



**ABBOTSFORD**  
SCHOOL DISTRICT  
RESPECT OPPORTUNITY INNOVATION

## **SD34 (Abbotsford)**

### **2011 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.

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). In 2011, our plans moved fully ahead thanks to the continuation of our Annual Facilities Grant (AFG) by the Provincial Government in March.

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

We have instigated mechanisms to report to the Board of Education on energy management and sustainability progress (through our Energy Policy)

Due to what we believe as being caused by the teachers job actions, commencing in September, and the resulting lack of green team support (meaning behavioral energy reductions) from either the teachers or management, our electrical and natural gas fuel consumption increased 2.29% and 14.9% respectively. In defense of these increases, the fact is that we had a colder winter, whereby the annual Degree Days increased by 13.4%.

#### **2011 Greenhouse Gas (GHG) Emissions**

Our total GHG Emissions for calendar 2011 was 5,962 tCO<sub>2</sub>e. Part of this was for fuel for the bus fleet, which we don't need to purchase offsets for, so our total purchasable offset emissions were 4,802 tCO<sub>2</sub>e.

#### **Offsets Applied to become Carbon Neutral in 2011**

The amount of offsets applied in 2011 was \$120,050.00.

#### **Changes to Greenhouse Gas Emissions & Offsets Reporting from Previous Years**

Following the public release of the School District 34 Abbotsford's 2010 Carbon Neutral Action Report, it was determined that the total offsets for the 2010 calendar year were under-reported by 219 tonnes CO<sub>2</sub>e. The difference in offsets required have been purchased and applied against our 2010 emissions.

## **Actions Taken to Reduce Greenhouse Gas Emissions in 2011**

As described above, this years' "Green Team" program was cancelled, due to the teachers job action. Although at this time the teachers have been legislated back to work, it is our belief that it is too late in the student's year to make a start on a new program.

We have commenced the construction of new IT infrastructure, that will ultimately reduce both our gas/hydro consumptions as well as our GHG footprint.

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. We are excited at this initiative, since it has been stated that we will reduce our natural gas consumption and GHG emissions by 30%.

Construction is almost complete on our new, 1,100 student, LEED Gold, Abbotsford Collegiate 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 2011**

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

We are bullish on the C.Op program.

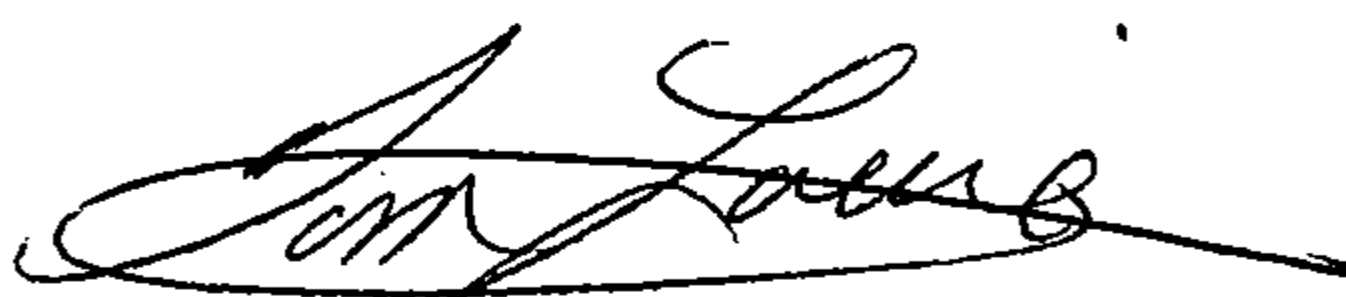
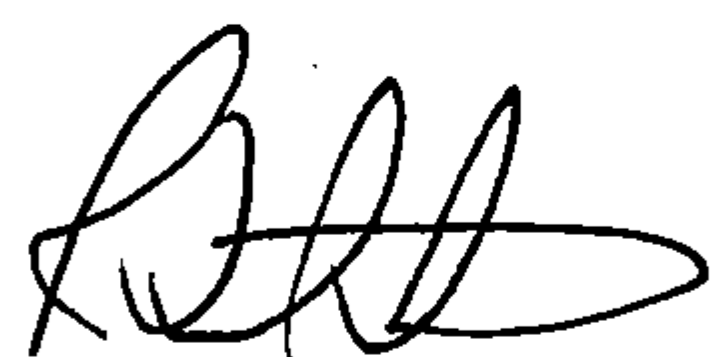
## **Plans to Continue Reducing Greenhouse Gas Emissions 2012 - 2014**

Now that our AFG funding is reinstated, we will be in a position to revisit our preventative maintenance program and develop new energy reduction projects. We will also extend our DDC program to all our facilities so as to speed up any temperature and/or operation schedules thus maximizing shutdown during non-student occupation, thereby reducing GHGs.

We are about to purchase Indoor Air Quality and Flue Gas measuring equipment that will enable us to do real time monitoring of our boilers and HVAC systems, so as to spot changes that have occurred and complete repairs sooner rather than later.

Please refer to attached reports for more detailed information or visit our Sustainable Schools website for additional information: [http://www.sd34.bc.ca/sidebar/sustainable\\_schools/](http://www.sd34.bc.ca/sidebar/sustainable_schools/)

**Signed:**



**Ray Velestuk, Secretary/Treasurer Tom Louie, Director of Facilities and Transportation**

# SD34 (Abbotsford - 2011 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<br>(as of 12/31/11) | Performance to Date<br>(as of 12/31/11) |  | Steps Taken in 2011   | Steps Planned for 2012 -2014   | Start Year | End Year                 |
|---|----------------------------|---|--|---|--|------------|--------------------------|
| <b>Mobile Fuel Combustion (Fleet and other mobile equipment)</b>  |                            |   |  |   |  |            |                          |
| <b>Vehicle fuel efficiency</b>  |                            |   |  |   |  |            |                          |
| Perform regular fleet maintenance specifically to improve fuel-efficiency   | Ongoing/In Progress        | 100                                     | % of vehicles are subject to regular maintenance for fuel efficiency                             | Maintenance continues as required for all vehicles  | Maintenance continues as required for all vehicles   | 2005       | No End Date (Continuous) |
| <b>Behaviour change program</b>   |                            |   |  |   |  |            |                          |
| Provide fleet driver training to reduce fuel use  | Ongoing/In Progress        | 100                                     | % of current drivers are trained   | Training continues for 50% drivers per year   | Training continues 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  | No changes planned   | 2008       | No End Date (Continuous) |
| Encourage carpooling in fleet vehicles  | Ongoing/In Progress        |   |  | Ongoing encouragement   | We will continue to encourage staff to car pool  | 2008       | No End Date (Continuous) |
| <b>Stationary Fuel Combustion, Electricity and Fugitive Emissions (Buildings)</b>                                   |                            |   |  |   |  |            |                          |
| <b>Planning/management</b>  |                            |   |  |   |  |            |                          |
| Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)                                 | Ongoing/In Progress        | 15                                      | % of buildings have a real time metering system installed  | We now have 10 large schools in the BC Hydro Continuous Optimization program                | None   | 2011       | 2012                     |
| <b>Owned buildings</b>  |                            |   |  |   |  |            |                          |
| Achieve LEED NC Gold certification at a minimum for new construction or major renovations                           | In Development             | 0                                       | % of owned buildings are certified LEED NC Gold or LEED NC Platinum                              |   | Construction underway for a new LEED Gold School   | 2010       | 2012                     |
| Incorporate integrated design process into new construction or during renovations of owned buildings                | In Development             |   |  |   | Construction underway for a new LEED Gold School   | 2010       | No End Date (Continuous) |
| <b>Retrofitting owned buildings</b>   |                            |   |  |   |  |            |                          |
| 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 | Installed Condensing Boilers at 5 schools and new greenhouse                                | Install 2 more condensing boilers and re & re ductwork   | 2010       | No End Date (Continuous) |
| Upgrade/adjust control systems during retrofits   | Ongoing/In Progress        | 10                                      | % of retrofits since start year indicated had control system upgrades or adjustments             | Control systems are 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 2 more schools | 2010       | No End Date (Continuous) |
| <b>IT power management</b>  |                            |   |  |   |  |            |                          |
| Install power management software which shuts down computers outside of regular business hours                      | Ongoing/In Progress        | 90                                      | % of computers shut down automatically outside of regular business hours                         | Our IT department has installed upgraded Windows servers, PC shutdown occurs automatically. | Additional server and PC upgrades  | 2009       | 2012                     |

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| Action   | Status<br>(as of 12/31/11) | Performance to Date<br>(as of 12/31/11) |   | Steps Taken in 2011                                   | Steps Planned for 2012 -2014  | Start Year | End Year                 |
|--|----------------------------|---|---|---|---|------------|--------------------------|
| Implement server virtualization  | Completed in 2011          | 100                                     | % of servers have been virtualized since start year indicated | Completed as part of IBM Roadmap program              |   | 2010       | 2012                     |
| <b>Appliances and electronic devices</b>   |                            |   |   |   |   |            |                          |
| Replace refrigerators with ENERGY STAR models or source ENERGY STAR models for future purchases                                    | Ongoing/In Progress        | 40                                      | % of fridges are ENERGY STAR rated                            | Advising individual schools to upgrade to Energy Star | Will change on an as-needed basis and dependant upon new Purchase Policy            | 2009       | No End Date (Continuous) |
| Replace other appliances or electronic devices with ENERGY STAR models or source ENERGY STAR models for future purchases           | Ongoing/In Progress        |   |   | Being done on an as-required basis                    | Will be done on an as-required basis and upon implementation of new Purchase Policy | 2009       | No End Date (Continuous) |
| Replace desk lamp incandescent bulbs with compact fluorescent (CFL) bulbs or source more efficient desk lamps for future purchases | Ongoing/In Progress        |   |   | Being done on an as-required basis                    | Will be done on an as-required basis and upon implementation of new Purchase Policy | 2009       | No End Date (Continuous) |
| <b>Behaviour change program</b>  |                            |   |   |   |   |            |                          |
| Ask staff to unplug electrical equipment or switch off power bars when not in use  | Ongoing/In Progress        |   |   | Being done on an as-required basis                    | Will be done on an as-required basis  | 2009       | No End Date (Continuous) |
| Ask staff to close blinds at end of work day to reduce heating/cooling demands   | Ongoing/In Progress        |   |   | Being done on an as-required basis                    | Will be done on an as-required basis  | 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        |   |   | Ongoing   | Ongoing   | 2009       | No End Date (Continuous) |
| Encourage use of stairs instead of elevators   | Ongoing/In Progress        |   |   | Ongoing   | Ongoing   | 2009       | No End Date (Continuous) |
| Provide reminders for turning off lights (e.g., signs, stickers, messages)   | Ongoing/In Progress        |   |   | Ongoing   | Ongoing   | 2009       | No End Date (Continuous) |
| Promote hot water conservation   | Ongoing/In Progress        |   |   | Ongoing   | Ongoing   | 2009       | No End Date (Continuous) |
| <b>Other Stationary Fuel Combustion, Electricity, and Fugitive Emissions Actions</b>   |                            |   |   |   |   |            |                          |
| PC Virtualization  | Completed in 2011          |   |   | Completed   |   | 2009       | 2011                     |
| Under desk heaters   | Ongoing/In Progress        |   |   | Started to replace them with low wattage types        | Will continue to replace them as AFG funding allows                                 | 2009       | No End Date (Continuous) |
| Smart power bars   | Ongoing/In Progress        |   |   | Encouraging use of "smart" power bars                 | Will continue to replace them as AFG funding allows                                 | 2009       | No End Date (Continuous) |
| <b>Supplies (Paper)</b>  |                            |   |   |   |   |            |                          |
| <b>Paper Type</b>  |                            |   |   |   |   |            |                          |
| Purchase 30% post-consumer recycled paper  | Ongoing/In Progress        |   |   | Ongoing/Continuous                                    | Ongoing/Continuous  | 2008       | No End Date (Continuous) |
| Purchase 40% post-consumer recycled paper  | Ongoing/In Progress        | 0                                       | % of total paper purchased contains 40% recycled content      | Ongoing/Continuous                                    | Ongoing/Continuous  | 2008       | No End Date (Continuous) |

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| Action  | Status<br>(as of 12/31/11) | Performance to Date<br>(as of 12/31/11) |   | Steps Taken in 2011                                  | Steps Planned for 2012 -2014 | Start Year | End Year                    |
|---|----------------------------|---|---|--|------------------------------|------------|-----------------------------|
| Purchase 100% post-consumer recycled paper                                      | Ongoing/In Progress        | 0                                       | % of total paper purchased contains 100% recycled content | Ongoing/Continuous                                   | Ongoing/Continuous           | 2008       | No End Date<br>(Continuous) |
| <b>Electronic media in place of paper</b>                                       |                            |   |   |  |                              |            |                             |
| Use electronic document library for filing common documents                     | Ongoing/In Progress        |   |   | Existing 80% (est) of documents filed electronically | Will attempt to increase     | 2005       | No End Date<br>(Continuous) |
| <b>Behaviour change program</b>   |                            |   |   |  |                              |            |                             |
| Encourage staff to hold paperless meetings or presentations (i.e., no handouts) | Ongoing/In Progress        |   |   | Ongoing  | Ongoing                      | 2008       | No End Date<br>(Continuous) |
| Encourage re-use of scrap paper   | Ongoing/In Progress        |   |   | Ongoing  | Ongoing                      | 2008       | No End Date<br>(Continuous) |

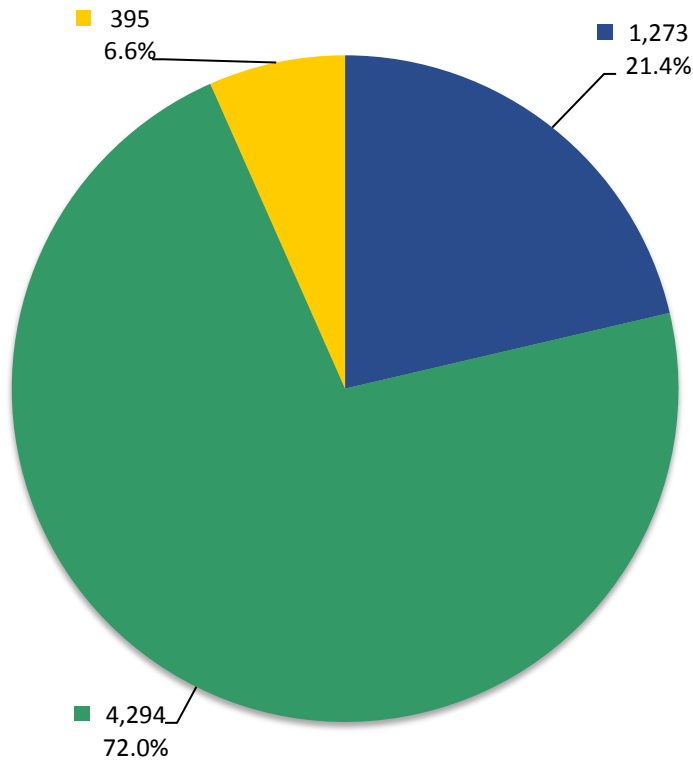
## SD34 (Abbotsford - 2011 Carbon Neutral Action Report

### 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<br>(as of 12/31/11) | Performance to Date<br>(as of 12/31/11) | Steps Taken in 2011   | Steps Planned for 2012 -2014                                    | Start Year | End Year                    |
|---|----------------------------|---|---|---|------------|-----------------------------|
| <b>Business Travel</b>  |                            |   |   |   |            |                             |
| <b>Behaviour change program</b>   |                            |   |   |   |            |                             |
| Encourage carpooling to meetings  | Ongoing/In Progress        |   | Ongoing   | Ongoing   | 2009       | No End Date<br>(Continuous) |
| Encourage alternative travel to meetings (e.g., bicycles, public transit, walking)              | Ongoing/In Progress        |   | Ongoing   | Ongoing   | 2009       | No End Date<br>(Continuous) |
| <b>Education, Awareness, and Engagement</b>   |                            |   |   |   |            |                             |
| <b>Team-building</b>  |                            |   |   |   |            |                             |
| Providing behaviour change education/training to teams (e.g., community-based social marketing) | Ongoing/In Progress        |   | Energy Manager with BC Hydro support provide education services | Energy Manager with BC Hydro support provide education services | 2008       | No End Date<br>(Continuous) |
| <b>Staff Professional Development</b>   |                            |   |   |   |            |                             |
| Support green professional development (e.g., workshops, conferences, training)                 | Ongoing/In Progress        |   | Energy Manager provided Pro D support                           | Energy Manager provided Pro D support                           | 2010       | No End Date<br>(Continuous) |

**School District 34 - Abbotsford  
Greenhouse Gas Emissions by Source  
for the 2011 Calendar Year (tCO<sub>2</sub>e\*)**



**Total Emissions: 5,962**

- 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 2011 (Generated May 18, 2012 12:03 PM)**

Total offsets required: **4,802**. Total offset investment: **\$120,050**. Emissions which do not require offsets: **1,160** \*\*

\*Tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e) 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.