

Carbon Neutral Action Report School District No. 44 (North Vancouver)

Executive Summary

For almost a decade, the North Vancouver School District has been a leader among school districts in the pursuit of conservation of resources. In 2003 NVSD44 won a BC Hydro Power Smart Partner Excellence award in recognition of numerous eco-efficiency upgrades including lighting retrofits, the installation of building automation systems, and improvements to mechanical systems. Our Energy-Conservation Initiative Project, completed in 2005, resulted in a 70% reduction in water use, a 30% reduction in electricity use, and a considerable reduction in gas consumption. Through our ambitious capital replacement program, we are looking forward to a further significant reduction to our carbon footprint. In 2009 a new NVSD44 committee called the "Green Team" was set up to develop directions for school and District-based practices and rise to the challenge of achieving "carbon neutrality".

Objectives

To sustain our achievements in reducing greenhouse gas emissions, NVSD#44 must continue to upgrade mechanical systems and building envelopes of our aging facilities. The establishment and improvement of a district wide building automation control system allows us to monitor inefficient energy consumption resulting from normal operating equipment wear. SD#44 will continue with mechanical upgrades whenever mechanical equipment output and economics indicate that a substantial return on investment can be made.

Part 1: Actions Taken to Reduce Greenhouse Gas Emissions in 2008

Overview

NVSD#44 replaced the original boilers at Handsworth Secondary School with new high efficiency boilers. This reduced energy consumption and provided us with reliable operational performance.

NVSD#44 provided additional maintenance training for our in house staff.

NVSD 44 commenced a capital project to replace Carson Graham Secondary, an inefficient facility built in the 1960's.

NVSD 44 also commenced capital projects to upgrade Ridgeway Elementary and Queen Mary Elementary, two heritage buildings built in the early 1900's.

All new capital projects are being designed to LEEDs gold standards.

1.1 Mobile Fuel Combustion			
Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Replaced # of TYPE OF VEHICLE with MORE EFFICIENT VEHICLE/Hybrid	Complete	Reduced service vehicle fuel costs	Vehicles purchased in 2008 were diesel powered, for reduced fuel consumption and higher combustion efficiency
Provided driver training to reduce fuel use	In Progress	Reduced service vehicle fuel costs	Transportation experts were provided to deliver driver training tips to NVSD maintenance employees.
Encouraged use of public transit/active transportation	In Progress	Reduced student vehicle use	Comparable shop facilities were not available at each school in a zone. Provided shuttle bus for travel between schools rather than having kids drive individual cars.
Established travel reduction goals	In Progress	Reduced service vehicle fuel costs	Organize work order allotment to minimize travel between sites.
1.2 Stationary fuel combustion and electricity			
Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Replaced # computers with EnergyStar models	In Progress	Reduction in energy use and heat gain	New computers have energy efficient LCD flat screens
Replaced standard bulbs with CFLs	In Progress	Reduction in energy use and heat gain	Where economically feasible.
Installed motion activated lights	In Progress	Reduction in energy use and heat gain	Where economically feasible.
Undertaken lighting retrofit	Completed	Lighting retrofits previously completed at several schools are being monitored	Part of previous Energy-Conservation Initiative Project
Initiated corporate computer shut-down/wake-up for maintenance	Completed	Reduction in energy use and heat gain	Installation of wide area network power conservation software program
Undertaken building energy audit at LOCATION(s)	Completed	All buildings have had an audit to identify water and energy use.	
Initiated or completed a building energy retrofit	Completed	90% of NVSD44 buildings have undergone some form of building energy retrofit	
1.3 Supplies			
Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Encouraged re-use of furniture and equipment	In progress	Recycled building products from facilities prior to demolition	reuse of: millwork, heavy timber, building automation equipment, high efficiency light fixtures and, plumbing fixtures
1.4 Travel			
Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Improved bicycle racks, storage facilities and shower facilities for staff	In Progress	More staff rode their bikes to work.	Provided secure bicycle racks and shower facilities for staff.

1.5 Employee Engagement			
Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Developed Green Teams	In progress	Increased awareness and conservation measures throughout school district	Green Teams developed at school facilities to enhance education program and foster environmental stewardship.
Student Involvement	In Progress	Increased awareness of energy use and efficiency opportunities.	Student projects with Facilities staff to undertake building inventories and energy efficiency audits.

1.6 Sustainability Actions (others)			
Action	Action Taken	Outcome/Performance Measure	Notes Clarifying Action Taken
Took water conservation measures – low flow showers or toilets, fix leaks	Completed	Reduced water use from leaks and old fixtures	Monitored water consumption via building automation system led to district wide reduction of 70%
Improved recycling measures	In Progress	Reduced waste into landfill stream.	Expanded recycling programs in various schools to include a broader range of items.
Supported composting	in progress	Reduced waste into landfill stream.	Several schools have initiated composting programs

Part 2: Plans to Continue Reducing Greenhouse Gas Emissions 2009 -- 2011

2.1 Mobile Fuel Combustion				
Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Initiate new fleet maintenance program (could include – changing filters, checking tire pressure, regular check-ups)	In Progress	Reduction in fuel costs	Annual and monthly maintenance service is being considered	
Other:	Planned	Reduction in fuel costs.	Investigating use of bio diesel. Decommissioning old vehicles.	

2.2 Stationary Fuel Combustion (including electricity)				
Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Replace # computers with EnergyStar models	In Progress	Reduction in energy use and heat gain	New computers have energy efficient LCD flat screens	Summer 2009
Replace standard bulbs with CFLs	In Progress	Reduction in energy use and heat gain		Summer 2009
Install motion activated lights	In Progress	Reduction in energy use and heat gain		Summer 2009
Undertake lighting retrofit	In Progress	Reduction in energy use and heat gain	Upgrades planned for Lynn Valley classrooms	Summer 2009
Implement server virtualization	In Progress	Reduction in energy use and heat gain	Consolidation of Servers at School Board Office	Summer 2009

Initiate corporate computer shut-down/wake-up for maintenance	In Progress	Reduction in energy use and heat gain	Ongoing upgrades and installation as new computers added.	Summer 2009
Initiate or complete a building energy retrofit	Planned	Reduction in energy use.	Installation of condensing boilers (retrofit) at Queenbury elementary school to reduce emissions. Re-installation of recycled bldg automation components to introduce temperature control and save energy in older schools. New technology training of in-house electrical staff to install building intelligent systems.	Summer 2009
Other:	In Progress	Reduction in energy use and heat gain	Continued commissioning and operational adjustments to Sutherland Secondary - currently validated by NR Can to be 48% more efficient than an MNECB reference building. ☐	

2.3 Supplies

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Encourage re-use of furniture and equipment	Planned	Recycle building products from facilities prior to demolition	reuse of: millwork, building automation equipment, high efficiency light fixtures and, plumbing fixtures	

2.4 Employee Engagement

Action	Action Planned	Outcome/Performance Measure	Notes Clarifying Action Taken	Timeframe
Provide climate change education	In progress	Increased awareness and conservation measures throughout school district	Development of a Living Building community at the North Vancouver Outdoor School	
Provide conservation education	In progress	Increased awareness and conservation measures throughout school district	Energy ambassadors program: Facilities staff working with a group of students to instruct and to present younger children a program on the importance of eco-efficiency measures/initiatives- By hydro program	Winter 2009
Develop Green Teams	In progress	Increased awareness and conservation measures throughout school district	Green Teams developed at school facilities to enhance education program and foster environmental stewardship.	