The Corporation of the District of Central Saanich

REGULAR COUNCIL REPORT

For the Regular Council meeting on Monday, July 14, 2025

Re: Corporate Building and Fleet Energy and Emissions Assessments

RECOMMENDATION(S):

1. *Direct staff to refer the Facilities Energy and Emissions Strategy to the Facilities Long-Term Asset Management Plan (FLAMP) and the 5-Year Vehicle Capital Plan and Accelerated Electrification Strategy for alignment and integration; and further, that the outcomes be incorporated into the update to the Asset Management Plan (AMP)(2026) and, reflected in the 5-Year Financial Plan, including both capital and operating considerations.*
2. *Direct staff to explore the Community Energy Association carbon credit program.*

PURPOSE:

The purpose of this report is to present findings from two energy studies – for municipal buildings and fleet –to improve energy efficiency and help the District reach its corporate 2030 interim emissions target and 2050 zero emissions goal.

BACKGROUND:

The District's 2020 Climate Leadership Plan has a goal to reduce greenhouse gas (GHG) emissions by 100% by 2050 at both the community and municipal scales with an interim target of 45% by 2030. The Plan also outlines a second goal for the community's energy source to be 100% renewable energy by 2050.

The Plan identified this possible scenario to reach municipal operations goals:

1. Convert 100% of light duty fleet to electric by 2030 (where technology is available)
2. Convert remaining fleet to natural gas or biodiesel by 2035; and to all renewable fuels by 2050
3. 100% conversion of heating and hot water systems to zero emissions systems (i.e., electric)

The District's municipal buildings, fleet, and equipment contribute significantly to its greenhouse gas (GHG) emissions profile. As part of its commitment to climate leadership and operational sustainability, the District is undertaking a coordinated approach to reduce emissions and improve energy efficiency across its assets.

This includes the development of a Facilities Energy and Emissions Strategy, identified as a 2024 improvement project in the Strategic Implementation Plan (SIP) , as presented to Council on June 13, 2022., with a focus on high-impact areas such as fleet and key municipal buildings.

The initiative responds to both legislative and policy drivers and aligns with Council's Strategic Plan, climate adaptation goals, and long-term asset and financial planning. By integrating this work into the Asset Management Plan (AMP), Facilities Long-Term Asset Management Plan (FLAMP), and 5-Year Financial Plan, the District is advancing a responsible and climate-resilient approach to infrastructure investment and service delivery.

DISCUSSION:

Highlights and key recommendations from building-related and fleet-related energy and emissions assessments are presented in the two separate sections below.

Energy and Emissions Assessment for Key Municipal Buildings

The District retained AME Consulting to undertake an integrated energy audit to assess the energy usage and energy management/retrofit opportunities at four facilities – Municipal Hall, Fire Hall #1, Cultural Centre, and Public Works Yard building. This work was funded by BC Hydro's Integrated Energy Audit program.

The carbon footprint of these four buildings in 2024 amounts to 16 tonnes of CO2e. Both the Municipal Yard and Fire Hall #1 each emit approximately 5.5 tonnes CO2e, annually. The Municipal Hall (which includes Police and Fire Hall #2) and the Cultural Centre each emit 4 T CO2e and 1 T CO2e, respectively. These four facilities represent 89% of the District's corporate building-related emissions and 5% of the District's total corporate emissions.

Highlights of Study

For each building a set of energy conservation measures (ECMs) were identified, which included a reduction of electrical consumption, utility cost saving, emissions reductions, capital cost of project and payback period. An example table of measures/strategies identified for the Fire Hall #1 is shown below in Table 1. The full ECM list for Fire Hall #1 and for the other assessed buildings can be found in Appendices A to D.

Table 1. Sample list of an ECM Opportunities table with costs and savings (for Fire Hall #1).

No.	Description	Natural Gas Savings (GJ)	Electricity Savings (kWh)	Utility Cost Savings ($)	Emissions Savings (tCO2e)	Capital Cost ($)	Payback Period (year)
ECM-1	Re-Configure DHW + Solar Thermal Collector Plant	60	-	$720	3.0	$20,800	25+
ECM-2	Install Electric Resistance Heater to Heat Pump Plant	73	(16,755)	$(751)	3.5	$56,680	N/A
ECM-3	Lower HP Plant CHWST Setpoint	20	(4,183)	$(164)	1.0	$8,450	N/A
ECM-4	Change HP Controls to Reject Heat to Ground As Priority Over DC-1	-	5,875	$572	0.1	$15,600	25+
ECM-5	Cross Connect Geo-Plant to Solar Collectors	18	-	$218	0.9	$8,760	25+

Recommendations from Study

The District is currently exploring options to address its aging municipal facilities that are requiring replacement. The facilities include the Municipal Hall site and the Municipal Public Works Yard.

Municipal Hall, Police and Fire Hall #2

The District is considering rebuild of the current site as part of the options of redevelopment. For the option to renovate the current building, the District will consider the ECMs identified as part of the Integrated Energy Assessment (see Appendix B). For the option of rebuilding the Municipal Hall to a new facility, the District will consider energy components to achieve LEED Silver (not certified) or better. All options will meet the energy Level 2 step code and zero carbon. Fossil fuel heating will only be considered for emergency service purposes.

Municipal Yard

Redevelopment is being considered for the Municipal Yard. Energy components to achieve LEED-Silver (not certified) or better will be considered. Fossil fuels will be used for back-up power only. The District is exploring green fuel options.

Fire Hall #1

Current design of the building was built to LEED Silver (certified) and incorporated energy efficient technology. Solar photovoltaic (PV) was later added to provide additional renewable energy for the building with a hybrid geothermal heat pump. A natural gas heater is currently being used as the fleet shop heat supply.

Cultural Centre

The District's Cultural Centre is located in Brentwood Bay and consists of two primary services: a Greater Victoria Library branch and a Seniors Centre and includes activity rooms. All heating (e.g., electric baseboards) and cooling is powered by renewable energy (i.e., electricity). The roof top HVAC unit provides power for cooling only.

Recommended energy projects (retrofit):

Given the Municipal Hall and the Public works yard are considering redevelopment, and focus would be on achieving LEED to maximize energy efficiency and reduce emissions and to achieve Zero Carbon standard in new municipal buildings, recommendations for improvements to existing facilities will be put on hold until a decision is made on civic redevelopment. The Cultural Centre and Fire Hall #1 are planned to receive condition assessments in 2025, so once those reports are completed, we will assess how to incorporate recommendations from the Integrated Energy Audit assessments.

Energy and Emissions Assessment for Fleet

Reducing fossil fuel (i.e., gasoline and diesel) consumption by the District's fleet represents the greatest opportunity to reduce corporate emissions and fuel costs. Currently, fleet and equipment emits about 288 Tonnes CO2e (Including Police vehicles) annually, which represents about 92% of the total corporate carbon footprint.

Innotech Fleet Strategies consultant team was retained to undertake a comprehensive fleet assessment in order to provide guidance and recommendations on transiting the fleet to EVs (i.e., electrification)

and identifying strategies to meet climate action goals. EV infrastructure (i.e, charging stations) needs and financial considerations (e.g., leveraging carbon credits) were also explored

An Energy and Emissions Fleet Assessment Report was produced (see Appendix E) through the support of BC Hydro's EV Ready Fleet Plan Grant, which contributed to 50% of the cost.

Highlights of Study

The key items for consideration presented in the Report by Innotech Fleet Strategies include:

1. Fleet electrification: EV transition plan (review planned growth of fleet/new service offerings)
2. Alternative or low carbon fuels that may help to meet emission reduction targets;
3. Fleet Management best practices such as behavioural and/or policy-based initiatives;
4. Financial profits/revenue from Low Carbon Fuel Credits;

and are described in more detail below.

1. **EV Transition Plan & review of planned growth**
   A modelling tool was used to analyze the transition of the fleet to electrification over 10 years, including improved vehicle replacement planning, decision making and insights into emission reductions. This analysis accounts for capital costs, maintenance costs, fuel costs, carbon costs, salvage value, technological maturity and operational risk .

2. **Alternative & Low Carbon Fuels**
   Renewable Diesel is a "drop-in" replacement fuel that offers up to an 85% reduction in emissions and provides an effective interim solution during the EV transition. Current market pricing of renewable diesel is generally at par with standard diesel for an R50 blend, with some suppliers offering at par for an R100 blend depending on volumes. The District would discuss pricing directly with suppliers. Consideration of warranties and vehicle conversion would also be taken into account.

3. **Low Carbon Fuel Standard**
   Include some description in here.

4. **Review of Fleet Management & Best Practices**
   In addition to electrification and alternative fuels, other industry best practices have been reviewed. Many of the practices, such as idling reduction and telematics, prove difficult to determine exact emission reduction as they cannot be measured independently; however, some emission reduction potentials have been noted based on feedback from other local governments.

5. **Low Carbon Fuel Credits**
   Carbon credits are a commodity that can be monetized for organizations that convert their fleet to EVs. Carbon credits can be a key part of financing the transition to EVs and associated emission reduction. Organizations that own and operate EV charging stations can collect credits. The credits can be saved, sold on the carbon trading market, or used to offset emissions. As these credits are commodities, the price fluctuates with market values. Average 2023 prices were approximately $475/tonne for credits under the Low Carbon Fuel Standard and $127/tonne for the CFR.

These credits are earned based on the differential emissions between an EV and a comparable internal combustion vehicle; calculated using the integrated grid carbon intensity of 9.2 tCO2e/GWh (2021)10 vs the carbon intensity for a comparable ICE vehicle. These values change on an annual basis, and for 2024, diesel fuel is 79.28 gCO2e/MJ (2024)11.

Recommendations from Study

The path to achieving the 2030 and 2050 emissions reduction targets involves a combination of the following opportunities:

1. **Electrification**: As the primary approach for reducing emissions, the District should implement the 10-year optimized EV transition scenario and detailed EV charging plan, as outline in the study. Electric vehicle and charging technology to be monitored over time.
2. **Low Carbon Fuel Standard** – this provincial requirement will automatically reduce emissions for any fuel supplied to the District.
3. **Renewable Diesel** – to help the District reduce emissions to meet the 2030 emissions target. To be a temporary measure to undertake until medium and heavy-duty vehicles become more mainstream.

The strategy is designed to guide future decisions while allowing for flexibility to adapt to unforeseen changes, such as new operational demands, industry trends, grant opportunities, financial constraints, or technological advancements. By maintaining a balanced approach, the District can continue to work toward its emissions reduction targets while staying responsive to evolving circumstances.

Figure 1 below (or Figure 6 in the Innotech Report) shows the stacked potential of each of implementing the three emissions reduction options, from a 2024/2025 fleet carbon footprint of approximately 288 Tonnes (includes Police vehicles) out to 2035. By combining all three strategies, an emission reduction potential of up to 57% is possible by 2030 (113 T), and up to 90% by 2050 (26 T).

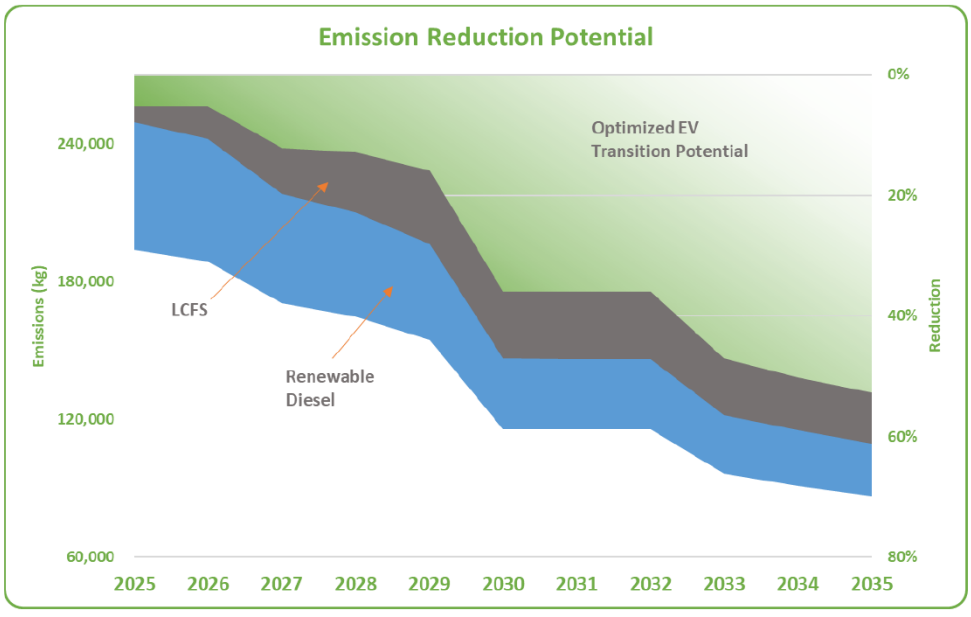

Figure 1. Emissions reduction potential when three strategies are incorporated for fleet.

Carbon Credits and Aggregation Opportunity

The Community Energy Association is currently implementing a program – Carbon Credit Aggregation Service – which allows municipalities to sell carbon credits with their aggregation service. Local governments are able to pool BC Low Carbon Fuel Standard carbon credits with other owners across the province. Aggregating credits from many local governments, community organizations, strata and private owners, creates a large pool of high value credits. CEA can then arrange sales at higher per-credit prices, benefiting clients big and small with the opportunity to earn money from their EV chargers. Participants benefit by having reduced administrative costs, standardized legal agreements, and the potential for higher sale price per credit. If so directed by Council, staff will explore the potential of the District participating in this program.

NEXT STEPS

The District will complete a condition assessment in 2025 on both the Cultural Centre and Fire Hall #1 in order to understand current improvement needs of the buildings and then would align potential energy projects from the study. As the Fleet represents the most significant opportunity to reduce emissions, the District will consider the recommendations of the Innotech report as part of 2026 capital planning. The District will continue to follow industry progression, review changing operational needs and assess the suitability of any EVs for the fleet moving forward. The District will also investigate the purchase of renewable diesel as a temporary measure to reduce the District's fleet carbon footprint and explore requirements to attain carbon credits

It will be important to continue to track emissions annually for buildings and fleet in order to measure success in the implementation of emissions reduction programs monitor progress towards its Climate Leadership Plan targets.

IMPLICATIONS:

Strategic

Under the District's Integrated Planning and Reporting (IPR) Framework, corporate decision-making is guided by a structured hierarchy that ensures alignment from long-term strategy to annual implementation. The Facilities Energy and Emissions Planning initiative exemplifies this integrated approach.

At the highest level, the initiative supports Council's 2024–2027 Strategic Priority to "Champion Climate Adaptation, Mitigation, and Preparedness." As a Strategic Implementation Plan (SIP) action, this planning work directly supports the delivery of Council's climate leadership goals.

The initiative is being developed in alignment with the District's Asset Management Plan (AMP) and will be formally embedded into the Facilities Long-Term Asset Management Plan (FLAMP) and referenced alongside the 5-Year Vehicle Capital Plan and Accelerated Electrification Strategy.

This integrated planning ensures that climate-focused infrastructure investments are incorporated into the 5-Year Financial Plan, capturing both capital and operating impacts over the medium term. It

enables coordinated resource allocation and service delivery while maintaining consistency with asset lifecycle considerations, GHG reduction targets, and long-term financial sustainability.

Financial/ Resource

Staff will review recommendations from the two energy and emissions assessments during the annual planning (financial planning) process.

OPTIONS:

Option 1 (recommended):

1. Direct staff to refer the Facilities Energy and Emissions Strategy to the Facilities Long-Term Asset Management Plan (FLAMP) and the 5-Year Vehicle Capital Plan and Accelerated Electrification Strategy for alignment and integration; and further, that the outcomes be incorporated into the update to the Asset Management Plan (AMP)(2026) and, reflected in the 5-Year Financial Plan, including both capital and operating considerations.
2. Direct staff to explore the Community Energy Association carbon credit program.

Option 2:

Alternative direction as provided by Council.

CONCLUSION:

Highlights from two corporate energy and emissions studies are presented in this report. A number of recommendations have been proposed Recommendations from the studies will be considered annually as part of the budget cycle. Staff will continue to integrate zero/low carbon options as part of upgrades for buildings and fleet in order to make progress towards the Climate Leadership emissions reduction by 2030.

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ATTACHMENTS:

Appendix A: AME Integrated Energy Audit Report – Fire Hall #1
Appendix B: AME Integrated Energy Audit Report – Municipal Hall
Appendix C: AME Integrated Energy Audit Report – Public Works Yard
Appendix D: AME Integrated Energy Audit Report – Cultural Centre
Appendix E: Energy and Emissions Fleet Assessment – Innotech Fleet Strategies