




MIDDLESEX
HOSPITAL
ALLIANCE

Facilities Management



**STRATEGIC ENERGY
MANAGEMENT PLAN FOR
MIDDLESEX HOSPITAL ALLIANCE
2014**

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Introduction

The purpose of Middlesex Hospital Alliance'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, Middlesex Hospital Alliance's energy management program will reduce operating costs and enable us to provide the healthcare we would expect for our own families to a greater number of persons in the community.

- Utility and energy related costs are a significant part of overall operating costs
 - SMGH Utility costs in 2011/12 fiscal year were \$536,709.26
 - SMGH Energy Use Index (EUI) was 43.04251 ekWh/ft²
 - Facility related O&M costs are \$1,370,300.80
 - Facility capital project costs are projected at \$3,000,000 over 5 years
- Utility and energy related costs are a significant part of overall operating costs
 - FCHS Utility costs in 2011/ 12 fiscal year were \$178,445.88
 - FCHS Energy Use Index (EUI) was 48.32211 ekWh/ft²
 - Facility related O&M costs are \$823,469.51
 - Facility capital project costs are projected at \$750,000 over 5 years
- With energy management an integral part of business decisions, Middlesex Hospital Alliance can expect the following:
 - 3% reduction in energy consumption, with an overall reduction of 10% in utility costs
 - \$200,000 in savings annually to the bottom line (2 million over 10 years)
- Recent activity associated with managing these costs include the following
 - Increased awareness and monitoring of energy use and costs
 - OHA Hospital Scorecard survey participation and benchmarking report
 - Completed RFP for an Energy Partner
 - Implementation of Energy Performance Contract
 - Participation in Energy Star Portfolio Manager
- 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

The Middlesex Hospital's mission is "To provide the healthcare we would expect for our own families". This mission coupled with our vision "to be the best place for patient centered care; providing excellence in quality, people, service and financial performance" drive our commitment to energy management as a critical component of our success.

We at MHA consider our facilities an integral part of the patient experience and a direct link to successful patient outcomes. Our efficient and effective operation of our facilities allows the needed resources to be applied to patient care and ability to achieve our mission.

Environmentally we are also able to reduce our waste, control our emissions and effectively reduce our carbon footprint to not only ensure an improved patient experience but also to create a healthier environment for everyone in our community.

Therefore our MHA energy management vision is to ***"Identify, Monitor and Reduce Waste, wherever possible, through education, infrastructure improvement, policy and process changes, and embrace a culture of sustained energy stewardship"***.

Guiding Principles for Strategic Energy Management

Middlesex Hospital Alliance's energy management will be guided by these principles:

Taking a Strategic Approach: Middlesex Hospital Alliance actively manages energy costs by implementing opportunities as they are identified. By acting strategically, MHA can significantly improve its energy-related performance. Internalizing energy management into our organization's every-day decision-making, policies, and operating procedures will help ensure substantial and long-lasting reductions in energy use throughout MHA.

Supporting Mission-Critical Goals: Strategic energy management will directly support Middlesex Hospital Alliance's mission-critical goals of delivering timely access to patient-care services, meet or exceed established quality benchmarks, invest in our people in accordance with our principles and purpose, provide a safe environment for patients and people, and, ensure fiscal responsibility. The impacts of Middlesex Hospital Alliance'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 Middlesex Hospital Alliance 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. Middlesex Hospital Alliance 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 Middlesex Hospital Alliance's standard requirements applied through the hospital's capital budgeting process. Middlesex Hospital Alliance will apply consistent financial analysis methods that consider life-cycle to reduce total cost of facility ownership and operation.

Using Available Resources and Assistance: Middlesex Hospital Alliance 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 Ontario Power Authority, 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 Middlesex Hospital Alliance'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, Middlesex Hospital Alliance 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. By way of an example, 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 Middlesex Hospital Alliance'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 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, Middlesex Hospital Alliance's energy-related costs can be reduced by an *additional* 10% over a 10-year period.
- To support the achievement of these financial benefits, Middlesex Hospital Alliance will invest up to \$3 million in energy-related capital and operating improvements, funded directly through guaranteed energy savings of \$200,000 annually or better over the next 12-year period (2014-2026).
- Utilizing an Integrated Decision making process, MHA will consider energy conservation and environment equally as budget when selecting future capital projects

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Energy Management Goals

The following outlines some of the energy management goals that will be adopted by Middlesex Hospital Alliance. 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

Goal: SEMP Approval, Resources to Implement

- Executive approval, process adjustments and resource allocation 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 MHA Board and Senior Administration
 - Train staff on life cycle cost analysis, financial requirements and decision making process.
- Decisions about energy management investments will be part of Middlesex Hospital Alliance’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 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. chillers).

- Establish efficiency standards for design and construction, and for building operations and maintenance services.

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 MHA 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.

Enhanced Facility Operating Practices

- 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.
- 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 XXX,XXX kWh/ft² to XXX,XXX kWh/ft² by 2019. The EUI will be adjusted for variances in patient days and IT intensity.
 - Reduce energy consumption by 10,000 kWh per year
 - Improve OHA Green Scorecard rating

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

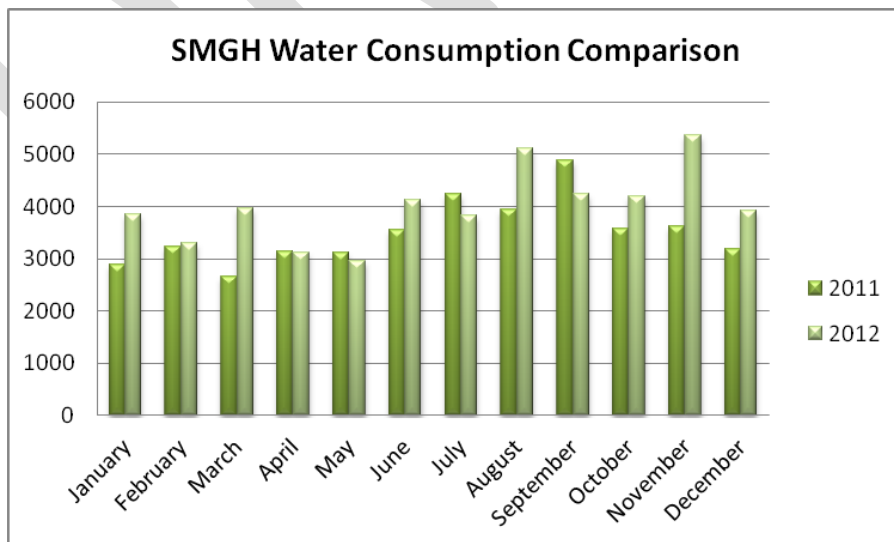
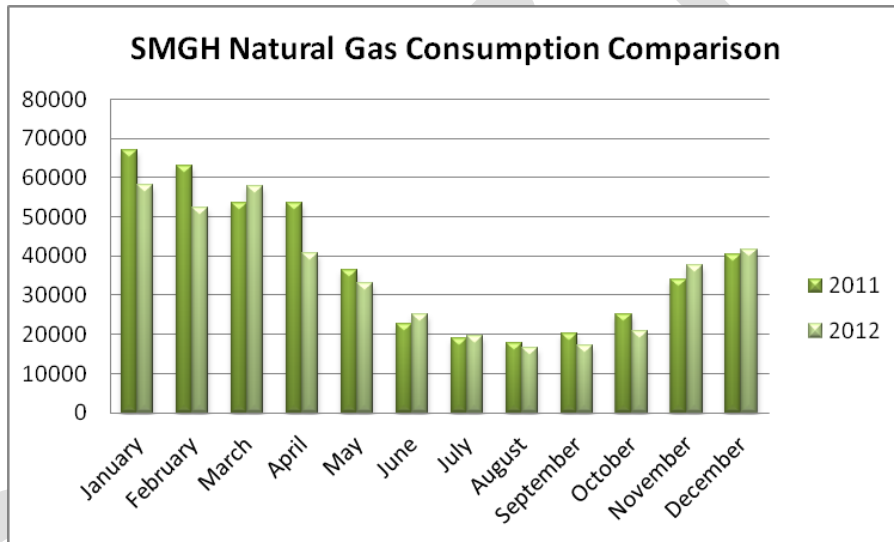
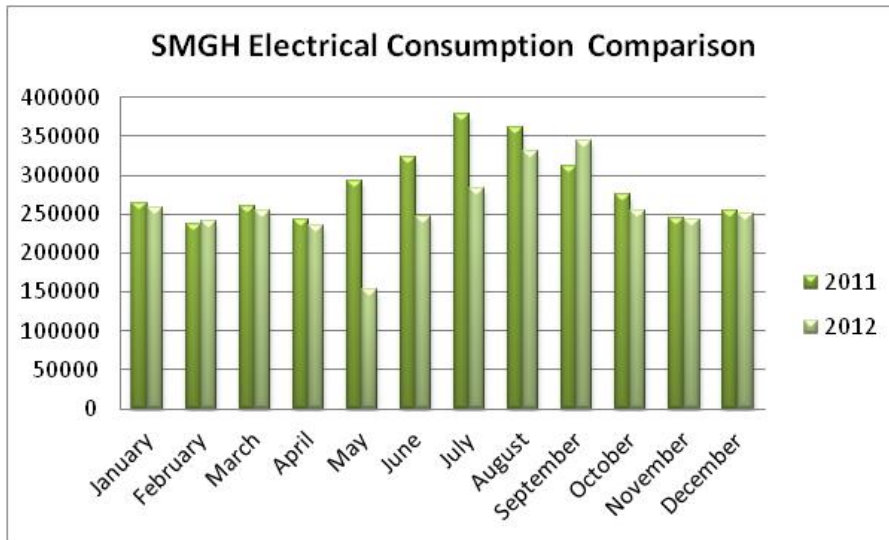
- Minimize utility costs and exposure to market risks. Utility costs include natural gas, electricity, water, and sewer.
- Participate in the energy/utility regulatory process.

Goal: Monitor, Track, and Reward Progress

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

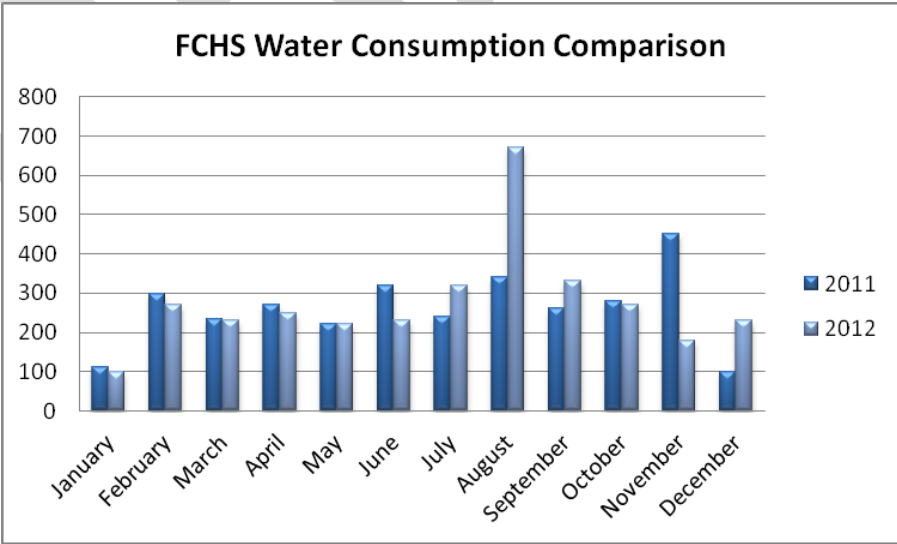
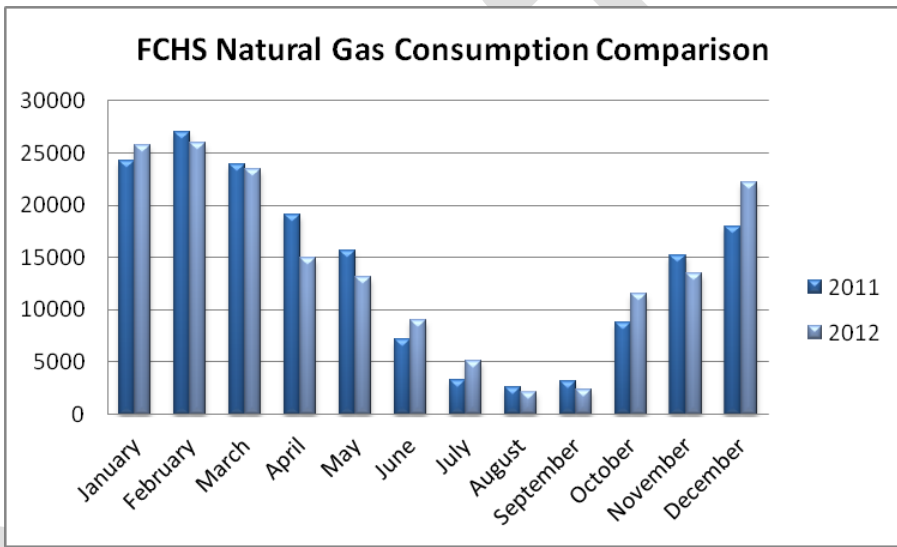
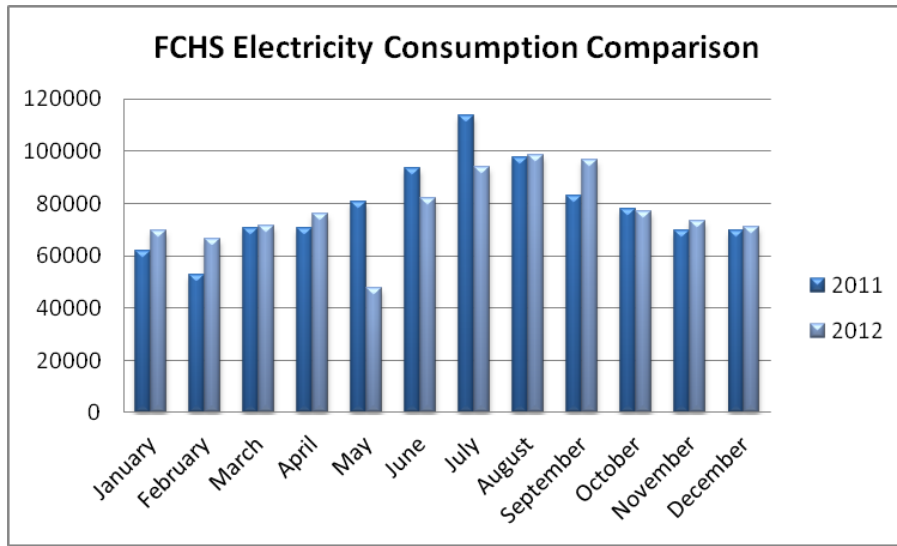
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Annual Energy Consumption Data



ENERGY INTENSITY (GJ/m ²)	
2011	2012
43.04251	40.96052

ANNUAL GHG (ka)	
2011	2012
1131678.768	1120074.998



ENERGY INTENSITY (GJ/m ²)	
2011	2012
48.83221	49.86388

ANNUAL GHG (kg)	
2011	2012
381221.53102	417308.2378

Timeline and Responsibilities for Plan Adoption and Implementation

Measure	2013	2014	2015	2016	2017	2018	2019
Report energy consumption as per O.Reg 397/11	Complete	Complete					
Complete an Energy Conservation and Demand Management Plan		Complete					
Obtain approval of SEMP		Pending					
RFP to select an Energy Performance Partner	Pending	Complete					
Energy Performance Contract		Pending	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing
Ongoing monitoring and verification of energy conservation measures			Pending (to begin at end of installation phase)	Ongoing	Ongoing	Ongoing	Ongoing
Improved awareness and communication of energy conservation		Pending	Ongoing	Ongoing			
Monitor energy commodity cost	Increased water and sewer monitoring Ongoing for Electricity and Natural Gas	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing
Track and report on SEMP			Pending				