

JOSEPH BRANT HOSPITAL STRATEGIC ENERGY MANAGEMENT PLAN (SEMP) FOR 2014 TO 2019

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Introduction

The purpose of Joseph Brant Hospital's energy management plan and policies is to promote good stewardship of our environment and community resources and to ensure compliance with Ontario regulation O.Reg 397/11.

- Utility and energy related costs are a significant part of overall operating costs
 - Utility costs in 2011/12 fiscal year were \$1,355,940.
 - The Hospital's Energy Use Index (EUI) was 70.6 ekWh/ft²
- With energy management an integral part of business decisions, Joseph Brant Hospital will target the following:
 - Target 2.1% total reduction in consumption of utilities over a 5 year period based on normal and average weather conditions. Utility cost data will be based on normal and average weather conditions and be adjusted accordingly for variances.
 - Corresponding reduction in the Hospital's Energy Use Index (EUI)

(Major Utility costs include electricity, natural gas, water and sewer)

- Recent activity associated with managing these costs include the following :
Completion of Building Energy Audits
Facility Condition Assessment Program
Interior lighting retrofits
Installation of Occupancy sensors
Steam trap audit and component replacements
Exterior building retrofits
- Joseph Brant Hospital is currently in phase one of a major Redevelopment and Expansion Project, with an estimated completion date of 2018.
New and improved technologies and energy efficient equipment will be part of this redevelopment including renovation and upgrades of key existing areas.
- To further strengthen and obtain full value from energy management activities, a strategic approach will be taken. The organization will 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 positive economic return to the organization and will support other key organizational objectives.

Energy Management Vision

Reduce energy related waste and our environmental footprint wherever possible, through improved technologies, processes, practices, design and construction standards, and education and awareness within our Healthcare facility.

Guiding Principles for Strategic Energy Management

Joseph Brant Hospital energy management will be guided by these principles:

Taking A Strategic Approach: While Joseph Brant Hospital actively manages energy costs by implementing opportunities as they are identified, by acting strategically, the organization can improve its energy-related performance. Internalizing energy management into our organization's decision-making, policies, and operating procedures will help assure reductions in energy use.

Supporting Mission-Critical Goals: Strategic energy management will directly support Joseph Brant Hospitals goals of caring for the environment and the community.

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. Energy-related business practice will cover all applications of energy management – new construction and major renovations, existing facility operations and upgrades, and the economic and procurement practices underlying these practices.

Fostering Organizational Commitment and Involvement: Organizational commitment and involvement is critical to successful strategic energy management. Management at Joseph Brant Hospital will strive to ensure that adequate organizational support and resources are provided to maximize the benefits of energy management.

Obtaining Solid Economic Returns: Energy management initiatives will yield positive economic returns to reduce the total cost of facility ownership and operation.

Using Available Resources and Assistance: Use national, regional, and local sources of strategic, technical, and financial assistance to help achieve our energy management goals. These include programs and information through local utilities, Ontario Power Authority and the Canadian Healthcare Engineering Society.

The Business Case for Strategic Energy Management

Below are the central business arguments for Joseph Brant Hospital's pursuit of strategic energy management.

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. 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. In new facilities more daylight and personal control of comfort contribute to a healing and patient-focused environment, and an improved working environment.

Improved Financial Health and Operating Cost Reduction

Strategic energy management presents an opportunity to reduce operating costs and positively impact bottom line.

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.

Energy Management Goals

Goal: SEMP Approval, Resource availability

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

Goal: Support through Financial Practices and Decision Making Processes

- Decisions about energy management investments will be part of the Hospital's high-level, long range process of budgeting for capital and operations.

Goal: Use of Purchasing Specifications for Energy Efficient Equipment and Services

- Consistently use purchasing specifications that minimize life-cycle costs for energy efficient equipment and services.
 - Utilize efficiency specifications for standard equipment routinely replaced (e.g. lights, motors, and unitary HVAC equipment).
 - Utilize efficiency standards for design and construction, and for building operations and maintenance services.

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

- Ensure utilization of improved new construction practices in all large projects that specify early team collaboration and "integrated design" (ID).
 - Integrated design¹ 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.
 - Ensure all owner's project managers or construction managers and contractors support 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).
 - Establish targets, measure performance and improve over time.
- Specify commissioning as a standard procedure on all large construction projects
 - 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.

¹ Early collaboration of construction team is key to ID (hospital construction manager and/or contracted construction managers, architects, engineers, contractors, commissioning agent) and stakeholders (could include facility operations and maintenance personnel, clinical staff, etc.). See *Guide to the Design and Construction of High Performance Hospitals*.

Goal: Improve Building Operating Performance

- Equipment tune-up and improved operations and maintenance (O&M) will support our target goals while supporting patient care, and facility comfort and safety.
- Improve ENERGYSTAR rating

Goal: Implement Cost-Effective Facility Upgrades

- Implement equipment and system upgrades where most beneficial and justified

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 and Track

- Track progress on SEMP
- Track energy reductions annually

Baseline Energy Use

The energy usage profile selected as a baseline is Fiscal 2011/12.

This data will be used as a baseline for energy consumption and savings calculations.

Baseline data overview

The total Utility costs in 2011/12 fiscal year were \$1,355,940.

Electricity represents the largest cost at 65.2 % of total cost

Natural Gas costs were 22.4% of total costs

Water and sewage costs were 12.4 % of total costs

The annual electrical consumption was 8499 MWh, and the annual natural gas consumption was 19021 eMWh, resulting in a total site energy intensity of was 70.6 ekWh/ft²

Summary

Joseph Brant Hospital's Strategic Energy Management Plan will use effective energy and water reduction measures including improved technologies, processes, practices, design and construction standards, and education and awareness within our Healthcare facility that will allow us to see positive results to our financial bottom line and environmental impact.