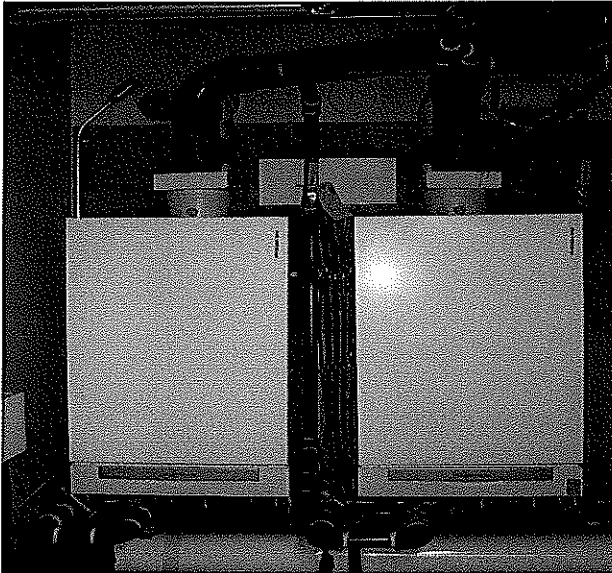


SCHOOL DISTRICT 54 (Bulkley Valley)

2012 CARBON NEUTRAL ACTION REPORT

1. Executive Summary

In School District 54 (Bulkley Valley), efforts to reduce Greenhouse Gas emissions (GHG) are guided by the School District Facilities Plan and implemented with funds obtained from the Annual Facilities Grant (AFG). Wherever possible, district funds are used to leverage third party funding to maximize the scope and benefits of projects. Our efforts in 2012 were relatively modest compared to previous years due to limited funding.



In July 2012 the 1994 boiler system at Lake Kathlyn Elementary School was removed and replaced with two new Viessmann Vitodens 200 condensing boilers. Variable frequency pumps along with a low loss header and additional DDC control points were also added. This new system will provide better setback control, reduced consumption on weekends and shoulder seasons'. The district estimates a minimum savings of 15% in the fuel consumption and Greenhouse gases.

2. 2012 Greenhouse Gas Emissions

The table below provides relevant information on the district's total Greenhouse Gas Emissions by source.

Source*	Emissions (t CO ₂ e)
Buildings	902.81
Fleet (in scope)	475.38
Fleet (out of scope)	381
Procurement	28.80
Total Gross Emissions	1,407
Less: Fleet out-of-scope	381
Total Emissions	1,026

** It was estimated that stationary fugitive emissions from cooling do not comprise more than 0.01% of School District 54 (Bulkley Valley) emissions and an ongoing effort to collect or estimate emissions from this source would*

SCHOOL DISTRICT 54
(Bulkley Valley)

be disproportionately onerous. For this reason, emissions from this source have been deemed out-of-scope and have not been included in School District 54 (Bulkley Valley) total greenhouse gas emissions profile.

3. Offsets applied to become carbon neutral in 2012

As required by section 5 of the Carbon Neutral Government Regulation, 386.99 tonnes CO₂e of emissions resulting from the operation of school buses were reported as part of our greenhouse gas emissions profile in 2011. However, they were not offset as they are out-of-scope under section 4(2)(c) of the Carbon Neutral Government Regulation.

To achieve carbon neutrality in 2012, School District 54 (Bulkley Valley) purchased offset credits from the Pacific Carbon for a total of 1,026 tonnes of CO₂e emissions. The cost of those credits at \$25.00 per tonne was \$25,650.00. The purchase of the offsets is subject to the HST bringing the total cost to \$28,728.00.

4. Emissions Reduction Activities

Actions Taken to Reduce Greenhouse Gas Emissions

Examples from 2012 include a boiler upgrade in Lake Kathlyn Elementary School which is expected to net approximately 15% reduction in fuel consumption. Upgrades were made to exterior lighting at various schools and occupancy sensors were added to a number of gymnasiums. The occupancy sensors are in addition to CO₂ control in gyms. When gyms are unoccupied systems go into night setback mode to save energy. At Houston Secondary CO₂ sensors were added in the return ductwork in the Educational wing to limit outside air to meet actual user conditions versus always being open. Pulse metering systems have been installed at Smithers Secondary and Houston Secondary Schools. These meters were installed late in 2012 and are in the information gathering phase. Once complete, the information will be analyzed for further energy saving actions. New Solar Air walls have been added at Smithers Secondary and Walnut Park Elementary Schools. These two Solar Air walls have been attached to systems requiring 100% outside air. Preheated outside air will reduce boiler heat demand. Roof upgrades at Silverthorne allowed insulation upgrades from R13 to R21. The leaky and low R value west wall at Houston Secondary School was replaced with a new wall and roll up shutters. Other ongoing initiatives, such as rigorous Air Handling Unit service programs, paperless meetings, network controlled 'sleep' programs for computers, occupancy sensors in classrooms, may not provide the same level of emission reduction but provide a direction and commitment to reducing GHG emissions.

Plans to Continue Reducing Greenhouse Gas Emissions

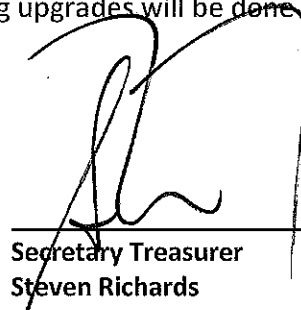
Plans to continue reducing Greenhouse Gas Emissions focus on air leakage repair at five schools, review and fine tuning of ventilation and heating systems. Mechanical and lighting upgrades will be done as funding permits.

On behalf of School District 54 *(Bulkley Valley)* Board of Education

Dated; May 14, 2013



Chairperson
Les Kearns



Secretary Treasurer
Steven Richards

School District 54 Bulkley Valley - 2012 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	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)	Not Yet Evaluated				No End Date (Continuous)
Vehicle fuel efficiency					
Replace vehicles with more fuel-efficient models	Ongoing/In Progress	None.	as budgets permit	2008	No End Date (Continuous)
Replace larger vehicles with smaller models according to fleet "right-sizing" principles	Ongoing/In Progress	None	None	2008	No End Date (Continuous)
Perform regular fleet maintenance to improve fuel-efficiency	Ongoing/In Progress	Preventative maintenance program on entire fleet	ongoing	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	Not Yet Evaluated				No End Date (Continuous)
Ask staff to close blinds at end of work day to reduce heating/cooling demands	Ongoing/In Progress	Staff encouraged to close blinds when available.	Staff encouraged to close blinds when available.	2009	No End Date (Continuous)
Provide tips to staff on saving energy in the office while working outside of regular business hours	Ongoing/In Progress	Staff encouraged to dress warmer while working in schools outside of regular hours.	Continue to encourage staff to dress warmer while working in schools outside of regular hours.	2009	No End Date (Continuous)
Provide reminders for turning off lights (e.g., signs, stickers, messages)	Ongoing/In Progress	All classrooms have been equipped with occupancy sensors as reminders had limited success.	Motion sensors being installed in staff washrooms and tied to exhaust fans with a maximum run time of 20 minutes.	2009	No End Date (Continuous)
Promote hot water conservation	Ongoing/In Progress	Smaller high efficiency hot water tanks installed with mechanical upgrades.	Smaller more efficient hot water tanks will be installed when existing units fail.	2008	No End Date (Continuous)
IT power management					
Install power management software which shuts down computers outside of regular business hours	Ongoing/In Progress	Install Deep Freeze on all student computers. Have Deep Freeze seed on all staff computers for power management.	Continue to monitor and update software as needed.	2009	No End Date (Continuous)
Implement server virtualization	Ongoing/In Progress	Eliminate servers when we can by virtualization.	Continue with replacement of lower end servers to higher end servers for virtualization as funds are made available.	2010	No End Date (Continuous)
Apply auto-sleep settings on computer monitors and CPUs	Ongoing/In Progress	Implemented FOG sleep management program on all student computers.	Continue with upgrading FOG program when a newer version comes available, and replace with more compatible computers when funds are available.	2010	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	Have upgraded all school photocopiers with new energy star compliant units. As school printers come to the end of service life they are replaced with new units or eliminated.	Continue with replacement of printers as funds are made available.	2009	No End Date (Continuous)
Apply auto-sleep settings on printers, fax machines, and/or multi-function devices	Ongoing/In Progress	Purchased new, Energy Star copiers and printers with power management.	Setting all printers management to auto sleep after 10 minutes of no use.	2009	No End Date (Continuous)
Replace computers with ENERGY STAR models during regular	Ongoing/In	Purchase high efficiency desktops for all school secretaries in	Continue an ongoing replacement program for computers as more	2008	No End Date

School District 54 Bulkley Valley - 2012 Carbon Neutral Action Report

Actions Towards Carbon Neutrality

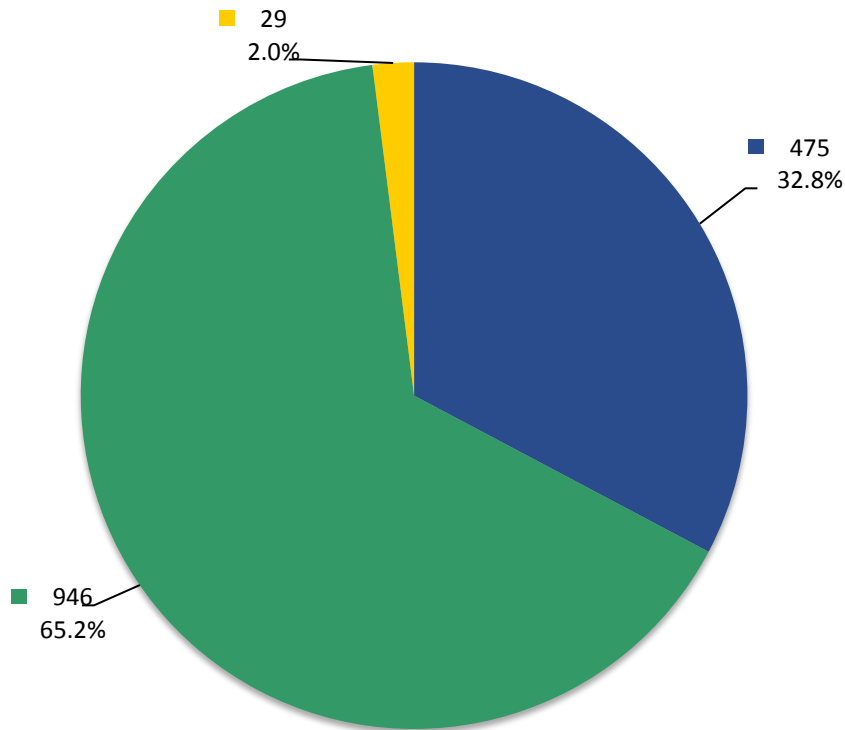
The actions listed below contribute to a reduction in greenhouse gas emissions from sources for which public sector organizations are responsible under the carbon neutral government regulation of the Greenhouse Gas Reduction Targets Act.

Action	Status	Steps Taken	Steps Planned	Start Year	End Year
computer upgrades	Progress	district. Replace all Staff computers with new more efficient laptops or stand-alone computers.	energy efficeint models and funds become available.		(Continuous)
Owned buildings					
Establish energy performance baseline for owned buildings	Ongoing/In Progress	Pulse meters installed at Smithers Secondary School on November 26, 2012 and the Houston Secondary on December 16, 2012.	Data to be analyzed by an engineer.	2008	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)
Perform energy retrofits on existing, owned buildings	Ongoing/In Progress	<p>Houston Secondary School</p> <ul style="list-style-type: none"> -Removed existing west side glazed wall system and replaced with steel frame wall sealed all around and spray foam insulation in stud spaces. Glazing area was reduced approximately 25% and replaced with energy efficient glass system. - Roll shutters were installed on west wall which is weather side of school. Shutters are programmed to open and close during regular school operation and closed during off hours and weekends. - Removed existing two lamp T8 fixtures in theatre and replace with single T8 light fixtures. <p>Lake Kathlyn Elementary School</p> <ul style="list-style-type: none"> - Removed two existing boilers and installed two new condensing boilers - Added more DDC controls to new boiler system. <p>Walnut Park Elementary School</p> <ul style="list-style-type: none"> - Add new Solar Air Wall to new wing AHU. <p>Smithers Secondary School</p> <ul style="list-style-type: none"> - Add new Solar Air Wall to Multi Purpose Room. - New AHU/Heat Pump for computer labs 104 and 405. <p>A study of five district buildings building air leakage completed this fall.</p>	Repair five district buildings identified on Building Air Leakage Report.	2012	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					
Reduce office space (square meters) per employee	Not Yet Evaluated				No End Date (Continuous)
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	Ongoing/In Progress	<p>Smithers Secondary and Houston Secondary schools qualified for B.C. Hydro Continuous Optimization Program.</p> <p>The pulse meter was installed at Smithers Secondary School on November 26, 2012 and the Houston Secondary meter was installed on December 16, 2012.</p> <p>The meters in both high schools are gathering information for analysis.</p>	<p>Information gathered by the Pulse Meter systems will be analyzed by a qualified engineer.</p> <p>A review of Smithers Secondary and Houston Secondary electrical and gas consumption will be done.</p> <p>A site review of Smithers Secondary and Houston Secondary heating and ventilation equipment will be done by an engineer.</p>	2012	No End Date (Continuous)

School District 54 Bulkley Valley - 2012 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	Steps Taken	Steps Planned	Start Year	End Year
Retrofit details for owned buildings					
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress	Lake Kathlyn Elementary School - Upgrade boiler room piping, use low loss header, use variable frequency drive pumps and new insulation with boiler upgrade.	No upgrades planned due to limited funding.	2012	2013
Upgrade lighting systems during retrofits	Ongoing/In Progress	-Parking lot lighting at Houston Secondary, Smithers Secondary and Muheim Elementary programmed to turn off at midnight. -Exterior lighting is changed to more efficient systems when existing lights fail.	24 hour lighting being reviewed. Plans being made to delete 24 hour lighting schedule and reduce to user hours. Review exterior lighting schedules. Study if use of LED lights for exterior lighting is feasible.	2009	No End Date (Continuous)
Upgrade/adjust control systems during retrofits	Ongoing/In Progress	Motion sensors added to gymnasium heating systems in addition to CO2 sensors. Systems remain in night setback till users occupy space. CO2 sensors added to return air system in education wing at Houston Secondary.	DDC systems will be reviewed for optimal operation times. Ongoing review of DDC system operation.	2008	No End Date (Continuous)
Improve building insulation (including windows) during retrofits	Ongoing/In Progress	Upgraded 15,750 sq. ft. roof insulation at Silverthorne Elementary School from R13 to R21 Build new west wall at Houston secondary and use spray foam wall insulation. Existing wall was R5 and new wall is R24.	To upgrade 8,900 sq. ft. roof insulation at Twain Sullivan Elementary School from R20 to R28. To upgrade 7,400 sq. ft. roof insulation at Muheim Elementary School from R19 to R25.	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)	Completed (in Previous Year)				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	Ongoing/In Progress	Entire district now using 30% recycled content	Will begin pricing and purchasing for 40% recycled content	2008	No End Date (Continuous)
Purchase 40% post-consumer recycled paper	Not Yet Evaluated				No End Date (Continuous)
Purchase 100% post-consumer recycled paper	Not Yet Evaluated				No End Date (Continuous)
Printer/document settings					
Switch networked printers and photocopiers to automatic double-sided	Ongoing/In Progress	encouraged ongoing behaviour change in printing habits	ongoing encouragement of positive behaviour change	2010	No End Date (Continuous)

**School District 54 - Bulkley Valley
Greenhouse Gas Emissions by Source
for the 2012 Calendar Year (tCO₂e*)**



Total Emissions: 1,450

- 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 31, 2013 10:14 AM)

Total offsets required: **1,070**. Total offset investment: **\$26,750**. Emissions which do not require offsets: **381** **

*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.