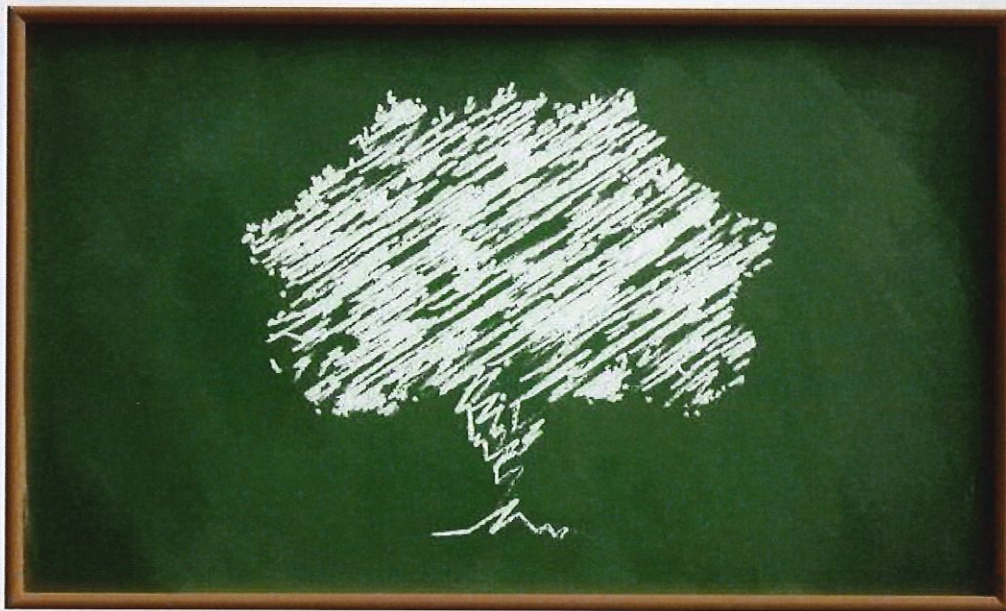




ABBOTSFORD
SCHOOL DISTRICT
RESPECT OPPORTUNITY INNOVATION

2017 Carbon Neutral Action Report



Abbotsford School District 2017 Carbon Neutral Action Report

Declaration statement: This Carbon Neutral Action Report for the period January 1st, 2017 to December 31st, 2017 summarizes our emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2017 to reduce our greenhouse gas emissions and our plans to continue reducing emissions in 2018 and beyond.

By June 30, 2018 The Abbotsford School District's final *Carbon Neutral Action Report* will be posted to our website at <http://facilities.sd34.bc.ca/departments/sustainability-utilities>

Executive Summary

The Abbotsford School District has made a firm commitment to reducing its energy consumption and its greenhouse gas emissions (GHG's). This is made evident by the fact that district began its GHG reduction efforts back in 2001 nearly 10 years before GHG reporting truly began. By 2010 the district had already reduced its natural gas and electrical consumption by over 30% each. Both energy consumption and GHG emissions have continued to decrease in the years since.

Currently the Abbotsford School District ranks as the fourth lowest producer of GHG emissions in the province compared to other school districts on a GHG per student basis. This is due largely to the fact that every year the district has made, and continues to make, investments in both the technology and the people needed to help foster a culture of conservation. From less paper initiatives to boiler replacements and from green team events to electric vehicles, district personnel are constantly looking for new ways to innovate and save.

Highlights from last year include boiler upgrades at 3 schools, a complete lighting overhaul at WA Fraser Middle school and the implementation of an online leave application program to eliminate paper based leave forms. This coming year the equipment upgrades continue with both a lighting upgrade and boiler upgrade being completed for Robert Bateman Secondary School in 2018. The school based green teams are still going strong as well with teams from all over the district undertaking a multitude of energy conservation and environmental sustainability initiatives.

By continuing its dual focus on behavioral change and equipment upgrades the Abbotsford School District is striving to continuously shrink its carbon footprint while simultaneously teaching our kids the value of conservation and the positive impacts that each and every one of them can have on the planet.

2016 Greenhouse Gas Emissions by source

Buildings

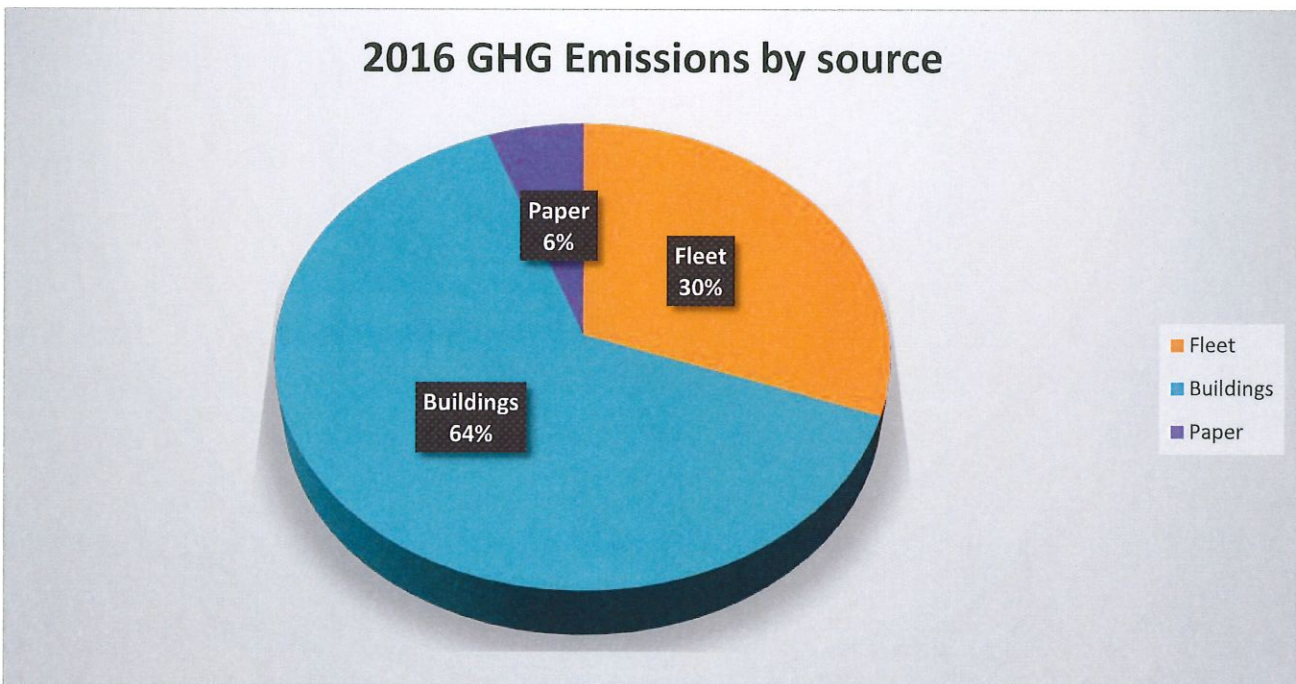
The biggest source of GHG emissions in the district comes from the use of natural gas and electricity for building heating and cooling. Electricity is also used for ventilation and lighting as well as for the electronics, appliances and computers needed to operate schools and other district facilities.

Fleet

Direct emissions generated by the burning of fossil fuels such as diesel and gasoline to power the district's fleet of maintenance vehicles and buses are accounted for in the fleet category.

Paper

Indirect emissions generated through the production of paper which the district uses in schools and offices are accounted for in the paper category.

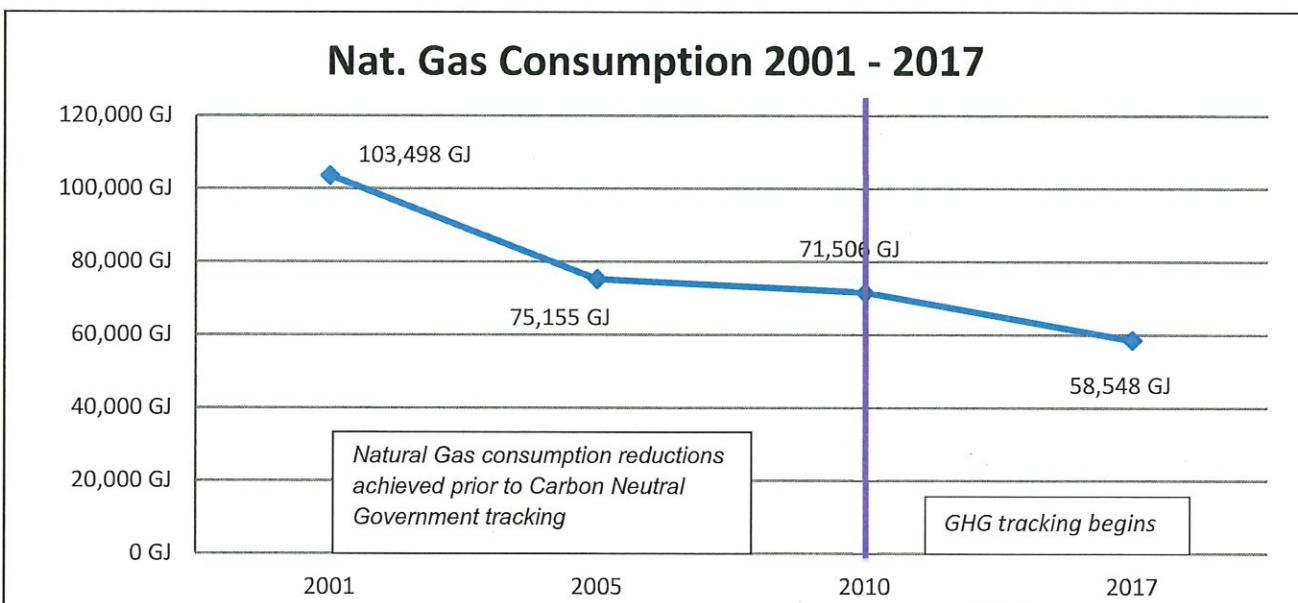
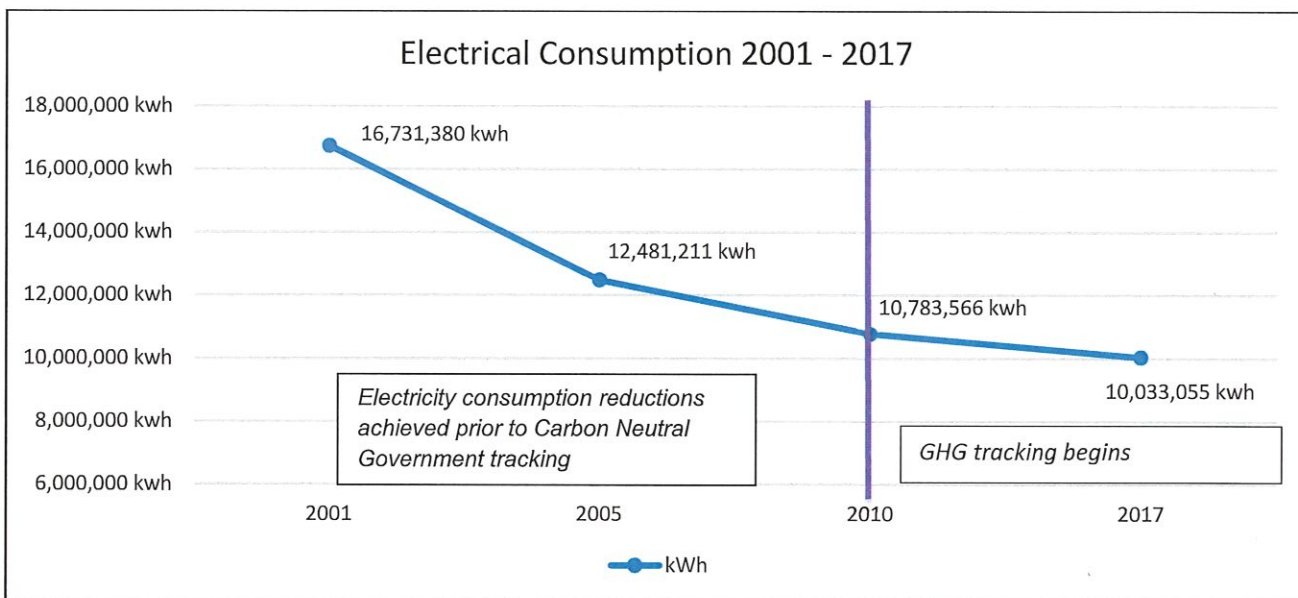


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Historic Actions Taken to Reduce Greenhouse Gas Emissions

Abbotsford School District's journey to reduce greenhouse gas emissions began back in 2001 when the first energy conservation program was implemented. Through a combination of behavior programs, equipment upgrades and building system optimization the district has steadily decreased its electricity and natural gas consumption over the past 17 years. This in turn has led to a significant reduction in GHG emissions.

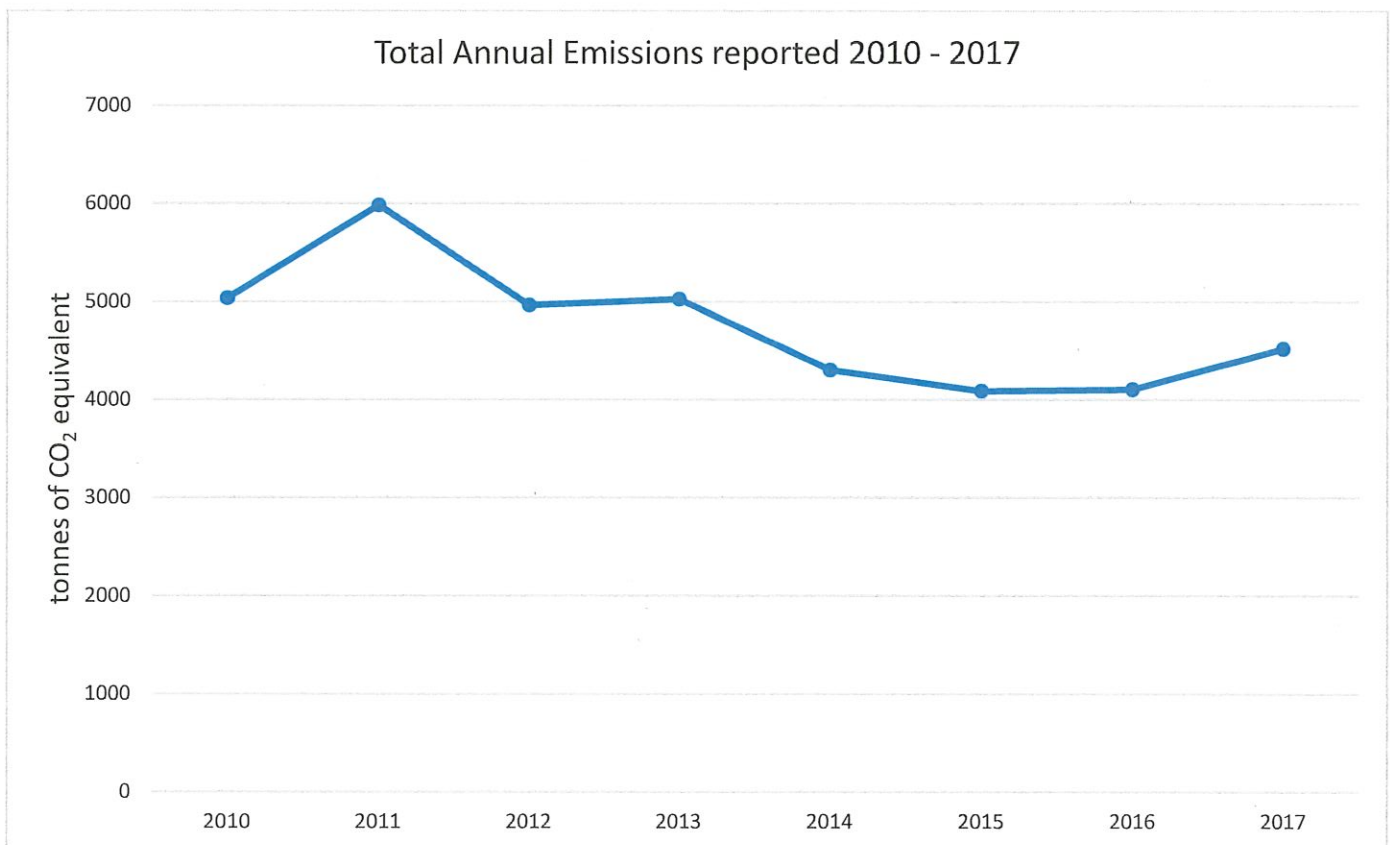
Although GHG emissions were not being tracked at the time, between 2001 and 2010 electricity consumption was reduced by 36% and natural gas consumption was decreased by 31%. Since GHG reporting began in 2010 the district has decreased electricity consumption by an additional 7% and natural gas consumption by an additional 18%.



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Other GHG reduction measures have also been pursued in recent years. Initiatives such as “less paper” initiatives that numerous departments have undertaken have allowed the district to move away from paper based documentation and communication towards a larger array of digital resources and systems. In the fleet category the district has begun purchasing electric cars to replace gas powered vehicles in the district’s fleet as they come due for replacement.

The combination of these varied GHG reduction initiatives has enable the Abbotsford School District to decreased its GHG emissions by 20% since reporting began in 2010.



Actions Taken to Reduce Greenhouse Gas Emissions in 2017

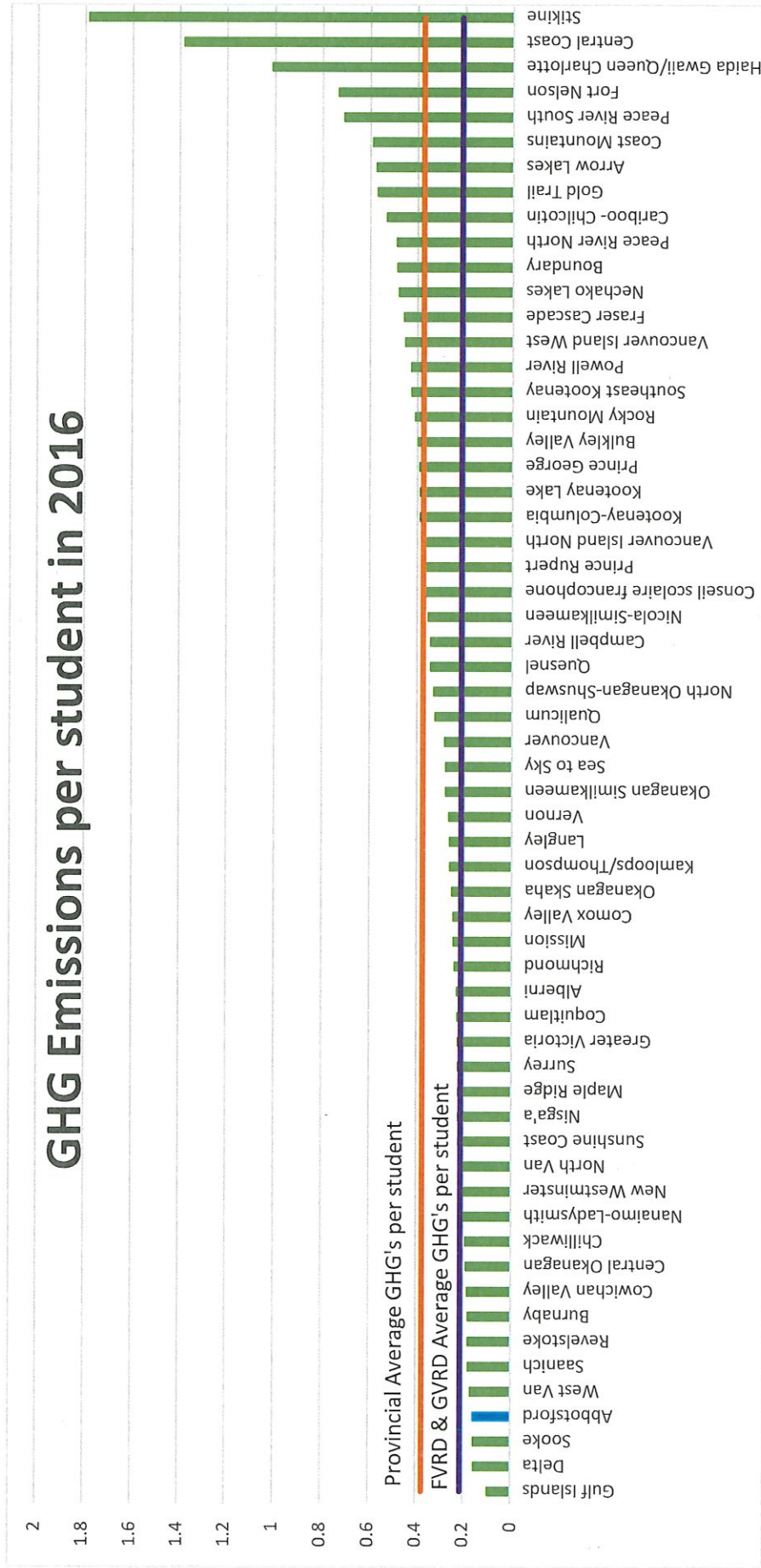


Key projects undertaken:

- Upgraded boilers to high efficiency units at:
 - ASIA North Poplar Elementary School
 - Bradner Elementary School
 - Ten Broeck Elementary School
 - Upgraded domestic hot water tanks to high efficiency tanks at
 - Alexander Elementary School
 - ASIA North Poplar Elementary School
 - ASIA Sumas Campus
 - Abbotsford Virtual School
 - Bakerview Center for Learning
 - Jackson Elementary School
 - Ten Broeck Elementary School
 - Upgraded lighting throughout the school to LED fixtures and installed additional lighting controls to allow for both manual and automated dimming of various light fixtures at W.A. Fraser Middle School
-
- Upgraded building automation controls in order to allow for more efficient use of the building heating systems at:
 - Jackson Elementary School
 - Margaret Stenersen Elementary School
 - Robert Bateman Secondary School
 - GHG related school based green team activities this year included campaigns such as
 - Unplug before you go, pre-holiday shut downs to conserve electricity and natural gas
 - Sweater days to conserve electricity and natural gas
 - Lights out lunches to conserve electricity
 - Battery recycling to divert waste from the landfill
 - Environmental pledges such as anti-idling, walk to school, turn off lights at home etc
 - Recycling and composting education
 - Implementation of an online leave application program to eliminate paper based leave forms
 - Updating of the district's technology infrastructure including iPads, Laptops and Chromebooks for staff and student use. This on-going initiative helps to facilitate the use of digital resources for learning and for office work. It is now possible for many documents to be accessed, worked on and shared or submitted digitally. This, in turn, helps to reduce the amount of paper used for a variety of tasks.

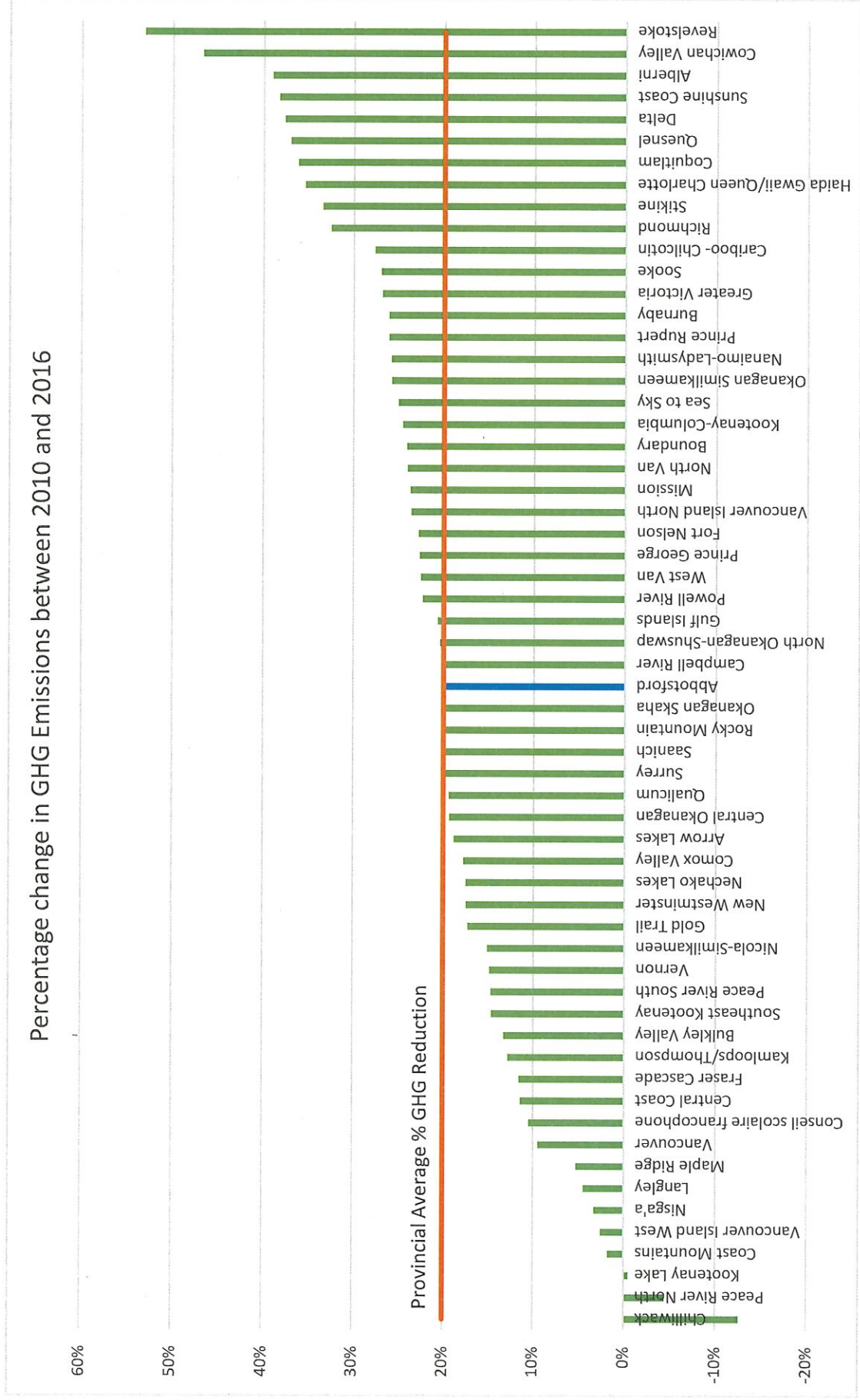
How do we compare?

Using data from the past annual Carbon Neutral Action Reports for school districts around the province the following comparisons have been compiled. This data has been organized on a per student basis in order to allow for easier comparison from one district to the next. Also, two different averages have been calculated. The first average is based on all schools in the province while the second average is based solely on those schools in the Greater Vancouver and Fraser Valley areas where weather conditions are more temperate than in many other parts of the province. This distinction was made because the heating requirements for a school in the Fraser Valley such as those in Abbotsford are generally less than the heating requirements in a northern school or one further inland. When compared on this basis the Abbotsford School District has the fourth lowest GHG emissions in the province.



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The second comparison drawn from this data is a reflection of the percentage of GHG emission reductions achieved since reporting began in 2010. In this comparison the Abbotsford School District is right in line with the provincial average. It is important to note that part of the reason that the district does not have higher GHG reductions during the reporting period is because so much GHG reduction work was done before the tracking and reporting of GHG's began in 2010.



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Plans to Continue Reducing Greenhouse Gas Emissions 2018



The Abbotsford School District has already made an investment in Green House Gas reduction in 2018 with the purchase of three new electric vehicles. These new EV's replaced three gas powered cars in the IT department's fleet and will be used primarily for in town travel. Investments have also been made toward EV charging infrastructure both for fleet vehicles and for public and staff to use for their personal electric vehicles. The goal of this additional infrastructure is to support district staff and members of the public who choose to use low or zero emission electric vehicles for commuting purposes.

At Robert Bateman Secondary School, a lighting upgrade was completed between the fall of 2017 and the spring of 2018 which will help the district to reduce electricity consumption at this site. Lighting throughout the entire site was converted to LED and additional lighting controls were added to allow more control at both the classroom level and the building level. The estimated electrical savings from this upgrade is 200,000 kWh/year. In addition to a lighting upgrade the building automation controls connected to a portion of the HVAC system were also upgraded. This will allow for a higher level of control and adaptability in the heating, ventilation and air conditioning system which in turn is expected to result in both electrical and natural gas savings in this building over time.

Also at Robert Bateman Secondary school, later this year there will be a boiler upgrade to replace the existing heating and domestic hot water boilers with new high efficiency boilers. The estimated energy savings from this upgrade are 417 GJ of Natural Gas and 10,880 kWh of electricity. When combined with the electrical savings which will be gained from the recent lighting upgrade at this site, the equivalent GHG reduction for both projects is equal to taking about 38 cars off the road.

As a complement to hardware upgrades the district continues to strive to make the most efficient use of its existing equipment by expanding building automation best practices to all buildings in the district. To this end, the district is once again participating in BC Hydro's Continuous Optimization program in 2018 to try and find better and more efficient ways to operate the buildings in its portfolio.

As a member of the Energy Wise Network, the district is also continuing its efforts to have a positive effect on building occupants while they are at work and school. Already for the coming year there is a pre-summer holiday shutdown planned for June and an energy conservation competition planned for October and November. These activities are aimed at raising awareness, encouraging conservation behaviours and establishing a culture of environmental conservation throughout the buildings that participate.

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Emissions and Offset Summary Table:

Abbotsford School District GHG Emissions and Offset for 2017 (TCO2E)	
GHG Emissions created in Calendar Year 2017	
Total Emissions (tCO ₂ e)	4519
Total Offsets (tCO ₂ e)	3508
Adjustments to GHG Emissions Reported in Prior Years	
Total Emissions (tCO ₂ e)	338
Total Offsets (tCO ₂ e)	292
Grand Total Offsets for the 2016 Reporting Year	
Grand Total Offsets (tCO ₂ e)	3800

Retirement of Offsets:

In accordance with the requirements of the Greenhouse Gas Reduction Targets Act and Carbon Neutral Government Regulation, The Abbotsford School District is responsible for arranging for the retirement of the offsets obligation reported above for the 2017 calendar year, together with any adjustments reported for past calendar years. The Organization hereby agrees that, in exchange for the Ministry of Environment ensuring that these offsets are retired on the Organization's behalf, the Organization will pay the associated invoice to be issued by the Ministry in an amount equal to \$25 per tonne of offsets retired on its behalf plus GST.

Executive sign-off:



Signature

May 29/18

Date

Name: Ray Velestuk

Title: Secretary Treasurer

Part 1: CNAR Survey

1. General Information

Name: Julianne Pickrell

Contact Email: julianne.pickrell@abbyschools.ca

Organization Name: Abbotsford School District

Sector: School District

2. Stationary Sources (eg. Buildings, Power Generators): Fuel Combustion, Electricity use, Fugitive Emissions.

During 2017, did your organization take any of the following actions to support emissions reductions from buildings? (please select all that apply)

Performed energy retrofits of the organization's building(s)

If you selected "*Performed energy retrofits of the organization's building(s)*":

How many buildings were retrofitted?: 11

If you selected "*Built, or are building new LEED Gold or other "Green" buildings*":

How many new "Green" buildings?:

Did your Organization perform any retrofits during 2017? Please describe briefly:

- Upgraded to high efficiency boilers at 3 sites
- Upgraded to high efficiency domestic hot water tanks at 7 sites
- Upgraded building automation controls at 3 sites
- Upgraded to LED lighting with improved lighting controls at WA Fraser Middle School.

2a. Stationary Sources (eg. Buildings, Power Generators): Fuel Combustion, Electricity use, Fugitive Emissions.

Please briefly describe your organization's plans to continue reducing emissions from its stationary sources:

a) Over the next 1-5 years

- Construct all new buildings to LEED gold standard or better
- Continue upgrading old boilers to new high efficiency units
- Participate in BC Hydro's continuous optimization program to improve the operating efficiency of existing buildings
- Investigate the feasibility of adding Solar energy generation to existing schools to offset a percentage of the electricity consumption
- Begin building envelope upgrades to reduce building heat loss
- Continue promoting Green Team activities

b) Over the following 6-10 years

- Construct all new buildings to LEED gold standard or better and where ever feasible incorporate renewable energy generation into the building design
- Begin adding photo voltaic panels to some of the existing sites to offset a percentage of the electricity consumption at these sites.
- Continue building envelope upgrades
- Continue lighting upgrades
- Continue promoting Green Team Activities

3. Mobile Sources (Vehicles, Off-road/portable Equipment): Fuel Combustion:

During 2017, did your organization take any of the following actions to support emission reductions from its mobile sources? (please select all that apply)

None of the above

If you selected "*Replaced existing vehicles with more fuel efficient vehicles (gas/diesel)*":

How many vehicles?:

If you selected "*Replaced existing vehicles with hybrid or electric vehicles*":

How many vehicles?:

3a. Mobile Sources (Vehicles, Off-road/portable Equipment): Fuel Combustion:

Please briefly describe your organization's plans to continue reducing emissions from its mobile sources:

a) Over the next 1-5 years

Continue replacing gas powered fleet vehicles with fully electric vehicles where feasible

b) Over the following 6-10 years

Continue replacing gas powered fleet vehicles with fully electric or alternate low carbon fuel vehicles where feasible

4. Supplies (Paper): Indicate which actions your PSO took in 2017:

During 2017, did your organization take any of the following actions to support emissions reductions from paper supplies? (please select all the apply)

None of the above

4) Supplies (Paper): Indicate which actions your PSO took in 2017: - Other? Please describe briefly: Introduced an online leave program that eliminated the need for paper based leave forms for all employees in the district. Also, the district has continued to invest in technologies that allow for more school work and office work to be completed, stored and submitted online. This reduces the need for printing of assignments, notes, documents etc.

If you selected "*Had a policy requiring the purchase of recycled content paper*":

State the required recycled content here (30%, 50%, 100%):

If you selected "*Had a policy requiring the purchase of alternate source paper (bamboo, hemp, wheat, etc)*", which type of alternate source paper did you use?

Please briefly describe your organization's plans to continue reducing emissions associated with its office paper use in future years.

- Introduce a policy requiring the purchase of recycled paper
- Continue to invest in technology and training which will allow for more office tasks and educational activities to be completed digitally.

5. Other Sustainability Actions

a) Business Travel

During 2017, did your organization take any of the following actions to support emissions reductions from business travel? (please select all that apply)

None of the above

b) Education/Awareness

During 2017, did your organization have any of the following programs or initiatives to support sustainability education and awareness? (please select all that apply)

A Green, Sustainability or Climate Action Team; Support for professional development on sustainability (e.g. workshops, conferences, training); Supported or provided education to staff about the science of climate change, conservation of water, energy and/or raw materials

c) Other Sustainability Actions

During 2017, did your organization have any of the following programs or initiatives to support sustainability? (please select all that apply)

A water conservation strategy which may include a plan or policy for replacing water fixtures with efficient models; An operations policy or program to facilitate the reduction and diversion of building occupant waste (e.g., composting, collection of plastics, batteries) from landfills or incineration facilities