



Township of East Garafraxa
Energy Conservation and Demand Management Plan
2014-2019

Township of East Garafraxa Energy Conservation and Demand Management Plan

Figure 1 - Energy Management Plan Framework



Introduction & Background

The conservation of energy is important to the Township of East Garafraxa and its future. We will allocate the necessary resources to develop an Energy Conservation and Demand Management plan with efforts to reduce our energy consumption and its environmental impact. In order to make an impact on energy performance, it requires the application of procedures and measures to

reduce energy waste and improve efficiency. The staff at the Township of East Garafraxa is committed to continually improving our energy performance and therefore creating an efficient environment.

Our Commitment

Declaration of Commitment and Council Resolution

The Township of East Garafraxa will allocate the necessary resources to develop and implement an Energy Conservation and Demand Management Plan as required under Regulation 397/11 of the *Green Energy Act*. Council supports energy planning because it will help avoid cost increases, reduce our energy consumption and its related environmental impact. Council and staff will ensure that the objectives presented in this plan are achieved and that progress towards those objectives is monitored on an ongoing basis.

Vision

We will strive to continually reduce our total energy consumption and associated greenhouse gases 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 of the Township of East Garafraxa.

Policy

The Township of East Garafraxa will incorporate energy efficiency into all areas of our activity including our facility operations and maintenance and financial management and investment decisions. This will involve a collaborative effort to increase the education, awareness and understanding of energy management within the municipality. Energy costs will be factored into the lifecycle cost analysis, asset management analyses and policies of the municipality.

Goals

- To improve the energy efficiency of our facilities by utilizing the best practices to reduce our operating costs, energy consumption and greenhouse gas emissions
- To create a culture of conservation
- To increase the comfort and safety of staff and patrons of the Township of East Garafraxa's facilities
- To improve the reliability of the Township of East Garafraxa's equipment and reduce maintenance
- To implement a comprehensive corporate energy management program to reduce consumption and greenhouse gas emissions

Objectives

- Improve awareness of climate change and greenhouse gas emissions
- Better analyze energy costs and look for savings opportunities. This will include looking at energy commodity procurement options and taking advantage of available resources and funding for energy projects
- Raise staff and council awareness around energy efficiency. This will include communicating successes to both internal and external stakeholders
- Identify and investigate renewable energy generation opportunities

Our Understanding (The Current State)

Current Municipal Energy Situation

Energy Consumption and Demand

The current energy usage by building is detailed in Appendix A. Our energy usage is updated monthly in the annual spreadsheet and reported annually to the Ministry of Energy.

Stakeholder needs:

The Township of East Garafraxa 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
- c) Training and support to develop the skills and knowledge required to implement energy management practices and measures

The Township of East Garafraxa 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
- b) The municipality to reduce the carbon footprint associated with its corporate energy use

Energy Initiatives

Renewable Energy

Renewable energy is energy which comes from natural sources such as sunlight, wind, and geothermal heat. Utilizing renewable energy can generate a revenue source through the Provincial Feed-in Tariff (FIT) Program or significantly reduce the energy requirements of a building along with the associated greenhouse gases.

- In 2006 the walls and windows in the public works building were upgraded. The weather stripping around the eaves and doors were also replaced to help with efficiency
- In 2009 the roof of the recreation hall was replaced, and re-installed in order to conserve the energy within the building

- Currently implementing solar street lighting on appropriate roadway systems
- Township lighting in the recreation hall, the municipal office and public works department shop is turned off when it is unoccupied
- Road improvements are being made within the township which will help to reduce Green House Gas Emissions

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 Administration office. The data is received via supplier invoices, then tracked and reported using the resources provided by the Ministry of Energy.

- Invoices are entered into the Energy Planning Tool
- Consumption/Trends are analyzed
- Reports are generated

Energy Supply Management

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

- Electricity energy is supplied by Hydro one, on an as needed basis and is priced at the standard rates offered by the provider
- Propane and Gas is supplied by local providers on an as-needed basis and is priced at the standard rate offered by the provider and time of delivery]

Energy Use Management

Energy use is managed through the monthly tracking of usage which allows the review of the energy usage on an ongoing basis.

Our Plan

Strategic

- **Departmental Responsibilities:** We will include energy budget accountability into our corporate responsibilities
- **Long-term Strategic Issues:** We will develop and implement energy policies, accumulate the required skills and knowledge, organize for energy management and manage energy information
- **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, purchasing policy, preventative maintenance plans, asset management plan and the policy development process

Consideration of Energy Efficiency for all Projects

The Township of East Garafraxa will incorporate life cycle cost analysis into the design procedures for all capital projects. Typical equipment to be considered for this project would include:

- Lighting and Controls
- Water use
- HVAC Equipment (e.g. boilers, chillers, pumps, motors etc.)
- Process Improvements
- Back-up generators
- Any other energy consuming device

Energy Management Leader and Team

Resources:

- **Energy Leader:** The CAO/Clerk Treasurer 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 into energy management processes
- **Internal Resources:** We will develop criteria for determining whether internal resources can be utilized for the implementation of energy projects
- **External Consultants and Energy Suppliers:** We will establish criteria in our Procurement Policy based on our energy goals and objectives for the selection of external consultants and energy suppliers.

Staff Energy Training and Communication

The Township of East Garafraxa will develop and deliver energy training for relevant staff and Council Members.

- Training will be focused on the energy use and conservation opportunities associated with employees' job functions, and will be utilized whenever possible
- Energy management will be incorporated into employee orientation and future training opportunities
- We will develop a communication strategy that creates and sustains awareness of energy efficiency as a corporate priority among all employees' job functions wherever possible

- 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:** A process will be developed for identifying and cataloguing energy, as well as an internal assessment of energy performance within municipal facilities, and their energy loads
- **Energy Audits:** We will establish the criteria for energy audits for the requirement and frequency of municipal facility energy audits
- **Staff Suggestions:** We will implement a dynamic process for submitting and processing staff suggestions for energy efficiency improvements

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 investigate geothermal energy, explore solar energy and consider opportunities to procure other energy commodities at a lower cost. 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.

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 Township 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 quarterly basis		CAO/Clerk Treasurer	2015

Type	Objective	Action	Cost / Savings Estimate (if applicable)	Owner	Target Date
Program	Training	As part of Orientation Program – provide new staff with energy management information		Deputy Treasurer/ Deputy Clerk	2015
Program	Awareness	Improve staff education and awareness. Make use of visual displays in lunchrooms to demonstrate to staff the implications of poor behaviors		Administration Department	2015
Program	Awareness	Communicate to the organization the name of the Energy Leader and distribute the Energy Management Plan		Administration Department	2014
Process	Energy Efficiency	Run dishwashers on mid-peak or low-peak hours		All Staff	2014
Process	Energy Efficiency	Turn off all electronic devices such as coffee makers, printers, calculators, phone chargers etc. at night and on weekends		All Staff	2014
Project	Energy Efficiency	Enhance Building Envelope;, weather-stripping, and insulation.		Director of Public Works	2015

Type	Objective	Action	Cost / Savings Estimate (if applicable)	Owner	Target Date
Project	Energy Efficiency	Ensure all lighting and electrical is updated in the recreation hall		Director of Public Works	2015
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		Director of Public Works	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		Director of Public Works	In progress

Type	Objective	Action	Cost / Savings Estimate (if applicable)	Owner	Target Date
Process	Energy Efficiency	Fleet Replacement Plan – long term planning to ensure useful life of vehicle <ul style="list-style-type: none"> - Assign appropriate equipment for intended use - Consider alternate uses for equipment 		Director of Public Works	In progress
Process	Energy Efficiency	Explore potential for day lighting in areas with high sun exposure. Shut some office lights off where natural light available.		Administration and Roads Department	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.

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: 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.

References

County of Peterborough (Feb 2013) Energy Management Plan

Township of Mulmur (2014) Energy Management Plan

APPENDIX A: Current Municipal Energy Situation (2012)

Township of East Garafraxa

Operation Name	Floor Area sq ft	Avg hrs/wk	Annual Flow (Mega Litres)	Energy Type			Total			Comments
				Electricity	Oil	Propane	GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)	Energy Intensity (ekWh/Mega Litre)	
				kWh	litres	litres				
Marsville Community Hall	4,540	65	-	23,289	1,989.5	-	7,678.26900	9.85273	-	-
Roads Department Shop	7,392	65	-	20,113	6,583.8	-	19,939.37000	12.32031	-	-
Pump House	224	168	9.7	20,095	-	-	1,929.92400	-	2,071.64900	-