Energy & Environment
July 2024

UNIVERSITY HEALTH NETWORK

ENERGY MANAGEMENT PLAN 2024-2029

UHN

UHN Facilities Management Planning, Redevelopment & Operations

Environmental Stewardship, including the efficient use of energy, water and other resources, has been a part of the University Health Network (UHN) for over 20 years. This latest update to UHN's Energy Management Plan not only continues the hospital's commitment towards energy efficiency by building on our progress to date, but further strengthens the link between environmental sustainability and UHN's values of safety, compassion, teamwork, integrity, and stewardship.

UHN's vision is A Healthier World, which includes the drive for "continuously elevating our ambitions and not settling for less when it comes to improving the lives of others and all those on Team UHN." I am confident that our updated Energy Management Plan will continue to play an important role in supporting this vision as well as overall excellence in healthcare.

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July 1, 2024

Background

Energy management at University Health Network (UHN) supports the organization-wide strategic plan entitled "*A Healthier World*". Though energy management has been a part of UHN since the start of its Energy & Environment program in 1999, the Healthier World concept has helped recalibrate the department's focus to encompass the larger impact we can have within our local and global communities. The most notable change from the previous plan, *University Health Network Energy Management Plan: 2019- to 2024*, is a stronger focus on greenhouse gas (GHG) emissions reduction and acknowledgement of the impact of climate change to public health.

The primary energy management tools employed to achieve A Healthier World are:

1. **Climate Action:** the mitigation of and adaptation to climate change. UHN has acknowledged the impact of climate change to public health and endeavors to reduce its contribution to the problem by reducing our GHG.
2. **Conservation:** Using less energy and materials to achieve the same level of service ensures those resources will not be depleted. A culture of conservation upholds the UHN value of Stewardship – Optimize our resources for the greater common good.
3. **Engagement:** Energy management at UHN has always aimed to harness the knowledge and passion that exists for sustainability throughout the organization, integrating behaviour change, building operations, capital investment and equipment efficiency to optimize the identification and implementation of energy efficiency measures.
4. **Leadership:** UHN has been recognized numerous times for its leadership and stewardship in environmental and energy management.

UHN's Energy Management Vision

UHN's energy management vision, stated below, is part of the hospital's *Energy & Water Conservation* policy, first approved in 2002.

"University Health Network (UHN) is aware of the global impact that energy and water consumption have on its environment and financial resources. UHN is committed to providing ongoing awareness and training to assist staff in mitigating these impacts. At UHN, all staff will endeavor to practice energy and water conservation where practical to do so."

UHN's energy management vision complements the overarching Sustainability Vision and Mission statements:

Vision: *"A Healthier World Through A Sustainable Environment."*
Mission: *"Providing Patient and Planet-Centred Care, Research and Education."*

The sustainability mission and vision support UHN's Purpose, Values & Principles, and the UHN Strategic Plan of a Healthier World.

The Business Case for Energy Management

UHN's business case for the development of an energy management program goes beyond financial payback. Combined, the elements of the business case outlined below form guiding principles for energy management at the hospital.

- **Climate Action:** climate change is a leading threat to human health. Energy management plays a key role in mitigating the causes and adapting to the impacts of climate change.

- **Improved Financial Health and Operating Cost Reduction:** Utility costs are a significant portion of UHN's operating budget. The cost savings associated with investments in energy efficiency can be reinvested in patient care and other hospital needs.

- **Enhanced Patient Care, Safety and Working Environment:** Efficient building operations not only conserve energy, but also contribute to patient and employee safety and comfort through enhancements such as more stable temperatures, better indoor air quality and improved lighting.

- **Optimization of Building Systems and Equipment:** UHN's energy efficiency projects regularly include optimization of building equipment and systems. This operational efficiency, in turn, reduces equipment maintenance and life-cycle costs and can often eliminate or delay the need to replace or add new building infrastructure.

- **Resiliency:** Efficiency is a key aspect of resiliency, allowing resources to last longer and be used more effectively should supply be interrupted. UHN has also made resiliency a key aspect of energy efficiency projects by including items such as redundancy (e.g., for cooling and heating equipment, etc.) and additional safeguards for equipment and building infrastructure.

- **Employee Engagement:** Staff at UHN have indicated that energy efficiency is important to them. Actively promoting energy management allows for the aligning of personal and organizational values and supports an engaged workplace. In return, engaged employees are more likely to contribute to UHN's energy management goals.

- **Strengthened Community Leadership and Environmental Stewardship:** Energy management is a visible, public commitment to the community, environment, and human health. Through energy management, the hospital can provide leadership in promoting sustainable communities, efficient business practices, health and environmental stewardship.

- **Supporting UHN's Vision:** UHN's vision is "*A Healthier World*", and includes "a shared commitment to the betterment of all". At the same time, climate change is recognized as a major threat to health with energy management playing a key role in mitigating the causes and impacts of climate change.

Energy Planning Horizon and Scope

This energy management plan covers the five year period from 2024 to 2029 and builds upon *University Health Network Energy Management Plan: 2019- to 2024* as well as previous plans. The plan provides a framework for all energy management activities taking place at UHN with a focus on the following locations.

- Toronto General Hospital (TGH)
- Toronto Western Hospital (TWH)
- Princess Margaret Cancer Centre (PMH)
- Toronto Rehab – Bickle Centre (BC)
- Toronto Rehab – Lyndhurst Centre (LC)
- Toronto Rehab – Rumsey Centre (RC)
- Toronto Rehab – University Centre (UC)
- Toronto Rehab – Hillcrest Centre (HC)
- Princess Margaret Cancer Research Tower (PMCRT)
- Krembil Discovery Tower (KDT)
- The Michener Institute (MI)
- 67 College Street
- Princess Margaret Lodge
- West Park Healthcare Centre*

*NOTE: merger with West Park completed as of April 2024. West Park energy management plan attached as Appendix B

Planning Framework

UHN's energy management plan draws from the strategic framework shown in Figure 1. The framework shows our Purpose (why), then the Channels (what) of which this plan relates especially to Climate, Energy & Water. Finally, our strategy (how), has four interlinked elements:

- **Demonstrate organizational commitment:** A visible demonstration by UHN of its commitment to energy efficiency, conservation and greenhouse gas emission (GHG) reduction in day-to-day operations and planning activities.

- **Monitoring and tracking:** Implementation of systems to track, analyze and report on energy consumption, costs, GHG emissions, behaviours and changes over time.

- **Culture, awareness and behaviour change:** Use of behaviour change theories to engage staff, influence culture, and permanently change habits associated with energy use at UHN.

- **Opportunity identification and implementation:** development of on-going processes to identify and implement energy efficiency opportunities.

A. STRATEGIC FRAMEWORK FOR SUSTAINABILITY AT UHN

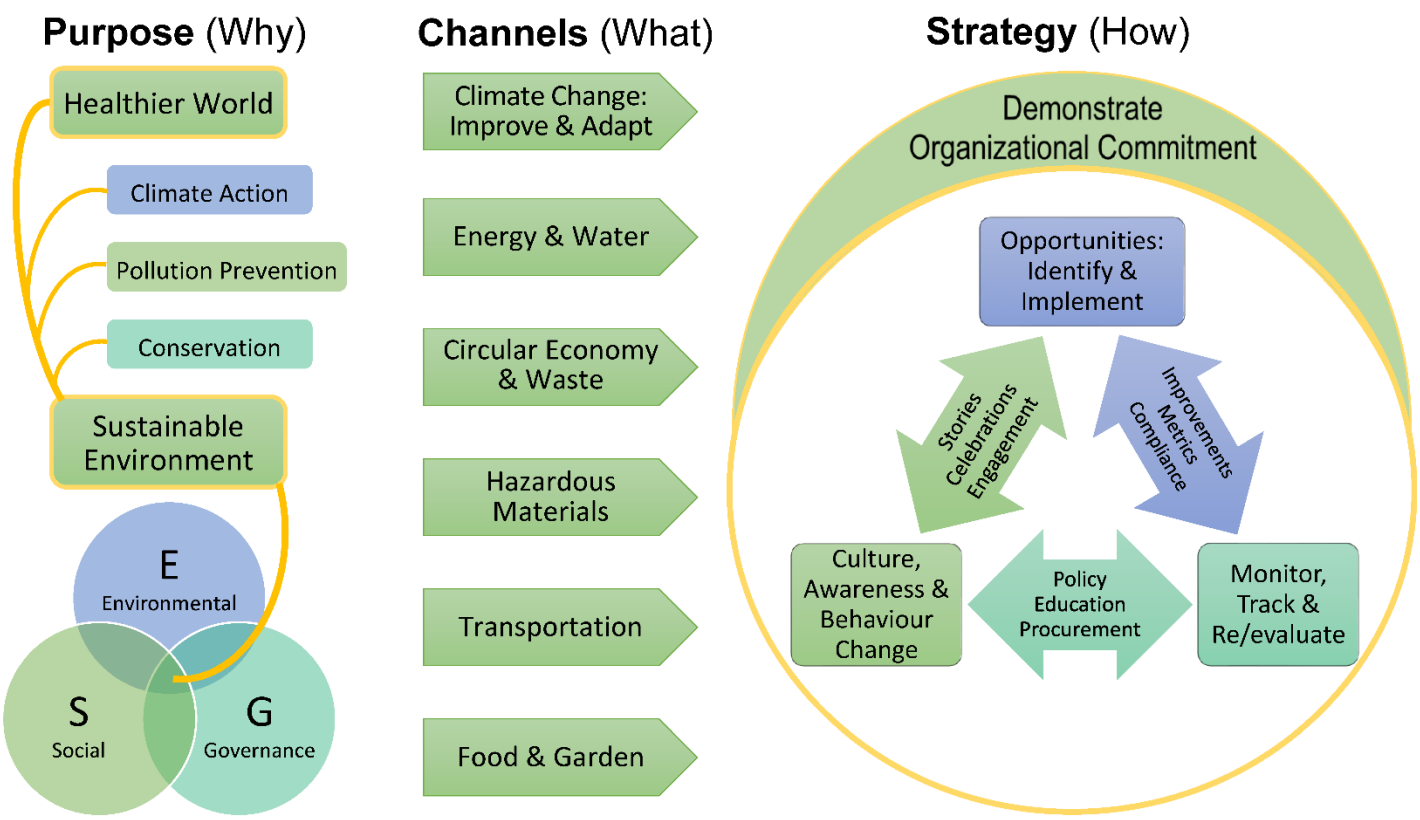

Figure 1: UHN's Energy Management Framework

Planning Process

This plan continues the energy planning process developed by UHN in 2012. The major steps in the planning process are as follows:

- **Describe the current state of energy management at UHN:** Review projects, plans, energy management processes and facilities operations already undertaken in order to understand what is working well, and if possible why, and what obstacles may be encountered.
- **Define the future state of energy management at UHN:** Drawing on insights from a wide range of hospital departments (e.g., Energy & Environment, Facility Operations, Redevelopment, etc.) discuss future possibilities for energy management.
- **Develop an action plan to move from current to future state of energy management:** Identify gaps as well as the resources and processes needed to advance energy management.
- **Define Measure of Success:** Set measures of success to assist in recognizing when results have been accomplished and identify gaps along the process of continual improvement.
- **Review the plan:** Review and update the plan at least annually. The annual review will involve confirming the current state, updating progress to date and making relatively minor adjustments to measures of success. A major review of the plan will be conducted every five years near plan expiry.

Current State of Energy Management at UHN

Energy Management at UHN: Results to Date

A summary of results achieved under *University Health Network Energy Management Plan: 2019- to 2024* is provided below:

- Culture, awareness and behaviour change:
    - Embedding energy awareness from the moment employees begin their journey at UHN, with sustainability messaging incorporating energy, climate, stewardship for all staff
    - Formation of site based Energy Teams at all UHN locations. Energy Teams meet monthly or bi-monthly to oversee the identification, implementation and verification of energy saving opportunities.
    - Recruitment of over 700 Green Team members to act as energy and sustainability champions for their departments, through awareness raising and implementation of department specific sustainability measures.
    - Continued roll-out of a broad enterprise communication plan and engagement strategy, including regularly “targeted” training sessions for key hospital departments impacting energy use.
    - Continuation of the Shut the Sash awareness program in PMCRT and KDT, with compliance rates in recent years consistently greater than 98%

- Monitoring and tracking:
    - Ongoing planning and implementation for metering of all utilities.
    - Metering requirements incorporated into Construction and Design Guidelines
    - Ongoing investigation and piloting of advanced fault detection software.
    - Incorporation of scope 1 and 2 GHG emissions savings into Energy project tracking
    - Annual report includes Scope 1 and 2 GHG emissions vs baseline
    - Monthly reporting of site based utility consumption
    - Implementation of chilled water valves with built-in temperature sensors and flow meters, allowing for real time monitoring of cooling performance

- Opportunity Identification and Implementation:
    - Continued organization wide conversion to LED lighting, starting with high-use areas and currently focusing on locations with unique lighting requirements.
    - Building automation system (BAS) commissioning and re-commissioning, including adjustment of schedules and set-points, sensor calibration and equipment upgrades.
    - Implementation of variable speed drives (VSDs), variable air volume (VAV) systems and demand control ventilation (DCV).
    - Replacement of key heating, ventilation and air-conditioning (HVAC) equipment with more efficient units, including boilers, chillers, cooling towers, and air-handling units.
    - Implementation of exhaust air heat recovery using heat pumps to mitigate GHG.
    - Completion of Enwave Deep Lake Water Cooling connection at PMH in 2020.
    - Further district energy investigations, including ongoing construction of Wastewater Energy Transfer system at TWH.
    - Investigation of potential to harvest clean heat from the return side of the Enwave Deep Lake Water Cooling network.
    - Removal of multiple pieces of equipment from once-through municipal water cooling.
    - Building envelope improvement including insulation and installation of high efficiency windows at RC.
    - Enhanced maintenance including steam trap audits & repairs, removable insulation jackets and focused repair of equipment components critical to efficient operations. Pilot project completed to evaluate real time wireless steam trap monitoring.

- Demonstrate organizational commitment:
    - Ongoing Executive support for UHN's Energy and Water Conservation policy.
    - Implementation of monthly energy updates for UHN Leadership.
    - Development of energy efficiency guidelines and specifications that are part of the larger organizational Design and Construction Guidelines.
    - Collaboration between Energy and Finance teams on energy analysis and forecasting
    - Scope 1 and 2 GHG mitigation targets

Over 600 energy conservation projects were implemented between 2012 and the end of 2023, resulting in an annual energy use reduction and/or avoided increase of over 530,000 gigajoules per year and associated annual cost savings of $4-6 million. As of December 31, 2023 more than 80 additional projects were also being implemented or actively investigated, with associated GHG savings of over 16,000 tons CO2eq per year and $1.5 million in potential avoided annual utility costs. Further detail is provided in Appendix A

Figures 2 & 3 compare net UHN energy use in 2018, the last year of the previous 5-year energy plan, to 2023, indexing to weather where appropriate. Figure 4 demonstrates our progress in GHG mitigation starting from base year 2010. As of 2023, GHG emissions related to utilities have decreased 19% from 2010 despite the addition of approximately 1 million square feet of clinical, laboratory, and office space during the intervening years and despite recent significant increases to GHG intensity on the electric grid.

As shown below, UHN annual energy use decreased by approximately 3.2% between 2018 and 2023. It is important to note that Figures 2 & 3 present the net change in energy use and include both decreased use as a result of energy management as well as increased use associated with the following factors:

- Energy intensities of our district steam (ekWh/lb) and district chilled water (ekWh/ton-hour) supply increased by 15% and 10% respectively between 2018 and 2023. If steam and chilled water energy intensity remained constant, our overall energy use would have decreased by 8.4%. These savings will be realized when the district provider's energy intensities return to historical norms.
- 2018 was the first year of operation of Deep Lake Water Cooling at TGH. Consumption was anomalously low due to the commissioning process
- Addition of new equipment
- Increased building density
- Extended operating hours and more stringent safety requirements, such as increased air flow for infection prevention and control, especially related to COVID-19

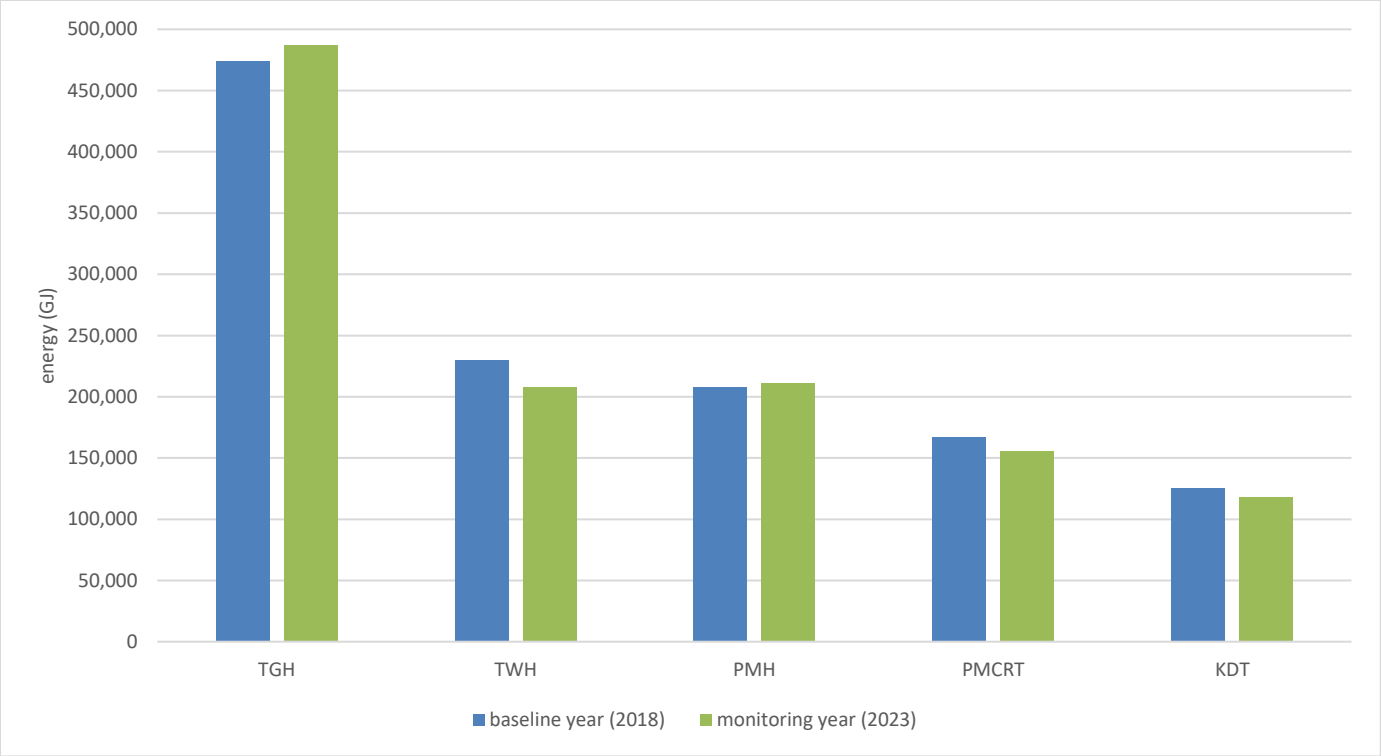

Figure 2: Comparison of UHN 2023 Energy Use to 2018 Baseline – Higher Consumption Sites

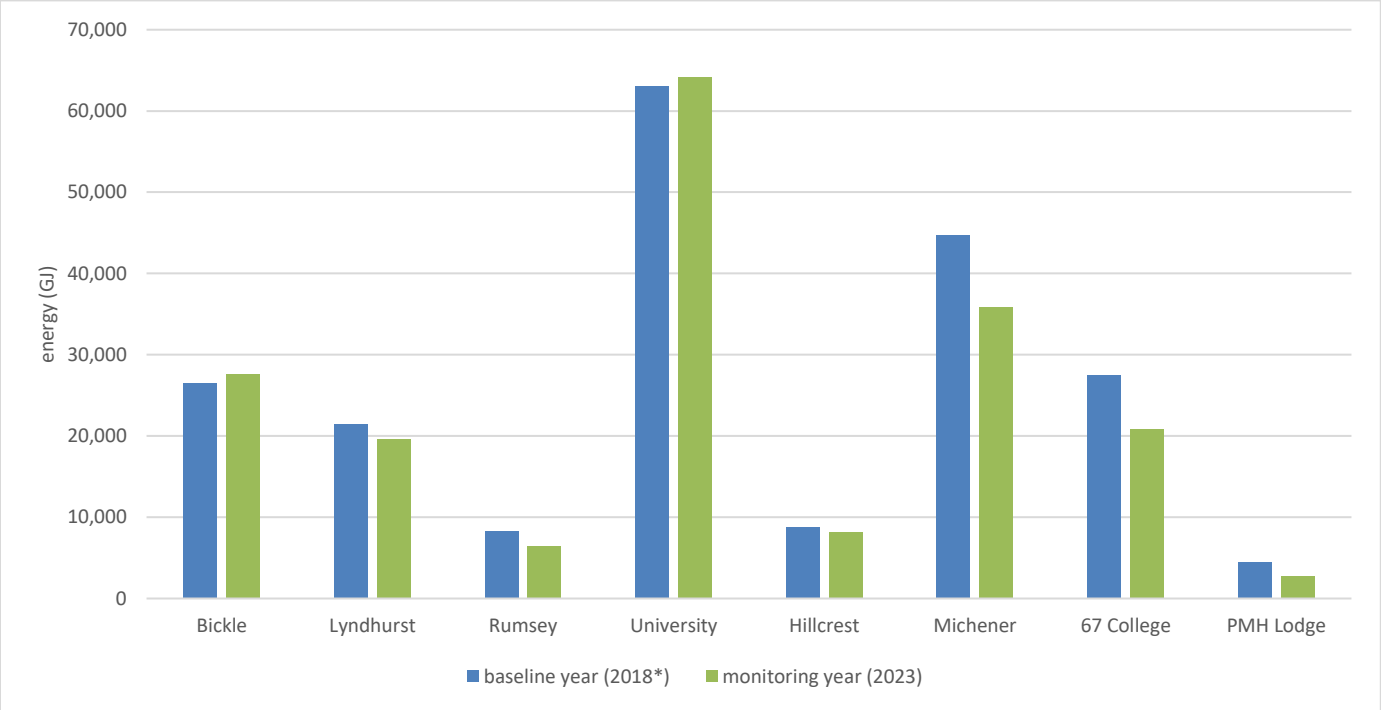

Figure 3: Comparison of UHN 2023 Energy Use to 2018 Baseline – Lower Consumption Sites

**Note: baseline data for 67 College and PMH Lodge is from 2019 as earlier data was not available*

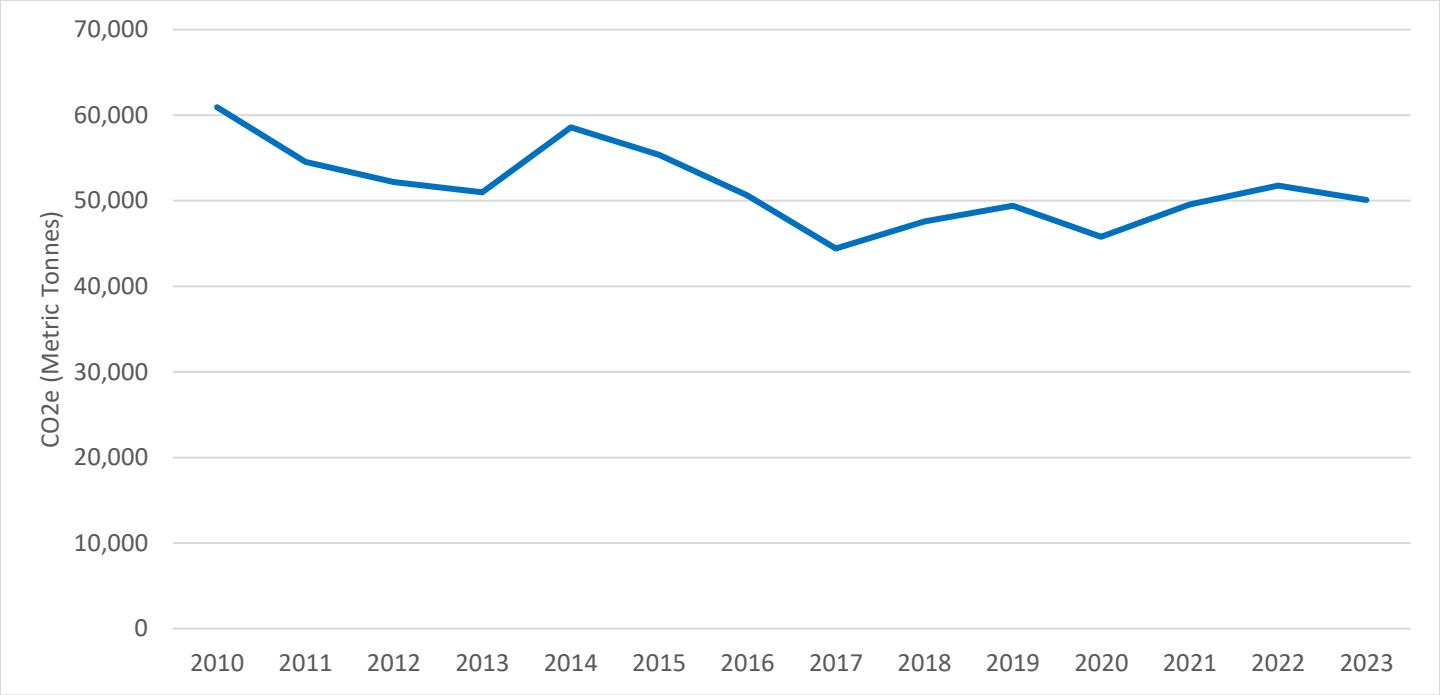

Figure 4: UHN GHG Emissions from Utilities

Energy Management at UHN: Current Energy Use

Figures 5 to 9 provide a breakdown of UHN energy use in 2023.

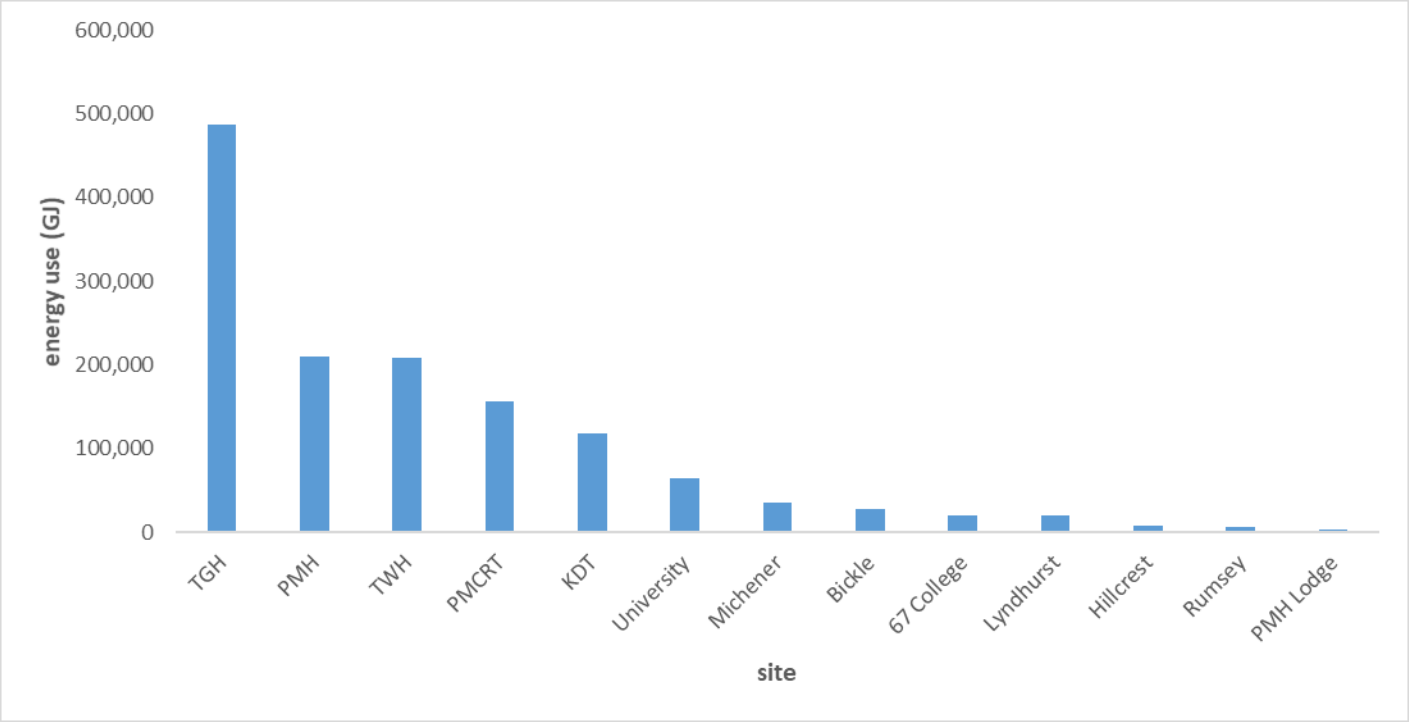

Figure 5: 2023 energy use by site.

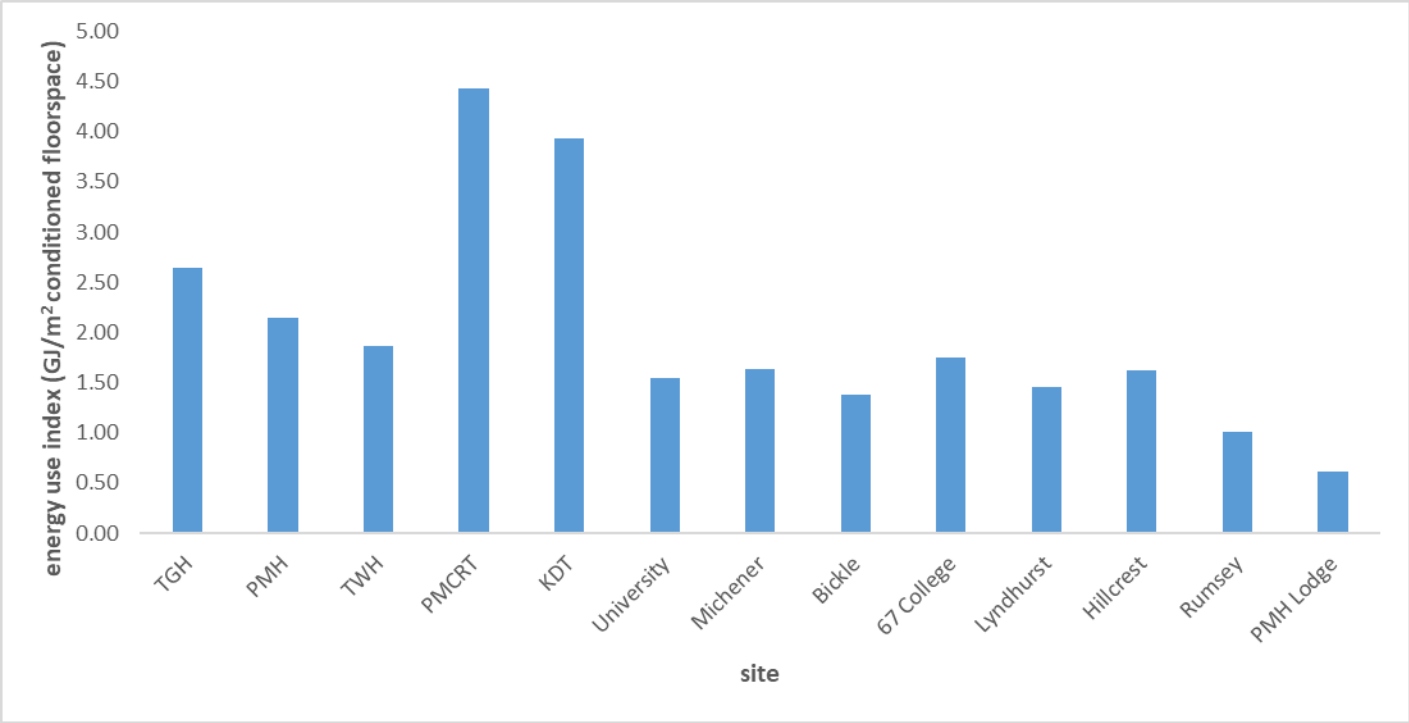

Figure 6: 2023 energy use index by site.

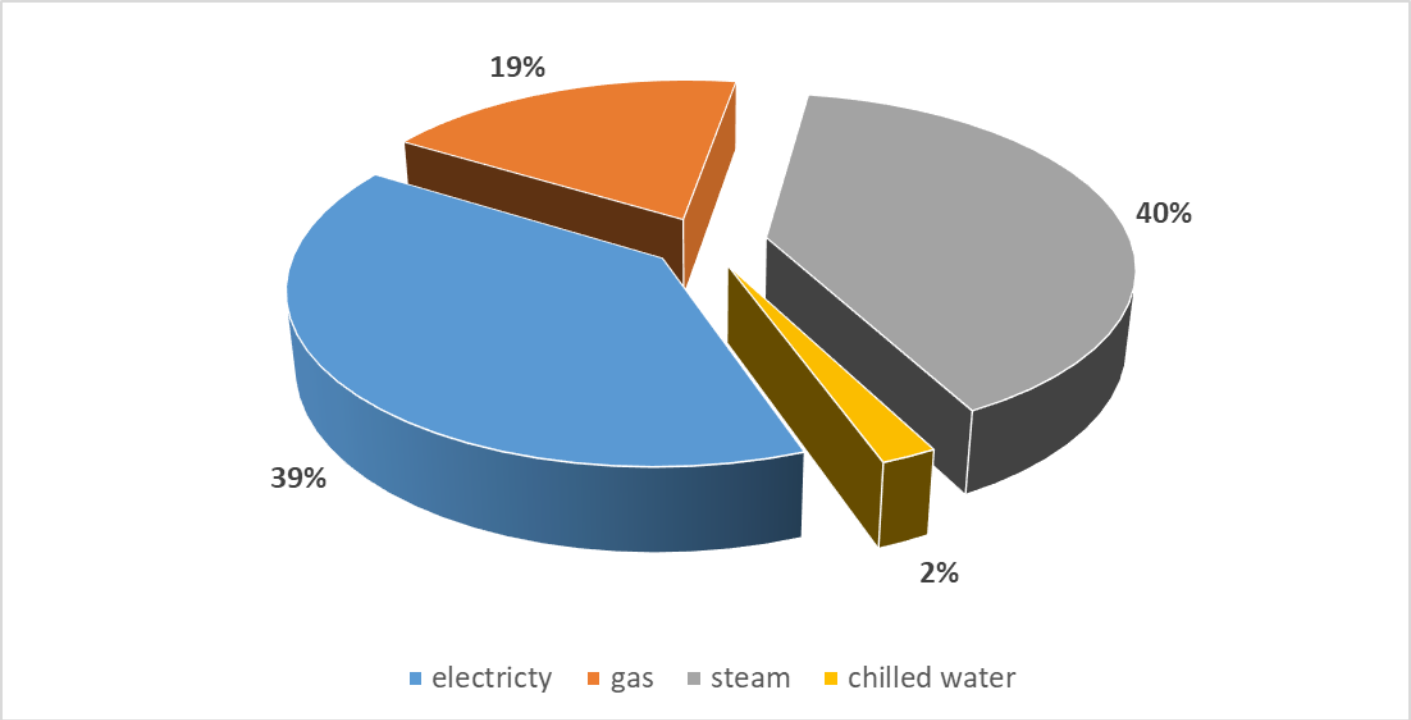

Figure 7: Breakdown of 2023 energy consumption by service.

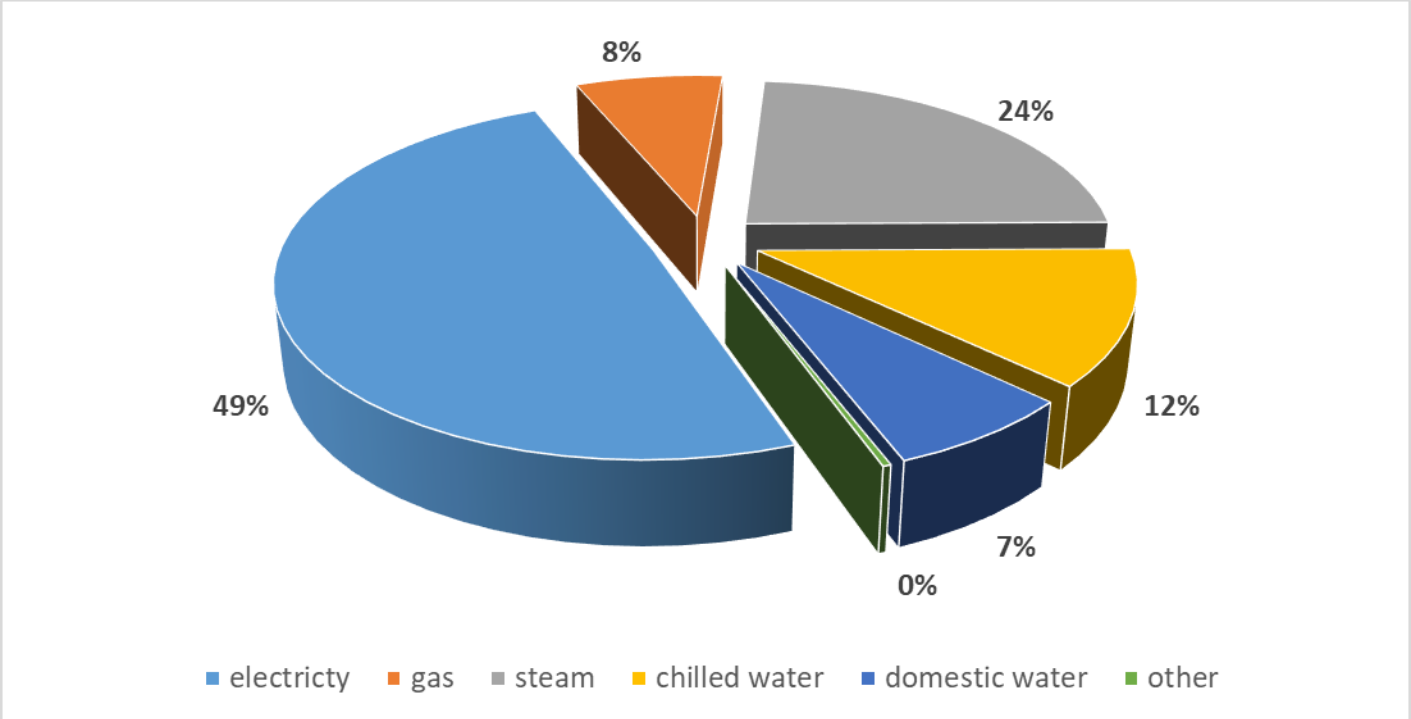

Figure 8: Breakdown of 2023 utility costs by service.

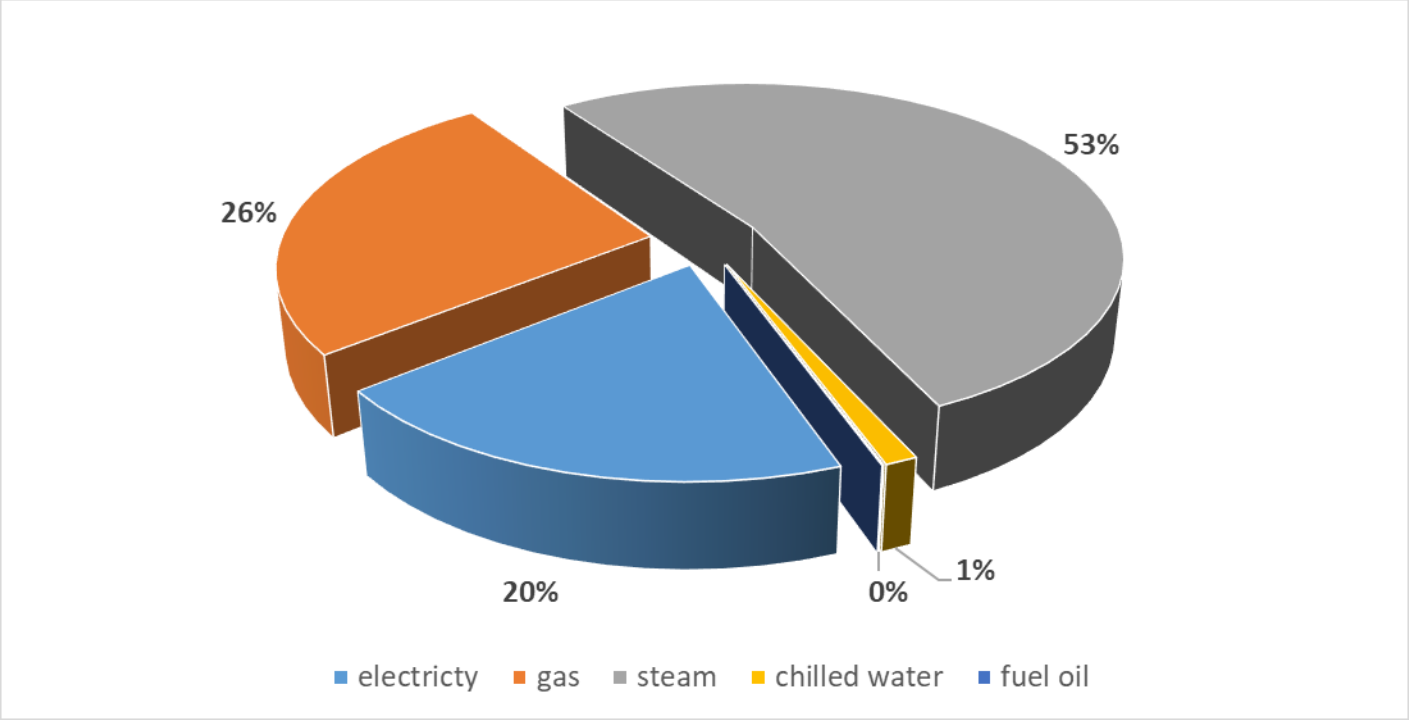

Figure 9: Breakdown of 2023 GHG emissions by service.

Moving Towards the Future State of Energy Management at UHN

This energy management plan provides a framework for all energy management activities taking place at UHN. In the development of the plan the current situation of energy management and use at UHN was documented, a vision of desired future energy management was defined, and action plans to move from the current to the future state, representing UHN's vision of how energy should be used and managed in the next five years and beyond, were developed. Details for these three elements (current state, future state and action plan) are presented in the action tables found in Appendix A. It is anticipated that completion of the actions detailed in Appendix A will further reduce UHN's energy use by between 5% and 10%.

It is important to note that this is the last planning period before 2030, a crucial year for UHN's GHG mitigation plans. UHN has set an aggressive target of 45% reduction from 2010 levels. This plan prioritizes projects that will help us achieve that goal.

The action tables are designed to be easy to understand by those who are not familiar with UHN's energy management planning framework, while at the same time being rigorous enough to be useful to UHN's Energy Teams working on implementing and sustaining the plan. The tables can be used both to get a snapshot of active energy management at UHN as well as provide a more in depth summary of initiatives and plan for the coming five years.

Next steps in utilizing this energy management framework and plan include:

- Continuing to implement ongoing actions that move UHN from the current to the future state.
- Beginning to plan and implement those new actions that have been identified as priorities.
- Integrating the Energy Plan with other UHN strategic and planning initiatives.

More Information on UHN's Environmental Programs

To learn more about environmental sustainability at UHN please visit http://talkintrashwithuhn.com.

Appendix A
Energy Plan Action Tables

Area of Focus: Building Automation Systems (BAS), Controls & Metering			
Current State	**Vision for Future State**	**Action Plan**	**Measure(s) of Success**

• BAS section plus metering requirements included in UHN Design & Construction Guidelines (**achieved from previous action plan**).
• Incomplete BAS and mechanical drawings. BAS drawings are consolidated and updated as systems are upgraded.
• Multiple BAS vendors across sites and sometimes within single site. For TWH and TR, common graphics across systems have been developed (**achieved from previous action plan**)
• Replacement of obsolete controls has been up to 80% complete at TWH and significant progress is underway at TGH (**achieved from previous action plan**). Replacement is ongoing.
• **TGH: 2022 -** Upgrade most AHUs, glycol, reheat system and other units in GW from Honeywell to JCI. Upgrade 90 VAV controllers and thermostats in RFE; **2023/4 -** Upgrade GW AHU-102, ICUs and ground floor hemodialysis east from Honeywell to JCI; complete migration from Honeywell to JCI. Upgrade remaining VAV controllers and thermostat in RFE; gradually convert RFE N2 trunk to MS/TP trunk. Upgrade BAS graphics from SMP to MUI; replace approx. 10 obsolete network controllers **2025 -** Upgrade RFE AHU DX9100 controllers; convert all RFE N2 trunk to MS/TP trunk. Upgrade Eaton AHU DX9100 controllers. If possible convert N2 trunk to MS/TP trunk.
• **TWH:** Upgrade is 80% complete, including majority of main systems; **2022/3** – Continue the upgrade; **2024** – Complete upgrade. Integrate energy metering into BAS; **2025** – convert pneumatic system to DDC.
• **TRI: 2022/3**- Convert Honeywell XL5000 and LNS system at UC to BACnet;**2024** – Incorporate BC boiler plant standalone controls to BAS. Replace remaining XL5000 controllers in BC. Recommission controls at BC and LC. Integrate energy metering into BAS; **2024** – Convert pneumatic system in selected areas to DDC.
• Significant use of pneumatic controls across all sites. Controls surveys have been completed to identify the ratio of pneumatic controls and their locations are generally known (**achieved from previous action plan**).
• Addition and/or upgrade of BAS controls included in scope of capital and redevelopment projects where applicable.
• Energy & Environment completing survey of existing BAS at all sites.
• Energy & Environment leading replacement of obsolete BAS components. Building optimization included in project scope.
	• BAS systems within individual sites have been consolidated to a single vendor or fully integrated system using current technology.
	• Equipment sequences of operation are optimized for comfort, reliability, and energy efficiency
	• Energy & Environment fully integrated into BAS related components of project planning and delivery.
	• All major HVAC systems upgraded with current controllers
	• BAS drawings updated and current.
	• BAS systems have redundant servers for all sites
		• In coordination with UHN Planning and Facility Operations teams, update UHN wide BAS surveys for each hospital, listing which areas have DDC, pneumatic or no controls. For DDC controls, indicate the generation of products, and remaining lifetime.
		• Based on results of BAS surveys, prioritize opportunities, including key mechanical systems such as chiller and boiler plants, then develop and implement site-based upgrade plans, integrating building optimization and energy efficiency.
		  • Continue ongoing Energy & Environment led and facility recapitalization driven replacement of obsolete BAS components.
		  • Pilot pneumatic to DDC control conversion to develop standards and determine best practice.
		  • Pilot conversion of obsolete BAS components to newer generation BACnet controls.
		• Work with Planning, Project Implementation and Facility Operations teams to consolidate BAS drawings.
			• Consistent graphics implemented within sites.
			• Obsolete BAS components have been replaced.
			• Conversion of pneumatic controls to DDC underway, with measurable implementation milestones.
			• UHN construction and design guidelines for BAS kept current and used consistently.
			• BAS drawings consolidated and gaps identified.

Area of Focus: Building Automation Systems (BAS), Controls & Metering			
Current State	**Vision for Future State**	**Action Plan**	**Measure(s) of Success**
• Inconsistent maintenance of BAS between sites. • Sensor calibration, maintenance and replacement being performed as needed (**achieved from previous action plan**). • Work ongoing to reduce ongoing BAS nuisance alarms. • BAS trending and alarm criteria standardization done for TWH during recent retro—commissioning. Being implemented at TGH during component upgrades. Pending for TR as part of planned system upgrades (**partially achieved from previous action plan**). • TWH and TR BAS are now on UHN servers, which are regularly backed-up, allowing systems to be restored if needed (**partially achieved from previous action plan**). • Project initiated to migrate TGH JCI BAS to UHN servers.	• UHN BAS systems are brought-up to and maintained in a state of good repair.	• Develop business case for BAS maintenance. • Develop consistent scope and expectations for BAS maintenance and service contracts. • Develop BAS preventative maintenance program and incorporate into new integrated work management system (IWMS) being implemented across UHN. • Virtualize JCI server at TGH	• Sensor calibration and maintenance included as part of preventative maintenance program. • BAS alarms for major systems reduced to no more than 20 per day per site. • BAS trending and alarm criteria standardized across UHN. • BAS systems at all sites have redundant servers.
• Real time electricity data available for all sites through web portals, but not tied to BAS. • New construction projects have implemented BAS submetering on key infrastructure, such as boiler/chiller plants (**partially achieved from previous action plan**). • Developing utility BAS dashboard pilot at TR	• Real time and historic utility data is available and regularly used.	• Develop utility metering template and pilot. If successful, roll-out across UHN.	• All main utility meters tied into BAS. Where applicable, sub-meters installed and tied into BAS. • Energy dashboards(s) available and regularly utilized for troubleshooting and decision making.

Area of Focus: Building Automation Systems (BAS), Controls & Metering			
Current State	**Vision for Future State**	**Action Plan**	**Measure(s) of Success**
• Inconsistent operation of BAS between sites. • Significant number of manual overrides on BAS. • New building operators at TWH receive BAS training as required (**partially achieved from previous action plan**). • Pilot energy performance index under development at TWH (**partially achieved from previous action plan**). • Strong correlation between hospital energy use and outside temperature now seen for all UHN hospitals (**achieved from previous action plan).** • CHW valves with integrated flow meters and temperature sensors installed on 25 AHUs in TGH. The system is used to monitor performance and optimize CHW usage.	• Building operations and energy use are optimized.	• Continue working with Facility Operations to document existing BAS sequences, concerns and Building Operator expectations. • Detail environmental condition requirements (e.g., temperature, humidity, pressure, etc.) for various departments across sites. • Continue to explore training opportunities for Building Operators, including potential partnerships with external organizations. • Develop energy performance index for major systems and equipment. • Continue fault detection and automated building optimization pilots and, if successful, develop UHN wide implementation plan.	• Majority of Building Operators have completed BAS and energy efficiency training. • Energy performance index for major systems and equipment available on BAS. • Manual overrides reduced to maximum of 20 per day per hospital. • Number of temperature and humidity complaints are reduced. • Building energy use reduced and strongly correlated with hospital activity and outside temperature.

Area of Focus: Maintenance & Commissioning			
Current State	**Vision for Future State**	**Action Plan**	**Measure(s) of Success**
• Energy performance not included as part of preventative maintenance. • Commissioning section included in new UHN Design & Construction Guidelines released April 2021. Active Engagement of Energy & Environment into capital process ongoing. Third party commissioning agent typically used on major capital and redevelopment projects (**achieved from previous action plan**). • Pilot VFD maintenance programs, including evaluation of energy performance, being rolled out at TGH and TWH. • Annual steam trap audits and repairs conducted at all sites. Real-time steam trap monitoring pilot was unsuccessful.	• Equipment energy performance incorporated into preventative maintenance program. • Commissioning included in project cycle for all major capital and redevelopment products.	• Perform environmental and industry scan to determine best practice incorporating energy performance into preventative maintenance. • For UHN equipment and systems, identify key maintenance activities impacting energy performance and develop preventative maintenance protocols. • Investigate opportunities to include energy performance into new integrated work management system (IWMS) being implemented across UHN.	• Energy performance measurement and maintenance incorporated into preventative maintenance work orders. • UHN commissioning guidelines and standards incorporated into project planning and implementation cycles.

Area of Focus: Lighting			
Current State	**Vision for Future State**	**Action Plan**	**Measure(s) of Success**

• Several types of lamps have been largely converted to LEDs, including screw-in incandescent lamps, screw-in compact fluorescent lamps (CFLs), HID lamps and halogen MR16s.
• Most 24/7 areas containing fluorescent T8 lamps have been converted to LED lamps that use existing ballasts. Installation of LED tubes being expanded to non-24/7 areas across all sites. TRI near 100% converted to LED. PMH 80% converted.
• Some areas with unique lighting requirements (e.g. mechanical rooms, outdoor lighting, high bay lighting, etc.) have been converted to LED.
• Conversion options for most lamp types have been implemented successfully (**achieved from previous action plan**).
• Sustainable Lighting Design included in UHN Design & Construction Guidelines (**achieved from previous action plan**).
• Specification of LEDs standard for capital and redevelopment projects.
• Some progress made to ensure LED lighting products used at UHN have long lifespan and are serviceable in Canada (**partially achieved from previous action plan**).
• New lighting control standard under development and will be piloted in TGH RFE building (**partially achieved from previous action plan**).
• Conversion of lighting to LED ongoing however we are starting encounter replacements for end-of-life LEDs. Initiatives and energy savings are documented.
• Lighting audits ongoing across UHN (**partially achieved from previous action plan**).
	• UHN lighting standard, including standardized fixtures, developed and in use.
	• LEDs are used exclusively throughout UHN.
	• Where applicable, lighting controls are implemented and optimized.
	• Utilize LED capabilities to create environments comfortable for patients, staff, and community
		• Complete lighting audits at all sites, detailing:
		  • base inventory of lighting equipment;
		  • current and required light levels; and,
		  • opportunities to install localized lighting controls.
		  • Continue to install higher efficiency lighting to reduce energy consumption
		• Work with Facility Operations to develop standardization plan for types of LED lamps and fixtures used throughout UHN, including:
		  • solutions for challenging fixtures and areas; and,
		  • ensuring serviceability.
		• Leverage end-of-life TGH RFE lighting control system to investigate replacement options and potential to expand centralized control across UHN.
			• Updated UHN lighted guidelines and standards used for all capital and redevelopment projects.
			• Documented energy savings from lighting retrofit and control projects.

Area of Focus: Fans, Pumps & Motors (including ventilation & air handling)			
Current State	**Vision for Future State**	**Action Plan**	**Measure(s) of Success**

• Fans and pumps across UHN being assessed and replaced under recapitalization projects including those used for air-handling units (AHU) and domestic cold water (DCW) distribution. Energy efficiency incorporated into planning, design and replacement. (**achieved from previous action plan**)
• VFDs added to several AHU, DCW and other systems across UHN as stand-alone energy efficiency projects (**partially achieved from previous action plan**).
• HVAC section included in new UHN Design & Construction Guidelines (**achieved from previous action plan**).
• Incomplete mechanical drawings.
• Summary page, with fan and pump details, set-up for main TWH and TR systems. Implementation of performance monitoring to be piloted at TWH where fan/pump information already available on BAS.
	• Real-time energy dashboard, performance index and trending available for all fan and pump systems.
	• Fan and pump preventative maintenance scheduled based on performance.
	• Energy use optimized for all fans and pump systems.
		• In conjunction with Facility Operations, conduct fan and pump surveys at each site identifying which area require upgrade or replacement for energy efficiency and/or reliability purposes.
		• Implement measures based on survey results, including:
		  • addressing fan system air leaks, prioritizing older AHU systems;
		  • replacing standard V-belt with clogged belts on belt drive fans; and,
		  • where applicable, installing VFDs on fans and pumps and connect to BAS.
		• Develop and implement pilot project for real time pump monitoring system including dashboard and energy performance index for individual systems and/or motors available on the BAS. Investigate connecting energy performance index to preventative maintenance work orders via new integrated work management system (IWMS) being implemented across UHN.
		• Complete installation of round-around loop heat recovery system between exhaust air and fresh air at PMH.
		• Continue to investigate opportunities for reducing fume hood air flow, particularly at PMH.
		• Complete air system balancing for most AHUs across UHN.
			• Documented reduced energy use by fan and pump systems.
			• Real-time fan and pump dashboard and performance monitoring available on BAS.
			• Documented repair of fan system air leaks.
			• UHN construction and design guidelines for fans, pumps, motors and HVAC developed, approved, regularly reviewed and used consistently.

Area of Focus: Water			
Current State	**Vision for Future State**	**Action Plan**	**Measure(s) of Success**

• UHN water consumption reduced 27% between 2018 and 2023 (**achieved from previous action plan**).
• Water cooled refrigeration replaced with air-cooled at BC and LC (**achieved from previous action plan**).
• TWH WET system expected to further reduce water consumption by another 10% after completion summer 2025.
• Implementation of overflow alarm for TWH cooling towers, to prevent wastage through overfilling and overflow, under investigation.
• TGH continuing to identify and stop areas where domestic water backup cooling is in use.
• City of Toronto water audits conducted at all locations.
• Numerous once-through municipal domestic-water cooling units have been replaced. Rare units remain with initiatives to replace in various stages of implementation.
• Domestic water used as back-up cooling for critical equipment.
• Water efficient fixtures included in UHN Construction & Design Guidelines, where consistent with infection control requirements.
• Water treatment service-providers engaged to reduce cooling tower water use though increased cycles of concentration.
• Concern with inefficient water use by TWH cooling towers. Solutions being investigated and implemented.
	• Use of once-through domestic water for primary cooling eliminated.
	• Use of water for cooling towers optimized.
	• Grey water re-used on-site.
		• Continue projects to remove fridges at TGH's MBRC building from once-through domestic water cooling.
		• Continue implementation of measures to optimize cooling tower water use.
		• Develop UHN standards for cooling-tower water treatment.
		• Re-audit, assess and prioritize additional water reduction opportunities at all sites including:
		  • conversion of handwashing sinks to 5.7 lpm laminar flow, or less, where consistent with infection control requirements;
		  • opportunities to re-use grey water on-site; and,
		  • optimization of water use for landscaping.
		• Examine opportunities to reduce hardscaping to decrease volume of storm water runoff to sewer system.
			• Measurable decrease in water use.
			• Fridges at LC, BC and TGH have been removed from once-through domestic water cooling.

Area of Focus: Heating & Cooling Plants			
Current State	**Vision for Future State**	**Action Plan**	**Measure(s) of Success**
• Primary heating for TGH, PMH, UC and PMCRT through district steam system. • Primary cooling for TGH, PMH (**achieved from previous action plan**), and UC through Deep Lake Water Cooling (DLWC) district system. • New high efficiency boiler plants installed at BC and LC (**achieved from previous action plan**). • Incomplete mechanical drawings. Complete drawings available for new plants. • Real-time performance dashboard available for LC and BC cooling and heating plants (**achieved from previous action plan**). Performance data available for TWH, but not tied to BAS. • Construction of district Wastewater Energy Transfer (WET) System to heat and cool TWH & KDT underway; completion expected Summer 2025. • MBRC Deep Lake connection found to be not feasible as a stand alone project	• Performance of heating cooling plants has been optimized. • Resiliency and reliability of heating and cooling plants has been improved. • Where feasible, primary heating and cooling is provided by district energy systems.	• Complete feasibility study for connection of TGH's MBRC building to Deep Lake Water Cooling district system. • Continue development and implementation of plans to address maintenance concerns with TWH cooling plant and optimize performance. • Develop and implement real time heating and cooling plant monitoring system including dashboards and energy performance indexes which can be used to generate maintenance work orders.	• Measurable improvement in cooling and heating plant performance. • Decrease in GHG emissions from operations • Real-time dashboard and performance monitoring for heating and cooling plants available on BAS.

Area of Focus: Building Envelope & Insulation			
Current State	**Vision for Future State**	**Action Plan**	**Measure(s) of Success**

• Preliminary envelope audits completed for TWH and PMH. Some opportunities implemented, though poor payback for many measures.
• Evaluating the potential for cost effective aerial thermal imaging in order to identify the most beneficial envelope measures
• Major envelope and window retrofit implemented at RC in 2020 leading to approximately 13% energy reduction at the site (**achieved from previous action plan**).
• Building envelop included in UHN Design and Construction Guidelines, including components of LEED, Well Building, Fitwel, Living Building Challenge, Passive House, and Toronto Green Standard (**achieved from previous action plan**).
• "Cool" roofs installed at BC and RC.
• Areas of uninsulated heating and cooling distribution piping located throughout all sites. Significant repairs completed for TWH, TGH, and PMH steam distribution piping. Results are tracked (**partially achieved from previous action plan**).
• Removable steam system insulating jackets installed at KDT and TGH. Steam jackets are often removed and not reapplied by staff and contractors.
• Passive solar wall feasibility study completed for PMCRT.
• Duct sealing feasibility was investigate, however not able to implement at this time (**achieved from previous action plan**).
	• Building envelopes at all sites are designed, operated and maintained so that cooling and heating loads are minimized.
	• All heating and cooling distribution piping and ducts are appropriately insulated.
		• Ongoing audits to identify all areas with missing or damaged insulation on heating and cooling distribution pipes and ducts.
		• Complete comprehensive building envelope audit for all sites, including:
		  • thermal imaging;
		  • vestibule improvement and backup plan; and,
		  • opportunities to install window reflective film.
		• Working with facilities operations, develop strategy for application of removable jacket vs permanent steam insulation to minimize frequency of removal. Expand across UHN if results favorable.
		• Keep UHN building envelope standards up to date.
		• Develop building envelope preventative maintenance plan, including:
		  • weather stripping & caulking;
		  • insulation of cracks;
		  • sealing of utility and other penetrations; and,
		  • proper fitting and operation of fenestration.
			• Measurable reduction in heating and cooling load requirements from building envelopes.
			• Documented replacement, repair and/or addition of insulation to heating and cooling distribution piping and ducts.

Area of Focus: Onsite Energy Generation, Storage & Renewable Energy			
Current State	**Vision for Future State**	**Action Plan**	**Measure(s) of Success**
• Deep Lake Water Cooling (DLWC) district system providing primary cooling for TGH, PMH, and UC (**achieved from previous action plan**). • Feasibility study for connection of TGH's MBRC building to DLWC district system completed but not financially viable (**achieved from previous action plan**). • District Wastewater Energy Transfer system under construction at TWH and KDT. Expected to reduce TWH gas consumption by up to 80% with lower utility costs (**achieved from previous action plan**). • Heat pumps implemented on poor performing BC heat recovery loop (**achieved from previous action plan**). • Feasibility study complete at TGH on utilization of low grade heat available in the return side of the DLWC district to displace fossil-based steam heating. Moving to detailed design and financial modeling (**achieved from previous action plan**). • New boiler plant at LC designed to operate efficiently at lower temperatures, split plant between seasonal heating and DHW loads to increase efficiency, and included connections for future low carbon heat sources. • Ground source heat pump feasibility study at LC found difficult business case. • Investigation of electrifying DHW at BC. • Use of battery storage being investigated. • Feasibility studies for combined heat and power (CHP) completed for BC and TWH. Rejected due to GHG increases. • Active investigations into district energy systems underway for PMCRT, MBRC, CBS and Michener, including potential connection to DLWC system. • Cursory investigations into solar walls and photovoltaics completed.	• Renewable and low carbon energy form a significant portion of UHN's energy mix. • Renewable energy incorporated into new construction. • Peak electricity demand has been minimized. • Heat recovery from exhaust streams maximized.	• Develop and implement first stage of decarbonization plan at TGH. • Where feasible, redevelop existing glycol runaround loops with heat pump technology to reduce fossil fuel consumption. Most promising systems at PMCRT and PMH. • Continue preliminary and, if warranted, detailed investigations into use of ground- and air-source heat-pumps, battery storage and other low carbon energy sources. • Develop renewable energy guidelines for new construction (e.g., solar PV, etc.).	• Feasibility studies into low-carbon energy sources have been completed and, where feasible, planning and/or implementation has started. • Guidelines for incorporating renewable energy into new construction have been developed and approved. • Documented and quantified renewable energy production.

Area of Focus: Plug Load & Information Technology			
Current State	**Vision for Future State**	**Action Plan**	**Measure(s) of Success**

• UHN Green Procurement policy specifies evaluation of energy consumption were appropriate. Policy is to purchase Energy Star rated appliances when certification is available.
• Energy & Environment participating in digital network upgrade design work, including redesign of cooling for many IT closets
• Program in place to purchase energy efficient ultra-low temperature (ULT) freezers when needed.
• Energy & Environment involved in UHN enterprise print management strategy and program.
• Computers
  • Inconsistent ability to implement power saving modes due to wide variety of computational needs and required response times.
  • Energy use from monitors greatly reduced through improved technology.
  • Full lifecycle costing, including energy use, and third-party certification (e.g., EPEAT, Energy Star, etc.) not consistently taken into account during procurement.
• Location of on-site data centers not always optimized to minimize cooling energy requirements.
	• Use of energy consumption criteria and third party certification embedded into procurement process.
	• Computer and peripheral equipment power-saving mode implemented consistently where applicable.
	• Optimization and minimization of cooling requirements considered when locating, designing and building on-site data centers.
		• Continue to promote and expand use of energy consumption criteria and third party certification during procurement processes.
		• Schedule regularly occurring Energy & Environment meetings with UHN Digital to investigate and implement power shut down opportunities.
		• Develop UHN construction and design guidelines for data centers and other IT related requirements.
		• Investigate methodologies for estimating plug load in health care settings.
			• Regularly occurring Energy & Environment meetings with UHN Digital scheduled and well attended.
			• Consistent messaging and protocols developed for computer power saving.
			• UHN construction and design guidelines for data centers and other IT related areas developed and used consistently.
			• Estimate developed for UHN plug load.

Area of Focus: Greenhouse Gas Emissions			
Current State	**Vision for Future State**	**Action Plan**	**Measure(s) of Success**

• Awareness of GHG impact to public health and healthcare facilities exists at the highest levels of management.
• Over 15 years of UHN utility data available for historical trending and comparison.
• Scope 1 and scope 2 greenhouse gas emission metrics incorporated into UHN utility tracking platform.
  • Scope 1 and scope 2 greenhouse gas emissions from UHN hospitals and research towers publically reported since 2013.
  • Greenhouse gas emissions included in UHN Energy & Environment annual report.
• Scope 1 and 2 GHG reduction target of 45% from 2010 level by 2030. BC has already achieved this target (**achieved from previous action plan**).
• Review of appropriate methodologies for calculating Scope 3 emissions ongoing, including work with external groups (e.g. CASCADES program at UofT).
• Development of UHN "zero-carbon" pathway ongoing, and presented to UHN Board.
• GHG emissions included in all energy project decisions (**achieved from previous action plan**).
• UHN D & C Guidelines include requirements for lower temperature heating water systems to enable future decarbonization (**achieved from previous action plan**).
• New patient tower at TWH is being designed to be fed from Wastewater Energy Transfer system. Only onsite GHG emissions from fossil fuels will be emergency generators (**achieved from previous action plan**).
• Electric vehicle charging stations installed at TGH, TWH, RC to help address scope 3 greenhouse gas emissions.
• Developing plan with Deep Lake Water Cooling District to recover heat from their network to displace steam heating (**achieved from previous action plan**).
• Secure (badge access) bicycle parking constructed at TGH, TWH, LC/RC to encourage clean commuting.
• Anesthesia department has eliminated Desflurane gas and switched to lower GWP potential alternatives. Further work ongoing to investigate N2O.
	• Consideration of greenhouse gas emissions more heavily weighted when evaluating energy projects, including health and other non-monetary costs.
	• Long-term vision of all new UHN buildings being carbon-neutral and/or net-zero energy.
	• Greenhouse gas reduction goals of district energy partners are aligned with UHN.
	• Scope 3 greenhouse gas emissions measured and reported.
		• Perform environmental scan of appropriate methodologies to determine scope 3 greenhouse gas emissions from healthcare facilities.
		• Incorporate the social cost of greenhouse gas emissions into business decisions.
		• Develop and implement key projects to meet UHN greenhouse gas reduction targets.
		• Develop and implement UHN construction standards to enable transition to low carbon energy.
		• Engage with district energy suppliers to develop a plan to reduce the greenhouse gas intensity of the utilities they supply.
			• UHN greenhouse gas emission targets established; all buildings on track to meet targets.
			• UHN's scope 1, scope 2 and scope 3 greenhouse gas emissions are tracked and reported on.
			• Greenhouse gas impacts of energy and capital projects are actively determined and used for evaluation.

Area of Focus: Behaviour Change & Engagement			
Current State	**Vision for Future State**	**Action Plan**	**Measure(s) of Success**

• Broad enterprise communication plan and engagement strategy for Energy & Environment programs in place. Energy awareness campaign, branded "Operation TLC – Care to Conserve", encourages "lights off" behaviour.
• Well established "Green Team" with over 700 staff acting as energy and environmental champions for their work area.
• Successfully using events (e.g. volunteer gardening opportunities, cycling workshops, etc.) to generate Green Team engagement and enrollment.
• New Green Team specific "train-the-trainer" presentation completed.
• "Targeted" regular (annual or biannual) training for key operational departments impacting energy use (e.g. Facility Operations, Environmental Services, Security, etc.)
• High level training started for capital project planning and delivery teams.
• Limited energy training for new Building Operators.
• Limited assessment of third-party service provider experience with energy management.
• Creation and roll-out of collaborative model of training development and execution, partnering with leaders in key departments (e.g. Environmental Services, Facilities, etc.) to promote their ownership sustainability.
• Pilot Building Operator training completed at TWH in March 2021. New Building Operators receive BAS training as required.
	• Ongoing comprehensive energy training for all UHN teams impacting energy use.
	• Demonstrated energy management experience, where applicable, for third parties providing services to UHN.
		• Develop tools and metrics to assess efficacy of enterprise communication and engagement strategy. Examine re-instituting Energy & Environment engagement survey.
		• Continue to investigate tools and opportunities to further support Green Team members.
		• Formalize and enhance energy training and education for project planning and delivery teams.
		• Determine current state of Building Operator knowledge (e.g., through surveys, current certifications, etc.) and:
		  • perform environmental scan and evaluate existing training opportunities (e.g., Building Environmental Systems Operator Certificate, etc.); and,
		  • explore training development opportunities with external partners (e.g. IESO, CHES, etc.).
			• Methodology for assessing enterprise engagement identified and being used.
			• New tools developed for Green Team members, with increased enrollment.
			• Internal training programs established for all UHN teams impacting energy use.
			• Training opportunities identified for new and current Building Operators with active enrollment.

Appendix B
West Park Energy Plan

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West Park Healthcare Centre

West Park Healthcare Centre

170 Emmett Avenue

Energy Conservation and Demand Management Plan

2023 to 2028

Version 1. - June 2024

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Executive Summary

The West Park Healthcare Centers 2023 – 2028 Energy Conversation and Demand Management (ECDM) plan continues the commitment made in the previous West Park Healthcare plan towards exceptional energy and environmental performance.

At the end of 2023, with substantial completion achieved on 21st November 2023, the site transitioned to the new building. At this point EllisDon Facilities Services (EDFS(WPHC) Inc.) began its custodianship for the site.

With the building achieving LEED Silver Certification and as part of this custody EDFS has a number of commitments under its stewardship covering Utilities Management, Environmental and Sustainability Services. There also contractual commitments and guarantees for utilities consumption for the site.

This plan is cogniscent of the West Park Healthcare Vison, Mission and Values to ensure it reflects and continues the authority's commitment to environmental sustainability and healthy communities. Most notably that West Park will continue to be "A Great Place to Be".

Following on from the use of the eQuest energy model informing our design and setting a baseline, our proposals for the new site included green roof spaces, the use of Heat Recovery Chillers, automated roller shades, an integrated Building Management System and intelligent controls of the heating cooling and lighting. Our metering and verification strategy included in the design allows for detailed tracking of operational energy and water consumption broken out by system to improve the sustainability performance of the building.

Given that the year to November 2024 establishes the baseline for the site and the comissioning/familiarisation of all the buildings systems EDFS will revise and republish this EDCM in the Fall of 2025.

EDFS is a member of the Greening Health Care family and will bring to bear and learning from the best practices of the top performing non acute hospitals in Ontario.

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Part 1. – Introduction

West Park Healthcare Centre helps patients get their lives back by providing specialized rehabilitative and complex care after a life-altering illness or injury such as lung disease, amputation, stroke, and traumatic musculoskeletal injuries.

The West Park Centre, is located on the banks of the Humber River, and was founded in 1904 as a sanitarium for tuberculosis patients. Its original major buildings were opened in the 1980's and in 2001 (Long Term Care facility).

Of these the original main hospital and Gage have been replaced a new hospital transforming its 27-acre site into an integrated campus of care, enabling the hospital to evolve its rehabilitative programs to meet Ontario's future healthcare needs.

This new building, of 740,000 sq feet is home for 314 beds and offers Rehabilitation & Community Living, Complex Continuing Care and Long-Term Care programs.

The purpose of the EDFS West Park Healthcare Energy Conservation and Demand Management (ECDM) plan and our associated policies is to promote good stewardship of our environment and community resources. It will also enable us to be the Great Palace to Be to a greater number of persons in the community.

Whilst this plan does not address the retained estate, EDFS notes, in Section 2, the previous EDCM and initiatives made by West Park Healthcare including its achievement of Green Hospital of the Year (non-acute) by the Canadian Coalition for Green Health Care.

EDFS also notes the voluntary integration between University Health Network and West Park Healthcare Centre, effective April 1, 2024, which was approved by the Ontario Ministry of Health. As with Greening Healthcare EDFS looks forward to leveraging each others expertise and capabilities.

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Part 2. - Previous EDCM

In West Park Healthcare's 2018 to 2023 plan commitments for the Main Hospital site were set out:

- Reduce energy use by 6%
- Reduce water consumption by 7%

New Hospital
A commitment was made to deliver the most energy efficient building possible maintaining its history of being at the top of energy efficiency charts.

Strategic Alignment
Presentation of the EDCM to key groups

Renewable Energy
There was no commitment to introduce renewable energy for the new site

Energy management, reporting and team building.
Introduction of an integrated energy reporting system.

Staff Training and Support
Greater use of the Greening Healthcare membership through its workshops, webinars and technical support.

Occupant engagement and communications
Development of an outreach program.

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Part 3: The plan for the next 5 years – 2024 to 2029

Over the upcoming years, West Park Health Care will utilize the new building as a model of sustainable, patient-centered healthcare. To ensure that the building and its surrounding areas remain in optimal condition, WPHC has partnered with EllisDon Facility Services (EDFS), who will provide comprehensive facility maintenance along with energy management support among some of their services. This includes monitoring energy usage, identifying and implementing energy conservation measures, and supporting energy projects to improve the overall efficiency and sustainability of the facility. By working closely with EDFS, WPHC remains committed to providing the highest standard of care to all patients while minimizing the environmental impact and promoting responsible resource usage.

The new building is an impressive facility, with substantial completion achieved on November 21st. Equipped with smart technology, the building is designed to be energy-efficient and reduce environmental impact while providing a better experience for patients and staff. The use of modern technology enhances the overall functionality of the facility, making it easier for staff to manage operations, while also creating a more comfortable and relaxing environment for patients. With the building's completion, the focus by the end of 2023 turned to the move-in process, which took place at the beginning of the second quarter of 2024.

Following substantial completion of the new building, the initial period began on December 1st, 2023 and will continue until November 30th, 2024. During this time, utility data is being collected to establish a baseline for the new site, which is currently in progress and being reported to the Utilities Management Sub-Committee

Throughout this period, EDFS will conduct tuning and implement operations and maintenance (O&M) practices to ensure that the site's assets are operating efficiently and effectively, enabling the delivery of exemplary care. This work is critical in ensuring that the new building is fully optimized and performing at its best, which in turn will benefit patients, staff, and the environment.

While the new building has been completed, there are still areas of the hospital site that are currently under development, including a new pharmacy space. To ensure continuity and consistency throughout the site, EDFS and WPHC are working together to ensure that these areas are implemented to the same base building specifications as the rest of the facility. This collaborative approach ensures that the entire site is optimized for the delivery of exemplary care, with a focus on the comfort and wellbeing of patients and staff.

As part of its commitment to sustainability and environmental responsibility, West Park's first goal is to obtain a LEED Silver certification for the new building. This certification recognizes the building's energy-efficient design and construction, as well as its impact on the environment and the health and wellbeing of patients and staff. By prioritizing sustainability in the development of the new building, West Park is demonstrating its commitment to creating a healthier, more sustainable future for all.

Key Facts for the New Site

- Utility costs for electricity, natural gas and water are anticipated to be $3.511 million annually.
- The Hospital's Energy Use Index (EUI) is expected to be 48.2ekWh/ft2
- The Hospital's Water Use Intensity is expected to be 142.1l/ ft2
- Energy related emissions annually are expected to equal 4079tCO2e.
- Facility related O&M costs are $2.4 million annually (excluding utilities)

1. The New West Park Hospital

The new building is more than just a modern healthcare facility - it's a model of sustainable design that prioritizes energy efficiency and environmental responsibility. With over 730,000 square feet of space and a capacity for over 300 patient beds, the hospital is equipped with state-of-the-art features that promote patient comfort and wellbeing. The heating and ventilation system is designed to bring fresh air indoors, while the expansion of green space and extensive landscaping provide patients with therapy courtyards, sensory gardens, and fitness trails. The new building is not only designed to operate efficiently, but also to provide a positive rehabilitation experience for patients and staff alike. The partnership between EDFS and WPHC ensures that the building is continuously monitored and maintained to meet expected standards, thus enabling us to provide exemplary care in a sustainable and energy-efficient way.

2. Renewable energy

While there are currently no existing renewable energy sources at the new hospital, WPHC and EDFS are committed to operating the facility efficiently and sustainably. Recognizing the importance of reducing the building's environmental impact and promoting responsible resource usage, and there might be an opportunity to explore possible renewable energy sources into the facility in the future. In the meantime, all engaged parties will be leveraging advanced energy management technologies and implementing best practices to optimize energy usage, reduce waste, and promote sustainability across all aspects of the operations. WPHC goal is to provide exemplary care to all patients while minimizing the environmental footprint and contributing to a healthier, more sustainable future for all.

3. Management, organizational and community alignment

West Park Health Care is committed to keep leading the healthcare industry by implementing innovative initiatives that prioritize patient comfort, wellbeing, and environmental responsibility. The management team is always seeking new opportunities to learn about emerging technologies and how they can be adapted to the facility to create a positive impact for all users. Through this partnership with EDFS, the service provider has engaged multiple individuals to lead the charge in optimizing the facility's performance and minimizing its environmental impact. By leveraging advanced energy management technologies, implementing best practices, and prioritizing patient-centered care, WPHC remains confident in their ability to provide exemplary service to patients while minimizing the environmental footprint and contributing to a healthier, more sustainable future for all.

3.1. Strategic Alignment

At West Park Health Care, the strategy for the coming years extends beyond simply maintaining the new facility's maximum efficiency. WPHC is committed to engaging all visitors, employees, and members of the community to learn about all efforts to minimize the building's carbon footprint and promote environmental responsibility. This objective has been a priority not only with the new facility but also with the previous facility, and WPHC have implemented educational initiatives among the staff to cascade the message and create a greater impact. Moving forward, WPHC will maximize all efforts to educate and engage all members of the community, both within and outside the facility, whenever possible. By promoting environmental responsibility and educating all stakeholders on best practices, the objective is to inspire positive change and contribute to a healthier, more sustainable future for all.

3.2. Energy Management, reporting and team building

The new facility features advanced energy metering infrastructure that allows EllisDon Facility Service to monitor energy usage in detail, including the specific areas and uses of energy throughout the building. With over 250 data points, including sensors, meters, and VFDs, this technology provides a comprehensive view of energy usage, primarily electricity and natural gas. Multiple individuals are involved in the monitoring of utilities, with a shared goal of promoting efficient energy usage and long-term cost savings. By leveraging this technology and engaging experts in energy management, the facility can achieve optimal energy efficiency, reduce its environmental impact, and provide a comfortable and sustainable environment for patients and staff alike.

EDFS provides utilities management services and environmental and sustainability services to support energy management at West Park Health Care. These two services work in tandem, as efforts to manage utility consumption have a positive impact on the environmental sustainability of the facility and its surrounding areas. EDFS employs a multiskilled team with strong skills in specific scopes, allowing them to understand data and identify areas where action is required to optimize energy usage. Once areas of improvement are identified, EDFS works closely with the on-site team to ensure that decisions made regarding energy consumption are properly informed by data and have a positive impact on the facility's energy efficiency and environmental impact. By leveraging this expertise and working collaboratively, good and effective measures to save energy will be in place.

As part of the monitoring and reporting methodology, EDFS will provide monthly, quarterly, and annual reports to WPHC. These reports will include updates on utilities management, gains and losses in energy efficiency, and any other relevant topics related to the optimal operation of the facility. To facilitate ongoing discussion and collaboration, EDFS and WPHC have established a Utilities Management Sub-committee, which meets quarterly to discuss updates on utility usage, identify areas for improvement, and ensure that the facility is running efficiently. By meeting regularly and leveraging the team expertise, WPHC can identify and implement best practices that optimize energy usage, reduce waste, and promote environmental sustainability.

3.3. Staff training and support

Energy-efficient initiatives are not only linked to operational changes but can also be impacted by the behavior of individuals who visit the facility. As part of the plan to promote energy efficiency and sustainability, EDFS and WPHC will implement initiatives aimed at educating individuals on-site about how their behaviors can impact energy consumption. Once a year, a workshop will be provided for key individuals. The workshop will provide essential tips and information that can impact energy consumption, with the purpose that this information will be disseminated. Another initiative of the program will be to disseminate information once a year through various communication tools such as the intranet, email, posters, and other channels, to provide tips to patients, visitors, and employees about how they can contribute to energy efficiency and sustainability.

3.4. Occupant engagement and communications

At West Park Health Care, the commitment to energy efficiency and sustainability remains as strong as ever with the new facility. Over the last five years, WPHC have made significant efforts to reduce the environmental impact and promote responsible resource usage. Moving forward, WPHC will continue to build on these efforts, leveraging the benefits of the new building to further optimize energy usage and reduce waste. WPHC team is dedicated to ensuring that every occupant of the facility has a positive experience and is included in the efforts to promote energy conservation and demand management. By working collaboratively and engaging everyone in the process, WPHC remains confident in its ability to meet all sustainability objectives and contribute to a healthier, more sustainable future for all.

Upon completion of the baseline year a number of measures would follow, which are noted in the Appendix.

Therefore, EDFS will review, revise and re-publish this version of the plan during the summer/fall by of 2025.

As the operator of the facility EDFS is now seeking the continued executive approval and support of this plan.

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Appendix – Measures Anticipated to 2028

Upon completion of the baseline data collection.

- 2024/5
  - Gap Analysis against the Energy Letter
  - Re-verification of the M&V plan
    Review of HVAC setbacks compared to actual usage of the building
  - Review of hot water boiler temperatures and operation to efficient delta temp of 10c
  - Boiler combustion efficiency testing and tuning
  - Re publish this EDCM

- 2026
  - Hospital education and engagement

- 2028
  - Completion of Joint Technical Review