



The Corporation of the Township of Tehkumma Energy Conservation and Demand Management Plan 2020-2024



Energy conservation plans capture information such as annual energy consumption and greenhouse gas emissions, combine it with goals and strategies, renewable energy projects in operation or under consideration, in an attempt, to successfully reduce overall energy consumption and costs.

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INTRODUCTION:

Ontario Regulation 507/18 Broader Public Sector: Energy Reporting and Conservation and Demand Management Plans, (CDM) requires broader public sector (BPS) organizations such as municipalities to develop a CDM plan and update it every 5 years. Our CDM plan was developed in compliance with the regulation and covers the period from 2020 to 2024. The plan was approved by council July 2019.

The plan describes our municipalities:

- New energy conservation goals and objectives;
- Current and proposed energy conservation measures;
- Results from previous years; and
- Changes made to help achieve new goals and objectives.

Hard copies of the plan are available at the municipal office located at 456 Hwy 542A

PURPOSE

The Energy Reporting and Conservation and Demand Management Plan aims to provide a basis for the Township of Tehkummah to implement improvements to its infrastructure and operations that reduce energy and water use, their associated costs, as well as environmental effects of the township's activities.

BACKGROUND

A previous Energy Conservation Plan was developed to meet the requirements of O. Reg 397/11. The purpose of this plan is to develop projects to formally address energy management initiatives. The Township of Tehkummah has been committed to energy conservation in order to reduce energy consumption, decrease operating costs and to set an example to the community as to why conservation is important. It is the intention of the municipality to further develop the CDM plan to enhance the municipalities commitments as projects develop through Council's approval and as the town's aging infrastructure requires rehabilitation and/or replacement. This plan is valid from 2020 – 2024, at which time a thorough review process will be required for a subsequent five year plan.

Results from the completion of the Ministry of Energy's "Energy Consumption and Greenhouse Gas Emissions Reporting for 2016" is included as an energy consumption benchmark and can be found in Appendix A. In addition, previously completed energy reduction projects from (2014-2019) can be found in Appendix B and a list of new energy reduction projects over the next five years (2020– 2024) can be found in Appendix C.

The Township of Tehkummah has 8 facilities (in addition to streetlighting) that are identified as reportable. These include water and wastewater facilities, marina, museum, administration facilities, parks and public works garages

A list of the required facilities that municipalities are to include in their annual energy consumption report can be found in Appendix D. The energy reduction projects found in Appendix C will be included in the annual budget discussion over the five year term of this plan in an attempt to reduce the municipality's energy consumption from the 2016 baseline values (Appendix A).

GOALS AND OBJECTIVES FOR CONSERVING ENERGY

Our energy conservation objectives include:

- Reducing our overall energy consumption by 5%;
- Reducing water consumption in our buildings by 5%; and
- Integrating the energy conservation plan with capital planning.

TRACKING ENERGY CONSUMPTION AND SAVINGS

Annual energy reporting is required under the regulation and allows our municipality to understand how energy is used in our buildings, identify potential energy conservation opportunities and track progress on energy conservation efforts. The municipality's 2017 annual energy report is provided as required under the legislation. Our previous year's annual energy reports can be found on our website.

Switching from T10 to T8's lighting has helped conserve energy.

In addition to the municipality benefitting from reducing its energy use, residents and local businesses also benefit from more efficient use of taxpayer dollars and better maintained/operated public buildings and facilities.

CHANGES FROM PREVIOUS PLAN TO ACHIEVE OUR GOALS AND OBJECTIVES

While the municipality is working continuously to meet its objectives, we recognize other measures could take place to ensure savings continue and that new conservation measures are identified and acted upon. Our key changes to ensure the success of our updated plan will ensure staff are trained on energy conservation and building operations.

The CDM plan will be reviewed by staff and council on an annual basis to review the results of the proposed measures and determine if adjustments to the plan are required. Initiatives may be added to the plan as new opportunities arise. Updates to the plan will be posted on the municipality's website.

CURRENT AND PROPOSED ENERGY CONSERVATION MEASURES

Current Measures Include:

In 2015 through a Hydro One program the municipality replaced its T10 florescent lights with T8's. Moving forward, the municipality will replace its current lighting in buildings and streetlights with LED lighting.

Streetlights alone can account for approximately 15% of a municipality's electricity use. LEDs consume up to 70% less electricity and reduce maintenance by up to 80% vs. traditional street lighting.

Selected Proposed Measures Include:

Energy conservation projects can be categorized as technical (switching streetlighting from high pressure sodium to LED), organizational (establishing a green team), or behavioral (running a daylight harvesting campaign, where lights are turned off on sunny days).

Potential energy conservation projects are identified by comparing building-level energy benchmarks to the median energy benchmark for that building type. Energy benchmarks reflect the total energy used in a building in equivalent kilowatt hours to its indoor floor area. Benchmarks can also account for annual changes in weather by dividing the energy benchmark by the number of Heating Degree Days, which reflect the heating demands for that building. For example, if a building's energy benchmark was 7 eWh/sqft/HDD and the median benchmark for similar buildings was 4.5 eWh/sqft/HDD, that building may be a good candidate for energy conservation measures.

Energy conservation projects will be evaluated using an internal rate of return (the rate of interest the project would generate) along with the simple payback (the number of years it would take to pay off the project from the savings). In addition, more costly conservation projects will be bundled with more cost-effective ones to lever their development.

Implementation of the proposed projects depends on:

- Funding allocated by council;
- Internal revolving fund (representing 50% of the savings from the previous conservation projects);
- Incentives from the Independent Electricity System Operator;
- Availability of qualified staff; and
- Retaining a qualified contractor to implement the initiative.

Progress on projects will be monitored using the annual energy reports prepared under the regulation.

TECHNICAL MEASURES

Assess all building systems (water, heat, HVAC) and take necessary measures to ensure they are working properly. Recommissioning can save between 10% and 15% of a buildings energy use.

ORGANIZATIONAL MEASURES

Incorporate life cycle costing when purchasing is related to building systems, such as lighting, office equipment and paper. Life cycle analysis looks at the overall cost of purchasing, operating and disposing a product.

Implement a temperature set point policy for all buildings. The US Department of Energy notes that set point policies can save 5% to 12% energy consumption.

Monitor water consumption. New and existing fixtures will be monitored for leaks and repaired as required.

Adopt a train-the-trainer policy, where staff complete courses as time and finances allow. This will be an ongoing process.

Work with other BPS organizations in the community to develop relationships that foster energy conservation.

BEHAVIOUR MEASURES

Review buildings monthly to ensure temperature and lighting settings and schedules are where they are supposed to be.

Encourage staff to lower shades in the summer to keep heat out and raise them in the winter to let heat in.

Celebrate successful projects and initiatives with awards.

All proposed projects, their costs and potential savings are attached (schedule 2).

INCENTIVE FUNDING

The township will take advantage of available resources and funding and improve identification of energy efficiency and performance. As funding opportunities arise that are suitable for specific energy conservation projects, staff will report to council and clearly outline the cost savings associated with a successful application.

ASSET MANAGEMENT

Asset Management planning takes into consideration the potential impacts of climate change and any actions that may be required to address vulnerabilities that may be caused by climate change to the towns infrastructure assets. This involves any adaptation opportunities that could arise from climate driven vulnerabilities, as well as, mitigation opportunities such as greenhouse gas emission reduction targets. In addition, mitigation approaches, such as reduced energy consumption, can be a significant decision driver when replacing new assets or rehabilitating existing assets.

The Township of Tehkummah's contribution to climate change through greenhouse gas emissions will be mitigated in accordance with local reduction targets, financial capacity and stakeholder support.

SUMMARY

The Township of Tehkummah's Energy Conservation and Demand Management Plan will assist the town in meeting energy related goals. These goals will need to be established annually through Council's approval of the municipality's budget. The CDM plan can help reduce energy usage and costs by implementing effective energy reduction strategies, managing energy retrofits, monitoring and tracking the town's energy usage and introducing energy awareness programs to staff.

Appendix B

The Corporation of the Township of Tehkummah Energy Conservation and Demand Management Plan 2020-2024

Previous Energy Reduction Projects

Lighting in Municipal Office changed from T10 to T8s.

Implement behavioural changes to manage demand (ex. lights off when not in use)

Appendix C

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Future Energy Reduction Projects

LED interior lighting upgrade

Replace existing streetlights with LED lighting

Exterior Lighting Upgrades

Insulation work where identified

Repairs to Public Works Garage – Walls, windows, insulation

Appendix D

The Corporation of the Township of Tehkummah

Energy Conservation and Demand Management Plan 2020-2024

Table 1 from O. Reg 397/11 outlining the types of facilities included in the annual energy consumption reports.

Column 1 Item	Column 2 Type of Public Agency	Column 3 Operation
1.	Municipality	<ol style="list-style-type: none"> 1. Administrative offices and related facilities, including municipal council chambers. 2. Public libraries 3. Cultural facilities, indoor recreational facilities and community centres, including art galleries, performing arts facilities, auditoriums, indoor sports arenas, indoor ice rinks, indoor swimming pools, gyms and indoor courts for playing tennis, basketball or other sports. 4. Ambulance stations and associated offices and facilities. 5. Fire Stations and associated offices and facilities 6. Police stations and associated offices and facilities 7. Storage facilities where equipment or vehicles are maintained, repaired or stored. 8. Buildings or facilities related to the treatment of water or sewage 9. Parking garages
2.	Municipal service board	<ol style="list-style-type: none"> 1. Buildings or facilities related to the treatment of water or sewage.
3.	Post-Secondary educational institution	<ol style="list-style-type: none"> 1. Administrative office and related facilities 2. Classrooms and related facilities 3. Laboratories 4. Student residences that have more than three storeys or a building area of more that 600 square metres. 5. Student recreational facilities and athletic facilities 6. Libraries 7. Parking garages
4.	School Board	<ol style="list-style-type: none"> 1. Schools 2. Administrative offices and related facilities 3. Parking garages.
5.	Public Hospital	<ol style="list-style-type: none"> 1. Facilities used for hospital purposes. 2. Administrative offices and related facilities

O. Reg. 397/11, Table 1; O. Reg. 31/15, s.2