

**Hôpital Glengarry Memorial Hospital
ENERGY CONSERVATION AND DEMAND MANAGEMENT
(CDM) PLAN**



2019-2024

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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 Regulation 507/18), to publish, make available to the public and implement energy conservation and demand management plans in accordance with section 25.35.2 of the Regulation.

In keeping with our core values of efficiency, 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 2014 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 82% occupancy in the last year, we have maintained or in some instances lowered our utility usage since 2014.

- By replacing original boilers (from 1965) we have reduced our natural gas consumption by 7.98%
- As a result of an LED retrofit, HVAC system changes and upgrade to our pool Dectron unit we have seen our three year average from 2013-2018 decrease our hydro use by 2.81%

Today, utility and energy related costs are a significant part of overall operating costs. HGMH's annual energy consumption and related costs/emissions for 2018 were:

- Utility costs were \$356,306 annually.
- The Hospital's Energy Use Index (EUI) was 93.43 kBTU/gsf
- Energy related emissions for 2018 equaled 488,868 metric tons of greenhouse gas emissions.
- Facility capital project costs are projected at \$800,000.00 over 5 years

With energy management an integral part of business decisions, dependent upon the receipt of provincial and or third party funding HGMH can expect to achieve the following targets by 2024:

- An additional 15% reduction in energy use
- 53000 ton reduction in carbon equivalent emissions
- Energy investments will achieve a minimum 20% internal rate of return (IRR) through a blend of short term and long-term payback initiatives.

To further strengthen and obtain full value from energy management activities, a strategic approach will be taken: the organization will fully integrate energy management into its business decision-making, policies, and operating procedures.

Active management of energy related costs and risks in this manner will provide a significant economic return to the organization and will support other key organizational objectives.

Results of Previous Measures from CDM Plan Posted July/2014

In July 2014, HGMH developed goals and devised green initiatives in an effort to decrease the facilities annual energy consumption and resulting greenhouse gas emissions. The following activities, completed between 2014 and 2018, are associated with managing overall energy consumption, lowering annual operating costs, and reducing greenhouse gas emissions. These activities may, or may not, have been included in the HGMH's 2014 CDM plan and include the following:

A recipient of HEEP funding HGMH installed a new boiler system

Prior to 2014, HGMH's boiler system was below standard compared to the high efficiency boilers today, resulted in replacing the original boilers from 1965. As a recipient of the Hospital Energy Efficiency Program (HEEP), HGMH invested a total of \$500,000 to install a new boiler system.

- The construction began on November 2017 was completed on June 2018.
- Results of the upgrade include:
 - Gas consumption decreasing by 7800m³ post completion of the project.
 - Total greenhouse gas emissions decreased by 15,563 metric tons as a direct result of the decrease in gas usage.



Additional measures taken since 2014:

- Lighting retrofit (ex. LED) 2016
- HVAC upgrades to physician offices 2015
- Some building automation systems 2016
- Equipment upgrades to hospital kitchen and therapeutic rehab pool in 2018.
- Energy awareness programs include the "Golden Light Bulb Award" and "Where is Andy"?

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 in order 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.

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, in order to reduce total cost of facility ownership and operation.

Using Available Resources and Assistance:

Through the use of national, regional, and local sources of strategic, technical, and financial assistance 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 cut backs 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.

Business Proposition

The following are considerations to be included in HGMH's business philosophy and budgetary process. The business proposition is as follows:

- If energy management considerations are integral to relevant business practices, policies, procedures, and decision-making processes, HGMH's energy-related costs can be reduced by an *additional* 15% over a 5-year period.
- Based on 2018 utility rates, this will result in \$53 thousand in annual value to the bottom line, or a total \$265 thousand over a 5-year period. Integration of energy management into organizational decision making and business practices will continue to produce value annually for a much longer period of time.
- To support the achievement of these financial benefits, and dependent on funding HGMH will invest up to \$800,000 in energy-related capital and operating improvements.
- Changes to relevant organizational and business practices will directly support Systems Engineering Management Plan: through the use of external resources to review current systems, areas for improvement and alternate sources of energy.

Energy Management Goals

The following are proposed measures that HGMH intends to implement:

Goal: Energy Conservation and Demand Management Plan Approval

- Executive approval and resources.
- Support from key staff (financial management, purchasing/procurement, construction, building operations, etc.).
- Creation of mechanisms/processes to make resources available.
- Clarification and communication of staff roles and responsibilities, performance goals, and energy management reporting.

Goal: Implement Financial Practices and Decision-Making Processes

- Money spent to achieve energy efficiency is viewed as an investment, not a cost.
- Financial decision makers consistently use life cycle cost analysis Limited Life Cycle Analysis (LCCA) on all new construction, major renovations, and equipment replacements over \$10,000.00.
- Decisions about energy management investments will be part of HGMH's high-level, long range process of budgeting for capital and operations.

Goal: Implement Strategic Energy Management Practices

Establish Purchasing Specifications for Energy Efficient Equipment & Services

- Establish and consistently use purchasing specifications that minimize life-cycle costs for energy efficient equipment and services.
 - Establish efficiency specifications for standard equipment routinely replaced (e.g. lights, motors, and unitary HVAC equipment).
 - Establish efficiency guidelines that apply LCCA for custom equipment purchases (e.g. chillers).
 - Establish efficiency standards for design and construction, and for building operations and maintenance services.

Implement Enhanced Design & Construction (D&C) Practices

- Implement improved new construction practices in all projects over \$10 thousand that specify early team collaboration and “integrated design” (ID).
 - Integrated design required for funding.
 - RFPs, contract terms & conditions, & fee structures will support ID.
 - Apply LCCA and financial hurdle rates described above to design decisions.
 - Apply established purchasing procedures and specifications.
 - Include incentives and tax credits wherever available.
 - Educate all owner’s project managers or construction managers and contractors on integrated design and their respective roles in master planning pre-design, design, construction, testing, commissioning, and monitoring.
- Set and meet clear energy performance targets for new buildings; measure and improve over time.
 - Establish baseline for measuring performance goals (e.g. code, or national reference standards like American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE 90.1) and ENERGY STAR.
 - Set target for building automation system at efficiency at 90%
 - Measure performance and improve over time.
- Specify commissioning as a standard procedure.
 - Retain the services of an independent third-party commissioning agent.
 - 100 percent of fundamental building systems and elements will be designed, installed, and calibrated to operate as designed.
 - Design team, commissioning agent, and building operators will work closely throughout the design process and occupancy to ensure good transition.

Improve Building Operating Performance

- Equipment tune-up and improved operations and maintenance (O&M) will achieve the following results while supporting patient care, and facility comfort and safety.
 - Achieve reductions in operating costs for existing facilities by an average of 4% over 2 years and continue to improve by 4% per year for 3 years thereafter.
 - Reduce the system-wide EUI from 93.43 kBTU/gsf to 83 kBTU by 2024 The EUI will be adjusted for variances in patient days and IT intensity.
 - Measure current energy star ratings for improvement.

Implement Cost-Effective Facility Upgrades

- Implement equipment and system upgrades where justified by life-cycle cost analysis.
- Expand use of qualified service providers as needed. Develop standard RFP documents, contract terms, and reporting standards.

Actively Manage Energy Commodity

- Minimize utility costs and exposure to market risks. Utility costs include natural gas, electricity, water and sewer.
- Participate in the energy/utility regulatory process.

Goal: Monitor, Track, and Reward Progress

- Track progress on the CDM plan
- Continue to track energy reductions quarterly
- Reward staff for successes.

Timeline and Responsibilities for Plan Adoption and Implementation

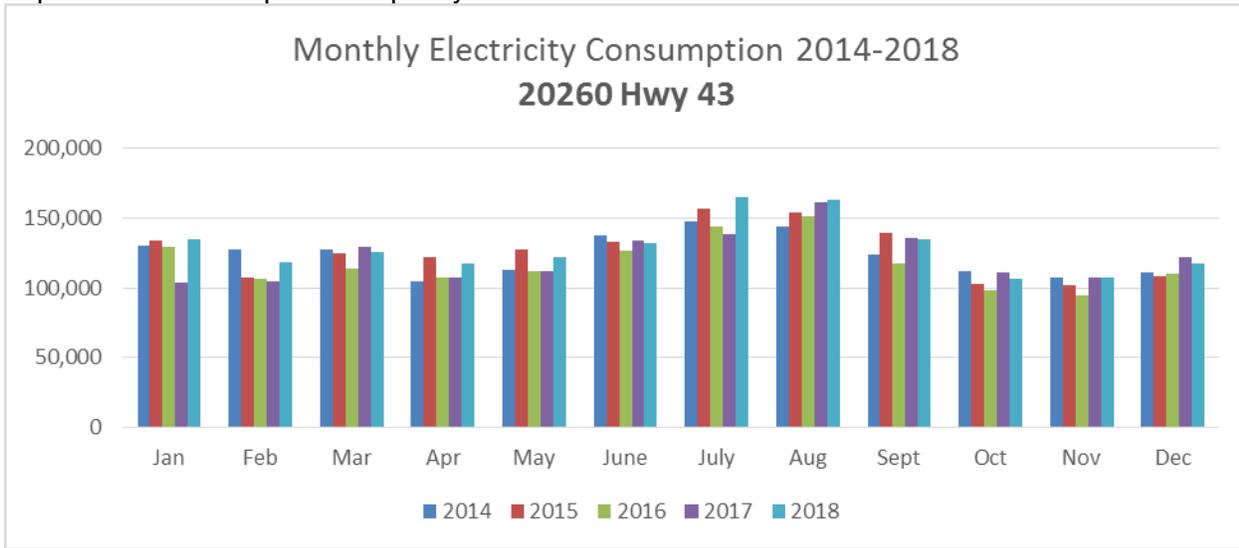
Plan adoption is in the process of implementation at this time.

RFP for Energy Conservation Project July 2019.

Provided provincial or third party funding is available a Conservation Project anticipated start date is November 2019 with an end date of April 2021.

Appendix

2016 October LED retrofit completed. Patient capacity for 2018 fiscal year was at 82% compared to prior to mid 2017 patient capacity hovered between 62 and 65%.



Boiler installation completed June 2018. Patient capacity for 2018 fiscal year was at 82% compared to prior to mid 2017 patient capacity hovered between 62 and 65%.

