

## School District No. 6 (Rocky Mountain)

### 2011 Carbon Neutral Action Report

#### Executive Summary

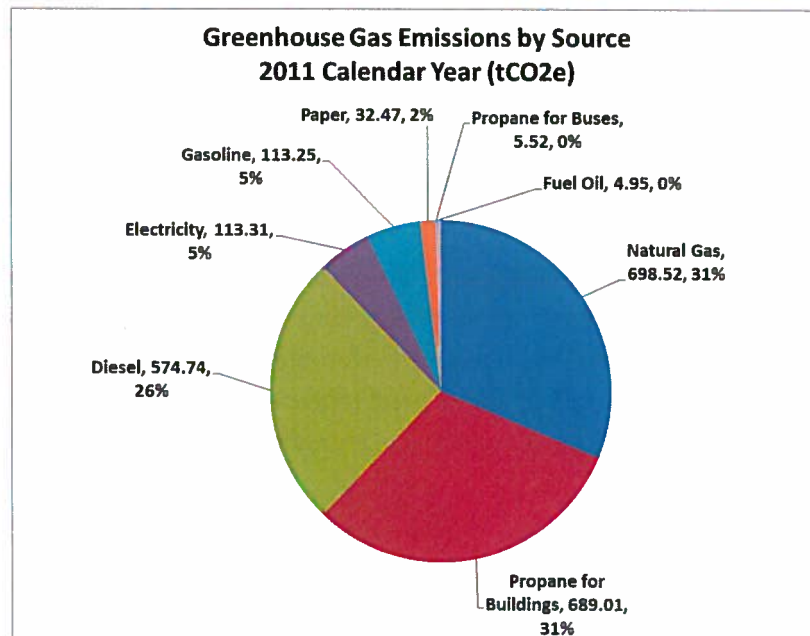
The Rocky Mountain School District has continued to make significant progress in reducing greenhouse gas emissions in 2011, with an overall reduction of emissions that are eligible for offsets of 9 tonnes or 1% compared to last year, and a reduction of 374 tonnes or 19% compared to 2008. The main source of these energy and greenhouse gas savings were due to the implementation of building energy retrofit projects, and changes to the operation of buildings and vehicles. The school districts executive level focus on environmental stewardship has been the key driver for success in reducing greenhouse gas emissions since it has led to the prioritisation of staffing resources, capital projects, and environmental education towards energy reduction and environmental stewardship.



Cameron Dow  
Secretary Treasurer

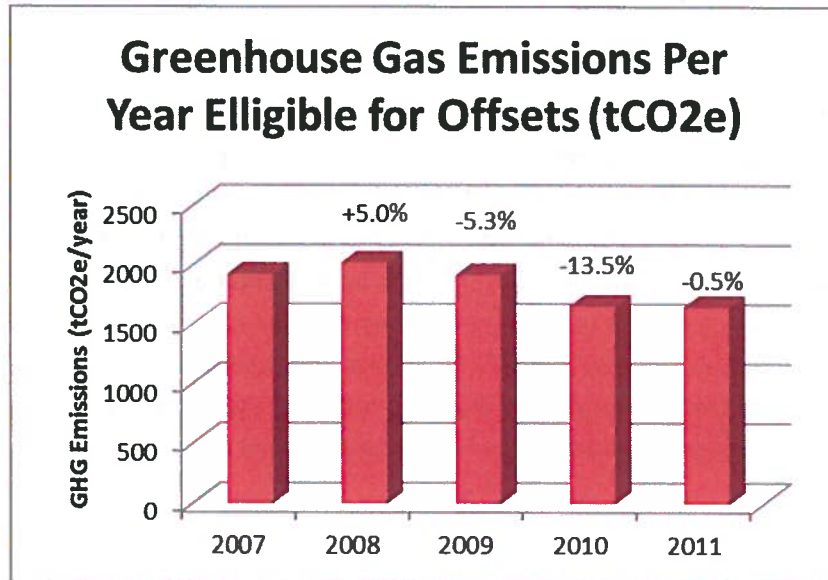
#### 2011 Greenhouse Gas Emissions

A total of 2,231 tonnes of greenhouse gas emissions were emitted by the school district during the 2011 calendar year, from all sources covered by the Greenhouse Gas Reduction Targets Act. A breakdown of



emissions by source is included in the pie chart shown below.

The school district has reduced total greenhouse gas emissions eligible for offsets by 9 tonnes or 1% compared to last year, and a reduction of 374 tonnes or 19% compared to 2008, as shown in the graph below.



### Offsets Applied to Become Carbon Neutral in 2011

The school district purchased a total of \$40,375 (+ HST) in carbon offsets to become carbon neutral for the year 2011. Carbon offsets were purchased from the Pacific Carbon Trust at a cost of \$25 per tonne, to offset 1647 tonnes of greenhouse gas emissions. An additional 584 tonnes of greenhouse gas emissions were emitted from the operation of the district's school buses fleet, however those emissions were not offset with the purchase of carbon credits because they are out of scope under section 4(2)(c) of the Carbon Neutral Government Regulation.

### Emissions Reduction Activities

#### Actions Taken by the Rocky Mountain School District to Reduce Greenhouse Gas Emissions in 2011

An Energy Manager, hired in 2009 with the assistance of BC Hydro, lead the planning and implementation of projects to reduce energy consumption and greenhouse gas emissions in 2011. On-going benchmarking of energy performance for buildings, vehicles, and other energy consumption areas was used to identify and target key opportunity areas for energy reduction. Projects to reduce energy consumption and greenhouse gas emissions implemented in 2011 included:

- Replacement of old natural gas fired boilers with energy efficient heat pumps at the Kimberley Zone Office.
- Replacement of propane rooftop units with heat pumps at Edgewater Elementary.
- Installation of Solar Air, Solar Thermal, and Solar PV systems at JA Laird Elementary and Golden Secondary schools.
- The installation of new DDC control systems at the District Administration Office and Kimberley Zone office and upgrades to DDC systems at Edgewater Elementary and David Thompson Secondary.
- Re-commissioning of the control systems of schools and other buildings to optimise heating, cooling, ventilation supply, and exhaust operation and schedules.
- Lighting upgrade projects at 7 schools and operations buildings.
- Replacing door and window weather-stripping at schools and other buildings.
- Behavioural change by students and staff to reduce energy consumption in buildings and vehicles.
- Office and school practices were modified to reduce paper consumption and transportation energy.
- Reduction in employee travel within the district and outside the district.
- During 2011 schools continued to promote practices such as recycling, composting, operating greenhouses, and planting trees.

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

Reducing energy consumption and greenhouse gas emissions will continue to be a key focus for the Rocky Mountain School District over the next three years, in alignment with its focus on environmental sustainability contained in *District Directions 2008-2013*. Projects planned for the next three to five years show the potential for the school district to save approximately \$500K per year in energy costs, while significantly reducing greenhouse gas emissions and contributing towards becoming carbon neutral. Some projects planned for the next three years include:

- Installation of an integrated Solar Air ventilation system, and a solar thermal hot water system, at JA Laird Elementary School.
- Replacement of propane fired rooftop units with heat pumps at Edgewater Elementary.
- Control system upgrades throughout the district
- Boiler upgrades at a number of schools and operations buildings
- Lighting upgrades and installation of occupancy controls throughout the district

- Increased roofing insulation and wall insulation with cladding and roof upgrades at a number of buildings
- Re-commissioning of the largest buildings and monitoring of real time energy consumption to allow continuous optimisation of energy consuming systems
- Purchase of hybrid and fuel efficient district vehicles to replace less efficient vehicles
- Student and employee behavioural change education projects

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## Actions Towards Carbon Neutrality

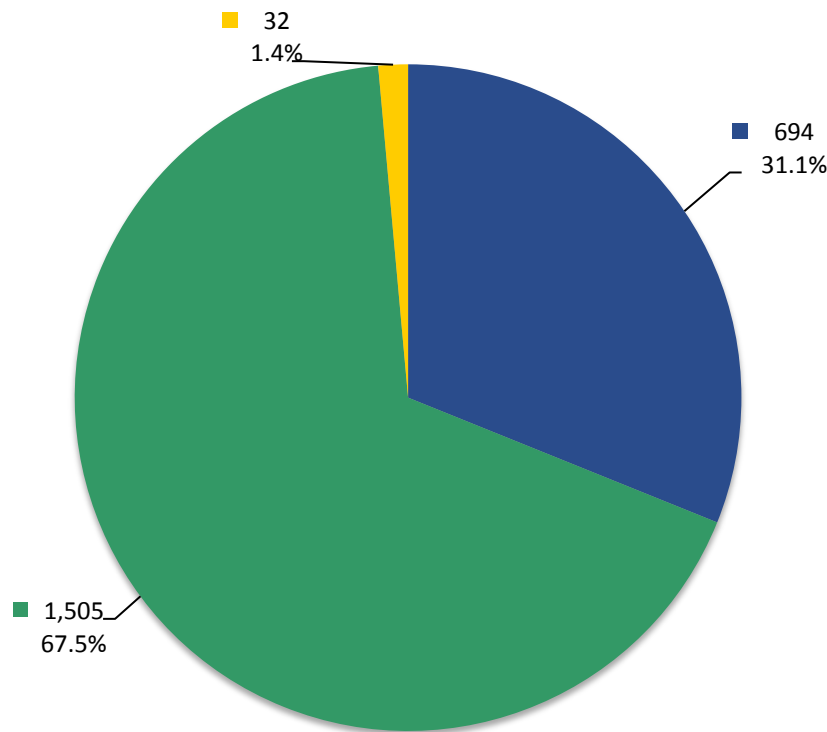
The actions listed below contribute to a reduction in greenhouse gas emissions from sources for which public sector organizations are responsible under the carbon neutral government regulation of the *Greenhouse Gas Reduction Targets Act*.

Action	Status (as of 12/31/11)	Performance to Date (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	In Development				Purchase of more fuel efficient small district vehicles and fuel efficient school buses upon replacement.	2010	No End Date (Continuous)
Replace larger vehicles with smaller models according to fleet "right-sizing" principles	In Development				Replacing vans used by IT department with right sized smaller vehicles.	2011	No End Date (Continuous)
<b>Behaviour change program</b>							
Provide fleet driver training to reduce fuel use	Ongoing/In Progress	20	% of current drivers are trained	SmartDriver for School Bus Programs - NRCAN	SmartDriver for School Bus Programs - NRCAN	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)	In Development	10	% of buildings have a real time metering system installed		Continuous optimisation benchmarking and recomissioning at three schools.	2009	No End Date (Continuous)
Perform energy retrofits on existing, owned buildings	Ongoing/In Progress	80	% of owned buildings have undergone energy retrofits since start year indicated	Mechanical system upgrades, lighting upgrades, control system upgrades, building envelope upgrades, solar thermal, solar air, and solar pv system installations. See below.	Mechanical system upgrades, lighting upgrades, control system upgrades, and building envelope upgrades at various schools.	2005	No End Date (Continuous)
<b>Retrofitting owned buildings</b>							
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress	30	% of retrofits since start year indicated had heating, cooling, and ventilation systems upgrades	Mechanical system upgrades at Edgewater Elementary, Kimberley Zone office, and JA Laird Elementary,	Mechanical system upgrades at McKim Middle School, Blarchmont Elementary	2005	No End Date (Continuous)
Upgrade lighting systems during retrofits	Ongoing/In Progress	85	% of retrofits since start year indicated had lighting systems upgrades	Lighting upgrades at Eilleen Madson, Martin Morigeau, McKim, Blarchmont, Kimberley Zone Office, Kimberley Alternate School	Lighting upgrades at Lindsay Park Elementary, occupancy sensor installation district wide	2005	No End Date (Continuous)
Upgrade/adjust control systems during retrofits	Ongoing/In Progress	40	% of retrofits since start year indicated had control system upgrades or adjustments	New DDC control systems or upgrades installed at the District Administration Building, Edgewater Elementary, Kimberley Zone Office, David Thompson Secondary	New DDC systems planned for Blarchmont Elementary, Selkirk Secondary	2005	No End Date (Continuous)
Improve building insulation (including windows) during retrofits	Ongoing/In Progress	30	% of retrofits since start year indicated had insulation improvements	Increased insulation with re-roofing projects	Increased insulation with re-roofing projects	2005	No End Date (Continuous)
Install an on-site renewable energy demonstration project	Ongoing/In Progress	15	% of retrofits since start year indicated had on-site renewable energy components	Solar air system installed at JA Laird Elementary, Solar thermal system installed at JA Laird Elementary	Solar PV installation at Golden Secondary	2005	No End Date (Continuous)
<b>IT power management</b>							

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Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)		Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Install power management software which shuts down computers outside of regular business hours	In Development	0	% of computers shut down automatically outside of regular business hours	Green IT study completed	Power management software	2011	No End Date (Continuous)
Implement server virtualization	Ongoing/In Progress	20	% of servers have been virtualized since start year indicated	9 servers virtualised	Further study	2009	No End Date (Continuous)
Replace computers with ENERGY STAR models during regular computer upgrades	Ongoing/In Progress	20	% of computers are ENERGY STAR rated	Replacement of computers and monitors with Energy Star Models	Replacement of computers and monitors with Energy Star Models	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	4	% of fridges are ENERGY STAR rated	Purchase of energy star rated products	Purchase of energy star rated products	2010	No End Date (Continuous)
<b>Supplies (Paper)</b>							
<b>Paper Type</b>							
Purchase 30% post-consumer recycled paper	Ongoing/In Progress	40	% of total paper purchased contains 30% recycled content	Some schools switched to 30%	More schools switching to 30%	2005	No End Date (Continuous)
Purchase 100% post-consumer recycled paper	Ongoing/In Progress	35	% of total paper purchased contains 100% recycled content	Some schools switched to 100%	More schools switching to 100%	2005	No End Date (Continuous)
<b>Electronic media in place of paper</b>							
Use electronic document library for filing common documents	Ongoing/In Progress			More documents filed electronically	More documents filed electronically	2009	No End Date (Continuous)
Post materials online that were previously printed	Ongoing/In Progress			More documents posted to web	More documents posted to web	2009	No End Date (Continuous)

## School District 06 - Rocky Mountain Greenhouse Gas Emissions by Source for the 2011 Calendar Year (tCO<sub>2</sub>e\*)



**Total Emissions: 2,231**

- 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 11:54 AM)**

Total offsets required: **1,647**. Total offset investment: **\$41,175**. Emissions which do not require offsets: **584** \*\*

\*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.