

## CITY OF NANAIMO

### BUSINESS CASE – Electric Vehicle Ready Fleet Study

#### CURRENT OVERVIEW

Recognizing the global concern raised by the International Panel on Climate Change (IPCC) to limit global warming to 1.5°C, in April 2019 Nanaimo's City Council declared a Climate Emergency and set new community-wide emission reduction targets set to be between 50% and 58% below 2010 levels by 2030, and between 94% and 107% below 2010 levels by 2050.

Reducing greenhouse gas emissions is a key environmental initiative for the City of Nanaimo (City) and is included in the City Plan (section C1.1, Greenhouse Gas Emissions Reduction). There are many policies, plans and initiatives that the City currently has that contribute to the City's efforts to lower greenhouse gas emissions.

- BC Energy Step Code (2020)
- Corporate Climate Change Plan (2007)
- Community Sustainability Action Plan (2012)
- Green Building Strategy (2011)
- Energy Conservation and Management Policy (2015)
- Green Fleet Strategy (2020)
- Transportation Master Plan (2014)
- Strategic Energy Management Plan (2020-2024)

The purpose of the Green Fleet Strategy (GFS) is to reduce GHG emissions and improve fuel efficiency through operational practices such as, alternative fuel usage, implementation of effective driver training and responsible purchasing of fleet vehicles.

The City manages a corporate fleet of light, medium and heavy-duty fleet vehicles, used by various departments to provide essential services to the community. Most of these vehicles use internal combustion engines which burn fossil fuels.

In 2020, the City operations produced GHG output of 4,559 tCO<sub>2</sub>e for all of its operations. 1,833 tCO<sub>2</sub>e (approximately 40%) were produced by the City fleet.

	<u>tCO<sub>2</sub>e</u>
Diesel	893
Gasoline	401
CNG	499
Propane	40
Total GHG from Fleet Vehicles	<u>1,833</u>

The City has a total of 149 vehicles that are due to be replaced sometime in the next 10 years. This includes 9 electric and 1 hybrid vehicles.

The following illustrates the different categories of City Fleet vehicles.

Vehicle Category	Total # of Vehicles (incl. EV & Hybrid)	Current # of Electric and Hybrid Vehicles
Light Duty	87	10
Medium Duty	16	0
Heavy Duty	25	0
Fire / Rescue	21	0
<b>Total</b>	<b>149</b>	<b>10</b>

74 non-electric vehicles are scheduled to be replaced in the next 5 years providing an opportunity to electrify the fleet in the near term.

New electric vehicle (EV) options are becoming more available in the market, with many manufacturers now planning significant increases in EV production. While light-duty EVs are becoming fairly common, many options in the medium and heavy-duty classes are being developed or are already available. Charging equipment suppliers now offer a vast range of reliable and cost-effective charging solutions for fleet charging needs.

Electricity in BC is considered 98% clean and renewable energy and BC offers many incentive programs for vehicles purchases, charging stations and other elements of fleet electrification planning. Additionally, on July 11, 2022, the Government of Canada announced a four-year, \$547.5M program, that will help communities across the country make the switch to medium and heavy-duty zero-emissions vehicles. The Medium- and Heavy-Duty Zero-Emission Program will provide purchase incentives worth approximately 50% of the price difference between an electric vehicle and a traditional vehicle.

As EV technology, availability and affordability improve, the City has an opportunity to reduce its GHG output significantly by converting the majority of its fleet to EVs.

#### **BUSINESS ISSUE**

Fleet electrification and the required charging infrastructure requires careful planning to realize the benefits of electric vehicle adoption while ensuring the performance and functionality of the fleet is maintained. The City does not have the required internal expertise or resources to adequately complete the market assessment, electrical engineering, financial assessment, and fleet renewal and transition planning. The City will require the services of an external consultant from a firm that specializes in this field.

#### **EXPECTED OUTCOME**

Hiring an external consultant to complete an Electric Vehicle Ready Fleet Study will help the City optimize the transition to electric-powered vehicles by ensuring:

- Replacement of assets aligns with the City's Reimagine Nanaimo Climate Action Plans, Federal and Provincial Government (CleanBC Roadmap) climate action targets, the City's own climate action emergency declaration from April 2019, and it's Green Fleet Strategy.
- Strategic integration of electric vehicles into the existing capital planning renewal process, and selection of optimum technologies.

- Identification and planning for needed charging infrastructure is established early, so that budgets and implementation can be matched to vehicle selection.
- The City is seen as a socially responsible leader encouraging others to follow.

With the services of an engineering consultant, this study will:

- Assist the City in developing a comprehensive plan to optimally renew some or all of its internal combustion engine medium to heavy-duty fleet vehicles, to zero emission vehicles.
- Include collaboration between departments in developing the fleet plan.
- Provide the City with a preliminary zero emission fleet vehicle replacement schedule.
- Develop a capital and operation budget, and projected cost and emission savings to support future business case development and decision making confidence.
- Enable the City to determine and plan for installation of required charging infrastructure, and also allow BC Hydro to determine how much incentive it can provide customers to complete their electrical infrastructure upgrades identified through this study.

## **OPTIONS**

### **Option #1**

Engage an engineering consultant to prepare an Electric Vehicle Ready Fleet Study.

Benefits:

- The Study will produce a plan for fleet replacements that will optimize the City's use of EVs and lower the City's GHGs output.
- The Study will help the City to identify EV charging infrastructure required to support an EV fleet.
- The Study will aid BC Hydro in identifying any potential electrical capacity issues that may need to be addressed.

Financial Analysis:

- The cost of engaging the consultant to complete the study is estimated to be \$50,000.
- For this proposed planning study, BC Hydro can provide 50% of the study cost, up to a maximum of \$10,000.
- Net one-time cost for the study will be approximately \$40,000.

### **Option #2 – Status quo**

Benefits:

- Funds are available to support other projects climate action projects.

Weaknesses:

- Future fleet replacements may not optimally consider EVs as replacements.
- The City may not optimize its opportunity to reduce GHGs.
- Lack of long-term planning for EV charging infrastructure.

## **RECOMMENDATION**

Engage a consultant to prepare an Electric Vehicle Ready Fleet Study.