



Comox Valley Schools

A Community of Learners

INNOVATIVE • INQUISITIVE • INCLUSIVE

Operations Department GHG Reduction Work 2019

October 22, 2019

Operations and Maintenance



Mission

- Operations mission:
 - To provide the best possible facilities for the students and staff of SD 71.
- Board Strategic Priority & Goals
 - Organizational Stability and Environmental Stewardship.
 - Foster environmental stewardship
 - Reduce carbon emissions and environmental footprint
 - Influences what we do. We directly support the Board Priorities as part of the educational team.

Energy saving and GHG reducing projects 18/19

1. Boiler replacement at Ecole Puntledge Park, Cumberland Community (Beaufort Building), Highland Secondary and Mark Isfeld Secondary;
2. Digital building controls replacement at Ecole Puntledge Park;
3. Furnace replacement at Ecole Puntledge Park music portable;
4. Mechanical (HVAC) upgrade at the IT building;
5. Mechanical (HVAC) upgrade at Sandwick Technical School;
6. SBO hallway and office lighting conversion to LED;
7. Shop classroom LED lighting upgrade at Highland, G.P. Vanier, and Mark Isfeld Secondary.

Mark Isfeld Boiler Replacement snapshot

- Capital Plan (SEP) funding request June 2018;
- Replace 1994 low efficiency atmospheric boilers with high efficiency condensing boilers;
- Approved Feb 2019. Engineering and tenders by March 2019;
- Installation Summer 2019;
- Projected annual GHG savings – reduced NG consumption by 600 to 900 GJ resulting in **lowering of greenhouse gas emissions by 30 to 45 equivalent tonnes of CO₂**

The old...



The new...



Financial and GHG savings chart

- GHG savings – Puntledge
 - Reduce gas consumption by 539 GJ per annum
 - \$8623 in fuel cost savings
 - 27 less tonnes of CO₂ emitted
- GHG reduction – Cumberland
 - Reduce gas consumption by 596 GJ per annum
 - \$9536 cost savings
 - 30 less tonnes of CO₂ emitted

Financial and GHG savings chart

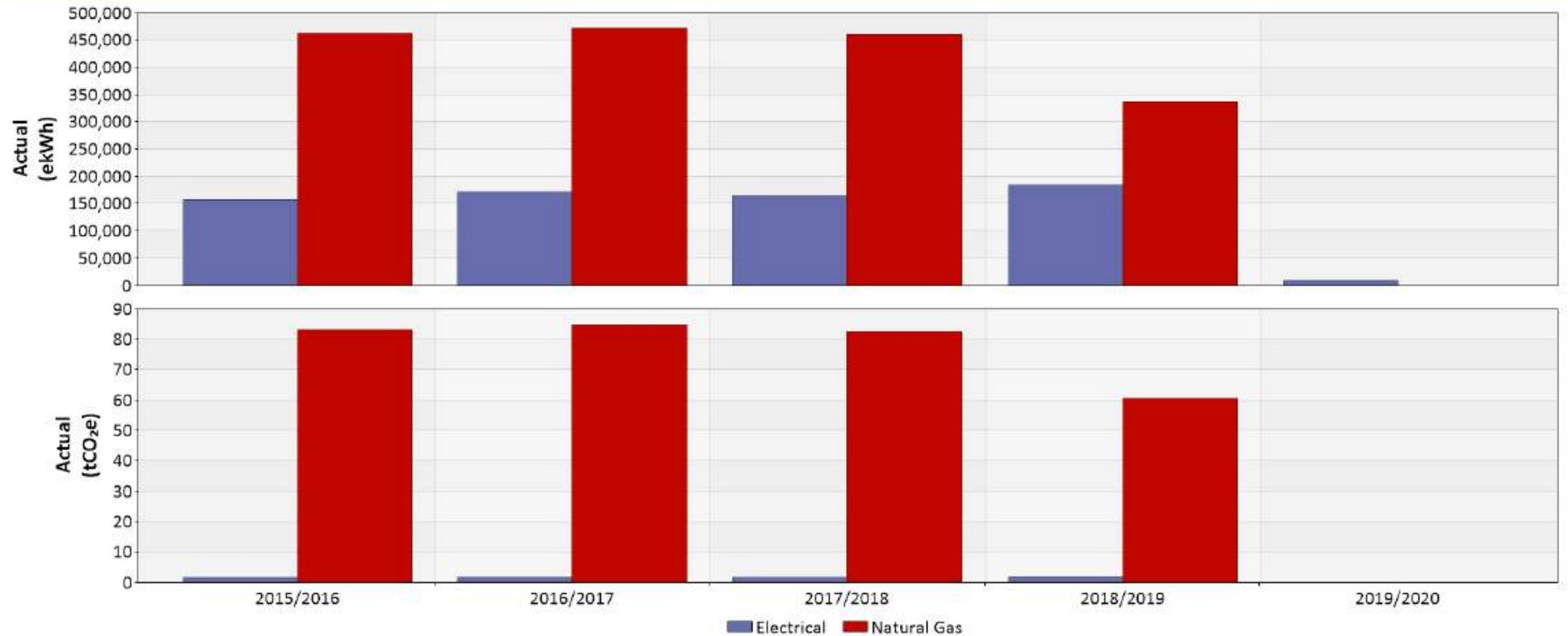
- GHG savings – Highland
 - Reduce gas consumption by 1221 GJ per annum
 - \$19,541 in fuel cost savings
 - 61 less tonnes of CO₂ emitted
- GHG reduction – Mark Isfeld
 - Reduce gas consumption by 600 to 900 GJ per annum
 - \$10,000 to \$15,000 in fuel cost savings
 - 30 to 45 less tonnes of CO₂ emitted

Retrospective Energy and GHG savings chart Valley View boilers

Valley View

Project: SD#71 Comox PUMA (2015033)

Site: VillyVwEL Valley View EL





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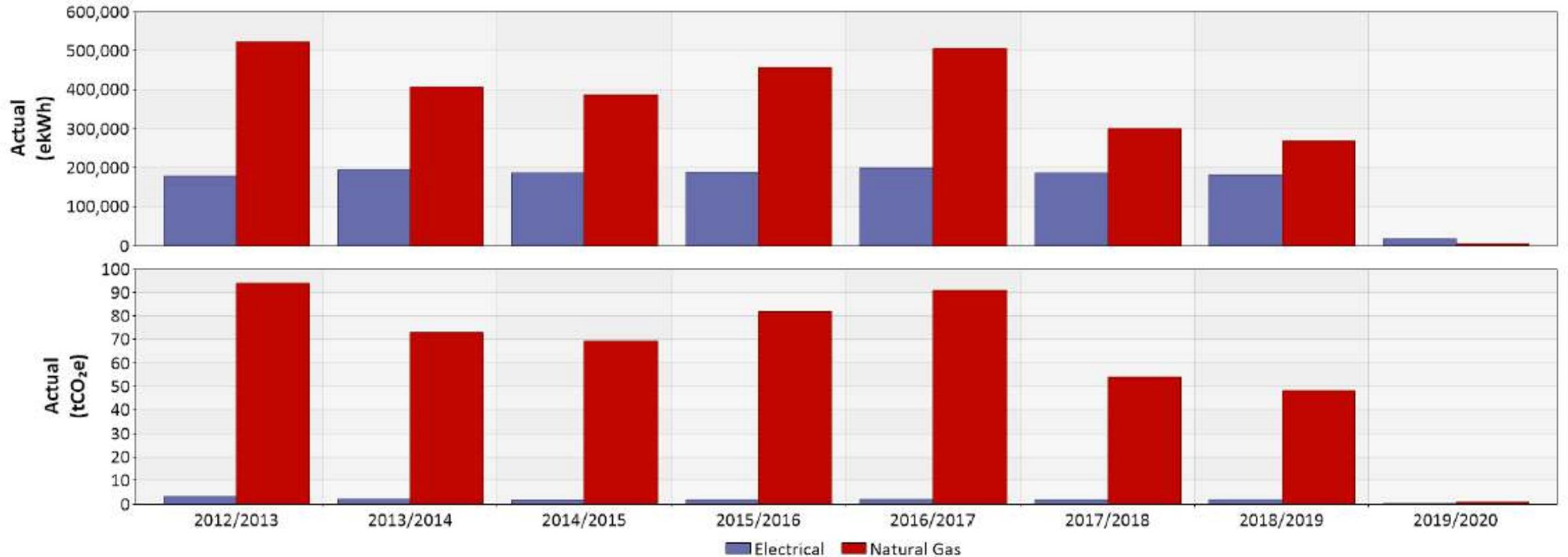
Retrospective Energy and GHG savings chart

Robb Road boilers

Project: SD#71 Comox PUMA (2015033)

Site: RobbRdEL Robb Road EL

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Building controls upgrade

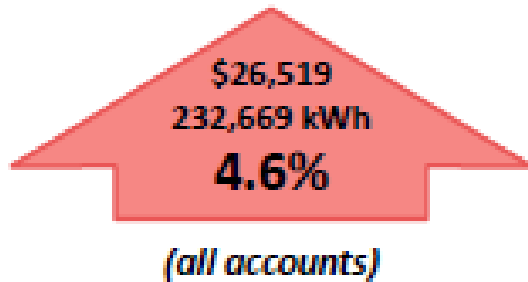
- **DDC systems are used to control a building's various systems from one central point.** Depending on the building and its functions, these systems vary in complexity. A building may incorporate a DDC system just to control its HVAC (heating, ventilation and air conditioning) system, or to automate the entire building by also controlling other mechanical and electrical systems.
- **DDC systems help increase a building's comfort levels while decreasing its energy consumption.** Because of this, DDC systems help minimize a building's impact on the environment, and often pay for themselves after a fairly short period of time.

Building controls upgrade

- The DDC system was replaced at Ecole Puntledge Park.
- The savings equate to a reduction of 188 GJ of natural gas consumed and a 10 tonne reduction in GHG emissions.

PUMA 2018/19 Fiscal Year Results - electricity:

Total Electrical Use Increased By:



- Year over year electricity use increase;
- This is despite continued efforts to upgrade fixtures...

PUMA 2018/19 Fiscal Year Results – water:

Total Water Use Decreased By:

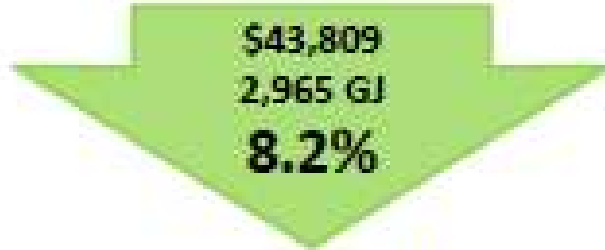


(all accounts)

- Water use decrease...

PUMA 2018/19 Fiscal Year Results – natural gas:

Total Natural Gas Use Decreased By:



(all accounts)

- Natural gas use decrease...

PUMA 2018/19 Fiscal Year Results – propane:

Total Propane Use Increased By:

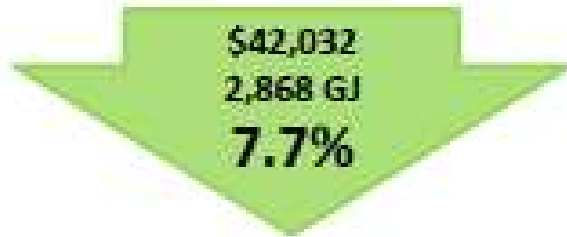


- Propane use increase;
- More portables.

PUMA 2018/19 Fiscal Year Results – total fuel use:

- Total fuel decrease...

Total Buildings Fuel Use Decreased By:



(all accounts)

PUMA 2018/19 Fiscal Year Results :

Total Energy Use Decreased By:

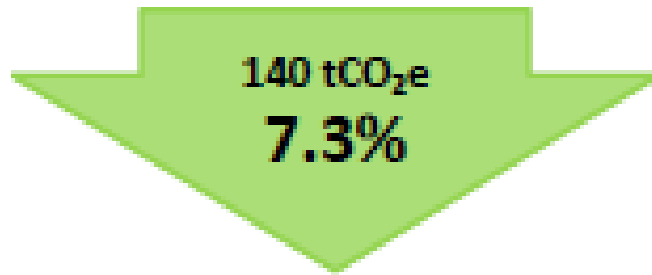


(all accounts)

- Total energy decrease...

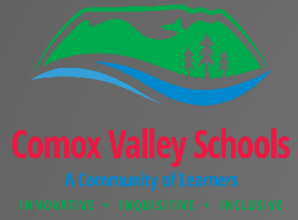
PUMA 2019/20 Fiscal Year-To-Date Results - GHGs:

Total GHGs Decreased By:



(all accounts)

- Total GHGs decrease...



Future Projects