



# 2011 Carbon Neutral Action Report

Plans and Actions Taken to Reduce Greenhouse Gas Emissions at the University of Northern British Columbia

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# Executive Summary

The University of Northern British Columbia completed its bioenergy heating plant in March 2011. This is the first university owned and operated facility in Canada to use bioenergy from waste wood products to heat campus buildings. Since that time, and after resolving some unanticipated challenges, the plant is anticipated to exceed the performance target of 85% natural gas offset in its first year of operation. It brings the school great pride to foster a renewable energy priority for our community. The LEED Gold bio-energy plant, which uses innovative technology to convert bark, branches, sawdust and leftover wood products from nearby mills into a highly efficient means of heating campus buildings, is reducing greenhouse gas emissions at the university by 3,500-4,000 tonnes annually. That is the equivalent of taking 1,000 cars off the road every year.

The heating plant is one component of the university's bio-energy plan to help meet its current and future energy needs, as well as contributing to research and development, training, education and the development of bio-energy projects and demonstration opportunities for northern communities. UNBC received \$15.7 million from the federal and provincial governments for its biomass gasification system, and \$5 million from both governments for upgrades to campus heating equipment. We are encouraged by the success of this component of our energy plan and feel our supporting partners would be impressed with the outcome.

In 2007, UNBC announced a commitment to be Canada's Green University™. In many ways, this decision fit perfectly with UNBC's existing culture; the proportion of environmental teaching and research is amongst the highest in Canada, the campus is a showpiece for energy-efficiency, the University attracts students and employees who value the natural environment, and the northern BC region is one of Canada's richest in terms of natural resources. Building off these strengths UNBC has begun to integrate teaching, research, operations and community engagement through a variety of sustainability programs and projects, including a series of bio-energy and energy efficiency projects, a comprehensive recycling program and a Green Fund set up to provide seed grants to sustainability projects initiated by students, staff and faculty.

Moving forward UNBC will strive to be Canada's Green University by reducing greenhouse gas emissions, supporting renewable energy research and development, and implementing sustainable practices whenever possible.



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Eileen Bray  
Vice President, Administration and Finance



## 2011 Greenhouse Gas Emissions

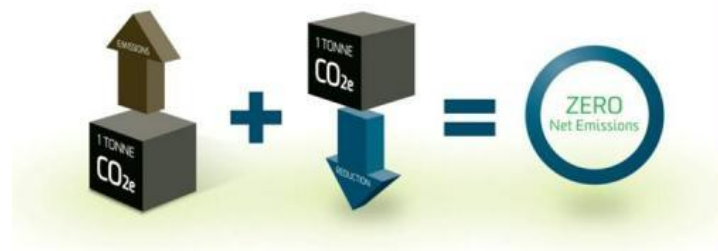
In 2011, UNBC produced a total of 3,508 tonnes of CO<sub>2</sub>e from non-renewable sources, a 38% reduction from 2010 emissions. 2,349 tonnes of emissions have been tracked from biomass use but offsets are not required on these emissions. The CO<sub>2</sub> released to the atmosphere during combustion of biomass is the same quantity that had been absorbed from the atmosphere during plant growth. For this reason, biomass is often considered carbon neutral and the Intergovernmental Panel on Climate Change (IPCC) *Guidelines for National Greenhouse Gas Inventories* specify the separate reporting of CO<sub>2</sub> emissions from biomass combustion.

The emissions listed above are from sources covered by the Greenhouse Gas Reductions Act. It has been estimated that stationary fugitive emissions do not comprise more than 0.01% of UNBC's total emissions and an ongoing effort to collect or estimate emissions from this source would be disproportionately onerous. For this reason, emissions from fugitive emissions have been deemed out-of-scope and have not been included in UNBC's total greenhouse gas emissions profile.

## Offsets Applied to Become Carbon Neutral in 2011

In order to become carbon neutral for 2011, UNBC purchased a total of 3,511 emissions offsets worth a total of \$87,775. This purchase was based on estimated consumption figures, and includes three additional tonnes that were not accounted for in the 2010 year. In that year an estimate was required and the actual number of tonnes required for 2010 was underestimated by three. As noted earlier there were emissions from biomass use (hog fuel) that were accounted for but do not require offsets to be purchased. Also, as required by section 5 of the Carbon Neutral Government Regulation, 0.61 tonnes of CO<sub>2</sub>e, resulting from the bio-fuel included in gasoline and diesel

purchased, were reported as part of our greenhouse gas profile in 2011. However, these emissions, as well as those accounted for biomass use, did not require offsets as they are out-of-scope under section 4(2)(c) of the carbon neutral Government Regulations.



Credit: Pacific carbon Trust

# Emission Reduction Activities

## Actions Taken to Reduce Greenhouse Gas Emissions in 2011

During 2011, UNBC participated in a wide range of initiatives to reduce greenhouse gas emissions on campus. These initiatives included:

- LED lighting retrofits in the campus pub and campus residences.
- Expanding UNBC's video conferencing capabilities including the purchase of a new portable video conference machine.
- Making use of the electric car charging station on campus (one external user in 2011).
- Started a Carbon Neutral Sub-Committee to establish reduction goals and identify reduction projects.
- Hosting a weekly farmers market on campus.
- Installing metering on natural gas use, electricity use and water use to understand consumption and conservation possibilities.
- Having a student energy challenge at the campus residences.
- Opening a Green University Centre where students, staff and faculty can come for information on sustainability and greenhouse gas reductions.
- Replacing an old chiller with a new more efficient model.
- Updating our car pooling policy to generate more interest in the option.
- Increasing the number of webcast presentation on campus, reducing the number of people needing to drive to campus.
- Installing showers on campus to encourage walking or biking to work.
- Adding more indoor secure bike lockers to encourage biking to work.





# Plans to Continue Reducing Greenhouse Gas Emissions 2012-2014

Over the next three years, UNBC will continue to reduce greenhouse gas emissions by focusing on the following key areas: a) operating the bio-energy plant at maximum capacity through the year keeping shutdowns to a minimum, b) metering energy consumption and sustainability performance measurements, c) operational enhancements and retrofits, d) behavioural change education focused on energy conservation and greenhouse gas reduction and e) seeking emerging opportunities to replace fossil fuel with on-site renewable energy sources. Specific projects include:

- Assessing the feasibility of wind, solar and other renewable energy sources for use on campus.
- Enforce the idle-free Policy to address carbon emissions and air quality issues.
- Develop a comprehensive action plan for addressing improvements to the campus composting program and continued organic waste diversion.
- Investigate the opportunities surrounding greenhouse gas reduction projects outside of our inventory (create our own offsets instead of purchasing all required for neutrality from PCT).
- Investigate solar wall for Northern Sports Centre.
- Investigate heat recovery options from waste water and sewage from campus.



**UNBC'S BIOENERGY PROJECT PRODUCES AROUND 63,640 GJ OF ENERGY A YEAR**

Find out how much that is on our [facebook page](#).



UNBC will continue to build upon its campus infrastructure and bio-energy projects to be a showpiece for renewable energy technology. We will use sustainability and carbon reduction projects as a platform for applied research and education that will directly benefit northern communities.

# Actions to Reduce Provincial Emissions and Improve Sustainability

At UNBC we try and encourage greenhouse gas reductions whenever possible. At times these reductions fall outside of our own GHG inventory and act to reduce provincial emissions as a whole. These activities include:

- Encourage car pooling to campus and are in negotiation for a U-pass (bus pass) for faculty and staff (one already in place for students).
- Farmers market held on campus so students, staff and faculty can shop and eat locally without transportation to and from the downtown market.
- PICS-UNBC helped the City of Prince George conduct a carbon footprint estimate for the 2015 Winter Games application and we were successful in winning the bid. Prince George will host a carbon neutral Canada Winter Games in 2015.
- UNBC has representation on PG Air Improvement Roundtable, a local committee dealing with air quality issues in Prince George. Many co-benefits with greenhouse gas reductions are apparent.
- Educating those outside the UNBC community on climate change and greenhouse gas reductions including working with the Stellat'en First Nation on carbon reductions, running a Continuing Studies course on GHG project development and working with Barkerville to measure and reduce the historic site's carbon footprint.



CANADA'S  
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## Actions Towards Carbon Neutrality

The actions listed below contribute to a reduction in greenhouse gas emissions from sources for which public sector organizations are responsible under the carbon neutral government regulation of the *Greenhouse Gas Reduction Targets Act*.

Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)	Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
<b>Mobile Fuel Combustion (Fleet and other mobile equipment)</b>						
<b>Vehicle fuel efficiency</b>						
Replace vehicles with more fuel-efficient models	Ongoing/In Progress		Purchase only fuel efficient new vehicles policy adopted by Purchasing Department as UNBC policy.	Electric car partnership planned with the City of Prince George, the Northern Health Authority and the Regional District of Fraser Fort George.	2009	No End Date (Continuous)
Replace larger vehicles with smaller models according to fleet "right-sizing" principles	Ongoing/In Progress		As remaining vehicles expire we replace them with more fuel efficient and when possible smaller vehicles.	Continue to replace vehicles when required with smaller more fuel efficient vehicles.	2009	No End Date (Continuous)
Perform regular fleet maintenance specifically to improve fuel-efficiency	Ongoing/In Progress		All vehicles are subject to a monthly performance maintenance program; switched all vehicles to sustainable choice wiper fluid.	Continue to complete monthly performance maintenance on all vehicles; continue to investigate more sustainable options for maintaining vehicles.	2009	No End Date (Continuous)
Replace small maintenance vehicles with more fuel-efficient models	In Development		Investigation of electric vehicle options has started.	Investigating new options for electric vehicle to replace small utility vehicle currently used on campus grounds.	2012	2013
<b>Behaviour change program</b>						
Introduce anti-idling policy and/or raise anti-idling awareness for fleet drivers (e.g., signs, stickers, messages)	Ongoing/In Progress		Installed Idle Free BC signage for all campus locations that are prone to idling behaviour (8 signs in total) and distributed anti-idling awareness materials (e.g. stickers and pamphlets) to the UNBC campus community. Idle-free policy and procedures have been written and are currently awaiting approval.	Continue to organize events to raise awareness about the impacts of idling and promote idle-free behaviour.	2009	No End Date (Continuous)
Promote alternatives to fleet vehicle travel where possible (e.g., bicycles, public transit, walking)	Ongoing/In Progress		Car pool policy to be redeveloped and communications plan for the option enhanced.	Complete new car pooling policy for UNBC.	2008	No End Date (Continuous)
<b>Other Mobile Fuel Combustion Actions</b>						
Electric Charging Station on Campus	Ongoing/In Progress		One user in the last year of electric charging station.	More electric charging stations planned for purchase and use on campus.	2010	No End Date (Continuous)
<b>Stationary Fuel Combustion, Electricity and Fugitive Emissions (Buildings)</b>						
<b>Planning/management</b>						
Enroll in a building energy benchmarking program (e.g., GREEN UP)	Completed in 2011		Enrolled in BC Hydro Continuous Optimization Program.	Continue to work with BC Hydro.	2010	No End Date (Continuous)
Reduce office space (square meters) per employee	Ongoing/In Progress		Took advantage of opportunities to reduce office space per employee where possible.	Continue to seek opportunities to reduce office space per employee.	2010	No End Date (Continuous)
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	Ongoing/In Progress		Installed natural gas, electricity and water metering for all buildings located on the Prince George Campus.	Use metering data to best make consumption and conservation choices for the campus.	2010	2011
<b>Owned buildings</b>						
Establish energy performance baseline for owned buildings	Ongoing/In Progress		Completed energy performance baseline for owned buildings.	Annual assessment of building energy performance at UNBC.	2010	2011



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Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)		Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Register for performance labeling/certification for operations and maintenance of owned buildings (e.g., LEED EB:O&M)	Ongoing/In Progress			In progress towards certification of Bio-Energy facility.	Complete certification of bio-energy building.	2011	2012
Achieve LEED NC Gold certification at a minimum for new construction or major renovations	Ongoing/In Progress			In progress towards certification of Bio-Energy facility.	Continue to enforce the mandatory requirement of all consultants and contractors to design and build all UNBC buildings to LEED gold standard.	2011	2012
Incorporate a refrigerant management strategy into regular building management/maintenance to reduce fugitive emissions	Ongoing/In Progress			Enforced UNBC procedure that requires all contractors handle and dispose of refrigerants in an environmentally sensitive manner.	Continue to enforced UNBC procedure that requires all contractors handle and dispose of refrigerants in an environmentally sensitive manner.	2009	No End Date (Continuous)
Perform energy retrofits on existing, owned buildings	Ongoing/In Progress			Created an Energy Revolving Loan Fund to provide capital for energy efficiency projects.	Continue to determine the feasibility of energy retrofits, prioritize and complete as resources become available.	2009	No End Date (Continuous)
<b>Retrofitting owned buildings</b>							
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress			Replaced chiller unit (98,000 Kwh/year).	Feasibility study initiated on cooling the Enhanced Forestry Lab in the summer with snow and ice specifically accumulated during the winter to do so.	2011	No End Date (Continuous)
Upgrade lighting systems during retrofits	Ongoing/In Progress			Residence lighting upgrade completed and LED retrofits on campus where possible.	Continue to upgrade and implement new lighting retrofit projects (including LED where viable) to reduce energy consumption.	2009	No End Date (Continuous)
Upgrade/adjust control systems during retrofits	Ongoing/In Progress			Continued to operate and refine a comprehensive controls system that was installed in 1995.	Continued to upgrade and increase efficiency of the controls system.	1995	No End Date (Continuous)
Install an on-site renewable energy demonstration project	Ongoing/In Progress			Toured 76 people through our new Bio-energy plant in 2012. Overall more than 1,050 people have toured the facility.	Continue to install on-site renewable energy demonstration projects as per UNBC's goal to "be a leader in renewable energy".	2009	No End Date (Continuous)
<b>IT power management</b>							
Install power management software which shuts down computers outside of regular business hours	In Development			Evaluated software products (i.e. Lab Stats) to shut down over 300 lab computers after labs are closed. No decision made on product to use.	Implement power management software for lab computers.	2011	No End Date (Continuous)
Implement server virtualization	Ongoing/In Progress	64	% of servers have been virtualized since start year indicated	UNBC continues to create more virtual servers and does not purchase anymore physical servers on campus. Continued virtualization of physical servers when possible.	Finish virtualizing servers where possible. Not all servers will be virtualized due to activities outlined in the UNBC risk management plan.	2008	No End Date (Continuous)
Apply auto-sleep settings on computer monitors and CPUs	In Development			Planning on how to deploy.	Identify the subset of systems that can be put into sleep mode and begin deployment.	2010	No End Date (Continuous)
Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices	Ongoing/In Progress			Continued the campus wide replacement of stand-alone devices with multi-function devises.	Achieve a 15% reduction in single function machines.	2006	No End Date (Continuous)
Replace computers with ENERGY STAR models during regular computer upgrades	Ongoing/In Progress			STARS assessment on campus identified that 100% of computers are Energy Star Certified.	Continue to only purchase Energy Star rated computers for campus.	2009	No End Date (Continuous)
<b>Appliances and electronic devices</b>							
Replace refrigerators with ENERGY STAR models or source ENERGY STAR models for future purchases	Ongoing/In Progress			All RFP and Tender templates specify that models must be ENERGY STAR rated; replaced all refrigerators with ENERGY STAR models during regular appliance upgrades.	Continue to replace all refrigerators with Energy Star models.	2009	No End Date (Continuous)
Replace other appliances or electronic devices with ENERGY STAR models or source ENERGY STAR models for future purchases	Ongoing/In Progress			All RFP and Tender templates specify that models must be Energy Star rated.	Continue to enforce policy of Energy Star rated equipment only.	2009	No End Date (Continuous)

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Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)	Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Replace desk lamp incandescent bulbs with compact fluorescent (CFL) bulbs or source more efficient desk lamps for future purchases	Ongoing/In Progress		In 2011 UNBC tested several different LED desk lamp options. Although UNBC does not purchase desk lamps, testing was done to educate employees who may be using them as to the best choice of light bulb to use.	Continue to educate employees and encourage only the most efficient light bulbs for use in desk top lamps.	2009	No End Date (Continuous)
<b>Behaviour change program</b>						
Provide reminders for turning off lights (e.g., signs, stickers, messages)	In Development		Energy Manager communication to staff and employees on energy performance initiatives and reminders to shut off lights when not needed.	Continue to encourage pragmatic use of lighting on campus.	2010	No End Date (Continuous)
Promote hot water conservation	Ongoing/In Progress		Students researching hot water use in residence (including heat recovery) and continue to install low flow shower heads when and where possible.	Continue the replacement of shower heads with low flow design.	2010	No End Date (Continuous)
<b>Supplies (Paper)</b>						
<b>Paper Type</b>						
Purchase 30% post-consumer recycled paper	Ongoing/In Progress		All white paper used at UNBC is FSC Certified C001844	Work towards a purchasing agreement for paper with higher post-consumer content.	2009	No End Date (Continuous)
Purchase 100% post-consumer recycled paper	Ongoing/In Progress		UNBC Stationary is made from 17% Local northern BC fiber and 83% post-consumer content. Paper will be used for letterheads, envelopes and other University publications.	Work towards a purchasing agreement for paper with higher post-consumer content.	2010	No End Date (Continuous)
<b>Printer/document settings</b>						
Switch networked printers and photocopiers to automatic double-sided	Ongoing/In Progress		Developed RFP procedures so printers and copiers are delivered with double sided printing set to default.	Continue to set printer and copiers to double sided printing.	2009	No End Date (Continuous)
<b>Electronic media in place of paper</b>						
Install collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	Ongoing/In Progress		Continued use of SharePoint 2010.	Continue use of SharePoint 2010.	2009	No End Date (Continuous)
Use electronic document library for filing common documents	Ongoing/In Progress		Continued use of SharePoint 2010.	Continue use of SharePoint 2010.	2010	No End Date (Continuous)
Switch to an electronic payroll notification system in place of paper pay stubs	Ongoing/In Progress		Used electronic pay stubs.	Continue to use electronic pay stubs.	2009	No End Date (Continuous)
<b>Behaviour change program</b>						
Train staff to use collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	Ongoing/In Progress		Purchased tablets and readers for the UNBC Board of Governors to hold paperless meetings.	Continue education about double sided printing options and more than one page printing (i.e. handouts in PowerPoint 6 to a page).	2010	No End Date (Continuous)
Encourage staff to hold paperless meetings or presentations (i.e., no handouts)	Ongoing/In Progress		More meetings have been paperless with agendas displayed and actions noted by cell phone or tablet.	Continue to encourage paperless meetings and educate on the options for doing so.	2009	No End Date (Continuous)
Encourage re-use of scrap paper	Ongoing/In Progress		UNBC Shipping and Receiving Department re-uses scrap paper by making notepads out of scrap paper and distributing them to university departments.	Continue to look for innovative ways to use scrap paper.	2009	No End Date (Continuous)

# University of Northern British Columbia - 2011 Carbon Neutral Action Report

## Actions to Reduce Provincial Emissions and Improve Sustainability

The actions listed below contribute to a reduction in greenhouse gas emissions from sources that fall outside of the reporting requirements defined in the carbon neutral government regulation of the *Greenhouse Gas Reduction Targets Act*. Public sector organizations can optionally use this section to report on actions that will help British Columbia meet its provincial greenhouse gas reduction targets, engage the public, and improve environmental sustainability across all aspects of their organization.

Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)	Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
<b>Business Travel</b>						
<b>Virtual meeting technology</b>						
Install web-conferencing software (e.g., Live Meeting, Elluminate, etc.)	Ongoing/In Progress		Increased the number of video conferencing rooms, increased the use of Elluminate, and increased the use of webcasting presentation.	Continue to encourage web-conferencing when possible instead of travel.	2010	No End Date (Continuous)
Install video-conferencing units in meeting rooms or provide mobile video-conferencing units	Ongoing/In Progress		New portable video conference system introduced to campus.	Encourage use of the new portable video conference system and rooms available.	2010	No End Date (Continuous)
<b>Behaviour change program</b>						
Train staff in web-conferencing	Ongoing/In Progress		Training sessions available to students and staff regularly on the use of current and new equipment on campus.	Continue training when and where possible to increase the use of web-conferencing.	2010	No End Date (Continuous)
Train staff in video-conferencing or provide technical support for video-conferencing set-up	Ongoing/In Progress		Training sessions available to students and staff regularly on the use of current and new equipment on campus.	Continue training when and where possible to increase the use of web-conferencing.	2010	No End Date (Continuous)
<b>Education, Awareness, and Engagement</b>						
<b>Team-building</b>						
Create Green, Sustainability, Energy Conservation, or Climate Action Teams with executive endorsement	Ongoing/In Progress		The UNBC Green University Planning Committee, comprised of senior administration and staff, continue to meet monthly. Carbon Neutral Sub-Committee formed in 2011.	Develop absolute emission reduction goals and plans to achieve those goals. Form Energy Sub-Committee and Sustainability Sub-Committee.	2009	No End Date (Continuous)
Provide resources and/or dedicated staff to support teams	Ongoing/In Progress		The Pacific Institute for Climate Solutions (PICS) Research Manager at UNBC is acting Chair of the CN Sub-Committee.	Energy Manager to Chair Energy Sub-Committee and Sustainability Manager to chair Sustainability Sub-Committee.	2010	No End Date (Continuous)
Providing behaviour change education/training to teams (e.g., community-based social marketing)	Ongoing/In Progress		UNBC's annual Green Day used a tool to educate students, faculty, and staff. Sustainability Manager, PICS Manager, and Energy Manager presented in a number of classes.	Continue to use Green Day as an education tool and seek more opportunities to lecture in classes.	2009	No End Date (Continuous)
<b>Awards/Recognition</b>						
Establish a sustainability/green awards or recognition program	Ongoing/In Progress		Green Day award (\$1,000 prize) for best sustainability idea for the campus.	Continue to seek opportunities to provide students, staff, and faculty awards and recognition for sustainable actions and ideas.	2009	No End Date (Continuous)
<b>Staff Professional Development</b>						
Support green professional development (e.g., workshops, conferences, training)	Ongoing/In Progress		Sent several faculty, staff and student representatives to various professional development events including the Sustainability Education Across the Province Workshop, the UBC Energy Conference, and Live Smart training event.	Continue to seek opportunities to support green professional development.	2009	No End Date (Continuous)
<b>Staff awareness/education</b>						
Provide education to staff about the science of climate change	Ongoing/In Progress		Workshops and presentations on climate change hosted by PICS at UNBC.	Continue to seek ways to educate on climate change and climate science.	2009	No End Date (Continuous)

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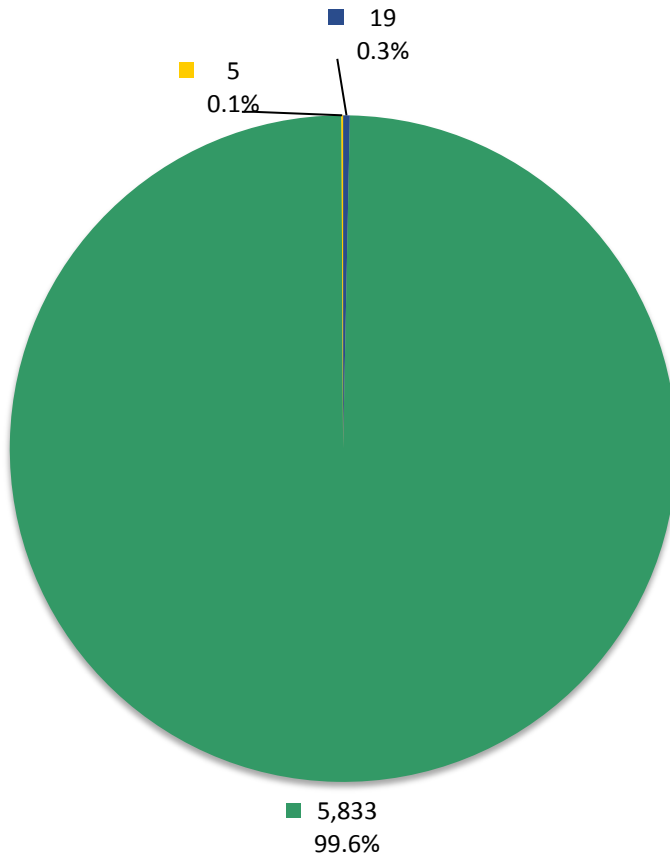
Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)	Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Provide education to staff about the conservation of water, energy, and raw materials	Ongoing/In Progress		UNBC's Green Day is an annual event that is focused on promoting education and awareness about sustainable behaviour by sharing information on the various aspects of sustainable living (i.e. food, energy, transportation, waste reduction/recycling, water conservation, etc.). The event is held during the winter semester and brings together UNBC staff, faculty, students and the broader community of Prince George.	Enhance Green Day to be an even better educational tool.	2007	No End Date (Continuous)
Provide green tips on staff website or in newsletters	Ongoing/In Progress		Green facts are posted on the UNBC website and updated frequently. Installed LCD monitors outside Green Centre to display green tips and green actions of the week.	Enhance the LCD green tips display board and continue to use the website as a green tips communications tool.	2009	No End Date (Continuous)
<b>Client/public awareness/education</b>						
Provide education to clients/public about the science of climate change	Ongoing/In Progress		Pacific Institute for Climate Solutions in active on campus presenting information and hosting guest speakers. To date we have also toured over 1,050 people through our renewable energy bio-energy plant.	PICS will continue its outreach on campus and in the community and tours of our facilities encouraged.	2009	No End Date (Continuous)
<b>Other Sustainability Actions</b>						
<b>Water conservation</b>						
Establish a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models	Ongoing/In Progress		Installation of building level water metering and continued to install low flow shower heads in residence.	Continue to seek water saving devices for installation and encourage water conservation on campus through a 'dashboard' of water consumption (and other energy data).	2009	No End Date (Continuous)
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	Ongoing/In Progress		Continued to build on the use of indigenous grass species and low mow/grow living walls to reduce the need for maintenance and water use.	Formally adopt a potable water management strategy at UNBC.	2009	No End Date (Continuous)
Introduce a storm water management landscape strategy (e.g., vegetated roofs, permeable paving, rain gardens, bioswales)	Ongoing/In Progress		Continued use of storm water retention pond for the collection of storm water on campus.	Investigate other methods of capturing or utilizing storm water on campus.	1995	No End Date (Continuous)
<b>Waste reduction/diversion</b>						
Implement a hazardous waste reduction and disposal strategy	Ongoing/In Progress		All hazardous wastes disposed of properly and within accordance to provincial law.	Continue to seek ways to reduce hazardous materials from operations.	2009	No End Date (Continuous)
<b>Procurement (non-paper supplies)</b>						
Incorporate minimum recycled content standards into procurement policy for consumable, non-paper supplies (e.g., writing instruments, binders, toner cartridges, etc.)	Ongoing/In Progress		Continued to implement green purchasing policies for all acquisitions.	Establish written green standards to be made available to the UNBC campus community and to be used where appropriate in various university departments.	2010	2013
Implement sustainable purchasing program for cleaning products, disposable paper products and trash bags	In Development		Draft policy developed, yet to be approved.	Have draft policy approved for use on campus.	2011	2012
<b>Building construction, renovation, and leasing</b>						
Establish a policy to reuse materials where possible and divert construction and demolition debris from landfills and incineration facilities	In Development		Documented existing standard operating procedures for reusing and diverting construction waste from landfills and incinerators.	Develop best practices guidelines for dealing with construction waste.	2011	2013
<b>Indoor air quality</b>						
Enforce a scent-free policy (e.g., no strong perfumes, deodorants, etc.)	Ongoing/In Progress		A scent free policy is enforced on a departmental basis.	Continue to promote scent free students, staff and faculty.	2009	No End Date (Continuous)

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Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)	Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Incorporate low volatile organic compounds (VOCs) standards into procurement policy for products such as paints, carpets, and furniture	Ongoing/In Progress		Purchasing policy sets limits to VOCs and sets preference to no VOC products.	Purchasing policy sets limits to VOCs and sets preference to no VOC products.	2010	No End Date (Continuous)
<b>Commuting to and from home</b>						
Offer staff a compressed work week	Ongoing/In Progress		Staff are considered for a condensed work week on an individual and departmental basis.	Encourage this option for people suited to a condensed work week.	2009	No End Date (Continuous)
Encourage commuting by foot, bicycle, carpool or public transit	Ongoing/In Progress		Encourage commuting by foot, bicycle, carpool or public transit Ongoing/In Progress Participated in the province-wide "Bike to Work Week" which promotes the use of sustainable modes of transportation to the workplace. The UNBC team cycled more than 2,000 km during the event, representing the highest number of any organization in Prince George.	Take a leadership role in the planning and implementation of Bike to Work Week in addition to participating in Bike to Work Week; Establish a Working Group for the negotiation and implementation of a faculty and staff transit pass.	2006	No End Date (Continuous)
Provide shower or locker facilities for staff/students who commute by foot or by bicycle	Ongoing/In Progress		Showers were built in 2011 for utilization by those walking or cycling to work.	Encourage the use of showers at work as a means to start biking to work.	2009	No End Date (Continuous)
Provide secure bicycle storage	Ongoing/In Progress		Indoor locked storage is now provided on campus for bicycles.	Investigate best areas for more locked and covered bike storage.	2009	No End Date (Continuous)



**University of Northern British Columbia  
Greenhouse Gas Emissions by Source  
for the 2011 Calendar Year (tCO<sub>2</sub>e\*)**



**Total Emissions: 5,857**

- 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 2011 (Generated May 18, 2012 11:25 AM)**

Total offsets required: **3,508**. Total offset investment: **\$87,700**. Emissions which do not require offsets: **2,349** \*\*

\*Tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e) 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.