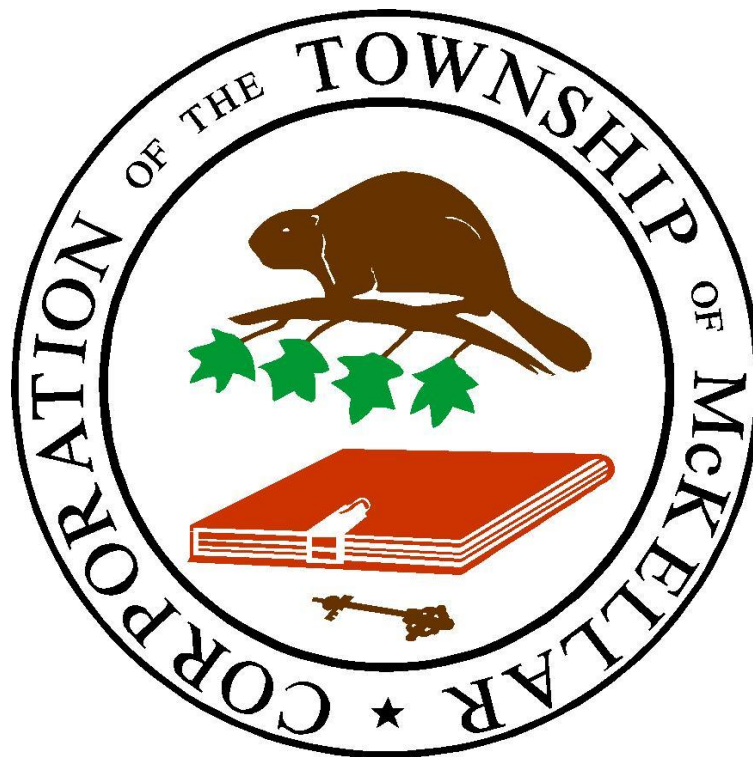


5 YEAR ENERGY CONSERVATION & DEMAND MANAGEMENT PLAN



The Township of McKellar

June 2014

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TOWNSHIP OF MCKELLAR: ENERGY MANAGEMENT PLAN

1.0 INTRODUCTION

1.1 BACKGROUND

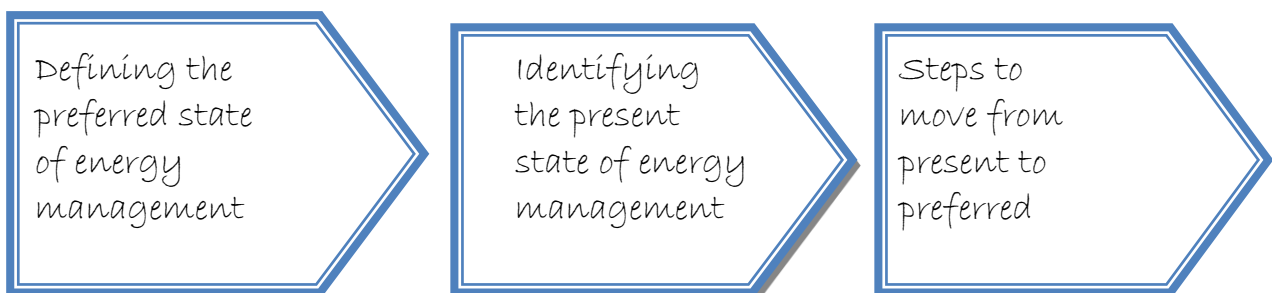
The Township of McKellar has undertaken the development and implementation of an Energy Conservation and Demand Management Plan in accordance with Ontario Regulation 397/11. This 5 year Plan runs from 2014 to 2019, a revised and updated Plan will be required by 2019.

The Corporation of the Township of McKellar was incorporated in 1873. The Township of McKellar is a rural, residential and recreational municipality located on Highway 124 approximately 20 km northeast of the Town of Parry Sound with adjacent municipalities of Seguin, Magnetawan, Whitestone and McDougall, all located within the District of Parry Sound. The Township of McKellar has a year round population of 951 persons with approximately 66 % of the 1502 households in the municipality being seasonal. (MPAC Population Report Jan. 2014 & Property Report Feb. 2014). The Township of McKellar operates a Community Centre which houses the Municipal Office, Council Chambers, Public Library, Banquet Hall, Youth Room, Heritage Room and Post Office. Also located at this site is a covered rink available for year round use. There is one transfer station within the municipality available for use by the rate payers of the Township. A full time public works department operates out of an office and garage located at 677 Highway 124. There is a volunteer fire department, with two fire stations, one located at 3 Sharon Park Drive, the other at 710 Hurdville Road and a communication tower. The Township of McKellar owns and maintains several public parks, beaches and boat launches, the largest park being Minerva Park, located on Highway 124 and the site of the Farmer's Market during the summer months. There are 19 street lights within the township at various locations. The Public Works department currently operates a fleet consisting of ½ tons, heavy duty trucks used for summer maintenance and winter plowing, a loader, a grader, and a backhoe. The fire department operates with a fleet of pumper trucks and rescue vehicles. The building department has one vehicle in use.

1.2 PLAN STRUCTURE

The structure of this Plan follows the framework of the 5 key step as laid out by Local Authority Services' Energy Planning Tool: Commitment, Understanding, Planning, Execution and Evaluation.

The development of the Energy Management Plan is based on the model of:



2.0 COMMITMENT

2.1 DECLARATION

The Township of McKellar will use existing resources and leverage outside agencies where appropriate to reduce our energy consumption and its environmental impact.

2.2 VISION

That the Township of McKellar is 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 residents and the community.

2.3 GOALS

To continuously improve the energy efficiency of the Township's facilities and processes in order to reduce operating costs, energy consumption and the associated greenhouse gas emissions.

To maximize the efficient use of the Township's fiscal resources.

To minimize negative environmental impacts of the Township's operations.

2.4 OVERALL TARGET

By 2019 the Township aims to reduce the energy consumption per square foot of our municipal facilities to meet with provincial benchmark means.

2.5 OBJECTIVES

To improve the energy efficiency of our facilities by utilizing best practices to reduce energy consumption and mitigate the impact of energy cost increases.

To create a culture of energy conservation among Township staff.

To improve municipal staff knowledge in energy consumption and energy conservation.

To reduce greenhouse gas emissions associated with township energy use.

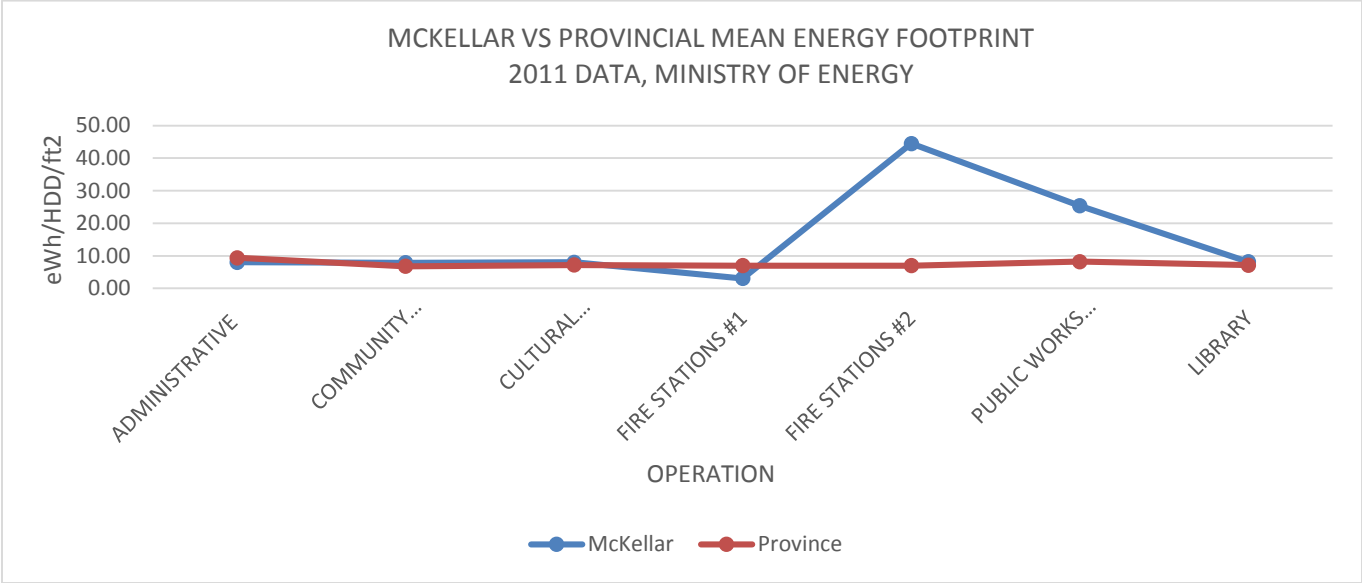
3.0 UNDERSTANDING

3.1 MUNICIPAL ENERGY SITUATION

The Township of McKellar uses three types of energy in its facilities: electricity, furnace oil and propane. Currently, electricity is purchased through Hydro One, furnace oil is purchased from McDougall Energy and propane is purchased from Budget Propane.

As part of the Ministry of Energy requirements, energy intensity figures are calculated in ekWh/sqft. Each facility’s intensity is calculated based on the equivalent kilowatt figures (all forms of energy are converted to kilowatts) and the square footage of the building. Information for each facility as reported to the Ministry of Energy for the 2012 year is presented in Appendix A.

Below is a graph representing where the Township of McKellar is compared to the provincial means published by the Ministry of Energy.



3.2 HOW WE MANAGE ENERGY TODAY

The Township of McKellar has a solid history in energy conservation initiatives. While constructing an addition to the Community Centre in 2010, a geothermal heating system was installed. This system is used for both the heating and cooling of the entire building. Several other upgrades occurred in with the addition to the Community Centre including lighting upgrades, installation of programmable thermostats and removal of one hot water tank. Solar power compactors for the transfer station were purchased in partnership with Waste Diversion Ontario’s Continuous Improvement Fund. When replacing equipment or repairing facilities or equipment, energy consumption and efficiency are variables used in consideration of purchases. Employees are committed to energy conservation, lights and computers are turned off when not in use.

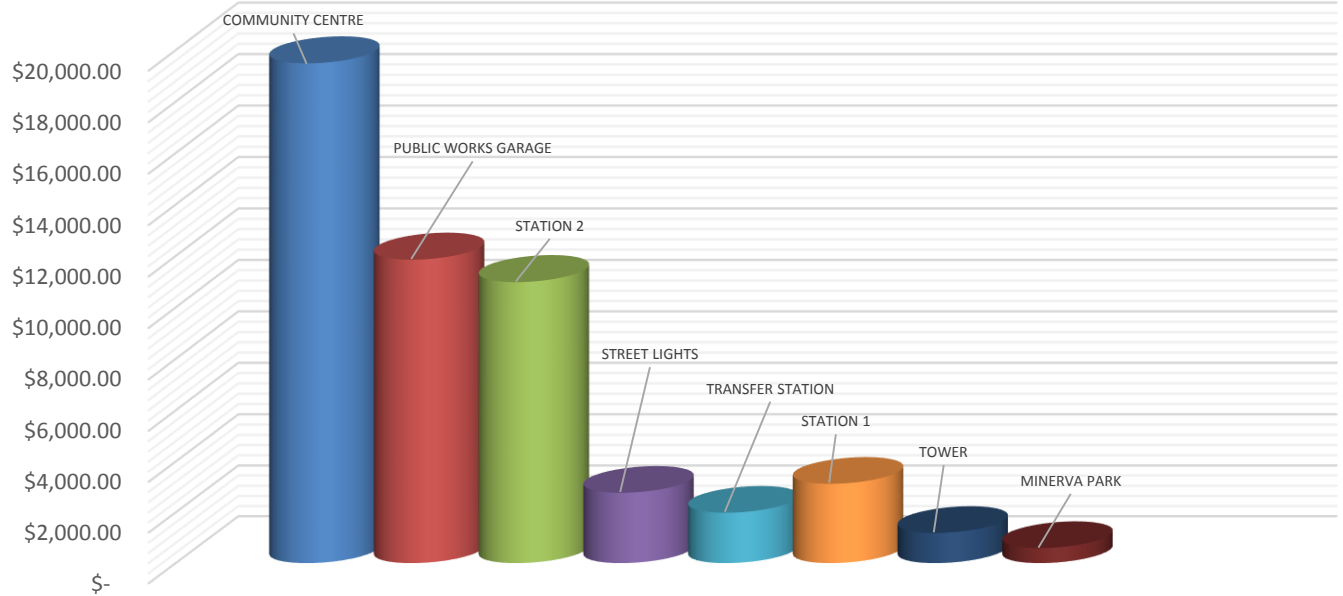
3.3 SUMMARY OF ENERGY CONSUMPTION, COST AND GREENHOUSE GAS EMISSIONS

The Township of McKellar's main energy consumer is the Community Centre, being the largest facility. The following charts and graphs represent municipal energy consumption and costs for 2012.

ENERGY COST AND USAGE PER DEPARTMENT 2012				
	TOTAL COST	ELECTRICITY	PROPANE	FURNACE OIL
		KW	LITRE	
FIRE DEPARTMENT	\$ 14,106.22	36574	9344.4	3144.4
PUBLIC WORKS	\$ 11,854.17	20771		8692.1
COMMUNITY CENTRE	\$ 10,132.80	61996		
MUNICIPAL OFFICE	\$ 3,312.65	20268		
STREET LIGHTS	\$ 2,769.60			
LIBRARY	\$ 2,338.34	14306		
TRANSFER STATION	\$ 1,984.21	10356		
TOWER	\$ 1,188.50	4700		
COUNCIL CHAMBERS	\$ 974.31	5961		
HERITAGE ROOM	\$ 974.31	5961		
YOUTH ROOM	\$ 974.31	5961		
POST OFFICE	\$ 779.45	4770		
MINERVA PARK	\$ 591.42	1428		
TOTAL	\$ 51,980.29	193052		

TOTAL ENERGY COST PER FACILITY 2012				
HST NOT INCLUDED	TOTAL	HYDRO	PROPANE	FURNACE OIL
COMMUNITY CENTRE	\$ 19,486.17	\$ 19,486.17		
PUBLIC WORKS GARAGE	\$ 11,854.17	\$ 3,069.61		\$ 8,784.56
STATION 2	\$ 10,983.28	\$ 4,390.92	\$ 5,246.08	\$ 1,346.28
STATION 1	\$ 3,122.94	\$ 1,296.53		\$ 1,826.41
STREET LIGHTS	\$ 2,769.60	\$ 2,769.60		
TRANSFER STATION	\$ 1,984.21	\$ 1,984.21		
TOWER	\$ 1,188.50	\$ 1,188.50		
MINERVA PARK	\$ 591.42	\$ 591.42		
	\$ 51,980.29	\$ 34,776.96	\$ 5,246.08	\$ 11,957.25

TOTAL ENERGY COST PER FACILITY



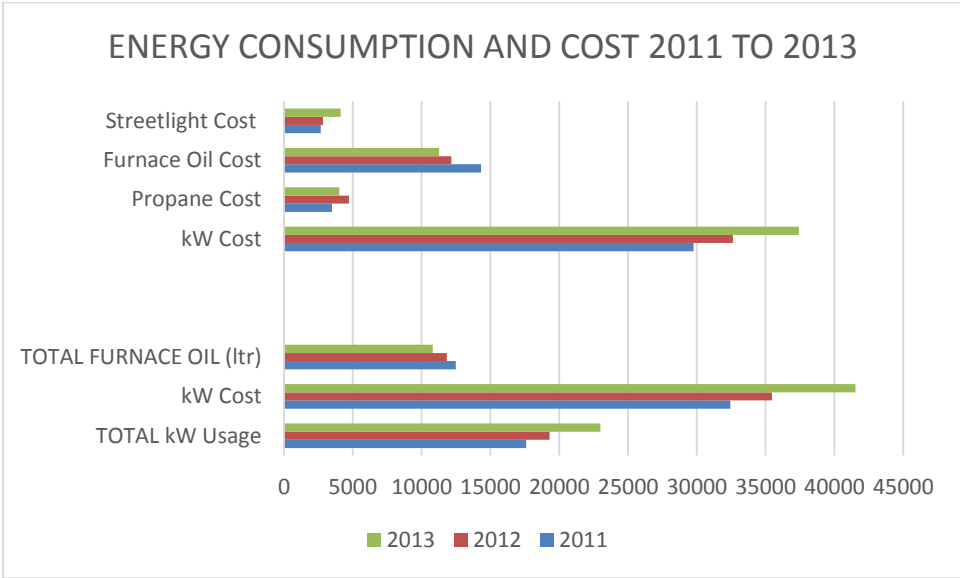
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2012 ENERGY CONSUMPTION			
Energy Source	Energy Amount	Total Cost	Cost per Unit
Electricity	193052	34776.96	0.1801 / kWh
Furnace Oil	11836.3	11957.23	1.0102 / litre
Propane	9344.44	5246.08	0.5614 / litre

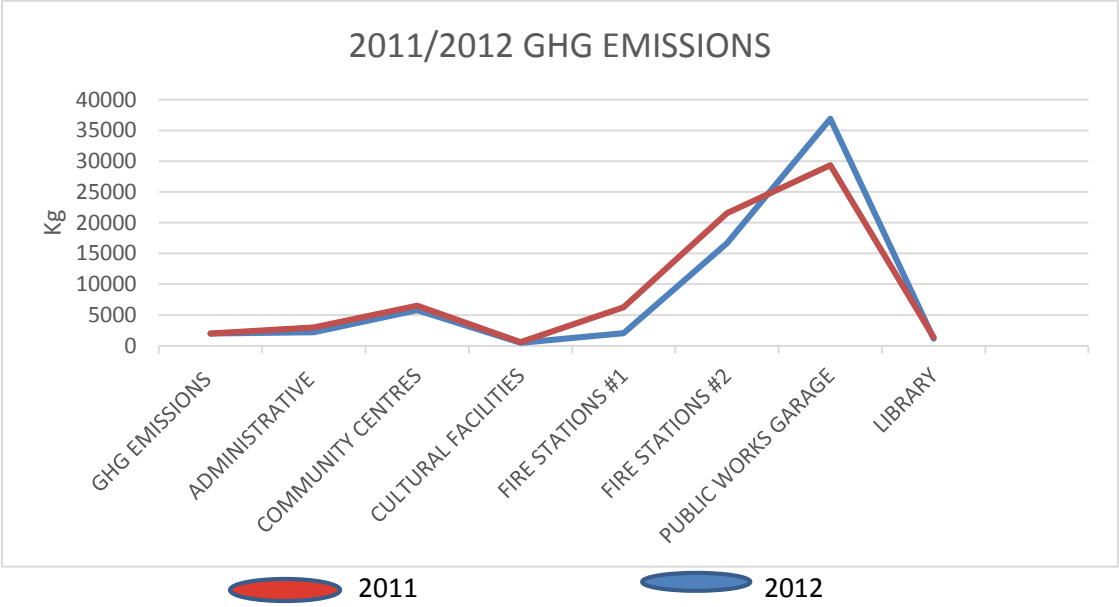
3.4 TRENDS IN ENERGY CONSUMPTION

3.4.1 OVERALL TOWNSHIP TREND

Overall, the Townships energy use, energy cost, and associated greenhouse gas emission have risen over the past three years. The past three years has seen an increase of 13.09% in energy costs from 2011 to 2013, with the contributing factors being an increase in kilowatts used, the rising costs of energy sources and increased use of the facilities. The consumption of both furnace oil and propane dropped from 2011 to 2013, 15.51% and 10.88% respectively.

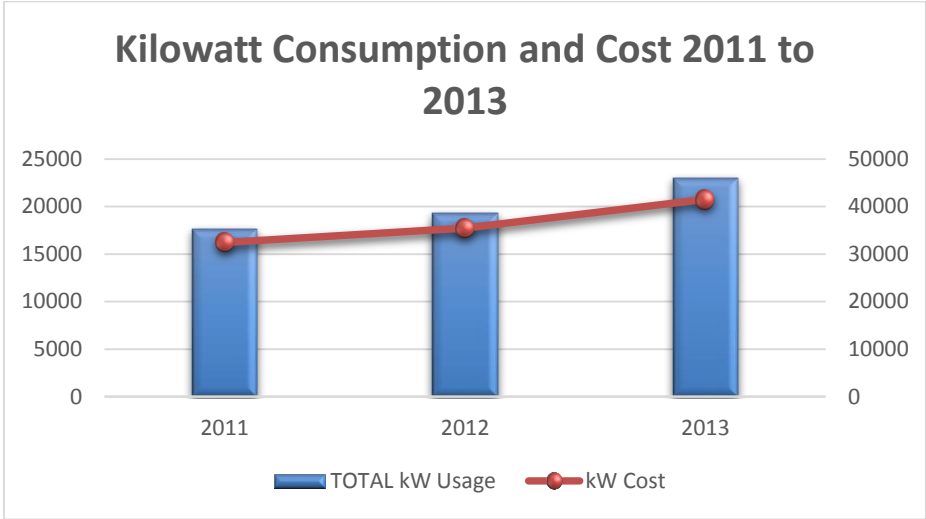


The table and graphs below show the increases from 2011 and 2012 in Greenhouse Gas Emissions during that period with only the Public Works Garage showing a decrease between years. The overall increase was 5.21% from 2011 to 2012,



3.4.2 ELECTRICITY CONSUMPTION TREND

The Township’s electricity consumption has increased over the past 3 years, from 176043 kW in 2011, 193052 kW in 2012 and 229983 kW in 2014, rising 9.6% and 19.13% in 2012 and 2013 respectively. The resulting electricity costs were \$35,456.42 in 2011, \$34,776.96 in 2012 and \$41,523.27 in 2013, representing a 17.11% increase in costs.



3.4.3 STREETLIGHT ENERGY TREND

The Township of McKellar currently has 3 streetlight accounts with Hydro One. Each account is billed by the streetlight, with a total of 19 streetlights on the accounts. Streetlights are billed by the type of lighting used at per light rate. Currently, the Township uses high pressure sodium and mercury vapour lights. The increase in streetlight costs from 2011 to 2013 was \$2680.92 to \$4113.81, an increase of 53.45%. This increase is not representative of an increase in consumption but rather the cost of each light as billed by Hydro One.

4 PLANNING

4.1 STRUCTURE PLANNING

The 5 year Energy and Conservation Demand Management Plan includes both short and mid-term strategies. Short term is defined as years one through three of the Plan

Short term focus areas will be:

- Establishment of an Energy Coordinator
- Develop a tracking and reporting process;
- Education and Training of Township Staff;
- Implementing no cost & low cost programs, processes, and projects;
- Exploration of available funding grants for updating/retrofitting facilities;
- Updating, retrofitting and consolidating facilities;
- Planning for expenditures in coming year

Midterm is defined as years four and five of the Plan. Mid-term focus areas will be:

- Higher cost programs, processes and projects.

4.2 ENERGY LEADER

Township of McKellar will develop a more focused effort on energy management through the creation of an Energy Management Coordinator. This Coordinator will be responsible for the implementation of the Plan and review of the energy management strategies. Reviews and consumption reports will be prepared for Clerk and Council annually or upon request for planning or purchasing purposes

4.3 ENERGY TRAINING

The Township of McKellar will train key staff on energy use and conservation. General training will be offered to staff, while additional, more technical training will be offered to the Energy Management Coordinator and Supervisory Staff.

4.4 ENERGY PURCHASING

The Township of McKellar will investigate purchasing options for all current sources of energy purchased. The option to purchase electricity through Local Authority Services' Electricity Program will be explored.

4.5 PROGRAMS/PROCESSES/PROJECTS

Energy conservation initiatives will take the form of programs, processes and projects. Below is a list of initiatives to be considered over the duration of this plan.

4.5.1 PROGRAMS

- Investigate the use of LAS and/or Hydro One energy audit programs for all facilities
- Post information and reminders for Township staff that support the creation of a culture of conservation
- Investigate the possibility of participation in a demand management program to conserve energy and save money by reducing demand on the provincial electricity grid during peak hours
- Post energy information, plans, reports and update with progressive information and successful Township initiatives on the website

4.5.2 PROCESSES

- Implement a process to track on a per billing cycle basis the energy use and cost for each building and provide year over year comparative results
- Implement regular review of energy consumption data by appropriate Township staff, reporting periods to be July and January
- Utilize energy performance benchmarks and best practice reports as reference points to set or meet targets
- Increase awareness of the effects of energy use, both those that are measureable, such as cost and consumption, and also those that are harder to quantify, such as sustainability, renewability, efficiency and environment impact.
- Implement a process to track all vehicle and equipment consumption using existing metered pumps thereby monitoring the use and efficiency of department vehicles and equipment

4.5.3 PROJECTS

- Initiate streetlight replacement program, upgrading all streetlights to LED
- Investigate the high energy consumption for the Fire Department at Station #2
- Complete internal review of all Township facilities to confirm type of lighting, type of heating and cooling, type of thermostats, presence of exhaust fans, presence/type age of pumps, presence/condition of weather stripping and floor sweeps, type of other equipment which utilizes energy. Use templates and guidance provided in the Energy Savings Toolbox provided by the Ministry of Natural Resources.
- Continually investigate and pursue, where possible, energy conservation funding opportunities, including Save ON Energy Small Business Lighting program. Potential sources of funding can be found at <http://www.nrcan.gc.ca/energy/finding/4943>, Ontario Trillium Foundation, or <http://saveonenergy.ca/Business/Program-Overviews/Small-Business-Lighting>
- Install occupancy (motion) sensors and/or programmable thermostats for lights and heating, where appropriate
- Enhance building envelope by replacing caulking, weather stripping and insulation where appropriate
- Investigate use of buildings that have experienced change in space configuration or expansion since their construction
- Make energy conservation/consumption a consideration in all policy and decision making

5 EXECUTION

5.1 MUNICIPAL LEVEL

On an annual basis the Township's Energy Coordinator and Clerk will develop an Energy Action Plan, made up of programs, processes and projects. Action Plan items will be limited to one year for completion. Larger action items can be broken down into smaller steps to meet the one year timeline. Each year a new Energy Action Plan will be developed. By limiting actions to a single year, it facilitates forward movement on many projects simultaneously and allows for the incorporation of new information or technologies that may come available during the term of the Energy Management Plan.

The Energy Management Coordinator and/or Department Supervisor will implement and monitor all projects. Reports to Council will be made in a timely manner regarding successes and challenges in implementing the Energy Action Plan.

The Energy Management Coordinator and Clerk will review and update the Energy Conservation Management Plan every 5 years as legislated by the Green Energy Act.

5.2 ASSET LEVEL

Once the annual Energy Action Plan is completed, it will be the responsibility of the department supervisor with responsibility for the specific building to implement various action items associated with that building. Tracking and reporting will be included in the implementation to allow for measurement of the impact of the action. Facility energy use will be tracked and communicated on a regular basis to those responsible for the various assets. In addition, the department supervisors will review current practices of the facilities to ensure consistency across the Township.

6 EVALUATION

6.1 ENERGY PLAN REVIEW

The Energy Management Coordinator will review progress towards the goals and objectives of the Energy Conservation and Demand Management Plan on an annual basis.

Progress on the Energy Action Plan will be tracked and reviewed by the Energy Management Coordinator and Department Supervisors on a semi-annual basis. The regularly tracked energy consumption data will be used to evaluate the success of the implemented energy initiatives. To the extent possible, the costs and resulting energy and greenhouse gas savings of each energy initiative will be calculated as part of the evaluation. The actions that were not completed by year's end will be re-evaluated for the potential inclusion in the following year's Energy Action Plan. By creating single year Energy Action Plans, the Township will be able to adjust speed, size and complexity of energy projects based on current and future internal and external conditions.

Appendix A

Energy Consumption and GHG Emissions (reportable facilities)

From : 2012-01-01 to 2012-12-31

Facility Name	Address	Total Area (sq ft)	Hours/Weeks	Fuel Type	Consumption	Cost (\$) (excl. HST)	Energy (ekWh/yr)	GHG Emissions (kgCO2e/yr)	GHG Intensity (kgCO2e/sqft)	Energy Intensity (ekWh/sqft)
Administration Office	701 Highway 124	3419	42	Electric	30999	\$ 5,066.41	30999	2977.1440	0.87076454	9.066
Public Library	701 Highway 124	1750	22	Electric	14306	\$ 2,338.34	14306	1373.9483	0.78511329	8.170
Cultural Facility: Historical Museum	701 Highway 124	744	4	Electric	5961	\$ 974.31	5961	572.4944	0.76948177	8.012
Community Centre	701 Highway 124	9227	20	Electric	67957	\$ 11,107.11	67957	6526.5903	0.70733611	7.365
Fire Station #1	3 Sharon Park Drive	4050	10	Electric	6619	\$ 1,296.53	6619	635.7090	0.15696519	1.634
				Fuel Oil	1794.7	\$ 1,826.41	21187.4	5644.3770	1.39367333	5.231
				Total		\$ 3,122.94	27806.4	6280.0860	1.55063852	6.865
Fire Station #2	710 Hurdville Road	1920	10	Electric	29955	\$ 4,390.92	29955	2876.9690	1.49842135	15.602
				Fuel Oil	1349.5	\$ 1,346.28	15937.6	4245.4980	2.21119687	8.301
				Propane	9344.4	\$ 4,642.60	65690.31	14426.2420	7.51366771	34.213
				Total		\$ 10,379.80	111582.91	21548.7090	11.22328594	58.116
Public Works Garage	677 Highway 124	6000	45	Electric	20771	\$ 3,069.61	20771	1994.9090	0.33248483	3.462
				Fuel Oil	8692.1	\$ 8,784.56	102615.1	27336.9130	4.55615217	17.102
				Total		\$ 11,854.17	123386.06	29331.8220	4.88863700	20.564
GRAND TOTAL						\$ 44,843.08	381998.4	68610.79		