



# 2012 Carbon Neutral Action Report

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

# Table of Contents

Executive Summary.....	3
2012 Greenhouse Gas Emissions .....	4
Offsets Applied to Become Carbon Neutral in 2012.....	4
Emission Reduction Activities .....	5
Actions Taken to Reduce Greenhouse Gas Emissions in 2012 .....	5
Plans to Continue Reducing Greenhouse Gas Emissions 2013-2015.....	7
Actions to Reduce Provincial Emissions and Improve Sustainability.....	8

# 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 exceeded its 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 bio-energy plant, which is pursuing LEED Platinum certification, 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. To date, the Bio-Energy plant has reduced greenhouse gas emissions at UNBC by over 5,800 tonnes of CO<sub>2</sub>e.

The heating plant is one component of the university's bio-energy program 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 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.

In 2012 UNBC established a \$250,000 revolving fund for energy efficiency projects. The fund is utilized to cover capital costs and the money is repaid by the savings obtained through the energy savings.

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



Eileen Bray  
Vice President, Administration and Finance



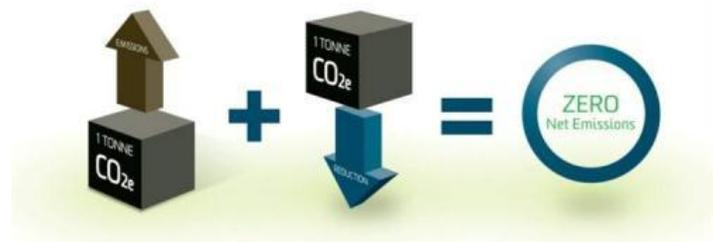
## 2012 Greenhouse Gas Emissions

In 2012, UNBC produced a total of 2,167 tonnes of CO<sub>2</sub>e from non-renewable sources; this represents a 39.33% reduction from 2011 emissions. Even more, UNBC achieved reductions of 62% since the start of the Bio-Energy program and Carbon Neutrality in 2010. 3,506 tonnes of emissions generated in 2012 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 2012

In order to become carbon neutral for 2012, UNBC purchased a total of 2167 emissions offsets worth a total of \$54,175. This purchase was based on estimated consumption figures. 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, 0.78 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 2012. 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 2012

During 2012, UNBC participated in a wide range of initiatives to reduce greenhouse gas emissions on our campuses. These initiatives included:

- Energy Projects:
  - *Quesnel River Research Center Lighting*- Replaced T12 fluorescent lighting with T8.
  - *Enhanced Forestry Lab Cold Storage Lighting*- Replaced T12 fluorescent lighting with T8.
  - *Canfor Theatre Lighting*- Revisit the lighting provision for the lecture space.
  - *Warehouse Lighting*- Replace MH high bay fixtures in warehouse.
  - *Northern Sport Center Soccer Fields Lighting*- Replaced MH fixtures with impact resistant LED.
  - *Air Handling Coil Cleaning*- Nalco coil cleaning initiative.
  - *Northern Undergraduate Student Centre Event Space Lighting*- Replaced incandescent lighting with LED.
  - *Common Area Residence Lighting*- Replaced T12 fluorescent lighting in residences with T8.
  - *Terrace Lighting*- Replaced T12 fluorescent lighting with T8.
  - *Lecture Theatres*- Replaced incandescent lighting with LED.



Energy retrofits at the Northern Sport Centre

*These energy projects generated annual electricity savings equivalent to 654,785 kWh. This reduces our CO<sub>2</sub>e emissions by 16.37 tonnes.*

- Expanding UNBC's video conferencing capabilities including the purchase of new portable video conference equipment.
- Purchasing an Electric Vehicle (Nissan Leaf) in partnership with the City of Prince George, Northern Health, and the Fraser-Fort George Regional District.

- Making use of an electric car charging station in the Prince George campus, and made plans to purchase and install two more during 2013.
- Hosting a weekly Farmers' Market on campus organized by our students, with the collaboration of faculty and staff.
- Our Carbon Neutral Sub-Committee, in its second year since its creation, has been working to establish reduction goals and identify reduction projects.
- Developing energy baselines for its main and regional campus, and is now ready to develop energy baselines for each individual building.
- Organizing a student energy challenge at the campus residences.
- During bike to work week 2012, UNBC was the organization in Prince George with the largest number of participants.
- Increasing the number of webcast presentation on campus, reducing the number of people needing to drive.
- Assessing the feasibility of different renewable energy projects with potential for development at our campuses.



A group of UNBC faculty, students, and staff who participated in Bike to Work week 2012.



Dr. George Iwama, UNBC's President, hosting his monthly sustainability and energy discussion group "Green Coffee with George".

- Developing a plan to improve our compost program at the PG campus, including a research study where the volume of organic waste generated at the student residences was calculated.

- Hosting the "Experimenting with Sustainability at UNBC" workshop, in which UNBC faculty discussed the opportunities and challenges of teaching about sustainability from the perspective of different academic disciplines.

- Expanding the recycling and compost programs at the Terrace Campus.

- Dr. George Iwama, UNBC's President, held a monthly "Energy and Sustainability" discussion group to which any member of the UNBC community could attend. This monthly event provided a great opportunity for members of our community to have a conversation with our President about the present and future of energy and sustainability at UNBC and Northern BC.

# Plans to Continue Reducing Greenhouse Gas Emissions 2013-2015

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) behavioral 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:

- Purchasing six electric trucks (Mighty E-Trucks), to be used by parking services and facilities for their operations.
- Assessing the feasibility of wind, solar and other renewable energy sources for use on campus.
- Continuing to enforce the idle-free Policy to address carbon emissions and air quality issues.
- Increase the participation in the car pooling program.
- Expand our current compost program to include the student residences.
- 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 heat recovery options from waste water and sewage from campus.
- Increase our efforts in terms of behavioral campaigns to promote different pro-environmental behaviors, especially in the areas of waste management, transportation and energy consumption.
- Sustainable Communities Demonstration Project: This project will create a low temperature district heating network connecting the EFL, Residences and Daycare with the existing wood pellet heating system. By incorporating local renewable energy into the built environment (student residence buildings) it touches directly on the student experience at UNBC while providing ongoing fuel cost savings. This will increase the utilization of the existing wood pellet heating system, while peak load and back-up heat will be provided from the Bioenergy facility.

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:

- Starting a project through which UNBC students deliver climate change education to grade 10 high school students, thus increasing the level of environmental literacy of youth in our region.
- Encouraging car-pooling to and from campus.
- Engaging in negotiations to establish a U-pass (bus pass) for faculty and staff (one already in place for undergraduate and graduate students).
- Organizing a Farmers' Market on campus. Students, staff and faculty can now shop and eat locally without transportation to and from the downtown market. At the same time, the University Farmers' Market provides education to our community about the seasonality of products that can be grown and consumed in our region, reducing our dependency on products that have a carbon intensive supply chain.
- Representation from UNBC on PG Air. 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.



University Farmers' Market in action!

# University of Northern BC - 2012 Carbon Neutral Action Report

## 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	Steps Taken	Steps Planned	Start Year	End Year
<b>Mobile Fuel Combustion (Fleet and other)</b>					
<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	In 2011 we installed Idle Free BC signage for all campus locations that are prone to idling behavior (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 were approved in 2012.	Continue to organize events to raise awareness about the impacts of idling and promote idle-free behavior.	2009	No End Date (Continuous)
Promote alternatives to fleet vehicle travel where possible (e.g., bicycles, public transit, walking)	In Development	Reviewed car pooling policy and why it was not being utilized by the UNBC community.	Complete new car pooling policy for UNBC in order to promote this practice.	2008	No End Date (Continuous)
<b>Other Mobile Fuel Combustion Actions</b>					
In 2012 UNBC installed one electric charging station in the Prince George Campus. Two additional charging stations will be purchased and installed throughout 2013.	Ongoing/In Progress	In 2012 UNBC installed one electric charging station in the Prince George Campus.	Two additional charging stations will be purchased and installed throughout 2013.	2012	2013
<b>Vehicle fuel efficiency</b>					
Replace vehicles with more fuel-efficient models	Ongoing/In Progress	UNBC purchased a Nissan Leaf in partnership with the Regional District of Fort George, the City of Prince George, and Northern Health Authority. This vehicle was used for several purposes at UNBC between September and November 2012.	We will be purchasing five used electric vehicles (Mighty E-TRuck) from UBC. These will be used by parking and facilities for their operations.	2009	No End Date (Continuous)
Replace larger vehicles with smaller models according to fleet "right-sizing" principles	Ongoing/In Progress	Not this year.	As remaining vehicles expire we replace them with more fuel efficient and when possible smaller vehicles.	2009	No End Date (Continuous)
Perform regular fleet maintenance to improve fuel-efficiency	Ongoing/In Progress	Maintenance is performed on a regular basis on all our fleet vehicles	All vehicles are subject to a monthly performance maintenance program; switched all vehicles to sustainable choice wiper fluid.	2009	No End Date (Continuous)
<b>Stationary Fuel Combustion, Electricity</b>					
<b>Behaviour change program</b>					
Ask staff to unplug electrical equipment or switch off power bars when not in use	Not Yet Evaluated				No End Date (Continuous)
Ask staff to unplug electrical equipment or switch off power bars when not in use	Not Yet Evaluated				No End Date (Continuous)
Provide tips to staff on saving energy in the office while working outside of regular business hours	Not Yet Evaluated				No End Date (Continuous)
Encourage use of stairs instead of elevators	Not Yet Evaluated				No End Date (Continuous)
Provide reminders for turning off lights (e.g., signs, stickers, messages)	Ongoing/In Progress	Stickers were distributed to be posted beside light switches and remind people to turn off the light as they leave their offices.	Review program and distribute stickers to those who do not have them.	2012	No End Date (Continuous)
Promote hot water conservation	Ongoing/In Progress	Signs asking people to keep shower times on the campus showers to less than 3 minutes.	Low Flow showerheads will be purchased and installed during 2013.	2012	2013
<b>IT power management</b>					
Install power management software which shuts down computers outside of regular business hours	In Development	Not in 2012.	UNBC will purchase SCCM software to manage computer sleep and shutdowns.	2013	No End Date (Continuous)
Implement server virtualization	Ongoing/In Progress	IT staff received training on the matter. Three phases for server virtualization were implemented. Phase 1: all thin clients were replaced with zero clients. Phase 2: Remote Desktop replaced by Virtual Desktop Environment (VDI) was developed in order to replace Remote Desktop (STS) and (TTS).	Virtual Desktop Environment (VDI) will be tested. Phase 3: VDI will be implemented in the university's labs.	2011	No End Date (Continuous)

# University of Northern BC - 2012 Carbon Neutral Action Report

<b>Actions Towards Carbon Neutrality</b>					
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	Steps Taken	Steps Planned	Start Year	End Year
Apply auto-sleep settings on computer monitors and CPUs	In Development	Not in 2012.	This will be done once SCCM is operational.	2013	No End Date (Continuous)
Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices as part of a print management strategy	In Development	Not in 2012.	UNBC is planning to remove all personal printers and install multi-functional printers in each area.	2013	No End Date (Continuous)
Replace computers with ENERGY STAR models during regular computer upgrades	Ongoing/In Progress	100% of computers are Energy Star Certified.	Continue to only purchase Energy Star rated computers for campus.	2008	No End Date (Continuous)
<b>Owned buildings</b>					
Establish energy performance baseline for owned buildings	In Development	We developed baselines for the main and regional campuses.	UNBC will develop baselines for each individual building.	2010	No End Date (Continuous)
Register for performance labelling/certification for operations and maintenance of owned buildings (e.g., LEED EB:O&M)	In Development	Not during 2012.	UNBC will be looking into this certification during 2013.	2013	No End Date (Continuous)
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.	Pursuing LEED Platinum certification.	2011	2013
Perform energy retrofits on existing, owned buildings	Ongoing/In Progress	In 2011 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)
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)
<b>Planning/management</b>					
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.	More meters will be installed in the few buildings and areas which do not have them yet.	2010	No End Date (Continuous)
<b>Retrofit details for owned buildings</b>					
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress	UNBC incorporated more building automatization systems. Night-time set-backs of heating and ventilation. Cleaned HVAC coils.	Ongoing optimization of the automatization systems.	2010	No End Date (Continuous)
Upgrade lighting systems during retrofits	Ongoing/In Progress	Most of the campus (lecture theaters, residence buildings) has been upgraded from T-12 to T-8 more energy efficient light tubes.	Complete lighting upgrades.	2010	No End Date (Continuous)
Upgrade/adjust control systems during retrofits	Ongoing/In Progress	Installed motion sensors during some retrofits.	Expand the amount of motion sensors throughout the campus.	2010	No End Date (Continuous)
<b>Supplies (Paper)</b>					
<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 look for innovative ways to use scrap paper.	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	UNBC owns Sharepoint, but it was not functional during 2012.	Sharepoint is meant to be upgraded and made operational.	2011	2013
Use electronic document library for filing common documents	Not Yet Evaluated				No End Date (Continuous)
Switch to an electronic payroll notification system in place of paper pay stubs	Ongoing/In Progress	UNBC uses electronic pay stubs.	UNBC will continue to use electronic pay stubs.	2009	No End Date (Continuous)
<b>Paper Type</b>					
Purchase 30% post-consumer recycled paper	Ongoing/In Progress	All white paper used at UNBC is FSC Certified C001844. But only the	Work towards a purchasing agreement for paper with higher post-	2009	No End Date

## University of Northern BC - 2012 Carbon Neutral Action Report

### 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	Steps Taken	Steps Planned	Start Year	End Year
	Progress	coloured paper used at copy services is 30% recycled paper.	consumer recycled paper content.		(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 recycled paper content.	2010	No End Date (Continuous)
<b>Printer/document settings</b>					
Switch networked printers and photocopiers to automatic double-sided	Ongoing/In Progress	This was done for all library computers during 2012.	Projected to be automated to double-sided printing for all multi-purpose printers located in each area of campus.	2012	2013

# University of Northern BC - 2012 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

Action	Status	Steps Taken	Steps Planned	Start Year	End Year
<b>Business Travel</b>					
<b>Behaviour change program</b>					
Train staff in web-conferencing	Not Yet Evaluated				No End Date (Continuous)
Encourage staff to consider virtual attendance/presentation at events where possible	Ongoing/In Progress	This was done for several events this year, especially those with participants from the regional campuses of UNBC.	Continue to encourage web-conferencing when possible instead of travel.	2009	No End Date (Continuous)
Encourage carpooling to meetings	Ongoing/In Progress	Methods for Greener travel are always encouraged at UNBC.	Better communicate alternatives for green travel.	2008	No End Date (Continuous)
Encourage alternative travel to meetings (e.g., bicycles, public transit, walking)	Ongoing/In Progress	Methods for Greener travel are always encouraged at UNBC. During 2012, a PhD student borrowed UNBC President's hybrid car to travel to Vancouver to receive an award, and by doing so he reduced the carbon footprint of his trip.	Better communicate alternatives for green travel.	2008	No End Date (Continuous)
<b>Policy and budgeting</b>					
Create a low-carbon travel policy or travel reduction goal	Not Yet Evaluated				No End Date (Continuous)
<b>Virtual meeting technology</b>					
Install web-conferencing software (e.g., Live Meeting, Elluminate, etc.)	Ongoing/In Progress	The center for Teaching and Learning uses Elluminate.	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	Several rooms are specifically used for video-conferencing. New portable video conference system introduced to campus.	Encourage use of the new portable video conference system and rooms available. Project to convert a few large conference rooms to hold video-conferencing capabilities.	2010	No End Date (Continuous)
<b>Education, Awareness, and Engagement</b>					
<b>Awards/Recognition</b>					
Establish a sustainability/green awards or recognition program	Ongoing/In Progress	UNBC has a President's Leadership Award for Sustainability. Green Day 2012 hosted a Green Idea challenge, the winner earned a \$1,000 prize.	Continue with UNBC President's Award for Sustainability. During Green Day 2013 there will be a Green Art competition with prizes totalling \$1,000.	2011	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 in areas such as sustainability, energy, food, etc.	Continue to look for opportunities for our staff and faculty to further develop in areas of Green Teaching, Green Research, and Green Living (Energy, waste, food, etc.).	2008	No End Date (Continuous)
Include green options in employee performance measurement system	Not Yet Evaluated				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.	2008	No End Date (Continuous)
Provide education to staff about the conservation of water, energy, and raw materials	Ongoing/In Progress	During 2012 UNBC's President hosted discussions about energy and sustainability. Any member of the UNBC community could take part in this discussions.	Continue to seek ways to educate faculty and staff about conservation.	2012	No End Date (Continuous)
Provide green tips on staff website or in newsletters	Ongoing/In Progress	The UNBC Website has a whole section dedicated to Green initiatives.	We will look into incorporating tips to green office spaces in the website.	2008	No End Date (Continuous)
Provide sustainability education during new staff orientation	Not Yet Evaluated				No End Date (Continuous)
<b>Team-building</b>					
Create Green, Sustainability, Energy Conservation, or Climate Action	Ongoing/In Progress	The UNBC Green University Planning Committee was formed in	Develop absolute emission reduction goals and plans to achieve	2008	No End Date

# University of Northern BC - 2012 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

Action	Status	Steps Taken	Steps Planned	Start Year	End Year
Teams with executive endorsement	Progress	2007, comprised of senior administration and staff, and continues to meet monthly. Carbon Neutral Sub-Committee and Energy subcommittee were formed in 2011.	those goals. Form Energy Sub-Committee and Carbon Neutrality Sub-Committee.		(Continuous)
Provide resources and/or dedicated staff to support teams	Ongoing/In Progress	Specialists in the areas of Sustainability, Energy, Carbon and Green infrastructure are leading most of these subcommittees.	Continue to recruit capable members of the UNBC community to support these action teams.	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 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. Make a team comprised by sustainability champions in each department of UNBC in order for them to share ideas on how to make their departments "Greener".	2009	No End Date (Continuous)
<b>Other Sustainability Actions</b>					
<b>Adaptation to Climate Change</b>					
Assessed whether extreme weather events and/or long term changes in climate will affect the organization's business areas	Not Yet Evaluated				No End Date (Continuous)
Integrated considerations of extreme weather events and/or long term changes in climate into the organization's decision making.	Not Yet Evaluated				No End Date (Continuous)
<b>Building construction, renovation</b>					
Establish a policy to reuse materials where possible and divert construction and demolition debris from landfills and incineration facilities	Ongoing/In Progress	Materials are re-used and construction waste is diverted; formal policy still in development.	Continue to refine practices, while developing formal written policy.	2008	No End Date (Continuous)
Incorporate lifecycle costing into new construction or renovations	Not Yet Evaluated				No End Date (Continuous)
<b>Commuting to and from home</b>					
Introduce telework/work from home policy	Not Yet Evaluated				No End Date (Continuous)
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.	2008	No End Date (Continuous)
Encourage commuting by foot, bicycle, carpool or public transit	Ongoing/In Progress	UNBC encourages all these forms of transportation. All our students have a U-Pass for free transit. The university has reduced parking fees for people who carpool, and we have showers and lockers for those who bike, run or walk to campus. UNBC takes part into bike to work week every year.	Look into improving our carpooling policy. Find additional ways of increasing the number of transit users, as well as bikers, walkers and joggers.	2008	No End Date (Continuous)
Provide shower or locker facilities for staff/students who commute by foot or by bicycle	Ongoing/In Progress	UNBC provides both showers and lockers for staff, faculty, and students who commute by foot or cycling.	Assess whether more showers and lockers are needed.	2011	No End Date (Continuous)
Provide secure bicycle storage	Ongoing/In Progress	There are several areas for cover storage of bikes, plus a secure location under the library building.	We will be incorporating more secure storage space plus bike repair stands.	2008	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.)	Not Yet Evaluated				No End Date (Continuous)
Establish green standards for goods that are replaced infrequently and/or may require capital funds to purchase (e.g., office furniture, carpeting, etc.)	Ongoing/In Progress	Furniture is purchased from Calstone. All the furniture is made from recycled materials and if broken, it goes back to the company to make new furniture. The carpet in the Green University Centre is purchased from Interface, which makes their carpets out of recycled oil products.	Continue looking for opportunities to purchase Green Standard which are replaced infrequently.	2009	No End Date (Continuous)
Implement sustainable purchasing program for cleaning products, disposable paper products and trash bags	Ongoing/In Progress	The contract with the company which does all the cleaning on campus states: "UNBC is Canada's green University and as such	We are committed to constant improvement in our green purchasing practices.	2009	No End Date (Continuous)

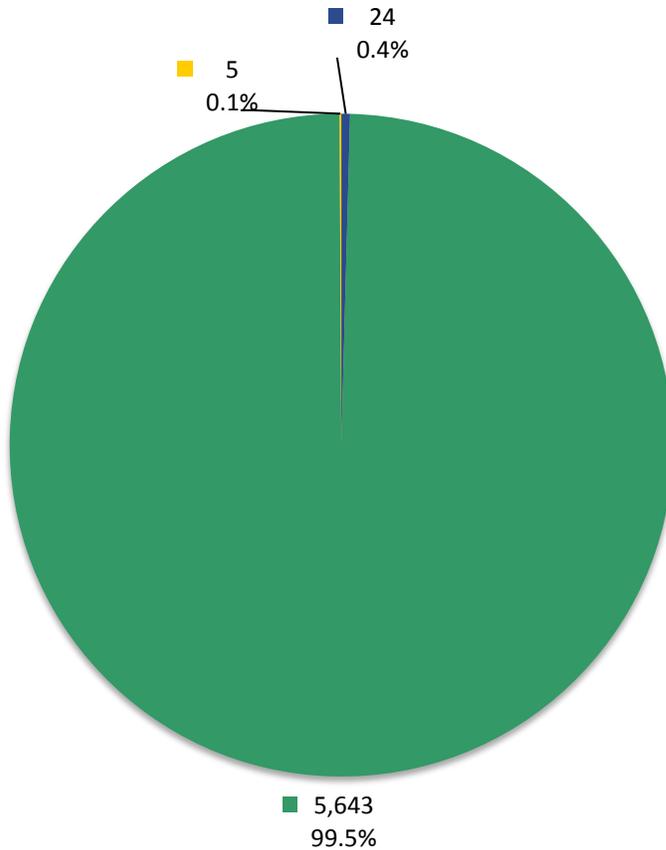
## University of Northern BC - 2012 Carbon Neutral Action Report

### 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

Action	Status	Steps Taken	Steps Planned	Start Year	End Year
		we require that all cleaning products be "green" and have no/low odour content. Paper products should have a recycled content wherever possible"			
<b>Waste reduction/diversion</b>					
Put in place an operations policy to facilitate the reduction and diversion of building occupant waste from landfills or incineration facilities	Ongoing/In Progress	Metal, plastic, paper and cardboard recycling. Continued refinement of the on-campus organics recycling program. Student project to study the volume of compost available from Residences.	Continue existing recycling programs. Look to implement post-consumer organics composting on campus.	2008	No End Date (Continuous)
Implement a hazardous waste reduction and disposal strategy	Ongoing/In Progress	Commenced comprehensive review of hazardous waste reduction and disposal.	Green Grant awarded to develop education module for staff, students and faculty.	2012	2014
<b>Water conservation</b>					
Establish a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models	In Development	No action in 2012.	Will incorporate into new building designs and renovations.	2013	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	Continue program to replace cooling equipment that uses potable water, with other means of cooling.	Continue program to replace cooling equipment that uses potable water, with other means of cooling.	2009	No End Date (Continuous)
Introduce a stormwater management landscape strategy (e.g., vegetated roofs, permeable paving, rain gardens, bioswales)	Ongoing/In Progress	Campus stormwater is collected and treated in on-site detention and settling ponds. Vegetated roofs and bioswales maintained.	Campus stormwater is collected and treated in on-site detention and settling ponds. Vegetated roofs and bioswales maintained.	2008	No End Date (Continuous)

**University of Northern British Columbia  
Greenhouse Gas Emissions by Source  
for the 2012 Calendar Year (tCO<sub>2</sub>e\*)**



**Total Emissions: 5,673**

- 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 2012 (Generated May 27, 2013 11:51 AM)**

Total offsets required: **2,167**. Total offset investment: **\$54,175**. Emissions which do not require offsets: **3,506** \*\*

\*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.