

School District 54 (Bulkley Valley) - 2009 Carbon Neutral Action Report

Executive Summary

Our district's efforts to reduce greenhouse gas emissions (GHG) continue primarily through the development and implementation of our district's Annual Facilities Plan. This plan focuses on high yield projects that offer significant reductions in GHGs as well as a solid economic payback. Investments in boiler upgrades, direct digital controls and lighting upgrades are examples of projects that offer that win/win scenario. The elimination of the Annual Facilities Grant limited our ability to undertake projects leading to carbon neutrality, but we continue to try and leverage limited third party funds as well as other government capital programs. Other initiatives, such as anti-idling signage, implementing power management software, purchase of energy efficient peripherals and server virtualization, offer less dramatic reduction potential but are important nonetheless in that they encourage behavioural changes over the longer term.



Overviews

Actions Taken to Reduce Greenhouse Gas Emissions in 2009

Houston Secondary Solar Wall: Houston Secondary School, built in 1970 to California architectural standards, is a dramatic example of a public facility ill-equipped to demonstrate any level of energy efficiency. Its sub-standard insulation and aging HVAC systems make this building one of the most inefficient in the province. A typical monthly Natural Gas bill during the winter is \$17,000.00! A complete boiler upgrade is scheduled for the 2010 year, but during 2009, the installation of a Solar Wall provided an important demonstration project that reduced the heating requirements of make-up air.

Lighting Projects: For our district, the replacement of out-dated lighting fixtures offered the reality of major GHG emission reductions and cost savings. With the help of leveraged funding from BC Hydro, projects at 5 schools netted a reduction of 10.5 tonnes of GHG which translates into \$33,930 worth of energy costs. Additionally, students and staff are enjoying the benefits of a better quality of light and reduced 'white noise'.

Intelligent Parking Lot Controller: The realities of a northern BC winter may be unfamiliar to those in the lower mainland, but vehicles, and especially diesel engine vehicles, such as school busses, need to have their engine temperatures maintained at a certain temperature. Normally, this is accomplished with the use of an electric block heater. The disadvantage of a conventional 'plug-in' is that that the amount of power delivered remains constant irrespective of the actual temperature. Using a microprocessor, this device measures temperature and windchill and regulates power delivery on an 'as-needed' basis. On a fleet of 24 school busses, this device will yield estimated annual savings of 30,000 kWh or 0.66 Tonnes of CO²e.

Plans to Continue Reducing Greenhouse Gas Emissions 2010 – 2012

- As funding permits, we will continue to focus on high yield projects such as the boiler project mentioned above.
- Continue to encourage the use of electronic and paperless meeting formats, reduced travel and power management software.
- Continue support for the use of Smart Boards in the classroom and reduce classroom paper consumption.

School District 54 (Bulkley Valley) - 2009 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 12/31/09)	Performance to Date (as of 12/31/09)		Steps Taken in 2009	Steps Planned for 2010 -2012	Start Year	End Year
Mobile Fuel Combustion (Fleet and other mobile equipment)							
Vehicle fuel efficiency							
Replace vehicles with more fuel-efficient models	Ongoing/In Progress	75	% of vehicles are fuel- efficient models	No progress in 2009 due to funding constraints	budget dependent	2007	No End Date (Continuous)
Replace larger vehicles with smaller models according to fleet "right-sizing" principles	Ongoing/In Progress	75	% of vehicles down-sized since start year indicated	as above	budget dependent	2007	No End Date (Continuous)
Perform regular fleet maintenance to improve fuel-efficiency	Ongoing/In Progress	100	% of vehicles are subject to regular maintenance for fuel efficiency	Preventative maintenance & regular maintenance programs on entire fleet.	Ongoing	1990	No End Date (Continuous)
Behaviour change program							
Provide fleet driver training to reduce fuel use	Complete	100	% of current drivers are trained	NRCAN's driver training to bus drivers & maintenance staff		2009	2009
Introduce anti-idling policy and/or raise anti-idling awareness for fleet drivers (e.g., signs, stickers, messages)	Complete			Signs on all properties		2009	2009
Other Mobile Fuel Combustion Actions							
Review bus routes to determine efficiencies	Ongoing/In Progress			through consolidation, eliminated 1 bus route.	Ongoing review	1990	No End Date (Continuous)
Stationary Fuel Combustion, Electricity and Fugitive Emissions (Buildings)							
Owned buildings							
Establish energy performance baseline for owned buildings	Complete	100	% of owned buildings have an established energy performance baseline	Purchased energy management software. Operating with historical values. 2007 baseline year.		2009	2009
Complete energy retrofits on existing, owned buildings	Ongoing/In Progress	30	% of owned buildings have undergone energy retrofits since start year indicated	Lighting upgrades and completion of solar wall.	Funding dependent. Lighting upgrades at 5 schools. Boiler upgrade at 1 school.	2009	No End Date (Continuous)
Retrofitting owned buildings							
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress	0	% of retrofits (captured above) had heating, cooling, and ventilation systems upgrades	No upgrades this year due to lack of funding.	Boiler upgrade at 1 school.	2008	2009
Upgrade lighting systems during retrofits	Ongoing/In Progress	60	% of retrofits (captured above) had lighting systems upgrades	5 projects completed. 5 buildings remain to be upgraded	Funding dependedent. Lighting upgrades planned at 5 schools.	2009	2010
Upgrade/adjust control systems during retrofits	Ongoing/In Progress	85	% of retrofits (captured above) had control system upgrades or adjustments	Lighting upgrade included motion sensors in classrooms.	Funding dependent. Lighting upgrades planned at 5 schools.	2009	2010

School District 54 (Bulkley Valley) - 2009 Carbon Neutral Action Report

Action	Status (as of 12/31/09)	Performance to Date (as of 12/31/09)		Steps Taken in 2009	Steps Planned for 2010 -2012	Start Year	End Year
Install an on-site renewable energy demonstration project	Complete	10	% of retrofits (captured above) had on-site renewable energy components	Solar wall completed.	None	2008	2009
IT power management							
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	Implementation of FOG System for automatic shutdown and updating of machines	Continued steps towards 100% shutdown	2008	No End Date (Continuous)
Implement server virtualization	In Development			1 Server has been virtualized between 2 schools. Possible due to shared fibre optic line joining campuses.	Additional virtualization possible when increased bandwidth becomes available through PLNet.	2009	No End Date (Continuous)
Apply auto-sleep settings on computer monitors and CPUs	Complete	100	% of computers have auto-sleep settings applied	Implemented through Windows policy settings.		2008	2009
Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices	Ongoing/In Progress	60	% reduction in printers, copiers, and/or fax machines since start year indicated	Installation of network photocopiers reduced dependence on office printers.	As funds permit, will implement in association with purchases of network-capable copiers.	2008	2012
Apply auto-sleep settings on printers, copiers, fax machines, and/or multi-function devices	Complete	100	% of devices have auto-sleep settings applied	All devices installed have this feature.		2004	2009
Replace computers with ENERGY STAR models during regular computer upgrades	Ongoing/In Progress	90	% of computers are ENERGY STAR rated	All purchases of new computers are ENERGY STAR	Standard purchasing procedure. Ongoing replacement program	2005	2012
Behaviour change program							
Help staff reduce personal energy use through "workstation tune-ups"	Ongoing/In Progress			Provided workstation energy efficiency strategies to District & School office staffs.	More of the same. Expand to educators as well.	2009	No End Date (Continuous)
Ask staff to unplug electrical equipment or switch off power bars when not in use	Complete	100	100% of staff have been notified	email reminders distributed periodically.		2008	2009
Other Stationary Fuel Combustion and Electricity Actions							
Motion sensors installed for lighting	Ongoing/In Progress	40	of total # of classrooms	Implemented in association with lighting upgrades.	Funding dependent. Will implement in association with lighting upgrades	2007	No End Date (Continuous)
Installed 'Intelligent Parking Lot Controller' for engine block heaters. Matches electrical supply with temperature.	Complete			Installation & use.		2009	2009
Supplies (Paper)							
Paper Type							
Purchase 30% post-consumer recycled paper	In Development				encourage/mandate the use of recycled paper	2010	2011
Electronic media in place of paper							
Install collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	Ongoing/In Progress			Ongoing use of Moodle to share documents between various groups in the district.	continue to encourage other groups (PVP, trustees) to use Moodle for similar document sharing.	2008	No End Date (Continuous)
Use electronic document library for filing common documents	Ongoing/In Progress			Additional common directories created for Kurzweil and digital media classes.	where applicable, such common directory strategies will be applied.	2006	No End Date (Continuous)
Post materials online that were previously printed	Ongoing/In Progress			Redesigned website. Use of Moodle platform.	Where opportunity presents itself.	2007	No End Date (Continuous)

School District 54 (Bulkley Valley) - 2009 Carbon Neutral Action Report

Action	Status (as of 12/31/09)	Performance to Date (as of 12/31/09)	Steps Taken in 2009	Steps Planned for 2010 -2012	Start Year	End Year
Behaviour change program						
Train staff to use collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	Ongoing/In Progress		Trained trustees and administrators on use of Moodle.	No specific plans but ongoing encouragement to other users / potential users that this is an option.	2008	No End Date (Continuous)
Encourage staff to hold paperless meetings or presentations (i.e., no handouts)	Ongoing/In Progress		Implemented for all board, committee, senior management, administrators, technology department meetings.	Where opportunity presents itself.	2008	No End Date (Continuous)
Encourage re-use of scrap paper	Complete		used for fax and other purposes.		1994	No End Date (Continuous)