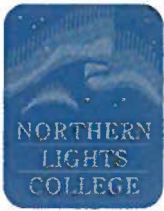




Northern Lights College 2011 Carbon Neutral Action Report



Centre for Clean Energy Technology (CECET)



Northern Lights College

2011 Carbon Neutral Action Report

Executive Summary

- NLC has hired an Energy Manger to establish priority projects to reduce our energy consumption over the next two years.
- Prepare a *Sustainability Plan* for the institution which utilizes the results of the Energy Audit and BC Government Smart Tool.
- Develop through partnerships with municipalities and other interested parties, *Clean Energy Cluster Proposals*.
- Progress to full utilization of Energy House and utilize energy produced by clean energy technologies to reduce carbon footprint of the Dawson Creek Campus.
- Integrate the Green Team (Climate Action Task Team) recommendations into business practices of Northern Lights College.
- 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 building the Centre for Clean Energy Technology (CECET) June 2011, 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. We currently offer the Wind Turbine Maintenance Technician program, which explores the theory supporting wind turbines and the practical maintenance procedures required to maintain turbine output.

Overviews

Actions Taken to Reduce Greenhouse Gas Emissions in 2011

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

- In partnership with School District 59, hired an Energy Manager to establish priority projects to reduce our energy consumption,
- 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.
- Started an extensive fleet evaluation.

2011 Greenhouse Gas Emissions

As per SmartTool reporting our total direct emissions for 2011 is (1,578).

Offset Applied to Become Carbon Neutral in 2011

Our total direct offsets have been applied to become carbon neutral for 2011 (1573).

Changes to Greenhouse Gas Emissions and Offsets Reporting from Previous Years

The surplus of offsets purchased in 2010 has been applied against our 2011 emissions (-481.50).

Actions Taken to Reduce Greenhouse Gas Emissions in 2011

- Hired an Energy Manager to establish a list of priority projects to reduce our GHG emissions.
- Establish a budget associated with implementing energy saving projects.
- Began installation of parking lot controllers (IPLC).

Plans to Continue Reducing Greenhouse Gas Emissions 2012 – 2014

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.

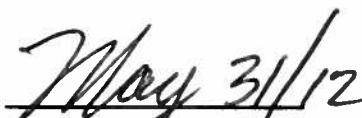
NLC entered into a two-year contract for Green Power for the CECET building. This will reduce our carbon emissions by an estimated 132 metric tons.

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

Implemented new electronic form systems in order to reduce our paper consumption (e.g. payroll using Webadvisor).

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.


Murray Armstrong, Director of Facilities


Date

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Actions Towards Carbon Neutrality

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

Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)	Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
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	vehicle budget transferred to programming equipment budget	currently budgeted for three new vehicles	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	hoping to replace three vehicles	will replace existing vehicles with better fuel efficient models	2012	No End Date (Continuous)
Perform regular fleet maintenance specifically to improve fuel-efficiency	Ongoing/In Progress	100 % of vehicles are subject to regular maintenance for fuel efficiency	all Fleet vehicles are service on a regular basis.	service every 5000 km	Started before 1995	No End Date (Continuous)
Replace small maintenance vehicles with more fuel-efficient models	In Development	0 % of small maintenance vehicles are fuel-efficient	no funding available	will purchase a hybrid vehicle for the maintenance department when funding becomes available.	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		posted signage	expand signage try and force idle free areas	2008	No End Date (Continuous)
Encourage carpooling in fleet vehicles	Ongoing/In Progress		encourage carpooling	encourage carpooling between all campuses e-mails and vehicle booking sheet.	2007	No End Date (Continuous)
Stationary Fuel Combustion, Electricity and Fugitive Emissions (Buildings)						
Planning/management						
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	Ongoing/In Progress	2 % of buildings have a real time metering system installed	CECET building has real time metering	no plans at this time for more real time metering	2011	No End Date (Continuous)
Owned buildings						
Establish energy performance baseline for owned buildings	In Development		Working with Energy Manager	continue to establish performance baseline for all building .	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	completedthe construction of the Center for Clean Energy Technology building	Will submit application for Leeds platinum status 2012	2010	2013
Incorporate integrated design process into new construction or during renovations of owned buildings	Ongoing/In Progress	2 % of buildings built or renovated since start year indicated used the integrated design process	Center for Clean Energy Technology / IT renovations	will continue to use integrated design on all new construction and renovation	2010	No End Date (Continuous)
Perform energy retrofits on existing, owned buildings	Ongoing/In Progress	2 % of owned buildings have undergone energy retrofits since start year indicated	IT renovations	currently in the planning process to establish projects	1998	No End Date (Continuous)
Retrofitting owned buildings						

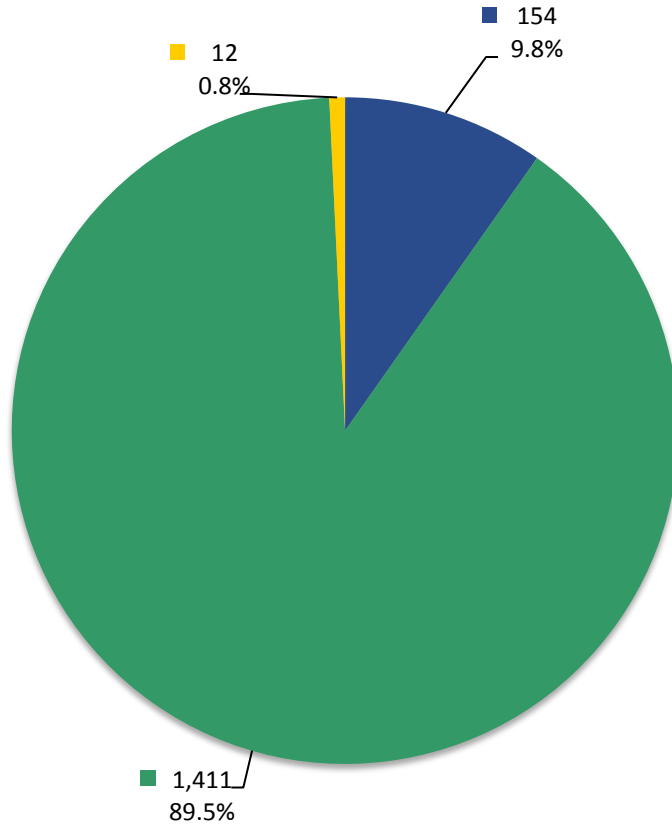
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Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)		Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress	100	% of retrofits since start year indicated had heating, cooling, and ventilation systems upgrades	IT renovations	Currently in the planning process	1999	No End Date (Continuous)
Upgrade lighting systems during retrofits	Ongoing/In Progress	100	% of retrofits since start year indicated had lighting systems upgrades	IT renovations	continue to upgrade lighting systems during renovations projects	1997	No End Date (Continuous)
Upgrade/adjust control systems during retrofits	Ongoing/In Progress	100	% of retrofits since start year indicated had control system upgrades or adjustments	Chetwynd Aboriginal Gathering	NLC always upgrades DDC system when doing renovations or retrofits	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	IT renovations	Will include replacement of energy efficient windows and doors on all renovations	2009	No End Date (Continuous)
Install an on-site renewable energy demonstration project	Ongoing/In Progress			Center for Clean Energy Technology	no project plan for 2012	2009	No End Date (Continuous)
IT power management							
Install power management software which shuts down computers outside of regular business hours	Ongoing/In Progress	5	% of computers shut down automatically outside of regular business hours	Purchase of newer machines that enable this automatically	working with energy manager to establish shutdown program. Will configure all capable computers with this feature.	2012	No End Date (Continuous)
Implement server virtualization	In Development	0	% of servers have been virtualized since start year indicated	Developed and released server upgrade RFI	75% server virtualization to be completed	2012	No End Date (Continuous)
Apply auto-sleep settings on computer monitors and CPUs	Ongoing/In Progress	35	% of computers have auto-sleep settings applied	Newer machines have this enabled automatically	Will configure all capable computers with this feature.	2010	No End Date (Continuous)
Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices	Ongoing/In Progress	60	% reduction in printers, copiers, and/or fax machines since start year indicated	Completed refresh and replacement of existing printers.	Planned complete elimination of stand alone printing.	2011	No End Date (Continuous)
Apply auto-sleep settings on printers, copiers, fax machines, and/or multi-function devices	Ongoing/In Progress	85	% of devices have auto-sleep settings applied	Completed refresh and replacement of existing printers.	Review remaining equipment	2012	2013
Replace computers with ENERGY STAR models during regular computer upgrades	Completed in 2011	98	% of computers are ENERGY STAR rated	Replaced most, if not all, non-Energy Star rated computers	Review remaining equipment	2010	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	75	% of fridges are ENERGY STAR rated	NLC purchase only energy Star appliances	as needed replace with energy-efficient Star appliances.	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			NLC only purchases energy Star appliances	continue to use energy Star models	2009	No End Date (Continuous)
Behaviour change program							
Provide reminders for turning off lights (e.g., signs, stickers, messages)	Ongoing/In Progress			informational signage	continue to promote energy conservation	2009	No End Date (Continuous)

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Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)		Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Supplies (Paper)							
Paper Type							
Purchase 30% post-consumer recycled paper	Ongoing/In Progress	30	% of total paper purchased contains 30% recycled content	purchased 30% recycled paper	continue to purchase 30% recycled paper	2011	No End Date (Continuous)
Printer/document settings							
Switch networked printers and photocopiers to automatic double-sided	Ongoing/In Progress	100	% of network printers or photocopiers are set to automatic double-sided	Change to xerox for copiers	continue to use double sided photocopy	2011	No End Date (Continuous)
Apply "print and hold" settings to networked printers to eliminate unclaimed print jobs	Ongoing/In Progress	65	% of network printers have 'print and hold' settings applied	change to xerox for copiers which have the ability print and hold ability.	continue to use the feature print and hold	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		will work towards a collaborative software. Software to be determined	2013	No End Date (Continuous)
Use electronic document library for filing common documents	In Development				continue using library filing for common documents	2011	No End Date (Continuous)
Post materials online that were previously printed	Ongoing/In Progress			post leave forms /purchase orders/	continue to post material on the college website	2011	No End Date (Continuous)
Switch to an electronic payroll notification system in place of paper pay stubs	Ongoing/In Progress			electronic payroll notification system installed	continue to use electronic payroll notification	2011	No End Date (Continuous)
Behaviour change program							
Encourage staff to hold paperless meetings or presentations (i.e., no handouts)	Ongoing/In Progress			Encouraged paperless meetings. Majority of meetings held were paperless	Will continue to encourage paperless meetings.	2010	No End Date (Continuous)
Encourage re-use of scrap paper	Ongoing/In Progress			Encourage re-use of scrap paper.	Will continue to encourage re-use of scrap paper	2010	No End Date (Continuous)

**Northern Lights College
Greenhouse Gas Emissions by Source
for the 2011 Calendar Year (tCO₂e*)**



Total Emissions: 1,578

- Mobile Fuel Combustion (Fleet and other mobile equipment)
- Stationary Fuel Combustion (Building Heating and Generators) and Electricity
- Supplies (Paper)

Offsets Applied to Become Carbon Neutral in 2011 (Generated May 18, 2012 11:12 AM)

Total offsets required: **1,573**. Total offset investment: **\$39,325**. Emissions which do not require offsets: **5** **

*Tonnes of carbon dioxide equivalent (tCO₂e) 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.