

Carbon Neutral Action Report University of Northern British Columbia

Executive Summary

UNBC intends to be British Columbia's model for green energy and the first university in Canada to implement major power plant measures to become carbon neutral and operate on renewable energy. UNBC is uniquely positioned to join with governments, communities, the private sector, First Nations, and our educational partners to develop local solutions to these challenges by integrating campus operations, education, and research on a single site. UNBC is proposing a bioenergy program that will reduce greenhouse gas emissions and fossil fuel consumption on the Prince George campus. The program will help the University meet its current and future energy needs, reduce or eliminate our greenhouse gas footprint, and reduce energy costs while contributing to R & D, training, student/public education and the development of bioenergy projects and demonstration opportunities for northern communities.

Part 1: Actions Taken to Reduce Greenhouse Gas Emissions in 2008

Overview:

The University of Northern British Columbia has been implementing initiatives that make the institute's buildings and overall operation more efficient for many years. A constant consideration to the impact of choices in our operating activities has formed an ongoing culture for improvements in sustainability.

1.1 Mobile Fuel Combustion

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Replaced # of TYPE OF VEHICLE with MORE EFFICIENT VEHICLE/Hybrid	In Progress	Measured gas usage	1. Polaris Ranger VS Dodge Van. 2.Reduced fleet by one pick-up truck and purchased a UTV for campus landscaping, snow clearing and people movement.
Initiated new fleet maintenance program (could include changing filters, checking tire pressure, regular check-ups)	In Progress		Tire checks, and vehicle checks are done each day on fleet vehicles
Established anti-idling behaviour change program (e.g. signs, stickers, messages)	Complete	Signage posted campus wide, receiving dock	
Encouraged use of public transit/active transportation	Complete	Measure parking revenue from 2007	Transit pass for ugrad & grad students. Between November 2007 and November 2008 transit ridership increased by 12.6% due in large part to the introduction of the UNBC U-Pass.
Adopted a travel policy	In Progress	Measure % of staff following policy	Exclusive agent for travel, will track

1.2 Stationary fuel combustion and electricity

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Replaced # computers with EnergyStar models	In Progress	Approximately 1200 machines over 4 years	Replacing computers (CPU's and Monitors) with EnergyStar models (CPU and LCD's) under 4 year capital replacement cycle
Replaced Refrigerators (EnergyStar rated appliance)	In Progress	Replaced as needed	EnergyStar rated language now part of tender process
Replaced other appliances (with EnergyStar rated appliance)	Complete	Cafeteria Dishwasher	EnergyStar rating part of tender specification.
Installed multi-function devices (and removed stand-alone printers/faxes)	In Progress	Multifunction devices installed throughout campus	Replacement of printers, fax, and photocopiers with multi-function Xerox units, resulting in reduction of consumables and energy
Replaced standard bulbs with CFLs	In Progress	Reduce energy consumption & labour	
Undertaken lighting retrofit	In Progress	Reduce energy consumption & labour	
Implemented server virtualization	In Progress	Reduction of 80 physical servers to 5 physical servers.	Utilization of VMWare on five large servers, currently migrating services
Utilized desk-top power management settings on computer	In Progress		Standard Windows/Linux defaults are used to enable Monitors/LCD to sleep
Initiated corporate computer shut-down/wake-up for maintenance	In Progress		Bi-annual University power shutdown
Unplugged unused equipment	In Progress		Removal of legacy computer and monitors that are no longer in service
Undertaken building energy audit at LOCATION(s)	In Progress		PG CAMPUS - BC Hydro funded - tendered in 2008
Initiated or completed a building energy retrofit	In Progress	1. Wintergarden Lighting retrofit - 2400W to 700W 2. Cafeteria Lighting retrofit - 3800W to 608W	Lighting Efficiency Projects
Variable Speed drive upgrade	In Progress	Electrical consumption reduction - estimated 25% reduction on 5hp and 20 hp motors	Variable Speed Drives ordered for pumps. Agora 303 and EFL
Boiler efficiency adjustments	In Progress	1 % to 3% reduction in natural gas usage - up to 2520 GJ reduction in consumption per annum	Boiler burner efficiency adjustments completed annually
Enhanced Forestry Building - Biomass Project	In Progress	2500 GJ natural gas reduction expected	Use Bio-mass from wood to heat building - start-up May 2009
Bio-fuel as alternate fuel in Power Plant	In Progress	Reduced CO ₂ e	Explore using Bio-Diesel in the plant boilers in lieu of fuel oil. The plant now uses natural gas as the primary fuel and fuel oil as a stand-by fuel for heating. We are looking at using Bio-Diesel in lieu of Diesel produced from carbon sources.

1.3 Supplies			
Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Committed to use 30% recycled paper	In progress	Investigating with paper company	Cost analysis being done
Initiated automatic double sided printing	In Progress	Record # of duplex printing and copying	Default on multifunctional devices
Used collaborative software to edit on-line	In Progress	Reduction in paper consumption	Utilization of Learning Management Systems and recent Microsoft SharePoint for online collaboration
Re-used non-confidential scrap paper	In Progress	Print shop makes scratch pads	Pilot departments, now rolling out campus wide
Restructured a process to use less paper	In Progress	On-line reconciliation of procurement card	
Actions on non-paper related supplies:			
Purchased cradle to cradle goods	In Progress	Computers, workstations	
Chose "Green" items from Distribution Centre	Complete	Increased the volume of recycled supplies available for resale in stores.	
Encouraged re-use of furniture and equipment	Complete	Record # of furniture items leaving campus for sale or disposal	Surplus used first procedure
	Complete	Store digital copies of Bookstore reading packages	All master copies of bookstore reading packages will be stored digitally starting September 2008.
1.4 Travel			
Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Set a X% Travel reduction goal			
Trained staff in the use of Live Meeting (or other desktop collaborative software)	In Progress	Reduction in travel requirements	Utilization of products such as Elluminate, Live Meeting, and Glance have reduced travel requirements for faculty, students, and staff
Installed Video Conferencing facilities	Completed	Installation of 4 VC facilities	Installation of classroom style VC facilities at main and regional campuses. VC facilities for meetings and instruction has reduced travel and delivered on distributed learning initiatives
Mandated car pooling to government meetings	In Progress		
1.5 Employee Engagement			
Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Held contests/support to generate ideas	Complete	Priorities identified for on-going planning of green initiatives	UNBC's first Green Day was organized by students as part of a class project and held on March 20. Very successful.
Developed Green Teams	In Progress		
Supported Green Teams (resources)	In Progress		
PCRM Department Meetings	Complete	Portion of meeting devoted to green initiatives 15 staff	Challenge for at home and in office ideas
	Complete	Expanded the BYOC (bring your own cup) pricing to include full beverage line.	

1.6 Sustainability Actions (others)

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Took water conservation measures – low flow showers or toilets, fix leaks	In Progress		Changed to electronic flush control on urinals and water closets
Ran dishwasher only when full	In Progress		Use of low flow dishwashers
Reduced/replaced bottled water with filtered or refrigerated water			
Improved recycling measures	In Progress	Expect 25% reduction in waste removal volume/cost	New recycling program - working with contractors
Supported composting	In Progress	Expect 10% reduction in waste removal costs	Student composting organization
Used re-usable dishes	In Progress	Reduce disposable smallwares,	Efforts in Food Service to encourage use of china and not disposable. Our catering serves all china.
Purchased green cleaning products	Completed		Recycled bags and environ-cleaning supplies mandatory for Janitorial contractor. Food Service contractor uses phosphate-free chemicals
Supported sustainable procurement practices	In Progress	Record vendors that do not comply	Standard RFP & Tender language in criteria
Adopted low-carbon contracting practices			
Bookstore	In Progress	Expand product lines that have sustainable features.	To include fabrics, dyes, socially responsible vendors and products that encourage less waste.

Part 2: Plans to Continue Reducing Greenhouse Gas Emissions 2009 -- 2011

Overview:

The University of Northern BC is in the planning stage of building a 15 MMBTU Bio-Mass Heating Plant. The intent of the project is to displace approximately 80,000 GJ of natural gas consumption per year. The project is expected to reduce GHG by approximately 3500 tons of CO₂e. The GUC has been engaged in the process of developing a "Green University Strategy" since September 2008. On March 9, 2009 we hired a Pacific Institute for Climate Solutions (PICS) Campus Coordinator, to work full-time on climate changes issues and solutions at UNBC and the North.

2.1 Mobile Fuel Combustion

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Replace # of TYPE OF VEHICLE with MORE EFFICIENT VEHICLE/Hybrid	In Progress	Researching hybrid research vehicles	Purchase energy efficient vehicles to replace exiting.	
Provide driver training to reduce fuel use	Planned		Training Program	
Initiate new fleet maintenance program (could include – changing filters, checking tire pressure, regular check-ups)	Planned		Expand Fleet Maintenance Program	
Establish anti-idling behaviour change program (e.g. signs, stickers, messages)	Planned		Procedures for Anti-Idling of University vehicles to be instituted.	
Encourage use of public transit/active transportation	In Progress	Increase in parking fees	Monitor rentals and revenue to go to supporting green initiatives. Student U-Pass.	

Encourage alternatives to travel in fleet vehicles – bicycles, scooters, electric carts	Planned		Expand use of alternate transportation devices
Employee/Student carpool program	In Progress	40 dedicated stalls	Will monitor participation
Proposal to raise parking fees	In Progress	Will monitor parking revenue	

2.2 Stationary Fuel Combustion (including electricity)

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Replace # computers with EnergyStar models	Planned		4 year capital replacement cycle	Continuous
Turn off lights in unused rooms	In Progress	Decreased electricity costs	Explore increasing Controls system to incorporate variable time requirements	
Replace Refrigerators (EnergyStar rated appliance)	In Progress	Residence and dept kitchen replacements	EnergyStar high rated spec in tenders	
Replace other appliances (with EnergyStar rated appliance)	In Progress	Residence ovens, washers, dryers	EnergyStar high rated spec in tenders	
Install multi-function devices (and remove stand-alone printers/faxes)	In progress		Continual replacement/installation of Xerox multifunction units for fax, printing, and photocopying	Continuous
Replace standard bulbs with CFLs	In Progress			
Undertake lighting retrofit	in progress	Decreased electricity costs	Implement Energy Study recommendation where viable	
Implement server virtualization	Planned		Increased server requirements resulting in the creation of new VM's on exiting VM server farm	Continuous
Utilize desk-top power management settings on computer	Planned		Identify university wide power management settings and implement through central policies	12 months
Initiate corporate computer shut-down/wake-up for maintenance	In progress		Bi-annual University power shutdown	Continuous
Unplug unused equipment	In progress		Removal of legacy computer and monitors that are no longer in service	Continuous
Apply for LEED existing building rating	Planned		Explore Leed Certification - existing buildings	
Undertake building energy audit at LOCATION(s)	In Progress		1. Quesnel River Research Centre (Likely) 2. Prince George Campus	
Initiate or complete a building energy retrofit	Planned		Complete energy audit recommendations	

2.3 Supplies

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Develop document library (online and one printed copy) for large documents	Planned		Creation of online document library and collaboration space	18 months
Re-use non-confidential scrap paper	In Progress	Measure # of bags in recycle room	Rollout Campus wide	
Use laptops/tablets	In Progress		Replacement of desktops with laptops to reduce the number of computer systems purchased	Continuous
Restructure a process to use less paper	In Progress	Measure use of PO paper	Reduce printing of purchase orders	
Actions on non-paper related supplies:				

Purchase cradle to cradle goods	In Progress	Measure # of vendors offering this feature	Make this part of spec for tendering
Encourage re-use of furniture and equipment	In Progress		
	Complete	Cost savings and waste reduction	All plastic shopping bags will be pulled from the cash desk, with reusable bags available at a nominal cost.

2.4 Travel

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Train staff in the use of Live Meeting (or other desktop collaborative software)	In Progress		Training more users on the usage of online collaboration tools for the reduction of meeting travel	Continuous
Install Video Conferencing facilities	Planned		Creation of additional and expanded VC facilities to enable distributed learning	24 months
Initiate Travel Policy	In Progress	Number of Green Hotels booked and Hybrid vehicles rented	Advising our Travel arrangers to choose Green hotels and Hybrid vehicle rentals where available.	
Bike racks	In Progress	Count bikes in racks for 6 month period	Install more bike racks	
Parking stalls for motorbikes, scooters	In Progress	Count # of stalls rented	Reserve stalls for motorbikes /scooters	

2.5 Sustainability Actions (others)

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Take water conservation measures – low flow showers or toilets, fix leaks	Planned		Expand use of low flow devices into residences and on Master Plan for future buildings.	
Reduce/replace bottled water with filtered or refrigerated water	Planned		Specified in all new buildings	
Improve recycling measures	in progress	Less garbage, more recycled material	Install interior recycle bins throughout campus	
Support composting	In Progress			
Purchase green cleaning products	In Progress		Mandatory in Janitorial contracts	
Use green (low-e paints)	Planned		Change to low-e paints	
Support sustainable procurement practices	in progress	Sustainability language in all tenders and RFPs		
Reverse Vending Machines	In Progress	Measure qty of bottles/cans in recycle room	Installation of Reverse vending machines	
Installation of Exterior Recycle Bins	In Progress	Measure amount picked up	Install exterior recycle stations	

ADD ANY ADDITIONAL ACTIONS TAKEN OR PLANNED IN THE ROWS BELOW. PLEASE INDICATE WHICH SECTION THE ACTION BELONGS IN BY INCLUDING THE NUMBER E.G. 2.6 SUSTAINABILITY	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
2009	Planned	Continue to expand product lines that support sustainability.		
	Planned	Evaluate work processes for sustainability improvements.		