

The Ottawa Hospital 2024-2028 Energy Conservation and Demand Management Plan

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1. THE OTTAWA HOSPITAL – AN INTRODUCTION

1.1 Our history

In 1998, the **Civic Hospital**, **Ottawa General Hospital** and the **Riverside Hospital** merged and consolidated their services and became The Ottawa Hospital (TOH). At that time the Royal Ottawa Hospital's Psychiatric Emergency Services were transferred to TOH, as were The Grace Hospital's Medical/Surgery services.

In 2004, the **Ottawa Regional Cancer Centre** was integrated into TOH, followed by **The Rehabilitation Centre** in 2005. TOH is now one of the largest teaching hospitals in Canada, and our three busy campuses offer an important resource for the communities we serve.

TOH is affiliated with the University of Ottawa; the **University of Ottawa Heart Institute**—Canada's largest cardiovascular health centre—delivers world-class care to TOH's cardiac patients at the Civic Campus site.

All three of TOH's campuses (Civic, General, and Riverside) are non-profit, public teaching hospitals.

1.2 Our services – One hospital, three sites

The Ottawa Hospital's Civic Campus is a 24/7/365 trauma centre, primarily serving Eastern Ontario and Western Quebec.

The Ottawa Hospital's General Campus operates 24/7/365 and is home to the Ottawa Hospital Cancer Centre, the main site of the Ottawa Hospital Cancer Program and the Champlain Regional Cancer Program. These programs run in conjunction with the Irving Greenberg Family Cancer Center, which is also operated by The Ottawa Hospital but is within the Queensway Carleton Hospital in Ottawa's west end. The General Campus provides specialized in- and outpatient services for patients with hematological diseases, as well as those needing radiation and medical oncology.

The Ottawa Hospital's Riverside Campus is the only campus that does not admit patients and has no emergency department. The facility offers outpatient treatment and procedures during the day from Monday to Friday, and has limited services on weekends.

1.3 Our future – New Campus Development

TOH is proud to provide world-class care, exceptional service and compassion for the people we serve across the greater Ottawa and Eastern Ontario region, Western Quebec and parts of Nunavut.

TOH is on track to deliver a new state-of-the-art health-care facility and academic research centre that will support our leadership to reshape the future of health care, train the next generation of health-care workers and expand our support for

the discovery of new life-changing research. Building a new hospital is a once-in-a-generation opportunity and will support TOH's vision to become a global leader in health-care delivery, design, research, education and innovation.



TOH's new campus represents Ottawa's largest-ever health infrastructure project, boasting more than 2 million square feet on a 50-acre site.

It will feature:

- 641 single patient rooms for improved infection prevention and control, privacy and space for loved ones to spend the night.
- Fully accessible washrooms in all patient rooms.
- The most advanced trauma centre in Eastern Ontario, specialized surgical suites, specialty programs and outpatient clinics.
- Research and education that are integrated into the design to ensure patients benefit from the most advanced and innovative technologies and therapies.
- Interactive and accessible communication technology.
- Dedicated spaces for spiritual reflection and Indigenous ceremony including ample greenspace.
- An accessible and transit-oriented design that is safe for pedestrians and cyclists.
- Sustainable design and a low carbon footprint with landscapes that reflect the home territories of our patients.

Planning principles

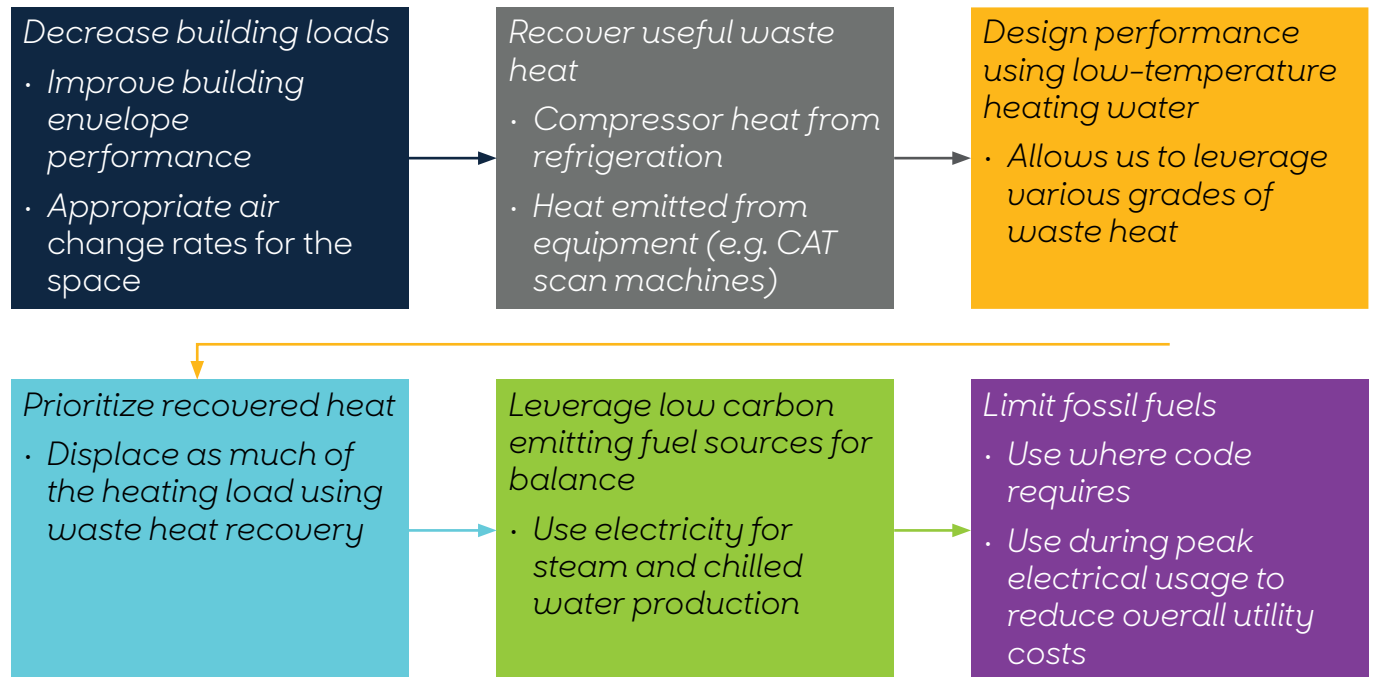
Planning and design for our new campus is grounded in seven principles that reflect an ambitious vision of the future of health care.

- Create an exceptional experience for patients, families and staff.
- Improve health and wellness for people onsite and in the community.

- Ensure Universal Access for people living with a wide range of abilities.
- Provide a welcoming space for everyone.
- Promote leadership in research and innovation.
- Encourage learning opportunities for the next generation of health-care workers.
- Contribute to planetary health and environmental sustainability.

Approach for low carbon performance

Here's an overview of how we will design a hospital that provides world-class patient care and experience, while minimizing carbon emissions during operation



2. ANNUAL REPORTING UNDER ONTARIO REGULATION 507/18

The Ontario Government has committed to help public agencies better understand and manage their energy consumption. As part of this commitment, Ontario Regulation 507/18 under the Electricity Act requires public agencies, including municipalities, municipal service boards, school boards, universities, colleges and hospitals to report on their energy consumption and greenhouse gas (GHG) emissions annually, to develop and implement an Energy Conservation and Demand Management (ECDM) Plan, and to update their ECDM Plan every five years.

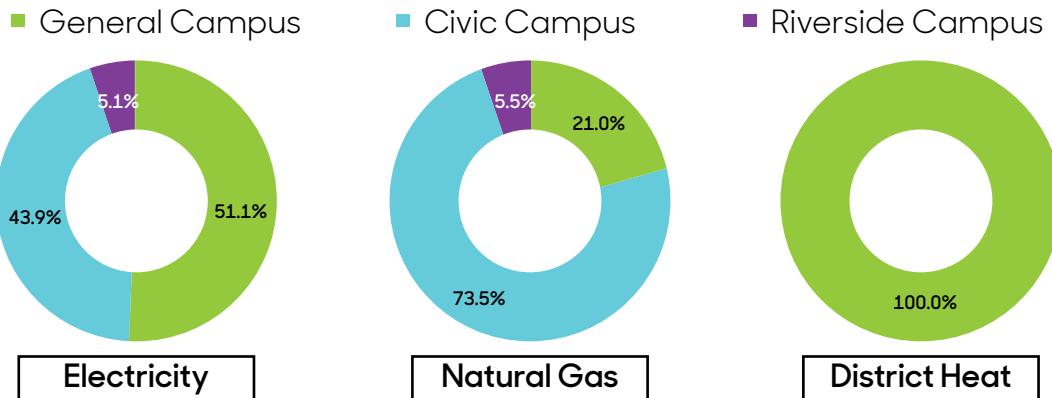
TOH actively tracks monthly electricity, natural gas, and district heating to help monitor and adjust performance. We are committed to developing and executing strategies to reduce environmental impact and ensure regulatory compliance, in accordance with Ontario Regulation 507/18.

As noted previously, the cardiology program at the Civic Campus is delivered by the University of Ottawa Heart Institute (UOHI), in buildings owned by UOHI. Of importance for this report, energy consumed for the cardiology program is not sub-metered, and as such, the energy metrics that follow includes for buildings and activities for both TOH and UOHI.

TOH's 2019-2023 ECDM Plan had a goal to reduce overall energy consumption by two per cent over the five-year period. Below is a summary of TOH's performance, summed across all three campuses, during that time. **Both the Source Energy Use Index and Site Energy Use Index exceeded the two per cent goal.**

Year	Electricity (kWh)	Natural gas (kBTU)	District steam (kBTU)	District hot water (kBTU)	Source EUI (kBTU/ft2)	Site EUI (kBTU/ft2)	GHG emissions (Tons CO ₂ e)
2018	105,349,656	403,612,493	53,041,740	45,749,404	279.0	197.6	33319.8
2019	105,831,010	410,589,257	56,788,457	51,461,060	284.2	201.7	34433.1
2020	105,264,349	376,261,907	56,025,466	46,012,734	273.5	192.3	32025.2
2021	106,901,683	380,928,938	55,713,639	38,793,204	275.3	193.5	31878.4
2022	105,223,568	393,681,179	71,621,799	47,750,408	283.2	200.4	34557.5
2023	103,730,772	363,411,614	60,193,969	40,646,845	268.7	188.8	31497.9
Change (2018 vs 2023)	-1,618,883 -1.5%	-40,200,879 -10.0%	7,152,228 13.5%	-5,102,559 -11.2%	-10.3 -3.7%	-8.8 -4.5%	-1822 -5.5%

The proportionate share for each campus, by fuel type:



2.1 Civic Campus

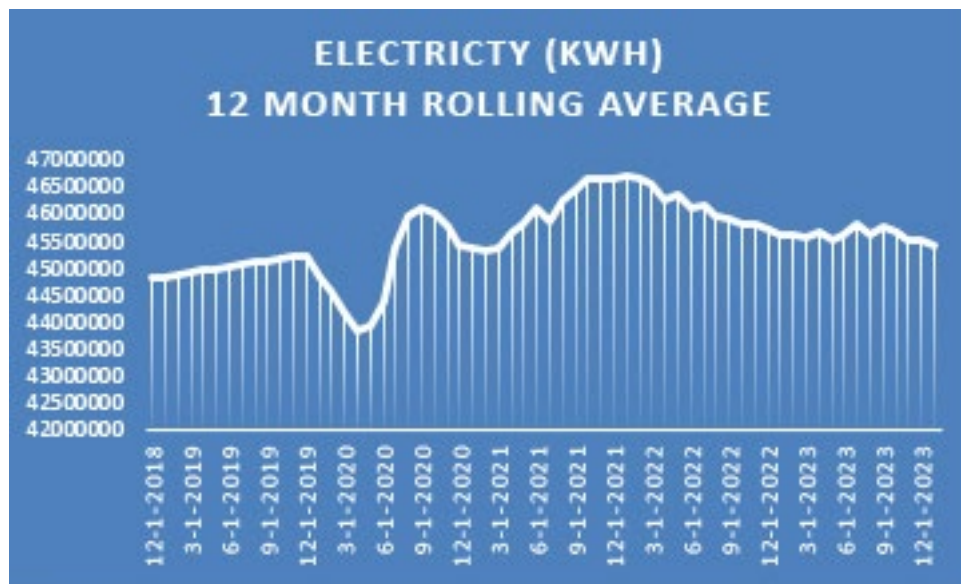
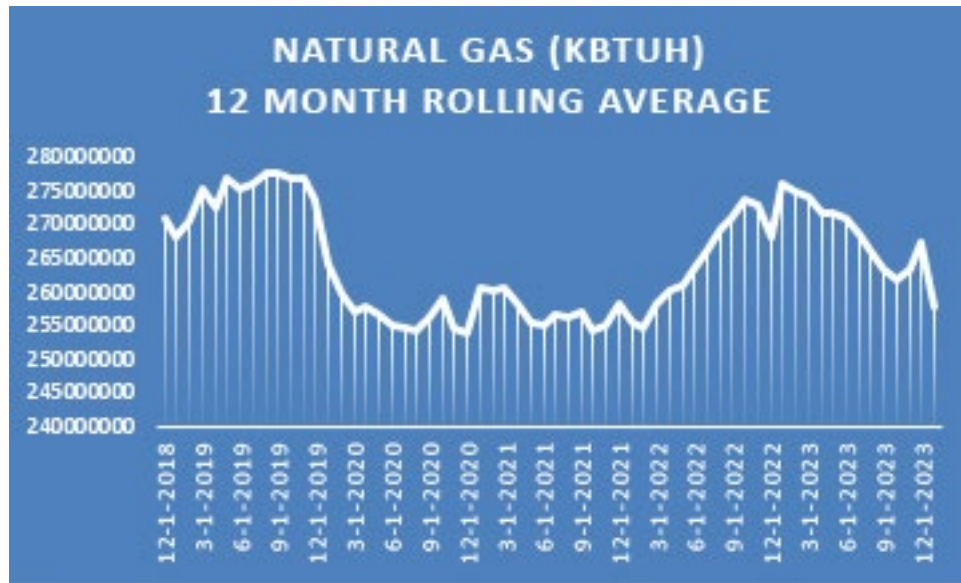
TOH's Civic Campus procures its energy from major utility providers and is metered per the table below.

Energy type	Supplier	Number of meters
Natural gas	Enbridge	3
Electricity	Hydro Ottawa	1

Data from the utility providers has been captured in the energy management tool, which was used to tabularize energy consumption from the 2018 baseline year to 2023. No major changes are noted.

Year	Electricity (kWh)	Natural gas (kBTU)	Source EUI (kBTU/ft ²)	Site EUI (kBTU/ft ²)	GHG emissions (Tons CO ₂ e)
2018	44,798,770	270,929,259	288.0	215.3	15,718
2019	45,238,811	273,742,253	290.9	217.5	15,833
2020	45,411,765	253,780,188	280.8	207.7	14,741
2021	46,659,679	258,304,415	287.8	212.8	15,116
2022	45,714,989	268,067,371	290.4	216.4	15,646
2023	45,524,793	267,175,588	289.2	215.6	15,586
Change (2018 vs 2023)	726,023 1.6%	-3,753,672 -1.4%	1.2 0.4%	0.3 0.1%	-132 -0.8%

Although the annual energy consumption between 2018 and 2023 did not change significantly, there were swings in both the natural gas and electrical consumption during the reporting period.



Changes in occupancy and operation during the COVID-19 pandemic resulted in lower natural gas and electrical consumption that did regress as operations returned to normal and/or system operations were changed to meet increased ventilation requirements.

During this period, a 40-bed temporary structure to house the Offload Medicine Transition Unit (OMTU) was installed at the site. Funded by the Provincial Government and constructed in just nine weeks, the OMTU expands hospital capacity, decreases ambulance offload times for paramedics and gets patients into hospital beds faster once admitted.



The OMTU remains operational today. Despite this addition, TOH has managed to reduce its natural gas consumption by completing small system upgrades and leveraging existing heat recovery technology.

2.2 General Campus

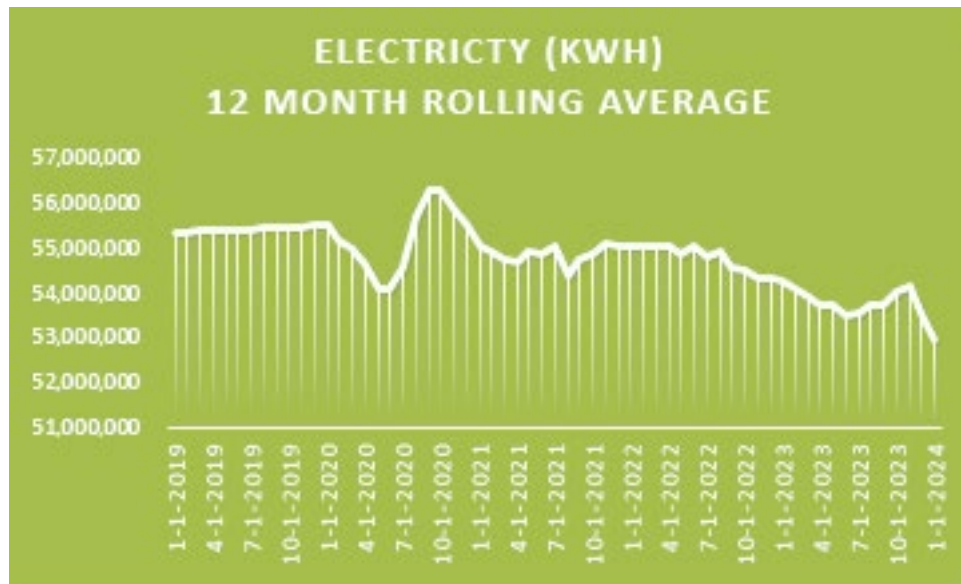
TOH's General Campus procures its energy from major utility providers and TransAlta, a district energy provider. The campus is metered per the table below.

Energy type	Supplier	Number of meters	Number of sub-meters
Natural gas	Enbridge	5	0
Electricity	Hydro Ottawa	1	6
District steam/hot water	TransAlta	2	5

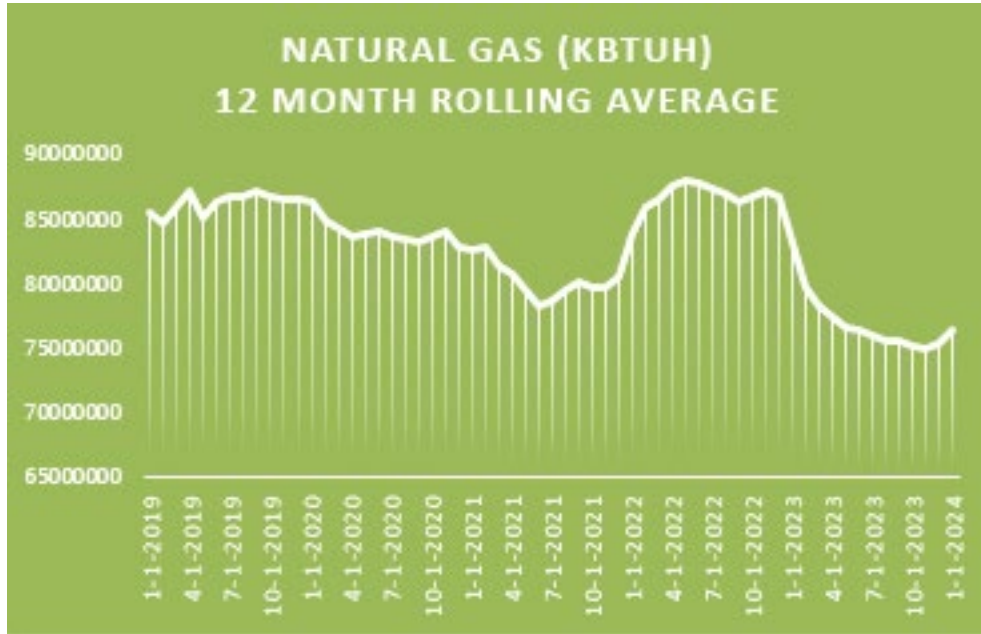
Data from the utility providers and TransAlta have been captured in the energy management tool, which was used to tabularize energy consumption from the 2018 baseline year to 2023.

Year	Electricity (kWh)	Natural Gas (kBtu)	District steam (kBtu)	District hot water (kBtu)	Source EUI (kBtu/ft ²)	Site EUI (kBtu/ft ²)	GHG emissions (Tons CO ₂ e)
2018	55,346,777	85,560,285	53,041,740	45,749,404	267.9	176.1	14,946
2019	55,505,892	86,252,354	56,788,457	51,461,060	274.6	181.2	15,769
2020	55,043,513	82,684,057	56,025,466	46,012,734	268.0	176.2	15,019
2021	55,031,535	83,751,729	55,713,639	38,793,204	264.6	174.0	14,551
2022	54,238,753	83,279,578	71,621,799	47,750,408	276.5	183.0	16,518
2023	52,963,024	76,408,731	60,193,969	40,646,845	259.2	170.5	14,712
Change (2018 vs 2023)	-2,383,753 -4.3%	-9,151,554 -10.7%	7,152,228 13.5%	-5,102,559 -11.2%	-8.7 -3.2%	-5.6 -3.2%	-234 -1.6%

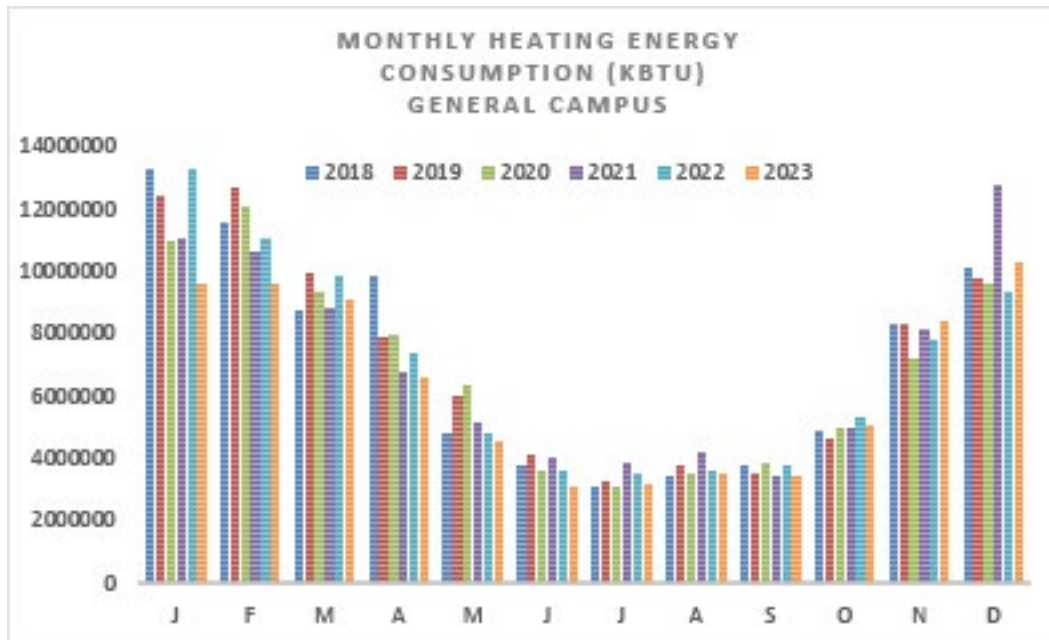
Of significance, overall site energy use decreased by ~3 per cent over the reporting period. The drop in electricity in 2023 is explained by diesel-fired backup generation being used to power a large motor control center in November and December, due to the failure and replacement of a large transformer. This savings in purchased electricity was offset by diesel fuel being burned, with associate effects on site energy intensity.



The charts above and below show that there were swings in electrical and natural gas consumption during the reporting period. Most of the variations can be explained by effects of COVID-19, other operational changes, and the on-site generation of electricity due to the transformer failure.



Overall heating energy for natural gas and district hot water receded during the period, while district steam increased. Overall, consumption for heating is relatively steady, as shown below. In 2022, there was a spike in overall heating energy from June through October. This was due to a failure of an electric chiller/heater, which necessitated the purchase of additional district steam for reheat loads.



2.3 Riverside Campus

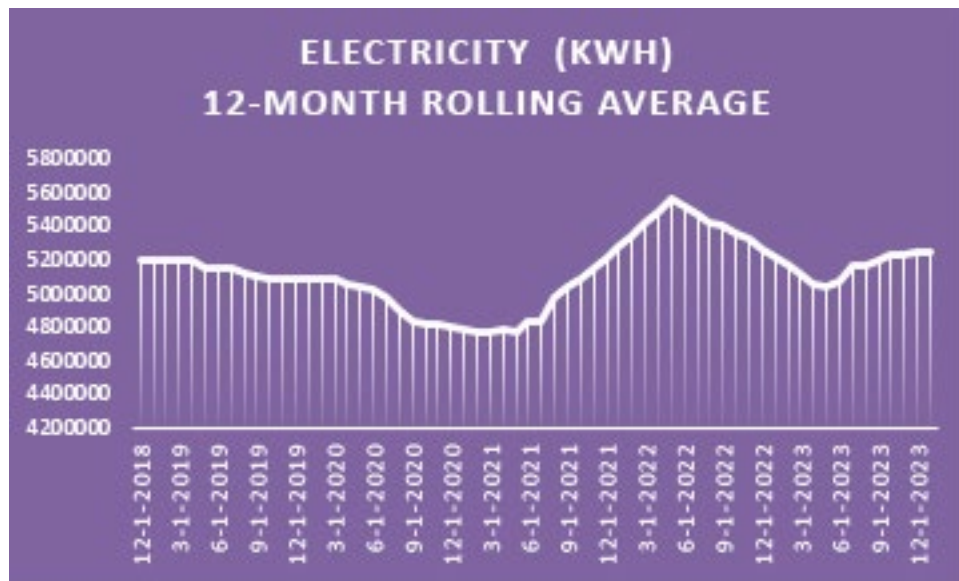
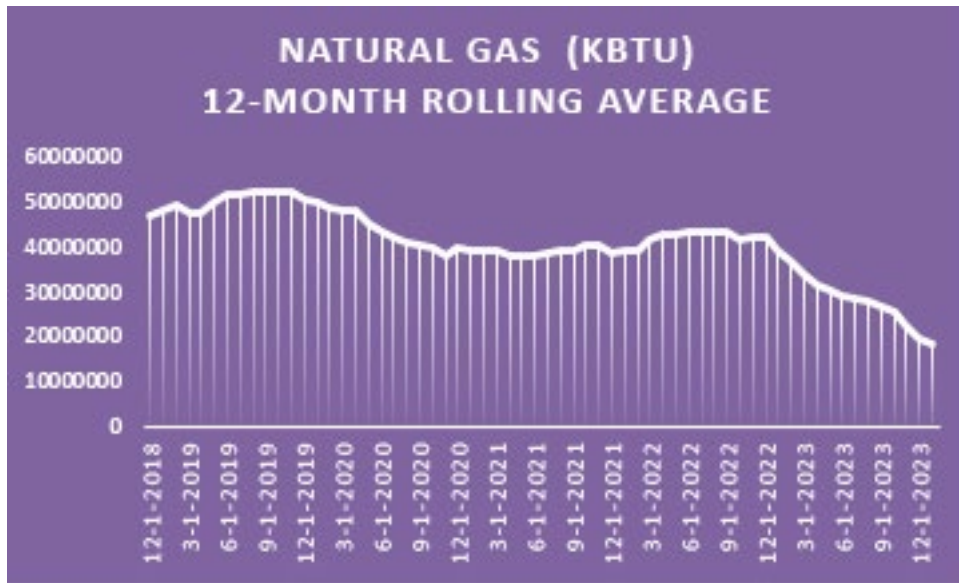
TOH's Riverside Campus procures its energy from major utilities and is metered per the table below.

Energy type	Supplier	Number of meters
Natural gas	Enbridge	1
Electricity	Hydro Ottawa	1

TOH's Riverside Campus consumption from the 2018 baseline year to 2023 is tabularized below. Of significance, overall site energy use decreased by 41 per cent during the reporting period, aided primarily by a 58 per cent reduction in natural gas consumption.

Year	Electricity (kWh)	Natural gas (kBTU)	Source EUI (kBTU/ft ²)	Site EUI (kBTU/ft ²)	GHG emissions (Tons CO ₂ e)
2018	5,204,109	47,122,949	300	236	2656
2019	5,086,307	50,594,651	311	247	2831
2020	4,809,071	39,797,662	264	206	2266
2021	5,210,469	38,872,794	268	206	2211
2022	5,269,826	42,334,230	283	220	2394
2023	5,242,956	19,827,295	196	137	1200
Change (2018 vs 2023)	38,847 0.7%	-27,295,654 -57.9%	-104 -34.8%	-99 -41.8%	-1456 -54.8%

The drop in natural gas consumption is due to steam system improvements implemented by both the Facilities and Capital Projects teams. In November 2022, TOH invested in repairs, replacements, tuning and automation of parts of its natural gas generated steam system. This employee-led endeavour has resulted in significant and sustained annual reductions in natural gas of more than 500,000m³ annually, representing approximately \$190,000 in 2023 dollars. The impact of this project can be seen in the natural gas 12-month rolling average, below.



Both the electricity and natural gas charts above demonstrate that there were swings in natural gas and electrical consumption during the reporting period. These are likely related to changes in occupancy and operation during the COVID-19 pandemic, which resulted in lower natural gas and electrical consumption. The electrical consumption did regress as operations returned to normal and/or system operations were changed to meet increased ventilation requirements. As noted previously, the drop in natural gas consumption after November 2022 is due to the steam system improvements.

The Riverside Campus has managed to reduce its energy consumption despite increased operational hours. In 2022, TOH partnered with Academic Orthopedic Surgical Associates of Ottawa with the goal of providing more patients in our community with timely access to the surgeries they need. By opening the Riverside Campus' unused operating rooms on weekends, the partners have not only reduced wait times for patients needing day surgery, but also freed up spots for other surgical cases at TOH and other hospitals. It's an important win for patients across the board.

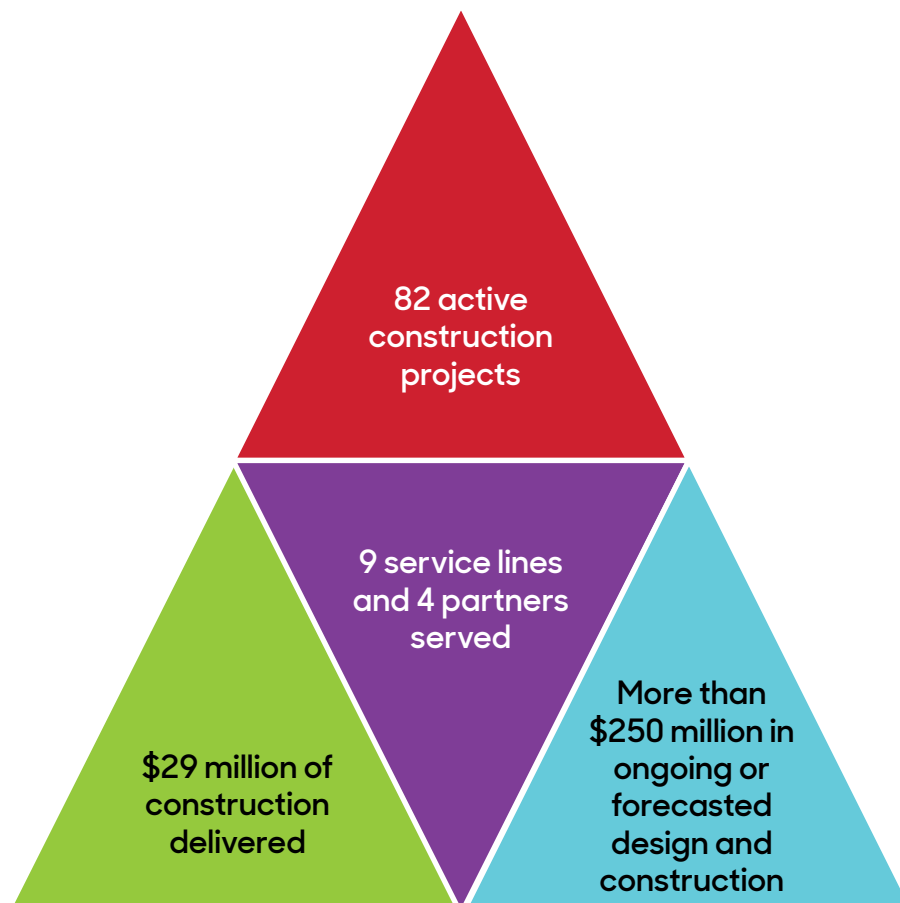
3. THE OTTAWA HOSPITAL – MAINTENANCE AND RENEWAL

3.1 Mandate

On behalf of TOH and its partners, TOH's Capital Projects (CP) and Facilities Management (FM) departments maintain and develop more than 4.6 million square feet of space across three campuses and more than 25 buildings ranging in age from three to 100 years.

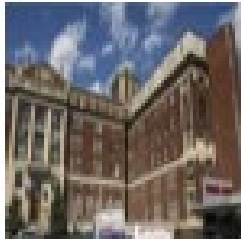
FM supports TOH's wide range of patient care, research and academic programs through its annual budget. It is also responsible for maintaining and repairing the hospital's buildings and facilities, as well as for providing utilities, grounds care, and other services.

CP is responsible for designing, constructing, and commissioning major development and renewal work associated with the hospital's infrastructure and operations. CP's mandate is driven by the corporate multi-year capital plan, as well as by requests from TOH partners. In 2023, CP delivered more than \$29 million worth of projects, including all the \$6.925 million of provincially-allocated Healthcare Infrastructure Renewal Fund (HIRF).



3.2 Aging infrastructure

Much of the building and site infrastructure at TOH's three campuses is at the end of its expected useful life. The Civic Campus has fewer than ten years of functional service left, as the majority of site operations await their transfer to the new campus currently under construction. The General Campus and Riverside Campus are expected to function for the next thirty to forty years and will require significant investment to safely meet this goal.



Civic Campus

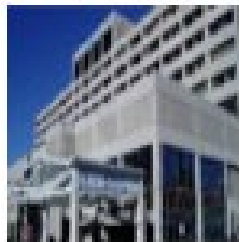
- 100 years Old
- 2.1M SF
- CRV: \$700M
- DM: \$195M
- FCI: 0.28 (Fair)

During fiscal 2023-24, considerable effort by CP and FM was invested to identify the funding required to maintain and renew its physical assets.

Using data in the most recent reporting from the ministerial Facility Condition Assessment Program for the organization, an industry standard key performance indicator – facility condition index (FCI) – was calculated to objectively quantify and evaluate the current condition of the portfolio.

General Campus

- 44 years old
- 2.4M SF
- CRV: \$922M
- DM: \$250M
- FCI: 0.27 (Fair)



The FCI is a calculation based on known deferred maintenance (DM) costs divided by the current replacement value (CRV) of the asset; the lower the FCI, the better the condition of the building or portfolio. A value of lower than 0.10 is considered "Good", a value between 0.10 and 0.30 is considered "Fair", a value between 0.30 and 0.60 is



Riverside Campus

- 57 Years old
- 271k SF
- CRV: \$131M
- DM: \$39M
- FCI: 0.30 (Poor)

considered "Poor", and above 0.60 is considered "Critical" and should be considered for replacement.

The CRV of all TOH buildings at the three main campuses is \$1.75 billion, while the total maintenance backlog, or DM, for these buildings is \$484 million. Inflation and the compounding nature of DM will continue to drive this value higher year over year. The overall FCI for the portfolio is 0.28 (or "Fair"). Note that 2023 ministerial HIRF funding was \$6.925 million.

Based on the above, a strategic ten-year funding plan was developed, identifying the financing dollars required to bring the portfolio to an FCI of 0.15 or "Fair" condition.

2024-2028 Energy Conservation and Demand Management Plan

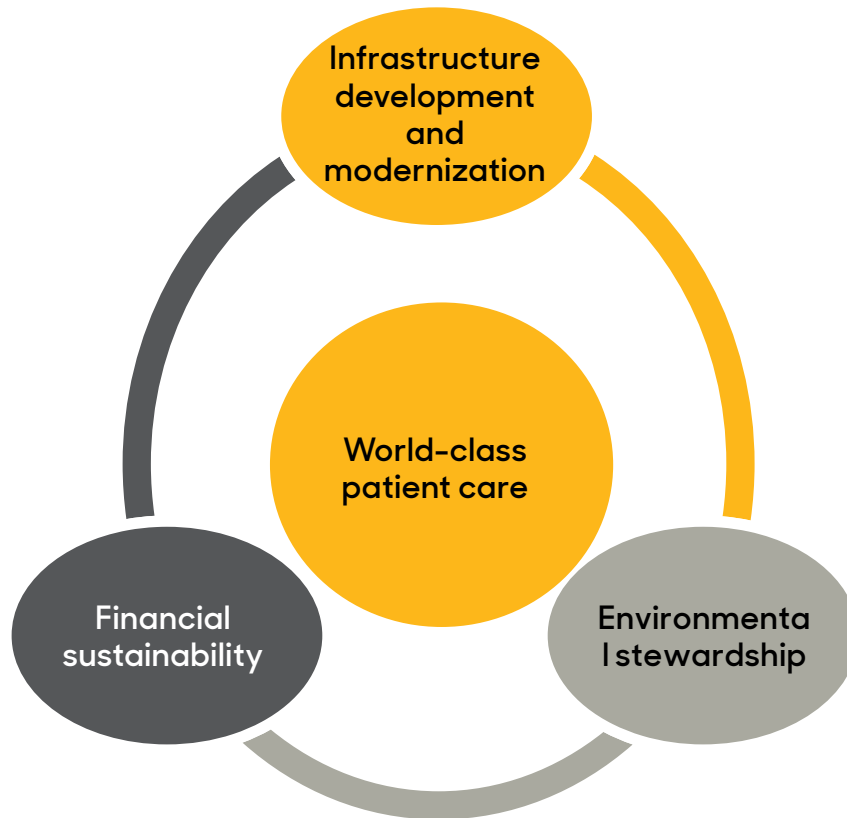
Below is a snapshot of the major initiatives that are in planning, in progress, or recently completed by CP and FM personnel to improve the state of our operations and infrastructure. Items in red are high-priority projects, based on organizational risk.

	In planning	In progress	Completed
Capital development major	<ul style="list-style-type: none"> Master Program and Plan Family Health Team NICU (General) NAPRA (all) <ul style="list-style-type: none"> Gamma cameras Cancer care five-year plan Ambulance garage 	<ul style="list-style-type: none"> Apheresis <ul style="list-style-type: none"> Stem cell Linac/MRI, Bunker 11 Schlegel LTC (RIV) DI machine repl. (CIV/GEN) 5th floor MRI installation Molecular Oncology Accessible w/c (RIV) MAiD PET 	<ul style="list-style-type: none"> Linac, Bunker 01 CyberKnife, Bunker 04 CT scanner (CIV) Wellness/1919 Staff Clinic MDRD Secure Unit Accessible w/c (GEN)
Infrastructure (Facilities) renewal	<ul style="list-style-type: none"> OHSC vault upgrade 1919 Riverside roof/HVAC Building 10 HVAC <ul style="list-style-type: none"> Various roofs (CIV/GEN/RIV) Elevators (CIV) OHSC steam tunnel ResCorp mechanical upgrades 	<ul style="list-style-type: none"> Building envelope (GEN)* <ul style="list-style-type: none"> Cu-Ag ion system (GEN) Boiler replacement (CIV) Electrical renewal (GEN) Fire alarm (GEN/CIV/REC) Elevators (CIV) Cafeteria renovations (CIV) Fuel tanks (CIV) AHU 120 replacement (RIV) BAS control panels (GEN) Water main replacement Exterior doors (GEN) ED Ramp 	<ul style="list-style-type: none"> Various roofs (CIV) Lift upgrade – REC Cardboard compactor (GEN) <ul style="list-style-type: none"> Elevators (CIV) Pedestrian cross walks (GEN) Chiller 3 repl. (GEN) ORCC cooling tower BAS control panels (GEN) Exterior doors (CIV) <ul style="list-style-type: none"> OHSC pedestrian link Cafeteria renovations (GEN)
Patient care environment	<ul style="list-style-type: none"> TCU expansion <ul style="list-style-type: none"> Mental health anti-ligature upgrades 	<ul style="list-style-type: none"> Bed planning – 4E Room refreshes (all) Minor renovations (~100) 	<ul style="list-style-type: none"> Washroom refreshes (TRC) Room refreshes (GEN) Bed plan (CIV)
Parking and roadwork	<ul style="list-style-type: none"> Parking structure (CIV) Parking structures (GEN) Roadways (GEN) 	<ul style="list-style-type: none"> Parking structures (CIV) 	<ul style="list-style-type: none"> West Ring Road (GEN) Parking strategy (RIV) Exterior signage (CIV)

4. ENERGY CONSERVATION MEASURES

4.1 Asset renewal and energy conservation – A holistic approach

TOH's institutional outcomes align with its vision to provide each patient with the world-class care, exceptional service and compassion we would want for our loved ones. To achieve this, TOH is focused on developing and modernizing its infrastructure to make it future-ready. TOH understands that infrastructure renewal is a complex endeavour and is committed to acting responsibly, promoting environmental stewardship and developing financially sustainable solutions.



TOH intends to take a holistic approach by:

- identifying and prioritizing its infrastructure renewal needs
- adopting energy management strategies that will responsibly tackle asset renewal needs
- setting up TOH with efficient, future-ready infrastructure
- reducing operational expenditures, saving energy, and reducing GHG emissions.



This holistic approach requires further refinement as it relates to each campus, given their disposal timelines in the short term (Civic) or long-term (General and Riverside). That further precision is shown below and is applied today for OPEX and CAPEX investments in building infrastructure.

Civic Campus	General and Riverside campuses
<ul style="list-style-type: none"> • Recognize that the campus is at its end life. • Manage large infrastructure renewal needs with systems that lend themselves to energy switching/conservation. • Identify only those systems that have an acceptable ROI or are a risk to patient safety/operations to invest capital. • Focus on operational changes and investments to reduce energy consumption or increase reliability. 	<ul style="list-style-type: none"> • Recognize that the campuses are at or just past their half lives. • Manage large infrastructure renewal needs with systems that lend themselves to energy switching/conservation. • Review baseline energy consumption data and invest in research to identify equipment or systems with biggest impact. • Identify incentives and funding programs available to help support implementation.

4.2 Past energy conservation measures

During the last five years, TOH invested in both capital and operational measures both within and outside the scope of the CDM 2019-2023, to reduce energy consumption and meet the goals of the plan.

TOH planned and implemented energy conservation measures (ECMs), and tracked some of their energy savings and capital costs. Some energy savings and capital cost values are missing as it was not possible to accurately quantify the values.

A list of past ECMs is shown in the table below.

Year	Facility	Measure	Annual savings (kWh)	Annual savings (m3)
2020	General Campus	Convert street lighting to LED	Not calculated	-
2022	Riverside Campus	Steam system improvements	-	515,000
2023	General Campus	Convert warehouse lighting to LED	111,000	-
2023	General Campus	Convert entrance pot lighting to LED	78,000	-
2023	All campuses	Conduct steam trap audit	-	Not applicable - study

Some other changes were made during the timespan that resulted in energy savings. These changes were done proactively by TOH staff, but were not calculated prior to delivery. They included behavioural changes, timers, programming, other lighting retrofits, etc.

4.3 Proposed energy conservation measures

TOH has developed a comprehensive renewal plan of its critical infrastructure for the next five years. At the core of the plan is the implementation of a multi-year energy retrofit project, to be tendered in 2025, and delivered at the General Campus. Not only will the project reduce annual utility consumption, operating costs, and greenhouse gas emissions, but it will also significantly increase equipment resiliency and redundancy.

The program's desired outcomes include a 25 per cent improvement in energy consumption and a 50 per cent reduction in greenhouse gas emissions, based on a 2020 baseline. At a high level, the program measures could include:

Energy efficiency measures	Electrification measures	Global adjustment measures
<ul style="list-style-type: none"> • LED Lighting conversion • ventilation upgrades • building automation upgrades • third-party heat production improvements 	<ul style="list-style-type: none"> • thermal distribution modernization • heat recovery • electrical boiler 	<ul style="list-style-type: none"> • third-party peak shaving

Other planned OPEX or CAPEX projects that have energy reduction components to them include the below.

Year	Facility	Measure	Annual savings (kWh)	Annual savings (m3)
2024	Riverside Campus	LED lighting upgrade consistent with occupancy sensors	750,000	-
2024	Civic Campus	LED lighting upgrade in select common areas	750,000	-
2024-2028	All campuses	Steam trap audit	-	Not applicable - study
2025	General Campus	Building envelope and sealant upgrades	Not calculated	Not calculated
2024-2028	All campuses	Roof replacement with increased R-value	Not calculated	Not calculated
2025	General Campus	Upgrade of medium voltage transformers	360,000	-

In parallel with the multi-year retrofit project and the work tabled above, TOH will identify and investigate complementary measures to further reduce the costs and emissions related to utility consumption at its campuses. This includes:

- Investigating installation of heat recovery chiller(s) to reduce natural gas consumption related to perimeter heating.
- Optimizing chilled water loop.
- Optimizing domestic water booster pump.
- Investigating deaerator vent recovery.
- Installing insulation bags on steam traps.

4.4 Energy procurement

TOH has put in place an adaptable energy procurement strategy that allows us to manage the fluctuating spot market commodity prices. Currently, TOH has hedged its supply and transportation of electricity and natural gas out several fiscal years by working with a third-party energy consultant. This limits the risk to the organization and provides predictability in utility expenses in the short-term.

5. SUMMARY

5.1 Previous ECDM goals

The previous ECDM plan had a goal of reducing overall energy consumption by two per cent from 2018 levels by 2023. The table below demonstrates that TOH met its goal by comparing the 2018 energy use index (source and site) to the 2023 actuals.

Year	Electricity (kWh)	Natural gas (kBTU)	District steam (kBTU)	District hot water (kBTU)	Source EUI (kBTU/ft ²)	Site EUI (kBTU/ft ²)	GHG emissions (Tons CO ₂ e)
2018	105,349,656	403,612,493	53,041,740	45,749,404	279.0	197.6	33319.8
2019	105,831,010	410,589,257	56,788,457	51,461,060	284.2	201.7	34433.1
2020	105,264,349	376,261,907	56,025,466	46,012,734	273.5	192.3	32025.2
2021	106,901,683	380,928,938	55,713,639	38,793,204	275.3	193.5	31878.4
2022	105,223,568	393,681,179	71,621,799	47,750,408	283.2	200.4	34557.5
2023	103,730,772	363,411,614	60,193,969	40,646,845	268.7	188.8	31497.9
Change (2018 vs 2023)	-1,618,883 -1.5%	-40,200,879 -10.0%	7,152,228 13.5%	-5,102,559 -11.2%	-10.3 -3.7%	-8.8 -4.5%	-1822 -5.5%

5.2 Current ECDM goals

TOH's goal for the 2024-2028 Energy Conservation and Demand Management Plan is to reduce overall energy consumption by six to seven per cent by 2028, based on 2023 consumption.

Year	Source EUI (kBTU/ft ²)	Site EUI (kBTU/ft ²)
2023	268.7	188.8
2028	249.8	176.3
Change (2023 vs 2028)	-18.9 -7.0%	-12.5 -6.6%

This goal will require a substantial investment in the large energy renewal project at the General Campus as previously outlined.