

Trent University
**SUSTAINABILITY &
ENERGY PLAN**

2024

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INDIGENOUS LAND ACKNOWLEDGEMENT

Trent University in Peterborough and Durham is on the treaty and traditional territory of the Mississauga Anishinaabeg.

We offer our gratitude to the First Peoples for their care for and teachings about our earth and our relations. May we honour those teachings.

FOREWORD

We are pleased to present this Sustainability and Energy Plan to the Trent community. In alignment with the Board's vision set forth in Board Directions 2024-29, specifically the vision to create vibrant, engaged, and sustainable communities of learning, teaching, and research, this Plan represents an approach to sustainability that engages the full campus community and all departments.

This plan is reflective of Trent's mission to foster sustainability in its environmental, social, and economic dimensions in all aspects of the university's work. Filled with unique and engaging activities, goals, and targets, the content of this plan sets forth to support the university in its commitment to its environmental responsibilities.

INTRODUCTION

Environmental stewardship has been an integral part of Trent since the University's beginnings in 1964. Our commitment to environmental sustainability is reflected in all aspects of the institution, from the original design of our buildings and spaces to the focus of our academic and extracurricular programming.

Trent University's Sustainability and Energy Plan builds on past sustainability and energy management strategies, providing a framework that encompasses environmental, social, and governance (ESG) factors.

THE PLAN IS STRUCTURED AROUND THREE INTERCONNECTED GUIDING PRINCIPLES:



1. Reducing Environmental Impact: Striving to minimize the environmental footprint of the University, including carbon emissions, energy usage, waste, and water use.



2. Facilitating Increased Engagement: Focusing on meaningful involvement of students, staff, faculty, alumni, and the wider community in sustainability and energy management activities.



3. Demonstrating Leadership and Accountability: Advancing positive environmental and socio-economic outcomes through effective governance and operational leadership.

Figure 1: Trent Sustainability Plan Guiding Principles



ACTIONS IN FIVE CATEGORIES WILL ADVANCE OUR SUSTAINABILITY AND ENERGY EFFORTS:

C 1. Carbon

W 2. Zero Waste¹

S 3. Social Responsibility

L 4. Sustainability Literacy

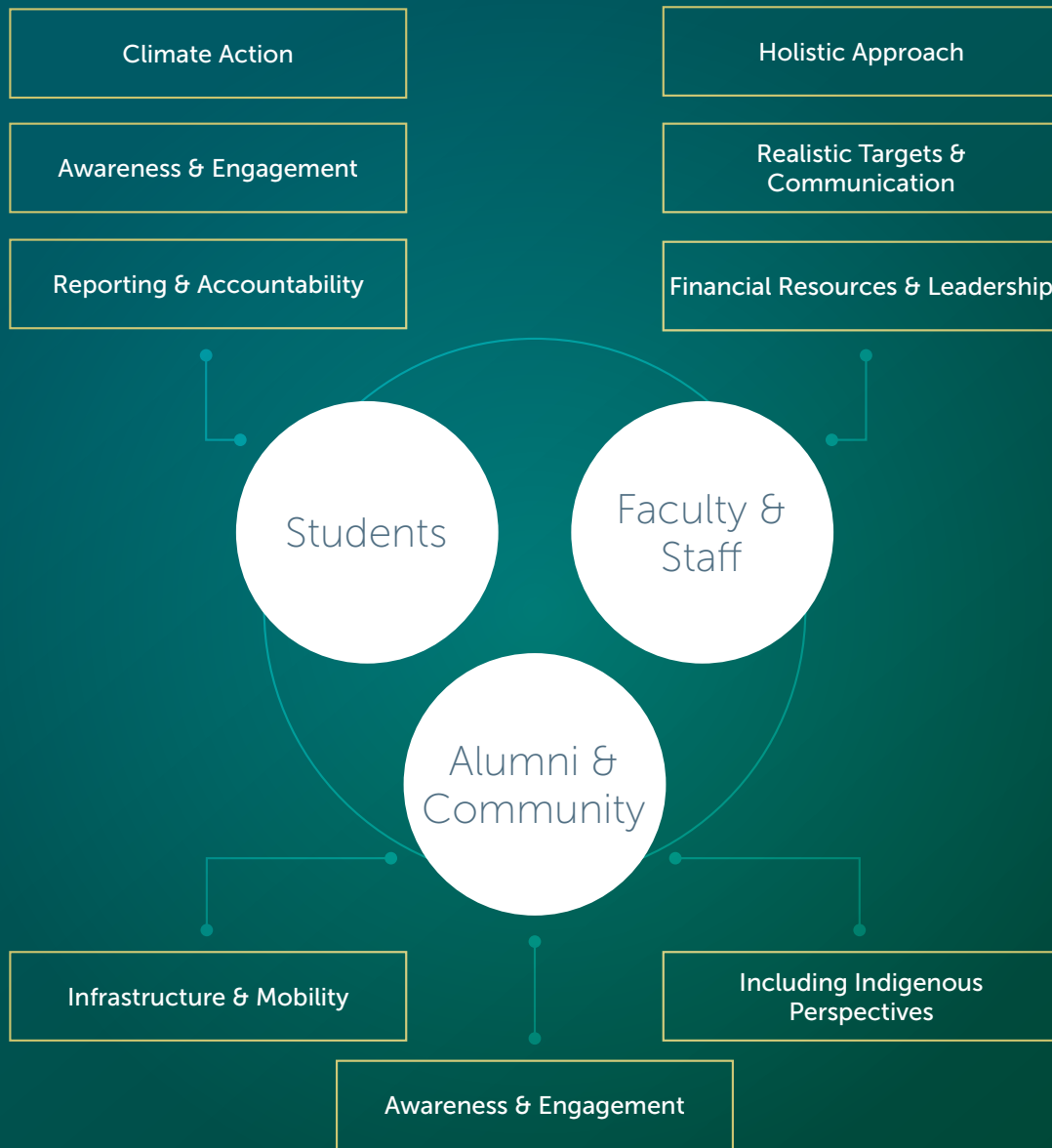
I 5. Campus Integration

At Trent, sustainability and community go hand in hand.

The knowledge, commitment, and actions of our community fuel Trent’s environmental stewardship. This strategy draws on their insights and was developed in consultation with staff, faculty, administration, alumni, and the wider community. Their ongoing participation will be central to the successful implementation of the plan.

¹Based on the internationally recognized standard, becoming zero waste is achieved by attaining a diversion rate of 90 percent. Source: “Zero Waste Business Principles,” Zero Waste International Alliance, 2023, <https://zwia.org/zero-waste-business-principles/>

COMMUNITY PARTICIPATION IN THE PLANNING PROCESS



March 2023: Survey launched
Steering Committee
Durham Community
Students

May 2023:
Student Leadership Society
Land Resource Consultation
Committee

July 2023:
Steering Committee
Student Leadership

September 2023:
Steering Committee



April 2023: Survey closed
Peterborough Community
Students Faculty
PVP Staff
Alumni

June 2023:
Steering Committee
Purchasing Office
Food Services

706 survey responses
840 stakeholder inputs
11,847 data points collected and analyzed



A LONG-TERM COMMITMENT TO SUSTAINABILITY & ENERGY



OUR VISION

To integrate environmental commitment, social responsibility, and effective governance across all aspects of university life. We are dedicated to integrating Indigenous knowledge, fostering experiential learning, and creating a culture of sustainability. Together, we aspire to transform our campuses into living laboratories that nurture sustainable practices, inspire innovation, and empower future generations.

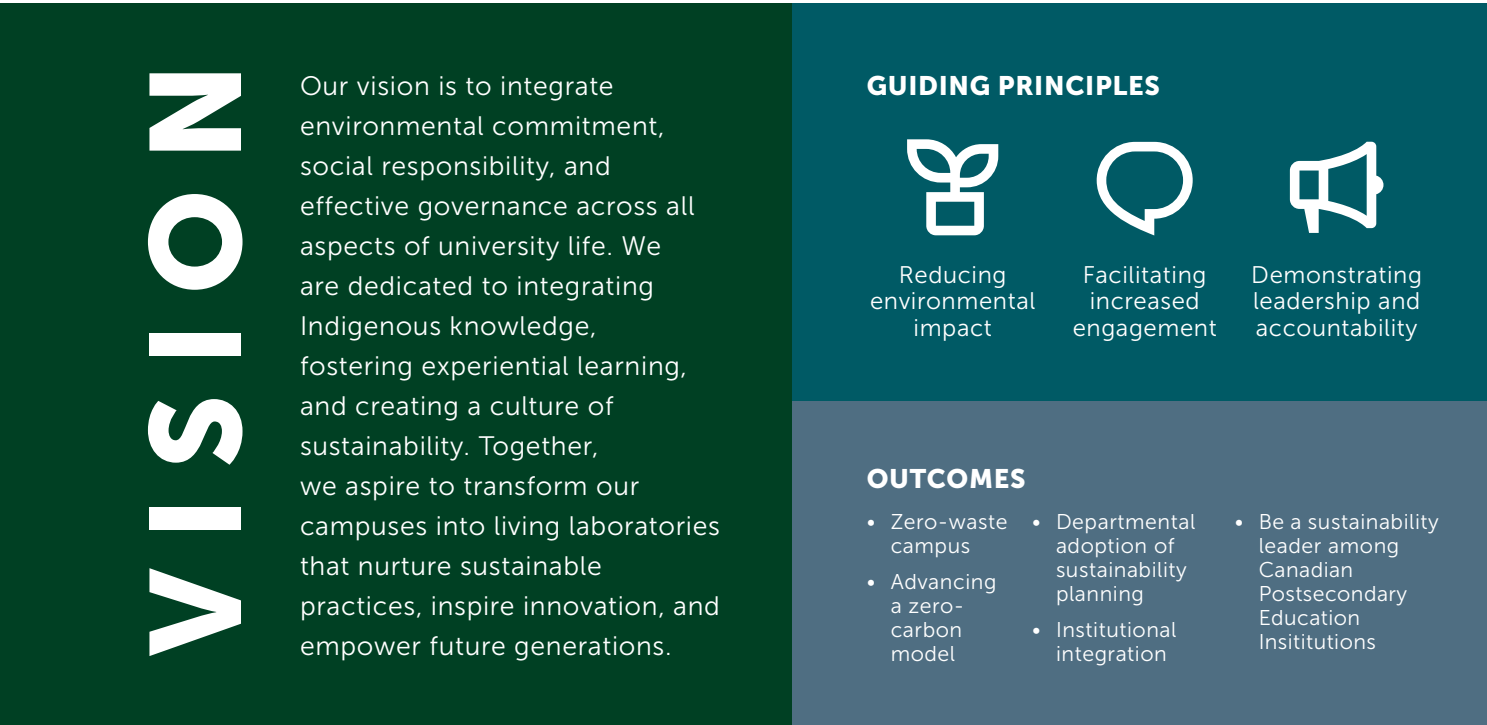
STRATEGIC FRAMEWORK

Trent University aims for its commitment as a green campus to be reflected in all aspects of teaching, research, and operations, including in the programs offered, the knowledge produced, and the policies that guide its activities.

As Trent University looks to the future, sustainability and energy management are a priority for the institution. To support this focus, core objectives and example activities have been identified and integrated into a strategic framework and approach, to

be implemented over the next five years through the guiding principles. The strategy is intended to be a guiding framework and a living document that can be updated as University’s needs and goals evolve.

Figure 2: Trent Sustainability Strategic Framework



VISION

Our vision is to integrate environmental commitment, social responsibility, and effective governance across all aspects of university life. We are dedicated to integrating Indigenous knowledge, fostering experiential learning, and creating a culture of sustainability. Together, we aspire to transform our campuses into living laboratories that nurture sustainable practices, inspire innovation, and empower future generations.

GUIDING PRINCIPLES



Reducing environmental impact



Facilitating increased engagement



Demonstrating leadership and accountability

OUTCOMES

- Zero-waste campus
- Advancing a zero-carbon model
- Departmental adoption of sustainability planning
- Institutional integration
- Be a sustainability leader among Canadian Postsecondary Education Institutions



1. REDUCING ENVIRONMENTAL IMPACT

Trent recognizes the importance of minimizing the footprint of its operations, buildings, and activities. To reduce negative environmental impacts and enhance the natural environment that surrounds the University, Trent will continue to implement emission-reduction strategies, adopt sustainable building practices, and promote energy and resource conservation efforts.

EXAMPLE ACTIVITIES

- Conduct a planning and evaluation exercise to refine long-term carbon reduction strategy prior to the O.Reg. 25 / 23 2024 reporting cycle.
- Advance accounting practices for supply chain emissions.
- Develop sustainable materials and construction criteria for new and existing infrastructure (e.g., energy-efficient window replacements, rooftop solar panels, rooftop gardens).
- Support campus planning with the Transportation Demand Management Study, aiming to increase low-carbon and active modes of transportation to Trent, and to develop related metrics.
- Continue to advance alignment with Ontario's transition to a circular economy by connecting key campus stakeholders, engaging staff and students, and supporting the extensive efforts of Trent Food Services.
- Work to advance Trent's diversion measurement and performance, striving for a zero waste campus by 2028.

TARGETS / GOALS

- Reduce GHG carbon emissions in operations to assist the province in reaching their target of 37 percent reduction by 2030, and with a target of Net Zero by 2050.
- Complete an initial Scope 3 GHG inventory.
- Become a zero waste campus by 2028.
- Support the development of implementation plans for the Trent Lands and Nature Area in relation to campus infrastructure and student engagement.
- Maintain a low water use model on campus through existing building retrofits and new developments.





2. FACILITATING INCREASED ENGAGEMENT

Trent's students, staff, faculty, administration, alumni, and the wider community are essential to sustainability efforts at the University. These individuals and groups bring environmental commitments to life in their everyday practices, from purchasing goods and services to making transportation choices. The broader the participation in sustainability and energy initiatives, the greater the overall impact. Thus, increasing awareness and empowering key stakeholders to take individual action is essential.

EXAMPLE ACTIVITIES

- Support sustainability literacy on campus by creating and supporting efforts to engage key university stakeholders in developing their own sustainability acumen.
- Re-establish a "greening the campus" engagement event where staff, students, and faculty collaborate to propose and implement sustainability projects on campus. Establish a budget for this project.
- Launch an engagement program for student leaders to develop and practice skills for greening their groups and events, supporting the development of these skills to be applied in their future work.
- In collaboration with Trent's purchasing department, update Trent's policy on Environmentally Sustainable Procurement to reflect emerging opportunities for ESG-related criteria in procurement activities.
- Continue to work collaboratively with relevant bodies in Ontario advancing sustainable procurement.

TARGETS / GOALS

- Leverage communication tools to increase awareness and participation amongst key university stakeholders in sustainability and energy management activities / initiatives.
- Use example activities to grow University stakeholders' capacity for taking positive action in advancing unit-specific sustainability initiatives and in providing meaningful support to campus-wide initiatives.
- Convene a forum for groups on campus advancing social aspects of ESG, to facilitate conversations assessing Trent's current efforts, proposing additional opportunities, and exploring relevant metrics.





3. DEMONSTRATING LEADERSHIP & ACCOUNTABILITY

Effective sustainability and energy practices start at the top, with strong governance and operational leadership. Trent can chart a course for the campus with policies, infrastructure, and partnerships that put environmental goals at the forefront. To ensure accountability, Trent will continue to share information about its efforts on its website and in reports. This communication will ensure accountability and help community members stay informed and engaged.

EXAMPLE ACTIVITIES

- Report annually to the Finance and Property Committee of the Board of Governors through the Vice-President of Finance and Administration to ensure Trent's sustainability and energy activities continue to progress.
- Publish an annual sustainability and energy report highlighting measured campus performance.
- Report on the on-going performance of Trent's Battery Energy Storage System (BESS) to manage energy use on campus and to quantify Trent's contribution to GHG reductions in Ontario.
- Assess collaborators and committees / working groups required for implementation success.
- Triage deferred maintenance projects for energy savings and / or other environmental objectives to identify project funding pathways.
- Collaborate with other Ontario Postsecondary Education Institutions to explore an efficient industry-specific reporting standards model.
- Investigate other opportunities for multilateral collaboration with Ontario Postsecondary Education Institutions on sustainability and energy management issues and initiatives.
- Measure awareness, engagement, and perception of students / staff / faculty in annual survey.
- Review Sustainability Office resources and make recommendations through budget committees.

TARGETS / GOALS

- Establish a sustainability and energy decision-making framework and advisory structure with relevant resources to implement this plan.
- Receive recognition as a sustainability leader among Canadian universities.
- Demonstrate leadership by seeking opportunities to amplify impact and leverage best practices with local and provincial audiences / collaborators.



LOOKING AHEAD

Trent's history of sustainability and energy management provides a strong foundation on which the guiding principles and example activities of this plan rest. Here, we provide ambitions that extend

beyond the scope of this plan, offering recommendations that could take Trent's sustainability and energy commitment even further, should the resources and support necessary to do so be available.

Figure 3: Additional recommendations²

Recommendations

1. Continue to refine Trent's 2018 path to Net Zero strategy, identifying new tactics, actions and activities to help achieve the institution's Net Zero pathway within federally and provincially identified time periods. Explore "stretch goals" for more aggressive Net Zero carbon reduction targets (e.g., Net Zero 2040) in line with other Canadian PSE leaders such as McGill University, University of British Columbia, etc.
2. Review Sustainability Office resourcing alignment with advancing adoption of campus-wide integration of sustainable practices and provide recommendations to budget committee.
3. Establish ESG reporting metrics related to this plan to support the Board of Governors' ESG framework objectives.
4. Consider the value and assess the feasibility of participating in standardized measurement programs.
5. Maintain the project steering committee to provide guidance and oversee the implementation of this plan.
6. Establish regular touchpoints with key stakeholders on plan objectives and implementation.
7. Actively participate in key Canadian and international forums that engage university sustainability officers, students, staff, faculty, industry, and thought leaders to co-create solutions to shared challenges.
8. Identify funding pathways for green infrastructure and deferred maintenance. Consideration may be given to a potential capital campaigns to raise funds in trust to support broad-based sustainability-driven projects and initiatives for and by the institution.

Source: *Stiletto Analysis*

MOVING TOWARDS IMPACT

Figure 4: Logic model for sustainability and energy plan³



Source: Stiletto Analysis



UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

The United Nations Sustainable Development Goals (SDGs) are commonly accepted as a standard for sustainability metrics. Assessing the degree to which Trent’s goals are in keeping with the UNSDG’s can be a helpful guiding tool.

Figure 5 demonstrates several ways in which Trent’s 2023 Sustainability and Energy Plan’s ambitions and outcomes relate to the UNSDG’s at the time of publication.

Figure 5: UNSDG’s and Trent’s related outcomes^{4,5}

UNSDG	UNSDG DETAILS	TRENT’S PLAN COMPONENTS
4. Quality Education	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	<ul style="list-style-type: none"> Guiding Principle 2 Example Activity: Support sustainability literacy on campus by creating and supporting efforts to engage key university stakeholders in developing their own sustainability acumen Guiding Principle 2 Example Activity: Launch an engagement program for student leaders to develop and practice skills for greening their groups and events, supporting the development of these skills to be applied in their future work
7. Affordable and Clean Energy	Ensure access to affordable, reliable, and sustainable modern energy for all	<ul style="list-style-type: none"> Guiding Principle 3 Example Activity: Report on the on-going performance of Trent’s Battery Energy Storage System (BESS) to manage energy use on campus and to quantify Trent’s contribution to GHG reductions in Ontario
9. Industry, Innovation, and Infrastructure	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	<ul style="list-style-type: none"> Guiding Principle 1 Example Activity: Develop sustainable materials and construction criteria for new and existing infrastructure

Figure 5: UNSDG’s and Trent’s related outcomes (cont’d)

UNSDG	UNSDG DETAILS	TRENT’S PLAN COMPONENTS
<p>11. Sustainable Cities and Communities</p>	<p>Make cities and human settlements inclusive, safe, resilient, and sustainable</p>	<ul style="list-style-type: none"> Guiding Principle 1 Example Activity: Develop sustainable materials and construction criteria for new and existing infrastructure Guiding Principle 1 Targets / Goal: Become a zero waste campus by 2028 Guiding Principle 1 Targets / Goal: Reduce GHG carbon emissions in operations reflecting the provincial target of 37 percent by 2018 with a target of Net Zero by 2050
<p>12. Responsible Consumption and Production</p>	<p>Ensure sustainable production and consumption patterns</p>	<ul style="list-style-type: none"> Guiding Principle 1 Targets / Goal: Become a zero waste campus by 2028 Guiding Principle 1 Targets / Goal: Reduce GHG carbon emissions in operations Guiding Principle 2 Example Activity: In collaboration with Trent’s purchasing department, update Trent’s policy on Environmentally Sustainable Procurement to reflect emerging opportunities for ESG-related criteria in procurement activities
<p>13. Climate Action</p>	<p>Take urgent action to combat climate change and its impacts</p>	<ul style="list-style-type: none"> Guiding Principle 1 Targets / Goal: Become a zero waste campus by 2028 Guiding Principle 1 Targets / Goal: Reduce GHG carbon emissions in operations, to reflect the provincial target of 37 percent reduction by 2030, with a target of Net Zero by 2050
<p>15. Life on Land</p>	<p>Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss</p>	<ul style="list-style-type: none"> Guiding Principle 1 Target / Goal: Support the development of implementation plans for the Trent Lands and Nature Area Plan in relation to campus infrastructure and student engagement

Sources: United Nations, Stiletto Analysis

APPENDIX I: PROGRESS TRACKER

Trent University’s 2018 Sustainability Plan proposed a path to a low-carbon campus. The plan provided a list of strategies to support the university in becoming an ultra-low impact campus, were funding to have become available. Figure 6 provides a status update on the successfully completed projects.

During the completion of these projects, the COVID-19 pandemic significantly impacted campus operations. Numerous operational changes during COVID-19 resulted in increased energy use on campus, and as such it is not possible to confidently determine the resulting decreased use resulting from these projects. As we move forward, Trent University looks forward to working toward optimizing these reductions in this next phase.

Figure 6: Projects Completed by Trent University⁶

Project	Estimated GHG (t) Reductions Annually	Estimated Project Investment
DNA/ CSB Demand Based Ventilation	515	\$1.22M
Enwayaang Occupancy-based ventilation	7	\$0.16M
Otonabee Residence / Athletics domestic hot water	28	\$0.71M
Building Envelope Improvements, various buildings	116	\$0.3M
Blackburn Boiler Replacement	13	\$0.38M
Variable Speed Pumping (ESS, CSB, ESC & SC)	10	\$0.43M
Roadway lightning to LED	4.5	\$0.4M
Replace Chillers- ESS	7.5	\$1.5M
Athletics Pool Mechanical	8	\$0.075M
Battery Energy Storage System, Switchgear, Solar(10kW) and EV charging station	1	\$9.2M
Forensics Solar (33kW)	3	\$0.1M
Totals	712	\$14.5M

Source: Trent University Data



In advance of the 2024 reporting period per O.Reg. 25 / 23, Trent is working toward a refined carbon path. Thus, changes in contemplated projects and improved estimates for costs and GHG reductions are anticipated. Figure 7 shows both short and long-term projects that could be undertaken to maximize potential impact and results for the Trent Sustainability Plan over the next five to ten years. The intent of this list is to build on recent campus efforts and to demonstrate that a low carbon campus can be achieved

over time, with adequate planning and funding. This list provides thoughtful potential projects, positioning Trent to take advantage of funding opportunities as they arrive.

As an insitution, Trent understands the importance of remaining adaptable to future technology and strategies. The university continues to research new opportunities to reduce carbon use on campus, and will continue to seek funding to advance low-carbon operations.

Figure 7: Sustainability projects under consideration at Trent University⁷

Project	Estimated GHG (teCO ₂) Reductions annually	Estimated Order of Magnitude Investment	~15 year GHG (teCO ₂) Impact
Short-term projects identified to drive impact			
MacKenzie Retrofit	30	\$0.05M	450
Science Air Handling Retrofit	165	\$1.6M	2,475
Sciences DHW	33	\$0.3M	500
Sciences BAS Upgrade	180	\$1.0M	4,680
Demand-based Ventilation	205	\$1.0M	3,075
Recommissioning and Staff Development	500	\$0.5M	7,500
Duct Sealing	260	\$1.4M	3,500
Water Sourced Heat Exchange	130	\$0.2M	1,950
Long-term projects identified to maximize impact			
Science Fume Hood and Heat Recovery	300	\$1.2M	4,500
Athletics GSHP	125	\$2.4M	1,875
Enwayaang GSHP	292	\$4.6M	4,380
Life and Health Sciences GSHP	1,130	\$4.7M	17,000
Sciences (SC, ESC, CS, GSHP)	1,300	\$5.0M	19,500

Source: Trent University Data

Under O. Reg 25 / 23, Trent University is required to provide a summary use of energy and GHG emissions for stationary scope 1 and 2 sources on campus, as shown

in Figures 8 and 9. For regular updates and more comprehensive data visit the Sustainability Office website at trentu.ca/sustainabilityoffice/.



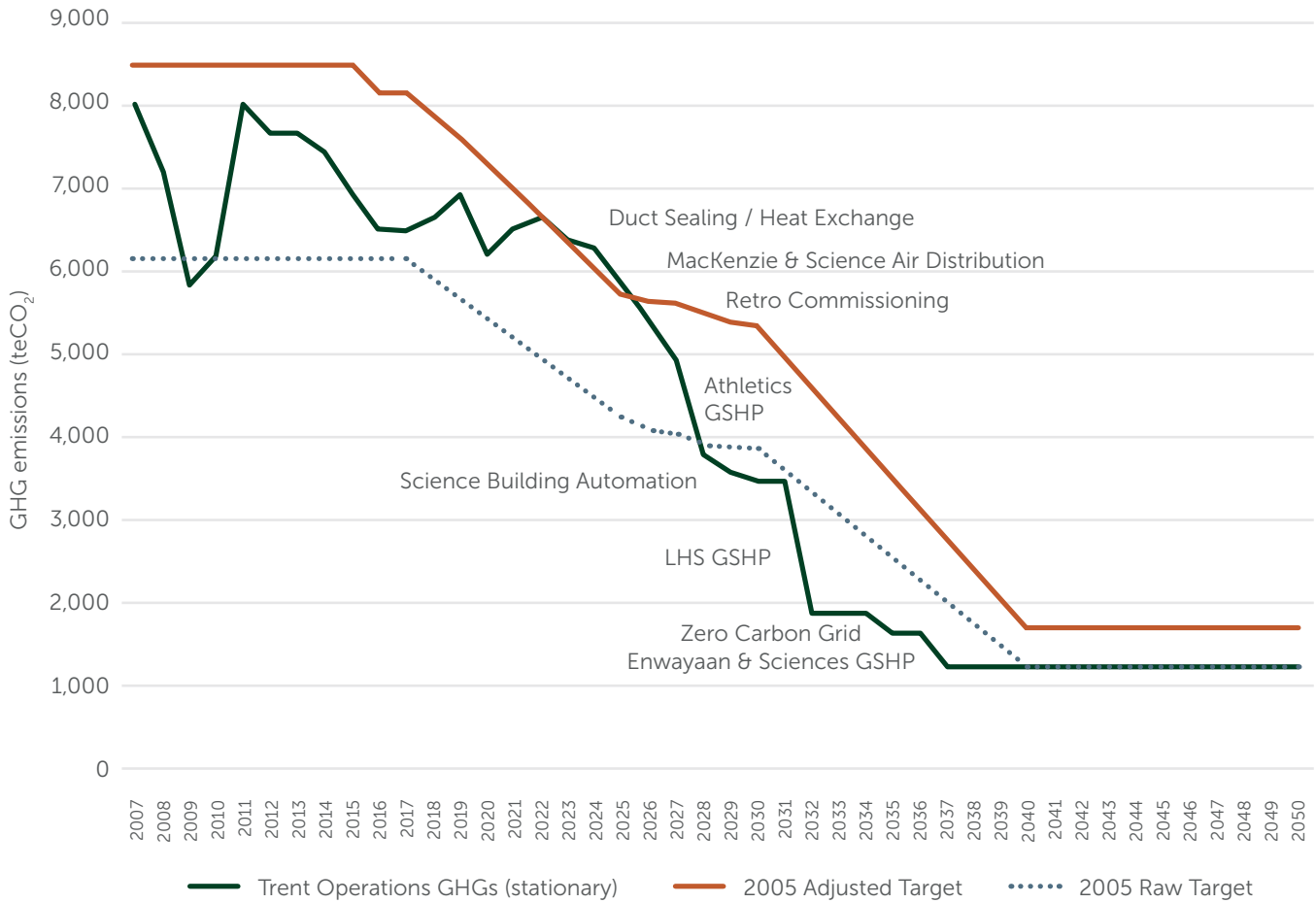
Figure 8: Energy use by campus, Trent University, 2023

Year	Electricity (KWh)	Natural Gas (m3)	Fuel Oil (L)	GHG Emissions (teCO ₂)
Peterborough Campus				
2019	21,039,550	3,189,726	7,339	6,727
2020	19,377,462	2,869,373	6,926	6,045
2021	19,710,224	2,967,719	7,382	6,303
2022	20,375,440	3,027,518	5,860	6,433
Durham Campus				
2019	450,600	89,676	N/A	185
2020	380,125	77,960	N/A	160
2021	651,752	89,260	N/A	189
2022	782,064	108,148	N/A	229

Figure 9: GHG emissions by campus, Trent University, 2023

Year	Peterborough Campus Emissions (teCO ₂)	Durham Campus Emissions (teCO ₂)	Total Trent University Emissions (teCO ₂)
2019	6,727	185	6,912
2020	6,045	160	6,205
2021	6,303	189	6,492
2022	6,433	229	6,662

Figure 10: Estimated project GHG reductions aligned with provincial targets*



* To illustrate GHG reduction over time, Figure 10 compares the GHG impacts of potential future projects to 2005 emissions levels, including Scope 1 and Scope 2 stationary emissions. In 2005, Trent owned and operated a hydro-electric generating facility. To account for the impact this would have on targets, Figure 10 shows the "raw target" which includes the benefit of the on-site generation, as well as an adjusted target, which represents what the 2005 emissions would have been had Trent purchased the electricity generated by the hydro-electric facility from the Ontario grid.

ENDNOTES

¹ "Celebrating Success, Setting Direction," Trent University, 2018, <https://www.trentu.ca/sustainabilityoffice/sites/trentu.ca.sustainabilityoffice/files/documents/Sustainability%20Plan.pdf>

² Stiletto Analysis, 2023

³ Stiletto Analysis, 2023

⁴ "The 17 Goals," United Nations, <https://sdgs.un.org/goals>

⁵ Stiletto Analysis, 2023

⁶ Trent University Data, 2023

⁷ Trent University Data, 2023

ABOUT STILETTO

Stiletto Consulting Ltd. is a market research and strategic planning firm focused on innovation and impact for the organizations we serve. This work requires a collaborative approach, one that puts people first and uses meaningful data to guide recommendations. Working at the intersection of academia, government, and industry, we bring communities together to envision concepts, generate evidence-based insights, and move bold ideas forward. Our work shifts the focus from inputs to meaningful impacts and results that will affect lasting change in communities. Clients across North America have included postsecondary institutions, municipalities, economic development organizations, science and technology companies, research and technology parks, and accelerators.

