



Sustainability Report [2007-2012]
for the **University of Northern British Columbia (UNBC)**

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CANADA

August 2012



Background

This document is UNBC's first sustainability report. The accomplishments and activities presented here span the years from 2007 to 2012. The report begins with the year 2007 because that was the year in which a series of events firmly tipped UNBC toward sustainability leadership. In July 2007, the Green University Planning Committee (GUPC), a multi-stakeholder advisory body made up of representatives from all sectors of the university community, was established. One month later, UNBC assumed the trademark of "Canada's Green University™".

This first *UNBC Sustainability Report* is a record of the major developments that occurred in the area of sustainability over the past 5 years. These activities span a broad spectrum including improvements in waste management, water and energy conservation, 'green' transportation, carbon emission reductions, 'green' teaching and research, sustainability behavioral campaigns, 'green' operations, and sustainability of administration, campus life, buildings and facilities.

The number and variety of activities and achievements in the area of sustainability during this first five-year interval are a testament to the level of commitment at UNBC to greater sustainability by its vibrant and creative community of faculty, staff and students.

1. CANADA'S GREEN UNIVERSITY

In 2007 we set ourselves on a course towards a more environmentally responsible existence, and with each passing year the need to push forward with these efforts becomes more apparent. On a global scale the cost and finite limit to the fossil fuel reserves, the increased consumption by an exploding middle class, and the effects of climate change, have highlighted the importance of sustainability, developing renewable sources of energy, and our need as a human society to find a better path.

It is often said that UNBC is a community unto itself. We are in fact similar in size to many communities in northern BC, and as such we have an opportunity to offer our location as a working example of sustainable living, in a climate similar to the communities we model. We have equal opportunity to strengthen our ties with the larger community of Prince George through engagement on issues of sustainability and the environment.

Since first declaring ourselves to be Canada's Green University™, UNBC has begun to be recognized for our efforts in sustainability. This is a priority that is articulated in our University Plan. In recent years, and gaining momentum with each passing year, many students, faculty, and staff at UNBC have been active participants in creating a greener, more sustainable university. Although we are still in the early days of our effort to make our campus truly green, our successes have been recognized on several fronts:

- First place for the top campus sustainability project in North America in 2010 by the American Association for Sustainability in Higher Education,
- The Environmental Stewardship award for 2011 from the Clean Energy Association of BC,
- Voted #1 in Canada by students for environmental commitment in 2011, and
- One of Canada's Greenest Employers, 2012.

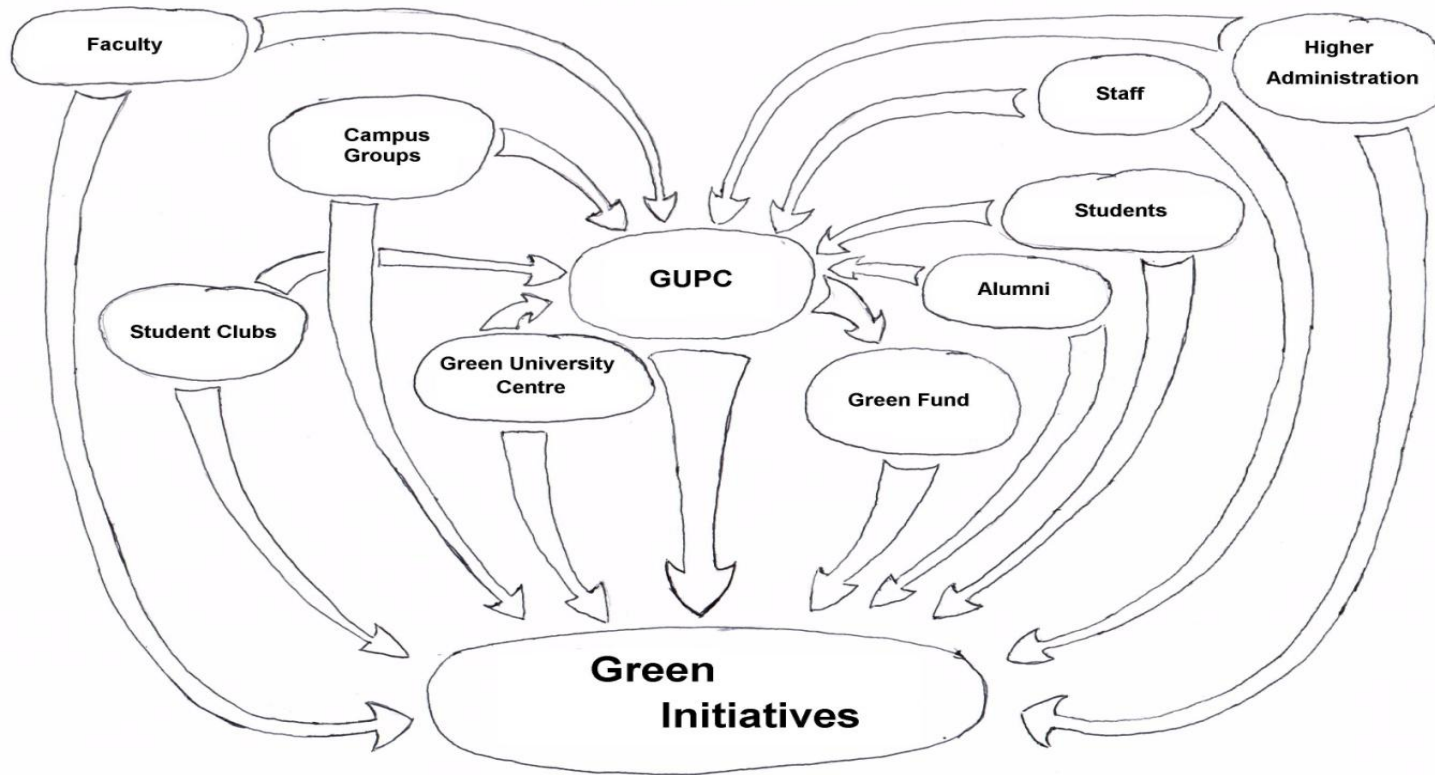
We can take pride as we reflect on the progress made on campus by so many participants in our Green journey, and look forward together to the progress we will make in the years to come.

Dr. George Iwama,
UNBC President and Vice Chancellor.



Dr. George Iwama hosting the monthly event "Green Coffee with George", an hour that UNBC's president destines every month to discussing sustainability issues with members of the UNBC community.

2. How Does Sustainability Happen at UNBC?



¹ "GUPC" stands for Green University Planning Committee

Green University Planning Committee (GUPC)

The Green University Planning Committee (GUPC) was formed in July 2007 to provide a forum for the advancement and implementation of sustainability at UNBC. The GUPC acts as an advisory and policy development body with respect to all initiatives at UNBC that will contribute to the goal of being recognized as Canada's Green University™. The GUPC meets monthly with the aim to:

- Make UNBC a more environmentally, socially and economically sustainable campus, under the guidance of the "UNBC Green Strategy".
- Engender a 'culture of sustainability' in the UNBC community.
- Make the UNBC campuses models of sustainability for communities and organizations in northern British Columbia.
- Improve on our national and international reputation for excellence in teaching and research in the area of sustainability.

The current GUPC membership attempts to reflect the diversity of the UNBC community and includes the following members:

- UNBC President and Vice Chancellor
- VP Academic and Provost
- VP External Relations
- VP Finance
- VP Research
- Facilities Director
- Deans of the College of Arts, Social and Health Sciences (CASHS) and College of Science and Management (CSAM)
- Purchasing, contract and risk management representative

- Faculty representatives from CASHS and CSAM
- Regional campuses representative
- Northern Undergraduate Student Society (NUGSS) representative
- Undergraduate student representative
- UNBC Northern BC Graduate Student Society (NBCGSS) representative
- UNBC Alumni representative
- UNBC Staff representative
- Renewable Energy Academic Advisor
- Prince George Public Interest Research Group (PGPIRG) representative
- UNBC Energy Manager
- Pacific Institute for Climate Solutions (PICS) UNBC Campus Coordinator
- UNBC Sustainability Manager

3. More About *Canada's Green University*TM

Sustainability Reporting



UNBC completed its first Sustainability Tracking, Assessment and Rating System (STARS) report in the summer of 2011. STARS provides a standardized method for assessing, tracking and rating sustainability at academic institutions.

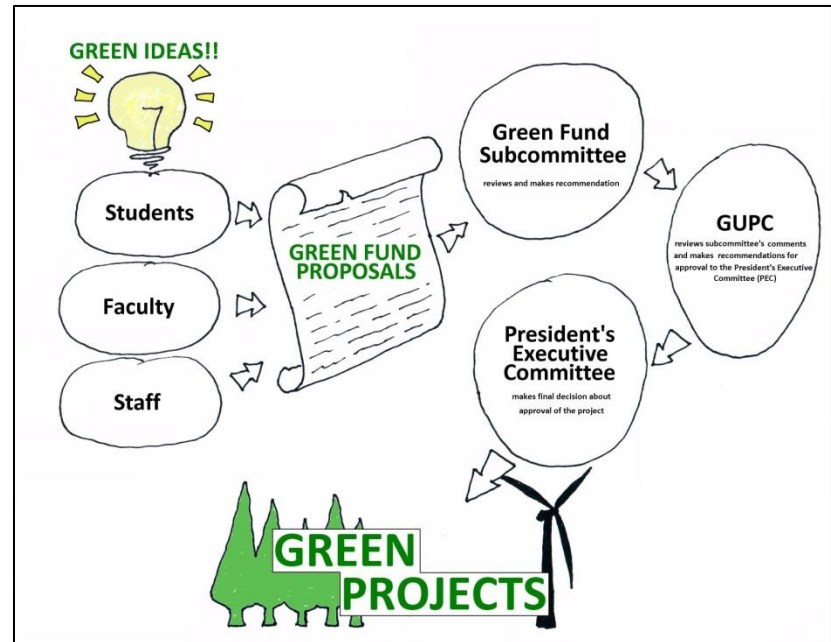
This system assesses sustainability in four distinct areas: Education & Research; Operations; Planning, Administration & Engagement; and Innovation. UNBC achieved a Silver rating in STARS.

STARS data were made public on the AASHE website in August 2011, providing an accessible and comprehensive source of information about sustainability at UNBC. The purpose of this Phase I report is to document the key initiatives taken by UNBC to address the primary objectives and goals identified in the Green University Strategy - Phase I of 2009.

Green Fund

In 2009, a Green Fund was created to fund a sustainability manager position at UNBC and to provide Green Grants for sustainability initiatives. The money comes from a levy on parking fees – itself an attempt to encourage the use of alternative (non-automobile) transportation to and from the campus. All members of the UNBC community - students, faculty, and staff – can submit project proposals to the green fund.

Between May 2010 and August 2012, there have been seven Green Fund proposal intakes; three every year since the first intake in May 2010. In all, 39 proposals have been submitted to date, with 11 being successful and receiving funds for their implementation.



Successful Green Fund Projects to date are:

1. *Prince George Public Interest Research Group (PGPIRG) and UNBC Compost Program:* The PGPIRG-UNBC compost program (est. 1995) is a critical component of sustainable waste management and student engagement at UNBC. This project involved 1) purchasing new compost collection receptacles to match the campus recycling bins, 2) purchasing a large hopper for temporary indoor storage of compostable material and 3) building eight external composting bins made from “Pinecrete”, a UNBC invention that makes use of waste wood (Completed May 2011).



2. *UNBC Sustainable Residence Community Project:* This project implemented a Student Residence Building recycling program and incorporated green programming into residence life. Specifically, the Green Fund grant was used to purchase in-suite recycling receptacles and support a comprehensive educational campaign, including two students hired as Green Residence Assistants (Green RAs). (Completed July 2011)

3. *Thirsty Moose Pub LED Lighting Retrofit:* NUGSS and The Thirsty Moose Pub replaced nearly all of the



incandescent lighting in the Pub with ‘dimnable’ LED lighting. This retrofit has reduced the Pub’s energy consumption for lighting by up to 90%. Demonstrating sustainable practices in a student space will continue to promote a culture of sustainability at UNBC. (Completed August 2011)

4. *Greening UNBC Nursing Labs:* This project proposed to provide a lab waste management education module to all healthcare students by developing a lab learning module and initiating plastics and paper recycling in nursing labs, where none currently exists. This project involves three regional campuses (PG, Terrace and Quesnel) working together to enhance sustainable waste management in UNBC Nursing labs, and to educate and promote waste reduction among UNBC Nursing professionals. (In-progress)

5. *Establishing a Vision for the UNBC-PGPIRG Compost Program:* This project responded to the need for developing a more comprehensive composting program at UNBC. By bringing together various stakeholders in a one-day workshop, this project: 1) developed a set of recommendations and identified sources of funding for expanding the compost program at UNBC, and 2) identified opportunities for research and teaching around this topic. (Completed December 2011)

6. *UNBC Wind Energy Potential:* This project addressed the primary goal of The University Plan, 2010 “to be a leader in renewable energy”. This project 1) quantified wind profile data and 2) identified the best candidate sustainable energy sources and technologies for the UNBC campus. (Completed September 2011)

7. *Electric Vehicle*: In partnership with the City of Prince George, BC Northern Health, and the Fraser-Fort George Regional District, UNBC is purchasing an electric vehicle that will be shared by these four institutions. Each organization will have access to the car for three months every year starting September 2012 and will appraise the practicality of electric vehicle use in Prince George. (In-progress)

8. *SGU-NUGSS Geodesic Dome Greenhouse*: The student club, Students for a Green University, will build a Geodesic Dome Greenhouse in September 2012 which will enable them to grow food locally for an extended period



of time throughout the year. By doing so, UNBC students will be closing the loop on organic waste production by using UNBC compost to grow produce for the student run UNBC pub. (In-progress)

9. *Eco-Childcare Audit and Action report*: The UNBC childcare centre will be undertaking an audit of their facilities and operations to make them more environmentally friendly. The audit will start in September 2012. (In-progress)



10. *Campus Food Strategy Group Conference*: The Campus Food Strategy

Group is organizing a series of conferences to bring together representatives from different universities to develop Campus Food Strategies that promote both food security and sustainability in the life cycle of food consumed in the Canadian campuses. The UNBC Green Fund will financially support part of the expenditures of UNBC's student representative to attend one of the Campus Food Strategy Conferences.

11. *University Farmers' Market Website Design and Marketing*: After a successful first year of operations, the University Farmer's Market decided to improve its communications by reconstructing its website and by helping vendors target their products better to a University audience. Two student positions will be funded to fill these needs: a website designer and a marketing student.

Green University Centre

The Green University Centre (GUC) at UNBC was officially opened in March 2011. The UNBC GUC hosts three full-time employees who work on different aspects of sustainability on campus and in the broader BC communities of the north: the UNBC Energy Manager, the UNBC PICS Campus Coordinator, and the UNBC Sustainability Manager.

The GUC has become a hub for sustainability information and activity on campus. Its central location (just off of the Wintergarden) facilitates interaction with all members of the UNBC

community. The three employees of the GUC work to further sustainability by promoting projects that help the university:

- improve its waste management;
- reduce water and energy consumption;
- reduce greenhouse gas emissions;
- promote environmentally friendly behavior across the UNBC community;
- promote a culture of sustainability.

In March 2012, two LCD monitors were installed outside of the Green University Centre to display sustainability initiatives and activities occurring at UNBC. In April 2012 the GUC started a recycling program for batteries, printer cartridges, and cell phones.

Annual Green Day

'Green Day' events have been held once a year during the winter semester since 2007 to communicate what *Canada's Green University*TM 'is about' to the UNBC community, UNBC alumni and off-campus communities and institutions of central and northern BC. It has become an ever more popular event each year; engaging (and we believe inspiring) the communities that we are a part of through a sharing of ideas and information, helping us all to become a part of the solution for long-term sustainability. Annual Green Days at UNBC, facilitated by a Green Day Subcommittee of the GUPC, are now a permanent and growing piece of the green knowledge puzzle at UNBC.

4. Green Teaching

Environmental and sustainability education is at the core of our mission. Coursework with environmental content is present in almost every academic program at UNBC. The proportion of students enrolled in one of the 21 academic programs which have a focus on sustainability at UNBC is about 20 times that of the national average. The STARS report lists 202 courses with sustainability content.

Other Green Teaching projects included:

- A 'Green Teaching' workshop was held during the UNBC Teaching and Learning conference (September 2010). UNBC faculty, staff and students attended training at Sustainability Education Across the Province (SEAP) workshops in May of 2010 and 2011. UNBC will be hosting a SEAP transformative education workshop in Fall, 2012.
- In order to better assess sustainability related teaching at UNBC, a Green Teaching Subcommittee was created in May of 2011. This sub-committee compiled a list of sustainability-focused and -related courses for the Sustainability Tracking Assessment and Rating System report.
- 31 faculty participating in the goBeyond climate change teaching program, in which faculty dedicated a portion of their class time to talk and/or discuss about climate change.

5. Green Research

UNBC has earned a solid reputation for research relating to the environment and sustainability over its two decades of operation.

At UNBC we defined sustainability in research as a concept that addresses the human relationship to the environment, a relationship that has multiple dimensions. To qualify for inclusion as sustainability research at UNBC, the research must tackle the human relationship to the environment in one or more of its multiple dimensions. Sustainability research seeks to improve human and ecological well-being and as such is generally solutions oriented.

- Academic programs with sustainability research**
- Anthropology
 - Business
 - Economics
 - Ecosystem Science and Management
 - English
 - Environmental Science and Engineering
 - First Nations Studies
 - Geography
 - Health and Human Science
 - History
 - International Studies
 - Outdoor Recreation and Tourism
 - Political Science
 - Psychology

Faculty from at least 15 different academic programs have been involved in sustainability related research at UNBC. The STARS report identified 56 different faculty members who, during 2010/2011, conducted sustainability oriented research.

The UNBC Green Fund encourages sustainability-related research at the University. The following are examples of peer-reviewed publications that have resulted from this funding:

Smyth D, Fredeen AL, Wilkening K. Sustainability at *Canada's Green University*TM: The Greening of the University of Northern British Columbia. The International Journal of Environmental, Cultural, Economic and Social Sustainability (*in press*, 6/12)

Smyth D, Fredeen AL, Booth A. 2010. Reducing solid waste in higher education: the first step towards 'greening' a university campus. Resources, Conservation and Recycling. 54: 1007-1016.

Smyth DP, Fredeen AL, Booth A. 2009. Waste management and sustainability at 'Canada's Green University'TM. Ch.11, *In Sustainability at Universities - Opportunities, Challenges and Trends 2009* (ed. WH Filho). Peter Lang Publishing. Berlin. pp.133-152.

Future institutional support in both funding and documenting of 'Green Research' at UNBC will ensure that this valuable sector of the institutional enterprise continues to grow into the future.

Research Leadership in Sustainability

UNBC is very proud to be a partner in the Canada Research Chairs Program, intended to ensure that Canadian research and development is globally competitive. It is the objective of the federal government to help universities become centres of leading-

edge research and research training. To assist in accomplishing these aims, research professorships—Canada Research Chairs—have been established in universities across the country. Currently, a majority of CRCs at UNBC are conducting research that relates directly to sustainability of northern ecosystems and/or communities. Ultimately,

UNBC is also honored to host a BC Leadership Chair, as well as a number of Forest Renewal BC Endowed Chairs, and the Ian McTaggart Cowan Muskwa-Kechika Research Professor. The holders of these research chairs contribute to UNBC's success as a research-intensive university, but also ensure that our northern environments, resources and ecosystems will provide for generations of Canadians in the future.

6. Green Living

The Student Residences

The student residences house over 500 students. The habits developed during a student's time living in the on-campus student residences can potentially remain with them for the rest of their life. Therefore, promoting sustainable lifestyles in the student's households is of utmost importance. Some of the initiatives started since 2007 in the student residences include:

- The residence recycling program has been greatly expanded and two Green RAs have been employed since 2009.
- Student Housing named their 2010 theme "Clean and Green".
- T12 fluorescent lighting was replaced with T8 lighting at the Student Residences hallways. The outdoor, suite, and common area lighting were upgraded. The changes in the Student Residences lighting is anticipated to reduce electrical consumption by 265,000 kWh per year. This represents a 66% reduction in electrical consumption for lighting.
- In June 2012 two UNBC faculty were funded to quantify the volume of organic waste which is produced by the student residences. This research is part of the long term strategy to upgrade the compost facilities and compost collection system at UNBC.

Food

Food is becoming a topic of growing interest across the UNBC community. Some of the latest developments in the sustainable food systems are:

- Since the Fall 2011 semester, UNBC has hosted a University Farmer's market (UFM). The UFM has become an easy and accessible way for the university community to access locally grown foods and crafted products.
- Local Food days were held in 2010 and 2011. For the 2012/2013 academic year two local food days are being planned.
- The PG PIRG Garden employs two undergraduate students during the spring and summer semesters to grow local fruits and vegetables to be consumed by the UNBC community.
- A Geodesic Dome Greenhouse project proposed by NUGSS and 'Students for a Green University' has been granted funding from the Green Fund, Pacific Institute for Climate Solutions and Integris Credit Union. The Geodesic Dome Greenhouse will be constructed in September 2012.
- A Food Subcommittee of the Green University Planning Committee was created in May 2012 with the purpose of furthering the efforts around food security and local food production, as well as to coordinate the activities developed by the different campus groups working on food issues.

Transportation

In its Green University Strategy – Phase 1, UNBC identified the need to reduce the number of cars, particularly single-occupant vehicles, used to transport UNBC employees, students and visitors to and from the campus every day. Annual Green Day vehicle counts have been made by the UNBC SGU since 2008 and highlight the high number of single occupancy vehicles used to get to and from the campus. Efforts to reduce UNBC's commuter and business travel environmental impacts has resulted in the following:

- outfitting of several new video teleconference rooms. This helps reduce the need for traveling to conferences and lectures.
- Implementing a U-Pass program in which students receive unlimited access to public transit. The U-Pass is paid from mandatory fees levied on all students. This program was voted in by both Undergraduate and Graduate students in 2008.
- Encouraged biking (as well as walking and jogging). For this purpose, showers have been built in two of our buildings, while sheltered storage for bikes is provided at different locations around the Prince George Campus.

7. Buildings and Facilities

Our Buildings

The Green Strategy, Phase 1 identified the need to ensure all future UNBC buildings meet and exceed the LEED Gold standard. The only building built since that date is the Bioenergy facility, which is pursuing LEED Gold certification.

The UNBC Masterplan (2008) identifies UNBC's preference to showcase wood and local building materials for the design of its buildings.

Energy

Since 2009 UNBC has made significant efforts to reduce its energy consumption. Some of the initiatives taken include:

- The 2010 University Plan, which identifies leadership in renewable energy as one of its most important and ambitious goals.
- An Energy Audit was completed by MCW Custom Energy Solutions in May 2009.
- An Energy Manager was hired in June 2010 to explore additional opportunities for renewable energy and reduced consumption.
- A Wind Energy Feasibility study was developed and completed in the fall of 2011.

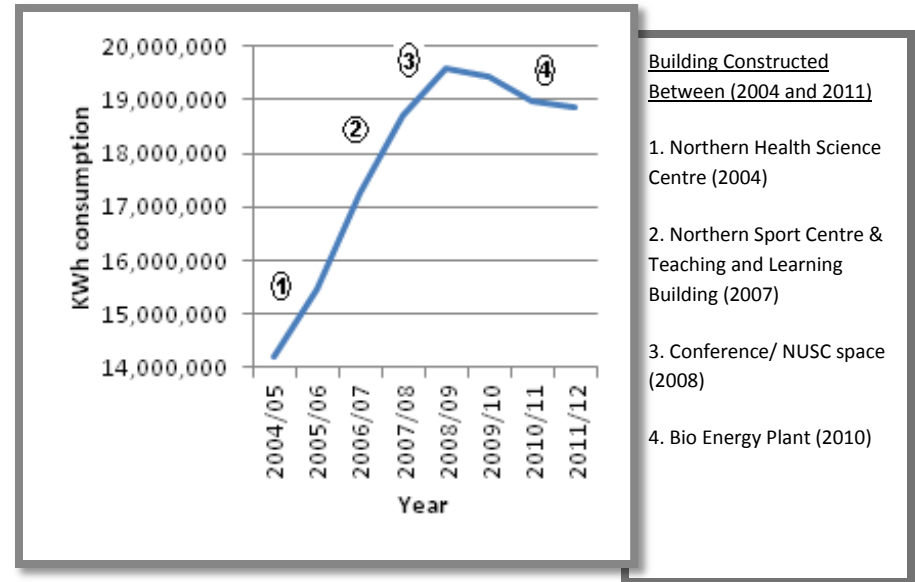


Figure 1. Electricity Consumption by Year and Buildings Built Between 2004 and 2012

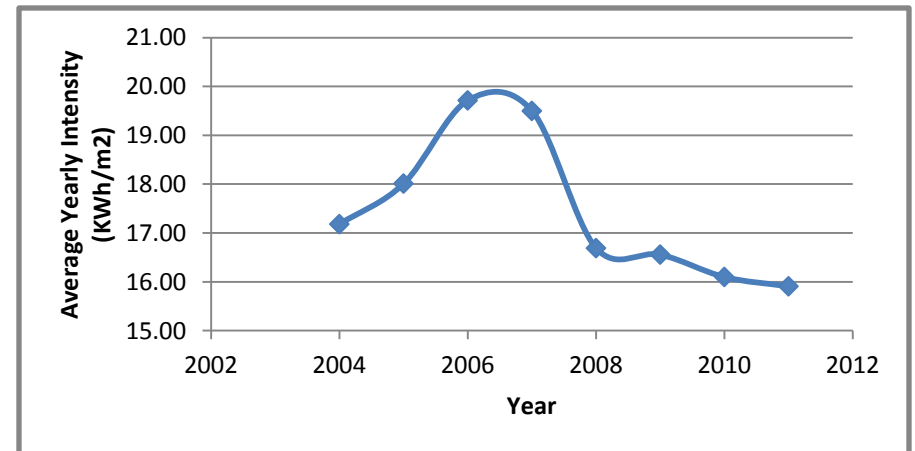


Figure 2. Average Electricity Intensity (kWh/m² of campus floor space)

- Replaced incandescent lighting with LED at the NUSC Event Space.
- A daylight sensor was installed in 2011 so that the atrium lighting can be turned off during daylight hours.
- T12 fluorescent lighting was replaced with T8 lighting at the Terrace Regional campus and at the Student Residences. The change in the Student Residences lighting is anticipated to reduce electrical consumption by 265,000 kWh per year. This is a 66% reduction in electrical consumption for this lighting.
- UNBC installed submeters for gas, electricity, heat, cooling, and domestic water.
- Incandescent lighting was replaced with LED lighting in the Prince George campus lecture theaters. These upgrades will see a 47% increase in light levels and an 85% reduction in energy consumption.
- Fans were installed for the projection booths in the Medical building to take advantage of free cooling during the night.
- The new Green University Center offices are equipped with LED lighting.
- Winter Garden lights were converted to Hi-Bay LED.
- The Thirsty Moose pub replaced its halogen and incandescent lighting with LED (See Green Fund Projects for more information).
- Electrical vault cooling equipment was replaced in the Administration building on September 2011. This system uses cool outdoor air rather than air-conditioning indoor air to keep the high voltage electrical gear cool through most of the year.

- UNBC installed highly efficient LED lights to showcase student art exhibits

The number of buildings and the total floor space of the buildings at the UNBC campuses increased significantly between 2004 and 2012 (66.251 m² in 2004, 98.826 m² in 2012). The additional 32.575 m² of floor space added in recent years explains the increased consumption of electricity and gas. Nevertheless, thanks to electricity reduction initiatives undertaken in the last five years, UNBC has decreased its energy consumption intensity (see Figure 2), indicating that the consumption of electricity per m² of floor space in all campuses has been significantly reduced.

Bioenergy

Bioenergy has become part of UNBC's identity. We have two bioenergy systems: a wood pellet system and the biomass gasification system.

Wood Pellet Project

In the spring of 2009, UNBC installed Canada's first university-owned wood pellet heating system. The project showcases the use of bioenergy as a sustainable, carbon-neutral energy source. With much higher energy efficiency than the previous fossil fuel-based heating system, this project has resulted in a savings of 140 tonnes CO₂e/year.

One of the project goals was to monitor and mitigate the stack emissions so as not to exacerbate Prince George's air quality problems. Third party emission tests revealed that the system produces particulate emissions at the same level as natural gas. Beyond its operational function, the facility serves as a valuable demonstration site for public education, with more than 700 political leaders, industry officials, and community residents visiting during the first year alone. This has shown Bioenergy to be an attractive alternative heating system in Canada's more than 650 forestry-reliant communities.

Biomass Gasification System

UNBC 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 reducing natural gas consumption by over 85%. 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.

Carbon Emissions Reductions

Since 2007, the year in which UNBC announced its commitment to be Canada's Green University, and in preparation for Carbon

Neutrality in the year 2010, UNBC has undertaken a variety of key actions with regards to reducing greenhouse gas emissions (GHG).

Greenhouse Gas Emissions:

In 2010, UNBC produced a total of 5,655.25 tonnes of "CO₂ equivalent" (CO₂e) from all sources covered by the province's Greenhouse Gas Reduction Targets Act. In order to become carbon neutral for 2010, UNBC purchased a total of \$142,175 worth of emissions offsets. Some of the actions taken to reduce Greenhouse Gas Emissions in 2010 were:

- Completed construction of the Bioenergy Plant
- Hired an Energy Manager to plan and implement energy efficiency projects
- Implemented energy retrofits around the campus (see energy section)
- Installed a high efficiency hot water boiler on the Terrace campus
- Purchased natural gas, electricity and water metering for all buildings located on the Prince George Campus
- Purchased SharePoint 2010 for filling documents electronically.

In 2011, UNBC produced a total of 3,508 tonnes of CO₂e from non-renewable sources, a 38% reduction from 2010 emissions. 2,349 tonnes of emissions still result from biomass use but offsets are not required for these emissions. The CO₂ released to the atmosphere during combustion of biomass is assumed to be the same quantity that is absorbed from the atmosphere during plant growth. For this reason, biomass is often considered "carbon neutral". The

Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories specify the separate reporting of CO₂ emissions from biomass combustion. In order to become carbon neutral for 2011, UNBC purchased a total of \$87,775 worth of emissions offsets, a \$54,400 financial savings to the university compared to its 2010 offset purchase.

Actions taken to reduce greenhouse gas emissions in 2011 include:

- 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
- Establishing a Carbon Neutral Sub-Committee of the GUPC in 2011 to establish reduction goals and identify reduction projects.
- Hosting a weekly farmers market on campus, allowing students living on campus to purchase food products without the need to commute to a supermarket.
- 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.
- Implementing energy retrofits throughout the campus (see energy section).

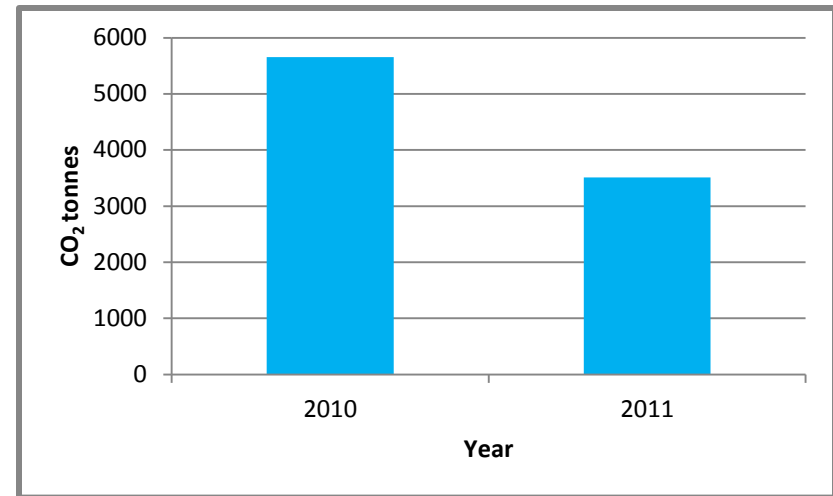


Figure 3. CO₂ emissions by year since UNBC became carbon neutral and began operating an on-campus bioenergy plant in 2011. Note that carbon neutrality is attained through the purchase of C-offsets.

A large amount of the CO₂ emissions reductions achieved in 2011 were accomplished thanks to the opening of the Bioenergy plant. The bioenergy facility started its operations in November 2010 but did not become fully functional until May 2011. Therefore, if we take into consideration that the Bioenergy facility will be fully operational throughout the whole year in 2012, we can expect further significant reductions in CO₂e emissions to be achieved.

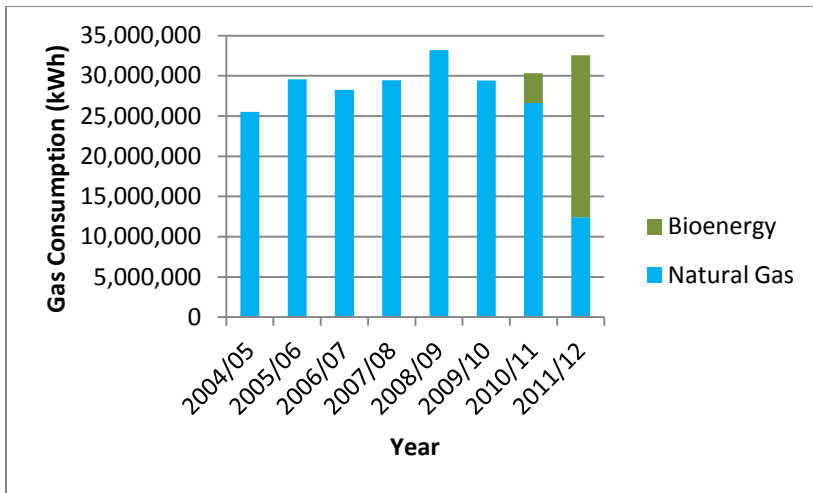


Figure 4. Heating demand by year at UNBC.

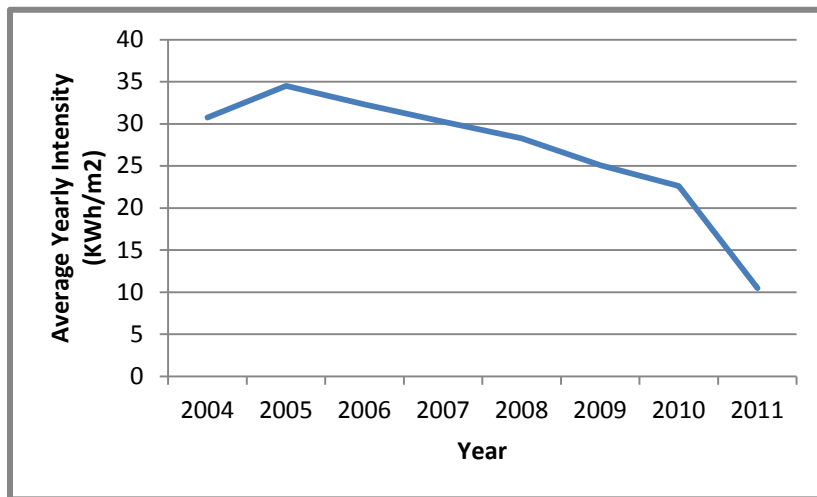


Figure 5. Average yearly intensity of Natural Gas consumed at UNBC (gas consumed per m² of campus buildings)

Figure 4 shows the gas consumption of UNBC, which is one of our biggest sources of GHG emissions. The Syn gas, or synthetic gas, is produced at the Bioenergy facility and is considered carbon neutral. Therefore, even though our total gas consumption stayed somewhat constant, the percentage of gas consumed that is considered a greenhouse gas was significantly reduced since 2010. Even more, the average intensity of natural gas (gas consumed per m² of surface of the buildings at the UNBC campuses) was reduced by two thirds between 2004 and 2012.

Water

Water is a precious resource for humanity and ecosystems; therefore, it is our responsibility to reduce water consumption whenever possible. The most significant reduction in water consumption was achieved with the upgrading of some of the chillers around campus.

The upgrade of the chiller in the Administration building reduced the campus water consumption by 11,000 m³ per year. This system uses cool outdoor air rather than air-conditioning indoor air to keep the high voltage electrical gear cool through most of the year. Other chillers have been upgraded in a similar fashion all over campus. The reductions in water consumption achieved at UNBC are, to a great extent, due to these upgrades.

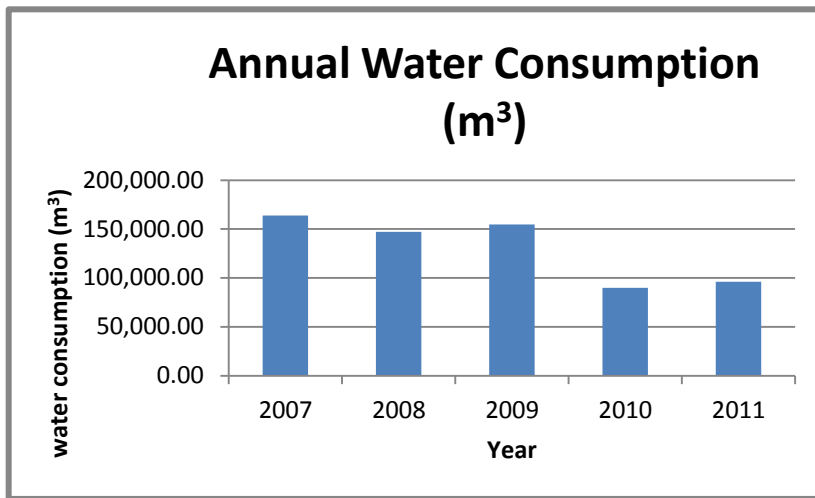


Figure 6. Water consumption by year at UNBC.

In order to promote responsible consumption of water, a water fountain was installed at the Green University Centre. In addition, water spouts were added to existing campus water fountains to facilitate filling of reusable water bottles.

Waste Management

The Green University Strategy, drafted in 2009, identified the need for UNBC to reduce its waste, and to recycle as much of the waste that could not be reduced. Since 2009, a large number of initiatives were undertaken to reduce the amount of waste produced by UNBC which ends up in a landfill. These initiatives include:

- PGPIRG's Compost Program received Green Fund grants to expand its efforts.

- PGPIRG received an addition grant to plan and host a 1-day visioning session for the fall 2011 to evaluate and recommend options for handling UNBC's compost waste stream.
- Retrofitted all old grey recycling bins to streamline acceptable materials with the new bins.
- Redistributed bins to cover a wider range of campus locations.
- Added plastics, glass and tin recycling.
- Expanded recycling to Residence and the Northern Sports Centre (NSC).
- A recycling program for batteries, light bulbs, printer cartridges and cell phones started at the Green University Centre in 2012.
- Facilities recycles fluorescent lamps. They extract the mercury and separate it from other materials so that the lamps can be recycled.
- UNBC is committed to purchasing lamps with low mercury content.
- Facilities collects and recycles metals and large batteries.
- Green RA's provide education and awareness about responsible waste management in the student residences.
- Events such as Bottled Water Free Day promote awareness of waste issues (e.g Bottled Water Free Day).
- The Registrar's Office has pledged to develop an all-electronic system for applications. This will help reduce paper consumption.

- Facilities Department purchased a cardboard baler to increase efficiency and decrease the environmental impact associated with recycling pick-up.
- The School of Nursing was awarded a Green Fund grant for a lab waste management project.
- UNBC is currently investigating the potential for duplex printing strategies in the library (i.e. charging less for double-sided printing).
- UNBC acquired new paper to be used for official UNBC letterhead, envelopes, and some promotional materials. The new UNBC paper is comprised of 17% fiber from Canfor Pulp's Northwood pulp mill in Prince George and 83% post-consumer recycled content.
- Public photocopiers default to duplex.

The Next Five Years...

UNBC is a relatively young university, one that only opened its doors on its main campus in 1994, and only five years old as *Canada's Green University*[™], but already a wealth of projects have been undertaken. Community members are committed to playing a part to create a culture of sustainability at UNBC. We're a work in progress – but our creativity, energy and enthusiasm for green continues to grow.