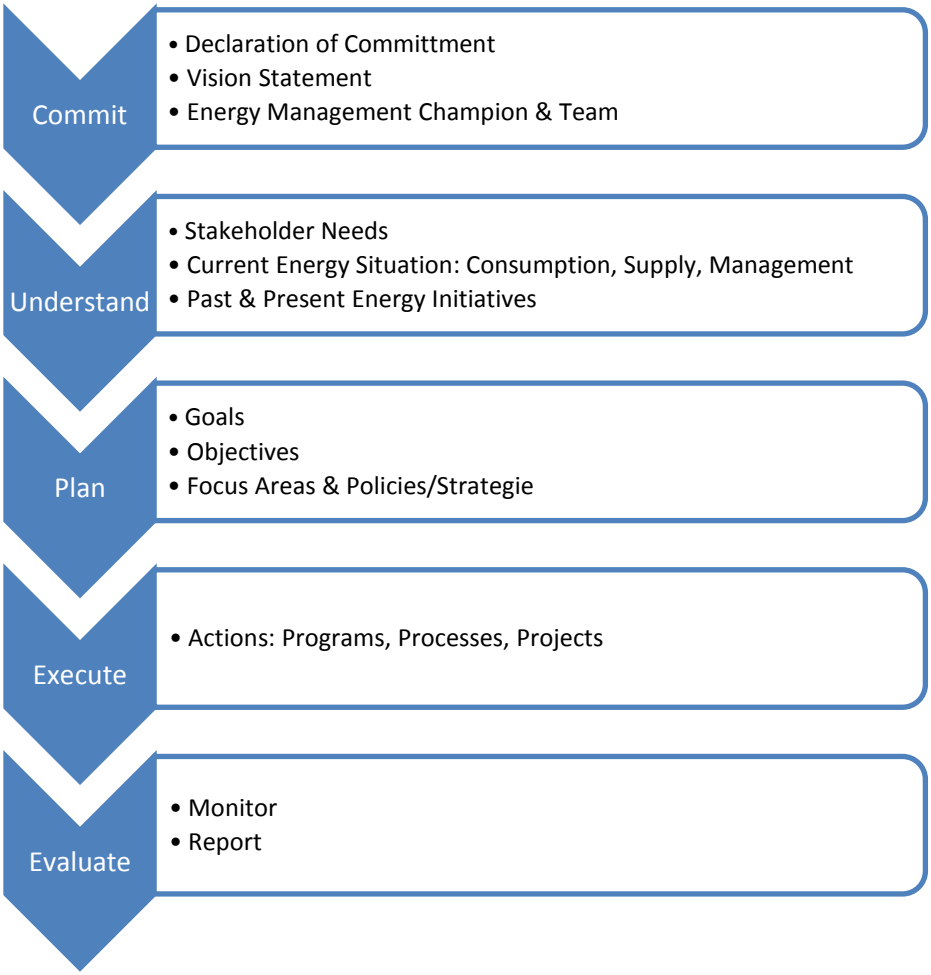
November 2012

COUNTY OF PETERBOROUGH - ENERGY MANAGEMENT PLAN TEMPLATE

Energy management plans can be extremely large, complicated, and expensive. But they don't need to be. In its simplest form, an energy management plan is a Past / Present / Future document related to your energy use and management: what you've done in the past, what you're doing now, and what you plan to do in the future. You don't need to have all the answers - getting the answers that you need can form part of your plan (i.e. objectives or actions).

This energy management plan template generally follows the framework suggested by Natural Resources Canada and Local Authority Services Ltd., and is outlined in Figure 1 below. It is meant to assist in the development of a basic energy management plan. Other components can be incorporated at your discretion. Samples and examples provided in this template are taken from various planning tools and municipal energy management plans; they are in an italicized font, and can be used as is or modified to fit your needs.

Figure 1 - Energy Management Plan Framework



SECTION 1 - 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.

SECTION 2 - OUR COMMITMENT (INCLUDES FUTURE STATE)

Effective energy management begins with the specific, visible expression of commitment by the senior authorities in the Municipality to making the reduction of energy consumption an organizational priority. At a minimum, this commitment includes a resolution by Municipal Council articulating the staff mandate to plan and implement measures for energy efficiency improvement.

DECLARATION OF COMMITMENT:

Example 1: *The Township/Municipality of _____ will use existing resources and leverage outside agencies where appropriate to reduce our energy consumption and its related environmental impact.*

Example 2: *The Township/Municipality of _____ is committed to undertaking economic measures to increase energy efficiency as a means of limiting the production of greenhouse gas emissions.*

Example 3: *The Township/Municipality of _____ is committed to the promotion of responsible energy management, through the implementation of economically viable energy efficiencies and environmental care throughout all facilities, plant and equipment.*

VISION:

Characteristics: picture/description of your municipality at some future date in terms of energy management

Example 1: *We are community leaders in the efficient use of energy resources*

Example 2: *We are continually reducing 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.*

Example 3: *We are continually approaching energy management in a strategic manner allowing for the proactive pursuit of optimal energy solutions that lead to environmental, societal, and economic benefits.*

Example 4: *We exercise stewardship in our use of finite energy resources to demonstrate leadership, optimize our delivery of services, and enhance the overall quality of life in our community.*

ENERGY MANAGEMENT LEADER AND TEAM:

Energy Leader:

Option 1: _____ *has been designated as our energy leader with overall responsibility for corporate energy management.*

Option 2: *We will clearly designate a leader with overall responsibility for corporate energy management.*

Energy team:

Option 1: *We have appointed the following positions/employees to act as departmental energy efficiency team members: (list positions and/or names)*

Option 2: *We will appoint employees to act as departmental energy efficiency team members.*

SECTION 3 - OUR UNDERSTANDING (CURRENT STATE)

The Energy Management Plan requires a thorough understanding of the current corporate energy situation, including policies, programs, practices, and processes. Key areas of examination include energy data management, energy supply, energy demand, and energy use management. The strategic energy management plan includes these information outputs.

STAKEHOLDER NEEDS:

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.

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 total annual energy consumption, cost, and greenhouse gas emissions are outlined in the chart below.

	2011	2012
Total Annual Energy Consumption		
Total Annual Energy Cost		
Total Associated Greenhouse Gas Emissions		

Additional energy consumption information to be provided as follows (2011 and 2012 data should available by the time the Energy Management Plan is required to be completed).

- Include breakdown by facility type and energy source – pie chart suggested for each
- Include detailed tables of energy consumption as appendix
- Include trends in energy consumption graph, if minimum 3 year of data available (If multiple years of consumption data not available, this could become a year 1 objective)

Energy Initiatives: Provide a summary of previous and current energy conservation and demand management programs, policies, and projects, if applicable

Renewable Energy: Provide a description of any renewable energy generation facilities and amount of energy produced, if applicable

Green Energy: Provide a description of any current or proposed systems which harness energy by ground source, thermal air, or thermal water, if applicable

Energy Supply:

The types of energy used in the operation of the Township/Municipality's facilities and delivery of services include:

- *Electricity - provided by _____ (ex. Hydro One)*
- *Natural gas – provided by _____ (ex. Enbridge)*
- *Propane – provided by _____ (ex. Superior)*
- *Fuel – provided by _____ (ex. Ultramar)*
- *Heating oil – provided by _____ (ex. Endicott Fuels)*
- *Other - provided by _____*

HOW ENERGY IS CURRENTLY MANAGED:

1) EXAMPLE 1 (broad description):

   It is the responsibility of the management team to monitor and manage energy bills on a monthly basis.

2) EXAMPLE 2 (more detailed description):

   The management of energy consumption and the energy performance of our facilities and equipment are the responsibilities of Finance (cost management), Public Works Department (maintenance), and facility/department managers (operations).

3) EXAMPLE 3 (very detailed description):

   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 (insert department or person). The data is received via (_____) then tracked and/or monitored using the following process: (describe steps in process including individuals involved.)

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

   - *Electricity is supplied by _____ on an as needed basis and is priced at the standard rates offered by the provider. OR Township/Municipality has adopted a hedging strategy by purchasing our electricity through Local Authority Services electricity purchasing program.*
   - *Natural Gas is supplied by _____ on an as needed basis and is priced at the standard rates offered by the provider at the time. OR Township/Municipality has adopted a hedging strategy by purchasing our natural gas through Local Authority Services bulk gas purchasing program.*
   - *Propane is supplied by _____ on an as-needed basis and is priced at the standard rate offered by the provider at the time of delivery.*
   - *Vehicle fuel is supplied by _____ on an as needed basis and is priced at the standard rate offered by the retailer at the time. The fuel is purchased on an as needed basis by the operator of the vehicle. OR Township/Municipality participates in a cooperative bulk purchasing program for vehicle fuel.*
   - *Heating oil is supplied by _____, and is priced at the standard rate offered by the provider at the time of delivery. The oil is delivered on an as needed basis, and the order is initiated by our facility staff contacting the supplier to place the order.*

Energy Use Management: Day to day management of energy has been primarily the responsibility of facility managers. The tools available to the facility managers to aid in their efforts to reduce energy use include: (insert any programs / technology used such as LAS' Energy Management Tool (EMT) or Energy Planning Tool (EPT)).

SECTION 4 - OUR PLAN

Based upon a clear understanding of the current energy practices, the plan can now be developed. It begins with goals which support the vision, followed by objectives which support the goals. Targets can be incorporated into the goals and/or the objectives. Areas of focus and associated strategies and/or polices can also be added.

GOALS

Characteristics: long-term, low detail, "broad brush" – must support Vision

Example 1: *To improve the energy efficiency of our facilities by utilizing best practices to reduce our operating costs, energy consumption and greenhouse gas emissions.*

Example 2: *To seek opportunities to reduce fossil fuel use by utilizing renewable energy sources where feasible and practical.*

Example 3: *To maximize fiscal resources through direct and indirect energy savings.*

Example 4: *To reduce the environmental impact of Municipality/Township operations.*

Example 5: *To implement a comprehensive corporate energy management program to reduce consumption, achieve cost savings, and meet greenhouse gas emission targets.*

Example 6: *To create a culture of conservation.*

Example 7: *To increase the comfort and safety of staff and patrons of (municipality's) facilities.*

Example 8: *To improve the reliability of (municipality's) equipment and reduce maintenance.*

OBJECTIVES

Characteristics: short to medium term, medium level of detail, "initiatives" – must support Goal(s)

Example 1: *Improve the Municipality/Township's understanding of energy consumption OR*

Increase staff awareness and motivate staff to use energy more efficiently

Example 2: *Improve awareness of climate change and greenhouse gas emissions.*

Example 3: *Report energy performance changes and improvements annually*

Example 4: *Complete energy audits on all municipal facilities during the next five years OR Complete energy audits on two of the top five energy consuming buildings in the municipality.*

Example 5: *Introduce staff accountability and responsibility for energy consumption by 2014.*

Example 6: *Reduce energy consumption in the (insert building name) complex by 20% by fiscal year 2015/16 versus 2010/11.*

Example 7: *To 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.*

Example 8: *A reduction in the energy intensity (energy per square foot/metre) of municipally owned buildings and operations of 20% by 2014 compared to fiscal 2011.*

Example 9: *A reduction in GHG emission of 15/ sq. ft generated from our building operations.*

Example 10: *A total energy cost savings of 12% by 2015.*

FOCUS AREAS & POLICIES

The following section represents potential areas of focus and their associated strategies/policies.

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 departmental responsibilities.*

Resources:

- *Key individuals: 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 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 implications of employees' job functions and the day-to-day opportunities for conserving energy found in the workplace and at home.*
- *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 develop a procedure for the negotiation of energy purchase contracts that appropriately addresses our cost considerations, available energy services, energy quality and reliability, and other performance factors. Opportunities to jointly procure other energy commodities will be investigated, including LAS initiatives.*
- *Consideration of energy efficiency of acquired equipment: Our purchasing procedures 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.*

SECTION 5 - OUR EXECUTION

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

Type	Objective	Action	Cost / Savings Estimate (if applicable)	Owner	Target Date
Program	Awareness	Add energy awareness to management meetings		CAO	Q1–2013
Program	Training	Host Quarterly Lunch and Learns on Energy Measures		CAO	Q2–2013
Program	Awareness	Make use of visual displays to demonstrate the implications of current behaviours	Cost: $1,500	Marketing Manager	Q1-2013
Process	Awareness	Energy reports to be distributed to building managers on a monthly basis		Director of Facilities	Q1-2014
Process	Energy Efficiency	Vacuum back of all vending machines in municipal facilities	Savings: $300/yr	Operations Manager	Q2–2013
Process	Procurement	Incorporate life-cycle costing into procurement process		Purchasing Manager	Q1-2014
Project	Energy Efficiency	Implement use of programs like www.localcooling.com to automatically shut down PCs at night	Savings: 7,500 kWh/ year	IT Department	Q3-2013
Project	Energy Efficiency	Enhance Building Envelope—caulking, weather-stripping, and insulation in top 3 buildings in terms of energy use	Cost: $6,000 Savings: $4,000/yr	Operations Manager	Q4-2013
Project	Energy Efficiency	Install remote thermostats for baseboard heaters	Cost: $2,500	Operations Manager	Q2-2014

SECTION 6 - 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 in ongoing and provides the critical feedback that leads to continuous improvement.

MONITORING PROGRESS

Example 1: *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.

Example 2: *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.

Example 3: *Consumption*: Our energy consumption is 2012 was reduced by 560,000 GJ from our 2009 levels of 610,000 GJ.

Example 4: *GHG Emissions*: In 2014, our corresponding overall greenhouse gas emissions were 13,608 tonnes versus our 2011 amount of 18,462 tonnes. This represents a decrease of 36%.

Example 5: *Cost:* We have reduced our energy costs by 5% in absolute terms, in the face of marginal increases in energy prices.

REVIEW & REPORTING

Example 1: *Reporting for the GEA:* Reporting requirements for the *Green Energy Act* and other pertinent provincial legislation will be factored into our reporting procedures.

Example 2: *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.

Example 3: *Reports to accountable staff:* The energy management team will be provided with timely and regular energy consumption reports.

Example 4: *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.

Example 5: We will review and evaluate our energy plan, revising and updating it as necessary, on an annual basis within our corporate planning process.

Example 6: We will correlate our progress towards corporate goals and objectives, and update those goals and objectives accordingly.

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