

2011 Carbon Neutral Action Report

Executive Summary

Northern Health is pleased to submit our 2011 Carbon Action Neutral Report outlining the actions we have taken to address greenhouse gas emissions in this past year and our plans for the future.

For Northern Health 2011 was a year of implementation of capital projects funded through the provincial government Public Sector Energy Conservation Agreement. This program funded capital work to achieve reductions in energy consumption and greenhouse gas emissions throughout the entire health authority.

Following up on our work which started in 2009, further work was done on efficient heating systems and building control systems at several facilities to reduce natural gas and electrical consumption and the carbon footprint associated with these energy sources.

In addition to buildings, we assessed our needs and opportunities related to Northern Health fleet vehicles and how we could achieve carbon reduction through the use of new fuel efficient vehicles. The results of this assessment resulted in the purchase of right-sized vehicles for purpose and improvement in fuel efficiency.

Recognizing that greenhouse gas reduction can be influenced at all levels, Northern Health engages a broad spectrum of the organization in the effort, from executive commitment to staff level energy awareness. Understanding that employee awareness can influence behaviour away from the workplace, Northern Health developed its internal employee Energy and Environmental Sustainability website which highlights the work being done within NH and provides energy savings tips for everyday life. The website is updated with new stories on a monthly basis.

Ongoing building operational efficiencies are being addressed through the BC Hydro Continuous Optimization program at our major facilities. This program assess how buildings are operated (lighting, heating, ventilation, etc) and how those operations can be modified to improve conditions in the facility while reducing energy consumption.

As we move forward into 2012, we look forward to continuing our efforts to reduce carbon emissions, through ongoing capital projects, staff awareness and operational solutions. Northern Health is committed to sustainable actions and leaving a healthy environment for the future populations of northern British Columbia.

A handwritten signature in black ink, appearing to read "Cathy Ulrich". The signature is fluid and cursive, with a horizontal line underneath the name.

Cathy Ulrich
President and CEO, Northern Health

2011 Greenhouse Gas Emissions

Heating, lighting, ventilation and other building operations necessary to maintain a healthy patient and workplace environment resulted in the emission of 23,539 tonnes of carbon and carbon equivalents into the atmosphere. Paper consumption resulted in an additional release of 359 tonnes of carbon equivalent emissions. Fleet vehicles resulted in an additional release of 812 tonnes of carbon equivalent emissions. In total, Northern Health had a measured carbon total footprint of 24,710 tonnes for the delivery of quality healthcare in the most challenging climate in the Province.

Offsets Applied to Become Carbon Neutral in 2011

Northern Health purchased 24,674 tonnes of carbon offsets to counter the emissions identified above, thereby achieving carbon neutrality in accordance with government legislation.

Thirty-six tonnes CO₂e of emissions resulting from the combustion of bio-fuel were reported as part of our emissions profile in 2011. However, they were not offset as they are considered carbon neutral in accordance with the government carbon accounting.

Emissions Reduction Activities

Northern Health continued its ongoing efforts in 2011 to reduce carbon emissions from its operations. This ongoing effort started in 2008 and will be an ongoing process of continual improvement towards carbon neutrality.

Actions Taken to Reduce Greenhouse Gas Emissions in 2011

In 2011, Northern Health (NH) continued its effort in energy efficiency, carbon reduction and sustainability awareness. Important initiatives in 2011 included, improvements to heating boiler systems, implementation of building automation systems and automation system improvements. All of these efforts will result in the annual reduction of energy consumption and consequently carbon emissions.

On a parallel track, we continued our investigation and evaluation of alternative fuels for heating and fleet vehicles, including participating with community partners in the operation of a fully electric fleet vehicle and the

potential for biomass heating at a rural community hospital. For fleet, we acted upon our previous assessment of right-sizing our fleet for fuel efficiency and replaced older vehicles with smaller, more fuel efficient models. Our first year of the employee energy awareness program was a success and will continue on in 2012. Nine of our largest sites remain enrolled in the BC Hydro Continuous Optimization program as it moves through its 3 year program cycle. Northern Health is an active partner in the BC Hydro Power Smart program.

Plans to Continue Reducing Greenhouse Gas Emissions 2012-2013

At Northern Health we are excited about the future. While recognizing there is a long way to go and a lot of work to do, there is also a growing awareness of what can be done to reduce greenhouse gas emissions. Supporting our efforts are industry advancements in technology and cost-efficiency of environmentally friendly solutions, which we look forward to implementing where appropriate.

Going forward we will continue to improve building systems, including energy-efficient solutions, such as condensing boilers and heat recovery systems. We will undertake new energy audits of our facilities in 2012 to identify more savings opportunities, and we will monitor in “real time” energy consumption at nine of our largest sites.

Our fleet will see a reduction of old, inefficient vehicles removed from service and replaced with modern fuel-efficient vehicles. In addition, Northern Health will participate in a community partnership program to test the effectiveness of fully electric vehicles in a northern climate and how their capabilities might match our needs.

We continue to engage qualified energy specialists within Northern Health to help us achieve our reductions in energy consumption and greenhouse gas emissions.

In 2012 we look forward to the opening of our first LEED Gold facilities: the new Fort St. John Hospital and the new North Peace Residential Care facility. We also look forward to the opening of the Northern Cancer Centre as a LEED Gold facility located on the grounds of the University Hospital of Northern BC in Prince George

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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	Completed in 2011		replaced ineffecient fleet vehicles with more efficient models		2010	2011
Replace larger vehicles with smaller models according to fleet "right-sizing" principles	Completed in 2011		reduced size of vehicles where appropriate for use		2010	2011
Perform regular fleet maintenance specifically to improve fuel-efficiency	Ongoing/In Progress		perform regular maintenance service	continue	2008	No End Date (Continuous)
Behaviour change program						
Promote alternatives to fleet vehicle travel where possible (e.g., bicycles, public transit, walking)	Completed in 2011		Bicycle storage areas provided at several facilities		2009	2011
Stationary Fuel Combustion, Electricity and Fugitive Emissions (Buildings)						
Planning/management						
Reduce office space (square meters) per employee	Ongoing/In Progress		space reduction. Analysis of space needs	continue efforts	2010	No End Date (Continuous)
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	Completed in 2011		installed Pulse gas and electrical meters at 9 major facilities		2010	2011
Owned buildings						
Establish energy performance baseline for owned buildings	Ongoing/In Progress		Through use of Business Intelligence tools, Pulse meters, Continuous Optimization program and efforts by NH Energy Coordinator, energy baselines are being developed for NH sites	continue efforts	2009	No End Date (Continuous)
Achieve LEED NC Gold certification at a minimum for new construction or major renovations	In Development		The New Fort St John Hospital is under construction and will be LEED Gold	Complete construction and certify facility	2008	2012
Incorporate integrated design process into new construction or during renovations of owned buildings	Ongoing/In Progress		Ongoing user group meetings	continue practiceof user group meetings and input	2008	No End Date (Continuous)
Incorporate a refrigerant management strategy into regular building management/maintenance to reduce fugitive emissions	Ongoing/In Progress		Plant maintenance leads are familiar with legislative requirments to capture reffridgerants and monitor equipment for losses	continue efforts	2008	No End Date (Continuous)
Perform energy retrofits on existing, owned buildings	Ongoing/In Progress		undertook and completed buidling automation improvements, boiler improvements and heat recovery projects	additional work involving boilers, heat recovery and buidling systems modifications	2008	2012
Retrofitting owned buildings						
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress		undertook and completed buidling automation improvements, boiler improvements and heat recovery projects	additional work involving boilers, heat recovery and buidling systems modifications	2009	2012
Upgrade/adjust control systems during retrofits	Ongoing/In Progress		completed control system upgrades	additional control system work planned under the BC Hydro Continuous Optimization program currently in place at NH	2009	2013

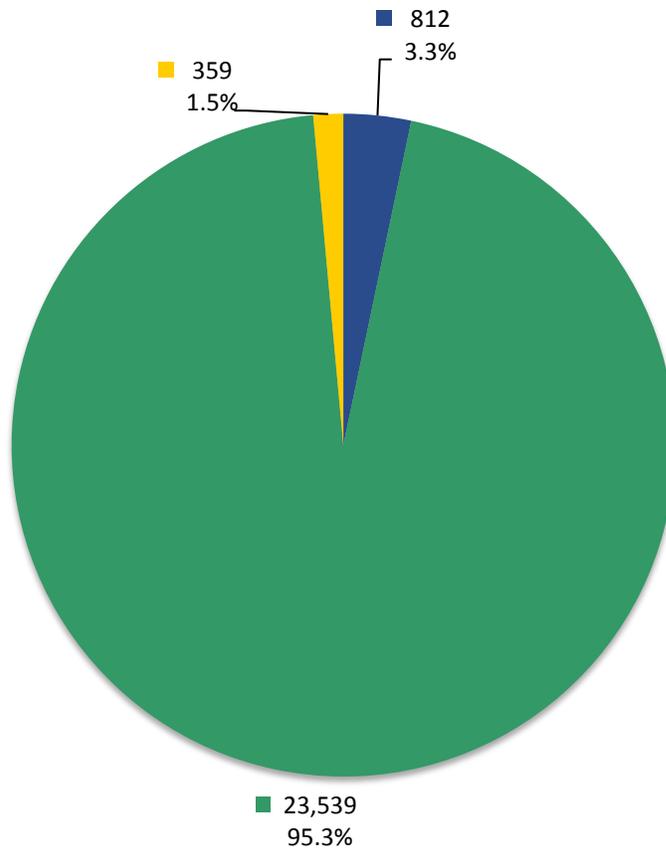
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Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)	Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Improve building insulation (including windows) during retrofits	Ongoing/In Progress		Window and door retrofits	continue window and door retrofits	2010	2012
Install an on-site renewable energy demonstration project	In Development		Business case for renewable heating fuel project prepared for consideration	dependant on outcome of business case approval	2010	2013
IT power management						
Install power management software which shuts down computers outside of regular business hours	Ongoing/In Progress		continuation of power management implementation	work with HSSBC and IBM Desktop Management Systems	2009	No End Date (Continuous)
Implement server virtualization	Completed in 2011		implementation of server virtualization		2010	2011
Apply auto-sleep settings on computer monitors and CPUs	Completed in 2011		Powersave policies applied to all new systems		2009	2011
Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices	Ongoing/In Progress		continued to monitor and evaluate reductions in printers.	continue efforts	2010	No End Date (Continuous)
Apply auto-sleep settings on printers, copiers, fax machines, and/or multi-function devices	Completed in 2011		completed sleep setting applications		2009	2011
Replace computers with ENERGY STAR models during regular computer upgrades	Ongoing/In Progress		continuatio of hardware replacements with energy star rated equipment	ongoing effort in accordance with HSSBC strategies	2008	No End Date (Continuous)
Behaviour change program						
Ask staff to unplug electrical equipment or switch off power bars when not in use	Ongoing/In Progress		Initiated a Workplace Conservation Awareness program	Continue program	2010	2012
Provide tips to staff on saving energy in the office while working outside of regular business hours	Ongoing/In Progress		Energy savings types and facts are posted monthly on the NH staff website. Initiated a Workplace Conservation Awareness program which addresses both work and home conservation measures	Continue program	2010	2012
Provide reminders for turning off lights (e.g., signs, stickers, messages)	Ongoing/In Progress		Initiated a Workplace Conservation Awareness program	Continue program	2010	2012
Other Stationary Fuel Combustion, Electricity, and Fugitive Emissions Actions						
Engaged Energy Manager	Ongoing/In Progress		Continued to engage an Energy Manager to identify energy savings opportunities	continue	2007	No End Date (Continuous)
Engaged Energy Specialist	Ongoing/In Progress		Engaged an Energy Specialist to track and monitor energy consumption; assist with awareness programs	continue	2010	2012
Energy Audit Renewal	Ongoing/In Progress		Developed RFP for renewal of exiting Energy Audits at NH facilities. Initial audits were conducted in 2008 and many recommendations contained within those reports have been implemented	Issue contracts for energy audits	2011	2012
Supplies (Paper)						
Paper Type						
Purchase 30% post-consumer recycled paper	Ongoing/In Progress		a portion of total paper purchases consisted of 30% recycled content paper	continue practice, subject to HSSBC Purchasing policies	2008	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
Purchase 40% post-consumer recycled paper	In Development			continue to monitor and implement as appropriate	2008	No End Date (Continuous)
Purchase 100% post-consumer recycled paper	In Development			continue to monitor and implement as appropriate	2008	No End Date (Continuous)
Printer/document settings						
Apply "print and hold" settings to networked printers to eliminate unclaimed print jobs	Completed in 2011		Educated employees on "secure printing" application to reduce amount of unclaimed printing		2011	2011
Electronic media in place of paper						
Switch to an electronic payroll notification system in place of paper pay stubs	Completed in 2011		implemented paperless paystubs for all employees		2009	2011
Behaviour change program						
Encourage staff to hold paperless meetings or presentations (i.e., no handouts)	Completed in 2011		Executive meeting's documents distributed and accessed electronically		2010	2011

Northern Health Authority Greenhouse Gas Emissions by Source for the 2011 Calendar Year (tCO₂e*)



Total Emissions: 24,710

- 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 10:55 AM)

Total offsets required: **24,674**. Total offset investment: **\$616,850**. Emissions which do not require offsets: **36** **

*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.