

NANAIMO LADYSMITH PUBLIC SCHOOLS

**BUSINESS COMMITTEE
PUBLIC MEETING**

INFORMATION SHEET

DATE: June 14, 2024
 TO: Business Committee
 FROM: Mark Walsh, Secretary-Treasurer
 SUBJECT: Carbon Neutral Reporting

Background

Since 2009, the Province of BC has implemented an emissions offset system to attain carbon-neutral government operations. The intent of the offset systems is to encourage Public Sector Organizations (PSO) to reduce emissions, advance green technologies, and support clean job growth. B.C. has legislated targets for reducing greenhouse gas emissions compared to 2007 levels - *50% below 2010 levels by 2030 and 100% by 2050. On the fleet side, current provincial targets are to reach a 40% reduction in fleet emissions by 2030 compared to 207 levels and for 100% of light-duty PSO fleet vehicle purchases to be zero emission vehicles (ZEV).*

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). This carbon offset is above and beyond the carbon tax that is charged at the fuel pump or on the Fortis gas bill.

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 8% reduction in emissions compared to 2022 (saved 277 tCO₂e).

Source of Emissions	2022		2023	
	tCO ₂ e	%	tCO ₂ e	%
Buidling Use	3,396	81.9%	2,884	74.5%
Electricity	88	2.1%	91	2.3%
Gas & Diesel (White fleet)	250	6.0%	271	7.0%
Gas & Diesel (Yellow fleet)	356	8.6%	274	7.1%
EV White fleet (Gasoline diverted)	0	0.0%	5	0.1%
EV Busses (Diesel diverted)	52	1.3%	92	2.4%
Paper	7	0.2%	210	5.4%
Refrigerants	0	0.0%	45	1.1%
TOTAL EMISSIONS	4149	100%	3872	100%

Note – paper usage has increased due to improved method of reporting using photocopier print data. See Appendix A for a pictorial presentation of the above data.

Actions taken in 2023 to reduce emissions are:

HVAC upgrades accounted for 58% of the savings and fleet accounted for 32% of the savings. See table below. Balance of the savings (10%) is attributed to increased efficiencies by upgrading building automation systems at Brechin and John Barsby, returning to pre-COVID ventilation schedules, and of course, weather – 2023 was 6% warmer than 2022.

Site		Project Type	Usage			Normalized Savings GJ	Normalized Savings tCO2e
			2021 GJ	2022 GJ	2023 GJ		
Cedar Sec	High School	ASHP		2624	1628	996	50
John Barsby	High School	Boiler		5474	3895	1579	79
Brechin	Elem School	Boiler		911	641	270	14
Cilaire	Elem School	ASHP	670	n/a	332	338	16
P. Valley	Elem School	ASHP	432	n/a	373	59	3

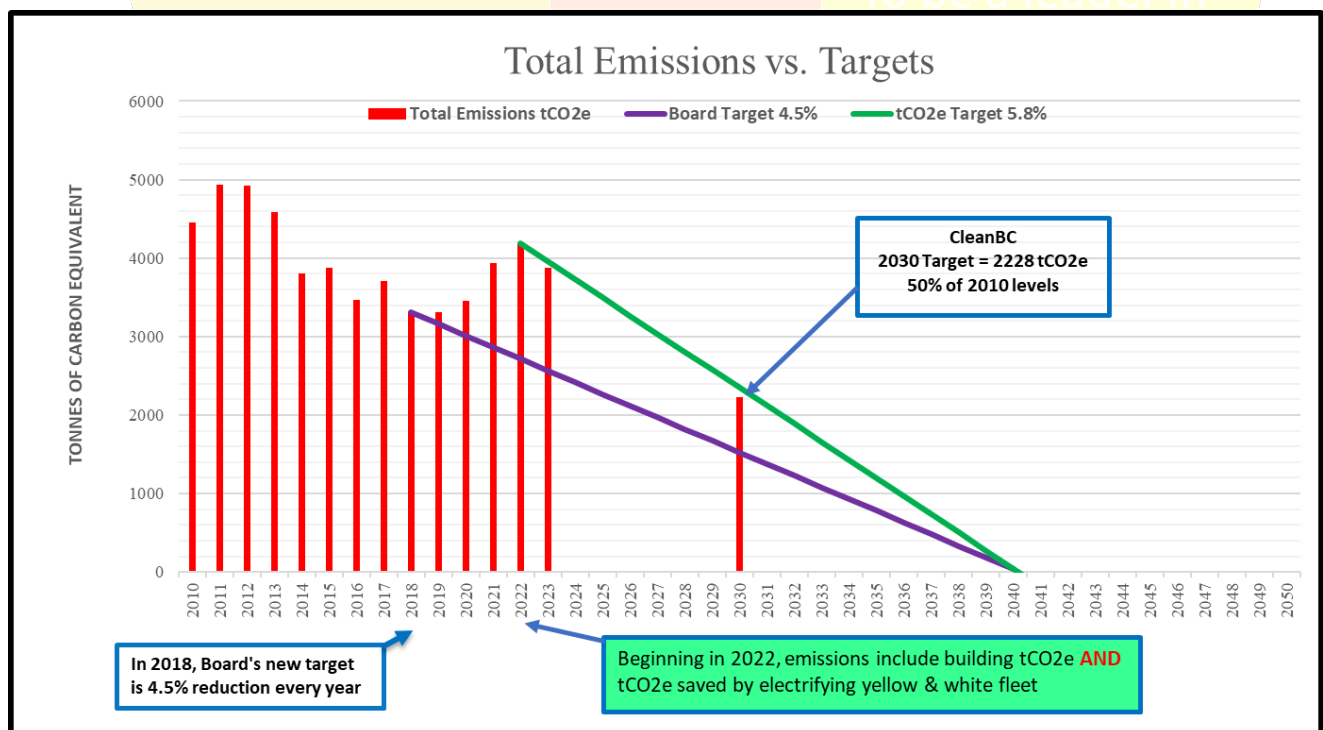
EV Busses X 7 busses	Replaced Diesel busses	Litres >>	35,189	92
----------------------	------------------------	-----------	--------	----

** Note - Cilaire and P Valley closed 2022 for Seismic upgrade

TOTAL	254
--------------	------------

In addition, an EV Fleet Ready Plan was completed November 2023 and is used to assist the District in developing a roadmap to convert its yellow and white fleet. Three 75-passenger EV busses were added to the yellow fleet July 2023 and two 25-passenger EV busses added January 2024. The District now has nine EV busses which equates to 32% of the total yellow fleet.

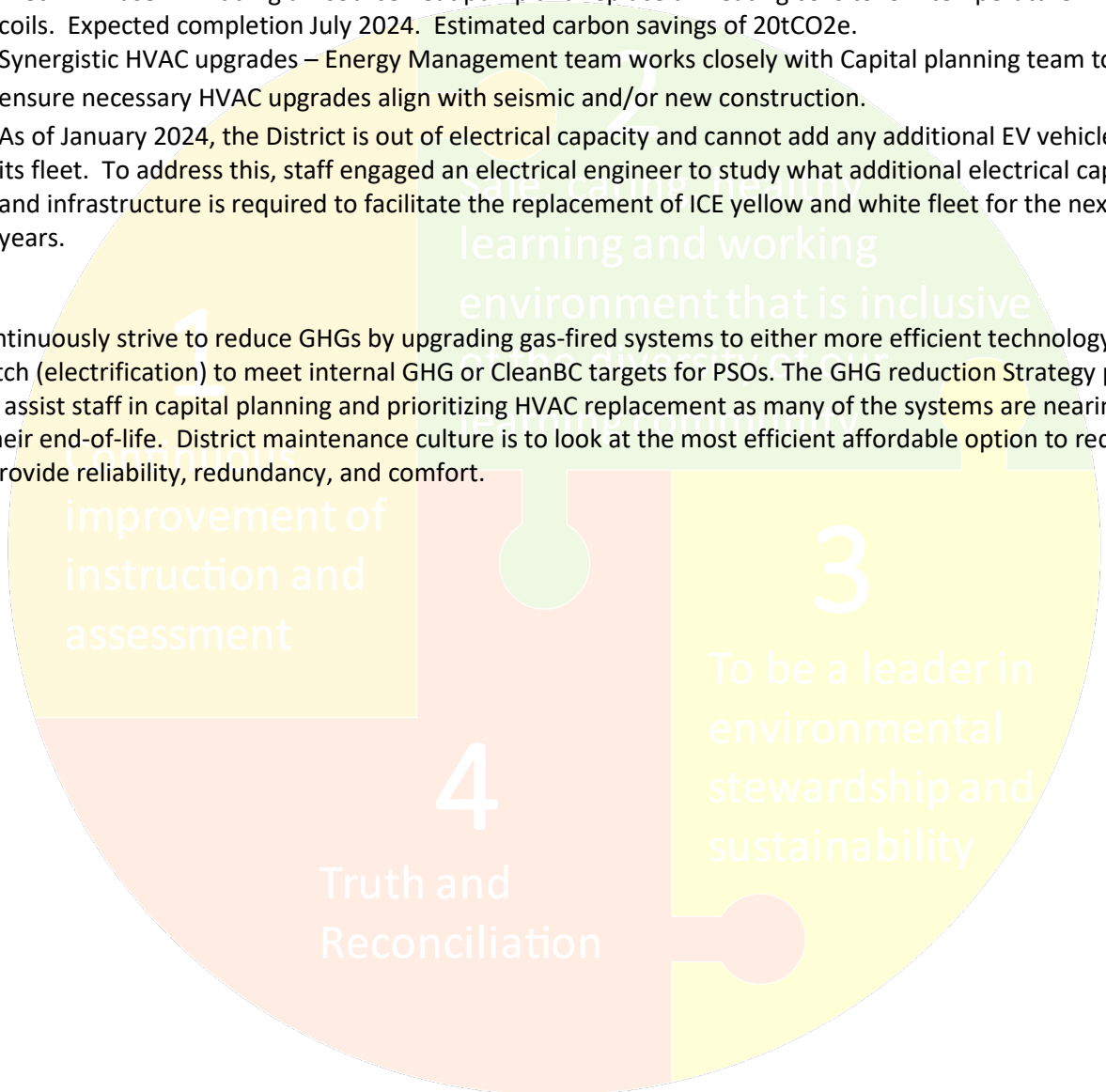
Moving forward, we will have to reduce emissions by 5.5% every year for 7 years to get to the 2030 target and 5.5% every year thereafter. Warmer winters will help; however, relying on weather to help reduce our carbon footprint is not a practical expectation. Capital infusion for improving building infrastructure will provide the most effective way to reduce our carbon footprint.



Plans to continue reducing emissions in 2024 consist of:

1. GHG Reduction Strategy plan – a two-phased feasibility study (ASHRAE Level II) fully funded by BC Hydro will provide energy audits and modelling of each mechanical system at a site level. Study will assist the District to find the optimal pathway to GHG reduction and electrification as well as, establish a strategic foundation to reducing our carbon footprint. Completion December 2024.
2. Update and replace building automation systems at three sites (CSS, Randerson Ridge and Bayview).
3. Continue with controls optimization program.
4. Two more EV busses were added January 2024.
5. Brechin Phase 2 – Adding air-source heat pump and replace all heating coils to low-temperature coils. Expected completion July 2024. Estimated carbon savings of 20tCO2e.
6. Synergistic HVAC upgrades – Energy Management team works closely with Capital planning team to ensure necessary HVAC upgrades align with seismic and/or new construction.
7. As of January 2024, the District is out of electrical capacity and cannot add any additional EV vehicles to its fleet. To address this, staff engaged an electrical engineer to study what additional electrical capacity and infrastructure is required to facilitate the replacement of ICE yellow and white fleet for the next 5 years.

Staff continuously strive to reduce GHGs by upgrading gas-fired systems to either more efficient technology or fuel switch (electrification) to meet internal GHG or CleanBC targets for PSOs. The GHG reduction Strategy plan will also assist staff in capital planning and 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.

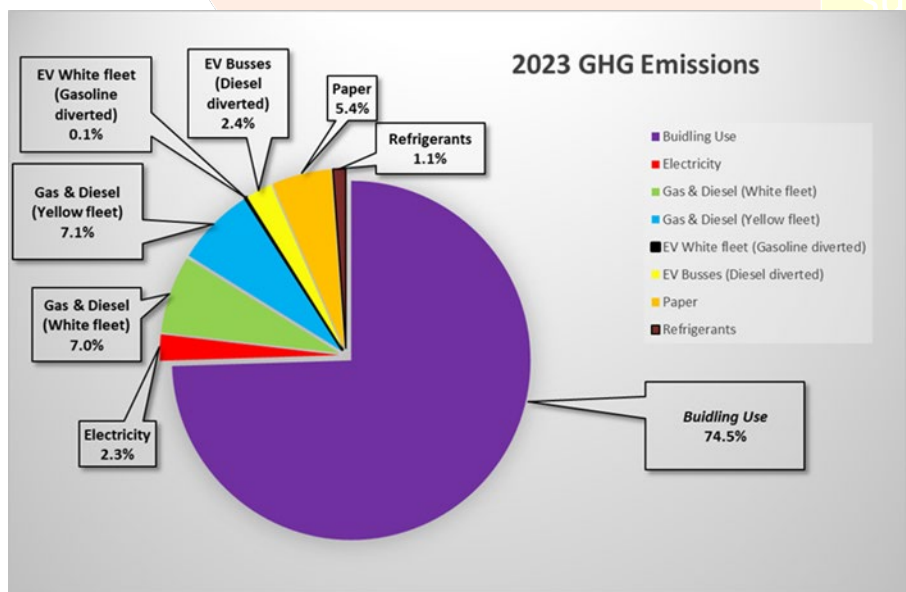
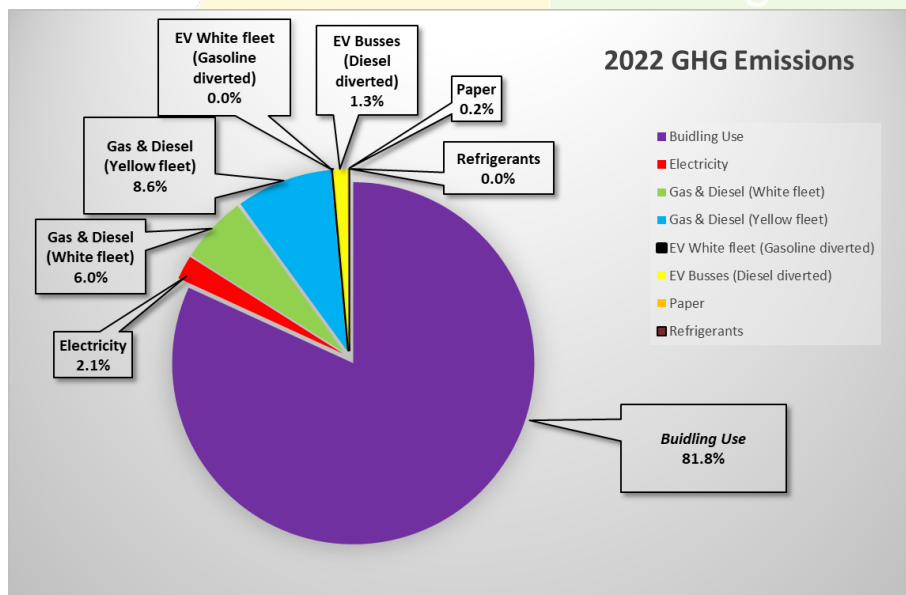


Appendix A

Historical Usages

Year	Mobile energy Use 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	267,085	55,225	701	989	28,950

2022 & 2023 GHG Emissions



Safe, caring, healthy learning and working

that is inclusive of our community

3

be a leader in environmental stewardship and sustainability