



TOWNSHIP OF ZORRA

ENERGY CONSERVATION AND MANAGEMENT PLAN

2019-2024

Background

In 2009, Ontario Regulation 397/11, under the Green Energy Act, directed all public agencies in Ontario to prepare an energy conservation and demand management plan. Additionally, the Green Energy act mandated annual reporting of energy consumption and greenhouse gas emissions beginning July of 2013.

Energy Conservation and Demand Management plans were required by July of 2014 with a review and revision period of five years thereafter. The Township's Energy Conservation and Demand Plan was adopted on July 15, 2014. The 2014 plan fulfilled the Township's monitoring and reporting requirements under the Green Energy Act.

The Green Energy Repeal Act, 2018, S.O. 2018, c. 16 - Bill 34 assented in December of 2018. Bill 34 amended the Act including changes to definitions, changes to the Planning Act and changes to the application process for renewable energy projects. Bill 34 did not amend requirements for public agencies to report energy consumption, greenhouse gas emissions or review their Energy Conservation and Demand Plans.

Our Commitment

Vision

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

Policy

We will incorporate energy efficiency into all areas of our activity including our procurement practices, financial management decisions and facility operations and maintenance.

Historic Commitment to Energy Savings

The Township has undertaken several initiatives to maximize fiscal resources by becoming more efficient in the use of energy. Some of these initiatives have included:

- Replaced streetlight fixtures with LED lights
- Replaced the high-pressure sodium fixtures with T5 fixtures at both arenas
- Replaced exterior lights at all facilities with LED fixtures when old fixtures are not functional
- Converted the Township Office to all LED lighting fixtures
- Installed occupancy sensors in low traffic areas such as the washrooms, dressing rooms
- Converted the refrigeration controls at the Thamesford District Recreation Centre to an infrared sensor with programmable setpoints
- Installation of Solar Photovoltaic systems at the Thamesford District Recreation Centre and Embro Zorra Community Centre – Operated by EARTH Power
- Installed a cold-water ice resurfacing system at the Thamesford District Recreation Centre
- Installed smart thermostats at the Township Office

2014-2019 Energy Reduction Target

In 2015 the Township committed to reducing the consumption of fuels and electricity by an average of 1% per year until 2019.

Resource	2012 Base	2018 Goal	2018 Actual	Result
Electrical Consumption	1,015,107 kWh	965,357 kWh	1,074,056 kWh	+11%
Natural Gas Consumption	87,143 m ³	82,872 m ³	87,485 m ³	+6%

As noted in the above table the goal of 1% per year from 2014-2019 was not reached. Several factors may have contributed to this result including but not limited to: construction of the Thamesford Fire Station and repurposing the old building, weather factors and increased use of facilities.

Long-Term Goals

In September of 2015 Township of Zorra Council committed to developing a plan to achieve 100% use of Renewable Energy by 2040

In order to achieve the above goal, three main challenges have been identified:

- Reducing energy consumption
- Sourcing alternative renewable energy sources
- Retrofitting facilities to enable their operation on renewable energy

2019-2024 Target

To achieve its long-term goals, the Township will reduce the consumption of fuels and electricity by 2% per year until 2023, resulting in reduced Greenhouse Gas Emissions and energy cost savings.

Resource	Past 5 year Average	2018 Base	2024 Goal	Goal
Electrical Consumption	1,057,296 kWh	1,074,056 kWh	970,862 kWh	-10%
Natural Gas Consumption	109,243 m ³	87,143 m ³	78,770 m ³	-10%

Objectives

- Full conversion to LED lighting at all Township facilities
- Convert the refrigeration controls at the Embro Zorra Community Centre to an infrared sensor with programmable setpoints
- Replace or repair leaking, damaged or inefficient building envelope elements e.g. windows, doors, insulation, weather stripping and sealants
- When replacing HVAC equipment if feasible replace with non-GHG emitting devices e.g. Ground Source or Air to Air Heat Pumps
- Retrofit HVAC controls and thermostats with smart/connected devices at all Township facilities

- Develop an Energy Management and Conservation Awareness training program for all permanent staff
- Provide department heads with monthly energy consumption reports for all buildings under their care, with historical data comparisons
- Develop an incentive program for staff energy conservation ideas which reduce consumption

5 Year Summary of Energy Consumption

	2014	2015	2016	2017	2018
Electrical (kWh)	954,598	1,006,620	1,044,162	1,137,872	1,074,056
Natural Gas (m ³)	104,876	133,175	110,566	110,115	87,485
Furnace Oil 1&2 (L)	18,087	20,560	18,909	20,920	23,000
Propane (L)	6,731	5,096	2,948	3,925	4,459
GHG Emissions (kgCO ² e/yr)	307,413	393,105	303,298	293,383	244,606
Energy Intensity (ekWh/m ²)	3,245	2,221	2,689	2,827	3,212

Variable which influence Annual Energy Consumption

Factors, listed below may greatly influence annual energy consumption:

- Increase/decrease in building occupancy or utilization
- Annual weather variations (i.e. mild winter, hot and humid summers)
- Closing of a facility
- Addition of new facilities
- New developments which include street lighting

Staff Resources

The Senior Management Team will be responsible for the overall implementation of the energy management plan, particularly, in their respective facilities.

It is important that all staff understands the importance of energy management and that an overall culture of energy efficiency is developed. All staff should have ownership in the success of this plan.

A communication, awareness and training program is a key component in the overall energy management program and will be undertaken where needed including communication and awareness strategies.

Action Plan

An assessment of the Township's current activities concerning energy initiatives showed actions to be implemented that will improve the Township's energy performance.

Process Improvement

- Provide energy data to staff
- Develop a communications plan to promote the importance of energy efficiency and energy use/savings to staff

Program implementation

- Ensure a preventative maintenance program is implemented for each facility
- Continue to update and maintain the Township's Energy Management Plan
- Develop and implement an Energy Conservation and Management Awareness training program for all permanent staff

Projects

- Continue to implement system upgrades
- Implement alternative energy projects
- Incorporate green building features to improve energy and water efficiency
- Implement energy efficient standards when replacing equipment

Energy Plan Review

The energy management plan will be reviewed and updated annually in conjunction with the annual budget process and energy consumption reporting activities. This plan will be updated with any new initiatives and most recent consumption figures.

Last Revision: 2019-07-10