

**Carbon Neutral Action Report
Board of Education of School District #36 (Surrey)**

Executive Summary

Established an inter-departmental working group to identify facility related sustainability initiatives for existing schools, new schools (LEED Gold); fleet initiatives; "green" curriculum and commitment to sustainability and wellness

Construction of a District Education Conference Centre (DECC) to LEED Gold standard that will consolidate 7 geographically distinctive facilities.

Variable frequency drive replacement
Power factor correction
Fluorescent light replacement
Exterior envelope remediation
Mechanical electrical upgrades
Boiler upgrades
Installation of occupancy sensors / Remote Monitoring/ Upgrading DDC Controls
LEED Gold target - for all new schools

Objectives

Key objectives, in addition to reducing greenhouse gas emissions, include increased awareness, decreased operating and maintenance costs, improved comfort and wellness of students, staff and community.

Reduce operating costs
Reduce utility costs and carbon emissions
Improve fitness, promote wellness, reduce sick time and increase staff efficiency
Reduce travel
Increase equipment efficiency
Improve environmental comfort
Improve staff morale / Promote environmental stewardship
Increase awareness of environmental impacts and benefits of sustainability initiatives

Part 1: Actions Taken to Reduce Greenhouse Gas Emissions in 2008

Overview

Actions taken for various existing schools(see below) include installation of remote metering, replace variable frequency drives, power factor correction, upgrading fluorescent lights, exterior envelope upgrades, and mechanical/electrical upgrades at various sites. Actions taken for recent new schools include energy efficiency / green initiatives for Rosemary Hts Elementary - completed September 2008; and Hazelgrove Elementary - construction started in 2008, completion expected September 2009. LEED Gold target for new Woodward Hill Elementary - construction start November 2008, completion expected Spring 2010. Various school-based sustainability initiatives (Green Teams) at secondary and elementary levels. Initiatives include recycling, walk to school programs, BCHydro Programs, "turn-out-lights" programs, iDEAS36, etc.

Remote Meter - \$26,000
 Variable F Drives \$24,000
 Power Factor - \$20,000
 Fluorescent Lights - \$450,000
 Exterior Envelope - \$1,800,000
 Mechanical/Electrical Upgrades - \$4,220,000

1.1 Mobile Fuel Combustion

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Replaced # of TYPE OF VEHICLE with MORE EFFICIENT VEHICLE/Hybrid	Complete		Replaced 1 older model bus with new vehicle
Provided driver training to reduce fuel use	In Progress		
Initiated new fleet maintenance program (could include – changing filters, checking tire pressure, regular check-ups)	In Progress		
Established anti-idling behaviour change program (e.g. signs, stickers, messages)	In Progress		
Encouraged car pooling in fleet vehicles	In Progress		Car-pooling for out-of-district travel
Encouraged use of public transit/ active transportation	In Progress		for out-of-district travel
Adopted a travel policy	Complete		

1.2 Stationary fuel combustion and electricity

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Undertaken Monitor turn-off challenge	In Progress	standard computer image used	software being adopted to assist
Replaced # computers with EnergyStar models	In Progress		2000 computers replaced in 2008/09
Asked staff to close blinds daily	In Progress		Janitorial-shutters-closed
Encouraged staff to use stairs	In Progress		
Turned off lights in unused rooms	In Progress		Janitorial staff
Replaced Refrigerators (EnergyStar rated appliance)	In Progress		New / replacement refrigerators (EnergyStar)

Replaced other appliances (with EnergyStar rated appliance)	In Progress		New / replacement appliances (EnergyStar)
Installed multi-function devices (and removed stand-alone printers/faxes)	In Progress		New / replacement devices
Replaced standard bulbs with CFLs	In Progress		
Installed motion activated lights	In Progress		
Undertaken lighting retrofit	In Progress		
Implemented server virtualization	In Progress		50 servers virtualized
Utilized desk-top power management settings on computer	In Progress	standard computer image used	software being adopted to assist
Initiated corporate computer shut-down/wake-up for maintenance	In Progress	standard computer image used	software being adopted to assist
Unplugged unused equipment	In Progress		focus on physically removing / recycling old equipment
Undertaken building energy audit at LOCATION(s)	Complete		All secondaries (20) all elementary (102)
Initiated or completed a building energy retrofit	In Progress		

1.3 Supplies

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Committed to hold paperless meetings	In Progress		
Developed document library (online and one printed copy) for large documents	In Progress		For drawings & specs for new construction
Used collaborative software to edit on-line	In Progress		
Used laptops/tablets	In Progress		1000 laptops deployed in 2008/09
Restructured a process to use less paper	In Progress		

1.4 Travel

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Trained staff in the use of Live Meeting (or other desktop collaborative software)	In Progress		
Installed Video Conferencing facilities	In Progress		
Initiated travel policy	Complete		
Supported alternative travel	In Progress		

1.5 Employee Engagement

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Provided climate change education	In Progress	<p>BC Green Games - \$2000 per school awards through the BC Ministry of Education.</p> <p>(The purpose of the "Climate Smart Schools Project" is to provide staff and students with a computer software tool, teaching resources in English and French for Grades 4 to 7 teachers and a high school student leadership opportunity tied to the development and implementation of these materials at two Surrey elementary schools. Framed within an overall energy assessment and climate change education effort, classes from each school would undertake action projects to reduce emissions, after completing a school greenhouse gas (GHG) inventory. As a school energy challenge, the two schools could compare their relative GHG emissions, or students could be challenged to make GHG reduction efforts in their homes. The schools would be well positioned to submit a BC Green Games project application profiling the project and its outcomes. Eligible for BC Green Games - \$2000 per school)</p>	<p>Green Learning Network: District communication to schools, teacher workshops facilitated by GL staff; collaboration with GL staff in creating a district professional development plan</p> <p>SD36-Green Learning-Pembina Institute 'Climate Smart Schools Project': Concept Paper developed in partnership with Green Learning and the Pembina Institute</p> <p>Sustainable Schools Forum: District Facilities and Business Management staff, principals and teachers and students from two schools participated.</p> <p>SD36-Elementary and Secondary Student Leadership Programs - Action Taken: release time for teachers and student workshop opportunities - presentation to Board of Education i.e. student water filtration project at Fraser Heights Secondary.</p>

Provided climate change education	In Progress	<p>SD36-Me to We Leadership and Volunteer Now Program Partnership agreement formalized, long term planning underway. Individual schools already participated in global citizenship/sustainability projects.</p> <p>Robert Bateman Get to Know Program: Collaborated to create the CD Rom resource; organized and launched the Robert Bateman CD Rom with EEPSA; provided workshops in collaboration with Metro Vancouver using the CD Rom resource accessing the Greater Vancouver Parks</p> <p>Green Timbers Nature House: Science helping teacher collaborated with City of Surrey and Green Timbers Historic Society in preserving the Green Timbers Historic Forest. School education programs are organized to access the interpretive forest.</p>
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Provided conservation education	In Progress		<p>SD36-Me to We Leadership and Volunteer Now Program Partnership agreement formalized, long term planning underway. Individual schools already participated in global citizenship/sustainability projects.</p> <p>Robert Bateman Get to Know Program: Collaborated to create the CD Rom resource; organized and launched the Robert Bateman CD Rom with EEPSA; provided workshops in collaboration with Metro Vancouver using the CD Rom resource accessing the Greater Vancouver Parks</p> <p>Green Timbers Nature House: Science helping teacher collaborated with City of Surrey and Green Timbers Historic Society in preserving the Green Timbers Historic Forest. School education programs are organized to access the interpretive forest.</p>
Held contests to change behaviour/make pledges	In Progress	BC Green Games - \$2000 won by Erma Stephanson, Dogwood & Fraser Hts	See above
Held contests/support to generate ideas	In Progress		promotion directly to schools through district communications of Green Learning.ca and other environmental organizations or through science conferences on First Class
Developed Green Teams	In Progress	Salmonids in the classroom program in 75 elementary, secondary schools and learning centres	<p>Green Teams at various school sites</p> <p>Salmonids in the Classroom Program</p> <p>Green Teachers Network: work in collaboration with various local environmental groups. Green Teachers Network hosts regular meetings and information sessions on environmental issues</p>
Supported Green Teams (resources)	In Progress		First Class Conference

Provided green tips	In Progress	District communications frequently include Green Learning Network
Supported professional development	In Progress	Various CEFPI / SPOA / Climate Action Conferences workshops offered (local environmental groups) on a regular basis as well as district Focus Days and the STA Convention Day
Added green work goal to performance management	In Progress	
Other:	In Progress	First Class Carpool Icon: facilitates carpooling through a First Class Conference placed on district desktops

1.6 Sustainability Actions (others)

Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Took water conservation measures – low flow showers or toilets, fix leaks	In Progress		Low flush toilets
Ran dishwasher only when full	In Progress		
Reduced/replaced bottled water with filtered or refrigerated water	In Progress		
Improved recycling measures	In Progress		
Used re-usable dishes	In Progress		
Purchased green cleaning products	In Progress		
Used green (low-e paints)	In Progress		Low-e paints for new and existing

Part 2: Plans to Continue Reducing Greenhouse Gas Emissions 2009 -- 2011

Overview	Key objectives, in addition to reducing greenhouse gas emissions, include increased awareness, decreased operating and maintenance costs, improved comfort and wellness of students, staff and community.
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2.1 Mobile Fuel Combustion

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Replaced # of TYPE OF VEHICLE with MORE EFFICIENT VEHICLE/Hybrid	Planned		Vehicle replacement plan	
Provided driver training to reduce fuel use	In Progress		for out-of-district travel	
Initiated new fleet maintenance program (could include – changing filters, checking tire pressure, regular check-ups)	In Progress		for out-of-district travel	
Established anti-idling behaviour change program (e.g. signs, stickers, messages)	Planned		For administrative travel	
Encouraged car pooling in fleet vehicles	In Progress		for out of district travel	

Encouraged use of public transit/ active transportation	In Progress		for out of district travel	
Establish travel reduction goals	Planned		For administrative travel	
2.2 Stationary Fuel Combustion (including electricity)				
Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Undertake workstation tune-ups to help staff understand what they can do to reduce personal energy use	In Progress	complete deployment of standard computer image on all computers	Administration	
Undertake monitor turn off challenge	In Progress	complete deployment of standard computer image on all computers	Administration	42 schools remaining to standardize
Replace # computers with EnergyStar models	In Progress	focus on replacing CRT monitors	Replacement computers	42 schools remaining to standardize
Ask staff to close blinds daily	In Progress		Ongoing	
Encourage staff to use stairs	Planned		Administration	
Turn off lights in unused rooms	In Progress		Ongoing	
Replace Refrigerators (EnergyStar rated appliance)	In Progress		Replacement appliances	
Replace other appliances (with EnergyStar rated appliance)	In Progress		Replacement appliances	
Install multi-function devices (and remove stand-alone printers/faxes)	In Progress		Replacement devices	
		use HP technology to measure and report paper usage on a site by site basis		
Replace standard bulbs with CFLs	In Progress			
Install motion activated lights	In Progress		New buildings / electrical retrofits	
Undertake lighting retrofit	In Progress		Ongoing	
Implement server virtualization	In Progress	complete virtualized of servers in central data centre	Ongoing	
Utilize desk-top power management settings on computer	In Progress	complete deployment of standard computer image on all computers	42 schools remaining to standardize	
Initiate corporate computer shut-down/wake-up for maintenance	Planned	complete deployment of standard computer image on all computers	41 schools remaining to standardize	
Unplug unused equipment	In Progress			
Undertake building energy audit at LOCATIONS	In Progress		Ongoing	
Initiate or complete a building energy retrofit	In Progress		Ongoing	
Other:	Planned		Apply for LEED Gold for all new buildings	

2.3 Supplies

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Commit to use 30% recycled paper	Planned			
Initiate automatic double sided printing	Planned In progress	complete deployment of standard computer image on all computers	default setting to double sided where possible	
Change document template margins	In progress	rebuild software image for Microsoft office and adjust the default settings		
Commit to hold paperless meetings	In progress	review and adopt software to allow meetings to be held virtually	WAN upgrades will make this option more attractive and functional	
Develop document library (online and one printed copy) for large documents	In progress	adopt and deploy Microsoft technology (SharePoint) to work with Open Text First Class systems	Continue to use on-line document control for new construction projects	
Use collaborative software to edit on-line	In progress	adopt and deploy Microsoft technology (SharePoint) to work with Open Text First Class systems		
Use laptops/tablets	In progress	purchase and deploy 1000+ laptops each school year		
Restructure a process to use less paper	In progress	upgrades to ERP systems for employee self services, etc.		
Encourage re-use of furniture and equipment	Planned		New District Education Conference Centre	

2.4 Travel

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Train staff in the use of Live Meeting (or other desktop collaborative software)	In Progress		review, adopt and deploy software service for school and management team to initiate online meetings	
Install Video Conferencing facilities	In Progress	via existing Wide Area Network (WAN)	Videoconference capability planned for New District Education & Conference Centre	
Initiate travel policy	Complete			
Support alternative travel (bike/skateboard/walk/transit) for meetings	In Progress		Provide shower and bike storage facilities in New District Education & Conference Centre	

2.5 Employee Engagement

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Provide climate change education	Planned		"Climate Smart Schools Project" developing and piloting the project in McLeod Elementary / Woodward Hill and Fraser Heights Secondary in 2009. This phase would involve Green Learning Canada staff working with the two schools to complete an emissions assessment and emissions reduction plan. This pilot project would support the development of the calculator tool, instructional support, student leadership on eco-literacy and social responsibility. The completion of the initial pilot would support future expansion to more schools in 2010 as well as supporting the submission of project reports by participating school to BC Green Games.	
Provide conservation education	Planned		"Climate Smart Schools Project" Me to We Volunteer Now - through to May 2010 - up to 3 student leadership workshops on global citizenship and social responsibility. Education training - a one day workshop for teacher leaders.	
Hold contests to change behaviour/make pledge	In Progress		"Climate Smart Schools Project" BC Green Games	
Hold contests/support to generate ideas	Planned		"Climate Smart Schools Project"	
Develop Green Teams	In Progress			
Support Green Teams (resources)	In Progress			
Support Professional Development	In Progress			
Other:	Planned		Partnership with Green learning & the Pembina Institute to Pilot "Climate Smart Schools Project"	

2.6 Sustainability Actions (others)

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Take water conservation measures - low flow showers or toilets, fix leaks	In Progress		For new schools, retrofits, New District Education and Conference Centre	
Reduce/replace bottled water with filtered or refrigerated water	Planned		New District Education Conference Centre	
Use re-usable dishes	Planned		New District Education Conference Centre	
Purchase green cleaning products	In Progress			
Use green (low-e paints)	In Progress			
Support Sustainable Procurement Practices	Planned			

Additional Actions Taken or Planned

Actions	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
	Planned	Energy consumption reduction of 50% by 2012 (once DECC is occupied and 7 other facilities vacated).	<p>A new District Education Conference Centre (DECC) is planned to begin construction in June 2009. It will consolidate 7 geographically separated district facilities (owned and rented) under one roof.</p> <p>The new DECC is centrally located on and or near arterial roads which will allow for reduced transportation impact.</p> <p>It is environmentally friendly with the addition of geothermal heating, green roofs and natural light harvesting included in the construction.</p> <p>There are 2 additional phases to this complex that will achieve additional environmental savings.</p>	