

Manitoulin Health Centre

**STRATEGIC ENERGY MANAGEMENT
PLAN
(SEMP)
For 2014 to 2019**





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Introduction

The purpose of Manitoulin Health Centre's energy management plan and policies is to promote good stewardship of our environment and community resources. In keeping with our core values of Efficiency and Financial Responsibility, Manitoulin Health Centre's energy management program will reduce operating costs and enable us to provide compassionate service to a greater number of persons in the community while meeting or exceeding Manitoulin Health Centre's requirements outlined in Regulation 397/11 of the Green Energy Act, 2009.

- Utility and energy related costs are a significant part of overall operating costs
 - Utility costs in 2012 were \$398,287 annually.
 - The Hospital's Energy Use Index (EUI) was 45.863 ekWh/ft²
 - Facility related O&M costs are \$307,800 annually
 - Facility capital project costs are projected at \$25,000 over 5 years
- With energy management an integral part of business decisions, Manitoulin Health Centre can expect the following:
 - 2% reduction in energy use
 - \$9,100 annually to the bottom line.
 - Energy investments will get a 12% internal rate of return (IRR) using 2012 annual utility costs.
- Recent activity associated with managing these costs include the following:
 - Removed central steam boiler , installed small dedicated steam generator located with dependent equipment. Reduced losses in piping steam.
 - Relocated Minor Procedures to 300 floor and installed dedicated HVAC to service Minor Procedures area only. Now utilize time of day scheduling and increased patient comfort.
 - Completed Energy Audits for both sites utilizing the Green Hospital Champion Fund.
 - Replaced original oil fired boilers at both sites with high efficient oil fired boilers.
 - Replaced domestic hot water storage tanks & heater system with Instantaneous Indirect Water Heaters at both sites.
 - Replaced both walk-in cooler/freezer units with water cooled condensers with air cooled units.
- 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.



Energy Management Vision

Manitoulin Health Centre's mission is *'to contribute to the Health and well-being of all who come to us in need.'*

We at Manitoulin Health Centre, consider our facilities a primary source of giving care and an integral part of the healing environment. Key to this equation is the ability to use our facilities efficiently and effectively. Doing so increases Manitoulin Health Centre's ability to direct more resources towards contributing to the health and well-being of those who come to us in need. By reducing our environmental footprint we create a healthier environment both inside the hospital and out. This is something that is essential to all.

Manitoulin Health Centre's energy management vision is to eliminate waste, wherever possible, through infrastructure improvements, through policy and process changes, and through the embracing of best practice as technology changes.



Guiding Principles for Strategic Energy Management

Manitoulin Health Centre's energy management plan will be guided by these principles:

Taking A Strategic Approach: While Manitoulin Health Centre actively manages energy costs by implementing opportunities as they are identified, by acting strategically, Manitoulin Health Centre 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 use throughout Manitoulin Health Centre.

Supporting Mission-Critical Goals: Strategic energy management will directly support Manitoulin Health Centre's mission-critical goals of caring for the environment and the community; optimizing the healing and working environment; improving the hospital's financial bottom line by reducing unnecessary energy costs; optimizing the capacity of existing energy systems to meet current and expanding operational needs. The impacts of Manitoulin Health Centre's 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 core practices and decision making such as 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. Senior management at Manitoulin Health Centre will work with facility managers and other key staff to ensure that adequate organizational support and resources are provided to maximize the benefits of energy management. Manitoulin Health Centre's energy management will be integrated into the strategic planning and capital budgeting processes.

Obtaining Solid Economic Returns: Energy management investments will yield solid economic returns that meet Manitoulin Health Centre's expectations on Internal Rate of Return and Return on Investment requirements applied through the hospital's capital budgeting process. Manitoulin Health Centre will apply consistent financial analysis methods that consider life-cycle to reduce total cost of facility ownership and operation.

Using Available Resources and Assistance: Manitoulin Health Centre will use national, regional, and local sources of strategic, technical, and financial assistance to help achieve our energy management goals. These include utilities, government and privately sponsored incentive programs.



The Business Case for Strategic Energy Management

Below are the central business arguments for Manitoulin Health Centre's pursuit of strategic energy management. Section VI 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 aggressive 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 air temperature, and better indoor air quality and lighting. Recent research has found that daylight 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 Manitoulin Health Centre'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

- If energy management considerations are integral to relevant business practices, policies, procedures, and decision-making processes, Manitoulin Health Centre's energy-related costs can be reduced by an *additional* 10% over an 5-year period.
- Based on 2013 utility rates, this will result in \$9100 in annual value to the bottom line based, or a total \$45,500 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, Manitoulin Health Centre will invest in energy-related capital and operating improvements, meeting an Internal Rate of Return (IRR) that is acceptable to its Board of Directors and Executive Officer.



Energy Management Goals

The following outlines some of the energy management goals that will be adopted by Manitoulin Health Centre. They include, but are not limited to, the following:

- SEMP Approval, Resources to Implement
- Implement Financial Practices and Decision Making Processes; Establish Funding Resources.
- Implement Strategic Energy Management Practices.
 - Purchasing/Procurement Procedures and Specifications
 - Enhanced Design & Construction Practices
 - Enhanced Facility Operating Practices
 - Cost-Effective Facility Upgrades
 - Active Commodity Management
- Monitoring, Track, & Improve Performance^{iv}

Goal: SEMP Approval, Resources to Implement

- 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 (LCCA) on all new construction, major renovations, and equipment replacements over lowest cost.
 - Internal rate of return (IRR) as approved by the Hospital Board and Administration.
 - Train staff on Life Cycle Cost Analysis (LCCA) and financial requirements and decision making process.
- Decisions about energy management investments will be part of Manitoulin Health Centre's high-level, long range process of budgeting for capital and operations.

Goal: Establish Purchasing Specifications for Energy Efficient Equipment and 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. Roof top Units).
- Establish efficiency standards for design and construction, and for building operations and maintenance services.

Goal: Implement Enhanced Design & Construction (D&C) Practices

- Implement improved new construction practices in all projects 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 ASHRAE 90.1).
 - Set target for each building.
 - Measure performance and improve over time.
- Specify commissioning as a standard procedure.
 - Manage commissioning through specifications and the design engineer or 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 manager/agent, and building operators will work closely throughout the design process and occupancy to ensure good transition.

Goal: 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 10% over 5 years and continue to improve by 1% per year for 5 years thereafter.
 - Reduce the system-wide EUI from 45.9 ekWh/ft² to 41.3 ekWh/ft² by 2019. The EUI will be adjusted for variances in patient days and IT intensity.
 - Reduce energy consumption by 23,000 kWh per year.
 - Improve ENERGYSTAR rating .



Goal: 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.

Goal: 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 SEMP
- Track energy reductions monthly and report annually.
- Reward staff for successes.



Baseline Energy Use

The baseline energy profile has been selected using the most recent full fiscal year with available utility data, which is 2012. This baseline will be used to calibrate the energy-use estimates and as the reference case of calculating energy savings.

Key Observations:

A review of the baseline energy cost profile reveals that:

The total annual utility cost for the related sites in 2012 were \$374,136.00. Electricity represents the largest cost at 52% of total cost, fuel oil costs were 39% of total cost and water costs were 9% of total cost.

The annual electrical consumption is 1,624,754 kWh and the annual fuel oil consumption is 150,534 litres resulting in an average energy intensity of 35.8 ekWh/sq.ft./yr. This places Manitoulin Health Centre 33% lower than the average 53.7 ekWh/sq.ft./yr based on an average of similar facilities in Ontario. (audit were completed of 8 Ontario hospital facilities, 2009-2011
