



2020 Carbon Neutral Action Report

LANGARA COLLEGE

May 2021

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THE COLLEGE OF HIGHER LEARNING.

Langara.

THE COLLEGE OF HIGHER LEARNING.

Introduction

At Langara College, we are deeply committed to being part of a sustainable society. 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.

Our mission is to provide diverse learners with the academic and experiential foundation for further education, career success, and professional and personal development. This is guided by Langara's most recent Strategic Plan 2025 – Weaving a Shared Future. While all outcomes in the plan are important, the thematic priority to support our mission for academic excellence is a focus on college sustainability. Our strategic sustainability priorities include ensuring financial stability, contributing to climate action by increasing sustainability on campus, and integrating and streamlining key business processes.

As part of the College's commitment to reducing GHG emissions, an Environmental Responsibility Policy was established in June 2001. The purpose of the board governance policy is to provide direction to the College regarding the creation of learning and working environments characterized by social responsibility. The Board is committed to:

- protecting and enhancing the environment for future generations, and
- using and managing its own physical environment more sustainably.

In 2017, Langara College also renewed its Sustainability policy to affirm its ongoing commitment to and responsibility for fostering an institutional culture characterized by leadership in environmental, social and financial sustainability. The College also established a sustainability committee to advise senior leadership and pursue opportunities for all members of the College community to make choices that promote sustainability in the teaching, learning, researching and working environments in alignment with strategic directions.

Langara College has been working at reducing greenhouse gases (GHG) and increasing sustainability for many years and has been actively monitoring and managing energy and GHGs of its facilities for 20 years. Since 2010, along with all BC public sector organizations (PSOs), as mandated under the Greenhouse Gas Reduction Targets Act, Langara has been reporting their annual GHG emissions and investing in offsets to achieve net-zero emissions.

The College is proud of its commitment and successes related to our GHG reduction effort. We will continue to increase environmental, financial, and social sustainability at Langara, in our city, and in our world.

DECLARATION STATEMENT

This Carbon Neutral Action Report for the period January 1, 2020 to December 31, 2020, summarizes our emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2020 to reduce our greenhouse gas emissions and our plans to continue reducing emissions in 2021 and beyond.

By June 30, 2021 Langara's latest Carbon Neutral Action Report will be posted to our website at langara.ca/about-langara/sustainability/initiatives/carbon-neutral

Overview

Langara has been able to reduce our energy usage and emissions on campus while we grow. Since 2001, when Langara established its first Environmental Responsibility Policy, the campus area has increased by 48%. In 2017, Langara College renewed its Sustainability policy to affirm its ongoing commitment to and responsibility for fostering an institutional culture characterized by leadership in environmental, social and financial sustainability. The College also established a sustainability committee to advise senior leadership and pursue opportunities for all members of the College community to make choices that promote sustainability in the teaching, learning, researching and working environments in alignment with strategic directions.

In 2019, our new Sciences and Technology building received LEED Gold certification, making it the fourth LEED Gold building on campus. The construction of this building also included phase one of a renewed central heating plant on campus. Langara is also upgrading many end-of-life systems to more efficient alternatives including upgrading lighting to LED throughout campus.

The Ministry has established 2007 as the base period year for GHG reductions. As we grow, incorporating area in our reporting is important to understand progress.

2019: Comparing our campus level buildings energy usage and emission for 2019 compared to 2007;

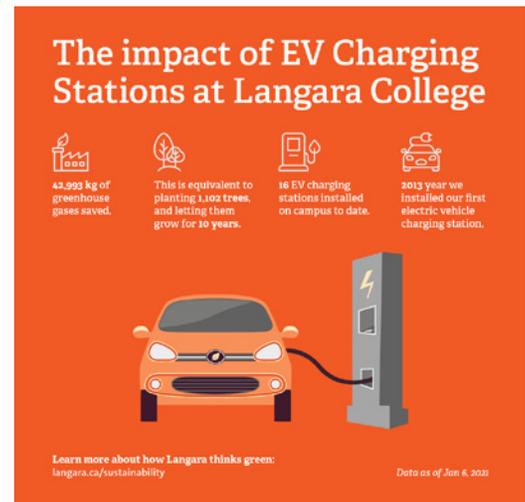
- our energy usage per GSM of campus area has decreased by 23% and
- our GHG emissions in tCo₂e per GSM of campus area has decreased by 48%.

2020 (Covid 19 impacts): Comparing our campus level buildings energy usage and emission for 2020 compared to 2007;

- our energy usage per GSM of campus area has decreased by 35% and
- our GHG emissions in tCo₂e per GSM of campus area has decreased by 52%.

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

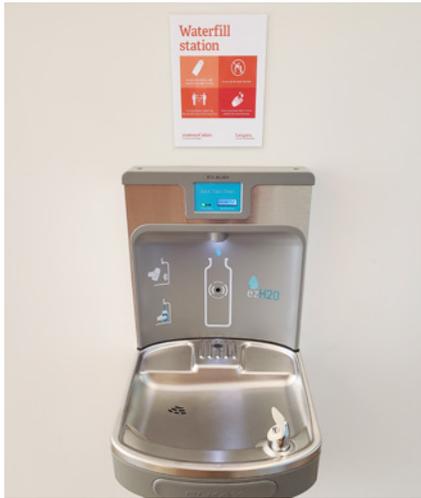
We are currently in the process of developing our next Strategic Energy Management Plan to align with the new 2025 Strategic Plan – Weaving a shared future.



2020 INITIATIVES

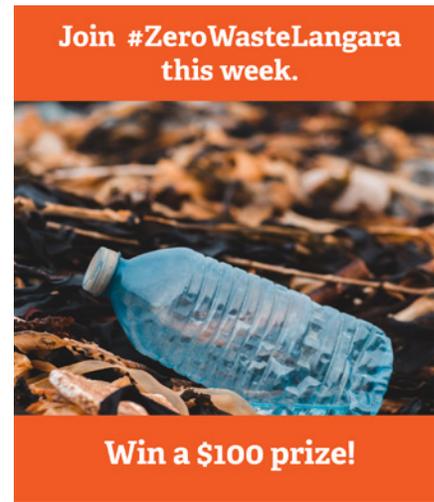
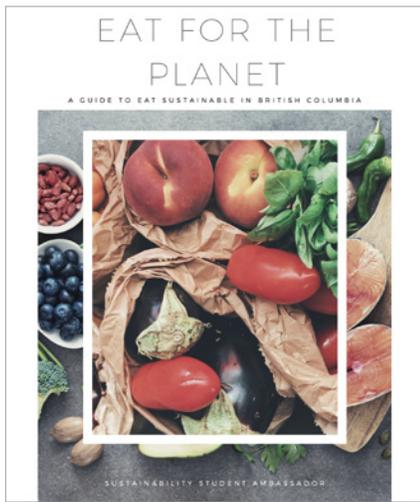
Langara College participated in and implemented multiple sustainability projects and initiatives in 2020:

- New recycling station: Located in the centrally located student cafeteria, we installed a new recycling station which features 10 different recycling streams including organics, mixed recyclables, e-waste, batteries, soft plastics, and refundable (funds from which go towards student bursaries for social sustainability).
- Additional water fill stations: Installed on campus to eliminate the need for single-use water bottles on campus, with a goal to have one on every floor of every building. We now have 18 water-fill stations across campus, and have collectively saved over 2.2 million plastic bottles to date. To bolster this effort, we also started offering and promoting stainless steel refillable containers in vending machines, cafeteria and bookstore on campus.
- Green cleaning certified products continue to be used throughout campus.
- Hand sanitizer stations: Updated models to refillable options.
- Electric vehicle (EV) charging stations: Continue to add and install additional stations on campus. To date we have 16 EV stations, with 12 more scheduled for installation.
- Outdoor recycling stations: Installed 15 new exterior recycling stations on campus grounds.
- Strobic exhaust fan upgrades: Upgraded current fans to variable speed for improved energy usage and extend equipment life.
- New central heating plant: We have completed Phase I & II of this project. The new central heating plant is connected to our new Science and Technology Building and Library buildings, however, it was designed to serve the rest of campus including heating and domestic hot water. We are currently in phase 3 of the project, and when the new central heating plant is extended to the rest of campus (existing buildings), we expect to achieve a further 15-20% reduction in the campus level energy gas emissions.
- Walk-in coolers: Our large walk-in coolers for our food services operation were redesigned. The old units used “once through” domestic cold water technology which no longer meets current building codes and standards. In addition to being energy efficient, they will save many liters of water each year.
- Langara’s Sustainability Committee continues to meet and discuss campus needs. Its current priority is to pursue bronze level certification for the AASHE STARS (Sustainability Tracking Assessment Rating System).



2020 INITIATIVES (CONTINUED)

- Sustainability a key priority in new Strategic Plan: Community members were engaged in the development of Langara's new [Strategic Plan 2025 – Weaving the Future](#), resulting in the incorporation of sustainability as one of the strategic priorities for the College for the next five years.
- Sustaining community partnerships: Continued partnership with KPMG Foundation, who provided funding for a Langara College student to work on campus sustainability projects.
- Regular communication continues in sustainability news to over 1,600 employees in our employee newsletter *The Langara Post*, sent out weekly.
- Launch of our Sustainability Student Ambassador (SSA) Program: the SSA program provides leadership experience for Langara students interested in engaging the community in sustainable practices. Led by a co-op student, student volunteers work together in small teams to develop and execute sustainability-related events and activities.
- Humane solutions contracted for pest control.
- Improving sustainable paper options: Paper used on campus is 89% FSC (Forest Steward Council) and 23% recycled paper.



STUDENT-LED INITIATIVES

Langara College participated in and implemented multiple sustainability projects and initiatives in 2020:

- Students from Langara's Project Management Club created the "Sustainable" podcast, featuring stories about sustainability from student perspectives.
- Students from our ENVS 2100 course won First Place in the semi-annual CityStudio HUBBUB 15 project showcase with their Community Kelp project that "weaves education with aquaculture to enhance public awareness about ocean acidification and the mitigation properties of kelp" (HUBBUB 15 judge's comments).
- Our Student Sustainability Ambassadors (SSAs) launched a Plastic-free July Instagram campaign to promote awareness on reducing single-use plastics.
- Sustainability Ambassador Events: Climate Talk (Nov 23 & 27), Sustainability as a Career (Nov 25) and Langara's Runway: Upcycle Your Way to the Top (Dec 1)
- [Eat for the Planet e-book](#)

We continue to look for opportunities to make our campus more sustainable for future generations.



2021 INITIATIVES

Langara College is planning and has completed the following sustainability projects and initiatives in 2021:

- Sustainability Survey: Complete. The College conducted its first ever Sustainability Culture Assessment Survey from January 25–February 8, 2021, where we asked students and employees questions related to their perceptions and behavior towards the environment.
- Additional solar panels added: Langara added 45 solar panels for a total of 83 (complete ahead of schedule).
- EV charging stations: Plan to install 12 more EV stations.
- Still Creek restoration project: Langara College Environmental Studies students are participating in the restoration of East Vancouver's Still Creek.
- Pollinator gardens: Created two new pollinator gardens to attract and feed bees, hummingbirds, and butterflies that will encourage pollination and biodiversity. These gardens are funded in part through the World Wildlife Fund Go Wild Grant.
- AASHE STARS bronze rating: The Association for the Advancement of Sustainability in Higher Education (AASHE) offers campuses a voluntary, self-assessment tool/system by which higher education institutions can benchmark where they are today and set goals for the future around sustainability. This tool is called the Sustainability Tracking, Assessment & Rating System™ (STARS). This tool looks at all facets of our institutions—curriculum and research, campus operations, planning and institutional capacity—with the goal of aiding strategic planning, fostering cross-sector dialogue about sustainability on campus, and stimulating conversations and learning between institutions. Langara is now actively using this tool to benchmark where we are today with a goal of pursuing a bronze rating with the help of a consultant.
- New green roof: When replacing the roof over the Langara Global offices, we incorporated new green roof technologies.
- Two new sustainability videos: These are being created with key messages to get involved with sustainability. These videos will be shown at employee and student orientations.
- New central heating plant: Phase 3 construction of our heating plant will start in 2021 through 2022. We expect to achieve a further 15-20% reduction in the campus level energy gas usage.
- New A Building: With the approval of the new Campus Master Plan, design and construction of our next building on campus is now a priority and will replace our existing A Building, which currently accounts for the majority of campus GHG emissions. The new building will be built to minimum LEED gold standards, which we project will lead to significant campus level emissions reductions.

Emissions Summary

The total emission offsets applied to become carbon neutral in 2020 was 1,305 tCO_{2e}. As indicated in the chart below, 97% (90% + 7%) of Langara's tracked emissions are from building energy use.

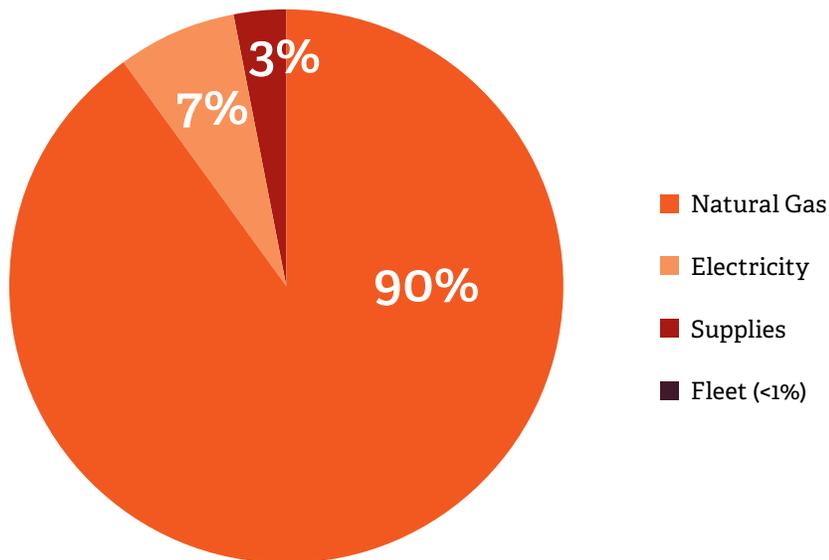


Figure 1: 2020 Estimated Emissions Breakdown

The table below is a summary of the Langara's emissions data for the 2007 government reporting baseline and 2015–2020 in tCO_{2e}.

	2007	2015	2016	2017	2018	2019	2020
Buildings Natural Gas	1,848	994	1,219	1,327	1,174	1,254	1,175
Buildings Electricity	172	79	103	124	124	120.0	94.0
Supplies		114	164	134	124.5	115.0	33.8
Fleet		1.5	1.7	1.7	1.7	1.7	1.8
Total	2,020	1,189	1,487	1,587	1,425	1,491	1,305

Table 8: Emissions Summary

Langara College’s GHG emissions for the mandatory reporting categories are summarized in the table below. Comparisons to 2019 calendar year and 2007 (the Ministry base-year for GHG target reduction) are included. The Buildings and Paper emissions are also charted following the table to show how they are trending.

	2020 GHG Emissions (tCO2e)	2020 Results Compared to 2019	2020 Results Compared to 2007 Baseline
Buildings – Natural Gas	1,175	6% Decrease	36% Decrease
Buildings – Electricity	94	22% Decrease	45% Decrease
Supplies	33.8	71% Decrease	Not Available
Fleet	1.8		
Total	1,305	12% Decrease	35% Decrease

Table 1: Emissions Breakdown for 2020 Compared to Previous Year and Baseline (2007)

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.

The chart below (Figure 2) shows the trend in GHG emissions for our Buildings in 2020 compared to the base period year of 2007 and the previous five reporting years.

As you can see in the bar graph and summarized in the previous Table 1, the emissions from buildings (natural gas and electricity combined) have increased from 2015 to 2017. This is expected as our new Science & Technology Building opened in September 2016, increasing the campus area by 20%; 2017 is the first full year of occupied operation for this new building.

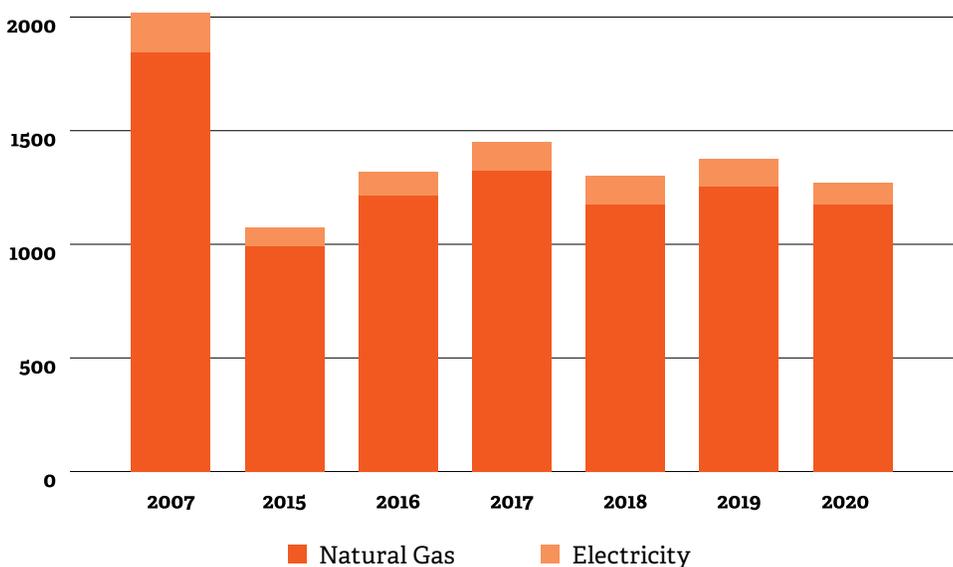


Figure 2: Building Emissions Trend (tCO2e) – Electricity & Natural Gas Emissions Combined

Figure 3 below shows the trend in emissions for paper purchases on campus. The bar graph shows a steady decline in paper usage on campus, in particular during 2020 (Covid 19 impact of remote work). Langara is happy to note that we have completed the installation of our new fleet of multi-function devices and printers across campus. With the addition of these new units we now have an accurate tool to track the consumption of paper and related resources. This information gathered will help us make better decisions and develop targeted reduction campaigns in an effort to reduce emissions and utilize our resources efficiently.

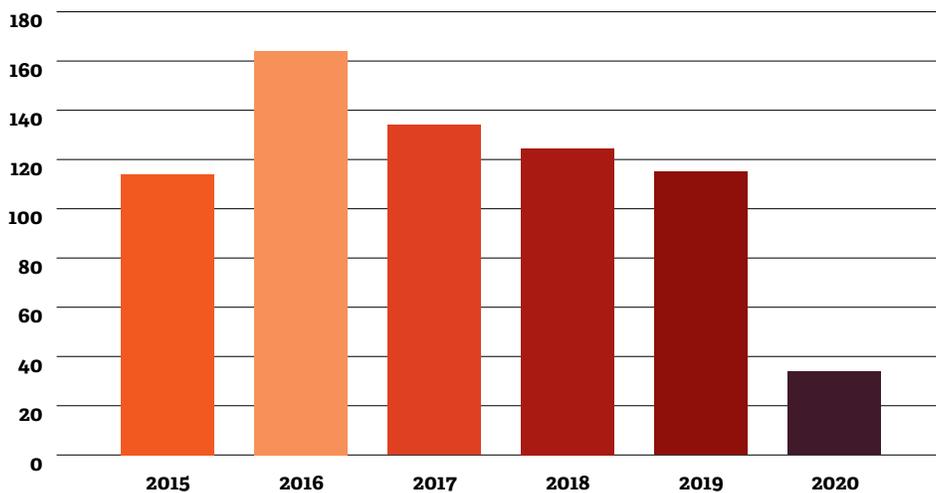


Figure 3: Paper Supplies Emissions Trend (tCO₂e)

Emissions and Offset Summary Table

Langara College GHG Emissions and Offsets for 2020 (tCO ₂ e)	
GHG's created in Calendar Year 2020	
Total Emissions (tCO ₂ e)	1,305 tCO ₂ e
Total Offsets (tCO ₂ e)	1,305 tCO ₂ e
Adjustments to GHG's Reported in Prior Years	
Total Emissions (tCO ₂ e)	66 tCO ₂ e
Total Offsets (tCO ₂ e)	66 tCO ₂ e
Total Emissions for Offset for the 2020 Reporting Year	
Total Offset Required Emissions for Calendar Year 2020	1,305 tCO ₂ e
Adjustments to Offset Required Emissions in Prior Years (2018 and 2019)	66 tCO ₂ e
Grand Total Offsets for 2020 Reporting Year	1,371 tCO ₂ e

RETIREMENT OF OFFSETS

In accordance with the requirements of the Greenhouse Gas Reduction Targets Act and Carbon Neutral Government Regulation, Langara College (the Organization) is responsible for arranging for the retirement of the offsets obligation reported above for the 2020 calendar year together with any adjustments reported for past calendar years. The Organization hereby agrees that, in exchange for the Ministry of Environment ensuring that these offsets are retired on the Organization's behalf, the Organization will pay 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

"Lane Trotter" May 31, 2021

Dr. Lane Trotter
President & CEO

Date

Emissions are calculated as per Ministry of Environment, *2014 B.C. Best Practices Methodology for Quantifying Greenhouse Gas Emissions* (Victoria, BC: November 2014).

Tonnes of Carbon Dioxide Equivalent as a standard measurement for GHGs by multiplying each gas' emissions by its global warming potential (GWP).