



# 2016 CARBON NEUTRAL ACTION REPORT

MAPLE RIDGE - PITT MEADOWS SCHOOL DISTRICT NO.42

# EXECUTIVE SUMMARY



This Carbon Neutral Action Report for the period January 1st, 2016 to December 31st, 2016 summarizes our emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2016 to reduce our greenhouse gas emissions, and our plans to continue reducing emissions in 2017 and beyond. By June 30, 2017, Maple Ridge - Pitt Meadows School District 42's final Carbon Neutral Action Report will be posted to our website at [www.sd42.ca/sustainability](http://www.sd42.ca/sustainability).

On March 25, 2015, the Maple Ridge - Pitt Meadows Board of Education approved the *2015-2019 Energy Management Plan*. This plan includes the implementation of lighting as well as heating, ventilation and air-conditioning (HVAC) upgrade opportunities in all 34 school district facilities. The implementation of all energy conservation opportunities will result in estimated energy savings of 4.44 million kWh and 12,800 GJ and estimated annual utilities cost savings of \$0.50 million that will be re-invested in our schools. The associated greenhouse gas emission reduction resulting from this four year Plan are 758 tonnes of CO<sub>2</sub> emissions. Two years into the Plan and we are more than half way to meeting the Plan target of \$0.5 million in ongoing utilities savings.

A handwritten signature in blue ink that reads "Sylvia Russell".

Sylvia Russell, Superintendent of Schools  
May 04, 2017



## 2016 GREENHOUSE GAS EMISSION

The Maple Ridge - Pitt Meadows school district produced a total of 3,329 tonnes of greenhouse gas emissions from all sources as reported in SMARTTool.

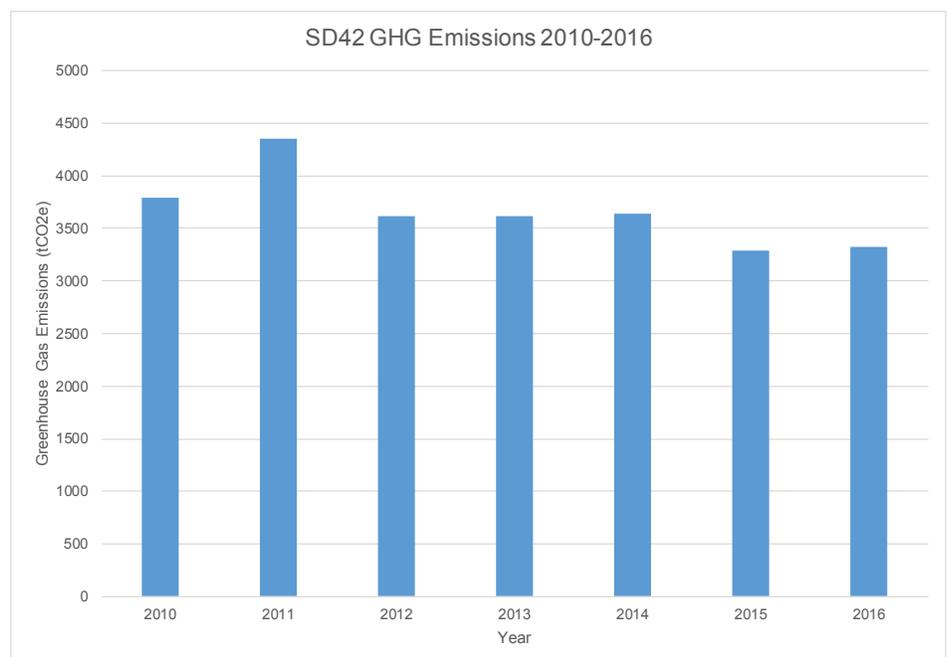
SCHOOL DISTRICT NO. 42 GHG EMISSIONS AND OFFSETS FOR 2016 (TCO2E)	
GHG Emissions Created in Calendar Year 2016	
TOTAL EMISSIONS	3,329
TOTAL OFFSETS	3,323
Adjustments to GHG Emissions Reported in Prior Years	
TOTAL EMISSIONS	3
TOTAL OFFSETS	3
Total Emissions for Offset for the 2016 Reporting Year	
TOTAL OFFSETS	3,326

## OFFSETS APPLIED TO BECOME CARBON NEUTRAL IN 2016

Of all the greenhouse gas emissions generated, a total of 3,323 tonnes of emissions offsets have been applied to become carbon neutral for 2016. This total was adjusted by 3 tonnes based on units consumed in 2015 but not reported previously due to billing delays.

## EMISSIONS TRENDS

Since 2010, School District 42 has seen a 15% reduction in emissions.



## 2016 RETROFITS

Lighting upgrades have been completed at Pitt Meadows Secondary, Samuel Robertson Technical, Harry Hooke Elementary, Yennadon Elementary, Glenwood Elementary, District Education Office and Maple Ridge Annex. A heating, ventilation and cooling upgrade at Samuel Robertson Technical was also completed by March 31, 2016. The total estimated ongoing energy savings associated with these projects are \$85,328.

A number of changes happened in 2016 that affected the roll out of the planned 2016 energy management projects. These changes include: decrease in BC Hydro incentive funding and increase in capital costs. As such, the school district has assessed all of the schools in the Energy Management Plan and only chose to go ahead with the projects that had the best financial payback.

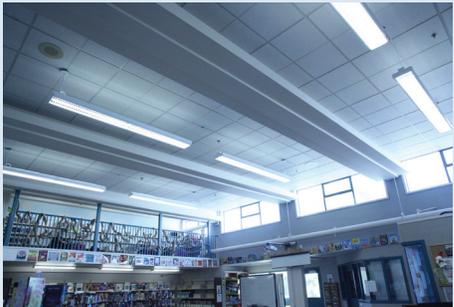
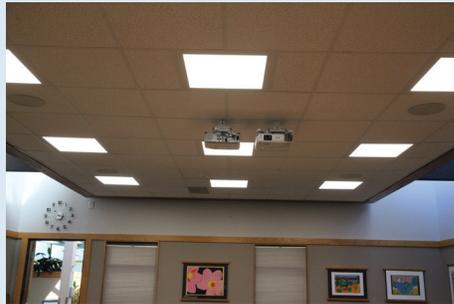
The 2016 bundle of projects include heating, ventilation and cooling upgrades at Highland Park Elementary, Garibaldi Secondary, Westview Secondary, Yennadon Elementary and Glenwood Elementary. These projects were completed by December 2016 and the associated estimated ongoing energy savings are \$49,340.

The total greenhouse gas emission reduction associated with the above noted projects is 217 tonnes of CO2 emissions.

## SPOTLIGHT: WESTVIEW SECONDARY

In addition to the above noted 2016 projects, the school district also completed a major heating, ventilation and cooling mechanical upgrade at Westview Secondary School. This project included the purchase and installation of 46 high efficiency roof top heat pumps with gas fired back-up heating and new high efficiency domestic hot water tanks.

The estimated greenhouse gas emissions reduction associated with this project is 141 tonnes of CO2 emissions. The reduction results from a decrease in natural gas consumption, however the heat pumps will use more electricity.





## ENGAGEMENT FRAMEWORK

In June 2016 the School District invited a group of students and staff to brainstorm principles, vision and objectives that would inspire and engage students and staff in energy management.

The vision statement that will guide this work is: **“Inspire behavior and passion through engaging educational programs that empower all learners to create a culture of environmental sustainability.”**

Four engagement objectives were created:

- implement creative strategies that are aligned with the curriculum
- utilize online tools to share conservation and energy management information and stories
- create opportunities for students and educators to design and implement activities to reduce electricity consumption by (2%) in their schools
- foster industry schools partnerships that support conservation curriculum, learning and work experience opportunities for students.



## SD42 LAUNCHES PILOT ORGANICS PROGRAM

In October 2016, the school district in partnership with Ridge Meadows Recycling created a new pilot program aimed at reducing the amount of garbage going to the landfill and diverting it to organics and recycling. Six schools participate in this pilot.

In 2015, Metro Vancouver introduced a ban on organics in the regular garbage stream, noting that food waste comprises about 40 percent of garbage, and almost a third of the food we buy ends up in the garbage. The pilot is seeing results already by having diverted 3.18 tonnes of organics from the landfill during October and November 2016.

To ensure a successful roll out, the organics program follows a consistent engagement framework that is custom-tailored for each school and that takes buy-in from all staff and students in the schools.

## IN THE NEWS

### SD42 LAUNCHES PILOT ORGANICS COLLECTION PROGRAM IN CLASSROOMS

Students and staff from six school district schools can now divert organics and recycling from the waste in an effort to make a positive contribution to the school and the environment.



### PEDAL POWER: STUDENTS LEARN ABOUT GENERATING THEIR OWN ELECTRICITY DURING SD42 ENERGY CHALLENGE

Students at Alexander Robinson Elementary got a chance to hop on the Pedal-A-Watt bicycle built by Connex students, which created enough electricity to illuminate a light bulb. One boy said “We’re taking our muscle power and transferring it into electricity.”

Steve Weibe, principal of SD42 alternate and trades programs, said building the Pedal-A-Watt bike capable of creating enough electricity to power small appliances was a great learning experience for his students.



### WESTVIEW SECONDARY RECEIVES PROVINCIAL CASH

Westview Secondary School will be installing 46 roof top heat pumps with gas-fired back-up heating as part of the second phase of this project.





## PEDAL POWER: STUDENTS LEARN ABOUT GENERATING THEIR OWN ELECTRICITY

It was a light-bulb-turning-on type of moment for a class of Grade 6/7 students at Alexander Robinson Elementary. These students got a chance to hop on the Pedal-A-Watt bicycle built by Connex students, and start pedaling, which created enough electricity to illuminate a light bulb.

The pedal power demonstration was part of the school district's annual month-long energy challenge that encourages elementary and secondary schools to save energy. The energy savings support our central purpose: student learning.



## PLANS TO CONTINUE REDUCING GREENHOUSE GAS EMISSIONS IN 2017

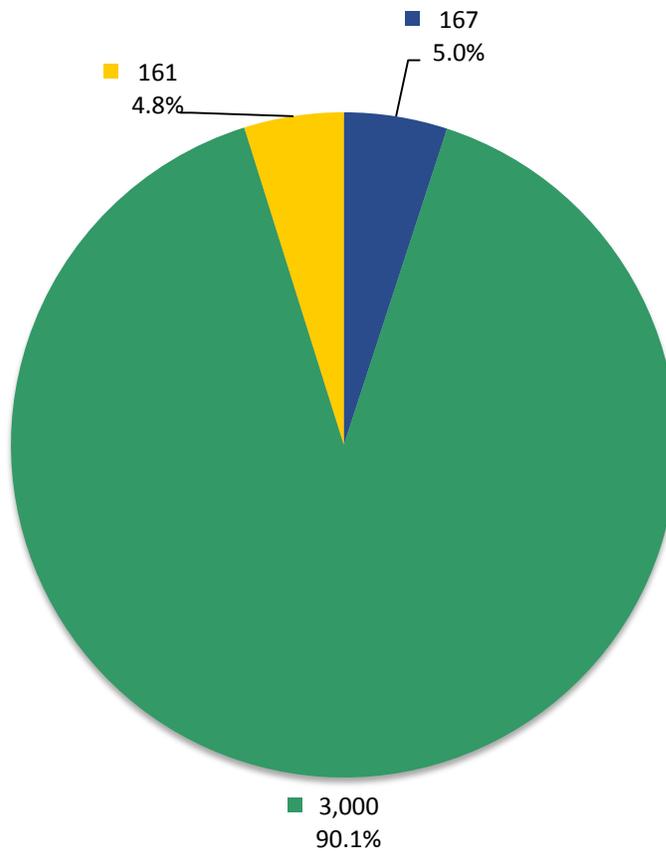
- Replace and retrofit existing lighting in 11 school district facilities with energy efficient, extended life fixtures.
- Reduce the number of fixtures and expand the existing dark school approach where applicable.
- Heating, ventilation and air-conditioning (HVAC) upgrade opportunities in 11 school district facilities may include: direct digital control (DDC) upgrades, scheduling and security integration, occupancy sensor controls, heating plant optimization and supply air pressure (SAP) reset.
- Prepare school-based energy conservation workshops to ensure students have an active role in reducing our energy consumption.
- Improve communication of the energy conservation initiative to the broader organization to raise energy awareness.
- Continuously improve and review our operational policies in an effort to reduce utility consumption.
- Proactively deliver regular energy intensity reports to departmental personnel for use in raising general awareness and examining variances from established targets.



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MAPLE RIDGE, BC  
V2X 8N6

## School District 42 - Maple Ridge Greenhouse Gas Emissions by Source for the 2016 Calendar Year (tCO<sub>2</sub>e\*)



**Total Emissions: 3,329**

- 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 2016 (Generated May 15, 2017 4:07 PM)

Total offsets required: **3,323**. Total offset investment: **\$83,075**. Emissions which do not require offsets: **5** \*\*

\*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.

# 2016 Carbon Neutral Action Report Survey

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Part One (external)

Contact Name(s):

*Alexandra Tudose*

Organization Name:

*School District 42 (Maple Ridge - Pitt Meadows)*

Please select your sector:

- School District

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

During 2016, did your organization take any of the following actions to support emissions reductions from buildings?

Select all that apply

- Conducted an energy audit/study of building(s) in the organization's portfolio
- Performed energy retrofits of the organization's buildings.: 11
- Built, or are building new LEED Gold or other "Green" buildings.: 1
- Other actions? Please describe briefly.: Participated in the BC Hydro Energy Wise Program and rolled out a month long energy challenge aimed at changing staff and student behaviour in energy conservation.

Briefly describe your organization's plans to continue reducing emissions from its stationary sources in future years.

*SD42's Board of Education has approved the implementation of a five year Energy Management Plan. As per this plan, we will conduct energy studies and continue retrofitting buildings as per the study recommendations. The plan for 2017 is to retrofit approximately 12 buildings.*

During 2016, did your organization participate in utility-sponsored energy demand management program(s) (e.g. BC Hydro's Energy Management (Manager))?

*Yes*

If yes, please describe briefly:

*As mentioned above, the Board of Education has approved an Energy Management Plan that is being rolled out by the BC Hydro sponsored Energy Manager through the BC Hydro Energy Management Program. The goal of the Energy Management Plan is to save*

*SD42 \$500,000 in ongoing utility costs through lighting and HVAC retrofits.*

## 2) Mobile Sources (Vehicles, Off-road/Portable Equipment): Fuel Combustion.

During 2016, did your organization take any of the following actions to support emission reductions from its mobile sources?

Select all that apply

*(No response)*

Briefly describe your organization's plans to continue reducing emissions from its mobile sources in future years.

*(No response)*

3) Supplies (Paper):

During 2016, did your organization take any of the following actions to support emissions reductions from paper supplies?

Select all that apply

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- Awareness campaign focused on reducing office paper use.
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Briefly describe your organization's plans to continue reducing emissions associated with its office paper use in future years.

*SD42's Information Technology department has encouraged, as part of an awareness campaign, the download on an app called Paper Cut that tracks each user's paper printing habits. The department will continue with this campaign in 2017.*

4) Other Sustainability Actions:

Business Travel:

During 2016, did your organization take any of the following actions to support emissions reductions from business travel?

Select all that apply

*(No response)*

Education Awareness:

During 2016, did your organization have any of the following programs or initiatives to support sustainability education and awareness?

Select all that apply

- 
- Green, Sustainability or Climate Action Team
  - Supported or provided education to staff about the science of climate change, conservation of water, energy and/or raw materials

Other Sustainability Actions:

During 2016, did your organization have any of the following programs or initiatives to support sustainability?

Select all that apply

- 
- 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
-