STRATEGIC ENERGY MANAGEMENT PLAN FOR BROCKVILLE GENERAL HOSPITAL 2019

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Executive Summary

The Energy Conservation and Demand Management Plan (ECDM Plan) for Brockville General Hospital is a 5-year plan beginning in fiscal year 2016/17. The plan was prepared using a planning framework that includes the following:
Organization Commitment – a demonstrated commitment by Brockville General Hospital leadership in supporting energy efficiency opportunities in day-to-day and long term operational planning.

Opportunity Identification – ongoing processes to identify initiatives that improve energy efficiency coupled with planning and implementation strategies appropriately supported to achieve intended results.

Awareness and Engagement – an awareness campaign for staff and clients promoting organizational commitment and environmental accountability.

Monitoring and Tracking – systems and activities to track and monitor facility performance through utility consumption and cost measures.

INTRODUCTION

The overall purpose of Brockville General Hospital's ECDM Plan and policies is to promote good stewardship of our environment and community resources. In keeping with the hospital's strategic domains, namely 'Resource Sustainability and Growth,' Brockville General Hospital's energy management program will ultimately result in reduced operating costs and enable the Hospital to provide compassionate service to a greater number of persons in the community. The following is provided as baseline information for the Hospital's energy management plan.

- Utility and energy related costs are a significant part of overall operating costs:
    - Utility costs in the 2017/18 fiscal year were $1,427,751.00.
    - The Hospital's Energy Use Index (EUI) was 3.28 GJ/M3 or 81.45 ekWh/FT^2
    - Facility related O&M costs are $4,442.650.00 annually
    - Facility capital project costs are projected at $5.0 million over 5 years

- With ECDM as an integral part of business decisions, Brockville General Hospital can expect the following:
    - 15% reduction in energy use, with corresponding overall reduction costs
    - $203,415.00 plus in savings annually (2.03 million plus over 10 years), in addition to the existing annually achieved savings already being realized.
    - Energy investments, related to the attached Energy Conservation Measure (ECM) Summary will get a 20% minimum internal rate of return (IRR), when taken together.

- Recent 2018 activity associated with Energy Conservation and Demand Management Plan include the following:
        - A recently completed HIRF project for installation of instantaneous hot water system for original building.
        - Recently completed HIRF Air Handling unit replacement
        - Recently completed HEEP project for Blue Elevator Modernization
        - Recently completed HEEP project for North Tower Lighting upgrade.
        - Recently completed 2018 Steam Trap audit
        - Upgrading of localized air conditioning 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

Brockville General Hospital's vision is 'Achieving excellence together.'

Therefore, we 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. This results in Brockville General Hospital being able to direct more resources toward patient care. Not only that, but by reducing our environmental footprint, we are also doing our part to create a healthier environment, and a healthier community. Something that is essential to the people we serve and that which helps them to lead healthier lives.

Brockville General Hospital's energy management vision is to eliminate energy waste, wherever possible, through infrastructure improvement, through policy and process changes, and through the embracing of best practice and technology changes.

This energy management vison also fits with the Brockville General Hospital's mission statement – "Driven by the needs of our community, we collaborate with our patients, their families and our partners to deliver the best healthcare experience."

Guiding Principles for Strategic Energy Management

Brockville General Hospital's energy management plan will be guided by these principles:

Taking A Strategic Approach: While Brockville General Hospital actively manages energy and utility costs by implementing opportunities as they are identified, by acting strategically, the Hospital can significantly improve its energy-related performance. Internalizing energy and utility 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 Brockville General Hospital.

Supporting Mission-Critical Goals: Strategic energy management will directly support Brockville General Hospital's mission-critical goals of caring for the environment and the community. It will also help the Hospital to optimize the healing and working environment; improve the hospital's financial bottom line by reducing unnecessary energy and utility costs; and optimize the capacity of existing energy systems to meet current and expanding operational needs. The impacts of Brockville General Hospital'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 and utility 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 economic analysis and procurement practices.

Fostering Organizational Commitment and Involvement: Executive and organizational commitment and involvement is critical to successful strategic energy management. Upper management at Brockville General Hospital 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 and utility management. Energy and utility 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 Brockville General Hospital's expectations on Internal Rate of Return and Return on Investment. Brockville General Hospital will apply consistent financial analysis methods that consider life-cycle costs that reduce total cost of facility ownership and operation.

Using Available Resources and Assistance: Brockville General Hospital will use national, regional, and local sources of strategic, technical, and financial assistance to help achieve our energy management goals. These include programs through local distribution companies, the Independent Electricity System Operator (IESO), Hospital Infrastructure Renewal Fund (HIRF), ENERGYSTAR, saveONenergy, the Canadian Coalition for Green Health Care, The Canadian Healthcare Engineering Society, and EnerCan.

The Business Case for Strategic Energy Management

Below are the central business arguments for Brockville General Hospital'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, Brockville General 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, better indoor air quality, and lighting. By way of an example, recent research has found that daylight eases surgical pain and contributes to substantial savings in pharmaceutical costs.

Improved Financial Health and Operating Cost Reduction
Strategic energy management presents a highly leveraged opportunity to reduce operating costs and positively affect Brockville General Hospital'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 types of investment.

Optimization of Capacity to Meet Current and Expanding Operational Needs
Energy efficiency optimizes overall equipment/system operation so that system capacity can be reclaimed for current and expanding operational needs. This "free capacity" can eliminate the need to add major new infrastructure and is far less expensive.

Business Proposition

- If energy management considerations are integral to relevant business practices, policies, procedures, and decision-making processes, Brockville General Hospital's energy and utility related costs can be reduced by up to 15% over a 5-year period. With some investments having a payback period of one year, or less.

- Based on 2016-17 utility rates, this will result in $203,415.00 in annual value to the bottom line or a total $1,017,075.00 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.

- To support the achievement of these financial benefits, Brockville General Hospital will invest in energy-related capital and operating improvements, meeting an Internal Rate of Return (IRR) that is acceptable to its Senior Leaders.

Energy Management Goals

The following outlines some of the energy management goals that will be adopted by Brockville General Hospital. 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
- Monitor, Track, & Improve Performance

Goal: SEMP Approval, Resources to Implement

- Executive approval process adjustments and resource allocations to support initiatives.
- 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 “pre-approved” by the Hospital’s Senior Leaders.
    - Train staff on Life Cycle Cost Analysis (LCCA) and financial requirements and decision-making process.
- Decisions about energy management investments will be part of Brockville General Hospital’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. boilers, chillers).
- 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 capital 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 build projects; measure and improve over time.
  - Establish baseline for measuring performance goals (e.g. code, or national reference standards like ASHRAE 90.1).
  - Set targets.
  - 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.

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 utility related operating costs for existing facilities by an average of 15% over 5 years and continue to improve by 1% per year for 5 years thereafter.

- Reduce the system-wide EUI from 3.11 GJ/M3 to 2.8 GJ/M3 by 2022. The EUI will be adjusted for variances.
- Reduce energy consumption by 1,830,000 kWh per year equivalent, to achieve yearly savings of $203,415.00 at 2017 rates.

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 & Utility Commodities

- 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 Strategic Energy Master Plan
- Track energy reductions monthly and report annually.
- Reward staff for successes.