MUNICIPALITY OF MORRIS-TURNBERRY

ENERGY CONSERVATION AND DEMAND MANAGEMENT PLAN for the term- January 1, 2024 to December 31, 2029

Plan approved by the Council of the Municipality of Morris-Turnberry on:
June 18, 2024

Public Notification:
1. Posted on the Municipal Website
2. Physical copy available at the Municipality of Morris-Turnberry Municipal Office

Commitment

- Declaration of Commitment: The Municipality of Morris-Turnberry will allocate the necessary resources to develop and implement an Energy Conservation and Demand Management Plan as required under O.Reg 25/23. Council supports energy planning as a technique to minimize financial costs, complement service delivery and protect the environment by reducing The Municipality of Morris-Turnberry's greenhouse gas emissions. Staff and council will update the plan as required under O.Reg 25/23 or any subsequent legislation.

- Vision: The Municipality of Morris-Turnberry will strive to continually reduce our total energy consumption and associated greenhouse gases through wise and efficient use of energy, while maintaining an efficient and effective level of service for the general public. This will involve a collaborative effort to increase the education, awareness and understanding of energy management within the municipality and among staff. This vision can be achieved through the integration of energy efficient infrastructure, operational efficiencies and building a culture of energy awareness within the municipality.

- Policy: The Municipality of Morris-Turnberry will incorporate energy efficiency into all areas of policy development. Consideration will be given during the development of, but not limited to, organizational and human resources policies, management procedures, procurement practices, fiscal management, investment decisions and facility operation and maintenance.

- Goals: The Conservation and Demand Management Plan was completed to help continuously identify areas to improve the energy efficiency of the Municipality's facilities and processes in order to reduce financial costs, energy consumption and greenhouse gas emissions. The Municipality believes these goals are attainable while maintaining an efficient and effective level of service for the general public.

- Overall Target: The Municipality of Morris-Turnberry has successfully surpassed its 5% reduction goal in energy consumption from its peak usage in 2013. The completion of the projects outlined in Table 'C' has resulted in an overall reduction of energy use, reduction of greenhouse gas emissions and reduction of energy costs. The Municipality will strive to maintain a reduction of 25% or more from the peak 2013 consumption and emission totals. Implementation of the proposed projects in Table 'A' and ongoing processes outlined in Table 'B' will be enacted whenever financially feasible.

- Objectives:

1. Investigate ways to improve energy efficiency across municipal facilities.
2. Analyze energy costs and look for savings opportunities. This will include taking advantage of available resources and funding for energy projects.
3. Monitor and report on energy consumption annually.

Organizational Understanding

- How We Manage Energy Today: The management of energy consumption and the energy performance of our facilities and equipment are the responsibilities of finance (cost management), works department (maintenance) and department managers (operations). The data is received via supplier invoices and entered into the LAS Energy Planning Tool for the generation of reports as required. Electricity is supplied by Hydro One and natural gas by Enbridge on an as needed basis, priced at the standard rates offered by the provider.

- Summary of Current Energy Consumption, Cost and GHGs: The Municipality of Morris-Turnberry's energy consumption for the year 2023 was approximately 380,823 ekWh at a cost of $49,298 and associated greenhouse gas emissions of 37,887kg of eCO^2. Facility details are summarized in Appendix "A"

- Renewable Energy Utilized or Planned: The Municipality of Morris-Turnberry does not currently own or operate any renewable energy systems. Municipal land is leased to an independent company for the operation of a solar panel. The Municipality of Morris-Turnberry will continue to support the inclusion of renewable energy sources throughout the area.

Planning

- Links with other municipal plans: The energy management plan will be coordinated with the municipality's budget planning process, maintenance plans and overall asset management plan. Energy conservation will be incorporated into both short-term and long-term planning processes whenever feasible.

- Consideration of energy efficiency for all projects: The Municipality of Morris-Turnberry will incorporate energy planning into the life cycle cost analysis for all capital projects. Additionally, energy efficiency opportunities will be incorporated into the regular upkeep and maintenance of existing buildings and equipment when feasible.

- Energy Leader: Energy efficiency leadership will be designated to the departments responsible for the operation and maintenance of their buildings and equipment.

- Energy Team: All staff members and personnel will be empowered to act in the Municipality's best interests in matters relating to energy procurement, usage, and conservation. Through first-hand experience and observations, employees can suggest alterations to existing processes to reduce waste and improve energy efficiency. Collectively each department will contribute towards the Municipality's overall energy reduction goals.

- Key Individuals: Departmental managers will be responsible for energy performance within their own departments. Each can provide essential input and will be an integral part of the energy management process. Efficiencies discovered in one department will be shared among all managers and utilized where appropriate to maximize the total savings opportunity.

- Consideration of energy efficiency for all projects: The Municipality of Morris-Turnberry will incorporate energy consumption as part of the analysis for the acquisition of all capital projects. The same consideration will be given to projects whether they are constructed in-house or contracted to an outside company.

- Consideration of energy efficiency of acquired equipment: The Municipal purchasing procedures will be modified as required to incorporate energy efficiency into the criteria for selection of materials and equipment.

- Business Procedures: The Municipality of Morris-Turnberry will review all business processes and modify them as necessary to incorporate energy efficiency considerations.

Projects Execution

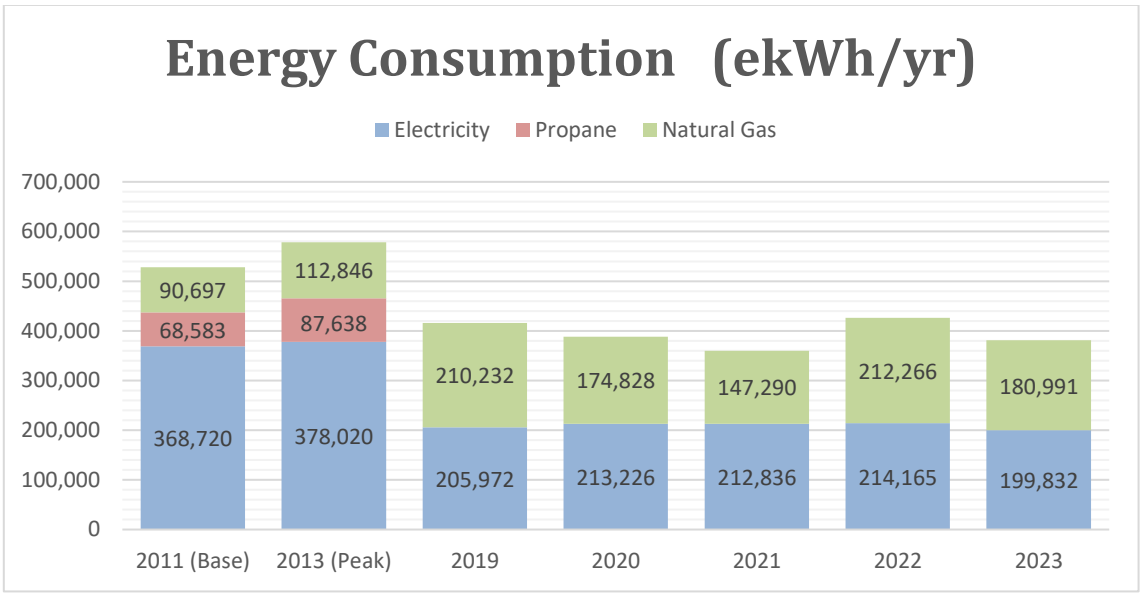
- Municipal Level: The Municipality of Morris-Turnberry will continually develop and evaluate the plans, projects and programs outlined within the Conservation and Demand Management Plan. All staff will be educated on the importance of energy conservation and work towards a culture of conservation. Through web-based energy management tools staff will be able to see the results of their efforts and compare the Municipality of Morris-Turnberry usage to benchmarks and industry standards.

- Asset Level: In order to sustain a corporate culture of conservation, departmental management will be encouraged to promote energy efficiency awareness throughout Municipal facilities. Although the managers have the lead responsibility all Municipal employees will be familiar with and encouraged to promote energy efficient measures wherever and whenever possible.

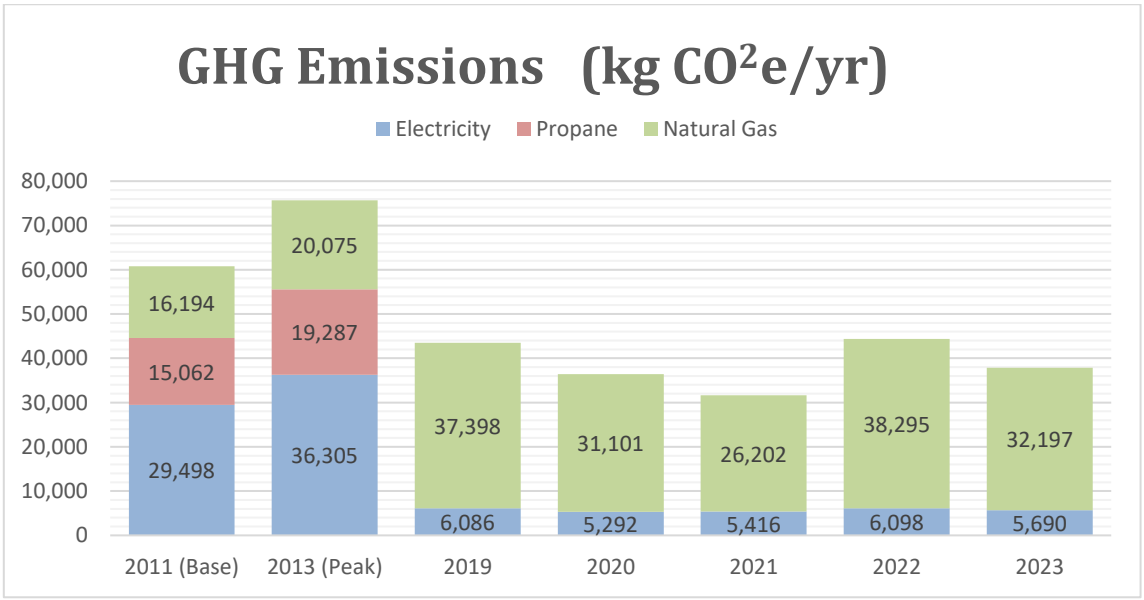
Municipal Review

- Energy Plan Review: The Municipality of Morris-Turnberry will continually monitor its energy consumption and greenhouse gas emissions. A report on the Municipality's energy consumption, greenhouse gas emission and total energy costs will be provided to Council annually. Summary of for the most recent year can be found in Appendix 'A'.

- Energy Consumption: The Municipality's 2023 energy consumption consisted of approximately 199,832 ekWh generated by electricity and 180,991 ekWh generated by natural gas. The total energy consumption of 380,823 ekWh represents a decrease of approximately 27.9% from the Municipality's 2011 baseline consumption of 528,001 ekWh and a decrease of 34.2% from the Municipality's 2013 peak consumption of 578,504 ekWh.



- Green House Gas(GHG) Emission: The Municipality's 2023 greenhouse gas emissions are estimated to be 32,197kg CO^2 generated by the consumption of natural gas and 5,690kg CO^2 generated by the consumption of electricity. The total greenhouse gas emission of 37,887 kg CO^2 represents a decrease of approximately 37.6% from the Municipality's baseline generation of 60,753 kg CO^2 and a 49.9% decrease from the Municipality's 2013 peak emissions of 75,667 kg CO^2.



- Cost: The Municipality's 2023 energy costs were $49,298. This represents an overall decrease of 15.3% from the Municipality's 2011 baseline of $58,213 and a decrease of 35.1% from the Municipality's peak expenditures in 2016.

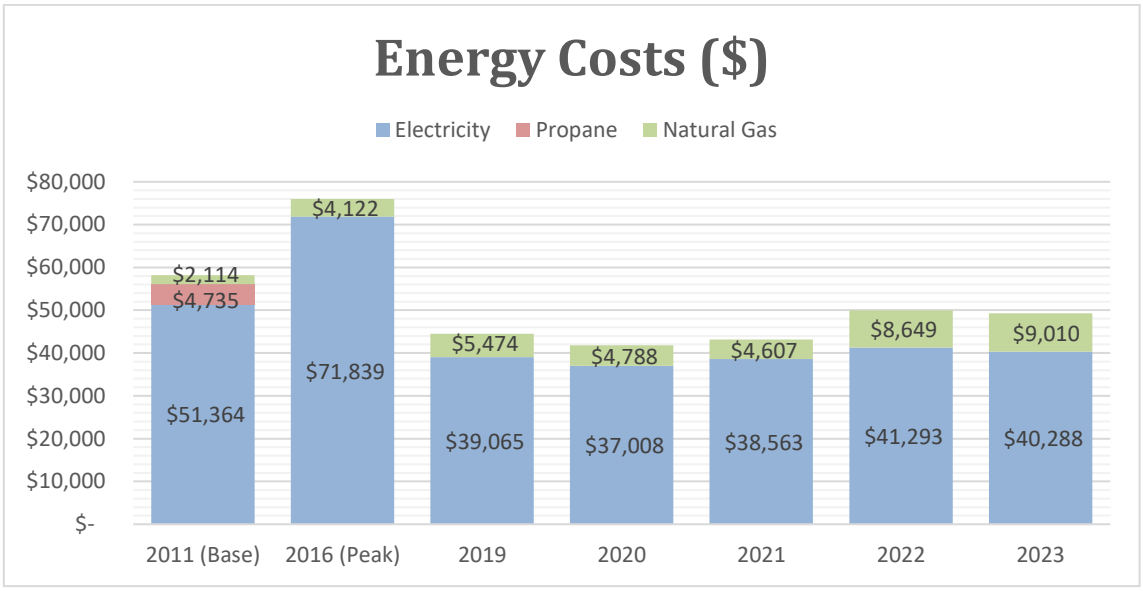


Table 'A' - Proposed Projects

Description	Facility	Start	End	Status	Cost	Save (ekWh/yr)	Save ($)	ROI
Upgrade Basement Lighting	Morris Office	2024-01-01	2029-12-31	Ongoing [0%]	6,000	1,100	200	30yrs
Details	Convert 20 fluorescent tube fixtures to LEDs as fixtures fail & burnout.							
Upgrade Lighting	Morris Shop	2024-01-01	2029-01-01	Ongoing [80%]	6,400	4,000	400	16yrs
Description	Lighting upgraded to LED in the 4 main shop bays. The remaining secondary lighting will be upgraded to LEDs as they burn out.							

Table 'B' - Ongoing Processes

Description	Facility	Start	End	Status	Cost	Save (ekWh/yr)	Save ($)	ROI
Fine Tune Heating/Cooling System	Morris Office/Shop	2024-01-01	2029-12-31	Active [100%]	0.00	0	0.00	0r
Details	Fine tune heating/cooling system to minimize wasted energy. Use a programmable thermostat to schedule the building's heating and cooling to energy saving set-points for extended periods of time.							
Identify Unnecessary Plug Loads	Municipal Wide	2024-01-01	2029-12-31	Active [100%]	0.00	0	0.00	0
Details	Identify devices & equipment that draw an unnecessary electrical load when not in use. Develop best practice to reduce waste. Process relevant to all Municipal owned buildings.							
Enhance Building Envelope	Municipal Wide	2024-01-01	2029-12-31	Active [100%]	0.00	0	0.00	0
Details	Investigate opportunities to improve a building's air envelope to reduce the heating and cooling loss due to air leakage. Relevant to Morris Office & Shop, Turnberry Shop & Bluevale Hall							
Investigate the implementation of used oils	Municipal Wide	2024-01-01	2019-12-31	Active [100%]	0.00	0	0.00	0
Details	Investigate the appropriateness of utilizing used oil within the Municipality's machinery & equipment. Utilizing recycled oil is a more environmentally friendly practice and uses less energy to produce than refining from crude.							

Table 'C' - Completed Projects

Description	Facility Contact	Start	End	Status	Cost ($)	Save (ekWh/yr)	Save ($/yr)	ROI
Retrofit Turnberry Shop Lighting	Turnberry Shop	2013-07-01	2013-07-31	Complete [100%]	681.03	4,406	440	2yr
Details	Retrofit and replace Turnberry Shop lighting with energy efficient lighting. The Municipality benefited from the SaveOnEnergy Small Business Lighting program, minimizing total capital costs. Cost savings have paid for the project and the Municipality is now benefiting from energy savings.							
Convert Morris Works Garage to Natural Gas	Morris Office/Shop	2013-10-01	2013-12-31	Complete [100%]	16,771.99	0	1,700	10yr
Details	Converted Morris Office/Garage from Propane to Natural Gas. Removed and Replace Morris Works Garage propane heaters with Natural Gas heaters. Overall energy usage and greenhouse gas emissions are approximately the same, but total project costs for heaters ($14,220.96) and natural gas line to building ($2,551.03) have resulted in an overall cost savings of approximately $1,700/yr.							
Upgrade Office Lighting	Morris Office	2015-07-01	2015-07-31	Complete [100%]	3,901.48	3,600	500	8yr
Details	Morris Office Lighting upgraded as part of Office Renovation. Savings estimated based on previous period billings and estimated cost per kWh. Cost savings will pay for the project in approximately 8 years from project completion							
Upgrade to LED Streetlights	Municipal Wide	2016-01-01	2016-12-31	Complete [100%]	104,071.98	138,000	22,000	5yr
Details	Replaced existing Streetlights with energy efficient LED Streetlights in Belgrave, Belmore, Bluevale, Brussels, Junctionville, Lower Town Wingham, North Wingham and Walton. Cost savings will pay for the project in approximately 5 years from project completion.							
New Heating System for Office	Morris Office	2019-06-01	2019-06-30	Complete [100%]	3,564.65	800	150	23yrs
Details	Furnace replaced with modern system & programmable thermostat installed.							
New Scalehouse	Morris Landfill	2020-10-01	2020-10-31	Complete [100%]	24,308.85	4,000	860	28yrs
Details	The landfill scalehouse was replaced with a 10' x 12' fiberglass scalehouse. The improved insulation rating and reduced structure size will reduce the landfill's overall energy consumption.							
Upgrade Lights to LEDs	Bluevale Hall	2020-09-01	2020-09-30	Complete [100%]	927.08	800	150	6yrs
Details	The Bluevale Community Committee undertook the upgrading of the Bluevale Hall lights to LED fixtures. The work of the committee combined with the Save On Energy grant minimized the overall capital cost of the LED upgrade.							

Appendix 'A'

Municipality of Morris-Turnberry
Energy Consumption and GHG Emissions
From: 2023-01-01 To: 2023-12-31

Facility Name	Operation Type/Category	Address	City	Postal	Total Area (m^2)	Average Hours/Week	Annual Flow (ML)	Electricity		Natural Gas			Municipal Totals			
								Consumption (kWh)	Emissions (GHG - kg CO^2)	Consumption (m^3)	Energy Equivalent (ekWh)	Emissions (GHG - kg CO^2)	Energy (ekWh)	Energy Intensity (ekWh/m^2)	Emissions (GHG - kg CO^2)	Cost ($)
Belgrave Water	Facilities related to the treatment of water	30 McCrea St.	Belgrave	N0G 1E0	130	168	32.86	82,967	2,362	-	-	-	82,967	638.21	2,362	$ 15,176
Bluevale Hall	Community centres	32 Clyde St.	Bluevale	N0G 1G0	560	7		7,427	211	2,369	25,177	4,479	32,604	58.22	4,690	$ 3,009
Kinsmen Park	Other	13 & 15 Queen's St.	Belgrave	N0G 1E0	1500	84		1	0	-	-	-	1	0.00	0	$ 363
Morris Landfill	Other	85047 Clyde Line	Brussels	N0G 1H0	30	13		10,351	295	-	-	-	10,351	345.03	295	$ 2,153
Morris Office & Shop	Storage facilities where equipment or vehicles are maintained, repaired or stored	41342 Morris Rd.	Brussels	N0G 1H0	975	40		33,218	946	7,842	83,343	14,826	116,561	119.55	15,772	$ 10,459
Municipal Streetlights	Street lighting	Morris-Turnberry	Morris-Turnberry	N0G 1H0	216	84		53,178	1,514	-	-	-	53,178	246.19	1,514	$ 11,912
Turnberry Shop	Storage facilities where equipment or vehicles are maintained, repaired or stored	65 B Line Rd.	Wingham	N0G 2W0	860	40		12,690	361	6,819	72,471	12,892	85,161	99.02	13,254	$ 6,226
							Municipal Totals	**199,832**	**5,690**	**17,030**	**180,991**	**32,197**	**380,823**		**37,887**	**$ 49,298**