

Carbon Neutral Action Report 2014



SOOKE 62
SCHOOLS
Shaping Tomorrow Today

Sooke School District #62 - 2014 Carbon Neutral Action Report

Executive Summary

This is the 2014 Carbon Neutral Action Report for Sooke School District No.62. This report contains our 2014 emissions profile, offsets purchased, the actions we have taken in 2014 to reduce our GHG emissions and our plans to continue reducing emissions in 2015 and beyond.

Year 2014, energy saving measures have been accomplished on heating systems such as upgrading boilers, primary heating systems, DDC systems and optimizing sequences of operation and schedules. There was an extension and enhancement of the recycling program and a more aggressive move towards the use of alternate technology for teaching which will see a reduction in paper usage into the future.

With past successes from the first provincial K-12 ESCO and the on-going yearly energy reduction measures, Sooke School District has a solid foundation and commitment to continually seek and implement ways to reduce energy consumption.

School District No.62(Sooke) GHG Emissions and Offsets for 2014(TCO2E)	
GHG Emissions created in calendar year 2014 (from SMARTTool Homepage):	
Total Emissions	2,287
Total Emissions for Offsets	1,876
Adjustments to GHG Emissions Reported in Previous Years (from SMARTTool Homepage) :	
Total Emissions	- 4
Total Emissions for Offsets	- 1
Credit owing from PCT at end of 2013 reporting year (if applicable – from May 15 invoice):	
Credit Owing	0
Total Emissions for Offsets for the 2014 Reporting Year (from Offset Invoice):	1,875

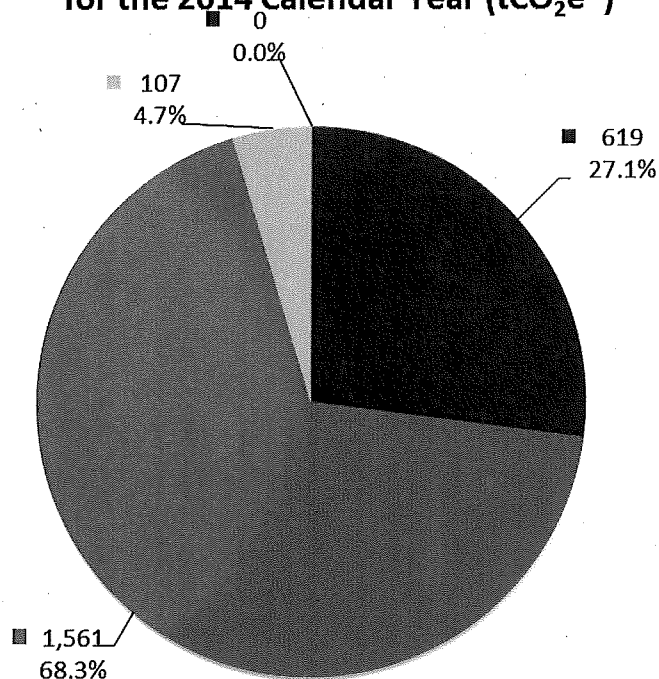

Jim Cambridge, SD62 Superintendent


Date

It was estimated that stationary fugitive emissions from cooling do not comprise more than 0.01% of Sooke School District's 2,287 tonnes CO₂e total emissions and an ongoing effort to collect or estimate emissions from this source would be disproportionately onerous. For this reason, emissions from this source have been deemed out-of-scope and have not been included in Sooke School District total greenhouse gas emissions profile or offset purchase.

Greenhouse Gas Emissions and Offsets Summary in 2014

School District 62 - Sooke Greenhouse Gas Emissions by Source for the 2014 Calendar Year (tCO₂e*)



Total Emissions: 2,287

- Mobile Fuel Combustion (Fleet and other mobile equipment)
- Stationary Fuel Combustion (Building Heating and Generators) and Electricity
- Supplies (Paper)
- Fugitive Sources

Offsets Applied to Become Carbon Neutral in 2014 (Generated May 19, 2015 8:43 AM)

Total offsets required: **1,876**. Total offset investment: **\$46,900**. Emissions which do not require offsets:

*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

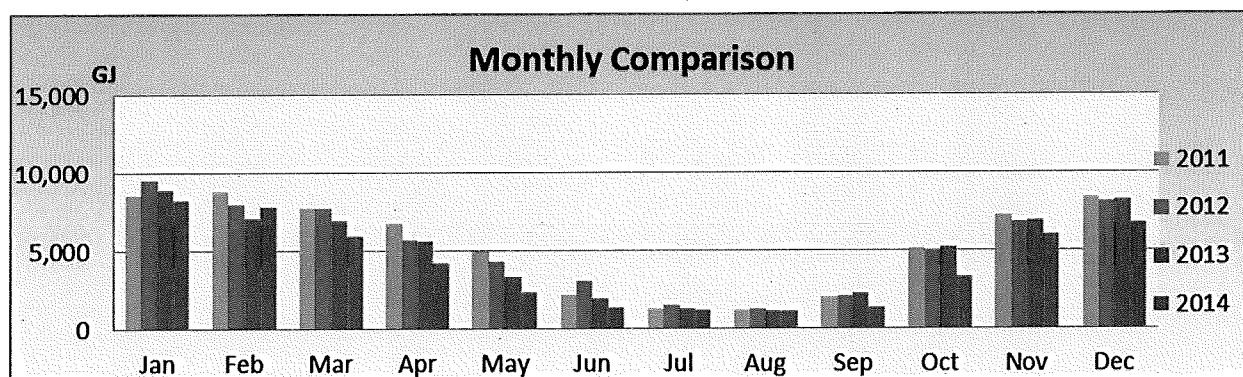
Offsets Applied to Become Carbon Neutral in 2014.

Carbon offset for being carbon neutral in 2014 would be 1,876 tonnes CO₂e.

Year	Total emissions, tCO ₂ e	Offset, tCO ₂ e	Offset purchased,\$
2012	3,175	2,695	67,375
2013	2,838	1,986	49,650
2014	2,287	1,876	46,900

Sooke School District is going to apply for 1,876 tonnes CO₂e to become carbon neutral for 2014. This represents an offset investment of \$46,900 before taxes.

Compared to the emissions of the year 2013, 376 tCO₂ of emissions reduction has been achieved from Stationary Combustion in 2014. The following graph shows energy savings in natural gas and electricity has been achieved through the year of 2014.



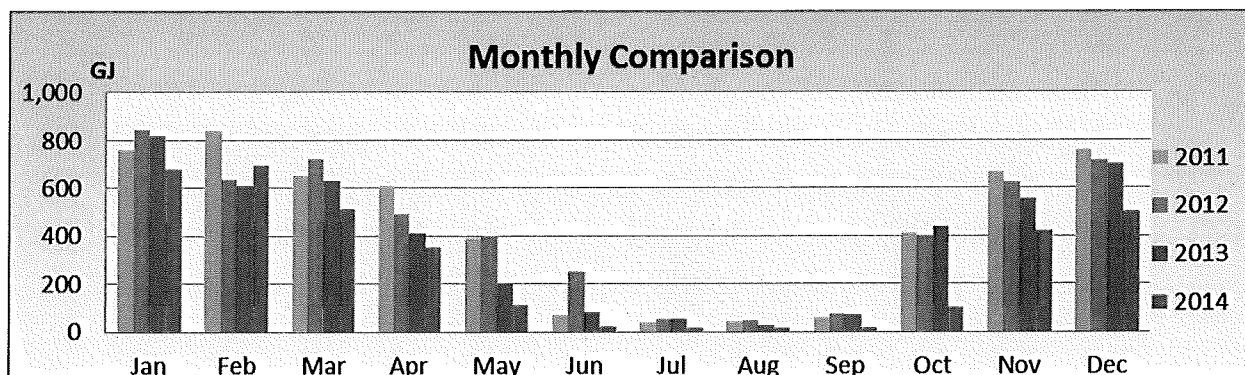
< Monthly Energy Use in 4 years >

Emissions Reduction Activities

- **Actions Taken to Reduce Greenhouse Gas Emissions in 2014**

Upgrading heating systems, Edward Milne Community School(EMCS)

EMCS school has 8,981 square meter in area, has used 5,063 GJ of natural gas per year averaged in three years. Old conventional type two boilers, Rendemax Series 2000 atmospheric boilers 3,485 MBtu each, provided heat with mid efficiency around 70% combustion efficiency. From the mechanical report, 68 tCO₂ GHG emissions has been expected by replacing the old boilers with new condensing boilers. Three new condensing boilers, Viessmann Victocrossal CM2-246, 878 MBtu input each, has been installed in August 2014, and significant natural gas savings has been achieved.



Monthly natural gas consumptions for EMCS with comparison of each year.

From October 2014, gas usage dropped down significantly compared to previous years.

Upgrading domestic hot water heaters, various schools

Old type domestic water heaters have been replaced with instantaneous type water heaters, Navien NPE-240A, in 2014; three water heaters for EMCS, one for Crystalview Elementary school, one for David Cameron Elementary School. Replacing old domestic water heaters with instantaneous type heater is on-going energy savings project every year.

Other actions done in 2014

- ✓ Upgraded a leaky condensing boiler at Colwood Elementary School with two new condensing boiler, Lochinvar WHN399 399 MBtu each.
- ✓ Upgraded HVAC control systems to solve heating issues and to save energy use with optimized heating control using new DDC systems at Hans Helgesen Elementary School
- ✓ Updating and changing Global Schedules for each school based on each school's specific conditions
- ✓ Updating and changing reset schedules for boiler water supply temperatures and supply air temperatures to prevent systems from both heating and cooling
- ✓ Minimizing manual operation by fixing issues on the manual points
- ✓ Reviewing and changing programs for operating HVAC systems on DDC.

• **Plans to Continue Greenhouse Gas Emissions 2015 – 2017**

School District No. 62(Sooke) has emissions reduction plan, Strategic Energy Management Plan(SEMP), to reduce GHG emission by 33 % of the emissions in 2007. In cooperation with Senior Management, effective energy savings projects have been planned to reduce GHG, energy use and energy cost as well. Also, School District No.62 is expected to grow in size, being energy efficient is the highest priority in the policy of School District.

In 2015, as new Belmont Secondary School and Royal Bay Secondary School are going to open with existing Belmont Secondary School closed, the total conditioned area will be increasing. However these new schools have been designed to be very energy efficient, total energy use will stay around the current use. These new school projects will be bringing emissions reduction in natural gas by 15% compared to the natural gas use in 2013. Upgrading boilers, domestic hot water heaters, DDC system will be continuing.

In 2016, recommissioning energy studies for the schools showing higher Energy Utilization Index than average E.U.I in School Districts will be conducted to find energy savings opportunities.

2014 Carbon Neutral Action Report (CNAR)

- Part 2 ACTIONS

Organization Name

School District No 62(Sooke)

Actions Taken to Reduce Emissions

1) Stationary Fuel Combustion, Electricity (Buildings):Indicate which actions were taken in 2014:

Performed energy retrofits on existing buildings

Yes

Built or are building new LEED Gold or other "Green" buildings.

Yes

Undertook an evaluation of overall building energy use.

Yes

Please list any other actions taken to reduce emissions from Buildings:

- o Upgrading old low efficient conventional boilers to high efficient condensing boilers
- o Replacing tank type water heaters with instantaneous type heaters
- o Updating and changing Global Schedules based on each school's schedule
- o Updating and changing reset schedule for boiler water supply temperature and supply air temperature to prevent systems from both heating and cooling
- o Maintaining heat pumps keep running as long as possible to prevent back-up boilers from running
- o Maintaining DDC program updated

2) Mobile Fleet Combustion (Fleet and other vehicles):Indicate which actions were taken in 2014:

Do you have a fleet?

Yes

Replaced existing vehicles with more fuel efficient vehicles (gas/diesel)

Yes

Replaced existing vehicles with hybrid or electric vehicles

No

Reduced the overall number of fleet vehicles

No

Took steps to drive less than last year

Yes

Please list any other actions taken to reduce emission from fleet:

- o Providing fleet drivers' training to reduce fuel use
- o Keeping anti-idling policy and/or raise anti-idling awareness for fleet drives
- o Replacing larger vehicles with smaller models according to fleet "right-sizing" principles
- o Perform regular fleet maintenance to improve fuel-efficiency

3) Supplies (Paper):Indicate which actions were taken in 2014:

Used less paper than previous year

Yes

Used only 100% recycled paper

No

Used some recycled paper

Yes

Used alternate source paper (Bamboo, hemp, etc.)

No

Please list any other actions taken to reduce emissions from paper use:

- o Training staff to use collaborative software for electronic editing(e.g SharePoint, Groove, etc)
- o Switching to electronic payroll notification system in place of paper pay stubs.

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Actions Taken to Reduce Emissions - continued

Explain how you plan to continue minimizing emissions in 2015 and future years:

Continuous Energy Savings Projects will be implemented with Strategic Energy Management Plan to achieve the Emission Target of 33% reduction by 2020. Various funds need to be allocated to implement Energy Savings Projects such as

- Upgrading boiler system, domestic water heaters, DDC and other HVAC system to improve energy efficiency.
- Optimizing operating schedules and sequences of HVAC systems to prevent fossil fuels and electricity from being wasted
- Regular monitoring and reporting energy use, energy performance, operating status to find abnormal conditions of operation causing energy waste.

If you wish to list any other "sustainability actions" outside of buildings, fleet, paper and travel check "yes". This reporting is optional.

Yes

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Actions to Promote Sustainability and Conservation - OptionalThe following are actions that fall outside the scope of the Carbon Neutral Government Regulation, but which many organizations still undertake and may wish to report on. This section is optional for reporting.

Business TravelCreated a low-carbon travel policy or travel reduction goal (Low-carbon: Lowest emission of greenhouse gases per kilometre per passenger)

Yes

Virtual Meeting TechnologyInstalled web-conferencing software (e.g., Live Meeting, Elluminate, etc.)

Yes

Made desktop web-cameras available to staff

Yes

Encourage alternative travel to meetings (e.g., bicycles, public transit, walking)

Yes

Encourage carpooling to meetings

Yes

Education and AwarenessHave created Green, Sustainability, Energy Conservation, or Climate Action Teams.

Yes

Provided resources and/or dedicated staff to support these teams

Yes

Provided behaviour change education/training for these teams (e.g., community-based social marketing)

Yes

Established a sustainability/green awards or recognition program

Yes

Support green professional development (e.g., workshops, conferences, training)

Yes

Planning for Climate Change Have assessed whether extreme weather events and/or long term changes in climate will affect our organization's business areas

Yes

Long term changes in climate have been incorporated into our organization's decision making.

Yes

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Actions to Promote Sustainability and Conservation - Optional (continued)

Staff Awareness and Education Provided education to staff about the science of climate change

Yes

Provided education to staff about the conservation of water, energy, and raw materials

Yes

Provided green tips on staff website or in newsletters

Yes

Alternate Work/Commuting Options Allow for telework/working from home

Yes

Staff have the option of a compressed work week

Yes

Commuting by foot, bicycle, carpool or public transit is encouraged

Yes

Shower or locker facilities are provided for staff/students who commute by foot or by bicycle

Yes

Secure bicycle storage is provided

Yes

Other Sustainability Actions Establish a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models

Yes

Put in place a potable water management strategy to reduce potable water demand of building-level uses such as cooling tower equipment, toilet fixtures, etc. and landscape features

Yes

Have put in place an operations policy to facilitate the reduction and diversion of building occupant waste from landfills or incineration facilities

Yes

Have implemented a hazardous waste reduction and disposal strategy (Hazardous Waste: E.g., electronics including computer parts and monitors, batteries, paints, fluorescent bulbs)

Yes

Have incorporated minimum recycled content standards into procurement policy for consumable, non-paper supplies (e.g., writing instruments, binders, toner cartridges, etc.)

Yes

Established green standards for goods that are replaced infrequently and/or may require capital funds to purchase (e.g., office furniture, carpeting, etc.)

Yes

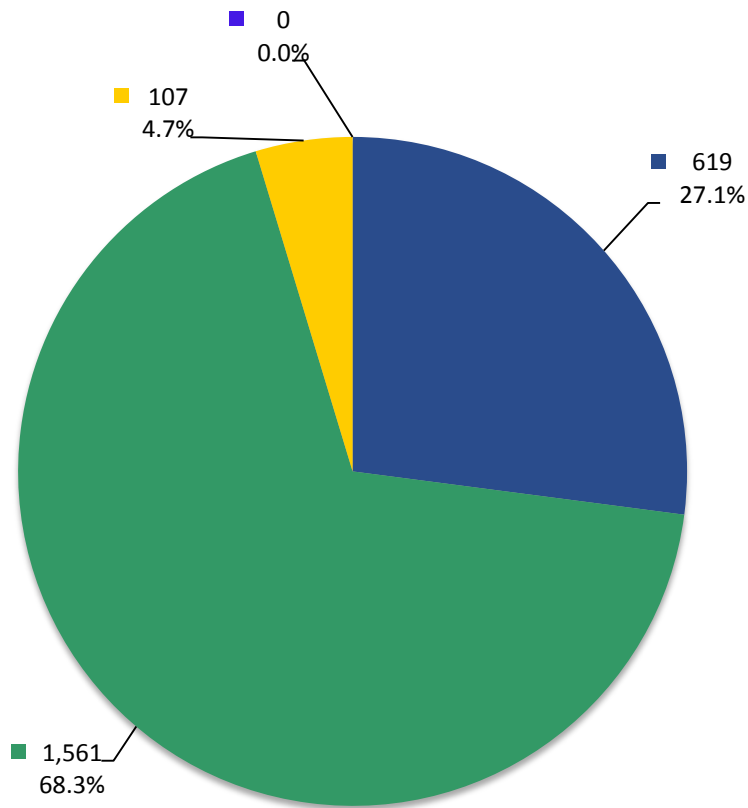
Incorporated lifecycle costing into new construction or renovations

Yes

Please list and other sustainability actions you wish to report not included in the previous list.

(No response)

**School District 62 - Sooke
Greenhouse Gas Emissions by Source
for the 2014 Calendar Year (tCO₂e*)**



Total Emissions: 2,287

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- Stationary Fuel Combustion (Building Heating and Generators) and Electricity
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- Fugitive Sources

Offsets Applied to Become Carbon Neutral in 2014 (Generated June 23, 2015 3:09 PM)

Total offsets required: **1,876**. Total offset investment: **\$46,900**. Emissions which do not require offsets: **411** **

*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 listed above must be reported. As outlined in the regulation, some emissions do not require offsets.