



The Corporation of the District of Central Saanich

STANDING COMMITTEE REPORT

For the Parks and Environment Committee meeting on Thursday, November 2, 2023

Re: 2022 Community Energy and Emissions Inventory

PURPOSE:

The purpose of this report is to present the latest community-wide greenhouse gas emissions inventory and a preliminary high-level interpretation of the data in order to begin to understand the factors that have been influencing our community's emissions over time.

BACKGROUND:

The District's Climate Leadership Plan (CLP) has a goal to reduce greenhouse gas (GHG) emissions by 100% by 2050 for both corporate and community-wide 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 District's community-scale emissions in 2007 (baseline year) was reported to be 76,000 GHG. Transportation emissions accounted for the largest portion of the emissions at 66% of the total emissions, buildings at 22% and solid waste at 12% (see Figure 1). The CLP reported that the District made some progress to reduce emissions between 2007 and 2017 but more work was needed to achieve the targets.

Community energy emissions inventories (CEEI) were originally prepared by the province for 2007, 2010 and 2012. However, because of provincial resource limitations the CRD took over this role and provides each municipality within the region separate energy and emissions inventories every two years, so that members can better understand the sources and trends of GHG emissions. The inventory is also intended to be a resource to inform planning aimed at reducing GHG emissions.

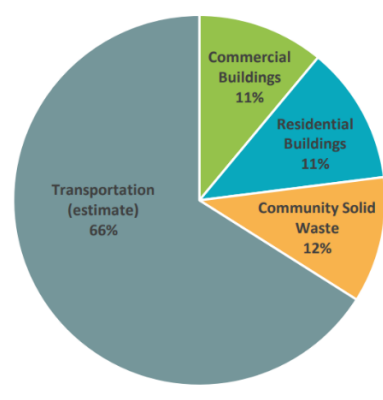


Figure 1. Climate Leadership Plan (2007) emissions % by sector. Total community emissions was reported to be 76,000 tCO₂e.

DISCUSSION:

2022 Community energy and emissions inventory

The District's 2022 community energy and emissions inventory¹ provided by the CRD is shown Appendix A. An at-a-glance data comparison of the District's community emissions over three years: 2007, 2020 and 2022, is shown in Appendix B. Sources of emissions include an extended list² of sectors (compared

¹ Emissions related to Central Saanich also include those from both Tsawout and Tsartlip First Nation communities

² unaccounted for previously but now captured as part of the 2022 National Inventory Report

to 2007) as shown below and an illustration of the proportion of emissions from each of the eight sectors is shown in the pie chart to the right (Figure 2):

- Commercial buildings
- Residential buildings
- Agriculture, Forestry, Fishing (stationary diesel)
- On-Road Transportation
- Off-Road Transportation
- Waste
- Agriculture Livestock
- Industrial Processes

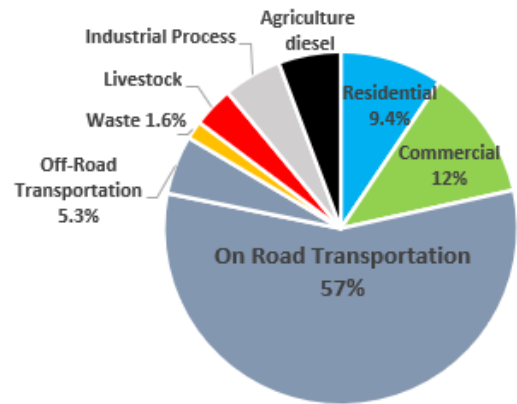


Figure 2. 2022 Emissions % by sector. Total community emissions is 111,246 tCO₂e.

Given this new data that was provided in 2022, the District’s 2007 baseline emissions has thus been adjusted from 76,000 to 100,771 Tonnes CO₂e. The CRD’s 2020 emission inventory has been also included as part of the analysis (as it can provide a short term comparison of emissions); however, it should be noted that the data that year would have been influenced by the Covid pandemic.

Overall Findings

The District’s total GHG emissions for its latest inventory in 2022 is 111,246 Tonnes CO₂e. Compared to the baseline year, emissions increased by 10.4% or 10,475 tonnes. The District was one of six communities in the region that had more than a 1% increase in emissions from the baseline year. Transportation-related emissions continue to represent the largest portion (62%) of Central Saanich’s total emissions. The 2022 data however showed a notable decrease in electricity emissions. This was largely influenced by the emissions intensity factor (for electrical generation) which decreased by half in 2021³. On a per capita basis, emissions in the District decreased from 6.2 to 5.8 tonnes, which represents a 6.4% decrease from the baseline year (Appendix C).

Key Highlights and Preliminary High-Level Interpretation

Residential Buildings

- **Natural gas (a fossil gas) consumption accounted for the majority of building-related carbon emissions and was the only energy type in the residential sector that showed an increase in emissions.** Natural gas use should eventually slow as both the District’s Zero Carbon step code comes into effect and financing program (and substantial rebates) continue to incent homeowners in 2023 to switch to electric heat pumps.
- **Oil, diesel and propane fuel emissions dropped by 15%, 27% and 1% respectively, from 2007 to 2022.** Oil and propane use should continue to drop as the District’s financing program (and substantial rebates) incent homeowners to switch to electric heat pumps.

³ In a hydroelectric-based power system, GHG emissions from electricity generation can vary significantly from year to year. The Province updated the methodology for determining the electricity emission intensity factors in 2021 to more accurately reflect the carbon intensity of electricity consumed in B.C.

- **Greening of the BC electricity grid has resulted in a 70% drop in electrical emissions from the baseline year.** As more homeowners and builders switch to electric heat pumps, electricity should become the prime energy source and result in reduced emissions for the community. The substantial incentives from senior-level governments that are currently available and education to homeowners about home energy systems through programs such as EnerGuide Home Energy assessment, would also lead to energy conservation and fuel switching.

Commercial Buildings

- **There was a notable increase in natural gas-related (up by 1366 t CO₂e) and diesel-related emissions (by 1,601 tCO₂e) since the baseline year.** This increase in fossil fuel use and associated emissions could be attributed to the increase in commercial activity during this time period (see Appendix D)

Transportation

- **On-road transportation emissions – representing 93% of the District’s total community emissions – had the largest influence on the increase in District’s community emissions in 2022 (Figure 3).** Specifically, the rise of emissions was largely from **light-duty trucks, vans and SUVs, and heavy-duty trucks registered in the District.** Of note, 15% of all District vehicle registrations are business-related, which represents by far the largest percentage of business-related vehicle registrations for a municipality in the CRD region (Appendix D – vehicle registration stats). The significant increase of emissions from these types of vehicles, especially observed for Central Saanich could be related to the increased commercial activity since 2007. Business licencing increased in the District by 29% since 2020 and more than doubled since 2012 (Appendix D – Licensing stats).
- **Passenger vehicles showed a notable drop in emissions since 2007 (by 8,505 tonnes CO₂e), but this sector’s emissions did increase slightly from 2020.** The increase in vehicle fuel efficiency and/or fuel costs since the baseline year might have been the main factors influencing emissions for this sector. Of note, the number of electric vehicles have steadily increased from 337 vehicles in 2020 to 511 in 2022⁴ (1.9 and 2.8%, respectively, of all vehicle types in the District) which would help to reduce emissions.

Waste emissions

- **2022 waste-related emissions were approximately 70% below 2007 levels (Figure 3).** This can be related to the ongoing work at the Hartland Landfill to capture landfill gas and the new commissioning of the McLoughlin Wastewater Treatment Plant in December 2020.

⁴ EV stats are based on ICBC vehicle population data:

<https://public.tableau.com/app/profile/icbc/viz/VehiclePopulationIntroPage/VehiclePopulationData>

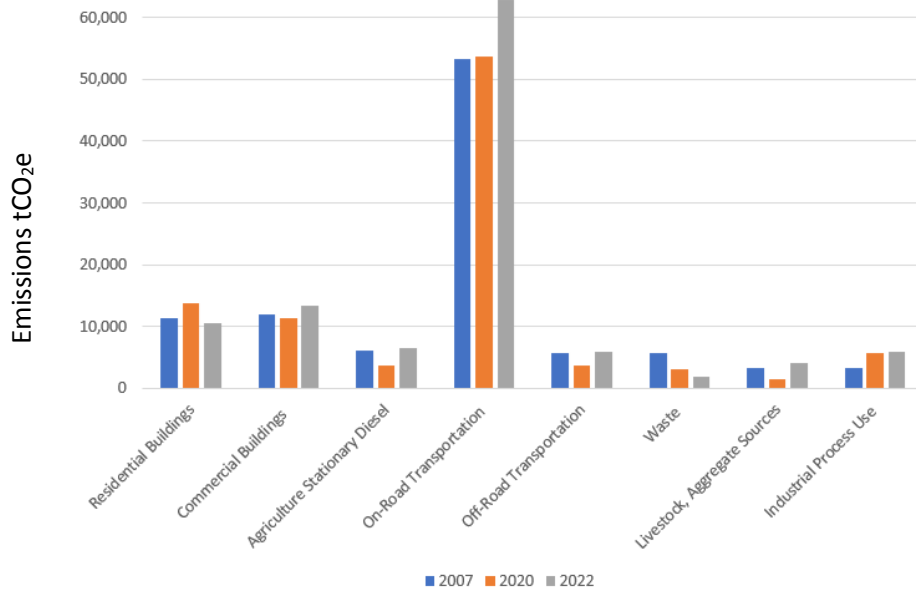


Figure 3. GHG emissions by sector for years 2007, 2020, 2022

NEXT STEPS

The District will continue to review the findings and provide interpretation to the results. Of note, the province has indicated that they will release revised Community Energy and Emissions Inventories (CEEIs) for local governments later this year; it is anticipated that methodologies used may differ from those used by the CRD, and therefore may have different results. Once released, staff will review the methodology and can share any differences with the Committee.

This up-to-date data will form the basis for the next update of the District’s Climate Leadership Plan with more targeted actions to reduce our community emissions.

CONCLUSION:

This report presents the District’s 2022 community-wide greenhouse gas emissions inventory and provides a preliminary high-level interpretation of the results in order to better understand the factors that can influence our community’s emissions over time. The notable decrease in emissions in the residential and waste sector shows that action taken by the District and region can make a difference. The significant increase in on-road emissions, likely related to the increase in business activity in our community, presents the largest challenge to address by the District to meet 2030 and 2050 goals. Continued analysis and a more comprehensive look at the data may help to provide a more robust interpretation of the results and outlook on the path forward.

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ATTACHMENTS:

- Appendix A: 2022 Energy & GHG Emissions Inventory – Central Saanich (from CRD)
- Appendix B: Comparison of emissions by sector for baseline year (2007), 2020, 2022.

Appendix C: Capital Region CO₂e Emissions per Capita – September 2022 (from CRD)

Appendix D: Business-related stats: 2022 Vehicle Registrations (from CRD) and Business Licensing (2012-2022)