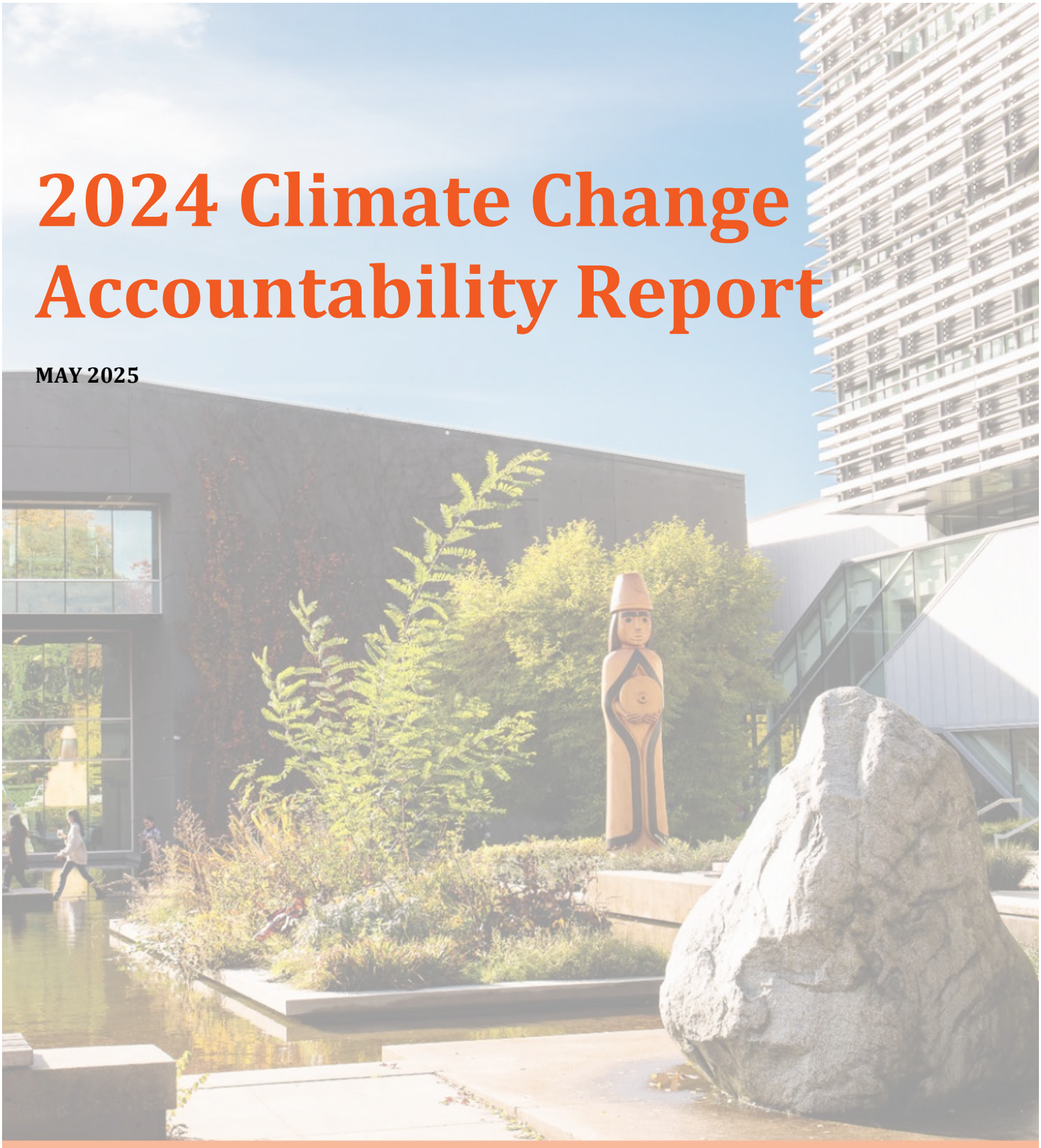
2024 Climate Change Accountability Report

MAY 2025



Langara.

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Introduction

At Langara College, we are committed to sustainability and climate change accountability. Since 2001, the College has been actively reducing, monitoring, and managing greenhouse gases (GHGs). As mandated by the Greenhouse Gas Reduction Targets Act, we have been reporting annual GHG emissions and investing in offsets to achieve net-zero emissions since 2010. Our efforts have resulted in significant reductions in emissions per square foot on campus.

In May 2023, Langara signed the United Nations Sustainable Development Goals Accord, joining institutions around the world in a commitment to advance sustainability. We report annually on our progress in advancing the 17 SDGs, demonstrating our commitment to a more sustainable future.

Future Forward Langara

As we consider the next steps and strategic priorities for the college, we are looking at the future and preparing the institution for the evolving needs of students. We are in the process of reimagining Langara as a more agile, responsive, and resilient institution that allows us to address changes in demographics, government mandates, and community demands. At the same time, Langara will allow for a renewed commitment to common goals around sustainability, Indigenization, community engagement, and student experience.

Overview

We understand that the world's resources are finite and need to be used conservatively and wisely. We know that our choices, both big and small, impact our world and future generations. As an educational institution, we have a responsibility to lead initiatives that positively contribute to our community. Our goal is to foster and provide leadership to create more environmentally sound, socially just, and economically vibrant communities.

As a college, we have worked to reduce, monitor, and manage greenhouse gas (GHGs) emissions and increase sustainability since June 2001 when the College's Environmental Responsibility policy was first established. Since 2010, along with all B.C. public sector organizations (PSOs), as mandated under the Greenhouse Gas Reduction Targets Act, we have reported our annual GHG emissions and our investments in offsets to achieve net-zero emissions.

- In 2017, we renewed our sustainability policy to reaffirm our ongoing commitment to fostering an institutional culture characterized by leadership in environmental, social, and financial sustainability.
- Langara College proudly holds a STARS Silver rating going for Gold – the next rating level.
- In May 2023, Langara College signed the United Nations Sustainable Development Goals Accord, joining academic institutions around the world in a commitment to advance sustainability and to share achievements, goals, and learnings with one another, nationally and internationally. As part of this commitment, the College will report on how it advances the 17 SDGs annually.

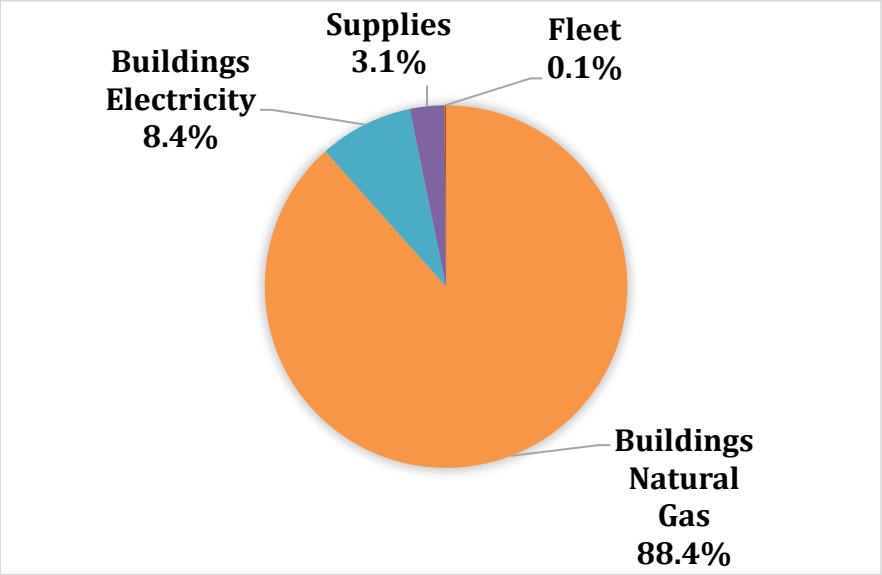
Declaration statement: This PSO Climate Change Accountability Report for the period January 1, 2024, to December 31, 2024, summarizes our greenhouse gas (GHG) emissions profile, the total offsets to reach net-zero emissions, the actions we have taken to minimize our GHG emissions, and our plans to continue reducing GHG emissions in 2025 and beyond

Emissions Summary

As required by the Greenhouse Gas Reduction Targets Act and Carbon Neutral Government Regulation, the results shown above are based **on absolute emissions** and have **not been corrected for the impact of weather conditions or increasing areas of campus.** The total emission offsets applied to become carbon neutral in **2024 was 1,182 tCO2e**.

The emissions breakdown for the campus is included in the figure below.

Figure 1: 2024 Estimated Emissions Breakdown



The College's GHG emissions for the mandatory reporting categories are summarized in the table below. Comparisons of the 2024 calendar year to previous year's and 2007 (the Ministry base-year for GHG target reduction) are also included in the table.

Table 1: 2024 Emissions Summary and Baseline Comparison

	2024 GHG Emissions (tCO_2e)	**2024 Results Compared to 202**	**2024 Results Compared to 202**	**2024 Results Compared to 2007 Baseline**
Buildings – Natural Gas	1,045	20% decrease	3% decrease	43% decrease
Buildings – Electricity	99	12% decrease	13% increase	42% decrease
Supplies	36	Increase *	Increase*	78% decrease*
Fleet – College Vehicles	1.6	No change	No change	
Total	**1,182**	**20 % decrease**	**1 % decrease**	**41% decrease**

*Compare paper/ supplies usage to peak of 164tCO_2e in 2016.

It is noteworthy that almost 97% of Langara's emissions are from building energy use. The College has cut overall campus emissions by 41% since 2007, even as campus size grew by 23%; **this is equivalent to a reduction in building emissions per unit area of 56%. ***

***Note:** January 2024 was an abnormal winter with a severe cold snap leading to equipment damage and an increase in thermal energy usage. When savings are adjusted to account for these issues, **we reduced our emissions per unit area by 60%.**

Langara has reduced its emissions per unit area by 60% compared to 2007

Other benefits of energy saving initiatives, beyond energy, emissions, and cost savings, include upgrades to aging infrastructure, and occupant comfort from improved controls.

Multi-Year Trend

From 2021 to 2024, emissions decreased 20% overall.

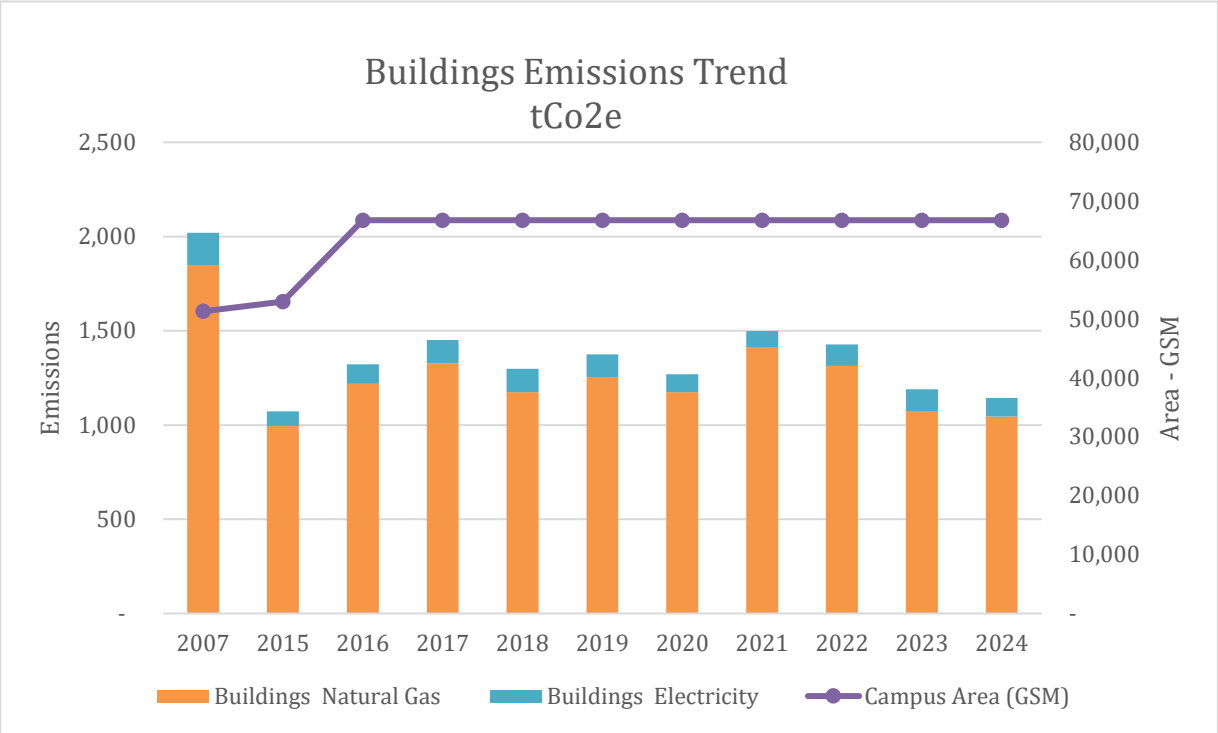
Table 2 includes a multi-year trend of Langara's emissions data, including the 2007 government reporting baseline, and from 2015, just prior to T Building completion.

Table 2: *Multi-Trend Emissions Summary*

	2007	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Natural Gas	**1,848**	994	1,219	1,327	1,174	1,254	1,175	1,414	1,314	1075	**1,045**
Electricity	**172**	79	103	124	124	120.0	94.0	83.9	113	114	**99**
Supplies		114	**164**	134	124.5	115.0	33.8	27.2	48	9.4	**36**
Fleet		1.5	1.7	1.7	1.7	1.7	1.8	1.8	1.6	1.6	**1.6**
Total	**2,020**	1,189	1,487	1,587	1,425	1,491	1,305	1,527	1,477	1,199	**1,182**

Figure 2 and Figure 3 that follow show the trends graphically.

Figure 2: Building Emissions Trend (tCO2e) – Electricity and Natural Gas Emissions Combined



The graph shows emissions from buildings (natural gas and electricity combined) have increased from 2015 to 2017; this is expected as our new Science and Technology Building opened in September 2016, increasing the campus area by 23%. 2017 was the first full year of occupancy for this new building.

In 2019, our emissions were trending down as a result of ongoing commissioning and optimizing building operations post-occupancy. COVID-19 resulted in additional decreases in emissions as many buildings were adjusted to save energy with minimal occupancy. When we returned to campus, ventilation rates were increased in response to COVID-19, resulting in increased gas usage and emissions. In 2022, gas usage was trending down again from adjustments to mechanical systems and ongoing retrofits. As noted previously, this is mainly due to the extension of our central heating plant across campus and adjustments post COVID-19. We anticipate further savings in 2025 as we continue to implement energy efficiency measures and additional focus on commission and optimization of new systems in the scope of our Road to Net Zero project.

Figure 3 shows a general trend of reduced paper supplies post COVID-19. The ups and downs appear to be a purchasing timing issue rather than usage trends. **Comparing 2024 paper usage to 2016 usage, we have decreased consumption by 78%.**

Figure 3: Supplies – Office Paper Emissions Trend (tCO2e)

Climate Risk Mitigation

2024 Initiatives

Langara remains committed to mitigating climate change through environmental sustainability initiatives, climate justice workshops and training, and reaffirming our commitment to the United Nations Sustainable Development Goals. We continue to incorporate energy efficiency in our designs and ongoing upgrades. Our Sciences and Technology building received LEED Gold certification, making this the fourth LEED Gold building on campus.

The College is working hard to reduce energy usage on campus even as we grow. Since 2007, the campus area has increased by 23%, while our emissions per square foot on campus have **decreased by 60% during the same period.**

Emissions Reduction Initiatives

Central Heating Plant Project
Construction for our central heating plant expansion, to serve all buildings on campus, began in October 2022 and was completed in May 2023. We expect the central heating plant upgrades will continue to contribute ~25% savings compared to 2019 baseline. By centralizing and modernizing our central heating plant, we not only significantly reduce our GHGs immediately; we also create the opportunity to take advantage of additional renewable energy and clean energy technologies in the future, further reducing emissions.

Road To Net Zero – Electrification Roadmap
Canada has committed to achieving net-zero emissions by 2050; at Langara, we are well underway to meeting this target much sooner, with a goal to reach this milestone in 2030. 'Net zero' describes a state where

greenhouse gas emissions produced are in balance with the greenhouse gas emissions taken out of the atmosphere.

Working with Prism Engineering, Clean BC, and BC Hydro, we carried out an electrification roadmap study for the campus to support our next steps for campus GHG emissions reduction. **The proposed electrification roadmap achieves over 75-95% campus gas reduction by 2027, and full electrification by 2030.**

The College is now in year two of our three-year Road to Net Zero project, with support from the provincial government. Over the next two years we will have electrified the domestic hot water from the central heating loop, supporting further temperature decrease across campus. The project will upgrade end-of-life heating systems with low temperature alternatives, getting us closer to our net-zero emissions goal.

Hybrid Work

With work-from-home guidelines now built into daily operations our Finance and Facilities departments launched a new collaborative work pilot utilizing new office booking software from Microsoft Places that has **reduced the footprint of both departments by 40%.** It also allowed us to repurpose the space in the M1 trailer to meeting rooms and bookable office spaces.

Electric Vehicle Charging Stations

The installation of an additional 10 electric vehicle charging stations in the library parkade brings the total of charging stations to 46. This infrastructure allows us to collect approximately $100k per year in carbon credits via the BC Low Carbon Fuel Standard. We are also working with SFU and other B.C. post-secondary institutions on an EV Charging Alliance to create opportunities to further expand EV charging infrastructure across the province and create additional revenue opportunities for Langara.

Emergency Dashboard

We have been working with our controls and mechanical consultants to develop a visual dashboard for security to identify issues earlier than could otherwise be achieved with regular checks. This is especially urgent due to increasing extreme weather events and wildfire smoke. **Detecting leaks and having the ability to adjust outdoor air rates is a critical operational issue resulting from climate change.**

Other Sustainability Initiatives

Sustainability Rating

We follow the Sustainability Tracking, Assessment and Rating System from the Association for the Advancement of Sustainability in Higher Education (AASHE STARS) and the UN SDGs in our sustainability efforts on campus. Working with our consultant, we have developed a Road to Gold action plan for Langara to achieve a gold rating. We are currently Silver rated, exceeding our strategic plan goal to hit Bronze by 2025.

Waste Reduction

Responsible resource usage is a foundational principle for sustainability on campus. Over the past year, we have continued to find ways to reduce waste, including single-use items. Initiatives include:

- New reusable containers in our cafeteria by Friendlier help reduce single-use plastics on campus.
- Installation of additional water refill stations around the campus to help eliminate the need for single-use water bottles. We now have one installed on nearly every floor of every building on campus.
- Reduced waste heading to the landfill by creating new streams for wood recycling, metal recycling, Styrofoam, organics, electronics, batteries, and cardboard bins. We also created a 10-stream recycling centre in our cafeteria for everyone on campus to access.

Local Food Sourcing

Langara College is a proud partner of Feed BC, joining fellow public post-secondary institutions throughout B.C. to ensure local, sustainable food is available now and for future generations. Feed BC is a Ministry of Agriculture and Food initiative to increase local B.C. food usage within the public sector (health authorities, post-secondary, K–12). Specific goals include minimum 30% local food buy, increased access for producers, and increased use of Indigenous and traditional foods. Langara has been a partner since 2021 and consistently meets our 30% targets.

- With Chartwells, our food services provider, Langara sources 30% of its food from B.C. by buying locally sourced foods and supporting local food providers. **In 2024, we achieved 31.3% local food on campus**. Students and employees have access to safe, healthy, and diverse food options that not only reflect the global representation on campus, but also the dietary preferences of the population.
- In November 2024, "Pitch and Plate" was held at Langara. Pitch and Plate is hosted by Feed BC and is a tasting/pitching event for local food companies to get into the traditionally hard-to-enter institutional food service market, with audience made up of PSI, health authorities, food service operators, and ministry representatives. Companies are curated and coached by a food service consulting firm (Good to Grow) and generally include a strong proportion of underrepresented groups. Over 80 brands have participated to date, and this is the eighth event in the series, with previous in-person events held at BCIT, SFU, and Camosun College.
- Langara is also home to many green spaces, including a U-pick fruit garden, an accessible garden, a community garden, and five pollinator gardens that are used for pollinator research. Visitors are welcome to immerse themselves in the environment and encouraged to pick and eat fruits and herbs. Garden plots are open to and cared for by students, employees, and neighbours. One plot is dedicated for use by the Langara Child Development Centre as a way for children to learn about where food comes from at an early age.

Policy and Procedures

Sustainable procedures were updated and communicated to departments.

- We worked with our Purchasing department to implement new sustainable procurement procedures to ensure we reduce our environmental footprint with everything we buy as a campus.
- For pest control, we use a company called Humane Solutions founded by Langara graduates. They don't use pesticides on campus.
- Landscaping procedures were updated to require:
    - all-electric equipment from our vendors.
    - the replacement of all plants with local, native, and drought tolerant plants.
    - watering only to establish plants. We also adopted Indigenous and drought-tolerant planting methods with efficient watering.

Campus as a Living Lab

- Langara's Applied Research Centre supplies the Facilities department with biochar, which is used to amend the soil in new plantings. Biochar is a form of stable carbon and is considered a type of carbon capture, as it is obtained from waste wood that would otherwise decompose into carbon dioxide. Biochar also retains nutrients and water, improving the survival of plants and decreasing the need for water.

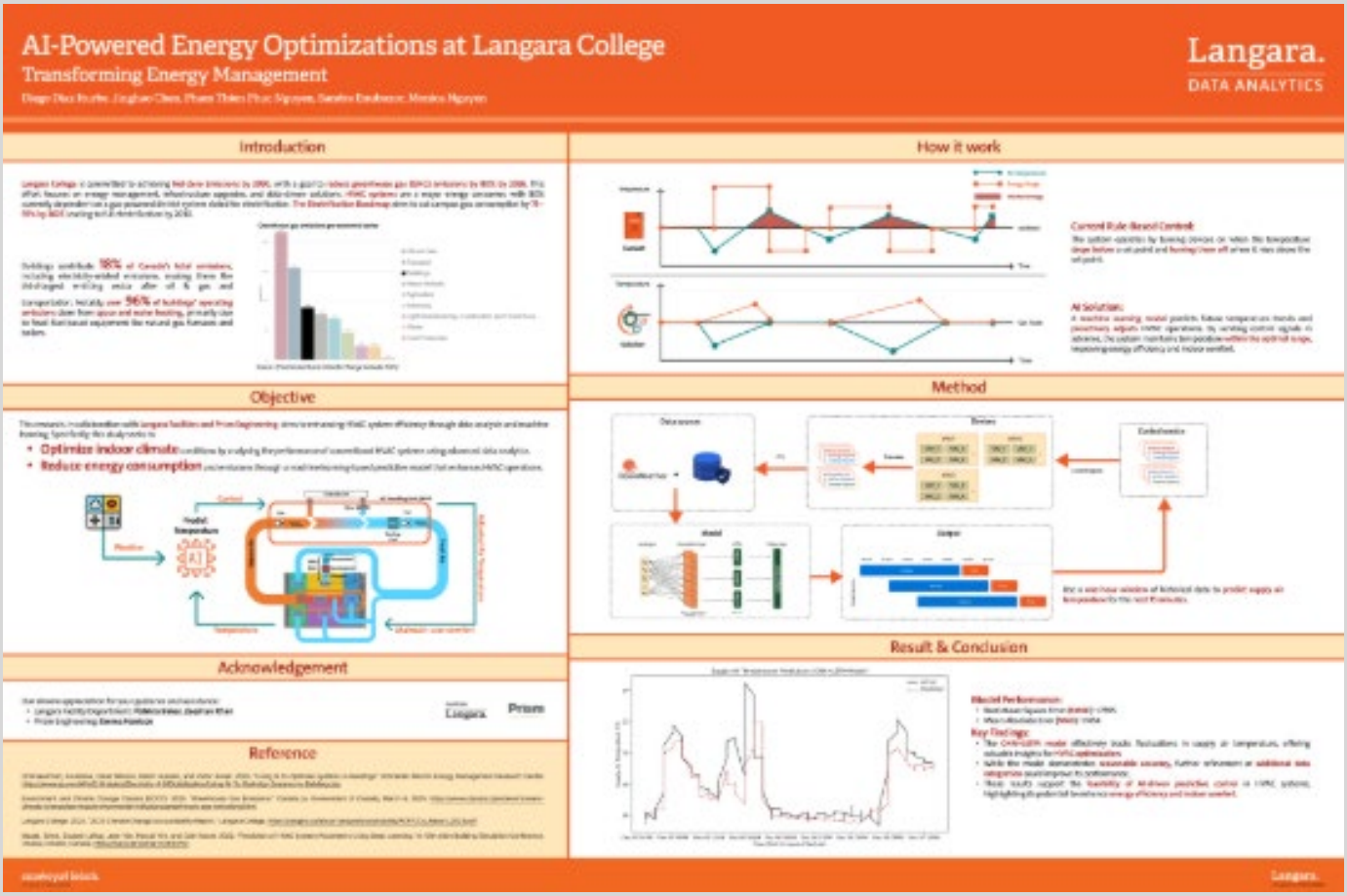
- Facilities partnered with the Biology department to build pollinator gardens around campus to promote biodiversity and create learning opportunities on campus. We continue to look for additional opportunities to work with our academic partners to use our campus as a living lab.

Campus as a Living Lab: Data Analytics Case Study

Our Facilities team and design consultant Prism Engineering partnered with our Data Analytics department on a Campus as a Living Lab project, bringing a fresh approach to applied learning opportunities for students. The students used data analytics to review large amounts of trend data to look for anomalies. This hands-on project helped students build advanced technical skills, improve communication across cultures, and develop solutions that address real energy challenges.

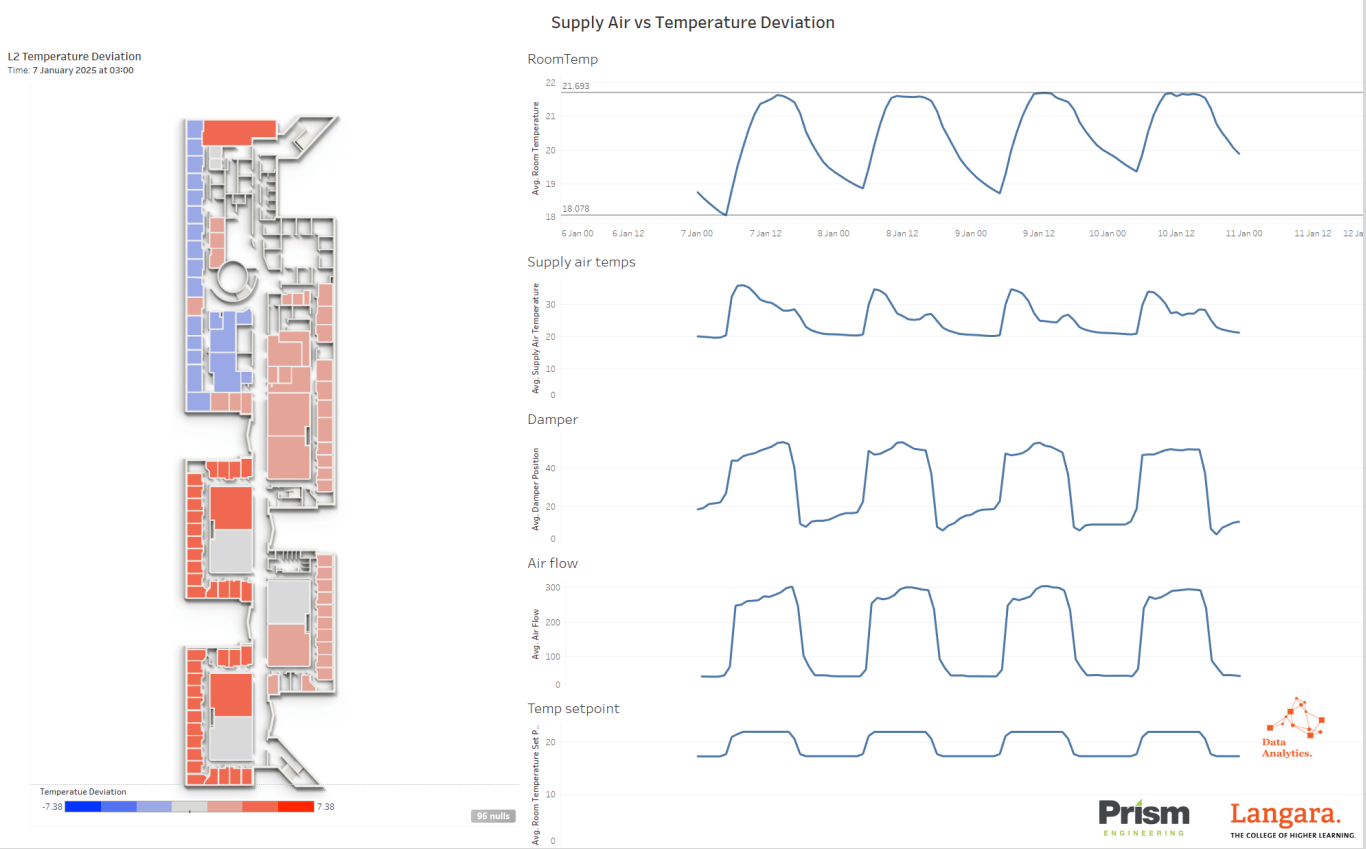
Using AI and Analytics for Real Change

The student team conducted an in-depth analysis of building energy data and designed a solution to help inform upgrades to the B building to improve efficiency, which is part of a wider net-zero greenhouse gas roadmap. Their work involved identifying HVAC (heating, ventilation, and air conditioning) inefficiencies and visualizing energy consumption patterns.



As Diego Ernesto Diaz Iturbe explains, "Our current HVAC management approach is based on reacting rather than predicting. By using data from the previous hour, we can now forecast the next 15 minutes and optimize settings in real-time, resulting in potential energy savings of 20 to 37%."

Sandra Enubuzor adds, "This project has shown us how powerful data can be in making real changes. It's exciting to see our work translate into potential energy savings for the College." Read the full story here.



Community Engagement

In 2024 our sustainability communication focused on three key areas:

- **Advancing our external reputation as a sustainability leader**
- **Increasing awareness of how our actions contribute to larger provincial, national, and global goals**
- **Strengthening our internal culture around sustainability.**

Activities included:

- In May 2023 our president signed the United Nations SDG Accord on behalf of Langara College. The SDG Accord inspires, celebrates, and advances education's critical role in delivering the United Nation's 17 goals. By signing the Accord, Langara College shows its firm and unwavering commitment towards sustainability

"We advance sustainability when we value it," said Dr. Paula Burns, President and CEO. "By signing the SDG Accord, Langara answers the call from United Nations to empower economic, social, environmental advancements in sustainability through higher education."

Next year, we will continue reducing emissions on campus through operational initiatives and capital upgrades.

Beyond direct emissions reductions projects, Langara has a strong commitment to sustainability that is more than operational, it is educational and transformational. By embedding sustainability into the core of our academic and campus life, we empower students and employees to become informed, responsible leaders. We will focus on culture and community connection, fostering an intentional approach to supporting all three pillars of sustainability, including environmental, social, and economic; these pillars guide sustainable development and influence our work on the UN SDGs.

Retirement of Offsets

2024 GHG Emissions and Offsets Summary Table

Langara College 2024 GHG Emissions and Offsets Summary	
GHG Emissions created in Calendar Year 2024	
Total Emissions (tCO2e)	1,182
Total BioCO2	
Total Offsets (tCO2e)	1,182
Adjustments to Offset Required GHG Emissions Reported in Prior Years	
Total Offsets Adjustment (tCO2e)	
Grand Total Offsets for the 2024 Reporting Year	
Grand Total Offsets (tCO2e) to be Retired for 2024 Reporting Year	1,182
Offset Investment ($25 per tCO2e) *[Grand Total Offsets to be Retired x $25/tCO2e]*	1,182 x $25 = $29,550 + GST @ 5% = $31,027.50

In accordance with the requirements of the Climate Change Accountability Act and Carbon Neutral Government Regulation, Langara College (the Organization) is responsible for arranging for the retirement of the offset's obligation reported above for the 2023 calendar year, together with any adjustments reported for past calendar years (if applicable). The Organization hereby agrees that, in exchange for the Ministry of Environment and Climate Change Strategy (the Ministry) ensuring that these offsets are retired on the Organization's behalf, the Organization will pay within 30 days, the associated invoice to be issued by the Ministry in an amount equal to $25 per tonne of offsets retired on its behalf plus GST.

Executive Sign-off

Paula Burns

Paula Burns
President and CEO

May 30, 2025
Date