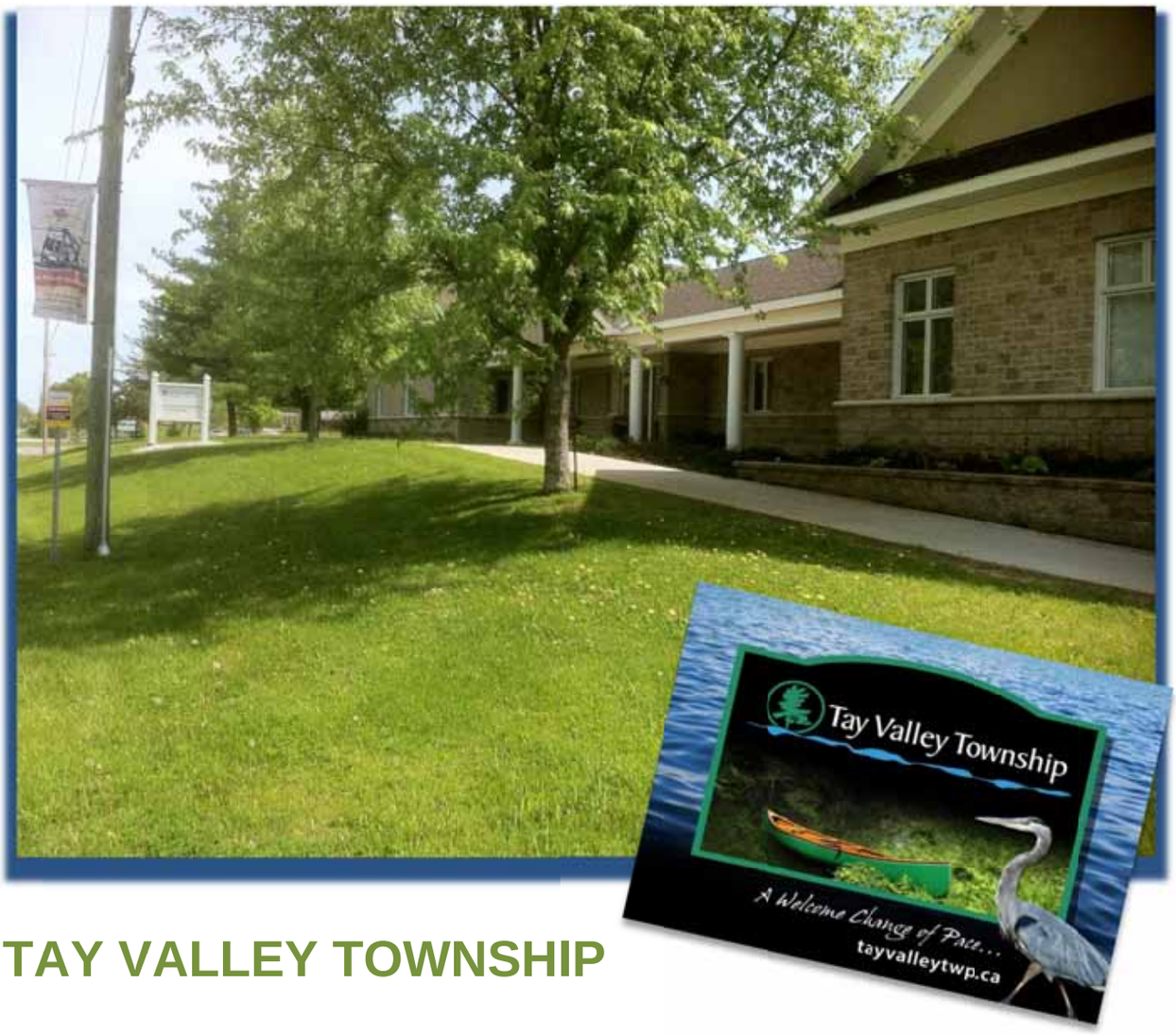


TAY VALLEY TOWNSHIP

ENERGY CONSERVATION & DEMAND MANAGEMENT PLAN

June, 2014

CONTENTS

SECTION 1 - INTRODUCTION & BACKGROUND

The Ontario Provincial Government has committed to help public agencies better understand and manage their energy consumption. As part of this commitment, Ontario Regulation 397/11 under the ***Green Energy Act 2009*** requires public agencies – municipalities, municipal services boards, school boards, universities, colleges and hospitals – to report on their energy consumption and greenhouse gas (GHG) emissions annually beginning in 2013 and to develop and implement energy **Conservation and Demand Management (CDM)** plans starting in 2014.

Successful Conservation and Demand Management (CDM) depends on the integration of energy efficient practices into the "business as usual" conduct of an organization. CDM framework rest upon leadership, vision and commitment supported by the knowledge of past and current energy initiatives a present baseline and stakeholder needs. From this point a CDM strategy can establish priorities and focus on specific areas to establish objectives and potentially goals with the Province into a formulated plan. Once executed the plan needs to be monitored reported and re-evaluated.

Energy Conservation and Demand Management Plan Framework

SECTION 2 - OUR COMMITMENT

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. This commitment includes a resolution by Municipal Council articulating the staff mandate to plan and implement measures for energy efficiency improvement. Regardless of the size of a municipality, the common element of successful energy management is the allocation of staff and resources to continually improve energy performance.

DELARATION OF COMMITMENT

> **Report #PW-2014-05 – Energy Conservation and Demand Management Plan**.
>
> **"THAT,** the Energy Conservation and Demand Management Plan dated June, 2014 be approved;
>
> **AND THAT,** staff be directed to plan and implement measures for energy efficiency improvements in accordance with the Tay Valley Township Energy Conservation and Demand Management Plan." **ADOPTED**

Tay Valley Township is committed to the promotion of responsible energy management, through the implementation of economically viable energy efficiencies and environmental consideration throughout all facilities, assets and equipment.

VISION

We will continually approach energy management in a strategic manner allowing for the proactive pursuit of optimal energy solutions that lead to environmental, social, and economic benefits.

SECTION 3 - OUR UNDERSTANDING (CURRENT STATE)

The Energy Management Plan requires a thorough understanding of the current corporate energy situation, including policies, programs, practices, processes and associated data. 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 and 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

The types of energy used in the operation of Tay Valley Township facilities and delivery of services include:

- Electricity – provided by Hydro One
- Natural Gas – provided by Enbridge
- Propane – provided by Bangs Fuels
- Furnace Oil – provided by PetroCanada

The total annual energy consumption (EC), Green House Gas (GHG) Emissions and cost ($) for 2011-2013 are outlined in Appendix A attached.

An Energy Reduction Program has been established and is outlined in Appendix B – Energy Reduction Program – Progress Report, attached.

SECTION 4 - OUR PLAN

OBJECTIVES

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

METHOD

The Township will work through the Ontario Power Authority (OPA) – www.saveonenergy.ca – and their channel partners for the Energy Reduction Program. The Ministry of Energy will be setting targets once our plan is in place.

Submit applications to OPA Channel Partners to assess the Township's energy demand components. Channel Partners will direct application to the OPA once the application has been approved and the incentives established the project(s) can begin.

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. It is noteworthy that the Township's Strategic Plan has the development of and energy conservation and demand management plan in its section 3.3.1.

Strategic Priority No. 3 – Waste Diversion and Environmental Management:

Action	Target Completion	Measurement
3.3.1 Develop an energy conservation and demand management plan for all municipal facilities using in-house resources.	2014	Plan drafted
3.3.1.1 Identify energy consumption and GHG emissions.	Q2-2013	Report to the province
3.3.1.2 Develop conservation and demand management goals and objectives.	2014	Report to the province
3.3.2 Conduct energy audits for all municipal buildings.	2014	Audit complete and recommendations identified

Action		Target Completion	Measurement
3.3.3	Launch an awareness campaign on methods of reducing carbon footprints and how to access energy conservation programs offered by government and utility providers (i.e. Hydro One).	2015	Awareness campaign launched
3.3.4	Offer suggestions on how to improve building efficiency through the building permit process.	2014	Information assembled and delivered by CBO
3.3.5	Examine the merits of installing microFIT photovoltaics on Municipal buildings.	Q4-2013	Analysis complete
3.4.1	Established a usage based inventory of CO2 to measure the carbon footprint of Township activities.	2016	Inventory complete
3.4.2	Develop CO2 reduction goals.	2016	Goals developed and approved
3.4.3	Conduct a municipal fleet review and rating exercise though the Fleet Challenge program.	2016	Review complete

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 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: We will 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.

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.

Review and Reporting

We will correlate our progress towards corporate goals and objectives, and update those goals and objectives accordingly. See Appendix “B” – Energy Reduction Program Progress Report.

APPENDIX A

ANNUAL ENERGY CONSUMPTION, GREEN HOUSE GAS

AND COSTS FOR 2011-2013

APPENDIX A

Total annual energy consumption (EC), costs ($) and Green House Gas (GHG) Emissions for 2011-2013

Facility	Address	Area m^2/ft^2	Energy/Service Type		2011			2012			2013		
					EC	$	GHG/kg	EC	$	GHG/kg	EC	$	GHG/kg
Maberly Community Hall	180 Maberly- Elphin Road	253/2,726	Oil	500G	5,497L	4,463	15,756	4,149L	4,363	12,796		3,701	
			Propane	500G	-	0		-	-			1,947	
			Electric	General	9,541kWh	1,646		15,081kWh	2,422			1,853	
Maberly Garage	180 Maberly- Elphin Road	287/3,090	Oil	200G	-	7,867	-	-	2,285	-	-	-	-
			Electric	General	-	1,577	-	-	1,431	-	-	853	-
Burgess Community Hall	4174 Narrows Lock Road	139/1,500	Electric	General	17,238kWh	1,723	1,379	10,906kWh	1,651	1,047		1,706	
Burgess Garage	4174 Narrows Lock Road	218/2,345	Oil	500G	7,027L	5,489	19,635	7,844L	7,439	22,019		6,818	
			Electric	General	5,855kWh	2,173		5,855kWh	1,651			2,339	
Municipal Office	217 Harper Road	732/7,875	Nat Gas	-	12,595 M^3	3,814	27,294	10,287 M^3	2,350	23,129		2,708	
			Electric	General	43,515kW	5		38,307kWh	4,930			6,236	
Bathurst Garage	217 Harper Road	512/5,514	Nat Gas	-	8,819 M^3	2,010	19,111	7,203 M^3	2,350	16,914		2,340	
			Electric	General	30,469kWh	4,865		26,822kWh	4,897			6,236	
				Sentinel									
Maberly Ice Rink Lights & Bldg	4884 Bolingbroke Rd		Electric	Sentinel		1,222			1,067			1,536	
				General									
Glen Tay Ice Rink Light & Pump	155 Harper Rd		Electric	General		445			434			462	
Glen Tay Waste Site; Lights, Heat & Compactor	156 Muttons Rd		Electric	General		204			1,006			1,354	
Stanleyville Waste Site; Lights, Heat & Compactor	1200 Stanleyville Rd		Electric	General		767			619			765	
Maberly Waste Site	180 Zealand Rd		Electric	General		489			619			765	
Streetlights	Harper Rd #20-22-25 Glen Tay #15 Brooke #1 Dewitts Cnrs #5&10 Stanleyville #1-5 Maberly #2-20 even Fallbrook #30-42 even	3 1 1 2 5 10 7	Electric	Streetlights		4,371			4,415			5,481	

APPENDIX B

ENERGY REDUCTION PROGRAM

PROGRESS REPORT

APPENDIX B

Energy Reduction Program Progress Report

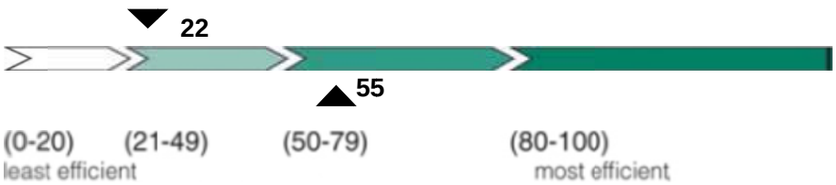
The Energy Program is divided into four stages:

Stage 1	-	Heating and Insulation
Stage 2	-	Lights
Stage 3	-	Motors and HVAC
Stage 4	-	Other (including vehicle fleet)

Stage 1 - Heating and Insulation

Energy audits of the Maberly and Burgess Community halls were conducted in 2012. The audits provided an energy evaluation of the buildings and rated them using the EnerGuide Rating System (ERS) scale. The ERS is a standardized method of evaluation that lets property owners compare their building's energy efficiency rating to similar sized buildings in similar regions. The rating considers the building's estimated annual energy consumption based on an in-depth evaluation of its characteristics such as location, size, mechanical equipment and systems, insulation levels and air tightness.

The results of the Maberly Hall pre-retrofit energy evaluation rated the building at 22 points on the ERS scale. The average efficiency rating for a building of this age in Ontario is 42 and the most energy efficient rating is 83.



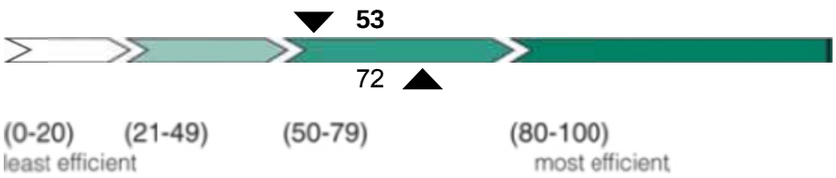
By implementing all of the recommendations in the report, the efficiency rating could be increased to 55 and energy consumption could be reduced by 47%.

The two recommendations for increasing energy efficiency were insulation and the installation of a new furnace.

- Insulation was increased in the attic space to R50. Basement and crawlspace headers and space below stage were insulated.

- Oil furnace was replaced with propane high efficient furnace.

The results of the Burgess Hall pre-retrofit energy evaluation rated the building at 53 points on ERS scale. The average energy efficiency rating for a building of this age in Ontario is 64, and the most energy-efficient rating is 85.



By implementing all of the recommendations in the report, the efficiency rating could be increased to 72 and energy consumption could be reduced by 40%.

The recommendation was to replace the heating system with an Energy Star qualified air-source heat pump.

- Electric baseboard heaters will be replaced as a primary heat source with a 36,000BTU heat pump system.

Stage 2 – Lights

The Township will work through the Ontario Power Authority (OPA) – www.saveonenergy.ca – and their channel partners for the Stage 2 energy reduction program. The Ministry of Energy will be setting targets once our plan is in place.

Stage 3 – Motors and HVAC

The Township will work through the Ontario Power Authority (OPA) and their channel partners for the Stage 3 energy reduction program. The Ministry of Energy will be setting targets once our plan is in place.

Stage 4 – Other

The Township will work through the Ontario Power Authority (OPA) and their channel partners for the Stage 4 energy reduction program. The Ministry of Energy will be setting targets once our plan is in place.

The Township will conduct a municipal fleet review and rating exercise though the Fleet Challenge program

The Township will examine the merits of installing microFIT photovoltaics on Municipal buildings.