NANAIMO LADYSMITH PUBLIC SCHOOLS
STRATEGIC DIRECTIONS COMMITTEE
PUBLIC MEETING
INFORMATION SHEET

DATE: June 11, 2025
TO: Strategic Directions Committee
FROM: Mary Zuccaro, Energy Manager and Mark Walsh, Secretary-Treasurer
SUBJECT: Carbon Neutral Report

Background

Since 2009, the Province of BC has implemented an emissions offset system to attain carbon-neutral government operations. The carbon offset is $25/tonnes of carbon, is paid annually to the Province of BC and is based on the amount of carbon our District emits by burning fossil fuels for space heating and transportation fuel (white fleet only - school busses are exempt). Provincial targets are:

- *50% below 2010 levels by 2030 and 100% by 2050 for buildings*
- *40% reduction in fleet emissions by 2030 compared to 2007 levels*
- *100% of light-duty PSO fleet vehicle purchases to be zero emission vehicles (ZEV).*

The Energy Management team is responsible for measuring, compiling, and report all greenhouse gas (GHG) emissions from buildings, white and yellow fleet, paper usage and refrigerant usage (new for 2023).

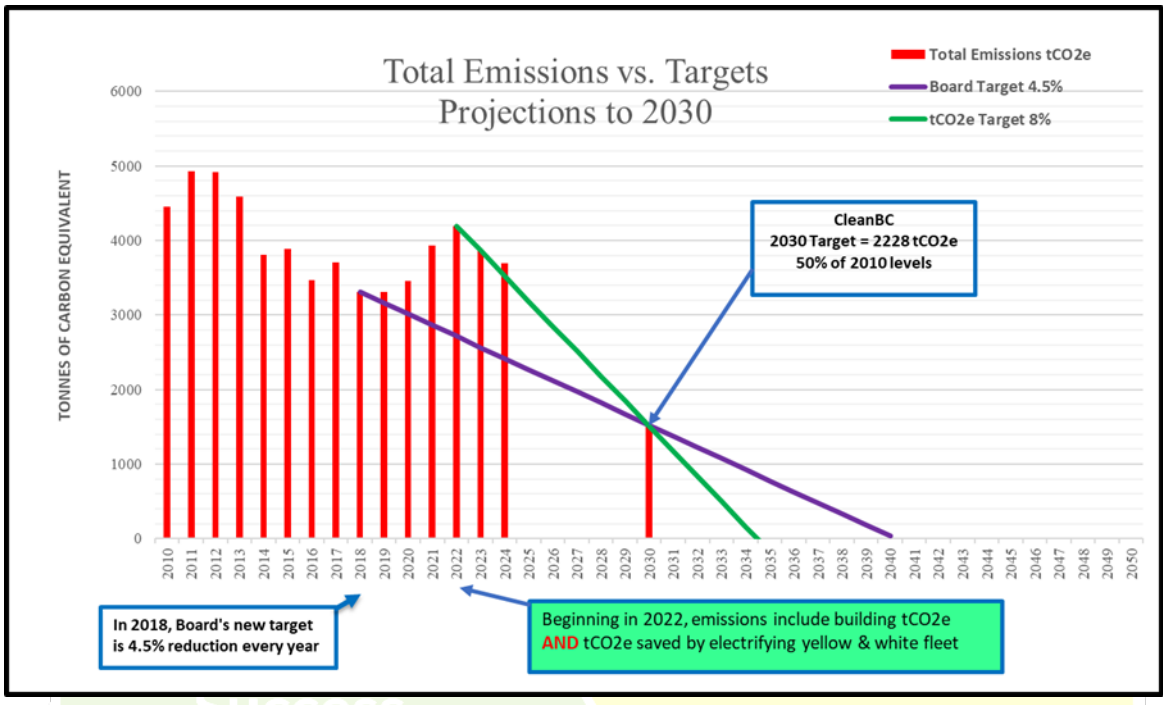
Discussion

A good news story is that the District saw an **4.7% reduction** in emissions compared to 2023 (saved 183 tCO2e).

Source of Emissions	2023		2024	
	tCO2e	%	tCO2e	%
Buidling Use	2,884	**74.5%**	2,785	**75.5%**
Electricity	91	**2.4%**	80	**2.2%**
Gas & Diesel (White fleet)	276	**7.1%**	226	**6.1%**
Gas & Diesel (Yellow fleet)	366	**9.5%**	346	**9.4%**
Paper	210	**5.4%**	190	**5.2%**
Refrigerants	45	**1.2%**	62	**1.7%**
TOTAL EMISSIONS	3872	**100%**	3689	**100%**

Emissions would have been 3,897 tCO2e if we did not operate five EV vans and nine EV busses (2024). Buildings still account for the most emissions. See Appendix A for a pictorial presentation of the above data.

Moving forward, we will have to reduce emissions by 5.5% every year for 7 years to get to the 2030 target and 5.5% every year thereafter. Capital infusion for improving building infrastructure will provide the most effective way to reduce our carbon footprint. However, it is unlikely that sufficient capital will be available to meet target.



Actions taken in 2024 to reduce emissions are:

HVAC and building automation upgrades accounted for 43% of the savings and fleet accounted for 56% of the savings. See table below:

Site		Project Type	Calendar Year 2023 GJ	Calendar Year 2024 GJ	Normalized Savings GJ	Normalized Savings tCO2e
Cedar Sec	High School	ASHP	1628	1247	381	19
John Barsby	High School	Boiler 3rd	3895	3634	261	13
Cilaire	Elem School	ASHP	332	194	138	7
P. Valley	Elem School	ASHP	373	253	120	6
Bayview	Elem School	DDC	1165	1035	130	7
Randerson	Elem School	Boiler/DDC	1900	1087	813	41
Brechin	Elem School	ASHP	661	tba	will report for 2025	
Ran 9 EV busses for 2024		Replaced Diesel busses Litres >>			46,268	121
					TOTAL	*214*

Other notables:

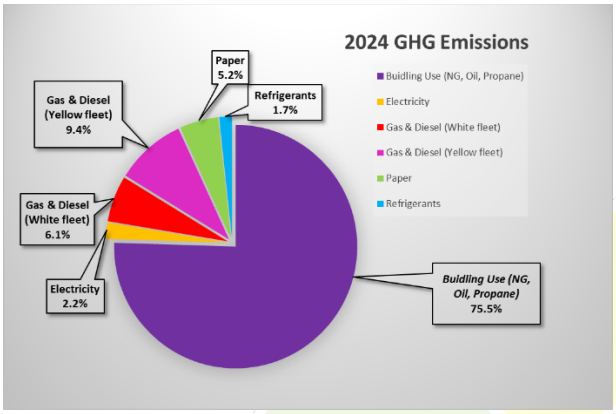
- The District has nine EV busses which equates to 32% of the total yellow fleet. One 75-passenger bus was added to the fleet February 2025 and one service vehicle will be added to white fleet July 2025.
- Continuous optimization of building automation controls and programming for all sites will be completed by December 2025 and will start realizing savings by March 2026.
  Estimated savings for all sites are 374 tCO2e.
- Upgraded building automation systems to latest version at three sites (Bayview, Cedar Secondary School, Randerson). All sites experienced failing control panels due to age and lack of replacement parts. Mountain View will be upgraded Summer 2025.
- Brechin Elementary electrification of HVAC system (added air-source heat pump) is now complete.
- GHG Reduction Strategy plan – now in review with BC Hydro and will complete Summer 2025.
- Significant support from external agencies has been received since 2021. To-date, the District has received $1.2MM in the form of rebates/grants to help with capital projects and engineering studies.
- The District continues to replace yellow and white fleet with electric vehicles as internal combustion vehicles (ICE) are retired and if there is an operational electric version is available.
- The District continues to reduce electrical and natural gas usage to help reduce our carbon footprint. See Appendix A for normalized usage trends. With weather taken out of the equation, the natural gas usage across the portfolio is on a downward trend and efficiency upgrades are working. Electrical usage remains steady or slightly higher as heat pumps add to the electrical load.

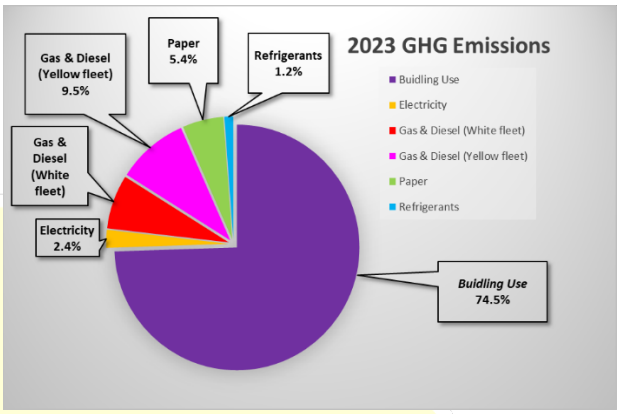
Plans to continue reducing emissions in 2025 consist of:

1. GHG Reduction Strategy plan – District will use the information to assist with capital planning and to provide a roadmap (with costs) to electrify all sites. This plan will also assist staff in prioritizing HVAC replacement as many of the systems are nearing or are at their end-of-life. District maintenance culture is to look at the most efficient affordable option to reduce GHGs, provide reliability, redundancy, and comfort.
2. As of January 2024, the District site is out of electrical capacity and cannot add any additional EV vehicles to its fleet. A good news story, in March 2025, the District was successful in securing funding from CNCP and ZETF to upgrade electrical capacity and infrastructure to facilitate the replacement of ICE vehicles for the next 5 years. Construction begins Summer 2025.
3. Continue to update/replace building automation systems at two sites (Mountain View and École North Oyster).
4. Continue to implement energy conservation measures identified thru Continuous Optimization.
5. Replacement of three gas-fired air-handling units at Mountain View Summer 2025.
6. Replace two boiler plants – Dufferin and Forest Park – Summer 2025.
7. Replace gas furnaces at Ladysmith Secondary and Cedar Elementary – Summer 2025.
8. Quarterway Portables – replace existing electric HVAC system with heat pumps. No net GHG savings; however, new system will provide comfort cooling.
9. Synergistic HVAC upgrades – Energy Management team works closely with Capital planning team and maintenance to ensure necessary HVAC upgrades align with seismic and/or new construction.

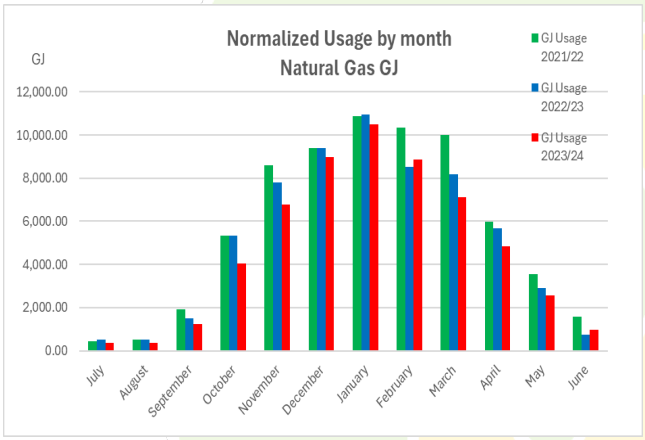
Appendix A

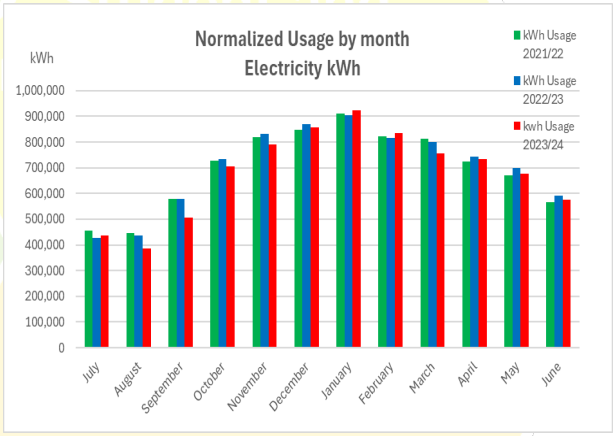
2023 & 2024 GHG Emissions by Source





Normalized Usage Natural Gas and Electricity





Historical Usages

Year	Mobile Fuel Litres	Natural Gas GJ	Propane GJ	Oil GJ	Electricity GJ
2015	397,254	51,033	314	1,573	29,088
2016	318,882	49,013	304	1,641	27,196
2017	269,563	58,016	277	1,523	27,866
2018	298,494	45,965	200	1,044	25,677
2019	303,939	53,568	248	1,222	26,237
2020	176,057	54,369	414	642	23,277
2021	264,959	59,746	357	832	26,460
2022	275,763	65,923	846	853	27,663
2023	267,737	55,225	701	989	28,950
2024	237,747	53,939	590	736	28,961