



School District 10, Arrow Lakes  
Ministry of Education

Walter Posnikoff  
Superintendent/Secretary Treasurer

Carbon Neutral Action Report  
Executive Summary:

School District No. 10 (Arrow Lakes) is a small rural dispersed district in the province with seven (7) buildings of varied ages and size that it maintains, nine (9) busses in the fleet, six (6) gas driven passenger and/or small cargo vehicles, three (3) grounds maintenance machines, and 160 computers, forty-two (42) laptops, seven (7) servers. Efforts to improve energy efficiencies and energy consumption in the buildings, bussing, small cargo and passenger vehicles and computer technology have, in part, been implemented or are planned to be implemented. Building refits with energy efficiency windows and doors, computer controlled HVAC of the buildings, a propane fueled bus, greater efficiency ballasts for lighting, are some examples of the actions the district has taken and will continue to take to gain greater efficiencies in energy consumption. The completion of the Nakusp Secondary schools boiler replacement and Lucerne Elementary Secondary school roof insulation upgrades are evidence of the districts ongoing commitment to reduce its greenhouse gas emissions. This report details more specifically the actions taken.

Behaviors in the District are also beginning to change. Evidence of this can be seen in the reduction in paper consumption in our Facilitated Learning Centers and central office. The purchase of recycled paper products, utilizing technologies to facilitate meetings rather than travelling for face-to-face meetings, are a few examples of the human behavioral changes.

Overviews:

#### *Actions Taken to Reduce Green House Gas Emissions in 2010*

The district reduced its bus fleet by one 84 seat bus and replaced one bus with a new unit that meets current emission standards, effectively reducing fleet emissions by approximately 12%. Implementation of server and desktop virtualization systems further reduced electricity consumed by our IT infrastructure.

#### *Operational Changes in 2010*

Continued training to “power off after use” led to a significant cultural change which resulted in a yet unmeasured reduction in power usage.



**WALTER POSNIKOFF**  
Superintendent / Secretary-Treasurer

Box 340, Nakusp, B.C., V0G 1R0  
Tel: (250) 265-3638, ext. 25  
Fax: (250) 265-3701  
E-mail: wposnikoff@sd10.bc.ca

---

---

*Plans to Continue Reducing Greenhouse Gas Emissions 2011-2013*

The proposed retrofit of the HVAC plant at Edgewood Elementary school utilizing latent heat capture is projected to result in significant energy savings. Engineering of the retrofit is complete and construction will commence as soon as funding and contractual services are secured.

The migration towards virtual desktop infrastructure will further reduce energy consumption attributed to workstation and server operation.

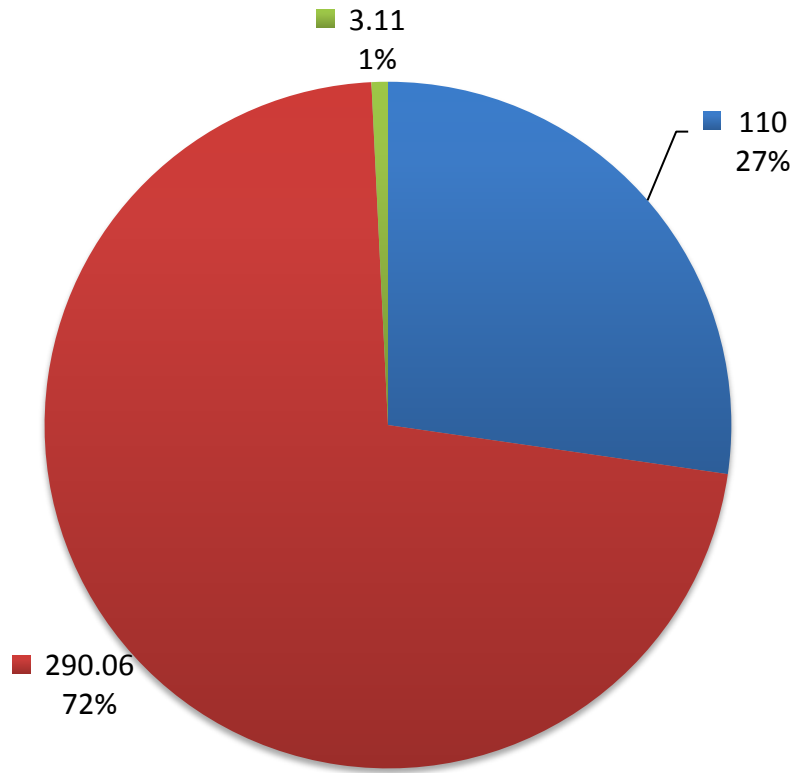
*2010 Greenhouse Gas Emissions, Offsets Applied to become Carbon Neutral in 2010*

School District 10 purchased \$7,761 in Carbon Offset Credits from the Pacific Carbon Trust to offset 310.43 tonnes of qualifying emissions.

---

Mr. Walter Posnikoff,  
Superintendent of Schools  
School District 10, Arrow Lakes

# School District 10, Arrow Lakes Greenhouse Gas Emissions by Source for the 2010 Calendar Year (tCO<sub>2</sub>e\*)



**Total Emissions: 403.17**

- Mobile Fuel Combustion (Fleet and other mobile equipment)
- Stationary Fuel Combustion and Electricity (Buildings)
- Supplies (Paper)

## **Offsets Applied to Become Carbon Neutral in 2010**

Total offsets purchased: **310.43**. Total offset investment: **\$7,760.75**. Emissions which do not require offsets: **92.74** \*\*

\*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.

# School District 10, Arrow Lakes - 2010 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 (as of 12/31/10)	Performance to Date (as of 12/31/10)		Steps Taken in 2010	Steps Planned for 2011 -2013	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	24	% of vehicles are fuel- efficient models	Replaced one diesel fueled bus with propane fueled bus and replaced one diesel fueled bus with a new bus meeting improved emission standards.	Continue to evaluate existing replacement	2009	No End Date (Continuous)
Replace larger vehicles with smaller models according to fleet "right-sizing" principles	Ongoing/In Progress	12	% of vehicles down-sized since start year indicated	Reduced our bussing fleet by one bus.	No further reductions are planned	2008	No End Date (Continuous)
Replace small maintenance vehicles with more fuel-efficient models	In Development	0	% of small maintenance vehicles are fuel-efficient	We do not have the resources to make these changes	To continue to assess options for replacement.	2008	No End Date (Continuous)
<b>Behaviour change program</b>							
Encourage carpooling in fleet vehicles	Ongoing/In Progress			Schedule Maintenance to allow multitrade travel.	Ongoing	2009	No End Date (Continuous)
<b>Stationary Fuel Combustion, Electricity and Fugitive Emissions (Buildings)</b>							
<b>Planning/management</b>							
Reduce office space (square meters) per employee	In Development				The evaluation of administrative space requirements is ongoing.	2009	No End Date (Continuous)
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	Ongoing/In Progress	90	% of buildings have a real time metering system installed	Continuing improvement and expansion of HVAC monitoring, analysis and control. Included in NSS boiler replacement.	Ongoing.	2003	No End Date (Continuous)
<b>Owned buildings</b>							
Establish energy performance baseline for owned buildings	Completed in 2010	100	% of owned buildings have an established energy performance baseline	Completed baseline reviews for all buildings		2009	No End Date (Continuous)
Complete energy retrofits on existing, owned buildings	Ongoing/In Progress	28	% of owned buildings have undergone energy retrofits since start year indicated	Replaced boilers at NSS with high efficiency models. Roof replacement at LESS.	None.	2010	2010
<b>Retrofitting owned buildings</b>							
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Completed in 2010	100	% of retrofits since start year indicated had heating, cooling, and ventilation systems upgrades	Replaced boilers at NSS with high efficiency models.		2010	2010
Upgrade lighting systems during retrofits	In Development	0	% of retrofits since start year indicated had lighting systems upgrades	Reviewing BC Hydro recommendations.	Ongoing review process.	2010	No End Date (Continuous)

## School District 10, Arrow Lakes - 2010 Carbon Neutral Action Report

Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)		Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
Improve building insulation (including windows) during retrofits	Completed in 2010	100	% of retrofits since start year indicated had insulation improvements	During roof replacement at LESS roof insulation improvements adding additional R12.		2010	2010
<b>IT power management</b>							
Install power management software which shuts down computers outside of regular business hours	Ongoing/In Progress	60	% of computers shut down automatically outside of regular business hours	Completed WOL implementation at several sites.	Complete out-of-business hour workstation shutdown scheduling.	2009	2011
Implement server virtualization	Ongoing/In Progress	50	% of servers have been virtualized since start year indicated	Completed production server virtualization across district. Commenced workstation virtualization project.	Complete desktop virtualization at SBO, NSS and NES administrative systems.	2009	2012
Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices	Ongoing/In Progress	70	% reduction in printers, copiers, and/or fax machines since start year indicated	Legacy printers not replaced and print and copier auditing implemented.	Continue to migrate users to centralized copier/print services.	2009	No End Date (Continuous)
Replace computers with ENERGY STAR models during regular computer upgrades	Ongoing/In Progress	90	% of computers are ENERGY STAR rated	Ongoing replacement of desktop and mobile systems with ENERGY STAR rated systems.	Continue with system replacements with either ENERGY STAR or virtual desktops.	2002	No End Date (Continuous)
<b>Appliances and electronic devices</b>							
Replace refrigerators with ENERGY STAR models or source ENERGY STAR models for future purchases	Completed in 2010	60	% of fridges are ENERGY STAR rated	as needed replacements.	Continue standard replacement practices.	2000	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			as needed replacements.	Continue standard replacement practices.	2000	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			as needed replacements.	Continue standard replacement practices.	2000	No End Date (Continuous)
<b>Behaviour change program</b>							
Ask staff to unplug electrical equipment or switch off power bars when not in use	Completed in 2010			Completed staff awareness program.		2002	2010
<b>Other Stationary Fuel Combustion and Electricity Actions</b>							
Virtual Desktop Infrastructure Implementation	In Development			Eliminate Desktop PC's replacing with Thin Client or repurposed devices.	Provision a Pilot/Trial at the SBO.	2011	No End Date (Continuous)
EES Geothermal Heat System	In Development			Final Cost Benefit Analysis of the project is nearing completion.	Final assessment and a decision on project will be completed.	2010	2011
<b>Supplies (Paper)</b>							
<b>Paper Type</b>							
Purchase 100% post-consumer recycled paper	In Development	0	% of total paper purchased contains 100% recycled content		Trial 100% post consumer product to determine viability.	2011	No End Date (Continuous)
<b>Printer/document settings</b>							
Apply "print and hold" settings to networked printers to eliminate unclaimed print jobs	In Development				Ongoing discussions with administrators to determine behavioural change process strategies.	2010	No End Date (Continuous)

## School District 10, Arrow Lakes - 2010 Carbon Neutral Action Report

Action	Status (as of 12/31/10)	Performance to Date (as of 12/31/10)		Steps Taken in 2010	Steps Planned for 2011 -2013	Start Year	End Year
<b>Electronic media in place of paper</b>							
Install collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	In Development	100	% of staff workstations with software installed	Developed and Implemented Cloud Computing solutions for assessment.	Ongoing assessment.	2011	2012
<b>Behaviour change program</b>							
Train staff to use collaborative software for electronic editing (e.g. SharePoint, Groove, etc.)	Ongoing/In Progress	10	% of staff currently have received collaborative software training	Introduction of collaborative software concepts introduced to early adopters on staff.	Ongoing training to key staff.	2011	2012