

ABBOTSFORD
SCHOOL DISTRICT
RESPECT OPPORTUNITY INNOVATION

SD34 (Abbotsford)

2012 Carbon Neutral Action Report

Executive Summary

Abbotsford School District has been diligently working for many years to conserve energy, reduce consumption, and improve the working environment for our staff and students. We are recognized as a "PowerSmart Leader" by BC Hydro, and as such, we get a lot of encouragement and support in the work we do. We have retrofitted our properties to reflect the latest technologies in lighting, heating and building control systems. In late 2012, we were fortunate enough to obtain an "Energy Specialist" through a new association with FortisBC. The "Specialist" will be a tremendous help to the Energy Manager on the school 'educational' side of his work, as well as the preparation of programs that will reduce natural gas consumption.

We are committed to becoming one of the most energy efficient School Districts in BC, and will ensure that every reasonable effort is made to conserve energy and resources in order to reduce the School District's Carbon footprint and move towards Carbon neutrality.

Our Carbon Neutral Plan includes a Sustainable Energy Management Plan (SEMP) for electrical initiatives, and we will move towards writing on for natural gas use as well. In 2012, our facilities upgrade plans moved fully ahead thanks to the continuation of our Annual Facilities Grant (AFG) by the Provincial Government in April.

Integration of environmentally sustainable considerations into the School District's business decisions are related to: Lighting, HVAC, new and renovation construction, and recycling programs.

The teachers job actions continued into 2012, commencing in September 2011, and the resulting lack of school green teams support (meaning behavioral energy reductions) from the teachers, our electrical consumption increased by 0.87% (a reduction from the 3.7% increase in 2011) and the gas consumption reduced by 8.3% (from the 14.9% increase in 2011). What helped in these reductions was that the Degree Days in 2012 were 2807, down from 2920 in 2011.

2012 Greenhouse Gas (GHG) Emissions

Our total GHG Emissions for calendar 2012 was 3,976 tCO₂e. We had an adjustment for offsets for 2011 totaling 19 tCO₂e, for a grand total of 3,995 tCO₂e.

Offsets Applied to become Carbon Neutral in 2012

The amount of offsets applied in 2012 was \$ 99,875, plus GST.

Actions Taken to Reduce Greenhouse Gas Emissions in 2012

As described above, this year's 'Green Team' program was cancelled, due to the teachers job action. Although at this time (2012/2013) the teachers are back to work, it is too late in the student's year to make a start on a new program, so we are concentrating our efforts on developing new initiatives for the teachers and students, as well as a District-wide energy dashboard for the students use.

In 2011, we signed a Memorandum of Understanding with FortisBC, that will allow them to develop a proposal that will identify as many of our properties as possible, suitable for heating plant upgrades such as high efficiency boilers, air source heatpumps and geexchange systems. In 2012, we continued the process of fine-tuning the details of the projects with the intent of defining our needs with the final program.

Construction was completed on our new, 1,100 student, LEED Gold, Abbotsford Senior Secondary School, which will use an open loop ground water source geexchange system to provide 100% of the heating and cooling requirements. Other initiatives include natural ventilation, daylight lighting design, and solar hot water system to preheat the domestic water requirements.

Operational Changes in 2012

We have commenced with retrofitting the first 7 schools under the BC Hydro Continuous Optimization (C.Op) program, after the completion of the work (Summer 2013) we are told that we will reduce our electrical consumption by 435,000 kWh and gas by 2,709 GJ, with resulting GHG savings.

Plans to Continue Reducing Greenhouse Gas Emissions 2013- 2014

Regardless of the Fortis Thermal Energy Program, our AFG for the 2013-14 year will include for 6 (six) boiler conversions to high efficiency condensing type, costing close to \$1million. We will also be completely cleaning the ductwork/coils in 8 (eight) schools, DOC upgrades for 6 (six) schools, a domestic HW Solar system for 1 (one) school and 6 (six) condensing DHW boilers in other schools.

Signed:



Ray Velestuk, Secretary/Treasurer



Tom Louie, Director of Facilities and Transportation

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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	Ongoing/In Progress	Training continued for 50% drivers per year.	Training will continue for 50% drivers per year.	2008	No End Date (Continuous)
Introduce anti-idling policy and/or raise anti-idling awareness for fleet drivers (e.g., signs, stickers, messages)	Ongoing/In Progress	Policy is in place with applicable signage	Policy is in place with applicable signage	2008	No End Date (Continuous)
Encourage carpooling in fleet vehicles	Ongoing/In Progress	Ongoing encouragement	Ongoing encouragement	2008	No End Date (Continuous)
Vehicle fuel efficiency					
Replace vehicles with more fuel-efficient models	Ongoing/In Progress	4 white fleet replaced in 2012. Size matched older units as required.	We are looking to replace 6 busses and unknown number of white fleet during 2013/14 budget year.	2012	2014
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	Ongoing/In Progress	Maintenance continued as required for all vehicles.	Maintenance will continue as required for all vehicles.	2008	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	Being done as part of ProD and orientation meetings	Will be done as part of ProD and orientation meetings	2010	No End Date (Continuous)
Ask staff to unplug electrical equipment or switch off power bars when not in use	Ongoing/In Progress	Being done as part of ProD and orientation meetings	Will be done as part of ProD and orientation meetings	2010	No End Date (Continuous)
Ask staff to close blinds at end of work day to reduce heating/cooling demands	Ongoing/In Progress	Being done as part of ProD and orientation meetings	Will be done as part of ProD and orientation meetings	2010	No End Date (Continuous)
Provide tips to staff on saving energy in the office while working outside of regular business hours	Ongoing/In Progress	Being done as part of ProD and orientation meetings	Will be done as part of ProD and orientation meetings	2010	No End Date (Continuous)
Encourage use of stairs instead of elevators	Ongoing/In Progress	Being done as part of ProD and orientation meetings	Will be done as part of ProD and orientation meetings	2010	No End Date (Continuous)
Provide reminders for turning off lights (e.g., signs, stickers, messages)	Ongoing/In Progress	Being done as part of ProD and orientation meetings	Will be done as part of ProD and orientation meetings	2010	No End Date (Continuous)
Promote hot water conservation	Ongoing/In Progress	Being done as part of ProD and orientation meetings	Will be done as part of ProD and orientation meetings	2010	No End Date (Continuous)
IT power management					
Install power management software which shuts down computers outside of regular business hours	Ongoing/In Progress	Our IT department has installed upgraded Windows servers, PC shutdown occurs automatically.	Nothing planned	2010	2012
Implement server virtualization	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	Replaced on an as-required basis	Will be replaced on an as-required basis	2010	No End Date (Continuous)
Replace computers with ENERGY STAR models during regular computer upgrades	Ongoing/In Progress	Replaced on an as-required basis	Will be replaced on an as-required basis	2010	No End Date (Continuous)
Owned buildings					

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
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)	Not Yet Evaluated				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	Construction complete on a new LEED Gold Abby Senior School	None planned till 2015	2010	2013
Perform energy retrofits on existing, owned buildings	Completed (in Previous Year)				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	We now have 10 large schools in the BC Hydro Continuous Optimisation program, plus our newly constructed Abby Senior	Planning to add more as funding allows	2011	2014
Retrofit details for owned buildings					
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress	Awaiting outcome of the Fortis Thermal Energy Program	Will install 6 new condensing building heating boilers, plus 3 Dom HWH boilers and 1 Solar HW preheat system	2010	2014
Upgrade lighting systems during retrofits	Ongoing/In Progress	Lighting has been upgraded on as-required basis	Lighting will be upgraded on as-required basis	2008	No End Date (Continuous)
Upgrade/adjust control systems during retrofits	Ongoing/In Progress	Control systems are being updated on an as-required basis... Added new controls to 2 schools	Control systems are updated on an as-required basis... Will add new controls to 4 schools	2010	No End Date (Continuous)
Improve building insulation (including windows) during retrofits	Ongoing/In Progress	Insulation has been upgraded on an as-required basis.	Insulation will be upgraded on an as-required basis.	2010	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)	Ongoing/In Progress	Ongoing/continuous	Ongoing/continuous	2010	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	Ongoing/In Progress	Existing 85% (est) of documents filed electronically	Will attempt to increase	2008	No End Date (Continuous)
Paper Type					
Purchase 30% post-consumer recycled paper	Ongoing/In Progress	Purchase as required	Purchase as required	2008	No End Date (Continuous)
Purchase 40% post-consumer recycled paper	Ongoing/In Progress	Purchase as required	Purchase as required	2008	No End Date (Continuous)
Purchase 100% post-consumer recycled paper	Ongoing/In Progress	Purchase as required	Purchase as required	2008	No End Date (Continuous)

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
Printer/document settings					
Switch networked printers and photocopiers to automatic double-sided	Not Yet Evaluated				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	Ongoing/Continuous	Ongoing/Continuous	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.)	Not Yet Evaluated				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	Not Yet Evaluated				No End Date (Continuous)
Education, Awareness, and Engagement					
Awards/Recognition					
Establish a sustainability/green awards or recognition program	Completed (in Previous Year)				No End Date (Continuous)
Staff Professional Development					
Support green professional development (e.g., workshops, conferences, training)	Ongoing/In Progress	We obtained an Energy Specialist to join our staff and she will help the Energy Manager to help provide educational services	Energy Specialist will continue to work with the Energy Manager to help provide educational services	2012	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	Not Yet Evaluated				No End Date (Continuous)
Provide green tips on staff website or in newsletters	Ongoing/In Progress	We have a website with "Sustainability" tab	Website tab will continue	2010	No End Date (Continuous)
Provide sustainability education during new staff orientation	In Development	We are looking into this now	To continue to research the opportunities	2012	2014
Team-building					
Provide resources and/or dedicated staff to support teams	Ongoing/In Progress	We obtained an Energy Specialist to join our staff and she will help the Energy Manager to help provide educational services	Energy Specialist will continue to work with the Energy Manager to help provide educational services	2012	No End Date (Continuous)
Providing behaviour change education/training to teams (e.g., community-based social marketing)	Ongoing/In Progress	We obtained an Energy Specialist to join our staff and she will help the Energy Manager to help provide educational services	Energy Specialist will continue to work with the Energy Manager to help provide educational services	2012	No End Date (Continuous)

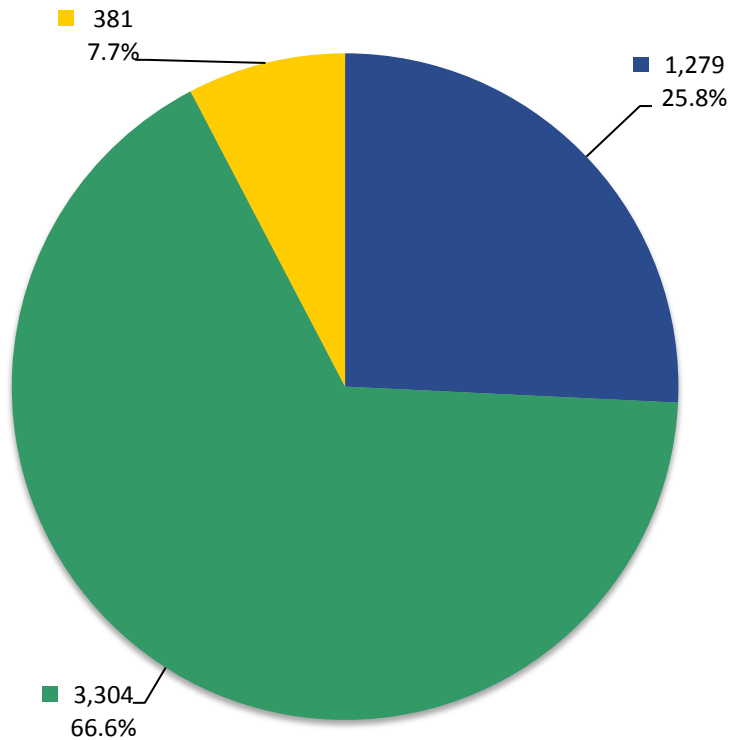
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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
Other Sustainability Actions					
Building construction, renovation					
Establish a policy to reuse materials where possible and divert construction and demolition debris from landfills and incineration facilities	Not Yet Evaluated				No End Date (Continuous)
Incorporate lifecycle costing into new construction or renovations	Not Yet Evaluated				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	Completed (in Previous Year)				No End Date (Continuous)
Encourage commuting by foot, bicycle, carpool or public transit	Completed (in Previous Year)				No End Date (Continuous)
Provide shower or locker facilities for staff/students who commute by foot or by bicycle	Completed (in Previous Year)				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.)	Completed (in Previous Year)				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.)	Completed (in Previous Year)				No End Date (Continuous)
Implement sustainable purchasing program for cleaning products, disposable paper products and trash bags	Completed (in Previous Year)				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	Not Yet Evaluated				No End Date (Continuous)
Implement a hazardous waste reduction and disposal strategy	Not Yet Evaluated				No End Date (Continuous)
Water conservation					
Establish a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models	Not Yet Evaluated				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)	Not Yet Evaluated				No End Date (Continuous)

**School District 34 - Abbotsford
Greenhouse Gas Emissions by Source
for the 2012 Calendar Year (tCO₂e*)**



Total Emissions: 4,964

- 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 2012 (Generated May 28, 2013 3:41 PM)

Total offsets required: **3,976**. Total offset investment: **\$99,400**. Emissions which do not require offsets: **988** **

*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.