

School District #41 - 2010 Carbon Neutral Action Report

Executive Summary

The Burnaby School District is entering its 11th year of energy conservation and continues to be a leader in K-12 School district energy reduction (over 40%). Our average building intensity for the last calendar year is one of the lowest of all Districts in BC at 135 ekWh/m². Our Environmental Sustainability Policy, approved in the spring of 2010, constitutes the foundation as the District moves forward into a second decade of environmental stewardship.

The District continued through 2010 with its planned lighting and HVAC upgrades and developed its next strategic five year plan of Facilities and Environmental Upgrades. Our LEED Gold construction program has successfully completed two sites, with a third one opening in 2011.

In addition to technological and operational upgrades, 2010 was a year dedicated to introducing behavioural changing practices as part of our strategy to achieve carbon neutrality. Students, teachers and District staff came together under the Burnaby Youth Sustainability Network in a variety of events and activities, which will serve as a platform for our sustainability efforts for years to come.

Overviews

2010 Greenhouse gas emissions

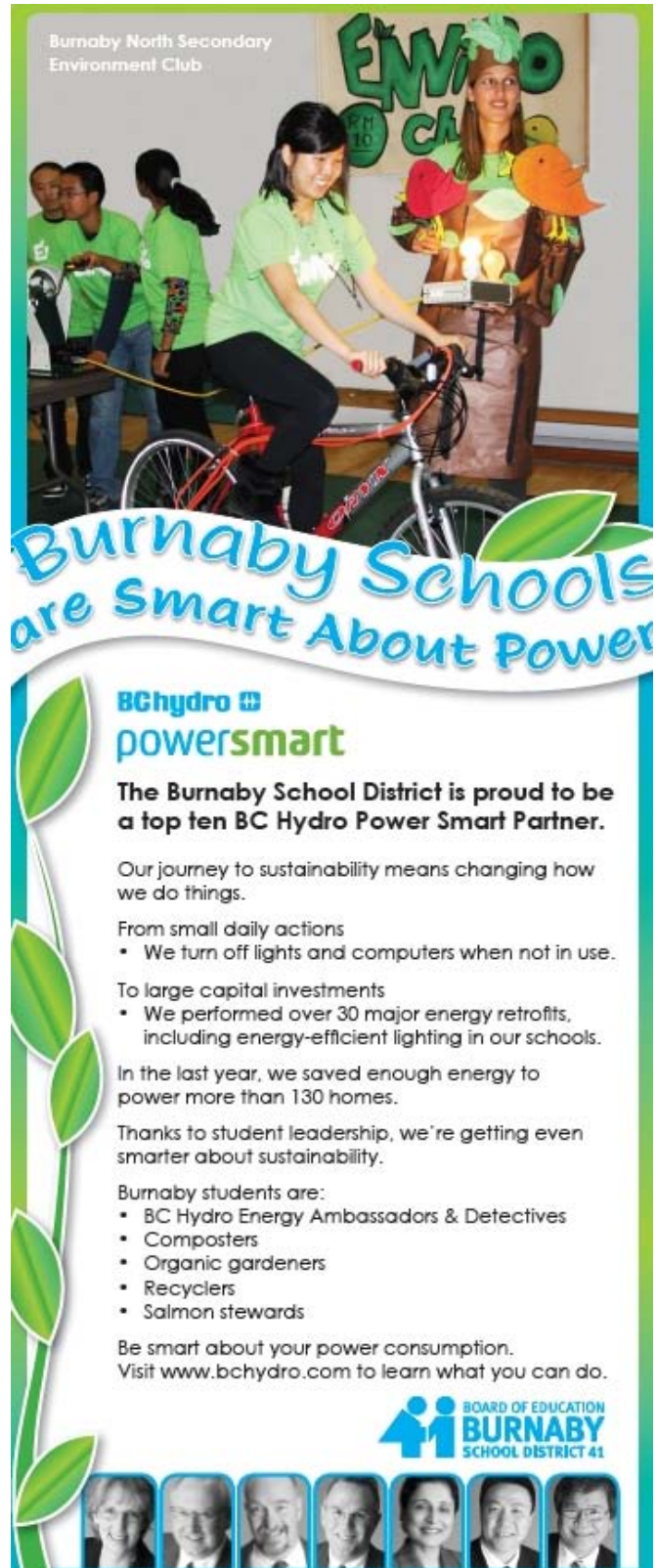
School District 41's Greenhouse Gas emissions amounted to 6,014 tCO₂e, from which its vast majority (91%) derived from stationary fuel combustions and electricity use (in buildings).

Offsets applied to become Carbon Neutral in 2010

In order to become carbon neutral in 2010, The District purchased 6,007 offsets, which represented a financial commitment of CAD \$150,175.

Emissions reduction activities in 2010

- Successful completion of Two LEED Gold Capital projects: University Highlands Elementary and Brantford Elementary.
- Initial phase of smart metering installation for electric consumption has been completed in seven schools



Burnaby North Secondary Environment Club

Burnaby Schools are Smart About Power

BC Hydro powersmart

The Burnaby School District is proud to be a top ten BC Hydro Power Smart Partner.

Our journey to sustainability means changing how we do things.

From small daily actions

- We turn off lights and computers when not in use.

To large capital investments

- We performed over 30 major energy retrofits, including energy-efficient lighting in our schools.

In the last year, we saved enough energy to power more than 130 homes.


Thanks to student leadership, we're getting even smarter about sustainability.

Burnaby students are:

- BC Hydro Energy Ambassadors & Detectives
- Composters
- Organic gardeners
- Recyclers
- Salmon stewards

Be smart about your power consumption.
Visit www.bchydro.com to learn what you can do.

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BURNABY
SCHOOL DISTRICT 41



- Water meters have been installed in eight schools
- Energy efficient Lighting upgrades completed in thirteen schools, totalling an annual reduction of over 790,000 kWh.
- Installation of Faronics energy saving software in all computers across the District.
- Completed 3 major HVAC upgrades in high energy intensity schools.

Plans to Continue Reducing Green House Gas Emissions 2011-2013

- Complete lighting upgrades for the remaining 11 schools.
- Grand opening of the new LEED Gold School Burnaby Central Secondary.
- Continue to work with our strategic partners in the search for and implementation of energy saving measures which may optimize the performance of our buildings.
- In accordance with our strategic plan, continue to involve and educate students, staff, and the community in all environmentally-minded changes the District implements, using the Burnaby Youth Sustainability Network as a key channel to reach our audience.
- Develop innovating solutions with municipal organisms in order to enhance our waste management and water consumption programs.

Operational Changes in 2010

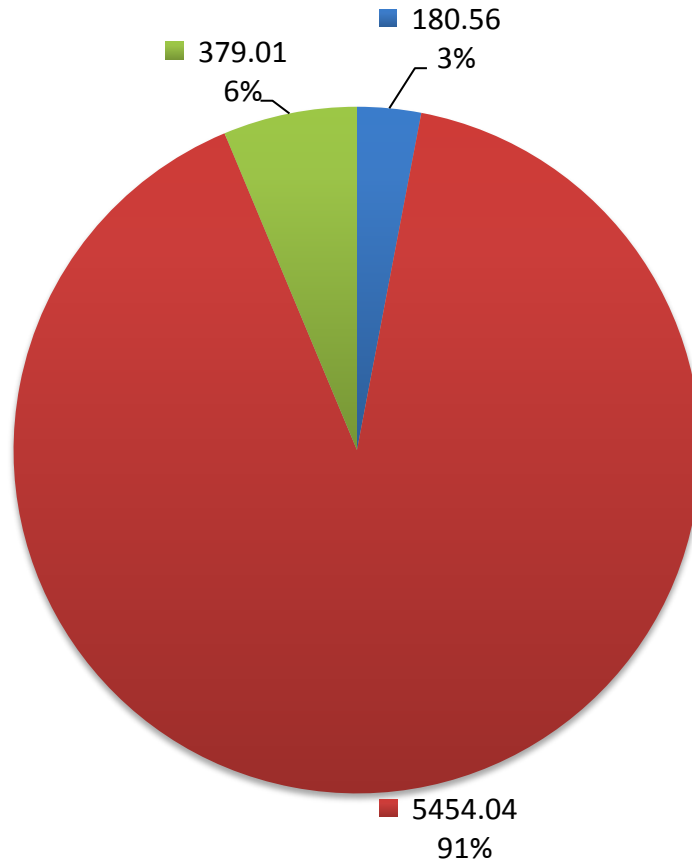
- Waste management operations were enhanced eliminating the use of plastic bags. Recycling of plastics, cardboard, containers, paper and diverting organic waste are all standard practices supported district wide.
- Creation of the Burnaby Youth Sustainability Network (BYSN), a student-driven umbrella organization to support the operation of green teams District wide. <http://www.bysn.ca>
- Formal establishment of the Board Office's Green team and the District's Green Steering Committee.
- The Board Office's Green steering committee has added educational representation to the team, with the objective of involving teachers in student driven initiatives and linking curriculum and sustainability from a District wide approach.



<http://www.sd41.bc.ca/environment/index.htm>

School District 41 (Burnaby)

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



Total Emissions: 6013.61

- 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: **6006.98**. Total offset investment: **\$150,174.50**. Emissions which do not require offsets: **6.63** **

*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)							
Behaviour change program							
Introduce anti-idling policy and/or raise anti-idling awareness for fleet drivers (e.g., signs, stickers, messages)	In Development			SD41 is building the case for an anti-idling protocol.	Present the case to Senior Management. Draft protocol and pass for approval	2010	2013
Stationary Fuel Combustion, Electricity and Fugitive Emissions (Buildings)							
Planning/management							
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	Ongoing/In Progress	18	% of buildings have a real time metering system installed	Real Time metering has been included as a requirement to new construction and retrofits. The district has also installed real time metering in 7 of our existing buildings as part of a pilot program.	Train staff to use real time metering, run pilot program, evaluate results and plan accordingly while continuing to install RTM in the rest of the portfolio.	2010	No End Date (Continuous)
Owned buildings							
Register for performance labelling/certification for operations and maintenance of owned buildings (e.g., LEED EB:O&M)	In Development	0	% of owned buildings have operations and maintenance labelling/certification	SD41 is looking to continue on to LEED EB:O&M once LEED certification of new construction sites is obtained.	Develop O&M guidelines in accordance to LEED EB: O&M, train Staff, monitor avoidance.	2010	No End Date (Continuous)
Achieve LEED NC Gold certification at a minimum for new construction or major renovations	Ongoing/In Progress	0	% of owned buildings are certified LEED NC Gold or LEED NC Platinum	SD41 is in the process of application for LEED Gold certification for its new construction and 2 major renovation projects.	Continue to use the LEED certification guideline for future projects.	2009	No End Date (Continuous)
Incorporate integrated design process into new construction or during renovations of owned buildings	Ongoing/In Progress	5	% of buildings built or renovated since start year indicated used the integrated design process	Incorporated in the LEED certification approach.	Continue to use the LEED certification guideline for future projects.	2009	No End Date (Continuous)
Complete energy retrofits on existing, owned buildings	Ongoing/In Progress	80	% of owned buildings have undergone energy retrofits since start year indicated	Energy retrofits are incorporated in regular Operations and Maintenance.	Complete lighting retrofits in remaining 13 schools.	2001	2013
Retrofitting owned buildings							
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress	25	% of retrofits since start year indicated had heating, cooling, and ventilation systems upgrades	Major mechanical upgrades done at one Secondary School. 2 LEED retrofits also included mechanical system.	Upgrade HVAC systems in three Elementary schools.	2008	No End Date (Continuous)
Upgrade lighting systems during retrofits	Ongoing/In Progress	80	% of retrofits since start year indicated had lighting systems upgrades	13 Schools were retrofitted.	Complete lighting retrofits in remaning 11 schools.	2007	2013
Upgrade/adjust control systems during retrofits	Ongoing/In Progress	85	% of retrofits since start year indicated had control system upgrades or adjustments	Every School in the district has a form of automated controls	Continue to introduce more advance contol systems as prioritized by the district. Test different technologies when opportunities arise.	2006	No End Date (Continuous)
Improve building insulation (including windows) during retrofits	Ongoing/In Progress	23	% of retrofits since start year indicated had insulation improvements	12 schools have been retrofitted for insullation, including LEED candidate projects.	Contiue to retrofit insulation for schools according with capital planning and other retrofit projects.	2009	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
Install an on-site renewable energy demonstration project	Ongoing/In Progress	1	% of retrofits since start year indicated had on-site renewable energy components	Solar panels installed in three of our schools. SD41 is studying other forms of solar energy use throughout the district.	Continue to explore and pursue the potential for reusable energy sources in SD41 school.	2008	No End Date (Continuous)
IT power management							
Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices	Ongoing/In Progress	33	% reduction in printers, copiers, and/or fax machines since start year indicated	The District removes stand-alone printers, copiers and fax machines in offices as the space is reassigned.	Continue removing stand-alone devices in the district's office space.	2008	No End Date (Continuous)
Appliances and electronic devices							
Replace refrigerators with ENERGY STAR models or source ENERGY STAR models for future purchases	In Development	5	% of fridges are ENERGY STAR rated	Following purchasing guidelines, Energy Star appliances were included in the design of new construction buildings within the District.	Ensure end of life replacement of refrigerators follow purchasing guidelines to guarantee the procurement of Energy Star rated product.	2010	No End Date (Continuous)
Replace other appliances or electronic devices with ENERGY STAR models or source ENERGY STAR models for future purchases	In Development	100	% of our computer equipment is Energy Star rated	Following purchasing guidelines, all computer equipment is now energy star rated.	Ensure end of life replacement of smaller appliances follow purchasing guidelines to guarantee the procurement of Energy Star rated product.	2008	No End Date (Continuous)
Supplies (Paper)							
Paper Type							
Purchase 100% post-consumer recycled paper	In Development			Some of the district's specialty paper is 100% recycled, where the use allows it.	Test different types of 100% recycled paper to evaluate its compatibility with the district's printing equipment to later introduce the change where possible.	2009	2013
Printer/document settings							
Switch networked printers and photocopiers to automatic double-sided	In Development	5	% of network printers or photocopiers are set to automatic double-sided	The Board office is studying the possibility implementing pre-set double side printing. Some of our schools have implemented the measure as part of their sustainability efforts.	Approve the measure at the Board office, evaluate results, expand program to schools.	2010	No End Date (Continuous)
Apply "print and hold" settings to networked printers to eliminate unclaimed print jobs	In Development	0	% of network printers have 'print and hold' settings applied	The IT department is currently adapting compatible technology in order to introduce the "print and hold" feature within the District's network.	Introduce the Print and hold feature as a pilot program to then take it as district-wide standard.	2010	2013
Electronic media in place of paper							
Post materials online that were previously printed	In Development			The Board of Trustees is currently using its website domain to post meeting materials that was previously printed.	Approve and promote guidelines to standarize the use of the district's public drives to post common materials.	2009	No End Date (Continuous)
Behaviour change program							
Encourage staff to hold paperless meetings or presentations (i.e., no handouts)	In Development			Different groups within the board office are holding paperless meetings: the board of Trustees, the sustainability steering committee, among others.	Approve and promote guidelines to standarize the use of the district's public drives to hold paperless meetings.	2010	2013

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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.)	In Development		Higher Management uses web conferences on a regular basis.	IT department to source software and new licenses needs to better enable web conferencing in the district.	2009	2013
Education, Awareness, and Engagement						
Team-building						
Create Green, Sustainability, Energy Conservation, or Climate Action Teams with executive endorsement	Ongoing/In Progress	65	percent of our schools have an active green team.	The Board Office created a staff green team. The Burnaby Youth Sustainability Network (BYSN) was created for our eight Secondary School students and staff.	2009	No End Date (Continuous)
Provide resources and/or dedicated staff to support teams	Ongoing/In Progress			SD41 has an Energy Specialist position dedicated to supporting green teams across the district.	2010	No End Date (Continuous)
Providing behaviour change education/training to teams (e.g., community-based social marketing)	Ongoing/In Progress			SD41 hosted a youth sustainability forum in 2010.	2010	No End Date (Continuous)
Awards/Recognition						
Establish a sustainability/green awards or recognition program	In Development			SD41 is studying reward systems to recognize green efforts in the district.	2010	No End Date (Continuous)
Staff Professional Development						
Support green professional development (e.g., workshops, conferences, training)	Ongoing/In Progress			The board office welcomed the David Suzuki Foundation for a workshop on sustainability at work.	2010	No End Date (Continuous)
Staff awareness/education						
Provide education to staff about the conservation of water, energy, and raw materials	Ongoing/In Progress			Green teams take on education of other staff through awareness campaigns.	2009	No End Date (Continuous)
Provide sustainability education during new staff orientation	In Development			The district is currently studying the best way to introduce sustainability education during staff orientation	2010	2013
Client/public awareness/education						
Provide education to clients/public about the science of climate change	In Development			The district created the Burnaby Youth Sustainability Network (BYSN), a student-driven organization supported by the board office and volunteer teachers.	2010	2013
Provide education to clients/public about the conservation of water, energy, and raw materials	In Development			The district created the Burnaby Youth Sustainability Network, a student-driven organization supported by the board office and teachers.	2010	2013
Provide green tips on client/public website or in newsletters	In Development			The District website was approved for re-design	2010	2011
Other Sustainability Actions						

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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
Water conservation							
Establish a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models	In Development	26	schools have water meters	Water Meters are being installed in all SD41 schools, with the objective of measuring and baselining, and benchmarking water use in our buildings.	Identify and implement potential water conservation measure in the schools, including replacement of water fixtures.	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	In Development	26	schools have water meters	Water Meters are being installed in all SD41 schools, with the objective of measuring and baselining, and benchmarking water use in our buildings.	Identify and implement potential water conservation measure in the schools, including replacement of water fixtures.	2010	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)
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			Staged transition to waste separation practices are being introduced in SD41 schools. Introduction to bag-less waste in the schools.	Initiate waste separation programs with the corresponding municipality in charge of waste pick-up. Educate students and staff. Reduce garbage bags use in the School Board Office.	2009	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.)	In Development			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)
Establish green standards for goods that are replaced infrequently and/or may require capital funds to purchase (e.g., office furniture, carpeting, etc.)	In Development			Practices have been incorporated for the purchasing of flooring and office furnitures.	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	In Development			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.	Develop case and implement use of low impact cleaning products district wide.	2010	2013
Building construction, renovation, and leasing							
Establish a policy to reuse materials where possible and divert construction and demolition debris from landfills and incineration facilities	Completed in 2010	100	percent of the district's new construction follows LEED standards for material re-use and waste diversion practices.	The District adopted LEED standards for all new construction projects.	Continue to use LEED standards as a requirement for green building practices.	2009	No End Date (Continuous)
Indoor air quality							
Incorporate low volatile organic compounds (VOCs) standards into procurement policy for products such as paints, carpets, and furniture	Ongoing/In Progress	100	percent of SD 41 paint is low VOC	Purchasing guideline was introduced.	Introduce guidelines for carpets and furniture.	2009	2013