



# **CARBON NEUTRAL ACTION REPORT 2014**



# TABLE OF CONTENTS

---

Overview	2
About Surrey Schools	3
Declaration Statement	4
Executive Summary	5
Leadership for Success	8
Integrated Emissions Reduction	9
Building a Conservation Culture	10
Green Buildings	12
Emissions and Offsets Summary	13
Appendix A: Greenhouse Gas Emissions	14
Appendix B: Plans to Continue Reducing Emissions	15

*We chose to incorporate the orca whale into the design of the Carbon Neutral Action Report 2014, because orcas are a reminder of the beauty of British Columbia's west coast. However, due to many preventable threats, killer whales are at risk of becoming an endangered species.*

*Many of the threats to orca whales and their habitat stem from human activities and include commercial hunting, capture for entertainment, habitat pollution, excessive noise, decreased prey, and climate change.*



**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.

Achieving carbon neutrality involves four specific actions: measuring operational GHG emissions, reducing emissions where possible, offsetting the remainder of emissions, and reporting on emissions reduction actions. A carbon 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 2014 calendar year, Surrey Schools applied carbon offsets of 16,911 tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e). An additional 749 tonnes of CO<sub>2</sub>e was offset for adjustments to emissions occurring in prior years. Surrey Schools' total offset investment for 2014 is \$441,500 (\$463,575 with GST included).





# 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

**70,100** Students

**9,500** Staff including  
**5,300** teachers

**\$678 million** Operating Budget

**101** Elementary Schools

**19** Secondary Schools

**5** Learning Centres

**4** Adult Education Centres





## DECLARATION STATEMENT

---

This is the 2014 Carbon Neutral Action Report for Surrey Schools. This report for the period January 1st to December 31st, 2014 summarizes our emissions profile, the amount of offsets purchased to reach net zero emissions, the actions we have taken in 2014 to reduce our greenhouse gas emissions and our plans to continue reducing emissions in 2015 and beyond.

By June 30, 2015, Surrey Schools' final Carbon Neutral Action Report will be posted to our website at [www.surreyschools.ca](http://www.surreyschools.ca).

***Compared to last year, Surrey  
Schools reduced total  
Greenhouse Gas Emissions by  
1,897 tCO<sub>2</sub>e – the equivalent of  
the annual emissions from 400  
passenger vehicles.***

***GHG emissions are the lowest in  
the last five years, 15.5% lower  
than 2010 emissions.***





## 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.

Surrey Schools has the largest student enrolment in British Columbia. The last decade has 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 over 200 portables as instructional spaces. Since 2003 the building surface area has increased by almost 7 per cent. Yet, in spite of increased demand, energy conservation measures have effectively reduced energy consumption and greenhouse gas emissions, with both in a pattern of modest decline over the past five years.





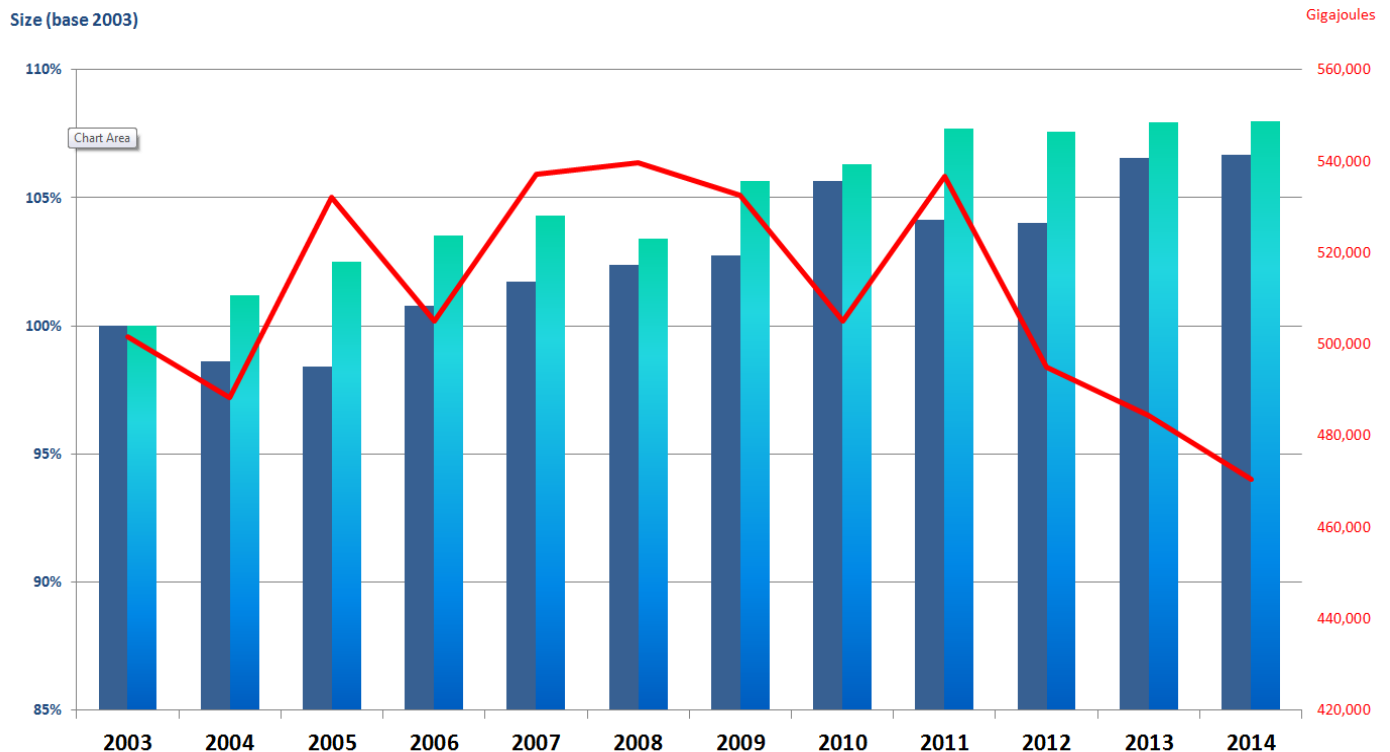


# EXECUTIVE SUMMARY

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

## Surrey Schools 2003 - 2014

■ Buildings Surface Area ■ Enrolment — Utility Energy Consumption



**Total energy consumption decreased  
by 12% from 2011 to 2014!**





## EXECUTIVE SUMMARY

---

***Despite increases in student enrollment and facility space, energy consumption in Surrey Schools is at its lowest point in over a decade!***

In 2014 Surrey Schools:

- ◆ Reduced electrical consumption by an additional 1% for a total reduction of 10% since 2011, reaching the lowest consumption level in more than a decade.
- ◆ Reduced natural gas consumption by more than 26,000 gigajoules; a decrease of 8% over the previous year.
- ◆ Reduced Greenhouse Gas Emissions by 1897 tCO<sub>2</sub> equivalent, 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](http://www.surreyschools.ca)***

In 2011, the Surrey Board of Education established an energy management and conservation policy. In 2014 the newly elected Board of Education reaffirmed the district’s commitment to maintaining and enhancing conservation initiatives by once again identifying to environmental stewardship as a board goal.

Executive support has been a critical component of the district’s energy management success. Senior management has played an active role in energy and emissions planning and assessment with BC Hydro and other key conservation partners.

In 2014 Surrey Schools was recognized for Leadership Excellence by BC Hydro at the 2014 BC Hydro Power Smart Excellence Awards.



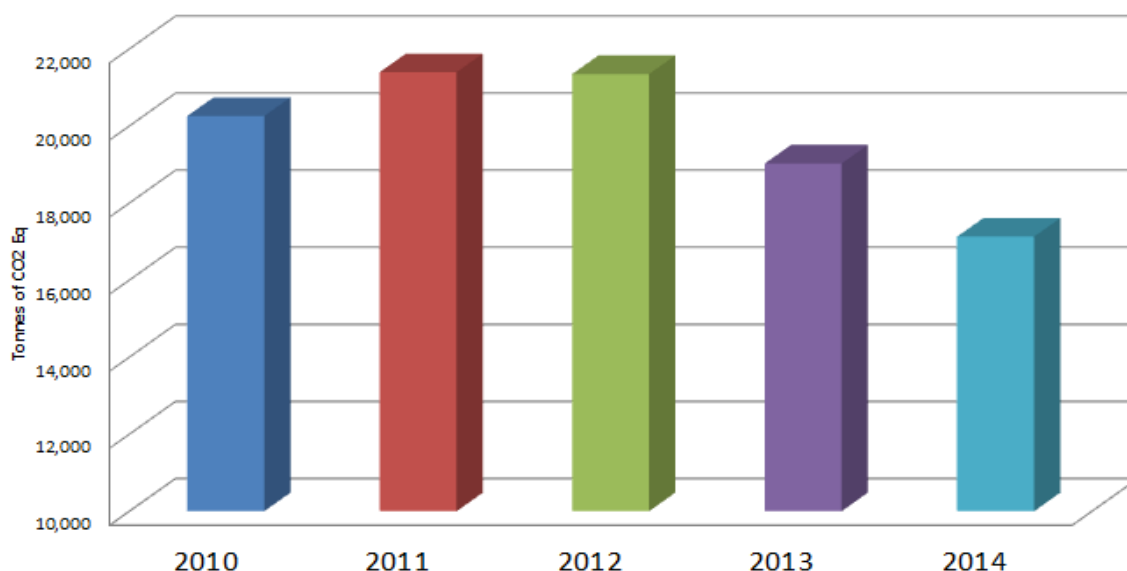


# INTEGRATED EMISSIONS REDUCTION

Energy Management is strategically integrated with key departments in the implementation of technical energy efficiency projects. In 2014, Business Management Services enabled district participation in the BC Hydro New Construction Program through the implementation of energy efficient lighting design for two elementary schools and the Resource Education Centre, which is under construction. Information Management Services facilitated the installation of computer power management software on an additional 1,500 computers, bring the total to 15,000 district computers being managed to conserve energy. The District Facilities Centre oversaw the implementation phase of the Continuous Optimization Program at ten sites, upgraded building automation systems at five schools, installed energy efficient domestic hot water systems at two schools and implemented boiler upgrades or boiler replacements at six schools.

As a result of inter-departmental cooperation and teamwork, the district received over \$500,000 in incentive funding for energy efficiency projects from the Carbon Neutral Capital Program and our conservation partners BC Hydro Power Smart and FortisBC.

**Surrey Schools GHG Emissions 2010 - 2014**





## BUILDING A CONSERVATION CULTURE

Behaviour change is a key component of the district's carbon reduction strategy. Students and staff at many schools across the district participated in environmental stewardship initiatives delivered, coordinated or supported by the Energy Management and Sustainability program. In the spring of 2014, staff at the District Education Centre modelled energy conservation leadership as they participated with fifteen schools in the Workplace Conservation Awareness (WCA) Program. The district renewed its commitment to Workplace Conservation Awareness, renewing the WCA Agreement with BC Hydro for another 2 years and widening the outreach by inviting every school in the district to participate in conservation campaigns.

Surrey Schools took home top honours in the Conservation Awareness and Engagement category at the 2014 BC Hydro Power Smart Excellence awards. The district was recognized for employee awareness campaigns that encourage individuals within the organization to use electricity and other resources more efficiently to help conserve energy and create a culture of energy conservation at their workplace.

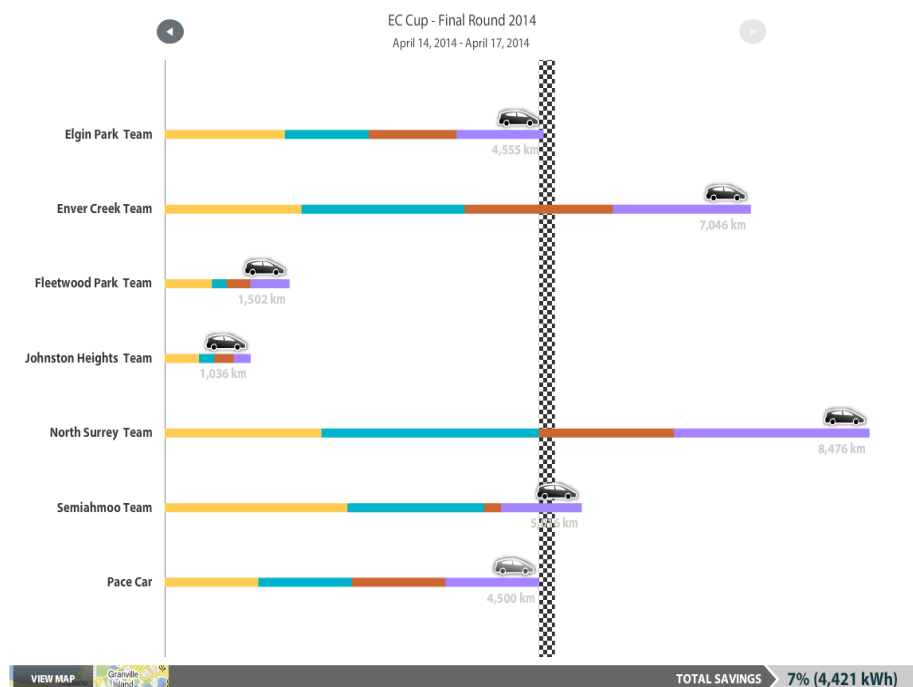




## BUILDING A CONSERVATION CULTURE

In 2014 Surrey Schools ran the third annual inter-school energy challenge, the Energy Conservation Cup. 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. Princess Margaret clinched the 2014 Energy Conservation Cup as a result of the schools consistent savings throughout the year. North Surrey Secondary came a close second, cutting consumption by 14 per cent during the final shootout between the top eight energy saving secondary schools and finishing a mere 4 points behind Princess Margaret.

***Princess Margaret  
Secondary won the  
2014 Energy  
Conservation Cup,  
thanks to consistent  
savings throughout  
the year.***







## 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.

Woodward Hill Elementary (LEED Gold), 6082 142 Street

District Education Centre (LEED Gold), 14033 92nd Ave

Adams Road Elementary (LEED Silver), 18228 68 Ave

Five sites have been constructed with Energy Efficient Lighting Design:

Katzie Elementary, 6887 194A Street

Sunnyside Elementary, 2828 159 Street

Goldstone Park Elementary, 6287 146 Street

Fraser Heights Secondary addition, 16060 108 Avenue

Panorama Ridge Secondary addition, 13220 64 Avenue





# EMISSIONS AND OFFSETS SUMMARY

## School District #36 (Surrey) GHG Emissions and Offsets for 2014 (tCO<sub>2</sub>e)

### GHG Emissions created in calendar year 2014 (from SMARTTool Homepage):

Total Emissions (tCO<sub>2</sub>e)

17,126

Total Emissions for Offsets (tCO<sub>2</sub>e)

16,911

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

Total Emissions (tCO<sub>2</sub>e)

732

Total Emissions for Offsets (tCO<sub>2</sub>e)

749

### Total Emission for Offset for the 2014 Reporting Year (from SMARTTool Homepage):

Total Offsets (tCO<sub>2</sub>e)

17,660

Executive sign-off:

May 28, 2015

Signature

Date

Jordan Tinney

Superintendent of Schools

Name (please print)

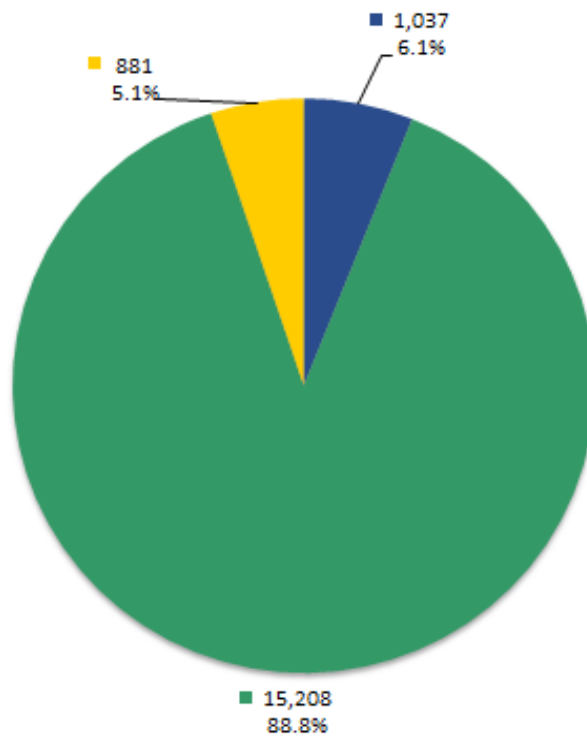
Title





## APPENDIX A: Greenhouse Gas Emissions

School District 36 - Surrey  
Greenhouse Gas Emissions by Source  
for the 2014 Calendar Year (tCO<sub>2</sub>e\*)



Total Emissions: 17,126

- 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 2014 (Generated May 04, 2015 3:28 PM)

Total offsets required: 16,911. Total offset investment: \$422,775. Emissions which do not require offsets: 215 \*\*

\*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.







## APPENDIX B: Plans to Continue Reducing Emissions

---

The largest portion of the district's greenhouse gas emissions (over 88%) originate from the energy used to heat and power our buildings. As a result, the largest proportion of our GHG reduction initiatives continues to be focussed on energy conservation within our schools and administrative facilities.

Surrey schools will continue to update the district's Strategic Energy Management Plan, including assessing the energy performance of each school or site in the district and identifying opportunities for future energy efficiency projects that will enhance performance and reduce energy consumption of buildings.

Surrey Schools is continuing to implement the District's comprehensive energy conservation program and there are number of energy efficiency projects slated for 2014 & 2015 including:

- ◆ Completion of the Power Smart Continuous Optimization Program implementation at fourteen schools. This process will involve making improvements to the heating and cooling systems and ensuring that building automation systems are operating efficiently at each site.
- ◆ Initiation of the Continuous Optimization program Investigation stage at four Elementary schools.
- ◆ Completion of the energy efficient lighting design at the Resource Education Centre building through the BC Hydro New Construction Program
- ◆ Installation of high efficiency condensing boilers at one secondary school enabled by \$565,500 in Carbon Neutral Capital Program funding





## APPENDIX B: Plans to Continue Reducing Emissions

---

- ◆ Undertaking energy modeling and developing an energy efficient building design for the new secondary school being built in the Clayton North neighbourhood as part of the BC Hydro New Construction Whole Building Design program.
- ◆ Installing high efficiency boilers at one elementary school and two secondary schools, enabled by Annual Facilities Grant (AFG) funding.
- ◆ Completing lighting retrofit projects at three elementary schools enabled by AFG funding.

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

In addition to energy efficiency projects, Surrey Schools will continue to support school green teams and resource district-wide energy awareness programs and competitions.

Surrey Schools will complete the implementation of the “Rethink Waste” program, 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.

