



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

### 2012 Carbon Neutral Action Report

*“Together We Learn”*

#### Executive Summary

On behalf of School District No.23, we are pleased to submit the 2012 Climate Action Report. This report provides an overview of our accomplishments and our initiatives for the calendar year 2012. 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 operations contributed to 4% less GHG total fleet emissions when compared to 2010 calendar year. This year SD23 has reduced their diesel demand by 69,000 litres. 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 involves our continual 2012 electrical reduction targets. These utility 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

## 2012 Greenhouse Gas Emissions

In 2012 School District No.23 created 6179Tonnes 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 4944tCO<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 2012

- Total offsets purchased: 4944(tCO<sub>2</sub>e)
- Total offset investment: \$123,600.00 @ \$25 per (tCO<sub>2</sub>e)
- Emissions which do not require offsets: 1235 (tCO<sub>2</sub>e)

School District No.23 bus transportation department do not require offsets. 1235 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 1.2 million km in 2012. 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 2011 SMARTTool data after our 2011 public report was released on June 30, 2012. 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) – 2011 Carbon Neutral Action Report, it was determined that the total emissions for the 2011 calendar year are correct.

## Actions Taken to Reduce Greenhouse Gas Emissions in 2012

### Goals

- Create a healthy and comfortable learning and work environment;
- Reduce energy consumption; Room Ready Poster Campaign
- 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, started in 2011, a pilot project to redesigned the HVAC heating loop that will reduce glycol fluid flow when heatpumps are staging off. The confirmed electrical energy saving was found at 24% or \$8,000 of the total electrical usage at this school. Fortis BC contribution was nearly \$10,000 for this 100,000 kWhr per year energy reduction project. In 2012 the project was audited to actually save 125,000 kWhr in 12 months.

- Working with Fortis BC to develop a school district total energy strategy that will reduce SD23's GHG by 33%.

- Contributing to an ongoing long-term energy study on eight Heatpump Schools. 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 RTU heating & cooling systems.

- Begin of SD23's school year, 15 Compressed Natural Gas (CNG) school buses transported students to schools. Our CNG buses saved the cost of 69,270 liters of diesel fuel. These CNG buses contributed to a total of 4% less greenhouse gases from our 2010 fleet.

- 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. Online website that examines the long term performance issues of solar power.

- 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.

## Plans to Continue Reducing Greenhouse Gas Emissions in 2013 – 2015

- 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. SharePoint document information software was implemented this year to reduce pressure on photocopying and energy demands.
- Lighting inventory of all Fortis BC territory school buildings has begun. This inventory list was used to identify and plan for future lighting upgrade projects within School classrooms. The Energy Manager has applied for energy grants offered by Fortis BC.
- 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 Heath 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. KSS composting tub installation in 2012.
- Enhance current recycling program to full co-mingling. In 2012, the first year of a school district wide comingled recycle program, this program diverted recyclable material from Kelowna’s landfill. Celebrating that 244.4 metric tonnes of material were recovered which reduced the landfill requirements by 967.3 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.
- Develop and implement general “green purchasing” policy within Finance.
- Develop an Energy & Sustainability website.
- Review AFG plan for sustainability initiatives and rank within a five year plan.

## Objectives of Environmental Sustainability Education are to:

1. 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
2. Provide educational experiences for students to study climate change, including:
  - OKM Sustainability Grade 11/12 Class
3. Assist students in examining how human practices affect the sustainability of populations and ecosystems, including:
  - Impact of land-use decisions, de-forestation, urbanization and agriculture on the environment and living species within School Based Garden Clubs
  - 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
  - Natural resource management; water, energy and forests
4. Use learning resources to empower students and school communities to take action on climate change, and become sustainability messengers
5. Continue to develop comprehensive energy awareness in students about:
  - Where energy comes from; energy systems, the energy system today and in future
  - How we use energy
  - How our use of energy impacts natural and human environments
  - How to make sustainable decisions around energy/natural resource use, from a local, provincial/regional and global perspective

## School District 23 Central Okanagan - 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
<b>Mobile Fuel Combustion (Fleet and other)</b>					
<b>Behaviour change program</b>					
Provide fleet driver training to reduce fuel use	Ongoing/In Progress	NRCan training program to educate new drivers	NRCan training program to educate new drivers	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	Ongoing program with training, signage monitoring and incentives	Ongoing program with training, signage monitoring and incentives	2008	No End Date (Continuous)
Encourage carpooling in fleet vehicles	Ongoing/In Progress	Vehicle and bus pooling encouraged where appropriate	Build charging stations on three sites	2008	No End Date (Continuous)
Promote alternatives to fleet vehicle travel where possible (e.g., bicycles, public transit, walking)	Ongoing/In Progress	Multiple school programs, bike to school, walk to school, "Walking school bus", "Walk like a Coyote" programs	Encourage federal, provincial, municipal programs	2008	No End Date (Continuous)
<b>Other Mobile Fuel Combustion Actions</b>					
Ongoing monthly review and reporting	Ongoing/In Progress	Ongoing monthly review and reporting	Continue program	2008	No End Date (Continuous)
Natural gas refueling stations installation addition	In Development	Design system with Fortis BC	Construction	2012	2014
<b>Vehicle fuel efficiency</b>					
Replace vehicles with more fuel-efficient models	Ongoing/In Progress	Bought 2 new CNG Buses to add to the fleet of 13	Over the next 5 years to add 19 buses	2008	No End Date (Continuous)
Replace larger vehicles with smaller models according to fleet "right-sizing" principles	Ongoing/In Progress	Additional vehicles right-sized as older models sold	Additional vehicles right-sized as older models sold	2008	No End Date (Continuous)
Perform regular fleet maintenance to improve fuel-efficiency	Ongoing/In Progress	Ongoing, regularly scheduled maintenance	Ongoing, regularly scheduled maintenance	2008	No End Date (Continuous)
<b>Stationary Fuel Combustion, Electricity</b>					
<b>Behaviour change program</b>					
Help staff reduce personal energy use through "workstation tune-ups"	Completed (in Previous Year)				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 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	Completed (in Previous Year)				No End Date (Continuous)
Encourage staff to use air dry setting on dishwashers	Not Yet Evaluated				No End Date (Continuous)
Provide tips to staff on saving energy in the office while working outside of regular business hours	Not Yet Evaluated				No End Date (Continuous)
Encourage use of stairs instead of elevators	Not Yet Evaluated				No End Date (Continuous)
Provide reminders for turning off lights (e.g., signs, stickers, messages)	Completed (in Previous Year)				No End Date (Continuous)
Promote hot water conservation	Completed (in Previous Year)				No End Date (Continuous)
<b>IT power management</b>					
Install power management software which shuts down computers outside of regular business hours	Completed (in Previous Year)				No End Date (Continuous)

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Action	Status	Steps Taken	Steps Planned	Start Year	End Year
Implement server virtualization	Completed (in Previous Year)				No End Date (Continuous)
Apply auto-sleep settings on computer monitors and CPUs	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	Completed (in Previous Year)				No End Date (Continuous)
Apply auto-sleep settings on printers, fax machines, and/or multi-function devices	Completed (in Previous Year)				No End Date (Continuous)
Replace computers with ENERGY STAR models during regular computer upgrades	Completed (in Previous Year)				No End Date (Continuous)
<b>Leased buildings</b>					
Establish energy performance baseline for leased buildings	Not Yet Evaluated				No End Date (Continuous)
Lease space with operations and maintenance performance labelling/certification (e.g., LEED EB:O&M)	Not Yet Evaluated				No End Date (Continuous)
Lease space with commercial interiors performance labelling/certification (e.g., LEED CI)	Not Yet Evaluated				No End Date (Continuous)
Lease space in buildings with new construction performance labelling/certification (e.g., LEED NC)	Not Yet Evaluated				No End Date (Continuous)
Develop a green lease policy that requires green features to conserve energy be included in all lease negotiations	Not Yet Evaluated				No End Date (Continuous)
<b>Owned buildings</b>					
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	Not Yet Evaluated				No End Date (Continuous)
Perform energy retrofits on existing, owned buildings	Ongoing/In Progress	Boiler review report to replace old boilers	Planning	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)
<b>Planning/management</b>					
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	Working with Fortis BC and BC Hydro smart meter information systems.	Collect data	2008	No End Date (Continuous)
<b>Retrofit details for owned buildings</b>					
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress	HVAC upgrades to various schools	upgrades to various schools	2008	No End Date (Continuous)
Upgrade lighting systems during retrofits	Ongoing/In Progress	Lighting upgrades to various schools	upgrades to various schools	2008	No End Date (Continuous)
Upgrade/adjust control systems during retrofits	Ongoing/In Progress	DDC upgrades to various schools	upgrades to various schools	2008	No End Date (Continuous)

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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
Improve building insulation (including windows) during retrofits	Ongoing/In Progress	Insulation upgrades to various schools	upgrades to various schools	2008	No End Date (Continuous)
<b>Supplies (Paper)</b>					
<b>Behaviour change program</b>					
Train staff to use collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	Ongoing/In Progress	Sharepoint training	cont.	2011	2014
Encourage staff to hold paperless meetings or presentations (i.e., no handouts)	Not Yet Evaluated				No End Date (Continuous)
<b>Electronic media in place of paper</b>					
Install collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	Completed (in Previous Year)				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)
<b>Paper Type</b>					
Purchase 30% post-consumer recycled paper	Completed (in Previous Year)				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)
<b>Printer/document settings</b>					
Switch networked printers and photocopiers to automatic double-sided	Completed (in Previous Year)				No End Date (Continuous)



## School District 23 Central Okanagan - 2012 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

Action	Status	Steps Taken	Steps Planned	Start Year	End Year
<b>Business Travel</b>					
<b>Behaviour change program</b>					
Train staff in web-conferencing	Completed (in Previous Year)				No End Date (Continuous)
Encourage staff to consider virtual attendance/presentation at events where possible	Completed (in Previous Year)				No End Date (Continuous)
Encourage carpooling to meetings	Completed (in Previous Year)				No End Date (Continuous)
Encourage alternative travel to meetings (e.g., bicycles, public transit, walking)	Completed (in Previous Year)				No End Date (Continuous)
<b>Policy and budgeting</b>					
Create a low-carbon travel policy or travel reduction goal	Not Yet Evaluated				No End Date (Continuous)
<b>Virtual meeting technology</b>					
Install web-conferencing software (e.g., Live Meeting, Elluminate, etc.)	Completed (in Previous Year)				No End Date (Continuous)
Make desktop web-cameras available to staff	Completed (in Previous Year)				No End Date (Continuous)
Install video-conferencing units in meeting rooms or provide mobile video-conferencing units	Completed (in Previous Year)				No End Date (Continuous)
<b>Education, Awareness, and Engagement</b>					
<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	2008	No End Date (Continuous)
<b>Staff Professional Development</b>					
Support green professional development (e.g., workshops, conferences, training)	Ongoing/In Progress	student education, science curriculum, Mayor's Youth Forum	Cont.	2010	No End Date (Continuous)
Include green options in employee performance measurement system	Ongoing/In Progress	working with Heath Promoting School Committee	proposed in support of Environmental Sustainability policy	2010	No End Date (Continuous)
<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	Cont.	2010	No End Date (Continuous)
Provide education to staff about the conservation of water, energy, and raw materials	Ongoing/In Progress	student education, science curriculum, Mayor's Youth Forum	Cont.	2010	No End Date (Continuous)
Provide green tips on staff website or in newsletters	Ongoing/In Progress	Sustainability Web Site, Twitter account	Cont.	2010	No End Date (Continuous)
Provide sustainability education during new staff orientation	Ongoing/In Progress	Destination Conservation teams, Energy Conservation Committee in place	Cont.	2010	No End Date (Continuous)
<b>Team-building</b>					
Create Green, Sustainability, Energy Conservation, or Climate Action Teams with executive endorsement	Ongoing/In Progress	Destination Conservation teams, Energy Conservation Committee in place	Environmental Sustainability Task Force in support of policy	2008	No End Date (Continuous)
Provide resources and/or dedicated staff to support teams	Ongoing/In Progress	teachers, staff, resources support DC	expand DC program	2008	No End Date

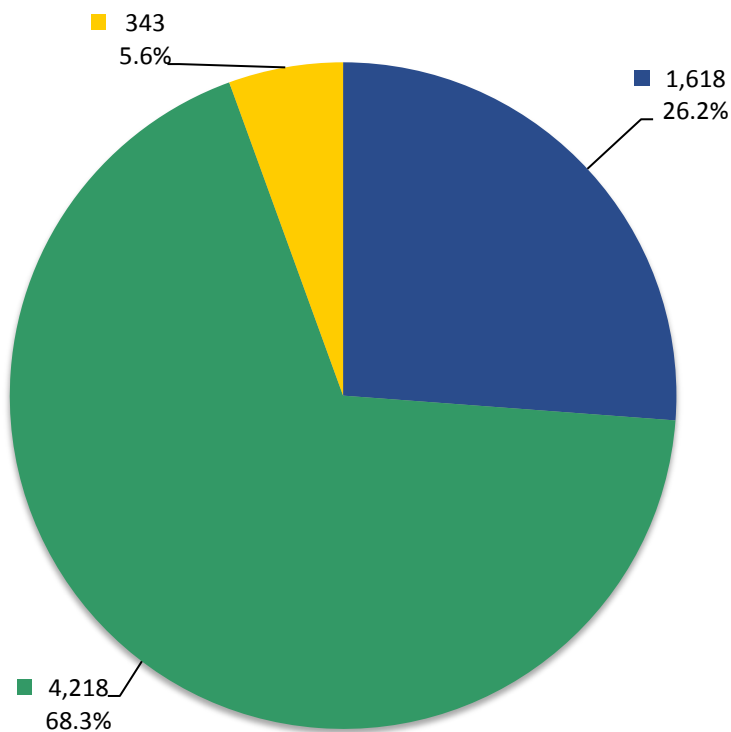
## School District 23 Central Okanagan - 2012 Carbon Neutral Action Report

### 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

Action	Status	Steps Taken	Steps Planned	Start Year	End Year
	Progress				(Continuous)
Providing behaviour change education/training to teams (e.g., community-based social marketing)	Completed (in Previous Year)				No End Date (Continuous)
<b>Other Sustainability Actions</b>					
<b>Adaptation to Climate Change</b>					
Assessed whether extreme weather events and/or long term changes in climate will affect the organization's business areas	Completed (in Reporting Year)	Install school based weather station online.		2012	2012
Integrated considerations of extreme weather events and/or long term changes in climate into the organization's decision making.	Completed (in Previous Year)				No End Date (Continuous)
<b>Building construction, renovation</b>					
Establish a policy to reuse materials where possible and divert construction and demolition debris from landfills and incineration facilities	Ongoing/In Progress	LEED school construction program	Planning	2008	No End Date (Continuous)
Incorporate lifecycle costing into new construction or renovations	Ongoing/In Progress	Designing a new school in West Kelowna	Planning	2011	2014
<b>Commuting to and from home</b>					
Encourage commuting by foot, bicycle, carpool or public transit	Ongoing/In Progress	multiple programs for students	cont.	2008	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)
<b>Procurement (non-paper supplies)</b>					
Incorporate minimum recycled content standards into procurement policy for consumable, non-paper supplies (e.g., writing instruments, binders, toner cartridges, etc.)	Not Yet Evaluated				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.)	Not Yet Evaluated				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)
<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	School waste audits performed by Green Steps.	Adding 6 more schools to the audit review	2010	No End Date (Continuous)
Implement a hazardous waste reduction and disposal strategy	Completed (in Previous Year)				No End Date (Continuous)
<b>Water conservation</b>					
Establish a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models	In Development	Working on School Irrigation Standards	cont.	2012	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 23 - Central Okanagan (Kelowna)  
Greenhouse Gas Emissions by Source  
for the 2012 Calendar Year (tCO<sub>2</sub>e\*)**



**Total Emissions: 6,179**

- 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 3:38 PM)**

Total offsets required: **4,944**. Total offset investment: **\$123,600**. Emissions which do not require offsets: **1,235** \*\*

\*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.