



### 2009 Carbon Neutral Action Report

#### Executive Summary

The Board of Education for School District No. 63 (Saanich) is committed to building a coherent culture of environmental learning and sustainability with aims to establish itself as a caring leader in the field of environmental stewardship.

The environmental learning and sustainability policy of the Board is intended to support the education of ecologically literate individuals with the knowledge, skills, attitudes, experiences and motivation to take personal responsibility and leadership for innovative local and global solutions.

Saanich Schools has been contributing toward carbon neutrality for a number of years by actively pursuing energy or environmental design practices in the development of new schools, upgrading building envelope insulation or air infiltration performance, mechanical system upgrades or re-commissioning, or energy efficient lighting retrofits.



#### Overviews

##### Actions Taken to Reduce Greenhouse Gas Emissions in 2009

Landfill gases are a major component in the production of greenhouse gas. Saanich Schools initiated an enhanced recycling program pilot in Spring 2009 to evaluate the opportunities to divert organics, from the waste-stream and increase the volume of hard and soft plastics or metals to recycling. School 'green-teams' were organized and the pilot was rolled-out to implement the program in the Fall 2009. The results of this pilot study are listed at:

[http://142.31.146.32/moodle/green/file.php/1/RRU/ThreeSource\\_Final\\_Report.pdf](http://142.31.146.32/moodle/green/file.php/1/RRU/ThreeSource_Final_Report.pdf)

Facility heating is a major component of the District's GHG emissions production profile. Saanich Schools completed two school conversions from mid-efficiency natural gas furnace appliances to electric air to water heat pump technology.

##### Plans to Continue Reducing Greenhouse Gas Emissions 2010 – 2012

Saanich Schools are a participant in the Power Smart Partnership with BC Hydro and have a newly created position for energy and sustainability management. This manager will provide leadership to our District in creating a culture for conservation. In addition, a new school facility has been designed to Leadership in Energy and Environmental Design (LEED™) to a provisional Gold certification standard and will open in Spring 2012. The District also intends to provide for continuous optimization of energy-use and fuel in six large facilities over 5000 sq. meters in area. Up-to-date environmental program efforts can be followed at:

<http://green.sd63.bc.ca/>

# School District No. 63 (Saanich) - 2009 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 <i>Greenhouse Gas Reduction Targets Act</i> .							
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>							
<b>Vehicle fuel efficiency</b>							
Replace larger vehicles with smaller models according to fleet "right-sizing" principles	Ongoing/In Progress	2	% of vehicles down-sized since start year indicated	Engine and Vehicle size reduced on Fleet replacement purchase	Purchase of small passenger diesel vehicle	2009	No End Date (Continuous)
Perform regular fleet maintenance to improve fuel-efficiency	Complete	100	% of vehicles are subject to regular maintenance for fuel efficiency	Fleet Maintenance Plan with Daily, Weekly, Monthly as well as Periodic Service Schedule at 3350 km minor and 8000 km (vehicle) 10000 km (bus) operational testing, adjustment, oil and filter maintenance are documented through work order system and vehicle inspection software		2003	No End Date (Continuous)
<b>Behaviour change program</b>							
Provide fleet driver training to reduce fuel use	Ongoing/In Progress	4	% of current drivers are trained	Driver Trainers provided Smart-Driver Training seminar	Implement Smart Driver Program to Bus and Fleet Drivers	2010	2012
Introduce anti-idling policy and/or raise anti-idling awareness for fleet drivers (e.g., signs, stickers, messages)	Ongoing/In Progress			Installed GPS and Vehicle engine operating data equipment	Implement 10 minute accumulated idling duration per day, provide awareness program and reporting feedback	2008	2011
<b>Other Mobile Fuel Combustion Actions</b>							
Changed to B 5 and B 20 Bio-Fuels, subject to temperature, for all school buses and diesel powered fleet vehicles	Complete	100	% of diesel vehicles operating on Bio-Fuel	Extended B5 / B 20 Bio-Fuel to All Remaining Diesel Powered Maintenance Vehicles		2008	2009
<b>Stationary Fuel Combustion, Electricity and Fugitive Emissions (Buildings)</b>							
<b>Planning/management</b>							
Enrol in a building energy benchmarking program (e.g., GREEN UP)	In Development				Submit Request for Proposal for purchase or maintenance of software database to track energy usage by fuel-type and benchmark to other school districts	2010	2011
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	In Development				Measurement and verification metering is designed in the proposed new school facility to be opened in 2012	2010	2012
<b>Owned buildings</b>							
Establish energy performance baseline for owned buildings	In Development			Approval obtained to hire an Energy and Sustainability Manager	Energy Manager hired with a focus to develop an energy profile baseline software program database	2010	2011
Achieve LEED NC Gold certification at a minimum for new construction or major renovations	Ongoing/In Progress			Registered North Saanich Middle School Replacement for LEED and Appointed LEED Coordinator to Track Progress Scorecard. Completed Energy Modelling Studies	Implement LEED Construction Procedures and continue with monitoring, documentation and LEED template preparation	2008	2012
Incorporate integrated design process into new construction or during renovations of owned buildings	Complete	100	% of buildings built or renovated since start year indicated used the integrated design process	Completed Integrated Design Process for North Saanich Middle School with Registration to Attain LEED Gold Standard.		2005	2010

## School District No. 63 (Saanich) - 2009 Carbon Neutral Action Report

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	91	% of owned buildings have undergone energy retrofits since start year indicated	Completed two facility fuel conversions at Brentwood Elementary and South Island Distance Education Beaver Lake campus with increased energy efficiency utilizing heat-pump technology to replace mid-efficient residential quality natural gas furnaces	Campus Continuous Optimization Program of BC Hydro to be applied to 6 large facilities, each exceeding 5000 square meters.	2003	No End Date (Continuous)
<b>Retrofitting owned buildings</b>							
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress	64	% of retrofits (captured above) had heating, cooling, and ventilation systems upgrades	Replaced residential natural gas furnace heating systems with high efficiency air to water heat pump systems along with electric boiler back-up at two schools; Brentwood Elementary and South Island Distance Education Beaver Lake Campus. Replaced flow-through cooling water systems with high efficiency refrigeration systems.	Replace residential natural gas furnace heating systems at Cordova Bay and Keating Elementaries with high efficiency heat pump systems. Install a low temperature heat pump system at Sidney School using existing natural gas boiler as back-up.	2004	No End Date (Continuous)
Upgrade lighting systems during retrofits	Ongoing/In Progress	91	% of retrofits (captured above) had lighting systems upgrades	Replaced gymnasium lighting at Parkland, Stelly's and Bayside Schools with T5 HO luminaires and replaced all emergency lighting exits with LED.	None Planned	2002	No End Date (Continuous)
Upgrade/adjust control systems during retrofits	Ongoing/In Progress	64	% of retrofits (captured above) had control system upgrades or adjustments	Beaver Lake and Brentwood Schools fitted with new DDC control systems, recommissioned and rebalanced with renovations	Potential upgrade to control system at Sidney School	2002	No End Date (Continuous)
Improve building insulation (including windows) during retrofits	Ongoing/In Progress	42	% of retrofits (captured above) had insulation improvements	Replaced windows at Beaver Lake and Cordova Bay Schools with high efficiency glazing.	Potential upgrade to replace windows at Lochside School	2005	No End Date (Continuous)
Install an on-site renewable energy demonstration project	In Development			Designed solar water heating system for North Saanich Middle School replacement project.	Install alternative energy systems and demonstration software at North Saanich Middle School	2008	2012
<b>IT power management</b>							
Install power management software which shuts down computers outside of regular business hours	Ongoing/In Progress	34	% of computers shut down automatically outside of regular business hours	Replacing all computers with thin-client model starting in the elementary schools - Phase 1 complete	Replacing all computers with thin-client model completion in the middle and secondary schools - Phase 2	2008	2011
Implement server virtualization	Ongoing/In Progress	37	% of servers have been virtualized since start year indicated	In conjunction with thin-client model, all servers are virtualized. Elementary schools - Phase 1 complete	In conjunction with thin-client model, all servers are virtualized. Middle and Secondary schools - Phase 2	2008	2011
Apply auto-sleep settings on computer monitors and CPUs	Ongoing/In Progress	34	% of computers have auto-sleep settings applied	In conjunction with thin-client model, all computer modules are server managed and automatically shut-down. Elementary schools - Phase 1 complete	In conjunction with thin-client model, all computer modules are server managed and automatically shut-down. Middle and Secondary schools - Phase 2	2008	2011
Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices	In Development			Replaced stand-alone devices with multi-function devices when replacement equipment is justified or new installations are required.	Replace existing stand-alone printers, copiers and fax machines with multi-function devices - Phase 3	2010	2012
Apply auto-sleep settings on printers, copiers, fax machines, and/or multi-function devices	Ongoing/In Progress	34	% of devices have auto-sleep settings applied	In conjunction with thin-client model, all computer or multi-function printer modules are server managed and provide for auto-sleep settings. Elementary schools - Phase 1 complete	In conjunction with thin-client model, all computer or multi-function printer modules are server managed and provide for auto-sleep settings. Middle and Secondary schools - Phase 3	2010	2012
Replace computers with ENERGY STAR models during regular computer upgrades	Ongoing/In Progress	34	% of computers are ENERGY STAR rated	In conjunction with thin-client model, all computer modules are being replaced with high-efficiency energy products. Elementary schools - Phase 1 complete	In conjunction with thin-client model, all computer modules are being replaced with high-efficiency energy products. Middle and Secondary schools - Phase 2	2008	2011
<b>Behaviour change program</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
Provide tips to staff on saving energy in the office while working outside of regular business hours	In Development			Presented and Obtained Approval of a Business Plan for a New Energy Manager position	Priority Goal established for District 'Green Team' to improve Energy and Sustainability Practices. Encouragement of Earth Hour participation	2009	No End Date (Continuous)
Provide reminders for turning off lights (e.g., signs, stickers, messages)	In Development			Presented and Obtained Approval of a Business Plan for a New Energy Manager Position	Priority Goal established for District 'Green Team' to improve Energy and Sustainability Practices. Encouragement of Earth Hour participation	2009	No End Date (Continuous)
<b>Supplies (Paper)</b>							
<b>Paper Type</b>							
Purchase 30% post-consumer recycled paper	Ongoing/In Progress	29	% of total paper purchased contains 30% recycled content	Increased majority of paper materials in this recycled content category up to 40%	Encouragement for increased recycled content	2007	No End Date (Continuous)
Purchase 100% post-consumer recycled paper	Ongoing/In Progress	4	% of total paper purchased contains 100% recycled content	Encouragement for increased recycled content	Encouragement for increased recycled content	2007	No End Date (Continuous)
<b>Printer/document settings</b>							
Switch networked printers and photocopiers to automatic double-sided	Ongoing/In Progress	34	% of network printers or photocopiers are set to automatic double-sided	In conjunction with thin-client model, all computer or multi-function printer modules are server managed and provide for default automatic double-siding. Elementary schools - Phase 1 complete	Implementation of automatic double-sided network multi-function printers	2009	2011
<b>Electronic media in place of paper</b>							
Install collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	In Development				Evaluating Alfresco software for document management	2011	2011
Use electronic document library for filing common documents	Ongoing/In Progress			Placement of all common forms or staff information documents on the District intra-website	Ensure all forms or common documents are posted to the website	2008	No End Date (Continuous)
Post materials online that were previously printed	Ongoing/In Progress			Placed District Bus Information Booklet, Budget Documents, Board of Education Agenda Packages, Requests for Proposals to District Website	Ensure all forms or common documents are posted to the website	2008	No End Date (Continuous)
Switch to an electronic payroll notification system in place of paper pay stubs	Complete			Ongoing Distribution of Electronic Paystubs		2000	No End Date (Continuous)
<b>Behaviour change program</b>							
Encourage staff to hold paperless meetings or presentations (i.e., no handouts)	Ongoing/In Progress			Electronic agenda and documentation packages distributed by email to Board of Education Trustees and Management Team Meetings	Encourage increased use of paperless meetings throughout the greater organization	2008	No End Date (Continuous)
Encourage re-use of scrap paper	Ongoing/In Progress			Scrap paper is reused for draft or internal printed materials	Encourage increased use of scrap paper printing throughout the greater organization	2008	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>Behaviour change program</b>						
Train staff in web-conferencing	Ongoing/In Progress	2 % of staff are trained web-conferencing	Senior Executive trained in Illuminate Conferencing Software	Potential Extension of Training to School Administration or Itinerant Teaching Staff. This is a small geographic district with limited applicability for conferencing software	2009	No End Date (Continuous)
Encourage staff to consider virtual attendance/presentation at events where possible	In Development		Restricted staff travel outside of Province	Encouragement for Out of Province Committee Attendance through Teleconference	2010	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	Ongoing/In Progress		Established a District Green Team with Board and Executive Membership	Board Policy No. 1370 requires that green teams be established at each location where practicable	2009	No End Date (Continuous)
Provide resources and/or dedicated staff to support teams	In Development			Established a management staff position to liaise with school green teams to encourage sustainable and energy efficient practices.	2010	2011
<b>Staff awareness/education</b>						
Provide education to staff about the conservation of water, energy, and raw materials	In Development		Established A Board Policy No. 1370 for Environmental Learning and Sustainability.	Establishment of a staff position to encourage sustainable and energy efficient practices.	2010	2011
Provide green tips on staff website or in newsletters	In Development		Established a 'Green Space' on District Website outlining green projects or local events	Expansion of 'Green Space' to include Leadership Actions in Environmental or Energy Conservation Practices	2009	No End Date (Continuous)
<b>Other Sustainability Actions</b>						
<b>Water conservation</b>						
Establish a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models	Ongoing/In Progress		Continued replacement of washroom water fixtures with efficient models	Continued replacement of washroom water fixtures with efficient models	2005	2012
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	Ongoing/In Progress		Replaced flow-through cooling equipment with energy efficient non-cfc refrigeration units at Stelly's Secondary School	Reduce irrigation water demand	2005	No End Date (Continuous)
Introduce a stormwater management landscape strategy (e.g., vegetated roofs, permeable paving, rain gardens, bioswales)	Ongoing/In Progress		Implemented stormwater management strategy with permeable paving at South Island Distance Education Schools	Complete stormwater management strategy at North Saanich Middle School, which includes raingardens and bioswales	2005	No End Date (Continuous)
<b>Waste reduction/diversion</b>						
Put in place an operations policy to facilitate the reduction and diversion of building occupant waste from landfills or incineration facilities	Ongoing/In Progress		Implemented an enhanced recycling program to include separate paper / cardboard, plastics / tin / glass and organic composting containers and diversion from landfill	Extend enhanced recycling program to all schools	2009	2012
<b>Procurement (non-paper supplies)</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
Implement sustainable purchasing program for cleaning products, disposable paper products and trash bags	Ongoing/In Progress		Continued custodial product purchases with Eco-Brand labelling	Development of 'Green Cleaning' Custodial Manual of Practice	2007	2012
<b>Building construction, renovation, and leasing</b>						
Incorporate lifecycle costing into new construction or renovations	Ongoing/In Progress		Lifecycle costing was used for new construction decisions at North Saanich Middle School	Consideration of lifecycle costing for major building component replacements, such as roofing	2004	No End Date (Continuous)