

# Northern Health - 2009 Carbon Neutral Action Report

## Executive Summary

The energy and environmental sustainability portfolio continues to be a priority within Northern Health. With the passage of the *Greenhouse Gas Reductions Target Act*, health authorities will be carbon neutral beginning January 2010. 2009 was our opportunity to focus on, and prepare for carbon neutrality of 2010. Efforts toward carbon neutrality encompassed executive support, equipment and system changes, operational considerations, communication, education and environmental awareness.

In 2009 Northern Health adopted its Energy and Environmental Sustainability policy, which provides support to our ongoing efforts in carbon reduction. Approval of the policy was a measurable indicator of Northern Health's commitment to energy reduction and plays a key part in ensuring Northern Health continues to work toward carbon neutrality.

In this past year Northern Health investigated 73 potential capital equipment improvement projects, of which 49 resulted in contracts being awarded and another 22 being evaluated for implementation in the coming year. Northern Health supports the commitment to environmental sustainability and the related health of the people we serve, as articulated in the Northern Health strategic direction statement, which reads:

***“Northern Health will lead initiatives that improve the health of the people we serve: Northern Health will work in partnership with our staff and physicians to create initiatives that foster a safe, healthy, and environmentally responsible workplace”***

Through comprehensive action and engagement, Northern Health continues to move toward carbon neutrality based on a solid foundation established in 2009.

## Overviews

The following outlines the Northern Health commitment to carbon neutrality:

### Carbon Neutral Action Report (CNAR)

As per government legislation, Northern Health is required to submit an annual report on the actions undertaken by the authority outlining its efforts toward carbon emissions reduction. The report requires the approval of the CEO, which then becomes a public document and is posted on the BC Government website. The 2008 report was published on the Provincial Government website, [www.LiveSmartBC.com](http://www.LiveSmartBC.com) in June 2009. The 2009 report is enclosed herein.

### Public Sector Energy Conservation Agreement (PSECA)

Since 2008 Northern Health has received \$5.37 million from the provincial government as targeted funding for energy and carbon reduction projects at 26 of our facilities; BC Hydro has committed an additional \$801,000 in incentive funding.

Implementation of projects with this funding gathered momentum in 2009. In 2009 Northern Health committed \$4.5M of for project implementation. An additional \$300,000 worth of projects were in the design stage.

## Energy Audits

In preparation for PSECA funding Northern Health undertook energy audits of 29 facilities in 2008. Application for additional audits was submitted to BC Hydro in 2009 with the expectation that these additional audits will take place in 2010.

## Utility Tracking

A comprehensive Business Intelligence Tracking System was established in 2009 for the tracking of utility consumption at Northern Health facilities. Site specific reports are now automatically generated and sent to every major Northern Health owned facility on a monthly basis. Both Plant and Site Administrators receive this report.

## Carbon Offset Reporting

In accordance with the *Greenhouse Gas Reductions Target Act*, Northern Health will track and report all of its carbon emissions resulting from fleet (fuel), building (gas and other fuels, electricity) and paper usage. In 2010, Northern Health will purchase carbon offsets from the Pacific Carbon Trust to meet its carbon neutral mandate.

## Provincial Health Authority Collaboration

In 2009 Northern Health collaborated with provincial health authority counterparts on a regular and ongoing basis to discuss current issues and practices in the environmental portfolio. This will continue in 2010.

## Energy Awareness Programs

Energy consultants and BC Hydro indicate that 3-5% of energy usage can be saved through the implementation of behavioral awareness programs targeted at site staff. A pilot program has been initiated within Northern Health at two sites in order to gauge the reception and success of such a program in Northern Health. This work will continue into 2010 and beyond, expanding to multiple sites based on the success of the pilot.

## Sustainability Council and Benchmarking

The Northern Health Engineering and Sustainability Council meets every 6 weeks via teleconference to review facility issues, including energy, and discuss best practices related to efficient plant operations. With the utility tracking and reporting tool in place, we are looking to assessing and benchmarking our energy consumption moving forward in 2010.

## Energy Partner Collaboration

Through close co-operation and regular communication with our energy providers, we continue to access incentive funding, energy reduction programs and technical support. Examples include full funding of facility energy audits and Continuous Optimization Program support from BC Hydro.

## Energy Manager:

Northern Health continues to engage an Energy Manager to prepare reports, assess energy savings opportunities, and develop Energy Awareness programs.

## Alternative Energy Solutions

There has been a recent increase in interest for small scale district energy or heating systems relying on green technologies as an energy source. The concept has a number of advantages, primarily a reliance on carbon-neutral fuel and a shared community system to offset high capital costs. Northern Health supports such initiatives whenever they can be operationally and financially effective and will continue to work with opportunities and partners as they arise in 2010 and beyond.

## **Conclusion**

Northern Health has implemented important groundwork and foundational efforts towards carbon neutrality in 2009 and we look forward to continuing this work into the future years. A healthy environment provides hope of a brighter future for the residents of Northern British Columbia.

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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 12/31/09)	Performance to Date (as of 12/31/09)	Steps Taken in 2009	Steps Planned for 2010 -2012	Start Year	End Year	
<b>Mobile Fuel Combustion (Fleet and other mobile equipment)</b>							
This section is not applicable to this organization							
<b>Stationary Fuel Combustion, Electricity and Fugitive Emissions (Buildings)</b>							
<b>Planning/management</b>							
Reduce office space (square meters) per employee	In Development		Space planning underway for corporate services	Establishment of new workspace standards	2009	2011	
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	In Development		Business case developed and proposal submitted to Executive for consideration for 9 NH buildings to be enrolled in the BC Hydro Continuous Optimization program	Obtain Executive approval and formally enrol identified buildings into the BC Hydro program	2009	No End Date (Continuous)	
<b>Owned buildings</b>							
Establish energy performance baseline for owned buildings	In Development		All owned facilities and 2009 utility data entered into a Business Intelligence tracking system	Monthly reports of utility usage will be automatically generated to the site plant and site administrators	2009	No End Date (Continuous)	
Achieve LEED NC Gold certification at a minimum for new construction or major renovations	Ongoing/In Progress		The new Fort St John Hospital and the new Fort St John Residential Care buildings will be constructed to Leed Gold standards	Continue design and construction, incorporating LEED compnents to meet minimum Gold level.	2008	2012	
Incorporate integrated design process into new construction or during renovations of owned buildings	Ongoing/In Progress		Continuous User Group and stakeholder meetings ongoing for the new Fort St John Hospital and Residential Care	Continue meetings to the end of construction and into building commissioning	2008	2012	
Complete energy retrofits on existing, owned buildings	Ongoing/In Progress		Multiple projects completed under the provincial PSECA program 19 hospitals and residential care facilities received lighting upgrade for energy reduction 18 projects designed and tendered for Building Automation systems installs or upgrades. One project completed 9 plant and/or steam boiler upgrades or replacements (Hi-efficiency condensing style) designed and tendered. 2 sites completed	Complete installation of tendered projects for lighting, building automation and boilers. Includes 4 additional sites for energy efficient lighting Installation of kitchen ventilation demand reduction planned for 9 sites	2008	2011	
<b>Retrofitting owned buildings</b>							
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress	46	% of retrofits (captured above) had heating, cooling, and ventilation systems upgrades	Engineering design and tendering of ventilation upgrades	Installation of designed upgrades	2009	2010
Upgrade lighting systems during retrofits	Ongoing/In Progress	89	% of retrofits (captured above) had lighting systems upgrades	Lighting upgrade implemented at majority of sites	Lighintg upgrades to be completed	2009	2010
Upgrade/adjust control systems during retrofits	Ongoing/In Progress	69	% of retrofits (captured above) had control system upgrades or adjustments	Control system upgrades designed tendered and initiated	Complete system upgrades	2009	2010
<b>Leased buildings</b>							

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Action	Status (as of 12/31/09)	Performance to Date (as of 12/31/09)		Steps Taken in 2009	Steps Planned for 2010 -2012	Start Year	End Year
Establish energy performance baseline for leased buildings	In Development			Lease administration transferred to ARES/SSBC effective July 1, 2009 and all CNAR Actions to be addressed by SSBC through that agreement.	As per ARES/SSBC	2009	No End Date (Continuous)
Lease space with operations and maintenance performance labelling/certification (e.g., LEED EB:O&M)	In Development			Lease administration transferred to ARES/SSBC effective July 1, 2009 and all CNAR Actions to be addressed by SSBC through that agreement.	As per ARES/SSBC	2009	No End Date (Continuous)
Lease space in buildings with new construction performance labelling/certification (e.g., LEED NC)	In Development			Lease administration transferred to ARES/SSBC effective July 1, 2009 and all CNAR Actions to be addressed by SSBC through that agreement.	As per ARES/SSBC	2009	No End Date (Continuous)
Develop a green lease policy that requires green features to conserve energy be included in all lease negotiations	In Development			Lease administration transferred to ARES/SSBC effective July 1, 2009 and all CNAR Actions to be addressed by SSBC through that agreement.	As per ARES/SSBC	2009	No End Date (Continuous)
<b>IT power management</b>							
Install power management software which shuts down computers outside of regular business hours	Complete	20	% of computers shut down automatically outside of regular business hours	Installed Faronics powersave to the desktop fleet. Turned on monitoring for all and applied power save policy to about 20%	Complete implementation of powersave policies to remaining workstations	2009	2009
Implement server virtualization	Ongoing/In Progress			The existing server virtualization infrastructure continues to be well utilized. The reference architecture (ie. default) for new servers at Northern Health is to provision them as virtual servers - physical servers are the exception rather than the norm.	1. Expansion of the production server farm to increase capacity, refresh hardware, and optimize storage allocations. 2. A test server farm is planned, to offload nonproduction virtualized servers from the production server farm	2007	2011
Apply auto-sleep settings on computer monitors and CPUs	Ongoing/In Progress	20	% of computers have auto-sleep settings applied	Powersave policy applied to 20% of systems this year	Complete implementation of powersave policies to remaining workstations	2009	2011
Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices	Ongoing/In Progress			Performed re-evaluation of printer density and capacities to ensure multifunction fleet is 'right-sized'	Continue to implement	2005	No End Date (Continuous)
Apply auto-sleep settings on printers, copiers, fax machines, and/or multi-function devices	Ongoing/In Progress	90	% of devices have auto-sleep settings applied	Settings applied to 90% of devices	Complete remaining devices	2009	2010
Replace computers with ENERGY STAR models during regular computer upgrades	Ongoing/In Progress	90	% of computers are ENERGY STAR rated	Replaced approximately 400 desktop computers and laptops with energystar 5 devices bringing our total to at least 91%	Ongoing refresh of devices with energy star compliant devices	2009	No End Date (Continuous)
<b>Appliances and electronic devices</b>							
Replace refrigerators with ENERGY STAR models or source ENERGY STAR models for future purchases	In Development			NH has approved an Energy and environmental Sustainability policy which directs purchasers to consider environmental considerations in the procurement evaluation	Establish formal direction, supported by Energy and Environmental Policy, to purchasing groups	2009	No End Date (Continuous)
Replace other appliances or electronic devices with ENERGY STAR models or source ENERGY STAR models for future purchases	Complete			New energy star washers and dryers installed at one existing Prince George residential care building new residential care building provided with energy star appliances	Establish formal direction, supported by Energy and Environmental Policy, to purchasing groups	2009	2009
<b>Other Stationary Fuel Combustion and Electricity Actions</b>							
Undertake an energy awareness green team pilot project	In Development			Received Executive approval to initiate a green team pilot project	Implement green teams at NH facilities	2010	No End Date (Continuous)
Install high turn-down modulating burners for boilers	Ongoing/In Progress			4 hospital sites identified for boiler burner upgrades. 2 completed in 2009	Complete balance of projects	2009	2010

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Action	Status (as of 12/31/09)	Performance to Date (as of 12/31/09)	Steps Taken in 2009	Steps Planned for 2010 -2012	Start Year	End Year
Install new high efficiency boilers	Ongoing/In Progress		5 sites identified for new high efficiency boilers. 1 completed	Complete remaining 4 sites	2010	2010
Install electronic controls on boiler burners to modulate and sequence firing	Ongoing/In Progress		Engineering design and tendering of burner controls	Complete	2009	2010
Install boiler feed water economizers to preheat feed water to boilers	Ongoing/In Progress		Engineering design and tendering	Installation of designed upgrades	2009	2010
Install waste heat recovery on air supply units and on building exhaust	Ongoing/In Progress		Engineering design and tendering	Installation of designed upgrades	2009	2010
Install ground source heat pump building heat system	Complete		Completion and commissioning of ground source heat system		2008	2010
Reduce solar gain	In Development		Investigation of options for large atrium commercial window application in acute care facilities	Evaluation of costs and benefits; installation where feasible	2009	2010
Installation of "solar wall" to preheat supply air	In Development		Contacted suppliers, undertook preliminary design	Evaluation of costs and benefits; installation where feasible	2009	2010
<b>Supplies (Paper)</b>						
<b>Paper Type</b>						
Purchase 30% post-consumer recycled paper	Complete		Some paper purchased was 30% post-consumer content		2009	No End Date (Continuous)
<b>Electronic media in place of paper</b>						
Use electronic document library for filing common documents	Complete		Completed previously		2008	No End Date (Continuous)
Post materials online that were previously printed	Complete		Completed previously		2008	2009
Switch to an electronic payroll notification system in place of paper pay stubs	In Development		Investigating options to switch to electronic notification	Implement electronic notification	2009	2011
<b>Other Paper Supplies Actions</b>						
Paper Awareness	In Development			Publish paper usage awareness identifying how much paper was purchased and providing an equivalent measure in common relatable terms.	2009	No End Date (Continuous)

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## Actions to Reduce Provincial Emissions and Improve Sustainability

The actions listed below contribute to a reduction in greenhouse gas emissions from sources that fall outside of the reporting requirements defined in the carbon neutral government regulation of the *Greenhouse Gas Reduction Targets Act*. Public sector organizations can optionally use this section to report on actions that will help British Columbia meet its provincial greenhouse gas reduction targets, engage the public, and improve environmental sustainability across all aspects of their organization.

Action	Status (as of 12/31/09)	Performance to Date (as of 12/31/09)	Steps Taken in 2009	Steps Planned for 2010 -2012	Start Year	End Year
<b>Business Travel</b>						
<b>Policy and budgeting</b>						
Create a low-carbon travel policy or travel reduction goal	Complete		Travel restrictions in place - only absolutely necessary travel that cannot be accomplished by other means permitted		2009	No End Date (Continuous)
<b>Virtual meeting technology</b>						
Install web-conferencing software (e.g., Live Meeting, Elluminate, etc.)	Complete		Live Meeting instituted in the health authority. Announcement and encouragement of meeting alternative completed		2009	2010
Install video-conferencing units in meeting rooms or provide mobile video-conferencing units	Complete		All sites have access to video conference room		2007	2009
<b>Behaviour change program</b>						
Train staff in web-conferencing	Ongoing/In Progress		Live Meeting instituted in the health authority. Announcement and encouragement of meeting alternative completed. Training available upon request	Training as required	2009	No End Date (Continuous)
Train staff in video-conferencing or provide technical support for video-conferencing set-up	Complete		Completed previously		2006	2009
Encourage staff to consider virtual attendance/presentation at events where possible	Ongoing/In Progress		Travel restrictions in place	Continue efforts at reducing travel	2009	No End Date (Continuous)
<b>Education, Awareness, and Engagement</b>						
<b>Team-building</b>						
Create Green, Sustainability, Energy Conservation, or Climate Action Teams with executive endorsement	In Development		Obtained Executive endorsement; identified Kitimat General Hospital and Mountain View Lodge as pilot project sites	Roll-out program	2009	No End Date (Continuous)
Providing behaviour change education/training to teams (e.g., community-based social marketing)	In Development		Initiated investigation into education/training programs	Roll-out program	2009	No End Date (Continuous)
<b>Staff awareness/education</b>						
Provide green tips on staff website or in newsletters	In Development		Information collection for postings on internal website in 2010	Internal information and news postings on website	2009	No End Date (Continuous)
<b>Other Sustainability Actions</b>						
<b>Water conservation</b>						
Put in place a potable water management strategy to reduce potable water demand of building-level uses such as cooling tower equipment, toilet fixtures, etc. and landscape features	In Development		The new Fort St John hospital and residential care buildings is currently in design. As part of the LEED Gold standard it will include consideration of a low-flow plumbing fixtures where appropriate	Design and Construction	2008	2012

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Action	Status (as of 12/31/09)	Performance to Date (as of 12/31/09)	Steps Taken in 2009	Steps Planned for 2010 -2012	Start Year	End Year
Introduce a stormwater management landscape strategy (e.g., vegetated roofs, permeable paving, rain gardens, bioswales)	In Development		The new Fort St John hospital and residential care buildings is currently in design. As part of the LEED Gold standard it will include consideration of a stormwater management landscape strategy	Design and Construction	2008	2012
<b>Building construction, renovation, and leasing</b>						
Establish a policy to reuse materials where possible and divert construction and demolition debris from landfills and incineration facilities	Ongoing/In Progress		The new Fort St John hospital and residential care buildings is currently in design. As part of the LEED Gold standard it will include consideration of construction waste minimization and diversion	Design and Construction	2008	2012
Incorporate lifecycle costing into new construction or renovations	Ongoing/In Progress		The new Fort St John hospital and residential care buildings is currently in design and will include consideration of life-cycle analysis	Design and Construction	2008	2012
<b>Indoor air quality</b>						
Enforce a scent-free policy (e.g., no strong perfumes, deodorants, etc.)	Complete		This has been a long standing policy at NH		2006	No End Date (Continuous)
Incorporate low volatile organic compounds (VOCs) standards into procurement policy for products such as paints, carpets, and furniture	Complete		Previously established materials standards		2008	No End Date (Continuous)
<b>Commuting to and from home</b>						
Encourage commuting by foot, bicycle, carpool or public transit	In Development		Planning of foot paths and bicycle paths for the new Fort St John Hospital and Residential Care building	Construction of facilities for the new Fort St John Hospital and Residential Care building	2009	2012
Provide shower or locker facilities for staff/students who commute by foot or by bicycle	In Development		Design planning for the New Fort St John Hospital	Construction of facilities for the new Fort St John Hospital and Residential Care building	2009	2012
Provide secure bicycle storage	Ongoing/In Progress		Previously established in Prince George	Consider opportunities at additional sites, including the new Fort St John Hospital and Residential Care facility	2008	No End Date (Continuous)
Modify parking fees or parking availability for staff/students	Ongoing/In Progress		Parking fees instituted in Prince George in 2008. Considered opportunities for other sites throughout NH	Ongoing consideration of parking alternatives for staff and visitors	2007	No End Date (Continuous)