



School District 68 (Nanaimo-Ladysmith) - 2009 Carbon Neutral Action Report

Executive Summary

In the past year of 2009 School District 68 (Nanaimo-Ladysmith) has continued it's activity in energy reduction through various projects. Lighting retrofits and an elementary school HVAC upgrade were foremost in the year's activities. Included in this on-going initiative is motion sensors installed in school gyms.

Field irrigation controls tied back to weather station information was realised in the year and a plan set in motion to expand when capital expansion opportunities surface.

Fleet vehicle renewal continues to be standard policy with a proportion of the fleet retired and replaced with more fuel efficient models. Planning for the installation of GPS units on bus and fleet vehicles for tracking and database collection purposes is on-going. Driver training was completed for all bus operators and some maintenance vehicle operators. An anti-idling policy is in review stage for subsequent approval in 2010.

Green purchasing practices were extended beyond green cleaning products to include sustainable cleaning equipment used by custodial staff in the application of green cleaning products. All Energy Star computer equipment is now standard purchasing practice. Computer server reduction program and work station reduction was started during this year.

The process of the hiring of a full time energy manager was initiated and will be completed early in the new year.

Overviews

Actions Taken to Reduce Greenhouse Gas Emissions in 2009

HVAC upgrade to one elementary school – included upgrade to near condensing boilers and individual room control through the use of Unit Ventilators equipped with CO2 and Occupancy sensors.

Four lighting retrofit/upgrade projects were completed - one of which was for the largest secondary school. This has also brought about a lighting retrofit design standard which realizes the maximum reduction in energy, the most efficient maintainability level and increased user comfort levels. This standard will be incorporated into all future designs.

Photo Voltaic project completed and tied to the grid. This installation serves as a clean energy source and will become part of the science curriculum on energy conservation and GHG reduction at the school where installed. Data will also be made available on the web for other schools to participate.

Operational Changes in 2009

No significant changes occurred within the reporting year.

Plans to Continue Reducing Greenhouse Gas Emissions 2010 – 2012

Re-commissioning of larger facility HVAC systems will be a focus in the next year which will include fan run time reduction during regular school hours and lighting level reduction in unoccupied areas such as corridors. Server virtualization is still on-going and will be for the foreseeable future.

The largest task is the gradual change in behaviour with the hope that the social benefit will be taking energy reduction actions back into the home and community. The goal is to have people automatically think and do energy reduction actions.

Feasibility of geo-exchange is being investigated on two sites in partnership with other community organizations. Other than the obvious reduction in cost and impact on the environment this will also serve as an example in leadership within the community and demonstrate a reach beyond the regular curricular subjects.

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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
Mobile Fuel Combustion (Fleet and other mobile equipment)							
Vehicle fuel efficiency							
Perform regular fleet maintenance to improve fuel-efficiency	Ongoing/In Progress	100	% of vehicles are subject to regular maintenance for fuel efficiency	This is an on-going function	Increase level of maintenance planned to further enhance fuel efficiency	2007	No End Date (Continuous)
Behaviour change program							
Provide fleet driver training to reduce fuel use	Ongoing/In Progress	90	% of current drivers are trained	Driver training session completed for all bus drivers and 10% of maintenance workers.	Remaining drivers to be trained. Training to be included in to new employee orientation.	2010	2012
Introduce anti-idling policy and/or raise anti-idling awareness for fleet drivers (e.g., signs, stickers, messages)	Ongoing/In Progress			Anti Idling practices introduced to drivers. Policy in final review stage	Monitor on-going practice. Final approval of policy	2009	2011
Other Mobile Fuel Combustion Actions							
Add GPS units to optimize route distance	In Development			Initial investigation on various products	Initiate project and funding source	2010	2012
Programming buses for more efficiency by a 6th overdrive gear, change from performance to economy mode for acceleration and limiting idle time	In Development				Initiate project	2010	2012
Crankcase Ventilation Kits	Ongoing/In Progress	75	% complete	Installations in progress	Installations in progress	2009	2011
Stationary Fuel Combustion, Electricity and Fugitive Emissions (Buildings)							
Planning/management							
Enrol in a building energy benchmarking program (e.g., GREEN UP)	In Development			No steps taken	Create utility database to compliment SMARTTool requirements. On-going monitoring of various completed energy saving initiatives	2010	2012
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	In Development			Continuous Optimization program in planning	Partnership with BC Hydro and Pulse and self metering install	2010	2012
Owned buildings							
Establish energy performance baseline for owned buildings	In Development			Utility information compiled	Establish baseline year (2009)	2010	2011
Achieve LEED NC Gold certification at a minimum for new construction or major renovations	Ongoing/In Progress			No new construction occurred	Will be standard practice for all future projects	2009	No End Date (Continuous)
Incorporate integrated design process into new construction or during renovations of owned buildings	Ongoing/In Progress			IDP incorporated into two capital projects	Future projects will incorporate IDP as a standard	2009	No End Date (Continuous)
Incorporate a refrigerant management strategy into regular building management/maintenance to reduce fugitive emissions	Ongoing/In Progress			Continued standard practice	Continuance of practice	2003	No End Date (Continuous)

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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
Complete energy retrofits on existing, owned buildings	Ongoing/In Progress	2	% of owned buildings have undergone energy retrofits since start year indicated	Lighting and HVAC retrofit projects completed	Lighting retrofit projects	2005	2012
Retrofitting owned buildings							
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress	100	% of retrofits (captured above) had heating, cooling, and ventilation systems upgrades	Elementary school boiler upgraded to near condensing	Future upgrades depend on funding availability	2008	No End Date (Continuous)
Upgrade lighting systems during retrofits	Ongoing/In Progress	100	% of retrofits (captured above) had lighting systems upgrades	Three facilities competed	Seven schools to be done in Phase I and II. Three phases remaining	2008	2012
Upgrade/adjust control systems during retrofits	Ongoing/In Progress			Optimal start refined in two schools	Expand optimal start to various schools	2009	No End Date (Continuous)
Improve building insulation (including windows) during retrofits	Ongoing/In Progress			Included in Building Envelope Projects presently in design	Will include in all future capital project designs	2008	No End Date (Continuous)
Install an on-site renewable energy demonstration project	Complete			Photo Voltaic system installed and on line	Investigate cooperation in potential Geotherm projects on two sites	2009	2010
IT power management							
Install power management software which shuts down computers outside of regular business hours	Ongoing/In Progress	100	% of computers shut down automatically outside of regular business hours	Remaining computers had software installed	Continuous practice for all new computers purchased	2007	No End Date (Continuous)
Implement server virtualization	Ongoing/In Progress			5 servers to 1 at pilot site	3 servers to 1 at various schools	2008	No End Date (Continuous)
Apply auto-sleep settings on computer monitors and CPUs	Ongoing/In Progress	100	% of computers have auto-sleep settings applied	Completed install on all existing computers	Continuous practice on all new computer purchases	2005	No End Date (Continuous)
Apply auto-sleep settings on printers, copiers, fax machines, and/or multi-function devices	Complete			New copier fleet purchased - sleep feature activated on all	Continuous practice for all new copier purchases	2009	2010
Replace computers with ENERGY STAR models during regular computer upgrades	Ongoing/In Progress	100	% of computers are ENERGY STAR rated	All new computer purchases were Energy Star	Continuous practice for all new computer purchases	2008	No End Date (Continuous)
Appliances and electronic devices							
Replace other appliances or electronic devices with ENERGY STAR models or source ENERGY STAR models for future purchases	Ongoing/In Progress			Standard practice	Continuance of practice	2005	No End Date (Continuous)
Behaviour change program							
Provide reminders for turning off lights (e.g., signs, stickers, messages)	In Development			Student green teams at 2 schools	Renew sticker campaign and organize Green Teams in every school	2010	2011
Supplies (Paper)							
Paper Type							

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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
Purchase 30% post-consumer recycled paper	Ongoing/In Progress	0	% of total paper purchased contains 30% recycled content	Renew of contract with supplier	Users to be instructed on alternatives	2009	No End Date (Continuous)
Purchase 100% post-consumer recycled paper	Ongoing/In Progress	0	% of total paper purchased contains 100% recycled content	Renew of contract with supplier	Users to be instructed on alternatives	2009	No End Date (Continuous)
Printer/document settings							
Switch networked printers and photocopiers to automatic double-sided	In Development			New copier fleet purchased	Users to be instructed	2009	2011
Electronic media in place of paper							
Post materials online that were previously printed	Ongoing/In Progress			No additional steps taken	Expand program to other regular notices	2010	2012
Switch to an electronic payroll notification system in place of paper pay stubs	Complete			All payroll notification is now electronic	T4 slips to electronic notification	2009	2010

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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
Business Travel						
Behaviour change program						
Encourage carpooling to meetings	In Development			Carry out an assessment to determine possible opportunities. If they do exist then will plan to introduce idea.	2010	No End Date (Continuous)
Education, Awareness, and Engagement						
Team-building						
Create Green, Sustainability, Energy Conservation, or Climate Action Teams with executive endorsement	In Development		Four schools created teams in this year	To approach as many of the remainder of schools as part of energy management plan	2010	2012
Provide resources and/or dedicated staff to support teams	Ongoing/In Progress		Energy Manager designated	Partner with BC Hydro in the formulation of a Sustainable Energy Management Plan	2010	No End Date (Continuous)
Providing behaviour change education/training to teams (e.g., community-based social marketing)	In Development		Supported Energy Ambassadors program in various secondary schools with technical information and backup.	Expand BC Hydro sponsored programs to all age levels for which programs are offered.	2010	No End Date (Continuous)
Staff Professional Development						
Support green professional development (e.g., workshops, conferences, training)	Ongoing/In Progress		Energy Manager designated and participated in workshops and training sessions. Take part in regular monthly conference calls with peers in sharing ideas and successes.	Regular conference attendance will be maintained and continued conference call participation	2009	No End Date (Continuous)
Staff awareness/education						
Provide education to staff about the science of climate change	In Development		Provided web access to real time data from Photovoltaic array installed this last summer	Expand BC Hydro's sponsored Workplace Conservation Awareness program for adult groups	2010	No End Date (Continuous)
Provide green tips on staff website or in newsletters	In Development		Initiated discussions with communications department in the implementation, design and content of a school district sustainability website	Implement website and highlight past and present initiatives and what is coming in the future for this year	2010	No End Date (Continuous)
Client/public awareness/education						
Provide green tips on client/public website or in newsletters	In Development		Initiated discussions with communications department in the implementation, design and content of a school district sustainability website	Implement website and highlight past and present initiatives and what is coming in the future for this year	2010	No End Date (Continuous)
Other Sustainability Actions						
Water conservation						
Establish a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models	Ongoing/In Progress		Standard Practice whenever replacement or new construction occurs	Will remain as standard practice	2005	No End Date (Continuous)
Waste reduction/diversion						
Put in place an operations policy to facilitate the reduction and diversion of building occupant waste from landfills or incineration facilities	Ongoing/In Progress		Two recycling programs introduced: 1. Fluorescent lamp recycle 2. Small battery recycle program	Investigate ways to expand program(s)	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
Implement a hazardous waste reduction and disposal strategy	Ongoing/In Progress			Process in place for correct disposal	Will remain as standard practice	2008	No End Date (Continuous)
Procurement (non-paper supplies)							
Implement sustainable purchasing program for cleaning products, disposable paper products and trash bags	Ongoing/In Progress			1. Bamboo broom/mop handles and Eco mops from manufactured from recycled pop bottles was added to the purchasing list	Program will continue to expand as products become available	2008	No End Date (Continuous)
Building construction, renovation, and leasing							
Incorporate lifecycle costing into new construction or renovations	Ongoing/In Progress	100	% of business cases incorporating lifecycle costing since start year indicated	Included in PIR process for two Capital Projects undertaken this year	Will continue as standard practice in all future projects	2009	No End Date (Continuous)
Indoor air quality							
Incorporate low volatile organic compounds (VOCs) standards into procurement policy for products such as paints, carpets, and furniture	Ongoing/In Progress			All paints purchased within this year were low VOC type	Will be continued as standard practice	2005	No End Date (Continuous)
Commuting to and from home							
Provide shower or locker facilities for staff/students who commute by foot or by bicycle	Ongoing/In Progress			No new capital construction occurred in this year	Will continue as standard design practice for all renovation and new building projects	2005	No End Date (Continuous)