2023 – 2024
GHG INVENTORY
EXECUTIVE SUMMARY

UNIVERSITY OF CALGARY

Introduction

This document provides an executive summary of the 2023/24 University of Calgary Greenhouse Gas (GHG) Inventory report. The 2023/24 GHG Inventory quantifies the total GHG emissions for which UCalgary is responsible in fiscal year 2023/24.

UCalgary produces an annual inventory report to measure progress, inform institutional and operational planning, and provide transparency regarding the institution's GHG emissions. This is the 16th report produced since 2008/2009.

Methodology

The 2023/24 University of Calgary GHG Inventory report uses fiscal year 2008/09 GHG emissions data as the baseline year for benchmarking.

This inventory report captures the quantification of UCalgary's Scope 1 and Scope 2 GHG emissions for the fiscal year 2023/24. Scope 3 GHG emissions are not included in this report. Each scope is defined below:

> **Scope 1:** Direct GHG emissions from sources that are owned or controlled by UCalgary, including stationary/mobile combustion of fossil fuels and animal husbandry.
>
> **Scope 2:** Indirect GHG emissions from sources that UCalgary does not own or control but are a direct result of its operations. These include emissions associated with purchased electricity and steam.
>
> **Scope 3:** Other indirect GHG emissions from sources that UCalgary does not own or control, including emissions related to commuting, transmission and distribution losses, waste, business travel, paper, and wastewater.

Using organizational and operational boundaries established by the World Resources Institute Greenhouse Gas Protocol Corporate Accounting and Reporting Standard (GHG Protocol) (WRI/WBCSD, 2015), the operational control approach was taken to define GHG emission boundaries. Only Scope 1 and 2 GHG emissions from sources over which UCalgary has direct operational control are included in the inventory. The quantification of emissions is developed in accordance with the GHG Protocol. The methodology and emission factors are described in full in the 2023/24 University of Calgary Greenhouse Gas (GHG) Inventory report.

The Climate Action Plan

The 2019 Climate Action Plan (CAP) outlines the University of Calgary's goals for mitigating GHG emissions from its operations. The CAP has set targets for absolute emissions reduction below the 2008/09 base year: 35% by 2025; 50% by 2030; and operational carbon neutrality by 2050.

The CAP outlines key focus areas for emission reduction and quantifies the impact of activities in each of these areas by 2030. The 2023/24 GHG Inventory shows that UCalgary is on track to meet its 2025 CAP target.

Institutional GHG Emissions Summary

In fiscal year 2023/24, UCalgary was responsible for GHG emissions of 142,693 metric tonnes of carbon dioxide equivalent[1] (tCO_2e). Tables 1 and 2 provide a comparison of 2008/09 and 2023/24 GHG emissions:

Table 1 - Total Greenhouse Gas Emissions

	2008/09	2023/24	Change
	metric tonnes CO_2e		%
Scope 1	50,133	83,603	67%
Scope 2	189,822	59,090	-69%
Total Scope 1 & 2	239,955	142,693	-41%

By Source

Table 2 - Scope Breakdown

	2008/09	2023/24
	metric tonnes CO_2e	
Scope 1		
Natural Gas	49,468	79,258
Propane	227	278
Diesel[2]	-	72
Fleet Gasoline	323	357
Fleet Diesel	82	181
Animals[3]	-	3,454
Biomass[4]	-	2
Scope 2		
Electricity	158,777	35,870
Steam	31,045	23,220

[1] Carbon dioxide equivalent is a single measure of amount of GHGs, including carbon dioxide, methane, and nitrous oxide.

[2] Diesel fuel consumption in emergency generators was not available for the 2008/09 inventory.

[3] Animal husbandry information was not available from the Department of Veterinary Medicine for the 2008/09 inventory.

[4] Biomass emissions are related to N_2O emissions from wood combustion heating at the Kluane Station.

By Location and Campus

Stationary Building Emissions accounted for 97.1% of UCalgary's Scope 1 and Scope 2 emissions or 138,050 tCO_2e/year. The Main and Foothills campuses account for 87% of these emissions. Figure 1 provides a breakdown of emissions by location.

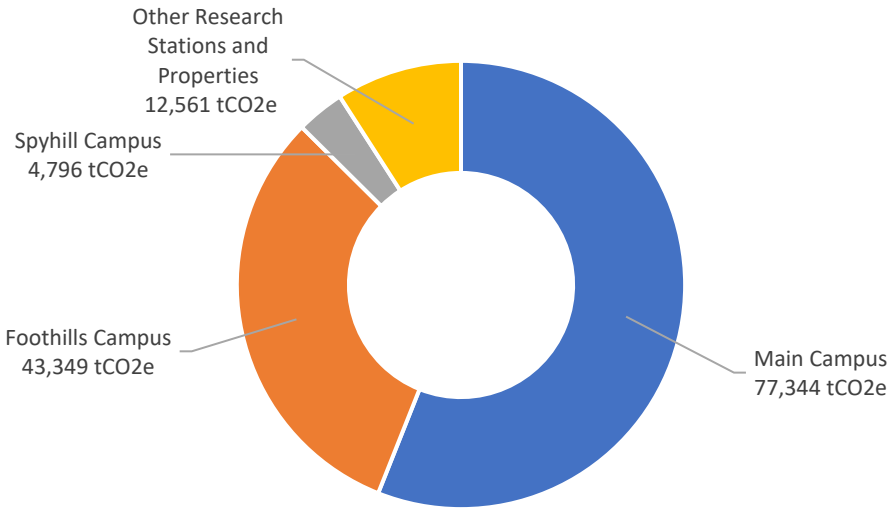

Figure 1: Stationary Building Emissions by Location

Emissions Impact

Increases in the campus population and/or gross building area can lead to an increase in GHG emissions. In 2023/24, despite a 37% increase in institutional population and 21% increase in institutional gross building area, UCalgary observed a 57% reduction in total GHG emissions per institutional population and a 50% reduction in in total GHG emissions per gross square meters of building space when compared to the 2008/09 base year.

Table 3 summarizes GHG intensity with respect to institutional population of faculty and staff (FLE)[5] and students (FTE)[6] and, institutional building area[7].

Table 3 - Greenhouse Gas Intensities

	2008/09	2023/24	Change (%)
Total Scope 1 & 2 Emissions (metric tonnes CO_2e)	239,955	142,693	-41%
Institutional Population (FTE+FLE)	30,551	41,912	37%
Institutional Building Area (GSM)	869,213	1,048,372	21%
GHG Intensity (metric tonnes CO_2e / FTE)	7.85	3.40	-57%
GHG Intensity (metric tonnes CO_2e / GSM)	0.28	0.14	-50%

Even as UCalgary continues to grow, annual emissions have decreased on an absolute basis by 41% from the 2008/2009 base year. Figure 2 compares annual GHG emissions with population growth and gross building area.

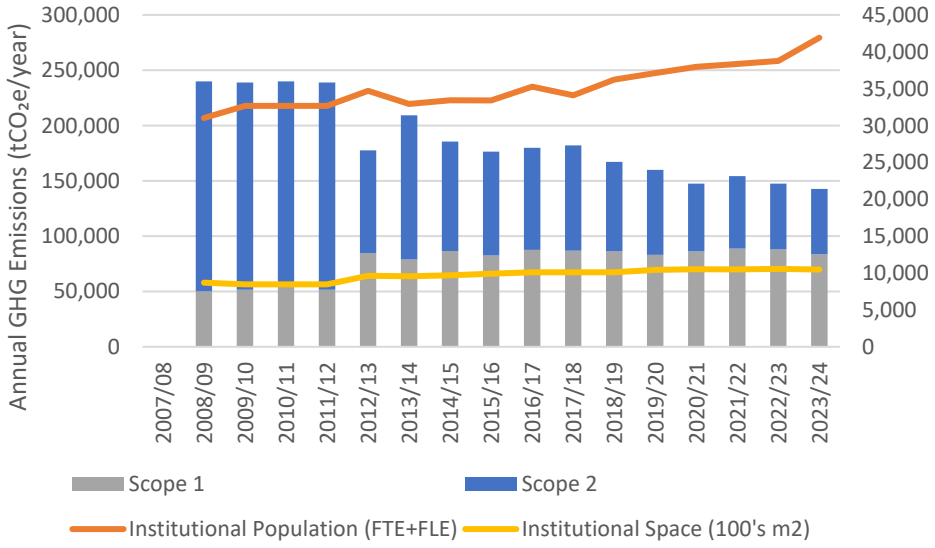

Figure 2: Annual Institution GHG Emissions

[5] Full Time Equivalent (FTE) for Faculty and Staff (Provided by the Office of Institutional Analytics)

[6] Full Load Equivalent (FLE) Students (Provided by the Registrar's Office).

[7] Building area is represented by the gross square meters of the buildings under the control of the university (GSM) provided by Campus Planning.