

Burnaby School District #41

Carbon Neutral Action Report 2012

Executive Summary:

The Burnaby School District has been pursuing a wide range of sustainability initiatives for well over a decade, and we continue to strive towards an ever-greener future for our schools.

2012 saw a number landmark Energy Management projects, with the two largest high schools in BC in terms of both floor area and student enrolment, undergoing complete boiler

upgrades thanks to funding received through the Carbon Neutral Capital Projects program.

In addition to these two large schools, we completed upgrades from old 50's era boilers to state of the art condensing systems at an additional four elementary schools.

This past year also brought the culmination of a four year program to upgrade the lighting in all 56 of our buildings from T12 fluorescent lighting to high efficiency T8 style systems. And in terms of water conservation, we have recently completed the installation of water meters at every school building in Burnaby, completing the first step towards a comprehensive management program.



What shines brighter than the lights in our classrooms? OUR KIDS.

We're replacing the old fluorescent lights at every Burnaby school. The new lights shine brighter, save energy and save money ~ an estimated \$335,000 a year. And those dollars go right back into educating our kids.

We're proud to be a BC Hydro Top 10 Power Smart Partner.



www.burnabyschools.ca



Emissions Overview:

As with most organisations, the lion's share of our emissions (90.8%) come from our buildings through the burning of natural gas and electrical consumption, with the remaining portion coming from paper supplies (5.8%) and fleet vehicles (3.4%).

Emission Offsets

Emissions for calendar year 2012 totalled 5,996 tCO²e, which is an almost 14% decrease compared to the 6,941 tonnes from last year.

These emissions were offset according to B.C's Carbon Neutral Government mandate, through the purchase of off-set credits with Pacific Carbon Trust

	tCO ² e	@ \$25/ton
2011	6,941*	\$173,525
2012	5,996	\$149,900
Savings	945	\$23,625

*6,638 + 303 (retroactively added to 2011 total)

Highlights from 2012

- Reduction of 952 tCO²e over last year
- New high efficiency boiler projects completed at:
 - Burnaby North Secondary, largest high school in BC by enrolment
 - Burnaby South Secondary, largest high school in BC by floor area
 - Seaforth Elementary
 - Canada Way Education Center
 - Clinton Elementary
 - Marlborough Elementary (West Building)
- Completion of T12 to T8 lighting upgrade at all 56 District buildings
- Water meters installed at every school in the district
- First year of Workplace Conservation Awareness program at nine sites
- Procurement of new Energy Monitoring software
- 4th annual Do It Green event was the largest to date thanks to the BYSN

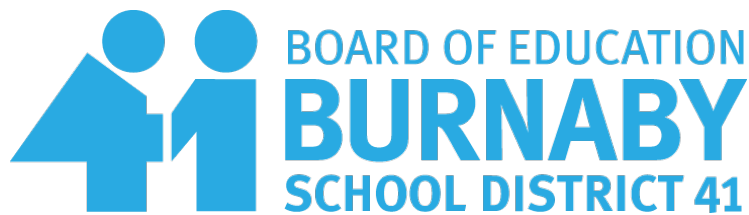
Coming in 2013

- Continue to address our largest CO² source by upgrading to high efficiency heating systems at more sites
- Continue strategic partnerships with BC Hydro and Fortis BC for our energy management programs
- Expand school garden programs
- Continue Workplace Conservation Awareness program for second year
- Address food waste disposal and roll out revised district wide plan
- Continue to support student initiatives through the Burnaby Youth Sustainability Network

Signed



Kevin Kaardal
Superintendent of School



www.sd41.bc.ca/environment

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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	Steps Taken	Steps Planned	Start Year	End Year
Mobile Fuel Combustion (Fleet and other)					
Behaviour change program					
Provide fleet driver training to reduce fuel use	Completed (in Previous Year)				No End Date (Continuous)
Introduce anti-idling policy and/or raise anti-idling awareness for fleet drivers (e.g., signs, stickers, messages)	Completed (in Previous Year)				No End Date (Continuous)
Encourage carpooling in fleet vehicles	Not Yet Evaluated				No End Date (Continuous)
Promote alternatives to fleet vehicle travel where possible (e.g., bicycles, public transit, walking)	Completed (in Previous Year)				No End Date (Continuous)
Vehicle fuel efficiency					
Replace vehicles with more fuel-efficient models	In Development	No new vehicles were purchased in 2012	Efficient vehicles are being considered for all new purchases. Life cycle costing analysis will be considered during vehicle purchasing practices.	2012	No End Date (Continuous)
Replace larger vehicles with smaller models according to fleet "right-sizing" principles	Not Yet Evaluated				No End Date (Continuous)
Perform regular fleet maintenance to improve fuel-efficiency	Completed (in Previous Year)				No End Date (Continuous)
Stationary Fuel Combustion, Electricity					
Behaviour change program					
Help staff reduce personal energy use through ""workstation tune-ups""	Not Yet Evaluated				No End Date (Continuous)
Ask staff to unplug electrical equipment or switch off power bars when not in use	Ongoing/In Progress	SD#41 is participating in a BC Hydro program called Workplace Conservation Awareness, also locally know as Burnaby Unplugged. Nine schools have volunteered and are undertaking a two year program to reduce their "plug load" by turning off computers and other equipment when not in use.	The second year of the WCA/Burnaby Unplugged will see at least 3 thouch points or events held by each of the nine sites.	2012	2014
Ask staff to unplug electrical equipment or switch off power bars when not in use	Ongoing/In Progress	SD#41 is participating in a BC Hydro program called Workplace Conservation Awareness, also locally know as Burnaby Unplugged. Nine schools have volunteered and are undertaking a two year program to reduce their "plug load" by turning off computers and other equipment when not in use.	The second year of the WCA/Burnaby Unplugged will see at least 3 thouch points or events held by each of the nine sites.	2012	2014
Ask staff to close blinds at end of work day to reduce heating/cooling demands	Completed (in Previous Year)				No End Date (Continuous)
Provide tips to staff on saving energy in the office while working outside of regular business hours	Completed (in Previous Year)				No End Date (Continuous)
Provide reminders for turning off lights (e.g., signs, stickers, messages)	Completed (in Previous Year)				No End Date (Continuous)
Promote hot water conservation	Not Yet Evaluated				No End Date (Continuous)
IT power management					
Install power management software which shuts down computers outside of regular business hours	Completed (in Previous Year)				No End Date (Continuous)
Implement server virtualization	In Development	IT department has begun to move certain processes to virtual servers. Potential for more to follow in the coming year	Consult with other school districts regarding their experience with server virtualization	2009	No End Date (Continuous)

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
Apply auto-sleep settings on computer monitors and CPUs	Completed (in Previous Year)				No End Date (Continuous)
Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices as part of a print management strategy	Ongoing/In Progress	The District removes stand-alone printers, copiers and fax machines in offices as the space is reassigned.	Continue to replace older equipment as necessary. Energy efficient products are always favoured when purchasing new office equipment	2009	No End Date (Continuous)
Apply auto-sleep settings on printers, fax machines, and/or multi-function devices	Completed (in Previous Year)				No End Date (Continuous)
Replace computers with ENERGY STAR models during regular computer upgrades	Completed (in Previous Year)				No End Date (Continuous)
Owned buildings					
Establish energy performance baseline for owned buildings	Completed (in Previous Year)				No End Date (Continuous)
Register for performance labelling/certification for operations and maintenance of owned buildings (e.g., LEED EB:O&M)	In Development	SD41 is looking to continue to LEED EB:O&M once LEED certification of our new sites is obtained	Develop O&M guidelines in accordance with LEED and have them ready for post-certification	2010	No End Date (Continuous)
Register for performance labelling/certification for commercial interiors of owned buildings (e.g., LEED CI)	Not Yet Evaluated				No End Date (Continuous)
Achieve LEED NC Gold certification at a minimum for new construction or major renovations	Ongoing/In Progress	Three sites are completed but still awaiting final LEED certification	LEED NC Gold is the mandated standard for all future new buildings and major renovations	2009	No End Date (Continuous)
Perform energy retrofits on existing, owned buildings	Ongoing/In Progress	The Burnaby School District has been pursuing an extensive program of energy related up grades to our buildings including boiler upgrades and lighting retrofits	Energy conservation remains a key component in all facilities projects as we strive to operate at the lowest possible energy intensity	2008	No End Date (Continuous)
Incorporate a refrigerant management strategy into regular building management/maintenance to reduce fugitive emissions	Not Yet Evaluated				No End Date (Continuous)
Planning/management					
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	Ongoing/In Progress	Real Time metering has been included as a requirement to new construction and retrofits. Energy Dashboards have been developed for a number of sites and feature a large display in the lobby area of the school with energy consumption information. This serves as a educational tool for staff and students.	Plan to roll out access to newly purchased utility monitoring software to all principals to give them a better understanding of their buildings as well as create some healthy competition for energy conservation initiatives.	2010	No End Date (Continuous)
Retrofit details for owned buildings					
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress	As a result of 2012 CNCP funds we were able to undertake complete retrofits of the heating systems at two of our largest schools. Burnaby North and Burnaby South Secondary, the latter of which is the largest school in BC by floor area. The old systems were low efficiency and in the case of Burnaby North, were 50's era boilers. The new systems are state of the art condensing boilers which are vastly more efficient, meaning they burn far less fuel, reducing our carbon footprint. > In total, we installed 20 new high efficiency boilers across 7 sites in 2012	Additional boiler retrofits are planned for 2013 and will be assigned according to end of life and cost analysis. It should be noted that these projects would not be possible without the support provided by Fortis BC through their commercial boiler incentive program.	2008	No End Date (Continuous)

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
Upgrade lighting systems during retrofits	Ongoing/In Progress	Completed the balance of interior T12 to T8 lighting retrofits on all of our 56 Buildings. Bring the entire district up to a modern high efficiency standard. All of the old tubes were disposed of according to stringent environmental standards Have begun installing LED in parking lot and exterior applications	We will begin to retrofit the lighting to T8 in our 81 portables LED area lighting will replace all exteriors as the replacement standard. Large parking lots are undergoing cost analysis for LED area lighting retrofits	2008	No End Date (Continuous)
Upgrade/adjust control systems during retrofits	Ongoing/In Progress	Building automation upgrades are part of every retrofit and renovation Major DDC upgrades took place at two large high schools. Burnaby South Secondary and Moscrop Secondary. Every building has some form of digital control system	Continue to incorporate DDC in every possible project	2008	No End Date (Continuous)
Improve building insulation (including windows) during retrofits	Ongoing/In Progress	Roofing insulation upgrades were a part of all roofing jobs in 2012	Continue to retrofit insulation for schools according to capital planning and other retrofit projects. Our ongoing roofing repair/upgrade program addresses problem areas each summer and insulation value to R40 is added during these re-roofing projects	2008	No End Date (Continuous)
Supplies (Paper)					
Behaviour change program					
Train staff to use collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	Not Yet Evaluated				No End Date (Continuous)
Encourage staff to hold paperless meetings or presentations (i.e., no handouts)	Not Yet Evaluated				No End Date (Continuous)
Electronic media in place of paper					
Install collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	Not Yet Evaluated				No End Date (Continuous)
Use electronic document library for filing common documents	Completed (in Previous Year)				No End Date (Continuous)
Switch to an electronic payroll notification system in place of paper pay stubs	Completed (in Previous Year)				No End Date (Continuous)
Paper Type					
Purchase 30% post-consumer recycled paper	Completed (in Previous Year)				No End Date (Continuous)
Purchase 40% post-consumer recycled paper	Not Yet Evaluated				No End Date (Continuous)
Purchase 100% post-consumer recycled paper	Ongoing/In Progress	The district uses paper products that are 100% recycled content where possible, though this only amounts to a tiny percentage of total paper consumption annually. High price point compared to the 30% option is the main barrier	Review potential to lobby EDCO to negotiate a lower price for 100% recycled paper options	2009	No End Date (Continuous)
Printer/document settings					

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
Switch networked printers and photocopiers to automatic double-sided	Ongoing/In Progress	Some printers are set to default double sided printing at the District board office. And a number of schools have implemented this measure as well.	Review effectiveness of the sites where double sided printing has been made automatic	2010	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

Action	Status	Steps Taken	Steps Planned	Start Year	End Year
Business Travel					
Behaviour change program					
Train staff in web-conferencing	Not Yet Evaluated				No End Date (Continuous)
Encourage staff to consider virtual attendance/presentation at events where possible	Not Yet Evaluated				No End Date (Continuous)
Encourage carpooling to meetings	Ongoing/In Progress	Staff are always encouraged to car pool where possible	No formal initiative is planned for car pooling	2009	No End Date (Continuous)
Encourage alternative travel to meetings (e.g., bicycles, public transit, walking)	Not Yet Evaluated				No End Date (Continuous)
Policy and budgeting					
Create a low-carbon travel policy or travel reduction goal	Not Yet Evaluated				No End Date (Continuous)
Virtual meeting technology					
Install web-conferencing software (e.g., Live Meeting, Elluminate, etc.)	Ongoing/In Progress	A number of higher level management as well as some speciality offices use video conferencing regularly	Review ability to expand this program to all those who would utilise it	2009	No End Date (Continuous)
Make desktop web-cameras available to staff	Not Yet Evaluated				No End Date (Continuous)
Install video-conferencing units in meeting rooms or provide mobile video-conferencing units	Ongoing/In Progress	Some large conference rooms have video conferencing ability. Including the Centre for Dialogue at Byrne Creek Secondary which hosts students from around the province to video based meetings and debates with other schools around the world.	Review potential to expand to more offices and schools	2010	No End Date (Continuous)
Education, Awareness, and Engagement					
Awards/Recognition					
Establish a sustainability/green awards or recognition program	Ongoing/In Progress	The Green Team Steering Committee has drafted a plan to roll out a district wide award program for students who show leadership in sustainable practice. 2012 saw our first round of awards, one each for Elementary and Secondary students.	Continue with the award program and raise visibility of those winners from last year.	2012	No End Date (Continuous)
Staff Professional Development					
Support green professional development (e.g., workshops, conferences, training)	Ongoing/In Progress	Some free workshops have been provided by Hydro throughout the school year for teachers of various grades	Encourage all teachers to attend future workshops and raise the profile of our conservation awareness initiatives	2010	No End Date (Continuous)
Include green options in employee performance measurement system	Not Yet Evaluated				No End Date (Continuous)
Staff awareness/education					
Provide education to staff about the science of climate change	Not Yet Evaluated				No End Date (Continuous)
Provide education to staff about the conservation of water, energy, and raw materials	Ongoing/In Progress	This year the Burnaby Unplugged participants will complete a total of six initiatives each promoting conservation within their schools. We hope this will be the beginning of a district wide push for greater energy awareness by individuals.	2013/2014 the Burnaby Unplugged program will continue and we will be evaluating its success.	2009	No End Date (Continuous)
Provide green tips on staff website or in newsletters	Completed (in Previous Year)				No End Date (Continuous)
Provide sustainability education during new staff orientation	Not Yet Evaluated				No End Date (Continuous)

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
Team-building					
Create Green, Sustainability, Energy Conservation, or Climate Action Teams with executive endorsement	Completed (in Previous Year)				No End Date (Continuous)
Provide resources and/or dedicated staff to support teams	Ongoing/In Progress	The Fortis BC funded Energy Specialist continues to support sustainability based initiatives across the entire districts. From energy conservation to recycling and school gardens.	Expand food scrap program, as well as school garden projects across a number of sites	2010	No End Date (Continuous)
Providing behaviour change education/training to teams (e.g., community-based social marketing)	Ongoing/In Progress	We regularly host training sessions for teachers that focus on energy conservation. Our annual Sustainability themed event, Do It Green, will be held on April 19th at Burnaby North Secondary and all staff and students district wide have been invited	Continue to expand our events and plan to bring in additional speakers throughout the year to present to those not already interested in sustainability	2010	No End Date (Continuous)
Other Sustainability Actions					
Adaptation to Climate Change					
Assessed whether extreme weather events and/or long term changes in climate will affect the organization's business areas	Not Yet Evaluated				No End Date (Continuous)
Integrated considerations of extreme weather events and/or long term changes in climate into the organization's decision making.	Not Yet Evaluated				No End Date (Continuous)
Building construction, renovation					
Establish a policy to reuse materials where possible and divert construction and demolition debris from landfills and incineration facilities	Completed (in Previous Year)				No End Date (Continuous)
Incorporate lifecycle costing into new construction or renovations	Completed (in Previous Year)				No End Date (Continuous)
Commuting to and from home					
Introduce telework/work from home policy	Not Yet Evaluated				No End Date (Continuous)
Offer staff a compressed work week	Not Yet Evaluated				No End Date (Continuous)
Encourage commuting by foot, bicycle, carpool or public transit	Not Yet Evaluated				No End Date (Continuous)
Provide shower or locker facilities for staff/students who commute by foot or by bicycle	Not Yet Evaluated				No End Date (Continuous)
Provide secure bicycle storage	Completed (in Previous Year)				No End Date (Continuous)
Procurement (non-paper supplies)					
Incorporate minimum recycled content standards into procurement policy for consumable, non-paper supplies (e.g., writing instruments, binders, toner cartridges, etc.)	Not Yet Evaluated				No End Date (Continuous)
Establish green standards for goods that are replaced infrequently and/or may require capital funds to purchase (e.g., office furniture, carpeting, etc.)	Ongoing/In Progress	Practices have been incorporated for the purchasing of office supplies.	Follow up with implementation and measurement of impact of the purchasing guidelines.	2010	No End Date (Continuous)
Implement sustainable purchasing program for cleaning products, disposable paper products and trash bags	Ongoing/In Progress	The District is purchasing only bio-degradable plastic bags as part of the new waste management program. The new construction sites are following LEED standards for cleaning products.	Follow up with implementation and measurement of impact of the purchasing guidelines.	2010	No End Date (Continuous)
Waste reduction/diversion					

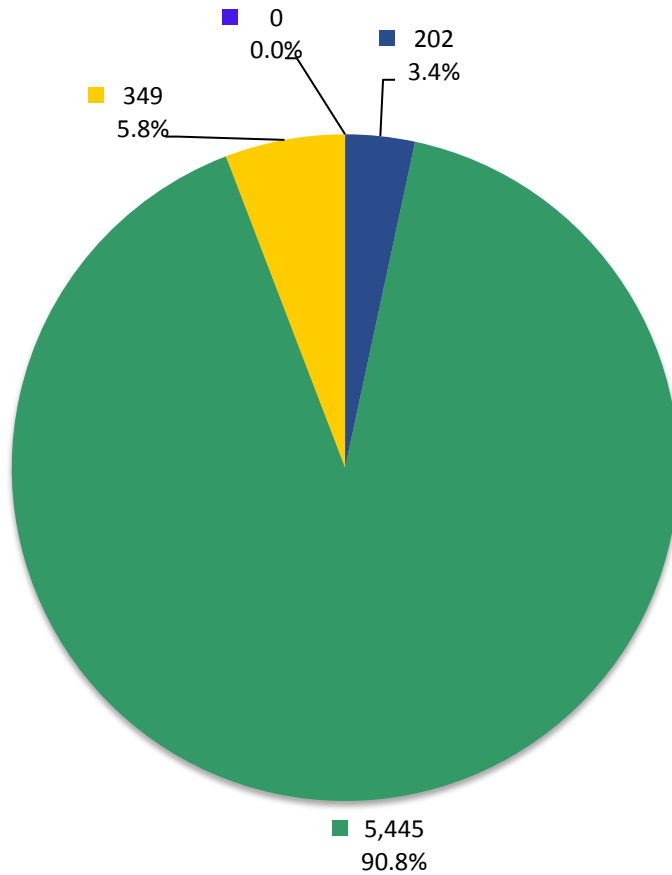
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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
Put in place an operations policy to facilitate the reduction and diversion of building occupant waste from landfills or incineration facilities	Ongoing/In Progress	Staged transition to waste separation practices are being introduced in SD41 schools. Introduction to bag-less waste in the schools. Food scrap program has been expanded as we move towards the mandated 2015 deadline requiring all food waste to be separated from garbage	Work with the City of Burnaby to expand the food scrap program even further	2008	No End Date (Continuous)
Implement a hazardous waste reduction and disposal strategy	Ongoing/In Progress	All hazardous materials are disposed of according to local guidelines. Drop off bins are available at schools for students and staff to dispose of batteries.	Continue disposing of all waste in an environmentally responsible manner	2009	No End Date (Continuous)
Water conservation					
Establish a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models	Ongoing/In Progress	in 2012 we completed installing water meters at every school	We will begin to gather baseline consumption data and create a water conservation plan	2010	No End Date (Continuous)
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	Not Yet Evaluated				No End Date (Continuous)
Introduce a stormwater management landscape strategy (e.g., vegetated roofs, permeable paving, rain gardens, bioswales)	Ongoing/In Progress	Stormwater management landscape strategy is being introduced as part of new construction requirements.	Evaluate the performance of stormwater management strategy in the new schools, to later duplicate in other schools where applicable	2010	No End Date (Continuous)

**School District 41 - Burnaby
Greenhouse Gas Emissions by Source
for the 2012 Calendar Year (tCO₂e*)**



Total Emissions: 5,996

- Mobile Fuel Combustion (Fleet and other mobile equipment)
- Stationary Fuel Combustion (Building Heating and Generators) and Electricity
- Supplies (Paper)
- Fugitive Sources

Offsets Applied to Become Carbon Neutral in 2012 (Generated May 28, 2013 3:49 PM)

Total offsets required: **5,989**. Total offset investment: **\$149,725**. Emissions which do not require offsets: **6** **

*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.