

School District No. 63



Saanich Schools

2010 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. Targeted reductions from 2007 levels of energy consumption amounting to fifty percent and thirty-three percent of greenhouse gas are proposed by 2020.



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, re-commissioning, or energy efficient lighting retrofits.

Overviews

Actions Taken to Reduce Greenhouse Gas Emissions in 2010

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. The major program for 2010 was to enrol our five middle and secondary schools to the Continuous Optimization Program for installation of real-time metering of electricity and natural gas. Thereafter, an energy assessment and recommissioning for these facilities are proposed. The metering proponent company also provides software to analyse historic energy use and benchmark those facilities.

The District is moving forward with innovative 'slim-client' information technology architecture and has completed installation at three middle schools in 2010. This architecture utilizes energy star rated LED screens and low-consumption network computer consoles that are centrally managed. The estimated annual electrical savings upon implementation of the 2400 units is estimated to be nearly one gigawatt, equal to the annual consumption of two elementary schools.

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. These programs were extended to all remaining schools in 2010. The District enrolled with Destination Conservation to engage school teams with waste reduction projects.

Facility heating is a major component of the District's greenhouse gas (GHG) emissions production profile. Saanich Schools completed an additional school conversion to a central electric air to water heat pump plant. Indications are that our base-year GHG building heating production in 2007 has declined from 1972 tonnes to 1793 tonnes; a reduction of 9 percent. Generally, the School District has reduced GHG intensity from 0.29 tonnes of carbon dioxide equivalent (tCO₂e) per student to 0.26 tCO₂e over the period from 2007 to 2010 throughout a time where enrolment declined by nearly 300 students.

Greenhouse Gas Emissions and Offsets Applied to become Carbon Neutral in 2010

A total 2010 GHG emission from all sources covered by the Greenhouse Gas Reduction Targets Act was 1793.26 tonnes of tCO₂e. The School District purchased \$44,831.50 of carbon offset credits through the Pacific Carbon Trust to attain carbon neutrality in 2010. The School District has specified use of refrigerant R410a in all new equipment. It is estimated that stationary fugitive emissions from refrigerant equipment does not comprise more than 0.01% of School District No. 63 (Saanich) total emissions and an ongoing effort to collect or estimate emissions from this source would be disproportionately onerous. For this reason, emissions from this source have been deemed out-of-scope and have not been included in School District No. 63 (Saanich) greenhouse emissions profile.

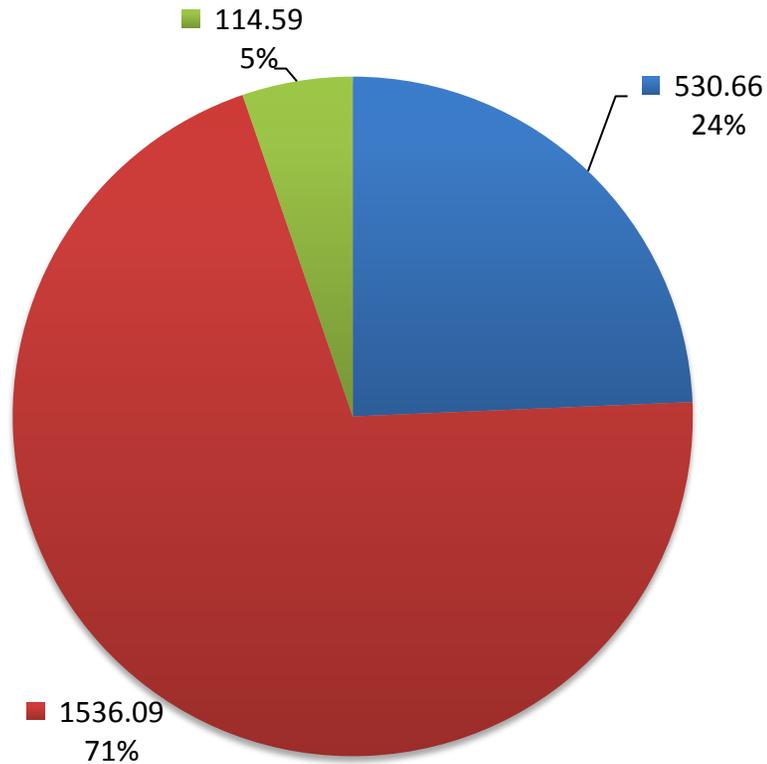
Plans to Continue Reducing Greenhouse Gas Emissions 2011 – 2013

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. The District was supported through the Public Sector Energy Conservation Program for extending the mechanical upgrades to convert from fossil fuels to high-efficiency air to water heat pumps at two more schools at Keating and Sidney elementaries. In addition, a new school facility has been designed to Leadership in Energy and Environmental Design (LEED TM) to a provisional Gold certification standard and will open in Spring 2012. Up-to-date environmental program efforts can be followed at: <http://green.sd63.bc.ca/>

Joan Axford
Secretary-Treasurer

School District No. 63 (Saanich)

Greenhouse Gas Emissions by Source for the 2010 Calendar Year (tCO₂e*)



Total Emissions: 2181.34

- Mobile Fuel Combustion (Fleet and other mobile equipment)
- Stationary Fuel Combustion and Electricity (Buildings)
- Supplies (Paper)

Offsets Applied to Become Carbon Neutral in 2010

Total offsets purchased: **1793.26**. Total offset investment: **\$44,831.50**. Emissions which do not require offsets: **388.08** **

*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.

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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 12/31/10)	Performance to Date (as of 12/31/10)		Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Mobile Fuel Combustion (Fleet and other mobile equipment)							
Vehicle fuel efficiency							
Replace vehicles with more fuel-efficient models	Ongoing/In Progress	4	% of vehicles are fuel- efficient models	Engine and vehicle size reduced on Fleet replacement purchase	Purchase of smaller utility vans	2009	No End Date (Continuous)
Replace larger vehicles with smaller models according to fleet "right-sizing" principles	Ongoing/In Progress	4	% of vehicles down-sized since start year indicated	Engine and vehicle size reduced on Fleet replacement purchase	Purchase of smaller utility vans	2009	No End Date (Continuous)
Behaviour change program							
Provide fleet driver training to reduce fuel use	Ongoing/In Progress	4	% of current drivers are trained	No further progress during 2010	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			No further progress during 2010	Implement 10 minute accumulated idling duration per day, provide awareness program and reporting feedback	2008	2011
Encourage carpooling in fleet vehicles	In Development			Purchased vehicle to fleet that has opportunity for carpooling	Encourage carpooling to conferences or out of town meetings	2010	No End Date (Continuous)
Stationary Fuel Combustion, Electricity and Fugitive Emissions (Buildings)							
Planning/management							
Reduce office space (square meters) per employee	In Development				Reduction of operating area through disposal of surplus portable classrooms and opening of North Saanich Middle School	2011	2012
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	Ongoing/In Progress	20	% of buildings have a real time metering system installed	Installation of real-time electrical and natural gas meters in 6 schools.	Extension of real-time meter installation project to 3 more schools. Implementation of school lobby displays of energy consumption.	2010	2013
Owned buildings							
Establish energy performance baseline for owned buildings	In Development				Completion of Strategic Energy Management Plan with energy baseline analysis	2010	2011
Achieve LEED NC Gold certification at a minimum for new construction or major renovations	Ongoing/In Progress			Constructing North Saanich Middle School Replacement for LEED Gold standard	Completion of LEED Administration Documentation for North Saanich Middle School.	2008	2012
Complete energy retrofits on existing, owned buildings	Ongoing/In Progress	91	% of owned buildings have undergone energy retrofits since start year indicated	Completed facility fuel conversion at Cordova Bay Elementary with increased energy efficiency utilizing heat-pump technology.	Campus Continuous Optimization Program of BC Hydro to be applied to 6 middle and secondary schools.	2003	No End Date (Continuous)
Retrofitting owned buildings							
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress	67	% of retrofits since start year indicated had heating, cooling, and ventilation systems upgrades	Replaced package heat pumps with a central plant high efficiency air to water heat-pump technology at Cordova Bay Elementary.	Replace residential natural gas furnace heating systems at Keating Elementary with high efficiency heat pump system. Install a low temperature heat pump system at Sidney Elementary using existing natural gas boiler as back-up. Replace mid-efficiency boilers at Claremont Secondary with high efficiency condensing boilers.	2004	No End Date (Continuous)

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Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)		Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Upgrade lighting systems during retrofits	Ongoing/In Progress	91	% of retrofits since start year indicated had lighting systems upgrades	No further projects undertaken	Upgrade School Board Office and Physical Plant buildings lighting from T12 to T8-28 watt high efficiency lighting with occupancy sensors.	2002	No End Date (Continuous)
Upgrade/adjust control systems during retrofits	Ongoing/In Progress	67	% of retrofits since start year indicated had control system upgrades or adjustments	Cordova Bay Elementary fitted with upgraded DDC control system, recommissioned and rebalanced with renovations	New DDC control system for Keating and Sidney Elementary, which have not been served by technology. Implement BC Hydro Continuous Optimization Program at 5 middle and secondary schools	2002	No End Date (Continuous)
Improve building insulation (including windows) during retrofits	Ongoing/In Progress	42	% of retrofits since start year indicated had insulation improvements	No further projects undertaken	Potential upgrade to replace windows at Lochside Elementary	2005	No End Date (Continuous)
Install an on-site renewable energy demonstration project	In Development				Designing solar photo-voltaic grid-tied demonstration project at Claremont Secondary School following grant by Solar BC. North Saanich Middle School demonstration wind power and solar hot water projects	2008	2012
IT power management							
Install power management software which shuts down computers outside of regular business hours	Ongoing/In Progress	50	% of computers shut down automatically outside of regular business hours	Replacing all computers with thin-client model in middle schools - Phase 2 complete	Replacing all computers with thin-client model in secondary schools - Phase 3 planned	2008	2011
Implement server virtualization	Ongoing/In Progress	53	% of servers have been virtualized since start year indicated	In conjunction with thin-client model, all servers are virtualized - phase 2 middle schools complete	In conjunction with thin-client model, all servers are virtualized - Secondary schools - Phase 3 planned	2008	2011
Apply auto-sleep settings on computer monitors and CPUs	Ongoing/In Progress	50	% of computers have auto-sleep settings applied	In conjunction with thin-client model, all computers, printers and other devices are centrally managed with auto-sleep settings or scheduled shut-downs on all devices - Phase 2 Middle schools complete	In conjunction with thin-client model, all computers, printers and other devices are centrally managed with auto-sleep settings or scheduled shut-downs on all devices - Secondary schools - Phase 3 planned	2008	2011
Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices	Ongoing/In Progress	10	% reduction in printers, copiers, and/or fax machines since start year indicated	Replaced stand-alone devices with multi-function devices at School Board Office	Replace stand-alone devices with multi-function devices at Physical Plant Office to eliminate 9 stand-alone devices	2010	2012
Apply auto-sleep settings on printers, copiers, fax machines, and/or multi-function devices	Ongoing/In Progress	20	% of devices have auto-sleep settings applied	In conjunction with thin-client model, all computers or multi-function devices are server managed and automatically shut-down. Middle schools - Phase 2 complete	As part of technology plan, stand-alone devices are being replaced with high-efficiency multi-function products. Secondary schools - Phase 3 planned	2010	2012
Replace computers with ENERGY STAR models during regular computer upgrades	Ongoing/In Progress	50	% of computers are ENERGY STAR rated	In conjunction with think-client model, all computer modules are being replaced wth high-efficiency energy products. Middle schools - Phase 2 complete	In conjunction with thin-client model, all computer modules are being replaced wth high-efficiency energy products. Secondary schools - Phase 3 planned.	2008	2011
Behaviour change program							
Provide reminders for turning off lights (e.g., signs, stickers, messages)	In Development				Destination Conservation program to be initiated in 2011.	2009	No End Date (Continuous)
Other Stationary Fuel Combustion and Electricity Actions							
Provide tips to staff on sustainable practices and saving energy in schools	In Development				Priority goal established for District 'Green Team' to improve energy and sustainability practices. Signed three year agreement with Destination Conservation to provide recycling, energy and water conservation programs to staff and students at 10 schools in 2011 to 2013	2011	2013

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Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)		Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Supplies (Paper)							
Paper Type							
Purchase 30% post-consumer recycled paper	Ongoing/In Progress	21	% of total paper purchased contains 30% recycled content	Encouragement for increased recycled content	Encouragement for increased recycled content	2007	No End Date (Continuous)
Purchase 100% post-consumer recycled paper	Ongoing/In Progress	7	% of total paper purchased contains 100% recycled content	Encouragement for increased recycled content	Encouragement for increased recycled content	2007	No End Date (Continuous)
Printer/document settings							
Switch networked printers and photocopiers to automatic double-sided	Ongoing/In Progress	50	% of network printers or photocopiers are set to automatic double-sided	In conjunction with thin-client model, all computer or multifunction printer modules are server managed and provide for default automatic double-siding. Phase 2 - Middle Schools - Complete	Implementation of automatic double-sided network multi-function printers	2009	2012
Apply "print and hold" settings to networked printers to eliminate unclaimed print jobs	In Development				Encouraging use of print and hold for multi-function devices	2011	No End Date (Continuous)
Electronic media in place of paper							
Install collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	In Development			Evaluating Alfresco software for document management. Using Zimbra, Moodle and Drupal collaborative software	Begin implementation of an electronic document management system	2011	No End Date (Continuous)
Use electronic document library for filing common documents	Ongoing/In Progress			All forms or common staff information documents are posted to the District intra-website or shared mail briefcases	Ongoing distribution of all forms or common documents posted on the website	2008	No End Date (Continuous)
Post materials online that were previously printed	Ongoing/In Progress			All forms or public documents are posted to the District website	Ongoing distribution of all forms or public documents posted on the website	2008	No End Date (Continuous)
Behaviour change program							
Encourage staff to hold paperless meetings or presentations (i.e., no handouts)	Ongoing/In Progress			Encouraged increased use of paperless meetings throughout the greater organization	Encourage increased use of paperless meetings throughout the greater organization	2008	No End Date (Continuous)
Encourage re-use of scrap paper	Ongoing/In Progress			Encouraged increased use of scrap paper printing throughout the greater organization	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 12/31/10)	Performance to Date (as of 12/31/10)	Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Business Travel						
Virtual meeting technology						
Install web-conferencing software (e.g., Live Meeting, Elluminate, etc.)	Ongoing/In Progress		Web-conferencing software installed for key District staff that have regular meetings with web-conference providers.	Encouragement of web-conferencing opportunities	2008	No End Date (Continuous)
Behaviour change program						
Train staff in web-conferencing	In Development			Encouragement of Out-of-Province committee attendance through web-conferencing	2010	No End Date (Continuous)
Education, Awareness, and Engagement						
Team-building						
Create Green, Sustainability, Energy Conservation, or Climate Action Teams with executive endorsement	Ongoing/In Progress		Board Policy No. 1370 established green teams at each location where practicable with energy or greenhouse gas reduction targets.	Destination Conservation program for energy and water conservation projects	2009	2012
Provide resources and/or dedicated staff to support teams	Ongoing/In Progress		Destination Conservation program to enhance recycling projects at various schools. Energy Manager agreement supported by BC Hydro to promote conservation	Implementation of energy tracking system and display of real-time facility use. Destination conservation program to implement energy conservation behaviour modification programs	2010	No End Date (Continuous)
Staff awareness/education						
Provide education to staff about the conservation of water, energy, and raw materials	Ongoing/In Progress		Destination Conservation waste management orientation session to building operators	Destination Conservation energy management session to building operators	2010	2011
Provide green tips on staff website or in newsletters	In Development		Green Team' newsletter distributed	Expansion of 'Green Space' website to include collaboration and leadership actions in environmental or energy conservation practices	2009	No End Date (Continuous)
Other Sustainability Actions						
Water conservation						
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			Opening of replacement facility for North Saanich Middle School, incorporating energy and environmental design for water conservation with reuse of stormwater for toilet fixtures	2005	2012
Introduce a stormwater management landscape strategy (e.g., vegetated roofs, permeable paving, rain gardens, bioswales)	In Development			Complete stormwater management strategy at North Saanich Middle School, which includes raingardens and bioswales	2005	2012
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		Extended enhanced recycling program to all schools. Destination Conservation program to improve diversion / reduction successes. Staff volunteered, supported by the Board, to create a community plastics collection program at Stelly's Secondary.	Encourage culture for diversion of waste rather than reduction. Assist in reduction of vending plastic water bottles	2009	2012
Procurement (non-paper supplies)						

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Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)	Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Implement sustainable purchasing program for cleaning products, disposable paper products and trash bags	Ongoing/In Progress		Increasing custodial product purchases with Eco-Brand labelling	Development of 'Green Cleaning' Custodial Manual of Practice	2007	2012
Building construction, renovation, and leasing						
Incorporate lifecycle costing into new construction or renovations	Ongoing/In Progress		Consideration of lifecycle costing for major projects, such as North Saanich Middle School or other building component replacements, such as roofing.	Consideration of lifecycle costing for major building component replacements, such as roofing	2004	No End Date (Continuous)