

Northern Lights College

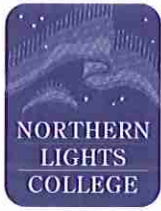
2010 Carbon Neutral Action Report



CENTRE FOR CLEAN ENERGY AND TECHNOLOGY (CECET)



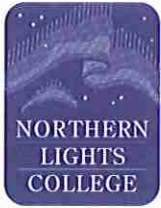
HEALTH & SCIENCES



Northern Lights College 2010 Carbon Neutral Action Report



FORT NELSON CAMPUS



Northern Lights College

2010 Carbon Neutral Action Report

Executive Summary

Northern Lights College, 'BC's Energy College', currently teaches a number of trades and apprenticeship programs and short courses related to energy efficiency. Northern Lights College (NLC) completed 95% building the Centre for Clean Energy Technology (CECET) which is an initiative to build an innovative teaching-learning building in which NLC will provide skilled training for the renewable energy industry. The benefit of the CECET is the promotion of green building design and environmental sustainability. Built to the highest environmental standards (LEED Platinum), CECET will showcase the latest "off the grid" technology for electricity production, solar and geothermal heating, and water conservation.

Community outreach and public education is a major component of CECET. An open design provides access to the heating and mechanical facilities will provide students and local residents with a first-hand look at renewable energy technology.

Overviews

Actions Taken to Reduce Greenhouse Gas Emissions in 2010

NLC has taken many steps to reduce energy consumption, which also reduces greenhouse gas emissions and help achieve carbon neutrality.

- The new CECET building,
- Houses a bio-mass boiler, which will reduce the amount of natural gas consumed in the Main Campus Centre building;
- Geothermal exchange system, which is the building's main source of heat and cooling;
- Solar hot water panels to heat domestic hot water;
- Rain water harvesting system for non-potable portion of the building, eg. flushing toilets;
- Built with various sustainable/low emission materials to meet LEEDS requirements;
- Installed photovoltaic panels to supply building with electricity, but it is also a training component for students.
- Installed natural ventilation (manually controlled opening windows and cross ventilation in good weather), and efficient/natural lighting that is a major lighting source for the building;
- Installed natural landscaping requiring minimal maintenance and irrigation to save on energy;
- Occupancy controls for lighting;
- Low flush toilets and energy efficient appliances;
- Energy management control system;

- Power monitoring devices including sensors, meters and software as well as interfacing with mechanical systems;
- Graphic displays annunciators installed in the equipment room for information and educational purposes;
- Best practices commissioning (hired an independent commissioning authority to review the design to confirm measurements and verifications of CECET);
- Purchased Green Power, which provides at least 50% of the building's regulated electricity from renewable sources.
- Maintained a Green Team Committee.
- Workshops scheduled to promote awareness through the Green Team Committee.
- Additional recycle bins were added to all campus locations.
- Paperless meetings, all meetings are being held when possible via video conference to reduce travel costs and pollution.
- Carpooling has been encouraged between campuses.
- Working with BC Hydro to hire an Energy Manager
- Started an extensive fleet evaluation.

2010 Greenhouse Gas Emissions

As per SmartTool reporting our total direct emissions for 2010 is 2,269.72.

Offset Applied to Become Carbon Neutral in 2010

Our total direct offsets have been applied to become carbon neutral for 2010 (2,267.5).

Plans to Continue Reducing Greenhouse Gas Emissions 2011 – 2013

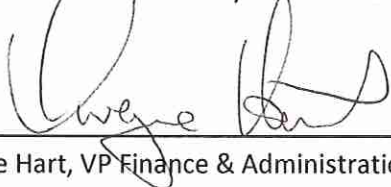
NLC entered into a two-year contract for Green Power for the CECET building. This will reduce our carbon emissions by an estimated 132 metric tons.

As outlined in the Carbon Neutral Action Report -Actions Towards Carbon Neutral, we will continue to work towards our goals as outlined.

Work with the Energy Manager to establish a sustainability plan for all campuses. This will enable us to establish projects that are affordable to help reduce our carbon footprint.

Implemented new electronic form systems in order to reduce our paper consumption.

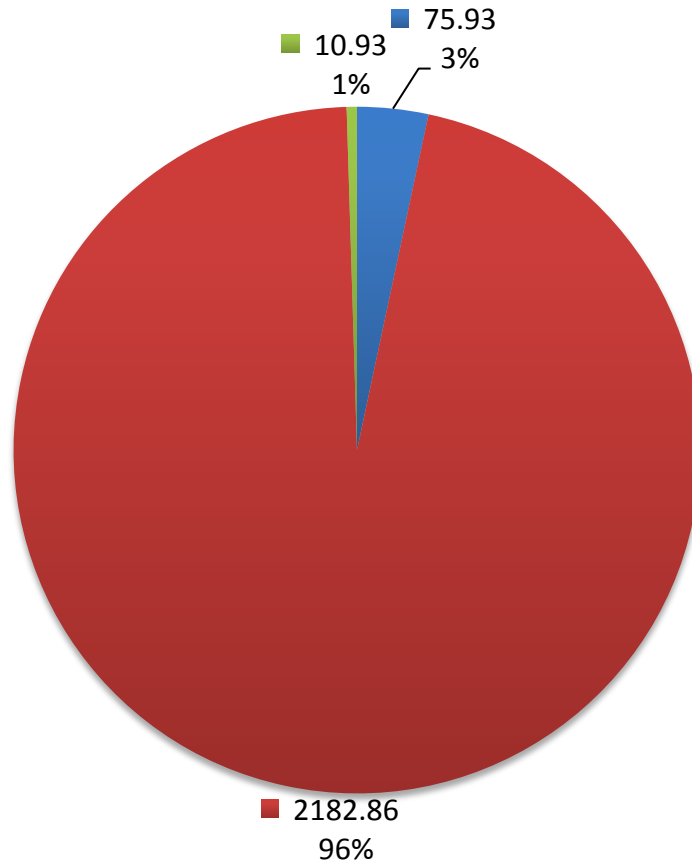
It is important to Northern Lights College to become carbon neutral. It is also important to note that the cost to become carbon neutral may be unachievable due to budget restraints.



Dwayne Hart, VP Finance & Administration

JUNE 20, 2011
Date

Northern Lights College Greenhouse Gas Emissions by Source for the 2010 Calendar Year (tCO₂e*)



Total Emissions: 2269.72

- Mobile Fuel Combustion (Fleet and other mobile equipment)
- Stationary Fuel Combustion and Electricity (Buildings)
- Supplies (Paper)

Offsets Applied to Become Carbon Neutral in 2010

Total offsets purchased: **2267.5**. Total offset investment: **\$56,687.50**. Emissions which do not require offsets: **2.22** **

*Tonnes of carbon dioxide equivalent (tCO₂e) is a standard unit of measure in which all types greenhouse gas are expressed based on their global warming potential relative to carbon dioxide.

** Under the *Carbon Government Neutral 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.

Northern Lights College - 2010 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 (as of 12/31/10)	Performance to Date (as of 12/31/10)	Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Mobile Fuel Combustion (Fleet and other mobile equipment)						
Vehicle fuel efficiency						
Replace vehicles with more fuel-efficient models	In Development	0 % of vehicles are fuel- efficient models	None, due to budget restraints	Will try and replace three vehicles with more efficient models in 2011	2011	No End Date (Continuous)
Replace larger vehicles with smaller models according to fleet "right-sizing" principles	In Development	0 % of vehicles down-sized since start year indicated	College plan is to replace 2-3 vehicles with more fuel efficient models.	We will replace existing vehicles with fuel efficient models	2011	No End Date (Continuous)
Perform regular fleet maintenance to improve fuel-efficiency	Ongoing/In Progress	100 % of vehicles are subject to regular maintenance for fuel efficiency	All vehicles are regularly serviced every 5,000 km.	Use synthetic oil in the winter time. All vehicles will be regularly serviced every 5,000 km	1999	No End Date (Continuous)
Replace small maintenance vehicles with more fuel-efficient models	In Development	0 % of small maintenance vehicles are fuel-efficient	None, due to budget restraints	Considering an electric vehicle for maintenance department	2011	No End Date (Continuous)
Behaviour change program						
Introduce anti-idling policy and/or raise anti-idling awareness for fleet drivers (e.g., signs, stickers, messages)	Ongoing/In Progress		None	Expand signage	2008	No End Date (Continuous)
Encourage carpooling in fleet vehicles	Ongoing/In Progress		Encourage carpooling	Encourage campus-to-campus carpooling, through emails and vehicle bookings	2007	No End Date (Continuous)
Stationary Fuel Combustion, Electricity and Fugitive Emissions (Buildings)						
Owned buildings						
Establish energy performance baseline for owned buildings	In Development	65 % of owned buildings have an established energy performance baseline		Difficult to establish energy performance baseline for each building as we have one meter for multiple buildings. We would like to have individual metering for natural gas and hydro, but this is dependent on funding.	2011	No End Date (Continuous)
Achieve LEED NC Gold certification at a minimum for new construction or major renovations	In Development	0 % of owned buildings are certified LEED NC Gold or LEED NC Platinum	Centre for Clean Energy Technology (CECET) currently under construction. We are trying to achieve LEEDS Platinum	Obtain LEEDS Platinum Certification	2010	2011
Incorporate integrated design process into new construction or during renovations of owned buildings	In Development	0 % of buildings built or renovated since start year indicated used the integrated design process	Health Science building renovations and CECET (Energy House) new construction	Energy House completed May 2011	2010	2011
Complete energy retrofits on existing, owned buildings	Ongoing/In Progress	80 % of owned buildings have undergone energy retrofits since start year indicated	Science Building renovation upgrades	Boiler replacements, lighting upgrades	1999	No End Date (Continuous)
Retrofitting owned buildings						

Northern Lights College - 2010 Carbon Neutral Action Report

Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)		Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress	35	% of retrofits since start year indicated had heating, cooling, and ventilation systems upgrades	Science Building renovation upgrades	Will replace boilers in Chetwynd and Fort Nelson if funding is available.	2000	No End Date (Continuous)
Upgrade lighting systems during retrofits	Ongoing/In Progress	100	% of retrofits since start year indicated had lighting systems upgrades	Upgraded Science Building	Will replace lighting systems as renovations are undertaken	1997	No End Date (Continuous)
Upgrade/adjust control systems during retrofits	Ongoing/In Progress			Upgraded Science Building and Energy House (CECET)	Will replace reliable controls as renovations are undertaken	1999	No End Date (Continuous)
Improve building insulation (including windows) during retrofits	Ongoing/In Progress	100	% of retrofits since start year indicated had insulation improvements	Upgrade Science Building	Will continue as renovations are undertaken	2009	No End Date (Continuous)
Install an on-site renewable energy demonstration project	Ongoing/In Progress	100	% of retrofits since start year indicated had on-site renewable energy components	Centre for Clean Energy Technology (CECET) ongoing construction and is a renewable energy demonstration facility	Construction will be completed 2011	2009	2011
IT power management							
Replace computers with ENERGY STAR models during regular computer upgrades	Ongoing/In Progress	100	% of computers are ENERGY STAR rated	As needed, replacement models will be Energy Star models	As needed, replacement models will be Energy Star models.	2009	No End Date (Continuous)
Appliances and electronic devices							
Replace refrigerators with ENERGY STAR models or source ENERGY STAR models for future purchases	Ongoing/In Progress	80	% of fridges are ENERGY STAR rated	No purchases	As needed, replacement models will be 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			We purchase only Energy Star appliances	As needed, replacement models will be Energy Star models.	2009	No End Date (Continuous)
Behaviour change program							
Help staff reduce personal energy use through "workstation tune-ups"	In Development	0	% of current staff have completed a workstation tune-up		Work with Green Team Committee to implement work station tune-ups.	2011	No End Date (Continuous)
Ask staff to unplug electrical equipment or switch off power bars when not in use	Ongoing/In Progress			Email reminders	Continue to communicate energy savings to our staff by including information on NLC website	2011	No End Date (Continuous)
Ask staff to close blinds at end of work day to reduce heating/cooling demands	Ongoing/In Progress			Email reminders	Continue to communicate energy savings to our staff by including information on NLC website	2010	No End Date (Continuous)
Encourage staff to use air dry setting on dishwashers	Ongoing/In Progress			Email reminders	Continue to communicate energy savings to our staff by including information on NLC website	2010	No End Date (Continuous)
Provide tips to staff on saving energy in the office while working outside of regular business hours	Ongoing/In Progress			Email reminders	Continue to communicate energy savings to our staff by including information on NLC website	2010	No End Date (Continuous)
Encourage use of stairs instead of elevators	Ongoing/In Progress			Email reminders	Continue to communicate energy savings to our staff by including information on NLC website	2010	No End Date (Continuous)
Provide reminders for turning off lights (e.g., signs, stickers, messages)	Ongoing/In Progress			Email reminders	Continue to communicate energy savings to our staff by including information on NLC website	2010	No End Date (Continuous)

Northern Lights College - 2010 Carbon Neutral Action Report

Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)		Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Promote hot water conservation	Ongoing/In Progress			Email reminders	Continue to communicate energy savings to our staff by including information on NLC website	2010	No End Date (Continuous)
Supplies (Paper)							
Paper Type							
Purchase 30% post-consumer recycled paper	Ongoing/In Progress	7	% of total paper purchased contains 30% recycled content	We are having difficulty with our existing printers handling recyclable paper, therefore research is being conducted on recycled paper that will be compatible with our existing equipment	Retendering our printer/fax contract and hope to have equipment that will be able to use 30-100% recycled paper	2011	No End Date (Continuous)
Printer/document settings							
Switch networked printers and photocopiers to automatic double-sided	In Development	30	% of network printers or photocopiers are set to automatic double-sided		Once we establish a new contract for printers/faxes we will program them to automatically print double-sided	2011	No End Date (Continuous)
Apply "print and hold" settings to networked printers to eliminate unclaimed print jobs	In Development	25	% of network printers have 'print and hold' settings applied		Once we establish a new contract for printers/faxes we will program them to automatically print double-sided	2011	No End Date (Continuous)
Electronic media in place of paper							
Install collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	In Development	0	% of staff workstations with software installed		Implement datatels portal (Sharepoint)	2012	No End Date (Continuous)
Use electronic document library for filing common documents	In Development				Implement datatels portal (Sharepoint)	2012	No End Date (Continuous)
Post materials online that were previously printed	In Development				Posted Leave Forms, Purchase Orders, Local Purchase Orders	2011	No End Date (Continuous)
Behaviour change program							
Train staff to use collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	In Development	2	% of staff currently have received collaborative software training		Ongoing staff training	2010	No End Date (Continuous)
Encourage staff to hold paperless meetings or presentations (i.e., no handouts)	Ongoing/In Progress			Majority of meetings are paperless	Continue to encourage paperless meetings	2010	No End Date (Continuous)
Encourage re-use of scrap paper	Ongoing/In Progress			Continued to encourage re-use of scrap paper	Continue to encourage re-use of scrap paper	2010	No End Date (Continuous)