# CLIMATE ACTION PLAN UPDATE

## Humber Polytechnic Accelerates its Net-Zero Emissions Target from 2050 to 2029

October 21, 2024

The world is at a critical juncture, and the need for bold, immediate action on climate has never been greater. To secure a future that protects our planet and future generations, we must act decisively. At Humber Polytechnic, we are stepping up to this challenge with unwavering commitment.

In 2022, Humber released its first ever Climate Action Plan, charting the course to achieve net-zero emissions by 2050. We are thrilled to announce that we are accelerating this goal, moving up our target by over 20 years. In 2029, we will be among the first institutions in Canada to reach net-zero—proving that bold goals, paired with concrete actions, can drive transformative change.

Decarbonizing our campuses is key to achieving net-zero in 2029. With this announcement, we are committing to fast-tracking several of the projects outlined in our Climate Action Plan. The following projects will be fast-tracked to eliminate most of the fossil fuel-based heating sources on campus:

- **North Campus Central Plant Natural Gas to Electric Heating Conversion** (originally target completion 2035): Installation of a new geothermal system, which will build on the infrastructure that will be installed as part of its SWITCH project, namely the heat recovery chillers and electric boiler providing heat to a new low temperature hot water network.

- **Lakeshore East Natural Gas to Electric Conversion** (original target completion 2035): Electrification of heating systems supplying heritage buildings.
- **Centre for Trades & Technology - Natural Gas to Electric Conversion** (original target completion 2040): Replacing end-of-life natural gas-fired units with electric air-source heat pumps.
- **Lakeshore Residence R Building - Natural Gas to Electric Conversion** (original target completion 2030): Replacing gas-fired boiler systems with electric-based heating.

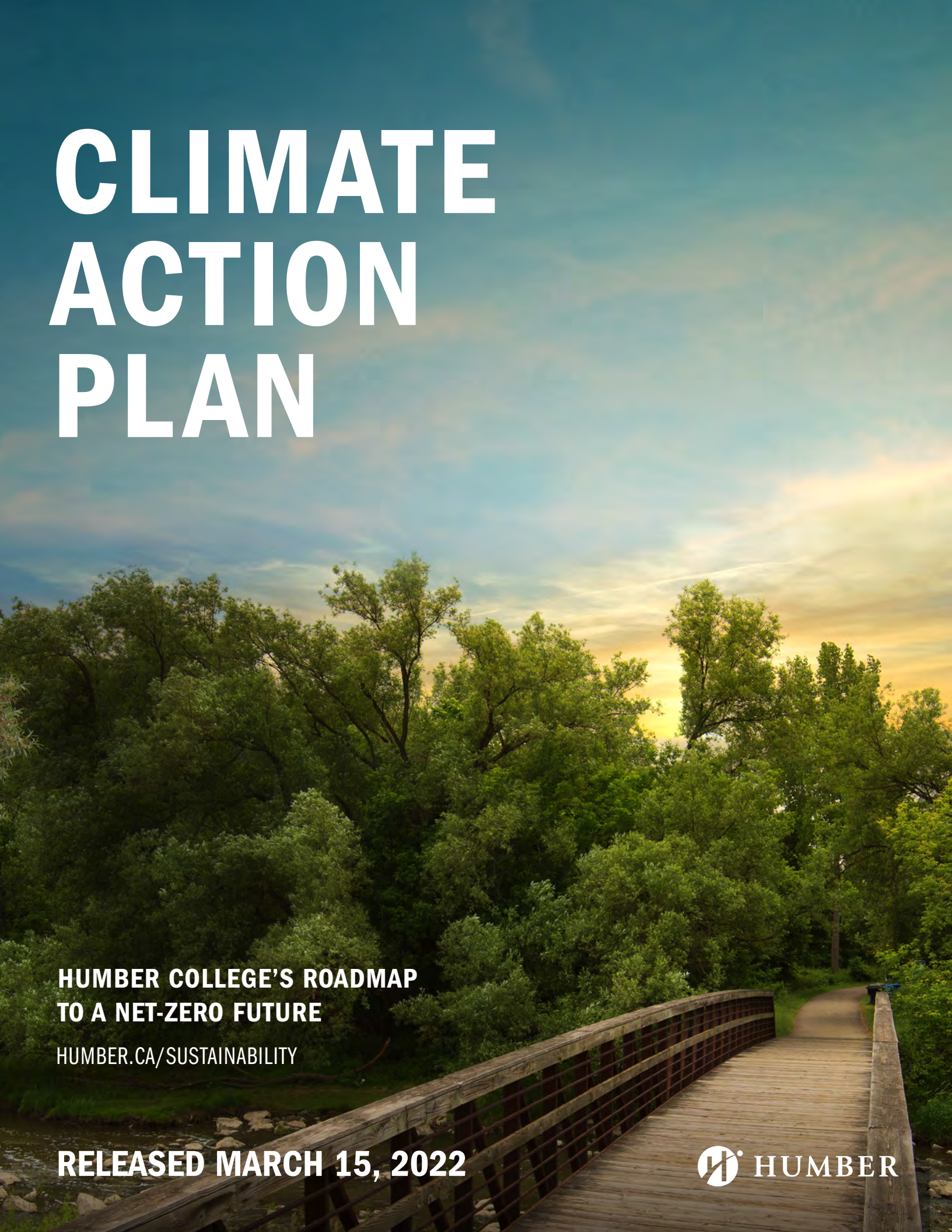
Humber's global leadership in sustainability reflects our belief that we must lead by example. This is just the beginning. We are not simply aiming for a target; we are reimagining what's possible. By embedding sustainability in everything we do—our operations, academic programming, and partnerships—we are setting a new benchmark for institutions worldwide. Our campus will serve as a blueprint for climate action, preparing our students and partners to shape a more sustainable world.

There are not many Canadian institutions taking on decarbonization at this pace and scale, and we hope our work will inspire change far beyond Humber's campuses. This new commitment builds on our progress. Alongside emissions reductions, we are achieving cost savings, proving that sustainability is not only right for the planet but also a smart, efficient choice for our organization's future.

Thank you for your ongoing support and commitment. The future is ours to build, and Humber Polytechnic is proud to lead the way.

**Lindsay Walker**
Director,
Sustainability

**Aman Hehar**
Associate Director,
Energy & Climate Change



# CLIMATE ACTION PLAN

**HUMBER COLLEGE'S ROADMAP TO A NET-ZERO FUTURE**

HUMBER.CA/SUSTAINABILITY

**RELEASED MARCH 15, 2022**

HUMBER

HUMBER COLLEGE'S CAMPUSES ARE SITUATED ON THE TRADITIONAL AND TREATY LANDS OF THE MISSISSAUGAS OF THE CREDIT. KNOWN AS ADOOBIIGOK, THE "PLACE OF THE ALDERS" IN MICHI SAAGIIG LANGUAGE, THE REGION IS UNIQUELY SITUATED ALONG HUMBER RIVER WATERSHED, WHICH HISTORICALLY PROVIDED AN INTEGRAL CONNECTION FOR ANISHINAABE, HAUDENOSAUNEE, AND WENDAT PEOPLES BETWEEN THE ONTARIO LAKESHORE AND THE LAKE SIMCOE/GEORGIAN BAY REGIONS. NOW HOME TO PEOPLE OF NUMEROUS NATIONS, ADOOBIIGOK CONTINUES TO PROVIDE A VITAL SOURCE OF INTERCONNECTION FOR ALL.

THIS TERRITORY IS ALSO SUBJECT TO THE DISH WITH ONE SPOON TREATY, A COVENANT AGREEMENT BETWEEN ANISHINAABEG, HAUDENOSAUNEE, AND ALLIED NATIONS TO PEACEABLY SHARE THE LAND AND ALL ITS RESOURCES, ENSURING THE CONTINUED ABUNDANCE AND VIABILITY OF THE "DISH" (I.E., THE LAND) INTO THE FUTURE. LAND IS A RELATIVE AND WE ARE COMMITTED TO PROTECTING IT FOR FUTURE GENERATIONS THROUGH OUR EVERYDAY ACTIONS.

# LETTERS FROM THE COMMUNITY

There is no single action, however bold, that will enable Humber College to demonstrate national leadership in developing sustainable campuses just as there is no single way to tackle the climate crisis. While Humber College's commitment to net-zero emissions by 2050 responds to the science outlined by the Intergovernmental Panel on Climate Change, we need all our students, staff, faculty, and community groups as partners in shaping a strong culture of sustainability.

**CHRIS WHITAKER**
PRESIDENT & CEO, HUMBER COLLEGE

Meeting the ambitious climate targets we've set as a country requires a skilled labour force, and that's where post-secondary institutions come in. The climate emergency touches all of our lives and is not going away. It's critical that all of our graduates learn how to 'be good ancestors' and build a better future.

**JENNIFER BALL**
PROFESSOR, FACULTY OF LIBERAL ARTS & SCIENCES AND INNOVATIVE LEARNING

We need all institutions and governments to take radical climate action urgently. Seeing the college taking these steps towards it is very encouraging as a Humber student who strongly advocates for sustainability. Post-secondary institutions play an important role in equipping future leaders with tools and skillset necessary to innovate, establish respectful relationships with one another and the planet, and do the work that must be done to achieve a more equitable and livable future.

**GABI HENTSCHKE**
IGNITE BOARD OF DIRECTORS, LAKESHORE

Committing to net-zero emissions by 2050 with limited use of offsets is a bold challenge, but one that Humber can reach as we have the necessary knowledge, innovation, and support from our campus community to get there. I look forward to the work ahead to transform our campus. Join us in shaping a community that is future focused.

**SPENCER WOOD**
DIRECTOR, FACILITIES MANAGEMENT

# BACKGROUND

Humber continues to build a 21st century institution that is financially sustainable and strategically invests in infrastructure that supports an innovative and sustainable campus. Humber's culture is expressed through a community that prioritizes health, well-being, sustainable approaches and equity, diversity, and inclusion (EDI). With the goal of becoming Canada's healthiest campus, Humber strives to make sustainability and well-being a part of everything we do.

Humber continues to push the boundaries of low and zero-carbon, sustainable and resilient infrastructure across our campuses. We are passionate about preserving our collective future by taking responsibility for the future impact of the decisions we make today and providing national leadership in sustainability. Developing this Climate Action Plan is one of the actions set out in our Sustainability Plan 2019-2024. See our leadership to date on page 5 to see how far we've come.

Sustainability is intersectional. We know that doing our part for the climate is a lot more than cutting carbon. Humber is focused on many connected strategic priorities (Humber's Strategic Plan) that several groups across the college lead. While the Climate Action Plan focuses on carbon, Humber is determined to meet many intersecting goals.

**INDIGENOUS EDUCATION PLAN (IEP)** is centred on mino nawendiwin, an all-inclusive practice of building good relationships that recognizes the interconnections between land (earth, waterways, sky) and other-than-human beings (animal, plant, spirit). The IEP is built upon the shared principles of respect, reciprocity, relationality and a shared commitment to incorporate Indigenous worldviews across the college.

**INTEGRATED ENERGY MASTER PLAN (IEMP)** outlines the college's strategy of achieving significant reductions in energy, water and greenhouse gas (GHG) emissions from its direct operations.


**HUMBER LEARNING OUTCOMES** are working to embed the mindsets of EDI, Sustainability and Systems-Thinking into all program curricula and prepare every Humber graduate to be Career Ready Citizens.

**EQUITY, DIVERSITY AND INCLUSION AND HEALTHY CAMPUS** Institutional frameworks and strategies for advancing equity, diversity and inclusion throughout Humber are being developed. We are committed to incorporating health into everyday operations, business practices and academic mandates.

**SUSTAINABILITY PLAN** fosters a culture of sustainability and challenges our communities to use systems thinking when making decisions for today and future generations.

**WE ALL HAVE A SHARED RESPONSIBILITY TO ENSURE OUR VALUES REFLECT OUR ACTIONS. IT IS THROUGH CULTURE CHANGE, LEADERSHIP AND COLLABORATION THAT WE WILL CREATE POSITIVE CHANGE FOR OUR COMMUNITIES AND ENVIRONMENT.**

# OUR LEADERSHIP TO DATE

## 1990
With a total of 1,356,000 square feet, $CO_2$ emissions of 7,000 tonnes

## 2007
Humber's Centre for Urban Ecology is one of the first buildings in Toronto to receive LEED® Gold certification

## 2013
Humber is rated STARS Silver by the Association for the Advancement of Sustainability in Higher Education (AASHE)

## 2014
Humber launches first Campus Sustainability Plan

## 2016
Humber ratifies its Integrated Energy Master Plan (IEMP)

## 2017
Humber begins development of Humber Learning Outcomes

## 2019
Humber rated STARS Gold by AASHE

Launches second Sustainability Plan

NX building is the first retrofit project in Canada to achieve Zero Carbon Design certification

## 2021
NX building achieves Passive House certification

Barrett Centre for Technology Innovation achieves net zero energy use and LEED® Platinum certification

# ROADMAP TO CARBON NEUTRALITY

**2022**
Construction begins transforming the North Campus steam heating system to a decarbonized low temperature loop

**2025**
Humber Lakeshore Cultural Hub becomes the College's largest net-zero carbon development (370,000 sqft)

**2026**
Humber launches its second iteration of the IEMP

**2034**
Humber meets original IEMP goals of increasing energy efficiency by 50%, water efficiency by 50%, and decreasing absolute carbon emissions by 30% relative to 2014

See page 11 for actions we plan to achieve between 2034 and 2050

# 2050

**HUMBER ACHIEVES NET-ZERO CARBON FOR SCOPE 1 AND 2 EMISSIONS.**

# THE CHALLENGE

Each year Humber grows in student enrolment and building square footage, which increases GHG emissions. To achieve Humber's targets, it is critical to ensure all future growth is net-zero carbon to reduce Humber's total GHG emissions. At the same time, progress is being made to mitigate emissions from existing infrastructure.

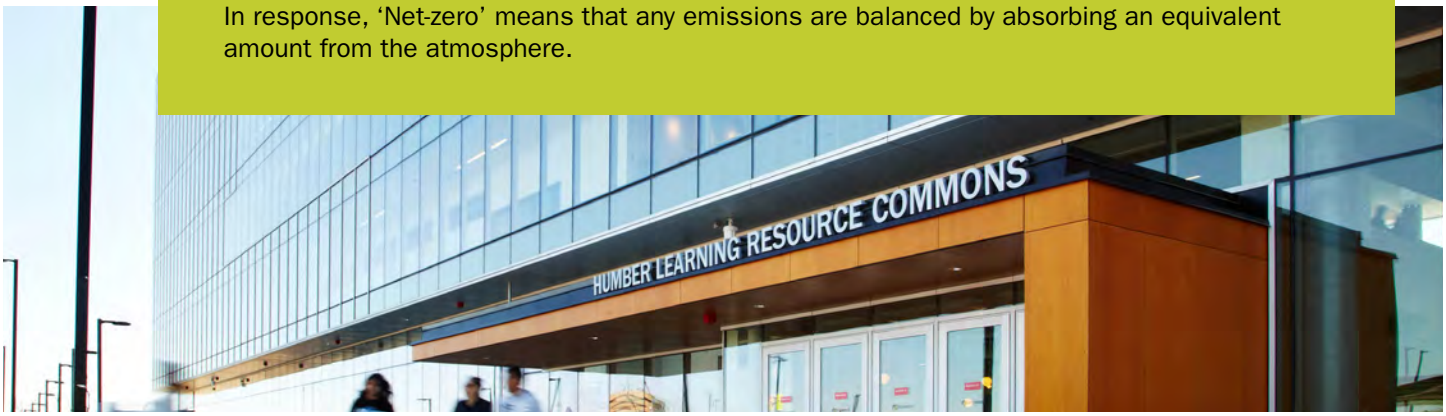
While the future is not a clear or straightforward path, the Humber community knows it must take concrete steps to address the climate crisis. Our strategy is to replace natural gas heating equipment with decarbonized options when the equipment reaches the end of its useful life and replacement is necessary. Within the next 30 years, this covers almost all equipment on campus. In some cases, technology is not yet commercially available or is still not financially viable. Nevertheless, Humber is considering future decarbonization plans rather than replacing equipment today, allowing human and financial resources to be employed strategically. By combining deferred maintenance spending, ensuring all new developments are net-zero carbon and exceed LEED, we can achieve this transition over the next 30 years with investments beyond the IEMP commitment and regular deferred maintenance.

Another challenge we face is that some carbon emissions are out of the College's direct control, such as emissions from transportation or food. Projects are scheduled to reduce transportation emissions where we have direct control (e.g., greening our fleet) whereas other measures are planned where we have limited control (e.g., robust local public transit). Likewise, the future of the provincial electrical grid, which is currently one of the cleanest in the world, is also out of our control.

Despite these challenges and the complexity of the intersectional climate crisis, Humber College will continue to reduce GHG emissions by 2034 through the actions outlined in the existing IEMP and in the Table on page 11 to become carbon neutral by 2050. We are focussed on reducing our emissions at the source rather than buying offsets. The table on page 11 outlines how we plan to do it.

**WHY IS NET-ZERO THE GOAL?**

The Intergovernmental Panel on Climate Change (IPCC) has consistently warned stabilizing the climate will require strong, rapid, and sustained reductions in greenhouse gas emissions. UN Secretary-General commented that the August 2021 report from the IPCC was nothing less than "a code red for humanity. The alarm bells are deafening, and the evidence is irrefutable". In response, 'Net-zero' means that any emissions are balanced by absorbing an equivalent amount from the atmosphere.




# CREATING CAREER-READY CITIZENS

Our campuses serve as a “living lab” for instructing students in sustainable construction and efficient operation practices, preparing them to build thriving communities and shape the future of sustainability as they participate in the workforce. Our commitment to zero-carbon creates immediate employment and work-integrated learning benefits, specifically in construction. Humber’s vision is for all learners who come to campus to develop a sustainability mindset through their programs.

Our work will continue to be shining examples of what is possible within our communities, demonstrating national leadership in low and zero-carbon infrastructure and sustainable campuses. These projects grow the economy, create jobs, tackle climate change, and promote social equity and inclusion.

## WHAT ARE THE LOCAL IMPACTS OF THE CLIMATE CRISIS?

Due to the human-created climate crisis, the weather in Toronto is getting hotter, wetter and wilder. Over the next 30 years, Toronto is expected to see a tripling of days per year over 30 degrees Celsius. Between 1976-2005 the average was 12 days per year, which will jump to 48 by 2050, resulting in increased heat-related health risks, such as increasing cardiovascular and respiratory illness (Toronto Public Health, 2015). These impacts disproportionally impact infants, the elderly, individuals experiencing homelessness, low-income individuals, and equity-seeking groups: Women, Indigenous Peoples, Persons with Disabilities, Racialized Persons, Persons from diverse Gender Identities, Persons who identify as LGBTQ+ (IPCC, 2016).

# WHAT DOES RESILIENCE MEAN TO HUMBER?

Humber College's working definition of resilience derives from the City of Toronto's definition of urban resilience. "Urban resilience is the capacity of individuals, communities, institutions, and systems within a city to survive, adapt, and thrive in the face of the chronic stresses and acute shocks they experience." More information on City of Toronto's definition can be found on the City of Toronto's website.

Even in best case scenarios, where drastic emissions reductions will stabilize the concentration of GHGs in the atmosphere by the end of this century, we must still adapt to a changing climate. In a low carbon climate future, annual precipitation in Toronto will increase by 25% by 2050 (from a 1976-2005 baseline), leading to more costly infrastructure repairs due to flooding (Climate Atlas).

Resiliency is important when planning for a post-pandemic world. Our community will face many adaptations through the years leading up to our set goal in 2050. As resilience planning requires intentional collaboration, the Office of Sustainability will engage with our community to build out a comprehensive resilience strategy in 2022, informed by the ideas of our students, faculty, and staff.

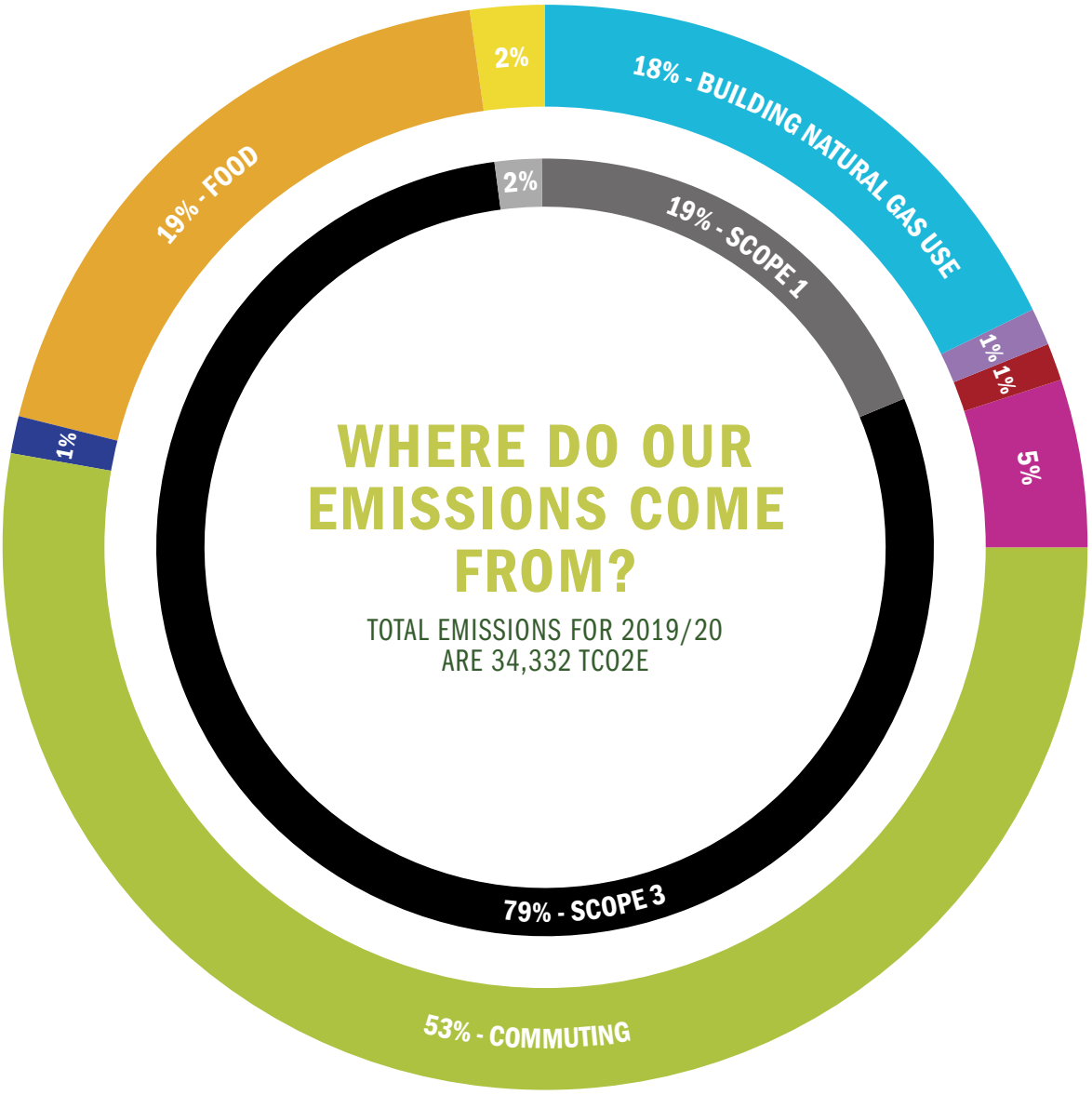



FIGURE 3: HUMBER 2019 GHG INVENTORY
TCO2E : STANDARD UNIT IN CARBON ACCOUNTING TO QUANTIFY GHG EMISSIONS

## 2019/2020 EMISSIONS

**BY SOURCE:**

- **ELECTRICITY USE - 2%**
- **BUILDING NATURAL GAS USE - 18%**
- **FLEET USE - 1%**
- **PAPER USE - 1%**
- **STAFF FACULTY/TRAVEL - 5%**
- **COMMUTING - 53%**
- **WASTE - 1%**
- **FOOD - 19%**

**BY SCOPE:**

- **SCOPE 1 - 19%:**
  ALL DIRECT EMISSIONS FROM THE ACTIVITIES OF THE COLLEGE, INCLUDING NATURAL GAS, BUILDING FUEL, AND VEHICLE FLEET.
- **SCOPE 2 - 2%:**
  INDIRECT EMISSIONS FROM ELECTRICITY PURCHASED AND USED BY THE COLLEGE.
- **SCOPE 3 - 79%:**
  OTHER INDIRECT EMISSIONS THAT ARE THE RESULT OF THE ACTIVITIES NOT OWNED OR CONTROLLED BY HUMBER, INCLUDING COMMUTING, STAFF TRAVEL, PAPER USE, WASTE, AND FOOD.

# HUMBER'S EMISSION REDUCTION PLAN

**SCOPE 1 & 2** WE WILL REACH NET-ZERO CARBON FOR SCOPE 1 AND 2 EMISSIONS BY IMPLEMENTING THE FOLLOWING ACTIONS.

| PROJECT | CAMPUS | DESCRIPTION | APPROX GHG (tC02e) REDUCTION | TARGET PROJECT COMPLETION |
|---|---|---|---|---|
| Miscellaneous Building Envelope Retrofits & RetroCx | North & Lakeshore | Building envelope retrofits and controls modifications to reduce energy use. | 500 | 2021-2030 |
| Miscellaneous Natural Gas Heating to Electric Heating Conversions | North & Lakeshore | End of life replacement of gas-fired HVAC and DHW equipment with electric options. | 350 | 2021-2040 |
| Cultural Hub Project | Lakeshore | Demolition of Building A and construction of 370,000 $ft^2$ of new net-zero carbon space. | 400 | 2025 |
| Greening Humber's fleet | North & Lakeshore | Campus fleet will be converted to electric vehicles at end of life of existing vehicles | 160 | 2025-2035 |
| District Energy and Steam to Hot Water Conversion Project | North | Converting the existing steam distribution to low temperature hot water. Electrifying part of the campus heating supply. | 2000 | 2026 |
| Residence R Building - Natural Gas to Electric Conversion | Lakeshore | Electrifying heating and domestic hot water. | 300 | 2030 |
| Centre for Trades & Technology- Natural Gas to Electric Conversion | North & Lakeshore | Electrifying building heating supply sources. | 250 | 2030 |
| Central Plant Natural Gas Heating to Electric Heating Conversion | North | Electrifying any remaining central plant heating supply sources. | 1500 | 2035 |
| Lakeshore East Natural Gas to Electric Conversion | Lakeshore | Electrifying campus heat supply sources. | 500 | 2040 |
| Offsets | North & Lakeshore | Credit to Offset $CO_2$ from Electricity and Any Remaining Fossil Fuel Use | 1200 | 2040 |

## SCOPE 3

HUMBER WILL WORK TOWARDS ADDRESSING SCOPE 3 EMISSIONS THROUGH ONGOING PROJECTS AND INNOVATION IMPLEMENTED IN COLLEGE-WIDE PLANS AND GOALS TO LOWER EMISSIONS.

| OPERATIONS | ACTION ITEMS |
|---|---|
| **COMMUTING TRANSPORTATION** (18,329 tCO2e and 53% of total emissions in 2019) | • Complete actions outlined in the Transportation Demand Management Plan<br>• Creation of a Carpool program<br>• Track adoption of remote learning and work from home program<br>• Increase availability of Electric Vehicle Charging Stations<br>• Increase Bike Share Program<br>• Advocate for electrification of public transit buses |
| **STAFF/FACULTY TRAVEL** (1,640 tCO2e and 5% of total emissions in 2019) | • Encourage staff to reduce air travel through reporting and engagement<br>• Create a flying reduction policy (minimum distance limits where staff fly and increase sustainable transportation options such as train and carpool)<br>• Continue to track flight data<br>• Encourage attendance of virtual meetings and conferences |
| **PAPER USE** (185 tCO2e and 1% of total emissions in 2019) | • Double-sided printing as a default<br>• Reduce desk printers<br>• Reduce printing through reporting and engagement |
| **WASTE** (458 tCO2e and 1% of total emissions in 2019) | • Increase procurement of sustainable products through local and diverse vendors<br>• Reduce single-use items<br>• Decrease waste production at source<br>• Increase use of compactors to decrease truck trips |
| **FOOD** (6,574 tCO2e and 19% of total emissions in 2019) | • Create one meat-free day per week at non-branded locations and prioritize local produce (in-season)<br>• Work with IGNITE to increase food literacy of students to create fruit/veggie card and breakfast card program (e.g., for every 5 apples you purchase you get one free)<br>• Food Service Operator to put fruit & vegetable rich food options at the beginning of menus<br>• Work with Faculty of Business to eliminate the top 20 GHG consuming products from the Humber Room |

# ASSUMPTIONS

Along with projects to reduce Scope 1, 2, and 3 emissions, Humber will create additional planning and policies to ensure future developments and projects align with our commitment to net-zero carbon remissions by 2050 including:

- New building construction must commit to net-zero carbon emissions throughout the project life-cycle. This includes embodied carbon during construction and energy use during operation.
- Strive for all major renovations (including existing buildings that are purchased and undergo renovation) to be net-zero carbon by 2025;
- Humber's participation in public policy will increase in areas that align with the community's strategic priorities. In order to address the climate crisis, Humber will utilize its institutional impact where possible to advance sustainability at municipal, provincial, federal and international levels.

# ACKNOWLEDGEMENTS


| | |
|---|---|
| **HUMBER STUDENTS** | PLAYED A ROLE IN THE DEVELOPMENT OF THE CLIMATE ACTION PLAN, THE CREATION OF THE IEMP, AND CONTINUE TO PROVIDE A CONSISTENT VOICE ON THE SUSTAINABILITY STEERING COMMITTEE. |
| **SUSTAINABILITY STEERING COMMITTEE** | REVIEW AND FEEDBACK ON THE DOCUMENT, ACTIONS AND COMMITMENTS WITHIN. |
| **KARISA SIMON** | RECENT GRAD OF DIGITAL COMMUNICATIONS, UNIVERSITY OF GUELPH-HUMBER, SUSTAINABILITY COMMUNICATIONS AND EVENTS INTERN FOR DEVELOPING MUCH OF THE GRAPHIC DESIGN FOR THIS DOCUMENT. |
| **DAVE FRASER** | HUMBER ALUMNI REVIEWED AND COMMENTED ON THE PLAN, A GRADUATE FROM SUSTAINABLE ENERGY AND BUILDING TECHNOLOGY PROGRAM 2021. |
| **LOGAN FRANKLIN** | GRAPHIC DESIGNER FOR THIS DOCUMENT. A GRADUATE FROM THE HUMBER BACHELOR OF CREATIVE ADVERTISING PROGRAM 2017. |


THANK YOU TO THE HUMBER COMMUNITY THAT IS ENGAGED IN CHARTING A NEW COURSE IN HIGH-QUALITY EDUCATION.
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