

Humber Polytechnic GHG Emissions Inventory

2023-2024

Executive Summary

Introduction

Humber Polytechnic's greenhouse gas (GHG) emissions inventory was compiled for the 2023/24 reporting year following the reporting requirements of The Climate Registry (TCR) General Reporting Protocol (Version 2.1, January 2016) and the TCR Local Government Operations (LGO) Protocol for the Quantification and Reporting of Greenhouse Gas Emissions Inventories (Version 1.1, May 2010).

For the 2023/24 reporting year, the College's corporate GHG emissions totaled **20,025.07 tonnes** of carbon dioxide equivalent (tCO₂e).

Results

Table 1. GHG Emissions by Scope

Activity Type	2014/15 GHG Emissions (tCO ₂ e)	2019/20 GHG Emissions (tCO ₂ e) ¹	2021/22 GHG Emissions (tCO ₂ e)	2022/23 GHG Emissions (tCO ₂ e)	2023/24 GHG Emissions (tCO ₂ e)	Change (From baseline to reporting year)
Scope 1 Emissions	7,135	6,509	5,570	5,980	5,663	-20.6%
Building Natural Gas Use	7,002	6,326	5,405	5,515	5,267	-24.8%
Building Fuel Use	14	18	21	19	17	21.0%
Fleet Fuel Use	119	165	143	447	379	219.9%
Scope 2 Emissions	1,357	923	1,011	1,260	1,595	17.5%
Electricity Use	1,357	923	1,011	1,260	1,595	17.5%
Scope 3 Emissions	19,026	19,578	4,101	12,234	12,767	-32.9%
Staff/Faculty Travel	2,019	1,640	437	1,123	1,092	-45.9%
Paper Use	401	131	16	45	74	-81.6%
Waste	443	458	129	230	238	-46.3%
Food	6,574 ¹	6,574 ¹	1,352	2,201	4,178	-36.4%
Student/Staff Commuting	9,590	10,775	2,167	8,635	7,186	-25.1%
Total GHG Emissions	27,518	27,010	10,682	19,475	20,025	-27.2%
GHG Emissions Per Student	0.84	0.72	0.34	0.59	0.55	-34.0%

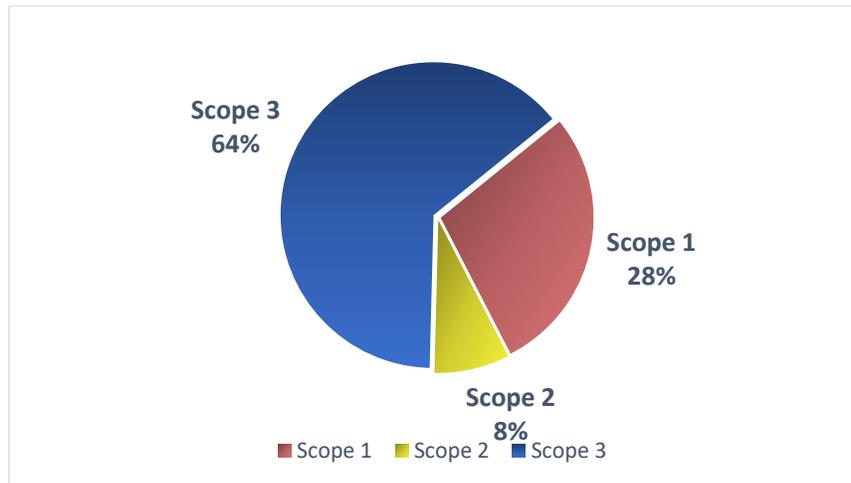
¹ Food Emissions were not incorporated in the GHG calculator until 2019 and, as such, the values in 2014 are the same in 2019.

Analysis

Total emissions for 2023/24 are 20,025.07 tCO₂e, an overall decrease of 27.2% compared to the 2014/15 baseline year:

- Scope 1 Emissions are 5,663 tCO₂e (-20.6%)
- Scope 2 Emissions are 1,595 tCO₂e (17.5%)
- Scope 3 Emissions are 12,767 tCO₂e (-32.9%)

Fig 1. Humber Emissions by Scope 2023-24



The detailed breakdown in Table 1 on Page 1 indicates significant reductions in Scope 1 and Scope 3 emissions compared to the baseline year, however there is an increase in Scope 2 emissions. Historically, Scope 3 emissions constitute the greatest percentage of overall greenhouse gas emissions. This is also the case for the current reporting year where 64% of the overall emissions are from Scope 3 (Fig 1.). Scope 3 emissions are indirect emissions that occur across Humber's value chain, and include the emissions generated from activities such as commuting, procurement, and waste. These emissions are challenging to reduce because they are largely outside of Humber's direct control and rely on the actions of suppliers, contractors, students, and staff.

Some of Humber's emissions activities that have seen noteworthy changes compared to the previous year (2022/23) are in Electricity, Food, Student/Staff Commuting, and Fleet Fuel Use.

Electricity

Total electricity consumption from Humber's North and Lakeshore campuses was 25,716,447 kWh during 2022/23 then went up to 27,029,988 kWh in 2023/24 — representing an increase of 5.11%. The related GHG Emissions, however, increased by 26.59%. This disproportionate increase can be attributed to the recently released emissions factors, derived from the National Inventory Report. The emissions factors for electricity increased from 0.049 in 2022/23 to 0.059 Kg CO₂e/kWh in 2023/24.

Food

This category quantifies the food-related emissions coming from Humber's food procurement. Humber's food purchasing² went up significantly from the previous reporting year which caused a notable spike in emissions. Although emissions from food grew from the previous reporting year, they still represent a 36.4% reduction compared to Humber's baseline emissions.

Despite the increase in emissions, Humber has taken action to reduce food-related emissions. 20% of the Total Food Spend in the 2023/2024 reporting year was spent on plant-based foods. Plant-based food items such as grains, fruits, and vegetables generate much less emissions compared to meat and dairy products. Providing more plant-based food came about as an initiative from Humber Polytechnic's [Food Strategy and Vision](#). The Food Strategy and Vision help guide on-campus food offerings and is part of Humber's commitment to fostering healthy, inclusive, and more sustainable environments.

Student/Staff commuting

Student/Staff commuting makes up most of Humber's total greenhouse gas emissions — 7,186 tCO₂e (35.9%) of the total 20,025 tCO₂e. With this considered, emissions from Student/Staff Commuting are down from the previous year's amount of 8,635 tCO₂e and are also down from the baseline year's value of 9,590 tCO₂e. Some of the reason for this drop is the implementation of a hybrid school or work setup. For the reporting year, staff and faculty are averaged to only commute to work 2 days per week.

Fleet Fuel Use (Vehicle Fleet)

Fleet fuel use is computed by identifying all registered vehicles under the different Humber departments and noting the total kilometers traveled during the reporting year. The total distance travelled, vehicle type, and fuel type are compared against vehicle emission factors to derive the resulting emissions

While it can be observed that that there was no substantial change in the total kilometers travelled between the past year (1,110,703 km) and the current reporting year (1,031,114 km), there has been a noticeable drop in emissions from 447 tCO₂e in FY 22/23 to 379 tCO₂e in FY 23/24. This can be partly attributed to the entire fleet of diesel heavy duty trucks operated by the Education and Training Solutions (ETS) department being sold or having their vehicle lease terminated. Diesel heavy duty trucks generally have higher Average Fuel Efficiency (L/km), and higher vehicle emission factors compared to gasoline light duty vehicles, which make up the majority of Humber's vehicle fleet.

² Two external food vendors were not able to provide their food spend data for this reporting year. Historical or past food spend data from the 2 vendors only account for 0.0051% of the total food spend.

Fig 2. 2023/2024 GHG Emissions by Source (tCO2e)

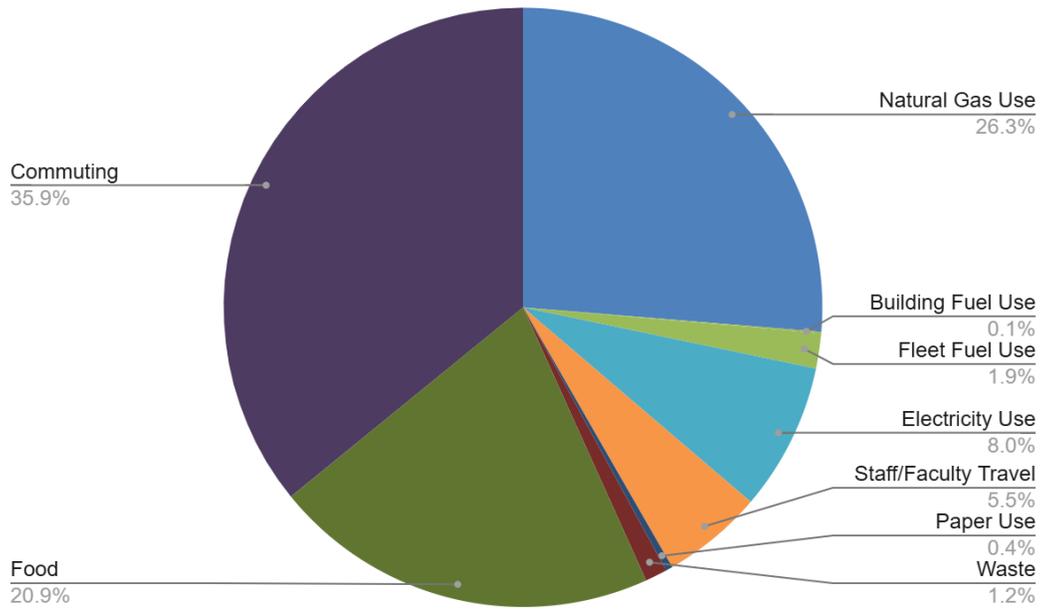
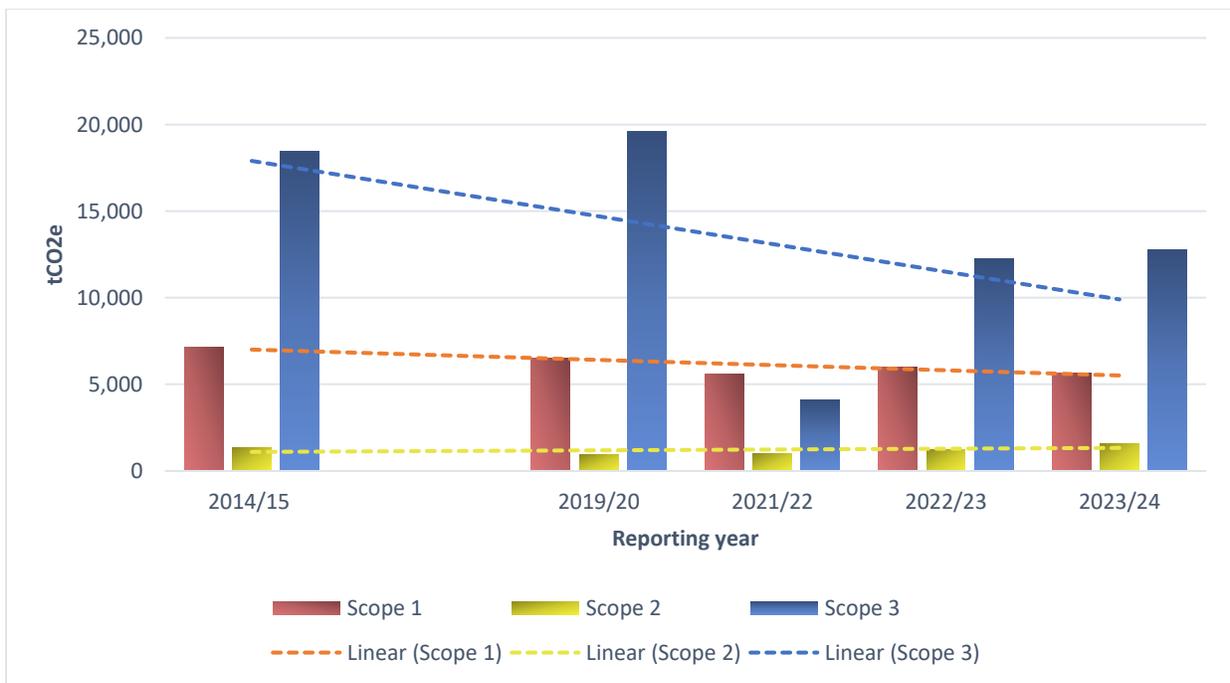
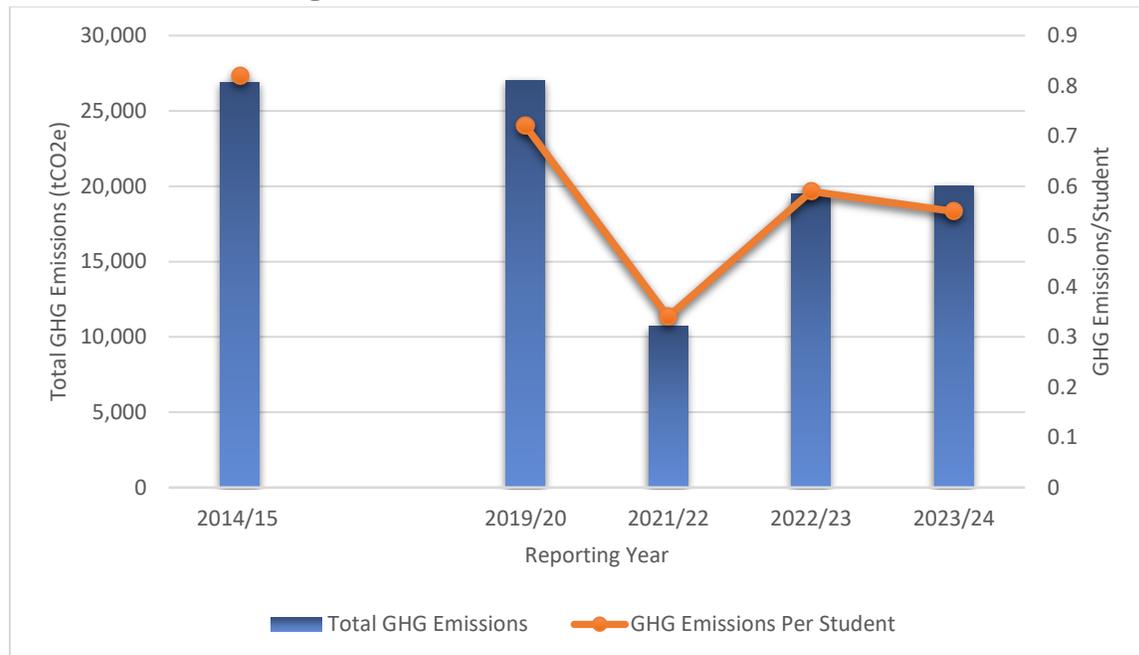


Fig 3. Humber Annual GHG Inventory



Note: The GHG Inventory data could not be collected and analyzed for the years 2015/16, 2016/17, 2017/18, 2018/19, and 2020/21.

Fig 4. Total GHG Emissions Per Student

Note: The GHG Inventory data could not be collected and analyzed for the years 2015/16, 2016/17, 2017/18, 2018/19, and 2020/21.

As we return to business-as-usual, emissions may slightly increase as the activities from Food, Waste, and Travel continue to bounce back to normal pre-pandemic values. This growth will be tempered and even reversed with the continued implementation of several key Humber initiatives.

Humber's [Food Strategy and Vision](#), launched in December 2023, is expected to help continue improve Food-related and Waste-related emissions. Outlined in the Food Strategy and Vision are several key sustainability initiatives such as minimizing single use items and packaging throughout food services, expansion of Low Waste Events and Spaces, adopting a program for reusable utensils, promotion of the use of locally grown and raised food, and highlighting local and seasonal ingredients within meals.

The Office Bin Reduction Project launched in late 2023, is another initiative that seeks to reduce the total volume of waste generation on campus by helping encourage staff and faculty to utilize the many multi-stream waste bins present in the corridors outside of classrooms and offices. The initiative was already previously implemented at the IGS and Lakeshore campuses. Its full implementation at the North campus is expected to help reduce Humber's overall Waste-related emissions.

Over the long-term, Scope 1 Emissions from Building Natural Gas and Fuel Use, and Scope 2 Emissions from Electricity use are expected to decrease with the continued implementation of Humber's [Integrated Energy Master Plan](#) (IEMP) and [Climate Action Plan](#). The IEMP outlines a comprehensive plan to meet significant energy efficiency, greenhouse gas and water reduction goals. The Plan will seek to deliver deep retrofits to existing infrastructure and ensure Humber's campus buildings are among the most efficient in the world.