutions continue to work with the campus community to educate, bring awareness, and shift behaviour in a variety of sustainability areas including food security, climate change, and locally-sourced food.

As well, a number of operational actions were pursued in 2014 to minimize the institution's carbon emissions and include the following:

Reverse Osmosis and Demineralization System

This new system replaces a distillation system that was unable to meet demand, and was energy intensive. It's expected that this change will double capacity to produce purified water, as well as save electricity (around \$2,000/year) and roughly 500,000 litres of water per year.

Lighting Improvements -- Parking Lot B

Existing metal halide light fixtures at end of life were replaced with new LED light fixtures and poles. This not only improved the lighting in the area, but energy savings are roughly estimated to be about 3,564 kWh/year. That's equivalent to running seven refrigerators for a year.

LED lighting tubes

As routine maintenance, LED replacement tubes will replace T8 fluorescent tubes. Started in 2014, this project will be complete in mid- to late 2015. In rough terms, based on approximately 2660 hours of operation per year, once all 3,000 lamps are in place, the resulting electricity reduction will be nearly 100,000 kWh, or about enough energy to run 9 houses for a year.



Reverse osmosis and demineralization system in situ



LED replacement light
Photo credit <http://www.pebinternational.com/img/highbay/led-tubelight.jpg>

Mechanical Optimization

Mechanical optimization of Building 155 (Marine and Small Engine Repair Training Shop) and Building 150 (Automotive Training Shop) will reduce greenhouse gas emissions through a substantial improvement in equipment efficiencies, improved abilities to monitor and control energy consuming functions of the HVAC, and through a new Energy Management Information System (EMIS) function on each building (increased ability to react quickly to anomalies in energy consumption).

Previously, empirical data for GhG emissions of each of these buildings could only be estimated based on utility metering data for the entire campus. Greenhouse gas emissions will be reduced through use of EMIS data that will help VIU identify:

- Consumption characteristics of individual buildings
- Prompt response to consumption anomalies
- Clear understanding of where GhG emissions are occurring, and thus, what can be done to reduce them

A 2010 Mechanical Optimization Audit determined that optimization in these two buildings would avoid approximately 12.5 tonnes of CO₂ equivalent, and represent electricity savings of nearly 22,250 kWh, and natural gas savings of 244 GJ.

Next steps for 2015

VIU looks forward to continued strengthening and broadening its sustainability and greenhouse gas emission efforts through expanded program offerings, increased sustainability in the curriculum, and activities inclusive of students, staff and faculty in 2015.

Marine and Small Engine Repair Training Shop



Automotive Training Shop

2014 Carbon Neutral Action Report (CNAR) - Part 2 ACTIONS

Organization Name

Vancouver Island University

Actions Taken to Reduce Emissions

1) Stationary Fuel Combustion, Electricity (Buildings): Indicate which actions were taken in 2014:

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.

No

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

Replacing high energy consumption lighting with LED lighting

Continuous improvements in building automation programming thereby reducing consumption at times that systems are not needed

2) Mobile Fleet Combustion (Fleet and other vehicles): Indicate which actions were taken in 2014:

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

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 2014:

Used less paper than previous year

Yes

Used only 100% recycled paper

Yes

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:

Paper avoidance is being achieved in a number of ways at the institution and includes, but is not limited to the following:

- Digital filing
- Direct e-filing to student records
- Electronic documentation
- Electronic communication
- Digital ordering
- Course/ materials in electronic format
- Digital agenda/minutes distribution
- Double-sided printing
- Default printer setting double sided
- Web-based courses such as D2L
- Switch to iPads instead of text books/committee work
- Faculty/Staff print records for accountability
- Recycled paper notepads/other paper products
- Decreased number of student handouts/printed reports
- Charge for paper use in cafeteria (take away packaging)
- Online document proof reading
- Print Shop- Ordering larger and different sized paper to reduce shipping and paper waste

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Actions Taken to Reduce Emissions - continued

Explain how you plan to continue minimizing emissions in 2015 and future years:

Minimization of emissions into future years is being explored in a number of ways at the institution and includes, but is not limited to the following:

- Investigating the use of 100% recycled paper
- Establishing a sustainability group within an area
- More extensive use of electronic communication
- Switching to iPads/tablets instead of textbook use

- Development and/or expansion of online delivery
- Consideration of implementing an incentive/reward program for paper use reduction by faculty and students
- Exploring online registration options rather than the current paper forms
- Greater use of digital signage
- Moving the work order system from a paper to an electronic application

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

Yes

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Actions to Promote Sustainability and Conservation - OptionalThe 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 TravelCreated a low-carbon travel policy or travel reduction goal (Low-carbon: Lowest emission of greenhouse gases per kilometre per passenger)

No

Virtual Meeting TechnologyInstalled 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 AwarenessHave created Green, Sustainability, Energy Conservation, or Climate Action Teams.

No

Provided resources and/or dedicated staff to support these teams

No

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

No

Established a sustainability/green awards or recognition program

No

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

Yes

Planning for Cimate ChangeHave 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

No

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

Yes

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

No

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

No

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

No

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.)

No

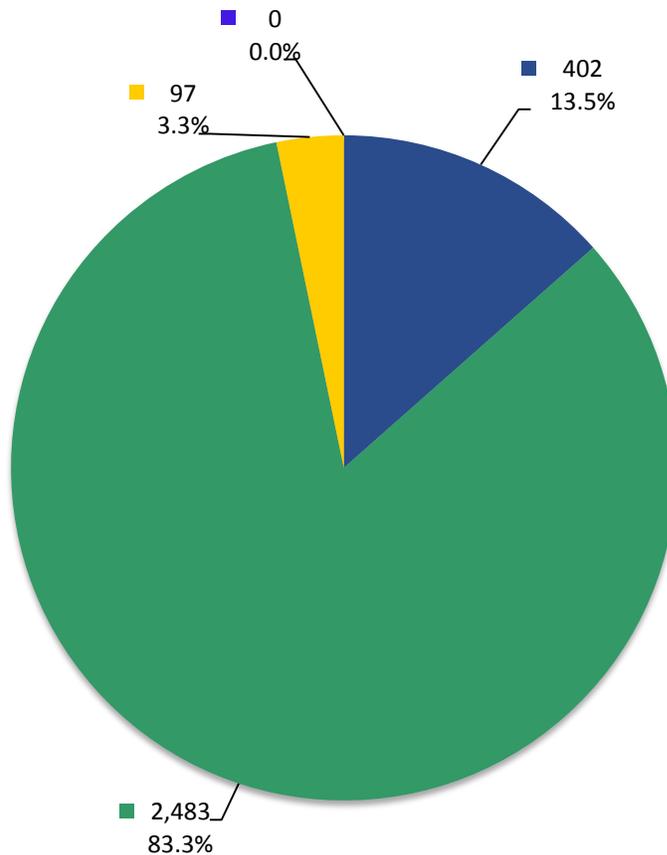
Incorporated lifecycle costing into new construction or renovations

Yes

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

- Within the curriculum, proper use of equipment to optimize efficiency and reduce consumption is taught and would likely to be implemented on the job site when students start their employment.
- The Horticultural program no longer use pesticides.
- Promote 'Bike to Work Week' in May/June.
- Currently considering implementing an incentive/reward program for sustainability ideas by faculty and students; this project is in the idea stage.
- Purchase and use compostable paper plates and cutlery.
- Use environmentally friendly cleaning products.
- Promoted Vegan and Vegetarian meals in the Cafeteria
- Bottled water ban/more water fill stations installed on campuses
- No pesticides used by grounds maintenance
- Provided leadership as one of the community supporters of the UNESCO recognized Mount Arrowsmith Biosphere Reserve

**Vancouver Island University
Greenhouse Gas Emissions by Source
for the 2014 Calendar Year (tCO₂e*)**



Total Emissions: 2,982

- Mobile Fuel Combustion (Fleet and other mobile equipment)
- Stationary Fuel Combustion (Building Heating and Generators) and Electricity
- Supplies (Paper)
- Fugitive Sources

Offsets Applied to Become Carbon Neutral in 2014 (Generated June 23, 2015 5:01 PM)

Total offsets required: **2,943**. Total offset investment: **\$73,575**. Emissions which do not require offsets: **39** **

*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.