



Energy Conservation and Demand Management Plan

2014



Background:

Ontario Regulation 397/11, Energy Conservation and Demand Management Plans, requires all broader public sector (BPS) organizations, including hospitals, municipalities, universities,

colleges, school boards and municipal service boards responsible for water and sewage treatment and pumping operations to:

- Report on their annual energy use and greenhouse gas (GHG) emissions in designated buildings/facilities by July 1 beginning in 2013; and
- Develop and implement 5-year energy conservation and demand management plans (CDM) plans by July 1, 2014.

Required Elements of the Plan include:

1. Information on the annual **ENERGY CONSUMPTION** during the last year for which complete information is available for the full year.
2. The **GOALS AND OBJECTIVES** of the Municipality to conserve and reduce energy consumption.
3. The proposed **MEASURES AND PLAN FOR COST SAVINGS** (estimates), proposed measures and the estimated length of time these measures will be in place.
4. A report on any **RENEWABLE ENERGY GENERATION FACILITY** operated by the Municipality.
5. Confirmation that the plan is approved by Senior Management.
6. The plan is made publically available.

Application:

The Corporation of the Township of Ewanturel is a small rural municipality with a population of approximately 452 persons and 210 households. As a public sector organization mandated by Ontario Regulation 397/11, the municipality has prepared this CDM plan and implementation of the plan will fulfill the Municipality's requirements under this regulation.

The sole measurable property owned and operated by the municipality is the municipal office and combined garage complex located at 245453 Hwy. 569, Englehart, ON, District of Timiskaming.

Energy Consumption:

Facilities included in this report are detailed as follows:

1. *Municipal Office – 245453 Hwy. 569, Englehart, ON*

Municipal office is heated/cooled with propane and has florescent lighting.

Size of Building - 800 sq. feet

Operation - 40 hrs. per week

Reporting Year 2011

Electricity 3,744.97 kWh

Propane 2,671.19 litres

Combined GHG Emissions (Kg) 4,423.76

Energy Intensity (ekWh/sqft) 28.16

Reporting Year 2012

Electricity 3,848.16 kWh

Propane 2,119.52 lt.

Combined GHG Emissions (Kg) 3,635.72

Energy Intensity (ekWh/sqft) 23.44

2. *Municipal Garage*

Municipal Garage is heated with propane, radiant heat and has florescent lighting.

Size of Building - 4,200 sq. feet

Operation - 40 hrs. per week

Reporting Year 2011

Electricity 19,661.11 kWh

Propane 14,023.37 litres

GHG Emissions (Kg) 23,224.75

Energy Intensity (ekWh/sqft) 28.16

Reporting Year 2012

Electricity 20,202.84 kWh

Propane 11,127.48 litres

GHG Emissions (Kg) 19,087.55

Energy Intensity (ekWh/sqft) 23.44

Factors that influence energy consumption can include:

- Unusual weather conditions
- An increase/decrease in unit energy cost by a supplier

Goals and Objectives:

The following are the goals and objectives that align with the Township of Evanturel Energy Conservation and Demand Management Plan:

- a) To create a culture of conservation within the organization
- b) To continuously seek opportunities to improve the energy efficiency of municipal facilities and processes in order to reduce operating costs, energy consumption and the associated greenhouse gas emissions.
- c) Endeavour to reduce or maintain consumption of fuels and electricity in all operations between now and the year 2020.
- d) To demonstrate sound operating and maintenance practices by having routines in place to reduce energy consumption at all facilities
- e) To provide a forum for discussion within the corporation on energy management to explore new ideas and trends.
- f) To consider the validity and accessibility of technology and innovations to reduce consumption of energy.

Measures, Initiatives and Plan for Cost Savings

Measures taken to date

June 2014	Replaced the hot water heater to a more energy efficient water heater.
February 2013	Programmable thermostat installed in office to control consumption
February 2012	Installation of 10kW Solar Photovoltaic System under the Feed-In tariff Program. At the end of the agreement term (year 2032), it is anticipated the system will be converted to operate the Municipal Building.
2012 to present	Lighting system undergoing upgrades to retro fit of all florescent lighting in the garage. The ballasts and lighting are replaced as the florescent lighting expires. To date 10 of the 26 sets have been upgraded.
August 2011	Power Savings Blitz Program under Hydro One and Ontario Power Authority. A program which provides small businesses with free energy efficient lighting improvements to help businesses become energy efficient. An audit was performed and the replacement of all the lighting in the office and Road Superintendent's office within the garage.

New T-8 florescent lighting replaced the former T-12 lighting system with an estimated annual savings of \$179.60

Further Initiatives and Organizational Measures for Cost Savings:

As part of the energy objectives, continuous monitoring, verification and reporting are essential to track consumption and dollar efficiencies. The municipality will continue to closely monitor consumption and efficiently management demand.

Corporate awareness is key. All staff must be aware and have regard for consumption and a culture of conservation within the organization.

Staff is encouraged to achieve savings on energy costs and must have regard to consumption and conservation on all new purchases and repairs.

The garage lighting system will continue to be upgraded to retro fit 26 sets of florescent lighting in the garage.

The 10 kW Solar PV System will be converted to operate the Municipal Building at the end of the agreement term (year 2032).

Renewable Energy Generation:

System Specifications:

- 10 kW capacity, grid tied
- 48 panels per array
- Ground mount, seasonal tilt
- 25 year manufacturer performance guarantee on panels
- Polycrystalline cells, aluminum frame.

Total Energy generated to date (July 2014) is equivalent to: 34.4 MWh

Date	Energy(kWh) 2012	Energy(kWh) 2013	Energy(kWh) 2014
Jan		258.5	56.1
Feb	619.9	297	1116.1
Mar	1129.2	1066.6	1561.6
Apr	1579.8	1527.5	1453.7
May	1839	1769.4	1678.2
Jun	1839.3	1684.8	1724
Jul	1748.4	1845.5	1068.4
Aug	1580.1	1427.1	-
Sep	954.8	1294.2	-
Oct	742.2	792	-
Nov	635.4	279.7	-
Dec	341.5	191	-
total	13009.6	12433.3	8658.1

This is equivalent to:



9.74 Homes powered for a year



16.2 cars and light trucks taken off the road



165 light bulbs turned off for a year

All energy produced is sent to the Renewable Energy Feed-In Tariff MicroFIT Program at the fixed rate of \$0.64/kWh produced.