

# School District No. 63



Saanich Schools

## 2011 Carbon Neutral Action Report

### Executive Summary

The Board of Education for School District No. 63 (Saanich) is committed to an environmental learning and sustainability policy that 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. This policy also targets energy reductions amounting to fifty percent and thirty-three percent of greenhouse gases from 2007 levels of consumption by 2020.

Saanich Schools has been contributing toward carbon neutrality for a number of years by actively pursuing energy and environmental design practices in the development of new schools, upgrading building envelope insulation or air infiltration performance, mechanical system upgrades, re-commissioning, energy efficient lighting retrofits and a “slim computing” system. The Board is anticipating the opening of a replacement for North Saanich Middle School in 2012 that is targeted to attain LEED™ Gold standard.



### 2011 Greenhouse Gas Emissions

Greenhouse gas emissions from all sources covered by the Greenhouse Gas Reduction Targets Act were 2,404.95 tonnes. It was estimated that fugitive emissions from stationary cooling comprises less than 1% of total emissions and the requirement is onerous to collect. For this reason, emissions from this source have been deemed out-of-scope and are not included in the total greenhouse gas emissions profile or offset purchase. The weather has a direct correlation to heating fuel consumption. The heating degree days through 2011 were 18% higher than in 2010. The resulting building emissions have increased a corresponding 19.3%.

### Offsets Applied to Become Carbon Neutral in 2011

Total emission offsets applied to become carbon neutral in 2011 have been purchased through the Pacific Carbon Trust for 2018.79 tonnes. The School District purchased \$50,469.75 of carbon offset credits to attain carbon neutrality. As required by section 5 of the Carbon Neutral Government Regulation, 386.15 tonnes of carbon dioxide emissions resulting from the operation of school buses were reported as part of our greenhouse gas emissions profile in 2011. However, they were not offset as they are out-of-scope under section 4(2)(c) of the Carbon Neutral Government Regulation.

## Overviews

### **Actions Taken to Reduce Greenhouse Gas Emissions in 2011**

Saanich Schools are a participant in the Power Smart Partnership with BC Hydro and will be renewing a contract for energy and sustainability management. Our energy manager provides leadership to our District in creating a culture for conservation. The major program for 2011 was to assess two secondary and one middle school enrolled in the Continuous Optimization Program and to complete installation of real-time metering of electricity and natural gas in over 50 percent of our schools. Next year, re-commissioning of Parkland and Claremont schools is proposed. The metering proponent company also provides software to analyse historic energy use and analysis is being undertaken to benchmark all of our school facilities.

The District is moving forward with innovative 'slim-client' information technology architecture and has completed installation at two additional secondary schools in 2011. This architecture utilizes low-consumption Open Source centrally managed computer consoles and energy star rated LCD screens . This Open Source design additionally saves considerably on licensing, maintenance, while greatly extending life. We are nearing completion of the entire project to realize annual electrical savings of over a gigawatt-hour/yr, equal to the annual consumption of three-to-four elementary schools.

Facility heating is a major component of the District's greenhouse gas (GHG) emissions production profile. Saanich Schools were successful in receiving a grant of \$1.5 Million through the Public Sector Energy Conservation Agreement to support the conversion of two school heating plants from fossil fuels to high-efficiency heat pumps at Keating and Sidney elementary schools. These schools are slated to be optimized for GHG reduction by Fall 2012. In addition, a new school facility has been designed to Leadership in Energy and Environmental Design (LEED <sup>TM</sup>) to a provisional Gold certification standard to open in Spring 2012.

### **Plans to Continue Reducing Greenhouse Gas Emissions 2012 – 2014**

Saanich Schools is a participant in a Power Smart Partnership with BC Hydro and will be renewing an agreement to continue energy and sustainability management. Our energy manager provides leadership to our District in creating a culture for conservation. The District was supported through the Public Sector Energy Conservation Program for two mechanical upgrades to convert from fossil fuels to high-efficiency air to water heat pumps at Keating and Sidney elementaries. Up-to-date environmental program efforts can be followed at: <http://green.sd63.bc.ca/>



Monica Schulte  
Secretary-Treasurer

# School District No. 63 (Saanich) - 2011 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 *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
<b>Mobile Fuel Combustion (Fleet and other mobile equipment)</b>						
<b>Vehicle fuel efficiency</b>						
Replace vehicles with more fuel-efficient models	Ongoing/In Progress	9 % of vehicles are fuel- efficient models	Engine and vehicle size reduced on fleet replacement purchase	2012: Purchase of smaller Transit utility van in place of 3/4 ton vehicle 2013 - 2014: Purchase of smaller utility van	2009	No End Date (Continuous)
Replace larger vehicles with smaller models according to fleet "right-sizing" principles	Ongoing/In Progress	9 % 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)
<b>Behaviour change program</b>						
Provide fleet driver training to reduce fuel use	In Development	4 % of current drivers are trained	No further progress in 2011	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 in 2011	Implement 10 minute accumulated idling duration per day, provide awareness program and reporting feedback	2008	2012
Encourage carpooling in fleet vehicles	In Development			Encourage carpooling to conferences or out of town meetings	2010	No End Date (Continuous)
<b>Stationary Fuel Combustion, Electricity and Fugitive Emissions (Buildings)</b>						
<b>Planning/management</b>						
Reduce office space (square meters) per employee	Ongoing/In Progress	11 is the current average rentable square meters per employee	Reduction of operating area through disposal or closure of 5 portable classrooms	2012: Reduction of operating area by 800 square meters by opening North Saanich Middle School; a capacity reduction from 550 students to 400 students.	2011	2012
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	Ongoing/In Progress	25 % of buildings have a real time metering system installed	Installation of 1 real-time electrical and natural gas meter	2012 Installation of 2 real-time electrical and natural gas meters	2010	2014
<b>Owned buildings</b>						
Establish energy performance baseline for owned buildings	In Development	0 % of owned buildings have an established energy performance baseline		Update of Strategic Energy Management Plan with refined weather corrected 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 Replacment for LEED Gold standard with scorecard of 44 potential points to reach 39 point minimum for this level	Completion of LEED Administration documentation for North Saanich Middle School	2008	2012
Perform energy retrofits on existing, owned buildings	Ongoing/In Progress	91 % of owned buildings have undergone energy retrofits since start year indicated	Initiation of Continuous Optimization Program of BC Hydro at Parkland and Claremont Secondary Schools. Completed facility fuel conversion at Keating Elementary with increased energy efficiency utilizing heat pump technology. Replaced 32 watt T-8 lamps at Sidney Elementary with 25 watt T-8 lamps	Initiate Continuous Optimization Program of BC Hydro at Bayside Middle School. Begin implementation of energy improvement measures at Parkland and Claremont Secondary Schools. Complete facility fuel conversion at Sidney Elementary with increased energy efficiency utilizing heat pump technology. Replace 32 watt T-8 lamps at additional schools	2003	No End Date (Continuous)
<b>Retrofitting owned buildings</b>						

## School District No. 63 (Saanich) - 2011 Carbon Neutral Action Report

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
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress	78	% of retrofits since start year indicated had heating, cooling, and ventilation systems upgrades	Replaced residential natural gas furnace heating at Keating Elementary with high efficiency heat pump system. Installed 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 units.	2004	2014
Upgrade lighting systems during retrofits	Ongoing/In Progress	91	% of retrofits since start year indicated had lighting systems upgrades	Upgraded School Board Office and Physical Plant buildings lighting from T12 to T8-28 watt lighting with occupancy sensors. Replaced T-8-32 watt to T8-25 watt lighting at Sidney Elementary.	Replace T8-32 watt lighting at various schools with T8-25watt lamps	2002	No End Date (Continuous)
Upgrade/adjust control systems during retrofits	Ongoing/In Progress	78	% of retrofits since start year indicated had control system upgrades or adjustments	Upgraded Stelly's secondary, Keating and Sidney elementary schools with upgraded direct digital control systems	2012: Upgrade District wide area network building automation server. Upgrade Lochside and Prospect Lake elementary school direct digital control systems 2013: Upgrade School Board Office direct digital control system	2002	No End Date (Continuous)
Improve building insulation (including windows) during retrofits	Ongoing/In Progress	47	% of retrofits since start year indicated had insulation improvements	Replaced windows at Keating elementary and upgraded 50 percent of Sidney elementary	2013: Replace windows in portions of Lochside elementary school	2005	No End Date (Continuous)
Install an on-site renewable energy demonstration project	Ongoing/In Progress			2.5 Kw Solar photo-voltaic grid-tied demonstration project contract awarded for Claremont secondary school.	Completion of solar panel demonstration project at Claremont secondary school.	2008	2012
<b>IT power management</b>							
Install power management software which shuts down computers outside of regular business hours	Ongoing/In Progress	75	% of computers shut down automatically outside of regular business hours	Replacing all computers with thin client model in 2 secondary schools	2012: Replace all computers with thin client model in one secondary school	2008	2012
Implement server virtualization	Ongoing/In Progress	75	% of servers have been virtualized since start year indicated	In conjunction with thin client model, servers at 2 secondary schools were virtualized	2012: In conjunction with thin client model, servers at one secondary school will be virtualized	2008	2012
Apply auto-sleep settings on computer monitors and CPUs	Ongoing/In Progress	60	% 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 at 2 secondary schools	Roll out thin clients to additional secondary schools, ramp up sleep capability to encompass daytime-sleep in addition to already implemented nighttime-sleep.	2008	2012
Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices	Ongoing/In Progress	30	% reduction in printers, copiers, and/or fax machines since start year indicated	Replaced stand-alone devices with multi-function devices at 2 secondary schools	Replace stand alone devices with multi-function devices at 1 secondary school	2010	2012
Apply auto-sleep settings on printers, copiers, fax machines, and/or multi-function devices	Ongoing/In Progress	40	% of devices 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 at 2 secondary schools	In conjunction with thin client model, all computers, printers and other devices are centrally managed with auto-sleep settings or scheduled shut-downs at 1 secondary school	2010	2012
Replace computers with ENERGY STAR models during regular computer upgrades	Ongoing/In Progress	75	% of computers are ENERGY STAR rated	In conjunction with thin client model, all computers, printers and other devices are centrally managed with auto-sleep settings or scheduled shut-downs at 2 secondary schools	In conjunction with thin client model, all computers, printers and other devices are centrally managed with auto-sleep settings or scheduled shut-downs at 1 secondary school	2008	2012
<b>Supplies (Paper)</b>							
<b>Paper Type</b>							
Purchase 30% post-consumer recycled paper	Ongoing/In Progress	9	% of total paper purchased contains 30% recycled content	Overall paper consumption has reduced from 18,200 packages in 2010 to 16,000 packages in 2011; a reduction of 14 percent	Encouragement for further paper reductions or increased recycled content	2007	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	Ongoing/In Progress	15	% of total paper purchased contains 40% recycled content	Overall paper consumption has reduced from 18,200 packages in 2010 to 16,000 packages in 2011; a reduction of 14 percent	Encouragement for further paper reductions or increased recycled content	2007	No End Date (Continuous)
Purchase 100% post-consumer recycled paper	Ongoing/In Progress	6	% of total paper purchased contains 100% recycled content	Overall paper consumption has reduced from 18,200 packages in 2010 to 16,000 packages in 2011; a reduction of 14 percent	Encouragement for further paper reductions or 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	75	% 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, Phase 3 - Secondary Schools - In Progress.	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	50	% of network printers have 'print and hold' settings applied		Encouraging use of print and hold for multi-function devices	2011	No End Date (Continuous)
<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. 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)
<b>Behaviour change program</b>							
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)

## School District No. 63 (Saanich) - 2011 Carbon Neutral Action Report

### Actions to Reduce Provincial Emissions and Improve Sustainability

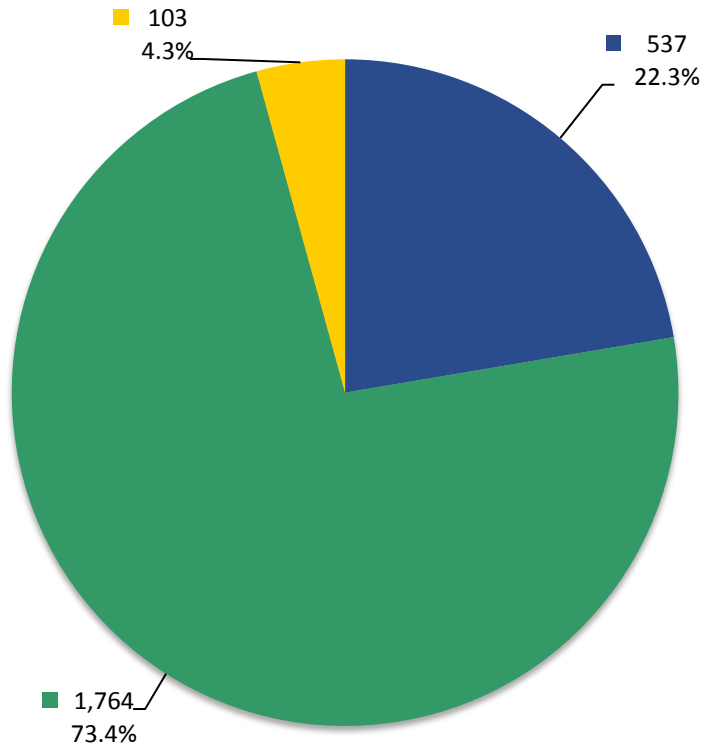
The actions listed below contribute to a reduction in greenhouse gas emissions from sources that fall outside of the reporting requirements defined in the carbon neutral government regulation of the *Greenhouse Gas Reduction Targets Act*. Public sector organizations can optionally use this section to 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 12/31/11)	Performance to Date (as of 12/31/11)	Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
<b>Business Travel</b>						
<b>Virtual meeting technology</b>						
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)
<b>Behaviour change program</b>						
Train staff in web-conferencing	In Development			Encouragement of Out-of-Province committee meeting attendance through web-conferencing	2010	No End Date (Continuous)
Encourage staff to consider virtual attendance/presentation at events where possible	In Development			Encouragement of Out-of-Province committee meeting attendance through web-conferencing	2010	No End Date (Continuous)
Encourage carpooling to meetings	In Development			Encouragement for Out-of-City meeting attendance through car pooling	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		Destination Conservation program for energy conservation attended by ___school green teams	BC Hydro Education resources and renewal of Destination Conservation program for energy and water conservation projects	2009	2012
Provide resources and/or dedicated staff to support teams	Ongoing/In Progress		Energy Manager agreement supported by BC Hydro to promote conservation. Destination Conservation program to enhance energy conservation projects at various schools. Funding application program to support costs for conservation projects.	Implementation of social network energy-use reporting system to building occupants. Support to conservation leaders to provide relief time to assist in local school sustainability measures.	2010	No End Date (Continuous)
Providing behaviour change education/training to teams (e.g., community-based social marketing)	In Development			Providing social network energy-use reporting system to key school conservation leaders in addition to relief time and funding application program to enhance local cultural conservation projects	2013	No End Date (Continuous)
<b>Staff awareness/education</b>						
Provide education to staff about the conservation of water, energy, and raw materials	Ongoing/In Progress		Destination Conservation energy management orientation sessions to building occupants. NRCan energy management courses to key building operations staff.	Continuation of Destination Conservation program to stimulate student conservation projects	2010	2012
Provide green tips on staff website or in newsletters	In Development			Expansion of 'Green Space' website to include collaboration and leadership actions in environmental or energy conservation practices	2009	No End Date (Continuous)
<b>Client/public awareness/education</b>						

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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
Provide education to clients/public about the science of climate change	In Development			New Offering of Institute for Global Solutions Academy at Claremont Secondary School with focus on environmental concerns. The Institute for Global Solutions is an innovative, interdisciplinary program designed to engage students in learning by making academics relevant to their lives. We empower students to think critically, develop a global perspective, and participate in positive solutions for a sustainable future.	2012	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			Opening of North Saanich MS replacement facility to incorporate energy and environmental design standards 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 MS, which includes demonstration of permeable paving, bioswale and raingardens.	2005	2012
<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		Standardizing recycling collection and sorting systems for all facilities.	Budget consideration implication of offering soft plastics collection program. Encourage culture for diversion of waste rather than reduction. Assist in reduction of vending plastic water bottles through replacement with bottle-filling stations.	2009	2012
<b>Procurement (non-paper supplies)</b>						
Implement sustainable purchasing program for cleaning products, disposable paper products and trash bags	Ongoing/In Progress		Developing 'Green Cleaning' Custodial manual of practice. Implementing methods at the new North Saanich MS to utilize water ionization in place of chemical cleaners.	Implementing water ionization cleaning methods at North Saanich MS and roll-out successes to additional sites.	2007	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	In Development			Implement deconstruction and construction waste diversion principles for demolition of North Saanich MS.	2012	2012
Incorporate lifecycle costing into new construction or renovations	Ongoing/In Progress		Consideration of lifecycle costing for major building component replacements, such as roofing	Consideration of lifecycle costing for major building component replacements, such as roofing	2004	No End Date (Continuous)
<b>Commuting to and from home</b>						
Provide shower or locker facilities for staff/students who commute by foot or by bicycle	In Development			New owned or leased facilities since 2006 have lockers and showers for staff who commute by foot or by bicycle	2006	No End Date (Continuous)
Provide secure bicycle storage	In Development			New owned facilities since 2006 have supervised bike rack areas	2006	No End Date (Continuous)

**School District 63 - Saanich  
Greenhouse Gas Emissions by Source  
for the 2011 Calendar Year (tCO<sub>2</sub>e\*)**



**Total Emissions: 2,405**

- 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 12:26 PM)**

Total offsets required: **2,019**. Total offset investment: **\$50,475**. Emissions which do not require offsets: **386** \*\*

\*Tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e) 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.