



CARBON NEUTRAL ACTION REPORT 2013



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We chose to incorporate the honeybee into the design of the Carbon Neutral Action Report 2013 because this insect, commonly thought of as a pest, is suffering as a result of our environmental choices.

“Bees are endlessly intriguing, and incredibly useful to us — and not just for honey and wax. If bees disappeared, it would be difficult, if not impossible, to grow much of what we eat.”

—David Suzuki Foundation

The honeybee and wild bees alike are suffering due to the insecticides and pesticides, parasites and unusual weather patterns. The value of honeybee pollination in Canada is estimated at more than \$1-billion a year. This could cause an immediate food crisis. Bee health can tell us a lot about environmental health and thus a lot about our own well-being.



**ABOUT THE
DESIGN**





OVERVIEW

The 2007 Greenhouse Gas Reduction Targets Act established the following emission reduction targets for the B.C. public sector:

- ◆ By 2020, B.C. will reduce greenhouse gas emissions (GHG) by 33 per cent, compared to 2007 levels.
- ◆ By 2050, GHG emissions will be reduced by at least 80 per cent below 2007 levels.
- ◆ To meet the legislated targets, all public sector organizations including school districts are required to be carbon neutral.

The goal of carbon neutrality is achieved through the payment of carbon offsets. An offset is a greenhouse gas emissions reduction tool that is used to compensate for emissions. Offsets, measured in terms of carbon dioxide equivalency, represent the net reduction in emissions that occurs when carbon offset payments are invested by the provincial government in emissions-reducing projects.

To become carbon neutral for the 2013 calendar year, Surrey Schools applied carbon offsets of 18,546 tonnes of carbon dioxide equivalent (tCO₂e). Surrey Schools total offset investment for 2013 is \$463,650.





ABOUT SURREY SCHOOLS

We are British Columbia's largest school district with the highest student enrolment in the province, serving one of Canada's fastest growing cities.

Surrey Schools is one of the province's 60 school districts. Located in the southwestern corner of British Columbia, the school district serves the City of Surrey, the City of White Rock and includes the rural area of Barnston Island. The total area of the district is approximately 328 square miles.

Quick Facts

70,000 Students

10,000 Staff including
6,000 teachers

\$598 million Operating Budget

101 Elementary Schools

19 Secondary Schools

5 Learning Centres

4 Adult Education Centres





DECLARATION STATEMENT

This is the 2013 Carbon Neutral Action Report for Surrey Schools. This report contains our 2013 emissions profile, offsets purchased, the actions we have taken in 2013 to reduce our greenhouse gas emissions and our plans to continue reducing emissions in 2014 and beyond.

By June 30, 2014, Surrey Schools' Carbon Neutral Action Report will be posted to our website at www.surreyschools.ca.

***Compared to last year,
Surrey Schools reduced
total Greenhouse Gas
Emissions by 2,389 tCO₂e –
the equivalent of driving
1,334 cars from Vancouver
to Toronto and back.
GHG emissions are the
lowest in the last four
years.***





EXECUTIVE SUMMARY

Strategic, integrated planning and coordination achieves results

Surrey Schools plans strategically to lower its carbon footprint through student and staff engagement, energy efficient building design, and continuous improvement of building performance.

Over the past decade, more than 736,000 students have received quality educational experiences and opportunities in Surrey Schools.

The last 10 years have been characterized by steady growth in the student population – an increase of more than 10 per cent since 2003. Keeping pace with this growth has required ongoing construction of new schools, building additions, major renovations to existing facilities, and the use of 189 portables as instructional spaces.

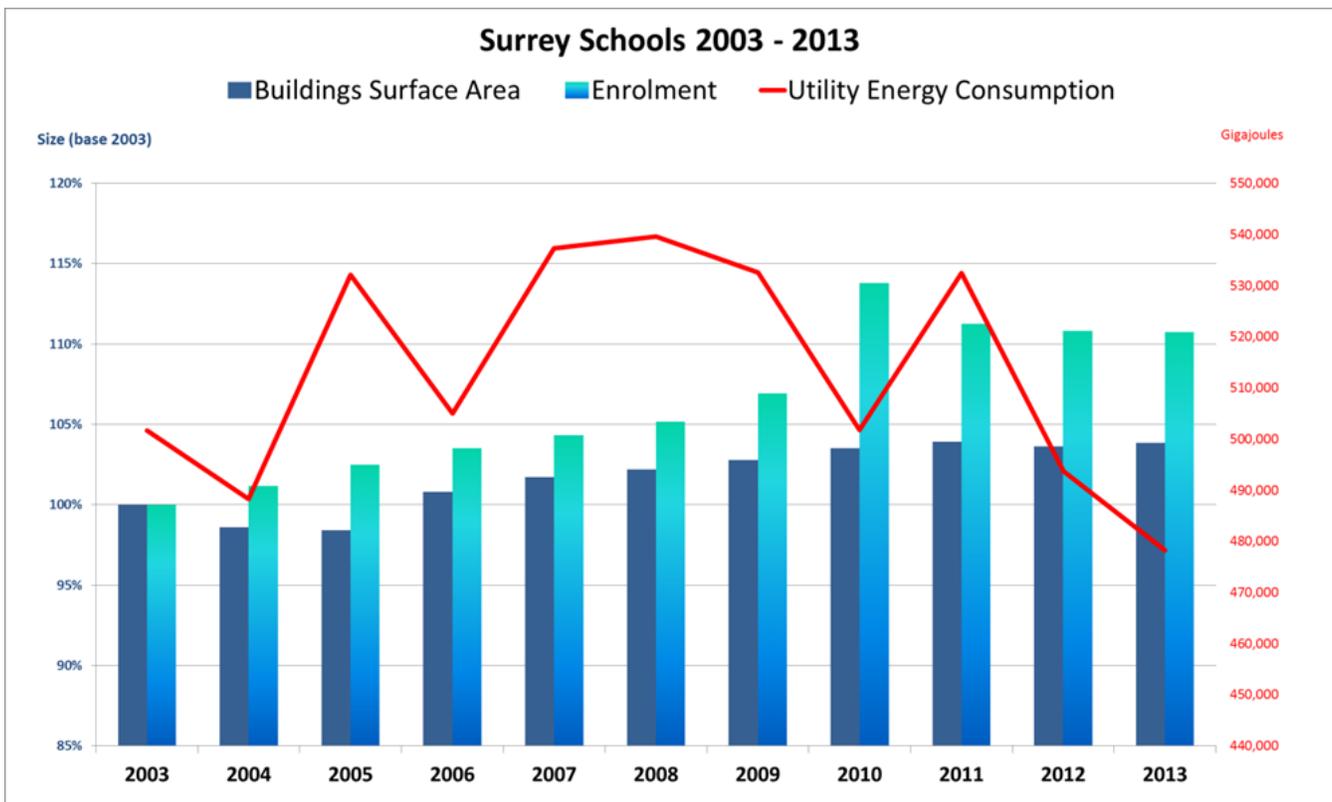
Since 2003 the building surface area has increased by more than 5 per cent, the area available per student has shrunk and the utilization of space has increased. Yet, in spite of increased demand, energy conservation measures have effectively reduced energy consumption and Greenhouse Gas Emissions.





EXECUTIVE SUMMARY

Surrey Schools has met the challenges of rising costs and increased demands on building capacity through integrated and strategic planning across multiple departments, conservation partners and government agencies.



Electrical consumption was the lowest in a decade!





EXECUTIVE SUMMARY

In 2003, the building surface area was smaller and the weather warmer, yet more natural gas was used than in 2013.

In 2013 Surrey Schools:

- ◆ Reduced electrical consumption during the school year by 7 per cent the lowest kWh usage in more than a decade.
- ◆ Reduced natural gas consumption by more than 6,000 gigajoules.
- ◆ Reduced the global warming potential of Greenhouse Gas Emissions to the lowest level in the past 4 years.





LEADERSHIP FOR SUCCESS

***In its role as system
governor, the Surrey
Board of Education
commits to
maintaining and
enhancing: District
environmental
stewardship.***

***Mission, Values and
Goals 2013/14***

www.surreyschools.ca

In 2011, the Surrey Board of Education established an environmental stewardship policy and committed to saving 10 million kilowatt hours from technical projects by 2015. Surrey Schools is on track to exceed the targets of over \$1 million dollars in energy savings and a reduction in energy use of 10 gigawatt hours by 2015.

The board of education identified district environmental stewardship as a board goal and committed to maintaining and enhancing conservation initiatives.

Executive support has been a critical component of the district's energy management successes. Senior management participated fully in all planning and assessment meetings with BC Hydro and other key energy conservation partners.





LEADERSHIP FOR SUCCESS

Energy Management strategically integrated with key departments in the implementation of technical projects. Business Management Services enabled district participation in the BC Hydro New Construction Program through the purchase of energy efficient lighting for three elementary schools. Information Management Services facilitated the installation of computer power management software on 13,000 district computers. The District Facilities Centre coordinated energy studies and contractors for the investigation phase of the Continuous Optimization Program at ten sites, project managed the installation of solar panels on the roof of one secondary school, facilitated two Power Smart Express lighting retrofit projects, and implemented boiler upgrades or boiler replacements at nine schools.

District communications regularly featured environmental stewardship initiatives and numerous positive articles appeared in local and regional media.

Surrey Schools was recognized by BC Hydro in 2013 as a Top 10 Power Smart Partner.

As a result of inter-departmental cooperation and teamwork, the district received over \$900,000 in incentive funding for technical projects from the Carbon Neutral Capital Program and our conservation partners Power Smart and Fortis.





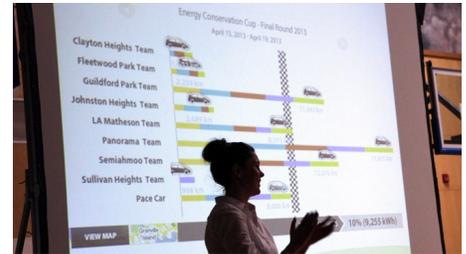
IN THE NEWS...

May 6, 2013

www.bchydro.com

Surrey schools save energy through cooperation and creativity

That means students, as well as senior management, teachers, administration, facilities and other professional support staff all working to change inefficient behaviours and help their school save the most energy.



Nov 14, 2013

www.bchydro.com

Managing energy consumption helps create better learning environments

School district inspires staff, students to adopt energy efficient behaviours.

The district is making great progress, in part by drawing on the tools and resources of the BC Hydro Power Smart Partner Program. Of the district's 125 sites, 79 participated in one or more of its energy conservation initiatives last year, and others ran their own customized programs.



Nov 15, 2013

www.vancouversun.com

Surrey schools build conservation culture one behaviour at a time

“Energy management is not just about doing a multitude of projects. It’s about changing the culture of the organization so that energy efficiency becomes embedded in normal business operations and part of people’s behaviour.”— Wayne Cousins , BC Hydro





BUILDING A CONSERVATION CULTURE

Behaviour change is a key component of the district's carbon reduction strategy. Students and staff at multiple schools participated in environmental stewardship initiatives delivered, coordinated or supported by the Energy Management and Sustainability Program. Staff at the District Education Centre modelled energy conservation leadership as they participated with fifteen schools in the Workplace Conservation Awareness Program.

THE INDUSTRY'S MOST POWERFUL LEADERS ARE THE ONES USING LESS ENERGY.
THANK YOU TO OUR TOP 10 POWER SMART PARTNERS.

- VANCOUVER ISLAND HEALTH AUTHORITY
- THRIFTY FOODS
- SUPERSTORE
- THE UNIVERSITY OF BRITISH COLUMBIA
- VANCOUVER COASTAL HEALTH AUTHORITY
- MINISTRY OF LABOUR, CITIZENS' SERVICES - SHARED SERVICES BC
- SAVE ON FOODS
- CITY OF ABBOTSFORD
- FRASER HEALTH AUTHORITY
- SCHOOL DISTRICT 36 (SURREY)

Our partners know that we have a role to play when it comes to smart energy use so that we can continue to thrive for generations to come. Become a leader in energy conservation and implement power smart business practices. To find out more about our expert resources and financial incentives call 1 866 522 4713 or visit bchydro.com/business

BC Hydro powersmart





BUILDING A CONSERVATION CULTURE

Also of note, Surrey Schools ran the first inter-school energy challenge, the Energy Conservation Cup, involving all nineteen district secondary schools. The schools chose initiatives such as Ugly Sweater Day, and “unplugged concerts” at lunch, and promoted habit changing actions such as turning off unneeded lights.

***Panorama Ridge
Secondary won the 2013
Energy Conservation Cup,
maintaining an
impressive 17 per cent
energy reduction through
to the end of the school***





GREEN BUILDINGS

Surrey Schools new construction projects are built to a higher level of energy efficiency than the standard building code.

Three building sites are LEED (Leadership in Energy and Environmental Design) certified.

Gold:

Woodward Hill Elementary, 6082 142 Street
 District Education Centre, 14033 92nd Ave

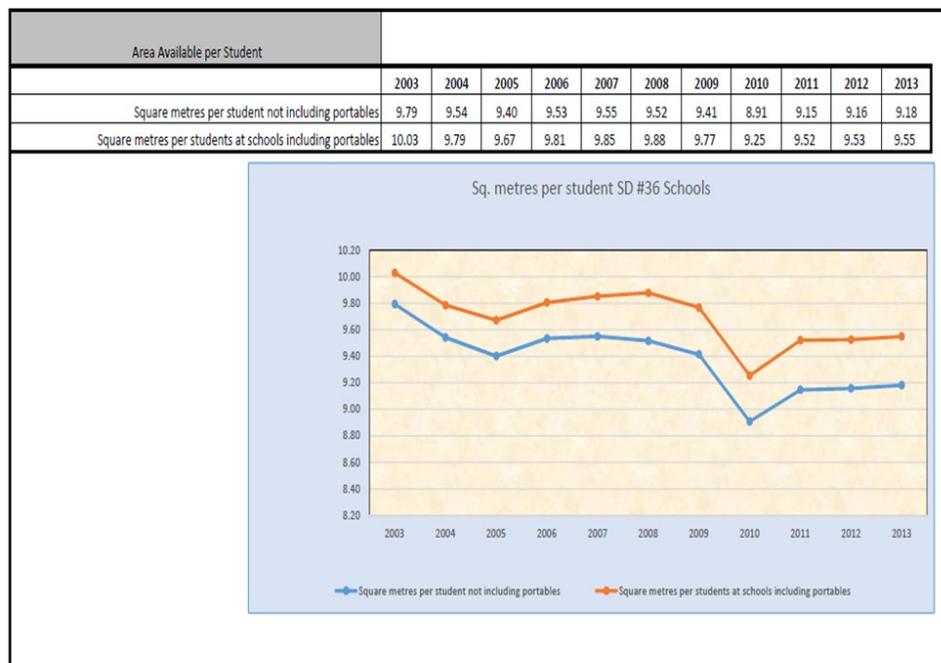
Silver:

Adams Road Elementary, 18228 68 Ave



LEED Non-Certified:

Rosemary Heights Elementary, 15516 36 Ave
 Hazelgrove Elementary, 7057 191 Street
 Sunnyside Elementary, 2828 159 Street





EMISSIONS AND OFFSETS SUMMARY

School District #36 (Surrey) GHG Emissions and Offsets for 2013 (tCO₂e)

GHG Emissions created in calendar year 2013 (from SmartTool Homepage):

Total Emissions	18,773
Total Emissions for Offsets	18,546

Adjustments to GHG Emissions Reported in Previous Years (from SMARTTool Homepage):

Total Emissions	0
Total Emissions for Offsets	0

Credit owing from PCT at end of 2012 reporting year (if applicable)

Credit Owing	19,233
Total Emissions for Offsets for the 2013 Reporting Year (from Offset invoice):	687

A handwritten signature in black ink, appearing to read 'Wayne Noye', written over a horizontal line.

May 15, 2014

Signature

Date

Wayne Noye

Secretary-Treasurer

Name

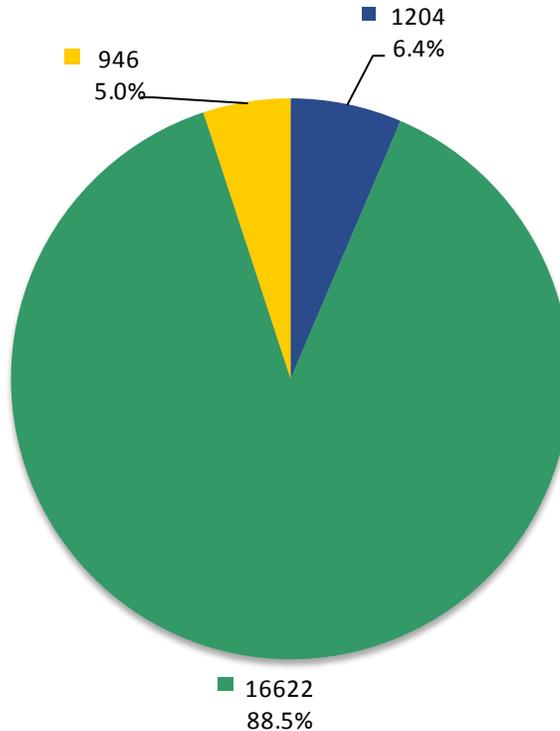
Title





APPENDIX A: Greenhouse Gas Emissions

**School District 36 - Surrey
Greenhouse Gas Emissions by Source
for the 2013 Calendar Year (tCO₂e*)**



Total Emissions: 18,773

- 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 2013 (Generated May 06, 2014 1:07 PM)

Total offsets required: **18,546**. Total offset investment: **\$463,650**. Emissions which do not require offsets: **227** **

*Tonnes of carbon dioxide equivalent (tCO₂e) 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





APPENDIX B: Plans to Continue Reducing Emissions

Surrey Schools will complete the Power Smart Continuous Optimization Program – Investigation Phase at 9 secondary schools. This process will involve identifying potential improvements to the heating and cooling systems at each site.

Surrey Schools will implement the energy conservation measures identified at the 9 secondary schools involved in phase 2 of the optimization program. These energy conservation measures include the following typical improvements:

- ◆ Energy efficient sequences of operation to existing equipment utilizing both new and existing DDC points.
- ◆ New operating schedules to existing equipment.
- ◆ Repairs to existing valve and damper actuators.
- ◆ New variable speed drives on selected mechanical equipment.
- ◆ Rebalancing of fans and pumps.

Surrey Schools will initiate the optimization program phase 3 – Investigation stage at one secondary school and eight elementary schools.





APPENDIX B: Plans to Continue Reducing Emissions

Surrey Schools will implement the energy conservation measures identified in phase 3 of the Continuous Optimization Program.

As a part of the Continuous Optimization Program, training and coaching of operations staff will begin in 2014 and continue through 2016.

Surrey Schools will enroll the Resource Education Centre building in the BC Hydro New Construction Program and complete an energy efficient lighting design agreement.

As part of the New Construction Program, Surrey Schools will complete the installation of energy efficient lighting at two elementary schools and two secondary school classroom additions.

Surrey Schools will replace the direct digital control system at Lord Tweedsmuir Secondary School in order to enable energy management and monitoring of the school's mechanical systems.

Carbon Neutral Capital Program funding will enable the installation of high efficiency condensing boilers at one elementary school.

Annual Facilities Grant (AFG) funding will enable the installation of high efficiency boilers at one elementary school and two secondary schools.

AFG funding will enable the completion of lighting retrofit projects at three elementary schools.





APPENDIX B: Plans to Continue Reducing Emissions

Surrey Schools will continue to support and resource school green teams and district-wide energy awareness programs and competitions.

Surrey Schools will continue to access incentive funding from key energy conservation partners and promote and pursue cost effective energy conservation projects.

Surrey Schools will implement an expanded recycling program for all district locations including:

- ◆ Food and waste (organics);
- ◆ Glass, metal or recyclable plastic; and
- ◆ Any other materials appropriate for inclusion in the recycling program.

Surrey Schools in partnership with the City of Surrey will showcase school energy champions and green team initiatives at an annual Sustainability Fair.

