



**TOWNSHIP OF ZORRA**

**ENERGY CONSERVATION  
AND DEMAND MANAGEMENT  
PLAN**

**2024-2029**

## **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. This Act was then repealed on January 1, 2019. On February 23, 2023, O. Reg. 25/23 was filed.

Ontario Regulation 25/23: Broader Public Sector: Energy Reporting and Conservation and Demand Management Plans requires Broader Public Sector (BPS) organizations to develop an Energy Conservation and Demand Management (CDM) plan and update it every five years.

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 Management (CDM) Plan was adopted on July 15, 2014. The 2014 plan fulfilled the Township's monitoring and reporting requirements under the Green Energy Act. In 2019, the plan was updated and passed by Council on July 17, 2019. Our updated CDM plan for the period of 2024-2029 builds off the previous conservation and management efforts of the Township. On June 28, 2024, the Plan was approved by the Township's Senior Management. The CDM plan is available online at [www.zorra.ca](http://www.zorra.ca), or at the Zorra Municipal Centre located at 163 Brock Street, Thamesford.

## **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. In the past, Zorra has:

- Replaced the high-pressure sodium fixtures with T5 fixtures at both arenas
- 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
- Installed 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

- Replaced the chiller at the Thamesford District Recreation Centre with a plate chiller
- Converted all internal lights at both arenas to LED lights
- Converted the light fixtures at the Matheson Ballpark to LED lights
- Installed EcoB thermostats in all facilities
- Purchased an electric Zamboni for the Thamesford District Recreation Centre
- Replaced a gas-fired dehumidifier with an electric one in the Thamesford District Recreation Centre
- Constructed the Zorra Maintenance Facility (ZMF) to not consume non-renewable energy
  - ZMF relies on geo-thermal and heat pumps for heating and cooling
  - ZMF had a solar component added that is permitted to generate 349.9 kw of energy
- Constructed the Zorra Municipal and Child Care Centre to not consume non-renewable energy
  - ZMC relies on energy efficient heat pumps to provide heating and cooling
  - ZMC has upgraded roof and wall insulation to maximize efficiency
  - All lighting is LED and has motion activating sensors

**2019-2024 Energy Reduction Target**

In 2019 the Township committed to reducing the consumption of fuels and electricity by an average of 2% per year until 2023.

Resource	2018 Base	2023 Goal	2023 Actual	Result
Electrical Consumption	1,074,056 kWh	970,862 kWh	1,148,536 kWh	+18%
Natural Gas Consumption	87,143 m <sup>3</sup>	78,770 m <sup>3</sup>	97,661 m <sup>3</sup>	+24%

As noted in the above table the goal of 2% per year from 2019-2024 was not reached. The electrical and natural gas consumption totals were 18% and 24% over the goal totals respectively. Several factors may have contributed to this result including but not limited to weather factors, increased use of facilities, and growth in the community.

**Long-Term Goals**

The Township’s long-term goal continues to be consistent with the target set by Zorra Council in 2015. 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

**2024-2029 Target**

To achieve its long-term goals, the Township will look to reduce the consumption of fuels and electricity by 2% per year until 2028, resulting in reduced Greenhouse Gas Emissions and energy cost savings.

Resource	Past 5-Year Average	2023 Base	2028 Goal	Goal
Electrical Consumption	1,026,572 kWh	1,148,536 kWh	1,038,186 kWh	-10%
Natural Gas Consumption	100,912 m <sup>3</sup>	97,661 m <sup>3</sup>	88,278 m <sup>3</sup>	-10%

**Objectives**

The Township will continue to investigate and progress on the following action items for the period of 2024-2029:

- Full conversion to LED lighting at all Township facilities
- 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
- Investigate utilizing an ice management program in relation to the thickness of the ice
- Replace the chiller at the Embro Zorra Community Centre with a more energy efficient plate chiller

**5 Year Summary of Energy Consumption**

	2019	2020	2021	2022	2023
Electrical (kWh)	1,098,842	984,626	879,660	1,021,198	1,148,536
Natural Gas (m <sup>3</sup> )	120,266	91,348	88,786	106,501	97,661
Furnace Oil 1&2 (L)	25,173	17,716	21,025	22,813	15,149
Propane (L)	5,261	2,307	4,127	6,709	8,637
GHG Emissions (kgCO <sub>2</sub> e/yr)	337,822	249,773	256,774	303,166	272,087
Energy Intensity (ekWh/m <sup>2</sup> )	3,326	2,719	2,696	3,157	2,580

## **Variables 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**

The actions identified in 2019 related to increased energy efficiency continue to be important steps in improving 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**

When necessary, the energy management plan will be reviewed and updated annually in conjunction with the annual budget process and energy consumption reporting activities.