

Energy Conservation and Demand Management Plan (2025-2030)

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Net-zero ready: Optimization plan

This Conservation and Demand Management (CDM) Plan outlines how Georgian College will reduce energy use and greenhouse gas emissions between 2025 and 2030. It focuses on improving how our buildings operate today by optimizing existing systems, reducing energy waste and managing peak demand.

By using energy more efficiently, Georgian can lower emissions, control operating costs and create more comfortable, reliable learning spaces.

This five-year plan is the first step in Georgian College's pathway to Net-Zero emissions by 2050 and has been developed in compliance with Ontario Regulation 25/23: *Broader Public Sector: Energy Reporting and Conservation and Demand Management (CDM) Plan*.

Sustainability action and accountability at Georgian

At Georgian, sustainability is measured by outcomes, not intentions, and this plan delivers real, measurable results that support the 2025-2030 Strategic Plan's focus on changemaking, accountability and solving real-world challenges.

Every square foot we heat, cool and light uses energy.

Baseline data: Our current energy picture

Baseline data provides a consistent starting point for measuring progress by capturing a full year of energy use across campus buildings. The year 2023 was selected because it provides the most complete and reliable dataset, free of irregular operations (ex. COVID 19 irregularities), and is closest to the time this CDM Plan was prepared, allowing future performance to be compared fairly over time.

Figure 1 shows energy intensity by campus, with electricity and natural gas use expressed in equivalent kilowatt-hours per square foot (ekWh/ft²). Using a common unit allows different energy sources to be compared on the same scale and accounts for differences in how electricity and natural gas are delivered and used.

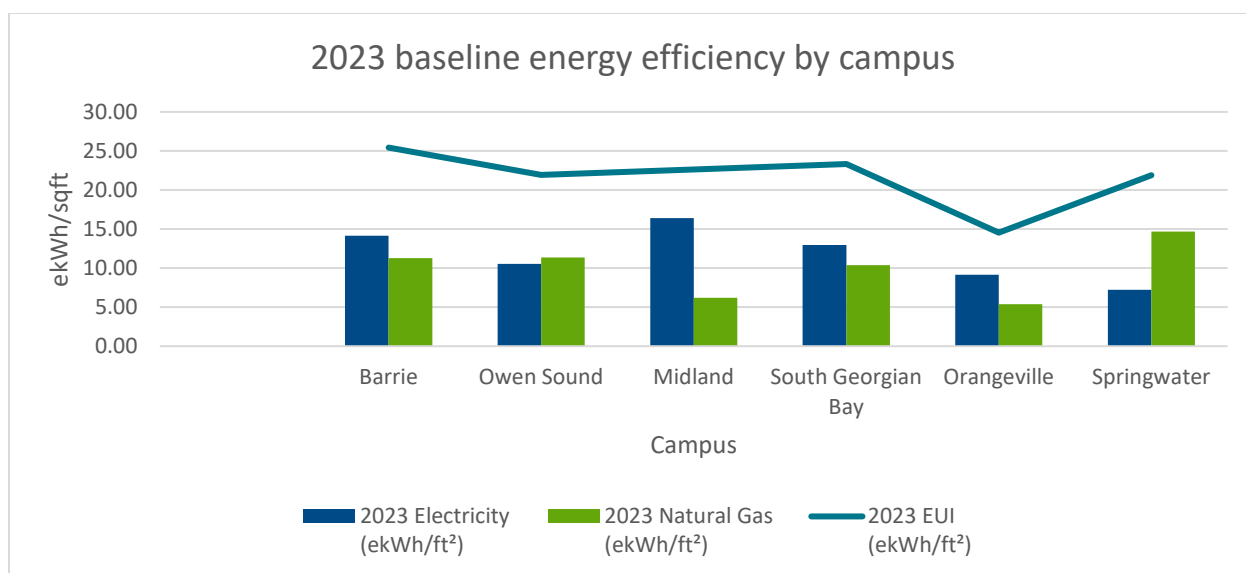


Figure 1: 2023 baseline energy efficiency by campus. Energy use intensity is the amount of energy used per square foot. A lower EUI indicates better building/campus performance.

The following table is a summary of actual utility consumption and total greenhouse gas emissions by campus for the 2023 baseline year.

Campus	Electricity kWh	Natural gas m ₃	GHG emissions tCO ₂ e
Barrie	14,819,078	1,143,925	2730
Owen Sound	1,413,297	147,032	333
Midland	1,102,291	39,851	117
S. Georgian Bay	267,884	20,762	50
Orangeville	103,151	5,794	15
Springwater	29,840	5,864	12

Table 1: 2023 baseline utility consumption and GHG emissions by campus.

Reducing greenhouse gas emissions starts with understanding where they come from. Figure 2 shows emissions grouped by source.

Scope 1 emissions come from fuels burned on campus, such as natural gas used for heating. These emissions are within Georgian College’s control and can be reduced through energy conservation measures and electrification.

Scope 2 emissions include electricity the college uses but are generated off-site. While Georgian has limited control over how this electricity is produced, these emissions can be mitigated through conservation efforts on campus.

Scope 3 emissions, which come from sources such as commuting and waste generation, are not included in this CDM Plan but will be addressed in future Net-Zero pathway milestones.

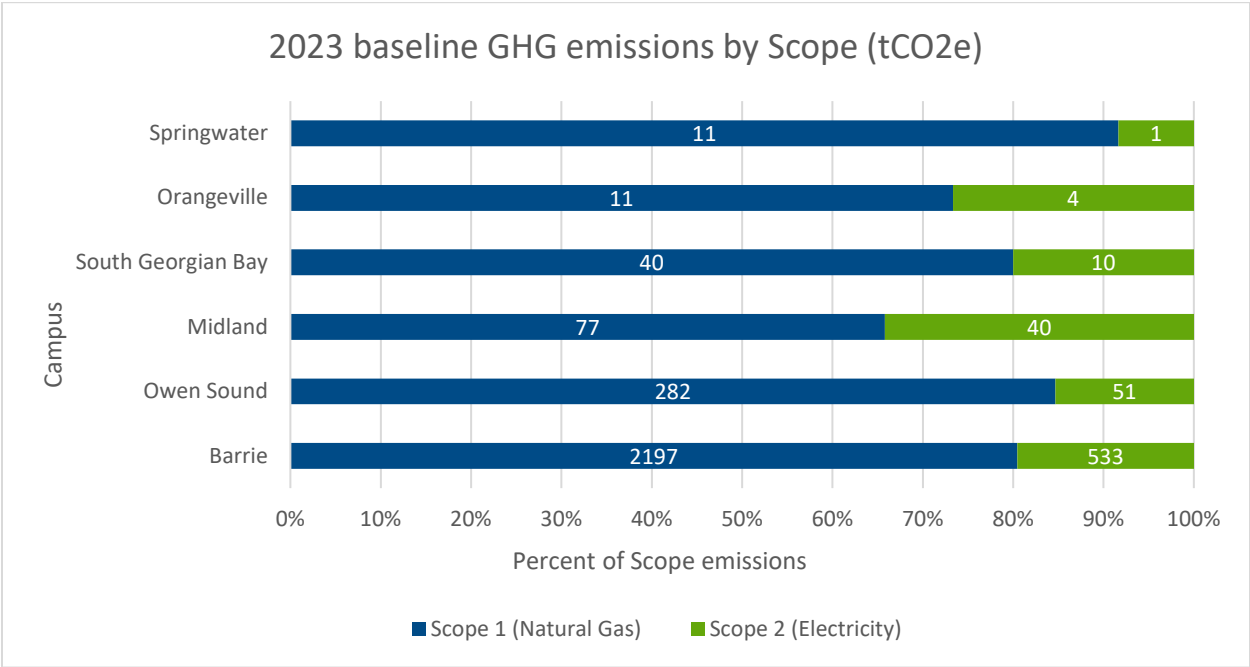


Figure 2: 2023 baseline emissions by Scope. The breakdown of greenhouse gas emissions by utility for each campus, highlighting how different energy types contribute to overall GHG emissions.

Energy and sustainability accomplishments at Georgian

On-site renewable energy generation: Academic microgrid



Georgian has implemented an academic microgrid at the Barrie Campus that integrates renewable energy, energy storage and advanced controls, supporting applied learning and real-world energy system demonstration. The 23 kW microgrid powers two dual level EV chargers and The Alectra Centre for Research, Innovation and Commercialization, located in N building.

Solar-assisted electric vehicle charging



Solar-assisted electric vehicle (EV) charging infrastructure has been installed on campus, supporting low-emission transportation and hands-on learning related to clean energy systems. Other traditional EV charging stations are available on the Barrie and Owen Sound campuses.

Conversion of a Volkswagen bus to an electric vehicle



More than 30 students from various academic areas and faculty retrofitted a 1972 Volkswagen Westfalia bus to an electric vehicle. The bus can go up to 100kms on a single charge.

Georgian College Auto Show

The annual Georgian College Auto Show is the largest outdoor student run auto show, organized by the Automotive Business students at the Barrie Campus. The Auto Show features electric vehicles, including opportunities for EV test driving, helping build awareness and familiarity in our community with emerging transportation technologies.

Construction waste diversion in capital projects

Over 85 per cent of construction and renovation material including block, metal, wood, concrete and drywall are diverted from the landfill and recycled or repurposed.

Campus gardens and orchard



Georgian maintains campus gardens and an orchard that support local food production, experiential learning and campus biodiversity. Produce from the gardens is used in culinary classes and the Georgian FoodLocker.

Beekeeping and maple syrup production



Beehives and maple syrup production initiatives support pollinator health, local food systems and hands-on learning opportunities.

United Nations Sustainable Development Goals (SDG) Accord

Georgian College and the Georgian College Students' Association are signatories to the UN SDG Accord, demonstrating a shared commitment to advancing the SDGs through education and operations.

LEED silver certification



The Sadlon Centre for Health, Wellness and Sciences (M building) at the Barrie Campus is LEED Silver-certified, reflecting commitment to energy efficiency, sustainable design and high-performance learning spaces. The building primarily uses heat pump technology and advanced building automation, increasing efficiency and reducing reliance on conventional fossil-fuel systems.

Ground source geothermal systems

Geothermal ground-loop systems are used in A and N buildings at the Barrie Campus reducing reliance on conventional heating and cooling, lowering operational GHG emissions.

The role of CDM in the Net-Zero pathway

Georgian College is working toward Net-Zero greenhouse gas emissions by 2050. This CDM plan represents the first five years of this journey.

Rather than starting with large-scale infrastructure renewal, this plan focuses on optimizing the systems we already have. Improving how buildings are operated today reduces energy consumption, lowers emissions and prepares campuses for deeper upgrades in future phases.

This approach allows Georgian to:

- Achieve measurable reductions immediately.
- Improve comfort and reliability in existing spaces.
- Build the data, controls and experience needed for electrification, renewables and carbon offsets later.

This plan is intended to evolve over time as Georgian introduces new programs, adds learning spaces and reduces its institutional footprint.

2025-2030 is about getting the basics right. Optimization creates the foundation for Net-Zero.

Conservation and Demand Management measures (2025-2030)

This plan focuses on practical, proven best practices that reduce energy use, manage peak demand and lower greenhouse gas emissions across Georgian campuses. It prioritizes building optimization by fine-tuning existing equipment to operate as designed and support the functional needs of each space, extending equipment life while improving comfort and reliability.

By optimizing current systems first, the measures outlined below deliver measurable results and prepare campus buildings for deeper upgrades in future phases of the Net-Zero pathway.

Lighting and electrical upgrades

With the phase-out of mercury lamps, retrofitting existing lighting fixtures and controls is increasingly necessary. A new lighting standard will be developed to define LED fixture types for specific spaces such as classrooms, corridors and washrooms, along with required controls, sensors, placement and operating sequences.

Controls and automation enhancements

Building automation systems will be enhanced to improve monitoring, alarms and scheduling, allowing spaces to be conditioned based on their specific functional requirements and occupancy rather than generic programming.

HVAC and mechanical improvements

Existing HVAC and mechanical systems will be optimized through adjustments *or additions* to controls, scheduling and operating sequences to ensure they're performing as designed. When equipment reaches the end of its useful life, replacements will prioritize higher efficiency and compatibility with future electrification. Ventilation methods and heat recovery will be improved where feasible to reduce energy use and greenhouse gas emissions while maintaining and improving indoor air quality.

Behaviour and operational practices

A formal institutional energy procedure is in the process of being formalized. The procedure will outline energy management principles, acceptable temperature ranges, heating and cooling seasons, and roles and responsibilities including occupant behaviour.

Building optimization ensures existing building systems are operating as efficiently as possible, reducing energy costs, without major capital upgrades.

What we expect to achieve

Implementing the measures in this CDM Plan is expected to deliver measurable improvements by 2030, compared to the 2023 baseline, including:

- A 12.9 per cent reduction in total college energy use.
- A reduction in institutional Energy Use Intensity (EUI) from 24.8 to 21.6 ekWh/ft².
- A 12.5 per cent reduction in total greenhouse gas emissions.

Energy and emissions targets have been established for each campus to be achieved by the end of the implementation period. Table 2 presents 2023 baseline energy consumption alongside projected consumption by campus, while Table 3 summarizes baseline EUI and greenhouse gas emissions and the corresponding targets set through the measures in this plan.

Campus	Electricity		Natural gas	
	2023 actual (ekWh/ft²)	CDM target (ekWh/ft²)	2023 actual (ekWh/ft²)	CDM target (ekWh/ft²)
Barrie	14.13	12.48	11.30	10.11
Owen Sound	10.56	8.58	11.38	8.29
Midland	16.42	12.26	6.20	6.15
Collingwood	12.94	9.70	10.39	7.80
Orangeville	9.16	7.80	5.38	5.38
Springwater	7.22	4.50	14.69	9.21

Table 2. Utility consumption targets to achieve through CDM measures.

Campus	Energy Use Intensity (EUI)			GHG emissions		
	2023 actual EUI (ekWh/ft²)	CDM target (ekWh/ft²)	EUI reduction %	2023 actual (tonnes/CO2e)	CDM target (tonnes/CO2e)	GHG reduction %
Barrie	25.4	22.6	11%	2730.73	2437.36	11%
Owen Sound	21.9	16.9	23%	333.30	247.04	26%
Midland	22.6	18.4	19%	116.85	106.18	9%
Collingwood	23.3	17.5	25%	49.52	37.17	25%
Orangeville	14.5	13.2	9%	14.95	14.39	4%
Springwater	21.9	13.7	37%	12.33	7.73	37%
Georgian College	24.8	21.6	12.9%	3257.68	2849.88	12.5%

Table 3. Expected EUI and GHG targets and reductions to achieve through CDM measures.

Building a foundation for a Net-Zero future

Operating campus systems efficiently is the foundation of effective energy management. By focusing on reducing energy waste, controlling operating costs and lowering greenhouse gas emissions, this plan supports comfortable, functional learning environments while delivering measurable sustainability outcomes.

As Georgian advances its 2025-2030 Strategic Plan, environmental stewardship and accountability remain central. This Conservation and Demand Management Plan builds on past conservation efforts by prioritizing the optimization of existing equipment and systems, enabling the college to achieve energy and emissions reduction targets.

Recognizing the college's current financial context, many of the optimization measures in this plan can be implemented alongside planned maintenance, preventative maintenance and renovation projects, maximizing impact while minimizing additional costs.

This plan also establishes the foundation for Georgian's long-term Net-Zero goals. By improving the performance of current facilities and formalizing best practices, it prepares campuses for future green building standards, deeper retrofits and continued progress toward carbon reduction.

Using less energy is always the first step, whether improvements come through optimization, electrification or future technologies.

Progress toward the targets outlined in this plan will be tracked through annual reporting, including measures implemented, verified savings achieved, and updates on challenges and next steps.

