



NANAIMO LADYSMITH PUBLIC SCHOOLS

BUSINESS COMMITTEE PUBLIC MEETING

INFORMATION SHEET

DATE: Wednesday March 3, 2021
TO: Business Committee
FROM: Pete Sabo, Executive Director Planning and Operations
Rob Lumsden, Energy Manager
SUBJECT: Environmental Upgrade Fund (\$400,000 Local Capital #723)

Background:

The BC government set Green House Gas (GHG) reduction targets for 2030 (40%), 2040 (60%), and 2050 (80%). The District is not projected to meet these targets. The District pays a carbon offset payment each year against its' carbon footprint (\$81,125 in 2019), and additional Federal carbon taxes have been announced that may impact BC in the future. Gasoline and diesel prices will certainly be impacted.

Reducing the carbon footprint of the District is challenging due to limited funding sources and the demands on those funds for non-energy projects. The School Enhancement Program (SEP) is our largest funding source for mechanical (GHG reduction) upgrades. However, many interests compete for this money, for instance health and safety projects such as dust collectors in high school wood shops. This SEP upgrade was a necessary and important 4-year project, and it utilized capital which could have been directed at mechanical upgrades, which in turn support GHG reductions.

To deliver real change, GHG reducing projects need to be multi-faceted, and funded from all available streams of capital (SEP, CNCP, AFG, Local Capital, Clean BC, various grants, etc.). Low carbon electrification (LCE) is the reduction of greenhouse gas emissions using clean electricity instead of natural gas, diesel, propane, or gasoline. It typically consists of adding heat pump technology as a primary source of heat and costs more money to install. Once commissioned, operating costs (electrical) are nearly on par with natural gas solutions. We also note a number of recommendations in the Long Range Facilities Plan that may support this work.

Cilaire is expected to receive a critical mechanical upgrade next year (SEP funding over \$1 million), but because the building currently lacks ventilation, the GHG consumption will rise at this site regardless of the new mechanical upgrades. Heating costs (and GHGs) rise in proportion to the amount of fresh air pulled into a building. A heat pump is being considered which will cut Cilaire's carbon footprint considerably.

The **Environmental Upgrade Fund** approved by the District in September 2020 is unique in that it allows staff a separate funding stream to target carbon reduction projects, or as an add on to projects addressing dated/failed infrastructure. This fund is a welcome and timely move towards the Board's goal of 4.5% GHG reduction.

The challenge to staff has been to sift through vast amounts of information (energy savings opportunities) and drill down for the best value. GHG reduction, renewed infrastructure, capital, maintenance, and operating costs are among the factors considered. The Energy Management Department has created and refined data bases of mechanical equipment for this purpose. Projects are evaluated by in house staff in conjunction with Engineers to advance project feasibility to the point that they can be assessed, prioritized, supported and implemented.

The installation of equipment in these projects is best suited for non-heating months (or when buildings are vacant) but can be designed and scheduled at any time. A school with problematic or failed HVAC equipment is given high priority and scrutinized for possible energy efficiency, and low carbon solutions over simple direct replacement.

All other District projects including renovations, additions, seismic, etc. are reviewed for complementary carbon reducing opportunities. Often project planners bring energy savings ideas to the attention of the Energy Manager. A culture of energy management has been clearly established in the Facilities Department.

AP 509, 'Energy Conservation Program' and AP 516 'Stewardship of the Land' as well as the Board Goal of a 4.5% annual reduction of GHGs are considered when selecting projects.

Discussion:

The Majority of NLSP carbon footprint is from heating buildings with fossil fuels (natural gas), however Fleet electrification will play an important role moving forward. ZEB (Zero Emission Busses) are currently being incorporated into the NLPS fleet, and the District has one light duty electric fleet vehicle. Medium duty vehicles are scheduled to be available in 2022 (mainstay choice for tradesmen – vans, trucks), the Environmental Upgrade fund can supplement higher vehicle purchase costs and/or the infrastructure required. Public entities have a perceived responsibility to be prime movers of new technology.

Energy studies for buildings help identify issues and costs supporting project prioritization. A report has been completed for the maintenance carpentry shop heated by a natural gas atmospheric (low efficiency) boiler (energy intensive, aged equipment), and is presently under consideration.

Two standalone band rooms have been approved for heat pumps to replace atmospheric furnaces (18 and 30 years old). Project procurement is in progress. These projects are projected to remove 4 'tCO₂e' (metric tonne of Carbon Dioxide Equivalent) annually each.

Four furnaces at Rutherford have been selected for replacement, all beyond end of life. A reduction of 20% is expected for both natural gas use and GHGs reduction.

Cedar Secondary recently had a cooling tower failure. This is an example of failed HVAC equipment given high priority for scrutinization for possible energy efficiency and low carbon solution over simple direct replacement. Considerations for payback vs simply looking at GHG reductions introduces evaluation challenges for staff.

Conclusion:

The funding allows greater attention to be directed towards carbon reduction and advancement of energy savings opportunities in support of Board goals and general infrastructure challenges. The Energy Department is broadening its consideration of projects for the improvement of lowering GHG emissions from smaller projects to larger ones as well. The Energy Management department believes, as in any savings opportunities, the quicker the investment is made, the greater the effect. Momentum needs to be built and maintained.