



## School District No. 23 (Central Okanagan) –

### 2011 Carbon Neutral Action Report

*“Together We Learn”*

#### Executive Summary

On behalf of School District No.23, we are pleased to submit the 2011 Climate Action Report. This report provides an overview of our accomplishments and our initiatives for the calendar year 2011. One of our foremost accomplishments is that SD23 is the only district to operate fleet of Compressed Natural Gas (CNG) buses. Our school district has taken a leadership role in area of Greenhouse Gas (GHG) reduction by continuously improving our student transportation system. CNG buses operate with 22% less GHG emission than conventional diesel buses. This continuous improvement model is our school district's commitment to consistent effort in the proper management of our social and natural environment.

Another major accomplishment for SD23 is that our 2011 electrical reduction targets have been achieved. In 2008, the Provincial Government and BC Hydro's entered in "Public Sector Energy Conservation Agreement". The agreement states that electricity consumption in Public Sector Offices (PSO) will be reduced by 5% from 2006 baseline. Our school district has reduced 1,000,000 kWhr per year of electricity as a part of this agreement. We are committed to being leaders in environmental sustainability in all aspects of our operations taking measures to minimize the impact of our school district on the environment. In our role as leaders we dedicate time and resources to encourage and educate about the benefits and responsibility to participate in energy conservation and other sustainable initiatives. This report provides our goals and describes our plans for the future.

Larry Paul

Secretary Treasurer,

Central Okanagan, School District No. 23

Hugh Gloster

Superintendent of Schools,

Central Okanagan, School District No. 23

## 2011 Greenhouse Gas Emissions

In 2011 School District No.23 created 6546Tonnes of Green House Gases (GHG). Parts of these emissions were created by our bus fleet, which we did not purchase offsets for, so our actual offset emissions were 5284tCO<sub>2</sub>e. (tCO<sub>2</sub>e). *(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.*

## Offsets Applied to Become Carbon Neutral in 2011

- Total offsets purchased: 5284(tCO<sub>2</sub>e)
- Total offset investment: \$132,100.00 @ \$25 per (tCO<sub>2</sub>e)
- Emissions which do not require offsets: 1263 (tCO<sub>2</sub>e)

School District No.23 bus transportation department do not require offsets. 1263 Tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e) are offset exempt. Bussing school children is exempted because it removes parent's vehicles from roadways. SD23 transported students 1.3 million km in 2011. A total of 61 passenger buses transport students daily safely to and from SD23 schools. Bussing students removes the equivalent of 5,000 cars from our roadways every school day.

## Changes to Greenhouse Gas Emissions and Offsets Reporting from Previous Years

School District No. 23 (Central Okanagan) made corrections to 2010 SMARTTool data after our 2010 public report was released on June 30, 2011. This was due to errors that were uncovered by the late arrival of data that reflected energy use during the 2010 calendar year.

Following the public release of School District No. 23 (Central Okanagan) – 2010 Carbon Neutral Action Report, it was determined that the total emissions for the 2010 calendar year were over reported by 179.8 tonnes CO<sub>2</sub>e and offsets required to become carbon neutral in 2010 were over reported by 179.6 tonnes CO<sub>2</sub>e.

The surplus of offsets purchased in 2010 has been applied against our 2011 emissions.

## Actions Taken to Reduce Greenhouse Gas Emissions in 2011

### Goals

- Create a healthy and comfortable learning and work environment;
- Reduce energy consumption;
- Reduce greenhouse gas emissions;
- Reduce landfill waste, developing a long range 5 year plan for waste, recycling and composting;
- Manage and operate facilities in ways that minimize negative effects on our ecosystem;
- Promote and advance environmental sustainability;
- Increase awareness and education opportunities on the importance of sustainability;
- Share information and expertise on sustainability issues internally and externally;



- At Chute Lake Elementary School, a pilot project to redesigned the HVAC heating loop that will reduce glycol fluid flow when heatpumps are staging off. The calculated electrical pump saving is estimated at 25% of the total electrical usage at this school.
- Working with Fortis BC to develop a school district total energy strategy that will reduce SD23's GHG by 33%.
- An energy study was commissioned to report on eight Heatpump Schools across BC. The report included four newer SD23 schools and compared total energy and real utility costs. The executive summary indicated that Heatpump Schools were used 50% less total energy, 33% less cost in energy, and 750% less carbon foot print then conventional heating & cooling systems.
- Begin of SD23's school year, 13 Compressed Natural Gas (CNG) school buses transported students to schools. Within the first four months of operation the CNG buses saved cost by purchasing 37,000 liters of diesel fuel. The 13 CNG buses used 2,000Gj of Natural Gas.
- Solar Domestic Hot Water heating systems at Glenrosa Middle and at Rutland Senior Secondary were used to teach Students about the power of the Sun. Solar BC, Fortis BC and National Resource Canada incentives through Public Sector Energy Conservation Agreement (PCESA) supplied the funding.
- Schools were challenged to become involved with the Destination Conservation (DC) program. Nine schools have committed to the program. Students presented on electrical conservation campaigns throughout our district. School District No.23 won DC's conservation award of the year.

## Plans to Continue Reducing Greenhouse Gas Emissions in 2012 – 2014

- Continue “The Energy Conservation Committee” composed of the utility sector and district staff with the mandate to share energy ideas and lay out framework for future energy projects.
- By using Learning Technology Department’s help desk, the LT department employees can provide remote support for any computer in the district, reducing vehicle travel between schools and Hollywood Education Services.
- Lighting inventory of all BC Hydro territory school buildings was completed. This inventory list was used to identify and plan for future lighting upgrade projects at Kelowna Secondary School and George Elliot Secondary. The Energy Manager has applied for energy grants offered by BC Hydro.
- Continually monitoring our districts utility/energy data to seek out billing and usage anomalies. The schools monthly energy usage is compared against other schools of size and design. Heating and cooling schedules are being optimized to reduce energy waste. High energy usage school are being audited to find the energy savings.
- In collaboration with Health Promoting Schools, a Sustainability Policy and Regulations will be developed.
- Build on the success of pilot composting projects to implement for the Rutland school area. RSS’s composting tubs are serving as the Rutland hub for compostable material.
- Enhance current recycling program to full co-mingling. In 2011, the first year of a school district wide comingled recycle program, this program diverted recyclable material from Kelowna’s landfill. Celebrating that 233.4 metric tonnes of material were recovered which reduced the landfill requirements by 917.3 cubic yards.
- Purchase or convert additional fleet vehicles to CNG (Natural Gas).
- Develop water conservation plan that includes a continuous review of irrigation practices and landscaping standards.
- Continue to upgrade water closets and sink faucets to low flow operation.
- Develop and implement general “green purchasing” policy within Finance.
- Develop an Energy & Sustainability link to the “Health Promoting Schools” website.
- Review AFG plan for sustainability initiatives and rank within a five year plan.

## Objectives of Environmental Sustainability Education are to:

1. Continue to develop the foundation for an enduring sustainability education in Health Promoting School communities.
2. Support comprehensive, cross-disciplinary classroom and external learning opportunities related to climate change and sustainability education. KLO's Fascieux creek restoration project is great example of the good planning. KLO's Green Community members are working hard to present a comprehensive environment plan for the Trustee of SD23
3. Provide educational experiences for students to study climate change, including:
  - o Solar BC's – "Solar School for British Columbia"
  - o WildBC's - dynamic hands-on workshops, learning resources and programs for educators.
4. Assist students in examining how human practices affect the sustainability of populations and ecosystems, including:
  - o Impact of land-use decisions, de-forestation, urbanization and agriculture on the environment and living species within School Based Garden Clubs
  - o Recycling Council of British Columbia (RCBC) is a multi-sectoral, non-profit organization promoting the principles of [Zero Waste](#) through information services, informing on how consumption and waste contribute to climate change
  - o Natural resource management; water, energy and forests
5. Use learning resources to empower students and school communities to take action on climate change, and become sustainability messengers
6. Continue to develop comprehensive energy awareness in students about:
  - o Where energy comes from; energy systems, the energy system today and in future
  - o How we use energy
  - o How our use of energy impacts natural and human environments
  - o How to make sustainable decisions around energy/natural resource use, from a local, provincial/regional and global perspective

# School District No. 23 (Central Okanagan) - 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>  |                            |   |  |   |   |            |                          |
| Replace vehicles with more fuel-efficient models  | Ongoing/In Progress        | 18                                      | % of vehicles are fuel- efficient models                             | 2011: Convert one of two district vehicles to NG, bought 13 CNG Buses                                       | Track performance   | 2008       | No End Date (Continuous) |
| Replace larger vehicles with smaller models according to fleet "right-sizing" principles                            | Ongoing/In Progress        | 5                                       | % of vehicles down-sized since start year indicated                  | 2011: Additional vehicles right-sized as older models sold  | 2012: Additional vehicles right-sized as older models sold              | 2007       | No End Date (Continuous) |
| Perform regular fleet maintenance specifically to improve fuel-efficiency   | Ongoing/In Progress        | 100                                     | % of vehicles are subject to regular maintenance for fuel efficiency | 2011: Ongoing, regularly scheduled maintenance  | 2012: Ongoing, regularly scheduled maintenance                          | 2000       | No End Date (Continuous) |
| Replace small maintenance vehicles with more fuel-efficient models  | Ongoing/In Progress        | 10                                      | % of small maintenance vehicles are fuel-efficient                   | 2011: 11 New Natural Gas Buses will be in place for the new school year                                     | 2012: 11 New Natural Gas Buses will be in place for the new school year | 2003       | No End Date (Continuous) |
| <b>Behaviour change program</b>   |                            |   |  |   |   |            |                          |
| Provide fleet driver training to reduce fuel use  | Ongoing/In Progress        | 90                                      | % of current drivers are trained                                     | Ongoing NRCan training program to educate new drivers   | 2012-2013: New drivers trained  | 2005       | 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        | 98                                      | % of current drivers are trained                                     | Ongoing program with training, signage monitoring and incentives  | 2012: Continue anti-idling program                                      | 2005       | No End Date (Continuous) |
| Encourage carpooling in fleet vehicles  | Ongoing/In Progress        | 10                                      | Project vehicles are shared  | Vehicle and bus pooling encouraged where appropriate  | 2012-2013: Ongoing  | 2006       | No End Date (Continuous) |
| Promote alternatives to fleet vehicle travel where possible (e.g., bicycles, public transit, walking)               | Ongoing/In Progress        | 10                                      | % Participation  | Multiple school programs, bike to school, walk to school, walking school bus, Mayor of Kelowna Youth Forum. | 2012-2013: Encourage federal, provincial, municipal programs            | 2003       | No End Date (Continuous) |
| <b>Other Mobile Fuel Combustion Actions</b>   |                            |   |  |   |   |            |                          |
| GPS monitoring of fleet vehicle run time  | Ongoing/In Progress        | 100                                     | % service vehicles,  | Ongoing monthly review and reporting  | 2012: Continue program  | 2006       | No End Date (Continuous) |
| Diesel multi-stage filter muffler   | Ongoing/In Progress        | 30                                      | % of buses with mufflers installed                                   | 10 buses retrofitted  | 2012: 4 additional buses planned as funding permits                     | 2008       | No End Date (Continuous) |
| CCV, crankcase ventilation kit  | Ongoing/In Progress        | 40                                      | % of buses with CCV kit installed                                    | Additional buses identified   | 2012: Additional kits installed as provincial program allows            | 2006       | No End Date (Continuous) |
| NGV engine operation and maintenance training   | Ongoing/In Progress        | 2                                       | FTE started multi year training                                      | Started training  | 2012: Training proposed for all mechanics                               | 2009       | 2013                     |
| 20 Natural gas refueling stations installation  | Completed in 2011          | 100                                     | complete   | Design system with Fortis BC  | Track performance   | 2010       | 2012                     |
| <b>Stationary Fuel Combustion, Electricity and Fugitive Emissions (Buildings)</b>                                   |                            |   |  |   |   |            |                          |
| <b>Planning/management</b>  |                            |   |  |   |   |            |                          |

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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                    |
|--|----------------------------|---|--|---|---|------------|-----------------------------|
| Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)                  | Ongoing/In Progress        | 70                                      | % of buildings have a real time metering system installed  | 4 additional schools to real-time electrical metering   | Working with BC Hydro and Fortis BC to install smart meters.  | 2005       | No End Date<br>(Continuous) |
| <b>Owned buildings</b>   |                            |   |  |   |   |            |                             |
| Incorporate integrated design process into new construction or during renovations of owned buildings | Ongoing/In Progress        | 1                                       | % of buildings built or renovated since start year indicated used the integrated design process  | HVAC, lighting upgrades completed at multiple locations,  | 2013: HVAC, lighting upgrades,  | 2002       | No End Date<br>(Continuous) |
| Perform energy retrofits on existing, owned buildings  | Ongoing/In Progress        | 20                                      | % of owned buildings have undergone energy retrofits since start year indicated                  | HVAC, lighting upgrades completed at multiple locations, Energy Conservation Committee  | 2012: HVAC, lighting upgrades,  | 2002       | No End Date<br>(Continuous) |
| <b>Retrofitting owned buildings</b>  |                            |   |  |   |   |            |                             |
| Upgrade mechanical systems (heating, cooling, ventilation) during retrofits                          | Ongoing/In Progress        | 66                                      | % of retrofits since start year indicated had heating, cooling, and ventilation systems upgrades | Mechanical system upgrades at 2 locations   | Mechanical system upgrades at 2 locations   | 2002       | No End Date<br>(Continuous) |
| Upgrade lighting systems during retrofits  | Ongoing/In Progress        | 46                                      | % of retrofits since start year indicated had lighting systems upgrades                          | Lighting systems upgrades at 5 locations  | Lighting systems upgrades at 5 locations  | 2002       | No End Date<br>(Continuous) |
| Upgrade/adjust control systems during retrofits  | Ongoing/In Progress        | 65                                      | % of retrofits since start year indicated had control system upgrades or adjustments             | DDC upgrades, motion sensors, CO2 sensors installed   | DDC upgrades, motion sensors, CO2 sensors installed   | 2002       | No End Date<br>(Continuous) |
| Improve building insulation (including windows) during retrofits                                     | Ongoing/In Progress        | 45                                      | % of retrofits since start year indicated had insulation improvements                            | Roll shutters on windows  | Roll shutters on windows  | 2007       | No End Date<br>(Continuous) |
| Install an on-site renewable energy demonstration project  | Ongoing/In Progress        | 31                                      | % of retrofits since start year indicated had on-site renewable energy components                | Solar DHW preheating, geoechange at Helen Gorman Elementary   | Designed Geo School in West Kelowna   | 2012       | No End Date<br>(Continuous) |
| <b>IT power management</b>   |                            |   |  |   |   |            |                             |
| 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                         | 2011: Implement/install Faronics PowerSave software on workstations which allows central management of shut downs and power management profiles. Will continue installation for all workstations.                       | 2012: Implement/install Faronics PowerSave software on workstations which allows central management of shut downs and power management profiles. Will continue installation for all workstations.                       | 2009       | No End Date<br>(Continuous) |
| Implement server virtualization  | Ongoing/In Progress        | 65                                      | % of servers have been virtualized since start year indicated                                    | 2011: Continue to move as many existing physical servers and new servers to the virtual environment, mainly in the Data Centre. Due to low bandwidth between schools and Data Centre, schools still need local servers. | 2012: Continue to move as many existing physical servers and new servers to the virtual environment, mainly in the Data Centre. Due to low bandwidth between schools and Data Centre, schools still need local servers. | 2005       | No End Date<br>(Continuous) |
| Apply auto-sleep settings on computer monitors and CPUs  | Ongoing/In Progress        | 40                                      | % of computers have auto-sleep settings applied  | 2011: Implement Faronics PowerSave software on workstations.  | 2012: Implement Faronics PowerSave software on workstations.  | 2009       | No End Date<br>(Continuous) |

## School District No. 23 (Central Okanagan) - 2011 Carbon Neutral Action Report

| 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                 |
|--|----------------------------|---|--|---|---|------------|--------------------------|
| Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices                             | Ongoing/In Progress        | 80                                      | % reduction in printers, copiers, and/or fax machines since start year indicated | 2011: Recommend users direct printing to multi-function photocopier/printers to reduce costs. Continue to recommend high-end network printers (when required) over personal printers. | 2012: Recommend users direct printing to multi-function photocopier/printers to reduce costs. Continue to recommend high-end network printers (when required) over personal printers. | 2004       | No End Date (Continuous) |
| Apply auto-sleep settings on printers, copiers, fax machines, and/or multi-function devices                              | Ongoing/In Progress        | 98                                      | % of devices have auto-sleep settings applied                                    | 2011: Setup printers and copiers with auto-sleep settings applied.  | 2012: Setup printers and copiers with auto-sleep settings applied.  | 2008       | No End Date (Continuous) |
| Replace computers with ENERGY STAR models during regular computer upgrades   | Ongoing/In Progress        | 100                                     | % of computers are ENERGY STAR rated   | 2011: Purchase Lenovo workstations and laptops. Continue to purchase IBM servers and blades.  | 2012: Purchase Lenovo workstations and laptops. Continue to purchase IBM servers and blades.  | 2005       | No End Date (Continuous) |
| <b>Appliances and electronic devices</b>   |                            |   |  |   |   |            |                          |
| Replace refrigerators with ENERGY STAR models or source ENERGY STAR models for future purchases                          | Ongoing/In Progress        | 55                                      | % of fridges are ENERGY STAR rated   | 2011: Establish standards and practices for appliance purchases   | 2012: Establish standards and practices for appliance purchases   | 2011       | 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        | 55                                      | % of replaced other appliances   | 2011-2012: Continue to upgrade other appliances   | 2012-2014: Continue to upgrade other appliances   | 2005       | No End Date (Continuous) |
| <b>Behaviour change program</b>  |                            |   |  |   |   |            |                          |
| Help staff reduce personal energy use through "workstation tune-ups"   | In Development             |   |  | 2011: Begin staff training  | 2012: Continue staff training   | 2010       | No End Date (Continuous) |
| Ask staff to unplug electrical equipment or switch off power bars when not in use  | Ongoing/In Progress        |   |  | 2011-2013: Ongoing program  | 2012-2013: Ongoing program  | 2004       | No End Date (Continuous) |
| Ask staff to close blinds at end of work day to reduce heating/cooling demands   | Ongoing/In Progress        |   |  | 2011-2013: Roll shutters as funding allows  | 2012-2013: Roll shutters as funding allows  | 2004       | No End Date (Continuous) |
| Provide tips to staff on saving energy in the office while working outside of regular business hours                     | Ongoing/In Progress        |   |  | 2011: Renewed DC funding and program  | 2012: Renewed DC funding and program  | 2005       | No End Date (Continuous) |
| Provide reminders for turning off lights (e.g., signs, stickers, messages)   | Ongoing/In Progress        | 25                                      | % of Schools   | More schools involved   | More schools involved   | 2010       | No End Date (Continuous) |
| Promote hot water conservation   | Ongoing/In Progress        | 2                                       | Solar Panels   | Destination Conservation program, Water module  | Destination Conservation program, Waste module  | 2005       | No End Date (Continuous) |
| <b>Supplies (Paper)</b>  |                            |   |  |   |   |            |                          |
| <b>Paper Type</b>  |                            |   |  |   |   |            |                          |
| Purchase 30% post-consumer recycled paper  | Ongoing/In Progress        | 17                                      | % of total paper purchased contains 30% recycled content                         | Paper purchases tendered annually, more recycled material purchased   | Review other paper supply options eg. truckload tenders   | 2006       | No End Date (Continuous) |
| Purchase 100% post-consumer recycled paper   | In Development             | 15                                      | % of total paper purchased contains 100% recycled content                        | Paper purchases tendered annually, more recycled material purchased   | Review other paper supply options eg. truckload tenders   | 2012       | No End Date (Continuous) |



## School District No. 23 (Central Okanagan) - 2011 Carbon Neutral Action Report

### Actions to Reduce Provincial Emissions and Improve Sustainability

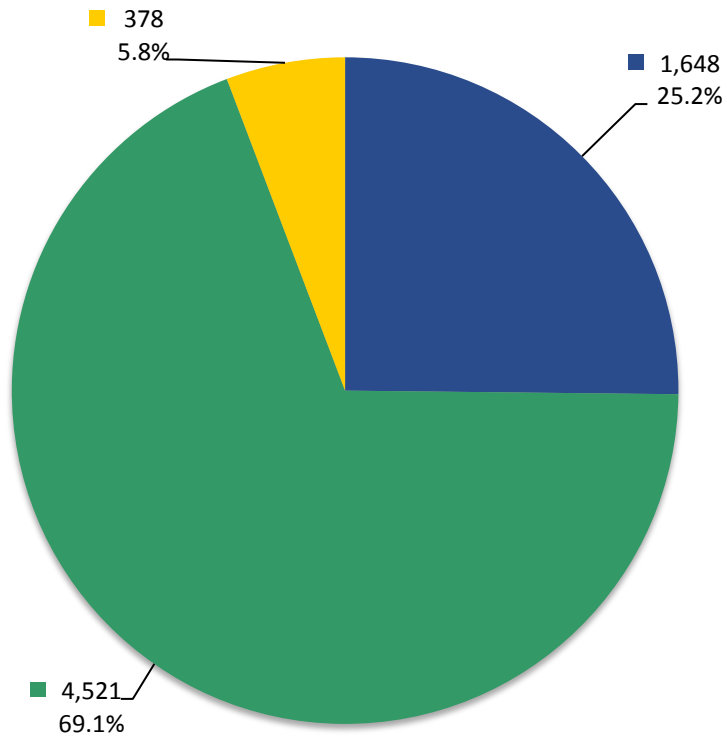
The actions listed below contribute to a reduction in greenhouse gas emissions from sources that fall outside of the reporting requirements defined in the carbon neutral government regulation of the *Greenhouse Gas Reduction Targets Act*. Public sector organizations can optionally use this section to 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>Policy and budgeting</b>   |                            |   |  |   |            |          |
| Create a low-carbon travel policy or travel reduction goal  | In Development             |   |  |   |            |          |
| <b>Education, Awareness, and Engagement</b>   |                            |   |  |   |            |          |
| <b>Team-building</b>  |                            |   |  |   |            |          |
| Create Green, Sustainability, Energy Conservation, or Climate Action Teams with executive endorsement | Ongoing/In Progress        | 25                                      | Destination Conservation teams, Energy Conservation Committee in place | Environmental Sustainability Task Force in support of policy    |            |          |
| Provide resources and/or dedicated staff to support teams   | Ongoing/In Progress        | 25                                      | teachers, staff, resources support DC                                  | expand DC program   |            |          |
| Providing behaviour change education/training to teams (e.g., community-based social marketing)       | Ongoing/In Progress        | 25                                      | Twitter Account  | proposed in support of Environmental Sustainability policy #660 |            |          |
| <b>Awards/Recognition</b>   |                            |   |  |   |            |          |
| Establish a sustainability/green awards or recognition program  | Ongoing/In Progress        |   | awards, recognition to DC teams, anti-idling program participants      | continued   |            |          |
| <b>Staff Professional Development</b>   |                            |   |  |   |            |          |
| Support green professional development (e.g., workshops, conferences, training)                       | Ongoing/In Progress        |   | staff workshops and teacher Professional Development events            | Climate Action Exchange Host 2012                               |            |          |
| Include green options in employee performance measurement system                                      | Ongoing/In Progress        |   | in place for limited Operations staff                                  | broaden green performance measurement system                    |            |          |
| <b>Staff awareness/education</b>  |                            |   |  |   |            |          |
| Provide education to staff about the science of climate change  | Ongoing/In Progress        |   | student education, science curriculum, Mayor's Youth Forum             | continued   |            |          |
| Provide education to staff about the conservation of water, energy, and raw materials                 | Ongoing/In Progress        |   | student education, science curriculum                                  | continued   |            |          |
| Provide green tips on staff website or in newsletters   | Ongoing/In Progress        |   | working with Heath Promoting School Committee                          | proposed in support of Environmental Sustainability policy      |            |          |
| Provide sustainability education during new staff orientation   | In Development             |   |  | Twitter Account News  |            |          |
| <b>Client/public awareness/education</b>  |                            |   |  |   |            |          |
| Provide education to clients/public about the science of climate change                               | Ongoing/In Progress        |   | student education, science curriculum, Mayor's Youth Forum             | continued   |            |          |
| Provide education to clients/public about the conservation of water, energy, and raw materials        | Ongoing/In Progress        |   | student education, science curriculum                                  | MoE science curriculum  |            |          |

## School District No. 23 (Central Okanagan) - 2011 Carbon Neutral Action Report

| 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                 |
|--|----------------------------|---|------------------|---|--|------------|--------------------------|
| Provide green tips on client/public website or in newsletters  | Ongoing/In Progress        |   |                  | working with Heath Promoting School Committee   | proposed in support of policy  |            |                          |
| <b>Other Sustainability Actions</b>  |                            |   |                  |   |  |            |                          |
| <b>Water conservation</b>  |                            |   |                  |   |  |            |                          |
| Establish a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models   | Ongoing/In Progress        |   |                  |   |  |            |                          |
| 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 | In Development             |   |                  |   |  |            |                          |
| Introduce a stormwater management landscape strategy (e.g., vegetated roofs, permeable paving, rain gardens, bioswales)  | In Development             |   |                  |   |  |            |                          |
| <b>Waste reduction/diversion</b>   |                            |   |                  |   |  |            |                          |
| Put in place an operations policy to facilitate the reduction and diversion of building occupant waste from landfills or incineration facilities                                     | Ongoing/In Progress        |   |                  | ongoing paper, cardboard recycling, some bottle return, waste audits, composting pilot program                          | full recycling, commingled recycling audit performance, broaden composting program                   | 2005       | No End Date (Continuous) |
| <b>Building construction, renovation, and leasing</b>  |                            |   |                  |   |  |            |                          |
| Establish a policy to reuse materials where possible and divert construction and demolition debris from landfills and incineration facilities  | Ongoing/In Progress        |   |                  | furniture, equipment and metal recycling  | continued  | 2006       | No End Date (Continuous) |
| Incorporate lifecycle costing into new construction or renovations   | Ongoing/In Progress        |   |                  | Shannon Lake Elementary Addition built to LEED Silver standards, energy efficient HVAC and lighting equipment installed | geoexchange upgrade to HVAC system, solar DHW system, efficient lighting systems, condensing boilers | 2006       | No End Date (Continuous) |
| <b>Commuting to and from home</b>  |                            |   |                  |   |  |            |                          |
| Encourage commuting by foot, bicycle, carpool or public transit  | Ongoing/In Progress        | 25                                      | % students staff | multiple programs for students  | encourage staff to participate in programs   | 2005       | No End Date (Continuous) |
| <b>Other Sustainability Actions</b>  |                            |   |                  |   |  |            |                          |
| Commingled Recycling Champagne   | Completed in 2011          | 100                                     | % Schools        | Monitoring  |  | 2010       | 2011                     |
| Battery Recycling Champagne  | Completed in 2011          | 100                                     | % Schools        | Waste audit performed   |  | 2010       | 2011                     |
| Second large composter installation  | Completed in 2011          | 15                                      | % Schools        | Waste audit performed   |  | 2010       | 2011                     |
| Wind Turbine Installation  | Ongoing/In Progress        | 10                                      | % Schools        | Design of wind turbine  | Wind turbine construction  | 2010       | 2014                     |
| Rainwater capture from a school roof pilot project   | In Development             | 10                                      | % Schools        | Design for rainwater capture system   | Construct rainwater retention for school's garden club   | 2010       | 2014                     |

**School District 23 - Central Okanagan (Kelowna)  
Greenhouse Gas Emissions by Source  
for the 2011 Calendar Year (tCO<sub>2</sub>e\*)**



**Total Emissions: 6,546**

- 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 11:59 AM)**

Total offsets required: **5,284**. Total offset investment: **\$132,100**. Emissions which do not require offsets: **1,263** \*\*

\*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.