



The Corporation of the Township of Tehkumma Energy Conservation and Demand Management Plan 2024-2029



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.

The Corporation of the Township of Tehkummah
Energy Conservation and Demand Management Plan
2024-2029

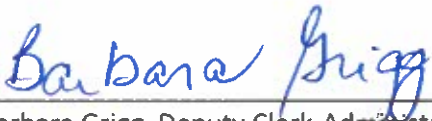
INTRODUCTION:

Ontario Regulation 25/23 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 to update it every five years, as well as to report on our annual energy usage and greenhouse gas emissions. Our CDM plan was developed in compliance with this regulation and covers the period from 2024 to 2029. The plan was reviewed and approved by Barbara Grigg, Deputy Clerk-Administrator, and the Council of Tehkummah Township.

The CDM plan describes our municipality's:

- Current goals and objectives to lower energy use and subsequent greenhouse gas emissions at appropriate buildings and facilities
- Past projects that were completed from the 2019 – 2024 CDM plan
- Results from previous energy reports for benchmarking purposes

Hard copies of this plan are available at the municipal office located at 456 Hwy 542A and will be posted publicly on the Tehkummah Township's website as stipulated in O. Reg 25/23.



Barbara Grigg, Deputy Clerk-Administrator



Date Approved



John Deforge, Mayor

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.

A previous Energy Conservation Plan was developed to meet the requirements of O. Reg 507/18. The purpose of this plan was 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 2024 – 2029, 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 2018" is included as an energy consumption benchmark and can be found in Appendix A. In addition, 2023's Energy Consumption and Greenhouse Gas Emissions reporting can be found in Appendix B for comparison. Moreover, previously completed energy reduction projects from (2020-2024) can be found in Appendix C and a list of new energy reduction projects over the next five years (2024– 2029) can be found in Appendix D.

The Township of Tehkummah has five facilities that are identified as reportable. These include the Water Treatment Plant, Museum, Administration facilities, Firehall and Public Works garage.

A list of the required facilities that municipalities are to include in their annual energy consumption report can be found in Appendix E. The energy reduction projects found in Appendix D 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 2018 baseline values (Appendix A).

GOALS AND OBJECTIVES FOR CONSERVING ENERGY

Our energy conservation objectives include:

- Reducing our overall energy consumption by 5%;
- Increase energy conservation awareness amongst staff and volunteers through temperature set point management
- 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.

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

Key changes from our previous plan will focus more on LED lighting conversions for exterior AND interior lighting in our buildings, as well as building envelope upgrades to our Public Works facility specifically. This is a building that is sorely in need of upgrades to maximize heat retention and to lower our propane expenses and greenhouse gas emissions.

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:

We are continuing to upgrade interior and exterior lighting to LEDs at our main buildings for continued savings and energy reduction for our reportable facilities.

Moving forward, we will explore motion sensor lighting set ups at our lower trafficked areas to further reduce lighting costs and kWh.

Selected Proposed Measures Include:

One of the more significant proposed projects is the building envelope upgrades on our Public Works Garage facility. Insulated garage doors and man doors are needed to ensure heat retention and proper air conditioning is efficient and effective for staff wellness and equipment maintenance. In turn, we are looking forward to seeing a reduction in our energy consumption and greenhouse gas emissions.

Technical Measures:

All building systems (water, heat, HVAC) will continue to be assessed annually and take necessary measures to ensure they are working properly. Recommissioning can save between 10% and 15% of a building's energy use.

Behavioural Measures

A Temperature Set Point procedure will be drawn up for each reportable facility in our Township to inform staff and employees/volunteers how best to conserve energy at their location. This will also entail reviewing buildings monthly to ensure temperature and lighting settings and schedules are where they are supposed to be.

The US Department of Energy notes that set point policies can save 5% to 12% energy consumption.

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) at annual Budget meetings. 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 (IESO);
- 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.

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 town's 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 A

**Energy Consumption and Greenhouse Gas Emissions
Reporting for 2018**

Energy Consumption and Greenhouse Gas Emissions Reporting - for 2018

Confirm consecutive 12-mth period (mth-yr to mth-yr)	Jan/2018 - Dec/2018
Sector	Municipality
Agency Sub-sector	Municipal
Organization Name	Township of Tehkummah

Operation Name	Operation Type	Address	City	Postal Code	Total Floor Area	Unit	Avg hrs/wk	Annual Flow (ML)	Electricity Quantity
Stephenson Building	Administrative offices and related facilities, including municipal council chambers	2160 Yonge Street	Toronto	M7A 2G5	135,034.00	Square feet	70	23516.00224	2,181,065.00000
J.B. Park	Other	3 Church St.	S.Baymoui	POP 1Z0	324.00	Square feet	30	0.00000	10,023.26000
Marina Laundromat/Washrooms	Other	65 Water Street	S.Baymoui	POP 1Z0	1,259.00	Square feet	40	0.00000	20,691.69000
Marina Office	Other	103 Water St.	S.Baymoui	POP 1Z0	156.00	Square feet	40	0.00000	4,882.82300
Municipal Office/Firehall	Administrative offices and related facilities, including municipal council chambers	455 Hwy. 542A	Tehkumm	POP 2C0	7,690.00	Square feet	40	0.00000	21,443.39000
Museum	Cultural facilities	113 Church St.	S.Baymoui	POP 1Z0	2,350.00	Square feet	30	0.00000	4,652.29900
Public Works Office and Garage	Storage facilities where equipment or vehicles are maintained, repaired or stored	228 Hwy. 542A	Tehkumm	POP 2C0	5,322.00	Square feet	40	0.00000	59,954.32000
Sand Dome	Other	42 Hwy. 542A	Tehkumm	POP 2C0	3,000.00	Square feet	40	0.00000	5,529.97600
Streetlights	Street lighting	LITES, Tehkummah	Tehkumm	POP 2C1	40.00	Square feet	84	0.00000	52,928.00000
Water Treatment Plant	Facilities related to the treatment of water	41 Water Street	S.Baymoui	POP 1Z0	0.00		168	36.82000	55,057.00000

Electricity Unit	Natural Gas Quantity	Natural Gas Unit	Fuel Oil 1 & 2 Quantity	Fuel Oil 1 & 2 Unit	Fuel Oil 4 & 6 Quantity	Fuel Oil 4 & 6 Unit	Propane Quantity	Propane Unit	Coal Quantity	Coal Unit	Wood Quantity	Wood Unit	District Heating Quantity
kWh	125,300.00000	Cubic meter	Litre	Litre	Litre	Litre	Litre	Litre	Metric Tonne	Metric Tonne	Metric Tonne	Metric Tonne	26.73000
kWh													
kWh					6,450.20000		6,102.30000						
kWh							27,446.80000						
kWh							18,278.80000						
kWh													
kWh													
kWh													

District Heating Unit	Renewable?	If Yes, enter Emission Factor	District Cooling Quantity	District Cooling Unit	Renewable?	If Yes, enter Emission Factor	GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)	Energy Intensity (ekWh/Mega Litre)
Giga Joule	No	0.00000	20.50600	Giga Joule	No	0.00000	296.16729	30.93599	0.00000
							611.39806	16.43502	0.00000
							144.27765	31.30015	0.00000
							30,323.27361	18.26972	0.00000
							42,432.54578	84.09299	0.00000
							29,938.86859	35.41233	0.00000
							163.39973	1.84333	0.00000
							1,563.91654	1,323.20000	0.00000
							1,626.82424	0.00000	1,495.30147

APPENDIX B

Energy Consumption and Greenhouse Gas Emissions Reporting for 2023

Data Request: BPS Energy Report Request Template 2023

Date Downloaded: 06/12/2024 04:12 PM EDT

Date Generated: 06/12/2024 04:11 PM EDT

Number of properties in report: 5

Portfolio Manager Property ID	Property Name	Address 1	City	Property GFA - Self-Reported (m ²)	Fuel Oil #2 Use (GJ)	Propane Use (GJ)	Site Energy Use (GJ)	Source Energy Use (GJ)	Total (Location-Based) GHG Emissions (Metric Tons CO ₂ e)	Total (Location-Based) GHG Emissions Intensity (kgCO ₂ e/m ²)	Electricity Use - Grid Purchase (kWh)
24370297	Municipal Office Building	456 Hwy. 542A	Tehkummah	370.7	245.8	Not Available	306.2	356.2	18	48.5	16761.1
24370299	Water Treatment Plant	41 Water Street	S Baymouth	175.2	Not Available	Not Available	285.1	521.7	2.2	12.7	79194.5
24370301	Museum	113 Church St.	S Baymouth	218.3	Not Available	77	92.5	105.3	4.8	22.1	4299.9
24370302	Public Works Office and Garage	228 Hwy. 542A	Tehkummah	494.4	Not Available	455	540	610.5	28.5	57.6	23603.3
34767469	Fire Hall	456 HWY 542A	Tehkummah	343.7	Not Available	167.2	187.5	204.4	10.4	30.2	5642.8

APPENDIX C

The Corporation of the Township of Tehkummah Energy Conservation and Demand Management Plan 2024-2029

Previous Energy Reduction Projects from 2019-2024's CDM Plan

PROJECT	FACILITY/LOCATION	DESCRIPTION	DATE COMPLETED	GOAL
Upgrade Streetlights	42 streetlights in Tehkummah and South Baymouth	Switched Streetlights to LED	January 2020	To lower cost and energy use
Upgrade Interior Lighting	Firehall, 456 HWY 542A	Switched 10 interior lights (in garage) and 1 exterior light to LED	2021	To lower cost and energy use
Heat Pump Installation	Township Office, Post Office, and Library, 456 HWY 542A	Installed Kerr heat pumps in 4 areas of Municipal Building and Firehall	November 2022	To lessen use of furnace oil and greenhouse gases, lower cost and energy use

Summary

In 2022 we successfully converted 42 Streetlights to LED in South Baymouth and Tehkummah. 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 lighting.

11 lights were converted to LED at the Firehall by Spring 2021 primarily in the main Garage area. One exterior light was converted, but the remainder of the indoor training/meeting area and washroom facilities have yet to be converted – a future project!

We also installed four heat pumps in our main Municipal Building and Firehall in November 2022 which reduced our use of furnace oil by 1447 Litres and cost by \$4056.32 in 2023. See the following page for a breakdown of furnace oil use for the years 2020 to 2023.

Meter: Fuel Oil (Num 1 and 2) (ID 148629399)

Property: Municipal Office/Firehall (ID 24370297)

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Meter Consumption ID	Start Date	End Date	Usage Liters	Cost	Estimated Value	Last Modified Date	Last Modified By
6729099613	2020-01-01	2020-12-31	6591	Not Available	No	2023-01-22	OntENERGY-BPS
7246081709	2021-01-01	2021-12-31	3546.9	4193.45	No	2023-06-29	TshipTehkummah
8352884234	2022-01-01	2022-12-31	7782.6	13718.29	No	2024-05-29	TshipTehkummah
8352884235	2023-01-01	2023-12-31	6335.8	9661.97	No	2024-05-29	TshipTehkummah

APPENDIX D

**The Corporation of the Township of Tehkummah
Energy Conservation and Demand Management Plan 2024-2029**

Proposed Energy Reduction Projects for 2024-2029

PROJECT	FACILITY/LOCATION	DESCRIPTION	PROJECTED DATE OF COMPLETION	GOAL
Install Doors, Windows and Insulation	Public Works Garage, 228 HWY 542A	Replace Garage doors with insulated doors, new windows and added insulation as needed	2024-2029	To improve heat retention in Garage, lower propane heating costs and lower greenhouse gas emissions
Repair Crank Windows	Municipal Office, 456 HWY 542A	Repair handles on crank windows (4) and reinstall screens	By December 2025	To improve the ability to heat and cool the offices by opening the windows and rely less on the heat pumps, in turn lowering energy use and greenhouse gas emissions
Upgrade Interior Lighting	Municipal Building and Firehall, 456 HWY 542A	Replace fluorescent lighting with LEDs in Office, hallway, Post Office, Library, and Firehall training area	By December 2029	To lower cost and energy use
Upgrade Exterior Lighting	Municipal Building and Firehall, 456 HWY 542A	Replace outdoor lighting with LEDs at Municipal building and Firehall	By December 2029	To lower cost and energy use
Temperature Control Procedure	Municipal Building and Firehall 456 HWY 542A, Museum 113 Church St, Public Works Garage 228 HWY 542A	Written and posted procedure for climate control inside office, firehall, museum	By December 2024	To lower cost and energy use

Motion Sensor Lighting	Museum (Little Schoolhouse, Fish Hatchery) 113 Church St, JB Park Washrooms 3 Church St, Marina washrooms and laundromat 65 Water St.	Replace interior lighting at low traffic areas	By Spring 2026	To lower cost and energy use
Water heater upgrades	John Budd Park Kitchen 3 Church St (newly built for 2024 season), Municipal office and Firehall 456 HWY 542A, Museum 113 Church St, PW Garage 228 HWY 542A, Public Washrooms 3 Church St	Inspect annually and replace as needed with new energy efficient water heaters	Throughout 2024-2029	To lower cost and energy use

Forecasted results:

We anticipate at least a 5% reduction in our energy use by the end of 2029, with continued savings from our heat pumps at the Municipal Building and Firehall as well as significant reduction in propane use from building envelope upgrades at the Public Works Garage.

LED lighting upgrades will continue to reduce energy consumption and cost, and motion sensor lighting installations are anticipated to save us up to 60% or more in low trafficked areas.

APPENDIX E

The Corporation of the Township of Tehkummah Energy Conservation and Demand Management Plan 2024-2029

Table 1 from O. Reg 25/23 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