



NANAIMO LADYSMITH
PUBLIC SCHOOLS

Operating Electric School Buses

Challenges and Benefits

Public Sector Climate Leadership Symposium 2022

Learning Together

Introduction

- ▶ **Pete Sabo, Executive Director, Planning and Operations**
 - ▶ Overall program/project and funding
- ▶ **Mary Zuccaro, Energy Manager**
 - ▶ Infrastructure, charging and energy tracking
- ▶ **Tracy Mowat, Transportation Manager**
 - ▶ Purchasing, receiving, training, run assignments and ongoing operations



LONG RANGE FACILITIES PLAN

2021-2031



Program/Funding Overview

- ▶ 2020/21
 - ▶ Two type C buses – operational Spring 2021
 - ▶ Funding Envelope and Scope
- ▶ 2021/22
 - ▶ One type C and one Type A – operational Spring 2022
 - ▶ Funding Envelope and Scope
- ▶ 2022/23
 - ▶ Three type C – scheduled operational Spring 2023
 - ▶ Funding Envelope and Scope

ENVIRONMENTAL SUSTAINABILITY



Objective

Students will be impacted the most by climate change as they age and have children. NLPS has a responsibility to address this issue through education and operations. The Plan is drafted to try to meet the Board of Education's goal of reducing GHG emissions by 4.5%, support increased outdoor and environmental learning, support the Syeyutsus Framework, and respond to the communities' input for increased sustainability in business practices.



Recommendation 17

Lower GHG emissions through the acquisition of electric buses and other vehicles for the NLPS fleet.

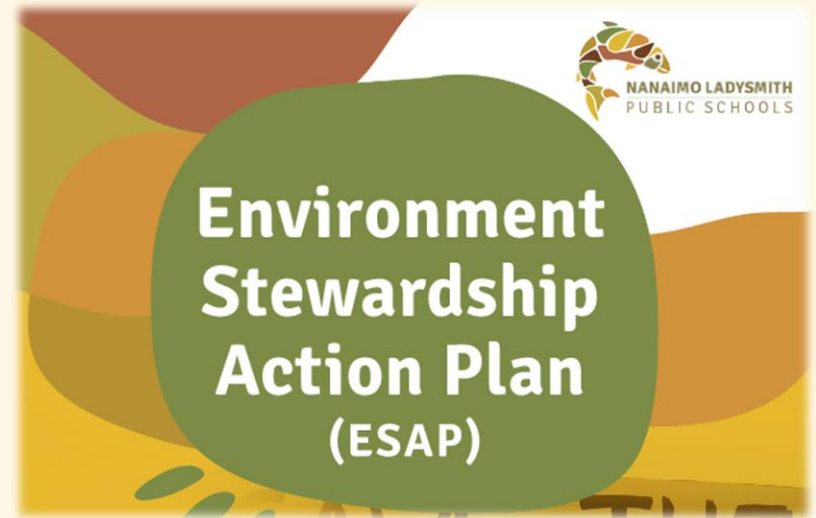


Rationale

Given the number of bus routes in the system (16), the amount of GHG emissions emitted by the transportation system is significant and the shift to an electric bus fleet will have a major impact in lowering emissions.

Supports

- ▶ Ministry of Education
- ▶ Grants
- ▶ Secretary-Treasurer
- ▶ Board
- ▶ Facilities Team
- ▶ Purchasing/Finance



Considerations

- ▶ **ESAP (Environmental Stewardship Action Plan):**
 - ▶ Inform relevant Ministries of our efforts and barriers to meet environment targets
 - ▶ Advocate to provincial and federal government for supply/funding

- ▶ **Conclusions:**
 - ▶ Barriers include:
 - ▶ Maturity of Technology
 - ▶ Board support
 - ▶ Organizational commitment
 - ▶ Funding

8.

Pathways to Environmental Stewardship

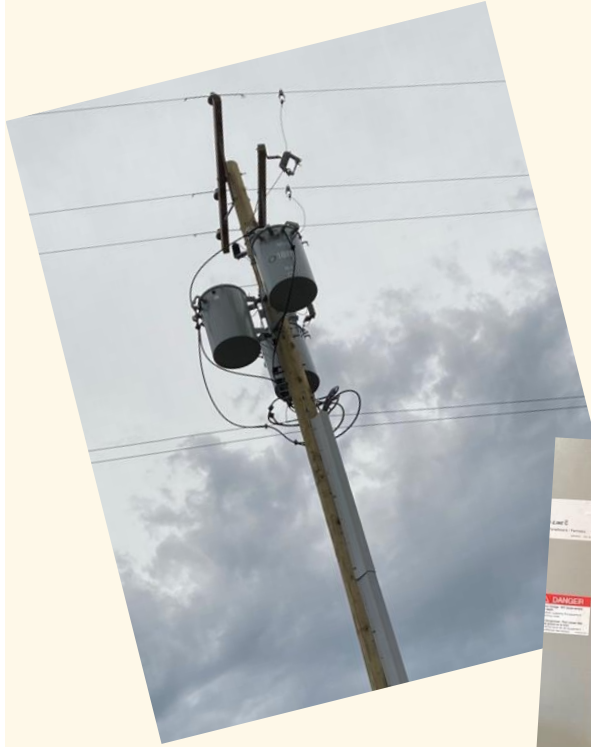
Climate Change Mitigation and Adaptation

GOAL To protect students and the community from the increasing effects of climate change, NLPS will minimize our impacts on the environment, reduce our GHG emissions, and adapt to a changing environment. NLPS's climate change adaptation and mitigation plan will have science-based targets and strategies informed by Indigenous knowledge to draw down our ecological impact.

Objective	Actions
Reduce GHG emissions by 50% below 2010 levels by 2030 or 4.5% per year	<ul style="list-style-type: none">• Create a GHG emission reduction plan to achieve 2030 targets• Electrify school district fleet• Inform relevant Ministries of our efforts and barriers to meet environmental targets• Advocate to provincial and federal government for support/funding

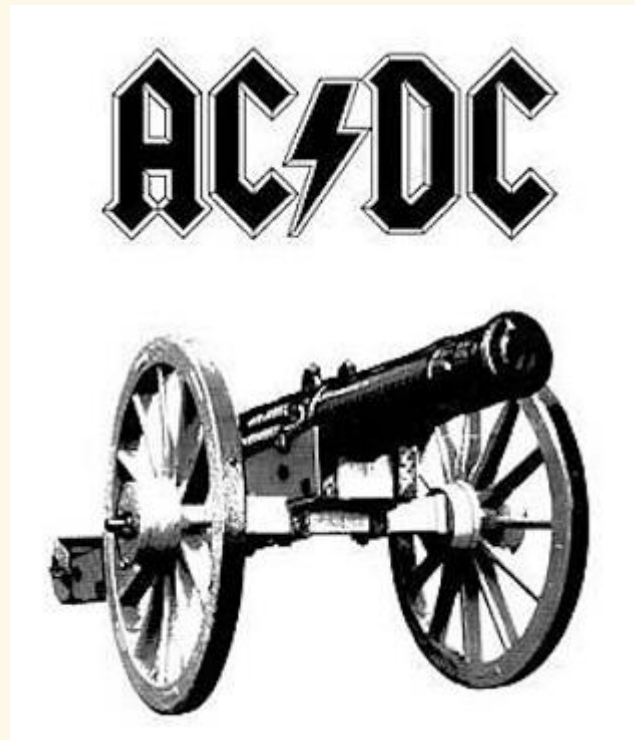
Charging Infrastructure

What service will you need ?



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Charging - Lessons Learned



Tracking



Energy Costs (aka “electric gas”)
\$0.11/km vs. \$0.78/km to run (diesel or gas)



Maintenance Costs

Validate software data to BCH bill

Allow for load management

Validate business case

GHG savings 50tCO₂e



Key Take aways

- ▶ Plan ahead for infrastructure upgrades
- ▶ Use DC charging
- ▶ Software can deliver the data you need
- ▶ And train the users



Choosing an EV Bus

- Cost
- Range / Battery Size
- Capacity
- Maintenance Support
- References



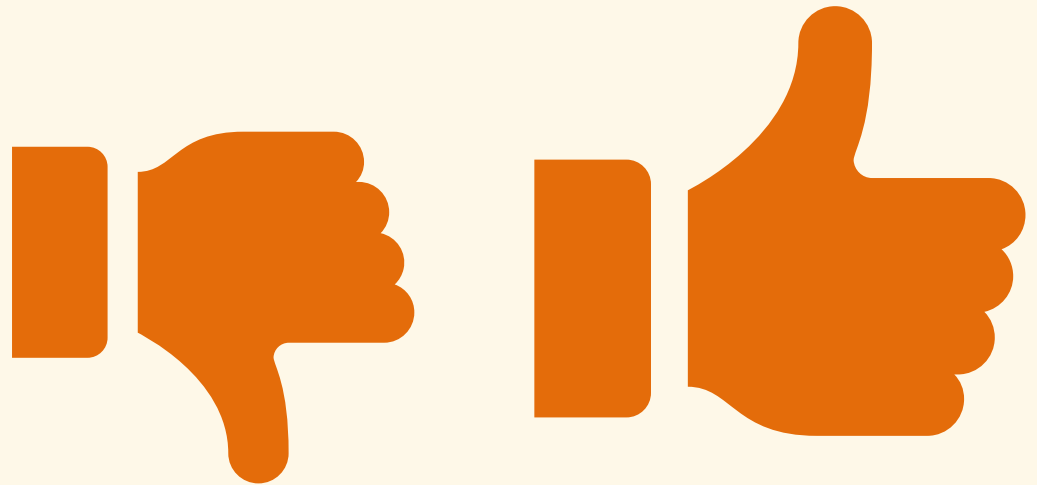
Choosing an EV Route

- Enthusiastic Drivers
- Route KMs
- Number of Riders
- Charters Between Routes



Driver Response

- Initial Hesitation
- Relearn Driving Techniques
- Smooth Ride
- Plenty of Power
- No Diesel Fumes
- Very Quiet
- No Fuel Trips



Fleet Maintenance

- Only 10% of Moving Parts of a Diesel Bus
- Eliminates Costly Diesel Exhaust Repairs
- Charging Issues Require Attention
- Technician Training



Learning Opportunities



SETTING AN
EXAMPLE FOR
STUDENTS



DEMONSTRATING
OUR COMMITMENT
TO ENERGY &
SUSTAINABILITY
PLANS

Environment Stewardship Action Plan (ESAP)