STRATEGIC ENERGY MANAGEMENT PLAN (SEMP) FOR 2014 TO 2019

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Overview

Regulation 397/11 of the *Green Energy Act* requires that all Ontario public agencies prepare Conservation and Demand Management plans by July 1st, 2014. These plans must be approved by the organization's senior management and be made available to the public on the organizations website by July 1, 2014. As part of this regulation, hospitals are required to submit to the Ministry of the Environment and publish a summary of their 2011 greenhouse gas emissions and consumption data in 2013. This regulation requires public agencies to report their energy usage and Greenhouse Gas (GHG) emissions on an annual basis moving forward

Introduction

The purpose of The Royal Ottawa Health Care Group (THE ROYAL) 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, THE ROYAL's energy management program will reduce operating costs and enable maximum resources for patient care.

- Utility and energy related costs are a significant part of overall operating costs
    - Royal Ottawa Mental Health Centre
        - Utility costs in 2013 were $1,056,343
        - The Hospital's Energy Use Index (EUI) was 48.37 ekWh/ft^2
        - Facility related O&M costs are $2,090,989 annually
        - Facility capital project costs are projected at $4,131,701 over 5 years

    - Royal Ottawa Place
        - Utility costs in 2013 were $203,379
        - The Hospital's Energy Use Index (EUI) was 41.93 ekWh/ft^2
        - Facility related O&M costs are $424,914 annually
        - Facility capital project costs are projected at $145,000 over 5 years

    - Brockville Mental Health Centre
        - The facility in Brockville is leased from Infrastructure Ontario

- With energy management an integral part of business decisions, The ROYAL can expect the following:
    - 8% reduction in energy use
    - $84,507 annually to the bottom line ($422,537 thousands over 5 years)
    - Energy investments will achieve a 2% internal rate of return (IRR)

- Recent activity associated with managing these costs include the following:
        - Energy audit
        - Fluorescent Light Bulb Replacement from 32W to 28W tubes
        - Review of lighting control schedule
        - Policy on usage of personal electrical equipment
        - Product Evaluation Energy Selection Committee (PEESC) Guidelines
        - Co-Generation feasibility study (initiated April 2014)
        - Natural Gas energy audit
        - Installation of variable speed drives on water pumps
        - Water reduction audit
        - Proposed study of computer room re-configuration for increased cooling efficiency

- 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

VISION: "THE ROYAL considers our facilities a primary source for providing care and an integral part of the healing environment. Key to this equation is the ability to use our facilities efficiently and effectively."

Guiding Principles for Strategic Energy Management

THE ROYAL's System Energy Management will be guided by these principles:

Taking A Strategic Approach: While **THE ROYAL** actively manages energy costs by implementing opportunities as they are identified by acting strategically, we can significantly improve our 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.

Supporting Mission-Critical Goals: Strategic energy management will directly support THE ROYAL's mission-critical goals of caring for the environment and the community; optimizing the care and working environment; improving the hospital's financial bottom line by reducing unnecessary energy costs and optimizing the capacity of existing energy systems to meet current and expanding operational needs. The impacts of THE ROYAL's energy management efforts on those goals will be tracked and reported where 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, 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 THE ROYAL 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. 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 THE ROYAL's standard investment return requirements. There will be two sources of funding utilized for energy improving technologies. Capital dollars applied through the hospital's capital budgeting process and the Lifecycle Fund where scheduled expenditures can be completed to improve the energy efficiency of the ROMHC. THE ROYAL will apply consistent financial analysis methods that consider life-cycle to reduce total cost of facility 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 utilities, government and service partners.

The Business Case for Strategic Energy Management

Below are the central business arguments for THE ROYAL'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.

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 patient-focused environment, and an improved working environment.

Improved Financial Health and Operating Cost Reduction
Strategic energy management presents a highly leveraged opportunity to reduce operating costs and positively impact THE ROYAL's bottom lines 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, The Royal's energy-related costs can be reduced by 8% over a 5-year period.

- Based on 2013 utility rates, this will result in $67 thousand in annual value to the bottom line or a total $335 thousand over a 5-year period. Integration of energy management into organizational decision making and business practices will continue to produce value for a much longer period of time.

- To support the achievement of these financial benefits, The Royal will invest up to $80,000 (less available incentives) in energy-related capital and operating improvements, over the 5-year period (2014-2019).

- Additionally, we are currently investigating the feasibility of installing a Cogeneration generator that will allow us to generate 60% of our electricity needs and through a high efficiency heat recovery system provide annual savings of approx. $450K. This would require an estimated investment of $3.0M (including a $1.0M incentive from OPA) with a payback period of 4.5 years. This installation would also reduce The Royal's greenhouse gas emissions by 20%.

Energy Management Goals

- 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
  - Enhance Design & Construction Practices
  - Enhance Facility Operating Practices
  - Cost-Effective Facility Upgrades
  - Active Commodity Management
- Monitoring, Track, & Improve Performance

Goal: SEMP Approval, Resources to Implement

- Executive approval.
- 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 $2M.
- Decisions about energy management investments will be part of The Royal'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 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 over $2 million that specify early team collaboration and "integrated design" (ID).

  - Integrated design[1] required for funding.
  - RFPs, contract terms & conditions, & fee structures will support ID.
  - Apply Life Cycle Cost Analysis (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.

- 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.
  - Reduce energy consumption by 403,000 kWh per year equivalent to yearly savings of $46K at 2014 rates. This will be achieved through changing the use of halogen pot light to LED lights as well as the replacement of exterior parking and road lights to LED.
  - Improve ENERGYSTAR rating from 75% to 85% over 5 years

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: Create a corporate culture of energy stewardship

- Educate all staff of their ability to reduce energy cost and consumption through their personal behavioral changes.
- Promote the benefits of energy savings activities through the Green Committee
- Achieve a 2% savings in energy consumption ($21K at 2014 energy rates).

Goal: Monitor, Track, and Reward Progress

- Track progress on SEMP
- Track energy reductions [quarterly][annually].
- Reward staff for successes.

Approved by Senior Management Team, June 11, 2014