HÔPITAL GLENGARRY MEMORIAL HOSPITAL
CONSERVATION &
DEMAND MANAGEMENT PLAN
2024-2029

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ENERGY MANAGEMENT VISION

HGMH's mission is to improve the health of the community we serve. In recognition of the critical linkages between environmental health and public health, key to these linkages is the ability to use our facilities efficiently and effectively to reduce GHG emissions and our ecological footprint. We will address the life cycle impacts of facilities through design and construction standards, selection of materials and equipment, and maintenance practices.

Glengarry Memorial Hospital

Primary Property Type: Hospital (General Medical & Surgical)
Gross Floor Area (ft²): 54,969
Built: 1965

For Year Ending: December 31, 2023
Date Generated: June 11, 2024

Property Address:
Glengarry Memorial Hospital
20260 County Road 43
Alexandria, Ontario K0C 1A0

Property ID: 25046740
Organization: Alexandria Glengarry Memorial Hospital
SubSector: Acute/Chronic Hospital
Weekly Average Hours: 168

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Performance Comparison

		Progress			Performance Goals	
	Baseline (Ending Date 12/31/2016)	(Ending Date 12/31/2023)	**% Change**	**Property's Target**	**National Median**	**ENERGY STAR Score of 75**
ENERGY STAR Score	100	100		N/A	50	75

GUIDING PRINCIPLES FOR STRATEGIC ENERGY MANAGEMENT

The HGMH energy management will be guided by these principles:

Taking a Strategic Approach:
HGMH actively manages energy costs by implementing opportunities as they are identified, by acting strategically, HGMH can significantly improve its energy-related performance. Internalizing energy management into our organization's every-day decision-making, policies, and operating procedures will help assure substantial and long-lasting reductions in energy, operating costs, and environmental impact.

Supporting Mission-Critical Goals:
Strategic energy management will directly support HGMH's mission-critical goals of caring for the environment and the community, improving the healing and working environment, and improving the hospital's financial bottom line by reducing unnecessary energy costs. It will also serve to optimize the capacity of existing energy systems to meet current and expanding operational needs, while improving the operational resiliency of the organization. The impacts of the HGMH energy management efforts on those goals will be tracked and reported wherever possible.

Pursuing Long-Term Change to Core Business Practices:
The core of a strategic approach is the consistent incorporation of energy management into our organization's everyday practices and decision making. It also needs to be an integral part of the strategic planning and budgeting processes. Change in energy-related business practice will cover all applications of energy management – new construction and major renovations, existing facility operations and upgrades, and the economic analysis and procurement practices underlying these practices.

Fostering Organizational Commitment and Involvement:
Executive and organizational commitment and involvement is critical to successful strategic energy management. The Senior Management Team at HGMH works with the facility personnel and other key staff to ensure that adequate organizational support and resources are provided to maximize the benefits of energy management to HGMH. Energy management is integrated into the HGMH strategic planning and capital budgeting processes.

Obtaining Solid Economic Returns:
Energy management investments will yield solid economic returns that meet HGMH's standard Return on Investment applied through the hospital's capital budgeting process. HGMH applies consistent financial analysis methods, including life-cycle costing, to reduce total cost of facility ownership and operation.

Using Available Resources and Assistance:
Through the use of national NRCan, regional, and local sources of strategic, technical Industrial Conservation Initiative, and financial assistance Save On Energy will help to achieve the organization's energy management goals. These include utility, municipal, provincial and national government programs. It also includes established best practices through a community of practice approach.

THE BUSINESS CASE FOR STRATEGIC ENERGY MANAGEMENT

Below are the central business arguments for HGMH's pursuit of strategic energy management. The following section then presents the business proposition – the results of analysis of the energy efficiency opportunities and their associated costs and internal rate of return.

Strengthened Community Leadership and Environmental Stewardship

Energy management is a visible, public commitment to the community and environment. Through energy management, the hospital can provide leadership in promoting sustainable communities, efficient business practices, and environmental stewardship. Faced with a tough market environment that has forced cutbacks on hospital support for community activities, this is an excellent opportunity to provide leadership and reduce costs at the same time.

Enhanced Healing and Working Environment

In existing facilities, efficient operating practices improve patient, as well as employee, comfort with more stable environmental control, and better indoor air quality and lighting. In new facilities more daylight and personal control of comfort contribute to a healing and patient-focused environment, for an improved environment of care. For instance, recent research has found that natural light eases surgical pain and contributes to substantial savings in pharmacy costs.

Improved Financial Health and Operating Cost Reduction

Strategic energy management presents a highly leveraged opportunity to reduce operating costs and positively impact HGMH's bottom line. Dollars of operating cost savings directly improve the operating margin. Further, investments in energy projects typically have a lower risk of performance over time, relative to other investments, and savings from energy projects are easier to forecast reliably than savings or revenue increases expected from more variable investments.

Optimization of Capacity to Meet Current and Expanding Operational Needs

Energy efficiency optimizes inefficient or poorly designed and operated equipment/systems so wasted energy system capacity can be reclaimed for current and expanding operational needs. This "free capacity" can eliminate the need to add major new energy capacity and be much less expensive.

INTRODUCTION

The purpose of Hôpital Glengarry Memorial Hospital's (HGMH) energy conservation and demand management (CDM) plan and policies is to promote good stewardship of our environment and community resources. It will address compliance with Ontario Regulation 25/23, to publish, make available to the public and implement energy conservation and demand management plans with mandatory updates every five years.

In keeping with our core values of accountability, concern for the environment, and financial responsibility, HGMH's energy conservation and demand management program will reduce overall energy consumption, operating costs, and greenhouse gas emissions.

Since 2016 HGMH has implemented some conservation and demand initiatives. Even with an addition to the 1440 square feet in 2016/17 (totaling 56440 square feet) and an average of 90% occupancy in the last year, we have maintained or in some instances lowered our utility usage since 2016. A baseline of energy use was calculated in 2017 and is included below (see Energy Star Benchmarking Data), the energy use results are indicative of the HGMH milestone initiatives.

HGMH CDM MILESTONE INITIATIVES:

2016-LED Retrofit completed.

2017- Indoor pool Dectron unit upgrade.

2018- Replacement of boilers

2019-Request for Proposal to Energy Service Companies

2020-2024 Building envelope upgrade of windows and door replacement on as needed basis.

2023-Cost of infrastructure improvements determined (see HGMH 2019 Initiatives).

2024-Fire suppression throughout hospital.

Today, utility and energy related costs are a significant part of overall operating costs. HGMH's annual energy consumption and related costs were:

- Utility costs for our last fiscal year April 23-March 24 were $351,739 compared to our last fiscal year comparison in our plan in 2019 April 18- March 29 *were $356,306* annually. This despite annual increases in energy cost.
- Energy related emissions for 2023 equaled 450 metric tons of greenhouse gas emissions, an improvement over 2017 of 8 metric tons.
- Facility capital project costs are projected at $150,000 for the hospital building envelope over the next 5 years.

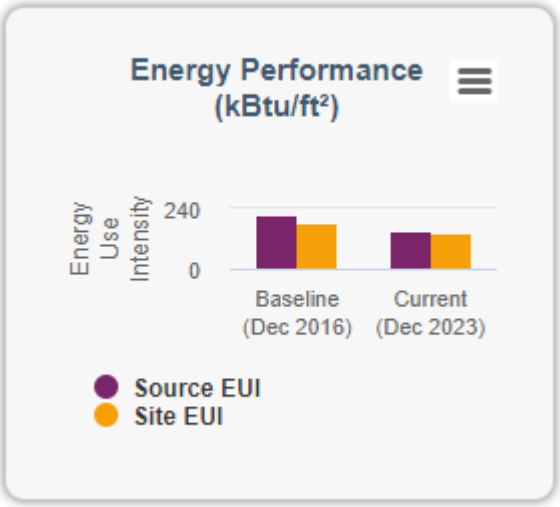
ENERGY STAR BENCHMARKING DATA

Baseline Year 2017 Energy Use Intensity (EUI)

Energy Consumption and Energy Use Intensity (EUI)				
Site EUI	**Annual Energy by Fuel**		**National Median Comparison**	
187.8 kBtu/ft²	Electric - Grid (kBtu)	1,874,473 (18%)	National Median Site EUI (kBtu/ft²)	405.1
	Natural Gas (kBtu)	8,450,138 (82%)	National Median Source EUI (kBtu/ft²)	486
			% Diff from National Median Source EUI	-54%
Source EUI			**Annual Emissions**	
225.4 kBtu/ft²			Total (Location-Based) GHG Emissions (Metric Tons CO2e/year)	458

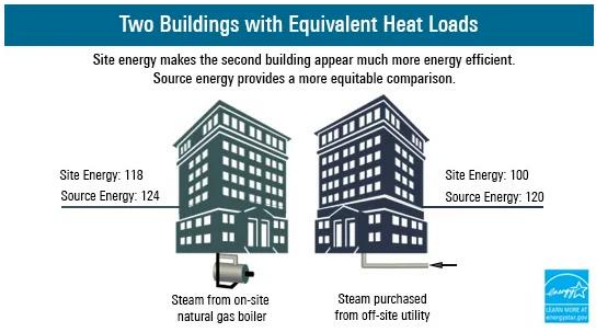
2023 Energy Use Intensity (EUI)

Energy Consumption and Energy Use Intensity (EUI)				
Site EUI	**Annual Energy by Fuel**		**National Median Comparison**	
159.7 kBtu/ft²	Electric - Grid (kBtu)	162,791 (2%)	National Median Site EUI (kBtu/ft²)	453.7
	Natural Gas (kBtu)	8,618,477 (98%)	National Median Source EUI (kBtu/ft²)	487.4
			% Diff from National Median Source EUI	-65%
Source EUI			**Annual Emissions**	
171.6 kBtu/ft²			Total (Location-Based) GHG Emissions (Metric Tons CO2e/year)	458



Explanation of site versus source energy

Source Energy Use is the total amount of raw fuel that is required to operate your property
The annual amount of all the energy your property consumes on site, regardless of the source.



HGMH INITIATIVES 2019

BACKGROUND

With energy management an integral part of business decisions, in 2019 HGMH took a strategic approach with the intent to attain full value from energy management activities.

There were considerable concerns regarding HGMH utilities, water, and energy consumption.
With growing apprehensions over the cost of energy, it was agreed and confirmed by our energy suppliers that costs would only increase, while the infrastructure of HGMH was aging.

After an RFP proposal, to determine if a partnership was feasible to improve the hospital infrastructure and reduce energy costs, whereby the energy savings would offset the cost of infrastructure improvements. The selection of the Energy Performance Contracting Partner would be to improve the HGMH indoor air quality throughout the building with considerable focus on the inpatient unit (not-air conditioned), energy efficiency, lower GHG emissions, become an environmental steward, and improve the facility condition index (FCI).

Siemens was awarded to conduct the feasibility study, quite confident in demonstrating a positive outcome.

CHALLENGES OPPORTUNITIES & COMPETING PRIORITIES:

1. Energy CDM in place, utility and energy related costs are still a significant part of the overall operating costs.
2. HGMH's aging infrastructure, grandfathered and outdated building codes, and lack of funding to modernize its HVAC systems to more energy efficient solutions.
3. Opportunities: 15% reduction in energy use
4. Reduce emission by 53,000 tCO2e
5. Achieve a min. 20% IRR from energy initiatives.
6. Competing priorities: HGMH required to meet Ontario Fire Marshall specifications by 2025. Full fire suppression system installed 2023-2024

2019 INITIATIVE OUTCOME

FEASIBILITY STUDY:

There had been a tentative partnership with IHA Canada intent to construct a senior village on hospital premises. This partnership carried signigicant weight during the study to take advantage of the innovation and synergies via potental utilization of the HGMH infrastructure and services lowering the utility costs for the senior village and HGMH utilities.

However, it was determined that during the study much of the infrastructure of HGMH needed to be brought to code.

Due to COVID there had been no anticipation of the magnificent increase in cost of materials, exacerbating the project cost.

Initially the anticipated project cost was to be a 3 million venture, foreseeably seeing a return on investment within an acceptable 12 years, turned into be an 8-million-dollar project with an ROI of 18 years plus.

As a result of the funding of the project and cost being significantly higher than the anticipated cost a grant application that would considerably oversee the cost under the “Green & Inclusive Community Buildings Program” was unsuccessful.

HGMH will continue to seek funding for future objectives.

FUTURE OBJECTIVES

1. If successful in achieving infrastructure funding future objectives include but are not limited to the upgrades to our current infrastructure: Attain building code and modernize HVAC systems throughout the hospital to improve indoor air quality, enhance the comfort and care of patrons, and establish a pandemic-prepared facility. Take advantage of funding resources and incentive programs such as but not limited to:
Save On Energy/Natural gas “Demand Side management” incentive and energy management training programs delivered by Enbridge Gas Inc./Ontario Net Metering/Federal initiatives NRCan

2. Energy Conservation & Sustainability: Improve energy efficiency, lower operating costs, reduce GHG emissions, and position HGMH to operate independently using locally sourced biofuels and transition to carbon neutrality by 2050.

3. Be a Climate Resilient Facility: Reduce the impact of climate change to build a healthier community and support economic recovery in Eastern Ontario while reducing HGMH’s overall carbon footprint.

PROJECT ACTIVITIES

To achieve our objectives, various facility improvement measures were developed and evaluated through an extensive consultative process and feasibility study. Due to financial constraints the project did not move forward, but this is not to say, that is not “shovel ready”.
Should infrastructure funding, or grants be obtainable key HVAC measures critical to HGMH would address our energy challenges:

- Infrastructure Modernization: Address deferred maintenance and bring the facility to current building code requirements.
- Installation of Energy Efficient Systems: Install new constant volume units and standalone AC units, condensing boilers, chillers, cooling towers and humidifiers.
- Optimize Energy Efficiency: Install new digital control and boiler optimization systems, variable flow terminal boxes, EV charging stations, and building envelope improvements.
- Pandemic Preparedness: Install air ionization system to provide COVID-19 and future pandemic preparedness.

PROJECT IMPACTS

This project would allow HGMH to provide a vastly improved experience and care for the residents of North Glengarry and surrounding communities, including rehab patients, a growing and aging population, Francophones of Eastern Ontario, and family support and community networking groups. The project would see the following environmental and community impacts:

- Improved air quality and flow by increasing ventilation volume from 53.500 to 70,000 cfm, meeting current code for ~40 group spaces.
- Improve energy efficiency and reduce utility usage by 30% and energy costs by $137,157 annually.
- Reduce annual GHG emissions by 27% or 310.9 tCO2e, equivalent to removing 57 cars and light trucks off roads.
- Improve overall experience of 23,000+ residents, eliminating 100+ “space condition” complaints annually.