



BUILDING TOWARDS SUSTAINABILITY

Sustainability Office - St. George campus
Annual sustainability report

2022

Land acknowledgement

We wish to acknowledge this land on which the University of Toronto operates. For thousands of years, it has been the traditional land of the Huron-Wendat, the Seneca, and the Mississaugas of the Credit. Today, this meeting place is still the home to many Indigenous people from across Turtle Island and we are grateful to have the opportunity to work on this land.

On the University of Toronto's St. George campus, we're taking bold, decisive action against climate change.

We're reducing greenhouse gas emissions on campus beyond carbon neutral to become climate positive. We are creating programs and services that mobilize students, staff, and faculty to be sustainable change agents.

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Top row: Ali Alnaggar | Middle row: Marc Couture, Christie Anderson, Albert Trinier, Kevin Leong | Bottom row: Scott Hendershot, Chelsea Dalton, Kayla LaChance, Sherif Shakour, Vic Cassano, Larry Yang

ABOUT THE SUSTAINABILITY OFFICE

Our mission is to embed sustainability into the fabric of university operations and the on-campus experience. Our team consists of:

Sustainability professionals who create programs and projects that encourage sustainable habits on and off campus.

Energy managers who plan and execute carbon and energy reduction projects to reduce greenhouse gas emissions.

Communicators who engage, educate, and empower students, staff, and faculty to become change agents for sustainability.

Collaborators who work with our colleagues from Mississauga and Scarborough for a more sustainable tri-campus experience.

2022 HIGHLIGHTS

CUTTING EMISSIONS BY 50%

We secured project financing and launched the procurement and detailed study phase for Project Leap. By 2026, Project Leap will cut on-campus scope 1 and 2 emissions by at least 50% by modernizing our district energy system and completing deep energy retrofits in several buildings.

EMPOWERING CHANGE AGENTS

We launched the Sustainable Change Programs and awarded over 100 sustainable certifications across residences, events, offices, courses, and labs on campus.

CREATING LEARNING OPPORTUNITIES

We provided 440 students with unique learning experiences through five sustainability-focused research projects and seven paid work-study positions.

DOUBLING SOLAR CAPACITY

We doubled our solar energy generation on campus two years ahead of schedule. By installing 350 new solar panels on the roof of the Bahen Centre for Information Technology building, we increased our total solar capacity to 435 kilowatts.

OFFSETTING AIR TRAVEL EMISSIONS

We implemented a tri-campus air travel emissions mitigation initiative. Fees collected from all unavoidable university-funded air travel will fund university-based offset and mitigation projects.

FUNDING CLIMATE CHANGE RESEARCH

We contributed \$225,000 in funding to five climate change and energy-focused projects through the university's Climate Positive Energy Initiative.

ENGAGING OUR COMMUNITY

We engaged the university community with over 300,000 social media impressions on various sustainability topics, projects, and initiatives on Instagram and TikTok.

SECOND IN THE WORLD FOR SUSTAINABILITY

We celebrated the University of Toronto's ranking in the first ever QS World University Rankings for environmental and social sustainability. The university was ranked second out of 700 post-secondary institutions around the world.

ST. GEORGE IS GROWING RESPONSIBLY

St. George is the largest, oldest, and most energy intensive University of Toronto campus. Campus buildings contribute a considerable portion of emissions to the university's total carbon footprint.

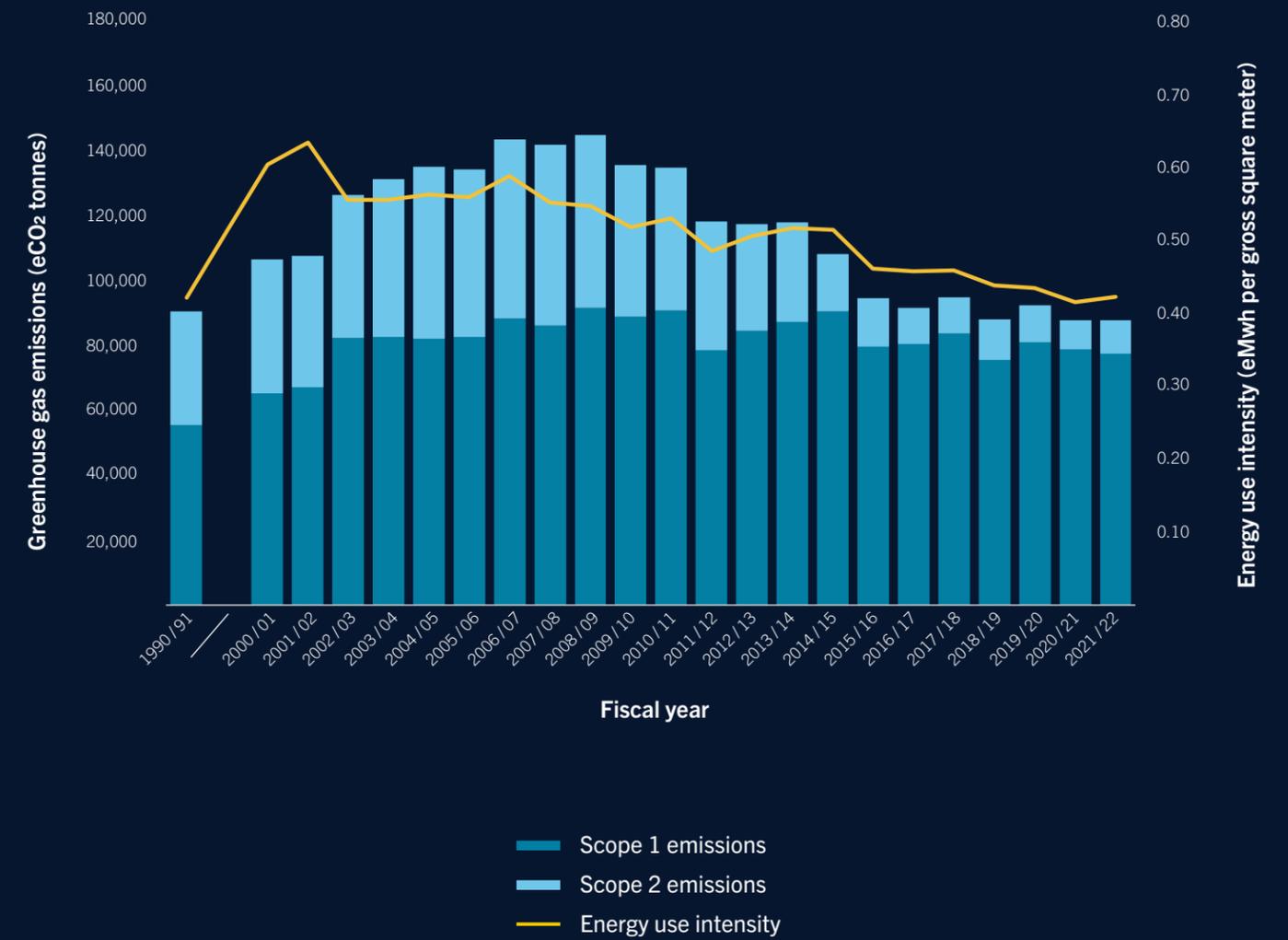
In the next 30 years, the St. George campus is anticipated to nearly double in size—adding more world-class research, teaching, and community space.

That is why we are actively transforming our infrastructure and dramatically changing our standards to achieve a model of responsible growth—so that every square meter of space we add or renovate is less carbon intensive.

The St. George campus has been on a trajectory to aggressively reduce emissions on campus. Since 2000, the campus grew by 31%, while reducing energy use intensity in our buildings and maintaining scope 1 emissions.

Our mission is to enable the campus to continue growing responsibly by actively reducing our energy use and carbon footprint.

St. George campus: emissions vs. energy use intensity



Definitions:

Scope 1: Direct greenhouse gas emissions from sources that are controlled or owned by U of T

Scope 2: Indirect greenhouse gas emissions associated with the purchase of electricity or steam



DECARBONIZATION AND ENERGY REDUCTION ACCOMPLISHMENTS

The University of Toronto's St. George campus is committed to becoming climate positive before 2050 by reducing more greenhouse gas emissions than we emit — creating a net benefit in our community.

We're moving towards this goal by planning and executing major transformative infrastructure projects to reduce greenhouse gas emissions on campus.

Project Leap

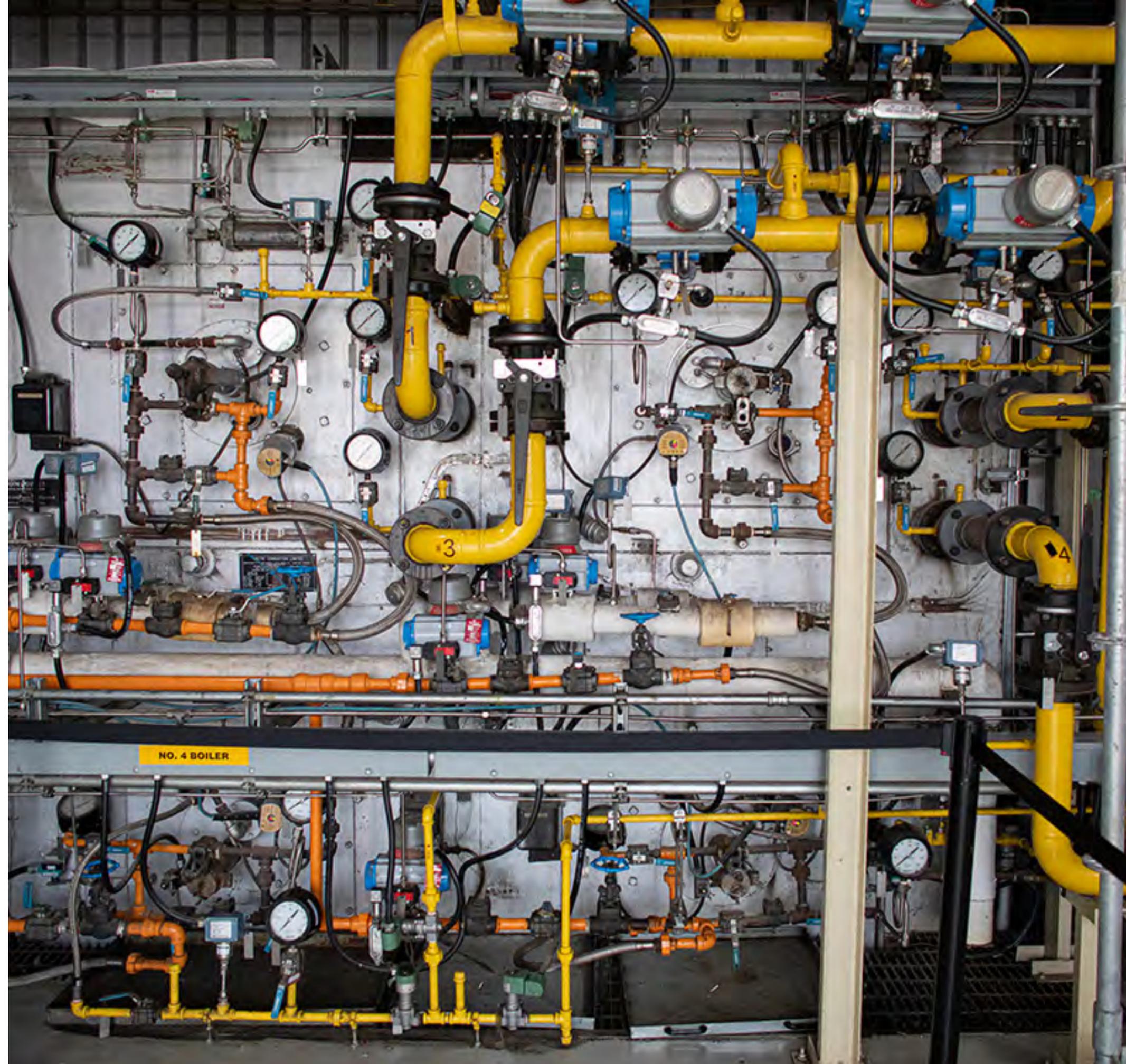
We launched the procurement and detailed study phase for Project Leap, a bold project that will eliminate more than 50% of the St. George campus's direct greenhouse gas emissions by 2026.

To support this project, we secured financing from the Canada Infrastructure Bank. Through a value-based procurement process, we selected a strategic partner to develop the design—entering into a performance-based design-build contract that will ensure we achieve our emission reduction outcomes.

Project Leap consists of three main components:

1. Modernizing our campus district energy system by replacing an existing gas boiler in the Central Steam Plant with electric boilers and heat pumps
2. Completing deep energy retrofits including active heat recovery, building optimization, and steam to hot water conversion in our most carbon and energy intensive buildings
3. Connecting our new modernized district energy system with our urban geexchange system at King's College Circle

A detailed study is currently underway and is projected to be completed by the spring of 2023.





Solar powered campus

We doubled our renewable energy capacity on the St. George campus—two years ahead of schedule.

The addition of 350 new solar panels on the roof of the Bahen Centre of Information Technology building increased the number of solar installations on campus to 12. These new panels will reduce greenhouse gas emissions by 21 equivalent tonnes of carbon dioxide annually and produce over 168,000 kWh of energy every year.

In 2022, we completed five feasibility studies at our off-campus locations—the Institute for Aerospace Studies, University of Toronto Libraries (UTL) at Downsview, Koffler Scientific Reserve, Hart House Farm, and the Survey Camp at Gull Lake.

We will implement the recommendations of the study and develop a strategic plan for renewables in support of our climate positive goals. The first step is a solar installation at UTL in 2023, and planned installations at the Koffler Student Services Centre and the Ontario Institute for Studies in Education in 2024.

Upgrading air conditioning units

We completed the last phase of upgrading 737 aged air conditioning units at the Chestnut Residence and Conference Centre with energy-efficient heat pumps. We expect to save over 450,000 kWh annually.

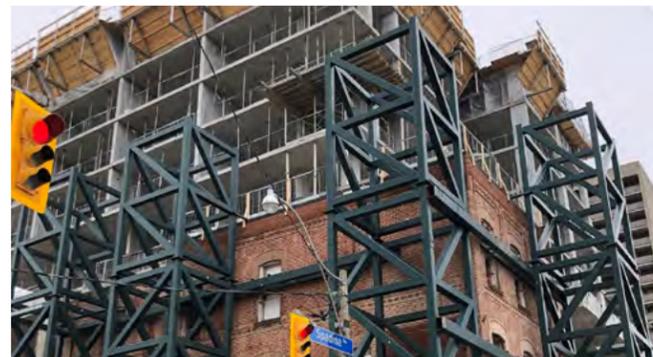


Deep energy retrofits

We launched a five-year program to reduce the energy use intensity and carbon footprint of our buildings by transforming their energy systems.

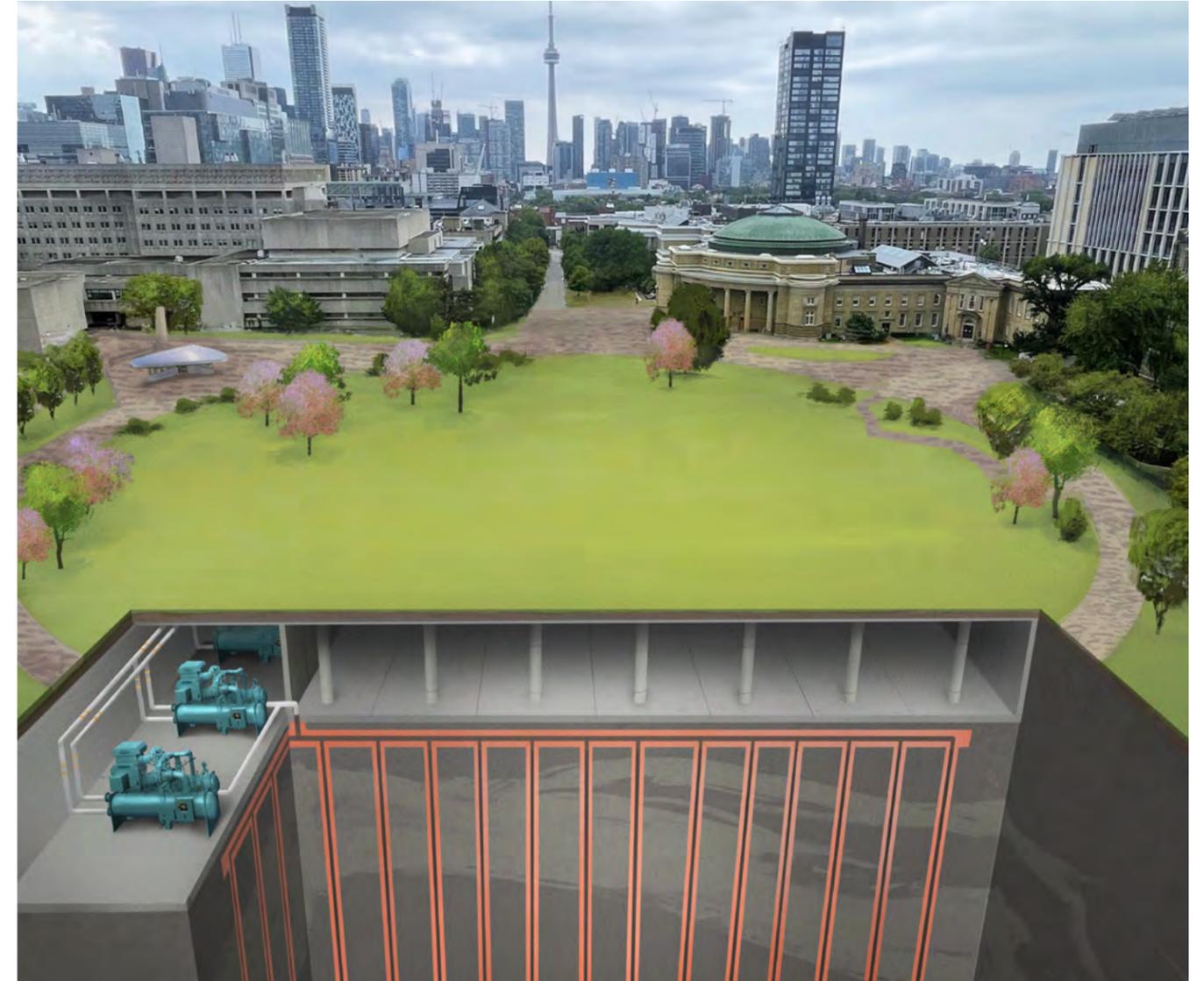
The program aims to deliver a deep energy retrofit by modernizing building energy systems in at least one building a year to reduce energy consumption by 40% and greenhouse gas emissions by 80% in each building.

In 2023, procurement will take place for a construction partner. Construction on the first buildings is scheduled to begin in the spring of 2024.



Spadina-Sussex Student Residence

Construction on the Spadina-Sussex Student Residence on the St. George campus is progressing well. This 23-story residence will provide housing for university students and support our Climate Positive plan by raising the bar for sustainable building standards. This building is just one example of how we're designing for the future to exceed carbon-neutral goals. This residence is scheduled to be finished by the fall of 2024.



Once the university's Landmark Project is complete, King's College Circle will feature a renewed green space above ground, an underground parking garage, and Canada's largest urban geothermal system, which will heat and cool buildings around front campus using renewable ground source energy.

KING'S COLLEGE CIRCLE GEOEXCHANGE

The geothermal system deep below King's College Circle will soon be operational.

Over 370 boreholes have been drilled 250 metres deep under front campus and U-shaped pipes have been inserted into each borehole.

Once this system is activated, heat pumps will circulate water, taking excess heat from campus buildings in the summer and storing it underground for use in the winter.

The underground educational display that provides an inside view of the

geothermal system for students and visitors will be completed this year—a major milestone.

The larger Landmark Project, including the installation of a granite pedestrian centric ring road and all hardscaping work is also expected to be completed by the end of 2023.

Once finished, front campus will have additional green spaces, trees, outdoor teaching spaces, and an Indigenous garden. By the spring of 2024, this incredible space will be fully open to the community, with a renewed gathering place for everyone to enjoy.

THE TRI-CAMPUS ENERGY AND GREENHOUSE GAS STANDARD

In 2020, we launched a tri-campus energy and greenhouse gas standard for all new construction projects.

The standard sets mandatory targets for energy, carbon, and water performance for new campus buildings, including total energy use intensity and greenhouse gas intensity that exceed the already stringent but optional high-performance targets of the Toronto Green Standard—the City of Toronto’s sustainable design and performance requirements for new private and city-owned developments. New city buildings are required to meet the city’s Tier 1 standard, while Tier 3 is voluntary.

Applying the tri-campus standard is crucial to responsibly managing the growth of our campus infrastructure. To date, we have consulted on 76 capital projects to ensure they meet or exceed the standard. As a result, newly constructed campus buildings and those with renovated spaces will produce minimal emissions and are much more energy efficient.

For example, newly constructed campus office buildings that will be occupied between 2026-30 will have a lower total energy use per square meter per year than newly constructed City of Toronto office buildings.

Our required, rigorous tri-campus standard is the foundation for all new construction and major and minor renovations to create campus spaces that produce minimal emissions and are much more energy efficient.

Standard for newly constructed office buildings completed from 2026-30		Energy use intensity (ekWh / m ² / yr)	Greenhouse gas intensity (kg eCO ₂ / m ² / yr)
City of Toronto Green Standard	Tier 1	130	15
	Tier 3	65	4
University of Toronto tri-campus standard		59	4

OPERATIONAL PROGRAMS AND INITIATIVES

Infrastructure projects are one way we are moving towards a climate positive campus.

We are also reducing the impact of greenhouse gas emissions we contribute to indirectly through all university activities and operations.





Air travel emissions mitigation initiative

We launched a fee-based initiative to offset business-related air travel greenhouse gas emissions without purchasing third-party offsets. Instead, fees are pooled to fund tri-campus projects to reduce university-related carbon emissions.

In 2022, we established an advisory committee to guide the initiative's development, incorporated the latest research on credible offset projects, and implemented a fee collection framework that also supports accurate flight tracking.

In late spring of 2023, our first offset project will commence with the planting of more than 2,000 trees at the Koffler Scientific Reserve.

Sustainability design standard

We began a review of our current environmental building design standard as a step towards making it more inclusive of all elements of sustainability.

We conducted extensive benchmarking to compare industry standard best practices to help inform the new sustainable design standard. We expect to publish the new standard by the fall of 2023.



Sustainable change programs

We awarded over 100 sustainable certifications through our Sustainable Change Programs. There was significant campus-wide participation in the programs, with over 800 people living in certified residences and over 350 staff working in certified offices.

These programs empower the university community to identify, evaluate, and implement sustainable change across courses, events, labs, offices, and residences on the St. George campus.

In 2023, we will add a student-focused program and work to increase the reach and impact of all the Sustainable Change Programs.

Vehicle fleet electrification

We are actively electrifying the Facilities & Services vehicle fleet on the St. George campus.

Six of 53 active vehicles are electric, and we are adding a Kia Soul electric vehicle to the fleet and a new electric charger in 2023.

We are conducting research to determine viable vehicle replacements as more electric vehicles enter the market and updating our vehicle replacement rankings yearly to reflect up-to-date fuel consumption data. This important step allows us to prioritize the replacement of vehicles that are not only outdated, but also consume a significant amount of fuel.

We will continue to monitor the market and purchase electric vehicles as suitable models become available.

Visualizing sustainability metrics

We began researching and designing a platform to provide a public repository for current and historical building level energy data.

This platform supports reporting requirements and facilitates the modeling of building performance baselines for energy management projects. In 2022, we determined data availability, identified key stakeholders, set communication goals, and investigated software options.

We anticipate procuring a software solution and building the database by the fall of 2023.



MOBILIZING SUSTAINABLE CHANGE

We recognize that everyone has a role to play in fostering a more sustainable future. That's why we are constantly working to engage and empower our community to live a sustainable life on and off campus.



ENGAGING OUR COMMUNITY

Sustainable orientation

We teamed up with the Committee on the Environment, Climate Change, and Sustainability to create a more sustainable orientation for students.

In 2022, the University of Toronto Students' Union orientation became a certified sustainable platinum event.

We sponsored sustainable giveaways including over 8,000 reusable water bottles and 1,500 reusable cutlery sets, spoke with over 6,000 students about how they can create sustainable change, and promoted sustainability to over 50,000 students through media outlets.

Social media engagement

We engaged the university community on various social media platforms on a wide range of sustainability topics.

Our efforts resulted in over 300,000 social media impressions, over 530 new followers, and 650 posts that were both informative and engaging. We collaborated with 10 environmental student clubs to curate content that supported or amplified their work and created spotlight videos that highlighted local businesses and their efforts to create a more sustainable community.

Over the next year, we will enhance our social media presence by raising awareness about local and global climate change and sustainability challenges and innovations.

Sustainable action awards

We hosted the annual Sustainable Action Awards at the Adams Sustainability Celebration, recognizing 11 winners across four categories for their outstanding achievements in sustainability. Each sustainability champion received a gift which included a donation to a sustainable charity of their choice.

The response from our student community was incredible—more than doubling our nominations across all categories compared to previous years.

We will continue to grow the awards to inspire sustainable actions by creating more opportunities for community members to be involved in sustainability on and off campus.

To learn more visit
fs.utoronto.ca/sustainability

Follow us on social media
@SustainableUofT



WORKING WITH STUDENTS

We actively engage and empower students by providing as many professional and educational opportunities in sustainability as possible to support their interests and future endeavours.

Student employment opportunities

We continue to provide educational and flexible employment opportunities for students in all areas of study. Each year we recruit multiple students to support a variety of projects and programs through both work-study and internship positions.

Six work-study students and one professional experience intern were embedded into the Sustainability Office to work on research and development, communications, engagement and outreach, and digital media.

Campus as a living lab

We partnered with the Campus as a Living Lab course and other practicums to create opportunities for students to work with operational sustainability projects on campus.

Four projects were conducted for students to gain real-world experience in various sustainability topics such as waste management, key performance indicators, and sustainable program design.

Research and development

We contributed \$225,000 in funding to support five unique sustainability research projects in collaboration with the Climate Positive Energy Initiative. This provided more than 200 students with the opportunity to participate in projects focused on renewable energy, energy efficiency, health and well-being, and emissions accounting.

WHAT'S NEXT?

In 2023, we remain steadfast in executing on our decarbonization and energy management projects and sustainability initiatives.

We will also introduce important new initiatives:

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- Develop a circular campus framework aimed at tracking and mitigating all campus inputs and outputs beyond greenhouse gas emissions
 - Update our campus conservation and demand management plan
 - Launch a platform that houses all historical and current building energy data
 - Ensure compliance with international ISO 14064 and ISO 50001 environmental management and energy performance standards
 - Create an annual outreach strategy to engage and educate St. George campus students, staff, and faculty on sustainability
 - Add a student-focused program to the Sustainable Change Programs

We are proud of our progress towards our climate positive campus goal.

We will continue to make big, transformational changes and create more opportunities for the university community to engage in sustainability.

We believe in the talents and spirit of our community and know that together we can create a brighter and more sustainable future for all.

Acknowledgements

All photos provided by University of Toronto unless otherwise stated, with acknowledgement to:

Kayla LaChance: 3, 17, 20

Johnny Guatto: 7, 10

David Lee: 11

UPDC: 11

Lisa Lightbourn: 11

Original photo: Scott Ling; Rendering: Nicolas Demers: 12

Daniela DeJong: 6, 14

Kristy Faccer: 16

Scott Hendershot: 18

Diana Tyszko: 19

Pollinate Crate: 21

Skylar Huang: 22