



County of Peterborough



Energy Management Plan

June 2014

County of Peterborough - Energy Management Plan

Figure 1 - Energy Management Plan Framework



Introduction & Background

Successful energy management depends on the integration of energy efficient practices into the “business as usual” conduct of the organization, is based on a regular assessment of energy performance, and requires the implementation of procedures and measures to reduce energy waste and increase efficiency. Regardless of the size of the municipality, the common element of successful energy management is the allocation of staff and resources to continually improve energy performance.

Our Commitment

Declaration of Commitment and Council Resolution

The County of Peterborough will use existing resources and leverage outside agencies, partnerships and collaboration where appropriate to develop and implement a strategic energy management plan that will reduce our energy consumption and its related environmental impact.

Vision:

We will strive to continually reduce our total energy consumption and associated carbon footprint through wise and efficient use of energy and resources, while still maintaining an efficient and effective level of service for our clients and the general public.

Our Understanding (the Current State)

Stakeholder Needs:

The County of Peterborough understands that its' internal stakeholders (Council, committees of council, CAO, staff) need:

- a) An up-to-date and relevant energy management plan with clear vision, goals, and targets in order to clearly communicate the corporate commitment to energy efficiency;
- b) Timely, regular reports and information to maintain awareness of energy use; and,
- c) Training and support to develop the skills and knowledge required to implement energy management practices and measures.

The County of Peterborough understands that its' external stakeholders (residents, community organizations, businesses, Province) need:

- a) The municipality to be accountable for energy performance and to minimize the energy component of the costs of municipal services; and

- b) The municipality to reduce the carbon footprint associated with its corporate energy use.

Current Municipal Energy Situation:

Energy Consumption and Demand:

The current energy usage by building is detailed in the attached spreadsheet - (Appendix A) 2012 energy consumption, cost and GHG emissions).

Energy Initiatives:

Renewable Energy:

The County/City of Peterborough in partnership with Peterborough Utilities Inc. have implemented a landfill gas reutilization system. The system has approximately 1.6 MW capacity – sells directly to the Ontario Power Authority via the Renewable Energy Standard Offer Program (RESOP). The County/City of Peterborough receive an estimated \$130,000 annually for the supply of gas to the generation facility.

How Energy Is Currently Managed:

The management of our energy is a combination of energy data management, energy supply management, and energy use management.

Energy Data Management: Our municipal energy data is managed through the Director, Corporate Projects & Services. The data is received via supplier invoices, then tracked and/or monitored using the AMO/LAS - Energy Planning Tool:

- Invoices are entered into the EPT
- Consumption/trends are analyzed
- Reports are generated

Energy Supply Management:

Our municipal energy is supplied via a number of providers as outlined below:

- Electricity is supplied by Hydro One and Peterborough Utilities on an as needed basis and is priced at the standard rates offered by the provider.
- The County of Peterborough has adopted a hedging strategy by purchasing our natural gas through Local Authority Services bulk gas purchasing program.
- Propane is supplied by local propane providers on an as-needed basis and is priced at the standard rate offered by the provider at the time of delivery.
- The County of Peterborough participates in a cooperative bulk purchasing program for vehicle fuel.

Energy Use Management:

Day to day management of energy has been primarily the responsibility of the Director, Corporate Projects & Services (or designate). To aid in our efforts to track and reduce energy use the County of Peterborough uses LAS' Energy Management Tool (EMT) and Energy Planning Tool (EPT)).

Our Plan

Goals

- To improve the energy efficiency of our facilities by utilizing best practices to reduce our operating costs, energy consumption and greenhouse gas emissions.
- To implement a comprehensive corporate energy management program to reduce consumption, achieve cost savings, and meet greenhouse gas emission targets.
- To create a culture of conservation.
- To increase the comfort and safety of staff and patrons of the County of Peterborough's facilities.
- To improve the reliability of the County of Peterborough's equipment and reduce maintenance.

Objectives:

- Improve awareness of climate change and greenhouse gas emissions.
- Complete energy audits on two of the top five energy consuming buildings in the County.
- Improve the efficiency of energy use through low-cost opportunities by implementing the following:
 - Sound operating and maintenance practices.
 - Employee training, and staff awareness.
 - Monitoring and tracking system.
 - Re-commissioning of buildings.
 - Energy procurement through fixed rate contracts.
 - Energy Demand Management program.
- A reduction in the energy intensity (energy per square foot/metre) of County owned buildings and operations of 10% by 2015 compared to fiscal 2011.

Strategic:

- **Long-term strategic issues:** We will develop and implement energy policies, organize for energy management, develop the required skills and knowledge, manage energy information, communicate with our stakeholders, and invest in energy management measures.
- **Links with other municipal plans and management processes:** As an integral component of the management structure, the energy management plan is to be coordinated with the municipality's budget planning, strategic plan, purchasing policy, preventative maintenance plans, environmental management plan, asset management plan, and the policy development process
- **Departmental responsibilities:** We will incorporate energy budget accountability into our corporate responsibilities.

Energy management leader and team:

Resources:

- **Energy Leader:** The Director, Corporate Projects & Services or designate has been designated as our energy leader with overall responsibility for corporate energy management.
- **Energy Team:** We will identify staff members and personnel from our critical service providers who carry significant responsibility for energy performance or who can make essential input to energy management processes.
- **Staffing Requirements and duties:** We will incorporate energy efficiency into standard operating procedures and the knowledge requirement for operational jobs.
- **External consultants and energy suppliers:** We will establish criteria in our County Procurement Policy based on our energy goals and objectives for the selection of external consultants and energy suppliers.

Staff Training and Communication:

- **Communication programs:** We will develop a communication strategy that creates and sustains awareness of energy efficiency as a corporate priority among all employees and conveys our commitment and progress to our stakeholders.
- **Energy Awareness Training:** We will develop and deliver training focused on the energy use and conservation opportunities associated with employees' job functions wherever possible.
- **Energy Skills Training:** We will develop and deliver skills training for operators, maintainers and other employees that have "hands-on" involvement with energy consuming systems in order to improve the team's ability to achieve energy efficiency improvements.
- **Business Procedures:** We will carry out a comprehensive review of all business processes and modify them as necessary in order to incorporate any energy efficiency considerations.

Development of Energy Projects:

- **Internal assessments:** We will develop a methodology for the internal assessment of energy performance of municipal facilities and their energy loads. In addition, a process will be developed for identifying and cataloguing energy efficiency improvements.
- **Staff suggestions:** We will implement a dynamic process for submitting and processing staff suggestions for energy efficiency improvements.
- **Energy audits:** We will establish the criteria for energy audits for the requirement and frequency of municipal facility energy audits. The energy audits will be carried out based on the developed policy.

Investment in Energy Projects:

- **Investment criteria:** We will develop and/or clarify as necessary the financial indicators that are applied to investment analysis and prioritization of proposed energy projects, taking due consideration of the priority given to energy efficiency projects versus other investment needs (life cycle versus simple payback).
- **Consideration of energy efficiency for all projects:** Life cycle cost analysis will be incorporated into the design procedures for all energy projects.
- **Budgetary resources for energy projects:** Energy projects will be integrated into our capital planning and budget development procedures.
- **Capital:** Savings and incentives from previous energy efficiency projects will be incorporated into our annual capital planning procedures as a separate envelope.
- **Other sources of funds for energy projects:** The Energy Team will be mandated to investigate, document, and communicate funding sources for energy projects, including government and utility grants and incentives.

Procurement

- **Energy purchasing:** We will continue to utilize purchasing cooperatives to procure diesel, gas, propane and electricity. Opportunities to jointly procure other energy commodities will be investigated. This investigation will include the analysis of cost considerations, available energy services, energy quality and reliability and other performance factors.
- **Consideration of energy efficiency of acquired equipment:** Our Procurement Policy will be modified as required to incorporate energy efficiency into the criteria for selection and evaluation of materials and equipment.
- **Standards for new buildings:** We will develop criteria for the design and/or acquisition of new buildings that include energy performance factors and that use as appropriate the principles embedded in performance standards such as LEED and the Model National Energy Code for Buildings.

Our Execution – Action List

All work completed on the plan to date culminates in the development of actions for execution. Generally, the action can be classified as a program, process, or project. In addition, all actions are linked back to particular objectives developed earlier in the plan in order to ensure that they support the objectives, which in turn supports the goals, which in turn will move the County towards its vision.

Type	Objective	Action	Cost / Savings Estimate (if applicable)	Owner	Target Date
Program	Awareness	Add energy awareness to management meetings Energy reports to be distributed to directors and managers on a monthly basis		CAO and Director, Corporate Projects Services	Q3–2014
Program	Training	As part of Orientation Program – provide new staff with energy management training		Director, Corporate Projects & Services	Q4–2014
Program	Awareness	Improve staff education and awareness. Make use of visual displays in lunchrooms to demonstrate to staff the implications of current behaviours		Director, Corporate Projects & Services	Q4-2014

Type	Objective	Action	Cost / Savings Estimate (if applicable)	Owner	Target Date
Program	Awareness	Communicate to the organization the name of the Energy Leader and distribute the Energy Management Plan		Director, Corporate Projects & Services	Q4-2014
Process	Energy Efficiency	Vacuum back of all vending machines in municipal facilities	Savings: \$300/yr	Director, Corporate Projects & Services	In progress
Process	Energy Efficiency	Run dishwashers on off hours	Savings: \$200/yr	Director, Corporate Projects & Services	In progress
Process	Energy Efficiency Awareness	Use power bars on all computers – place on desks for awareness	Savings: \$300/yr	Director, Corporate Projects & Services	Q1–2015
Process	Energy Efficiency	Turn off all electronic devices such as coffee makers, printers, calculators, phone chargers etc. at night and on weekends	Savings: \$1000/yr	Director, Corporate Projects & Services	Q4–2014
Process	Procurement	Incorporate life-cycle costing into procurement process		Director, Corporate Projects & Services	In progress

Type	Objective	Action	Cost / Savings Estimate (if applicable)	Owner	Target Date
Project	Energy Efficiency	Investigate the implementation of programs like www.localcooling.com to automatically shut down PCs at night	Savings: 7,500 kWh/year	IT Department	Q1-2015
Project	Energy Efficiency	Enhance Building Envelope—window replacement program, window sealing in winter, caulking, weather-stripping, and insulation in top 3 buildings in terms of energy use	Cost: \$120,000 Savings: \$4,000/yr	Director, Corporate Projects & Services	In progress
Project	Energy Efficiency	Ensure all lighting is updated Ensure all lighting is motion sensor operated	Cost: Minimal – Use Incentive Programs	Director, Corporate Projects & Services	In progress
Program	Awareness	Employee participation program: Identification of improvements	Cost: \$2,500	Director, Corporate Projects & Services	Q4-2014
Program	Awareness	Have different staff walk through facilities		Director, Corporate Projects & Services	Q4-2014

Type	Objective	Action	Cost / Savings Estimate (if applicable)	Owner	Target Date
Project	Energy Efficiency	Identify unnecessary plug loads (like plug-in phantom power)		Director, Corporate Projects & Services	Q4-2014
Project	Energy Efficiency	Talk to all major vendors regarding equipment efficiencies and collect their ideas for improvement		Director, Corporate Projects & Services	Q4-2014
Project	Energy Efficiency	Install occupancy sensors in all buildings		Director, Corporate Projects & Services	In progress
Process	Energy Efficiency	<p>Fleet Replacement Plan – long term planning to ensure useful life of vehicle</p> <ul style="list-style-type: none"> - Assign appropriate equipment for intended use - Consider alternate uses for equipment 		Public Works – Operations Manager	In progress

Type	Objective	Action	Cost / Savings Estimate (if applicable)	Owner	Target Date
Project	Energy Efficiency	<p>Traffic Signals & Street Lighting Streetlight</p> <p>New Installations will take into account new technologies and industry trends</p> <p>On-going Maintenance – all street/traffic lights when repaired or replaced shall upgrade to LED lighting</p> <p>Solar Power – solar power shall be used for temporary traffic signals, flashing beacons and school safety zones (where possible). Consideration is given to new installations where optimal sun exposure can be achieved</p>		Public Works – Operations Manager	In progress
Project	Energy Efficiency	Upgrade heating and cooling systems	TBD	Director, Corporate Projects & Services	In progress

Type	Objective	Action	Cost / Savings Estimate (if applicable)	Owner	Target Date
Process	Procurement	Fleet Procurement – -- - Selecting vehicle engines with better fuel economy under our operating conditions - Specifying transmissions that improve fuel efficiency - Setting specifications so that the equipment is the right size for the work		Procurement – Public Works Operations Manager	In progress
Program	Energy Efficiency Awareness	Fleet Preventative Maintenance - Program to schedule routine maintenance and inspection - Operator awareness/training - Equipment idling procedures - Use of LED lighting for vehicles and equipment - Use of inverters rather than generator for small tools - Use of urea to reduce emissions from vehicle exhaust		Procurement – Public Works Operations Manager	In progress

Type	Objective	Action	Cost / Savings Estimate (if applicable)	Owner	Target Date
Program	Procurement Awareness	Consider flex fuels /biodiesel Consider operational applications for hybrid vehicles Consider setting preferences for lower sulphur fuels in fuel supply tenders Research new technologies Participation in Green Fleet Programs		Procurement – Public Works Operations Manager	In progress

Our Evaluation

The results of our energy management plan will be evaluated by monitoring our progress towards our targeted performance, and by reporting the findings to our various stakeholders. In addition, our evaluation will include a review and update of the energy plan as necessary. The evaluation process is ongoing and provides the critical feedback that leads to continuous improvement.

Monitoring Progress

- Ongoing monitoring of consumption: An energy monitoring and targeting (M&T) system will be implemented and maintained as an integral component of our management information system.
- Measurement and verification of energy projects: Standard methods for savings verification will be adopted and a measurement and verification (M&V) plan will be incorporated into all energy projects.

Review & Reporting

- Reporting for the GEA: Reporting requirements for the Green Energy Act and other pertinent provincial legislation will be factored into our reporting procedures.
- Reports to Council: Semi-annual energy performance summary reports will be generated to apprise Council of the progress made towards our corporate energy goals and objectives.
- Reports to stakeholders (community): The general public will be apprised of energy performance of municipal facilities and the impact of implemented energy management measures where appropriate.
- We will review and evaluate our energy plan, revising and updating it as necessary, on an annual basis within our Strategic Planning process.

References

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Current Municipal Energy Situation