



The Town of Goderich

ENERGY CONSERVATION AND DEMAND MANAGEMENT PLAN 2019-2023

Corporation of the Town of Goderich

Subject: Energy Conservation and Demand Management Plan 2019-2023

Type: Administrative

Authority: Environmental Services Coordinator

Effective Date: July 1, 2019

Overview

The Town of Goderich's Energy Conservation Plan provides a brief background and summary of the requirements relating to Ontario Regulation 397/11 *Energy Conservation and Demand Management Plans*. Results from the completion of the Ministry of Energy's 2016 Energy Consumption and Greenhouse Gas Emissions Template is included as an energy consumption benchmark (Appendix A). In addition, completed energy reduction projects from the Town's previous energy plan (2014-2018) can be found in Appendix B, while a list of new energy reduction projects to implement over the next five years (2019-2023) can be found in Appendix C.

Purpose

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

Background

Ontario Regulation 397/11 was established to help municipalities better understand their energy usage, develop conservation plans to guide energy savings and demonstrate leadership in conservation.

The Town of Goderich's 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 Town of Goderich has been committed to energy conservation for many years in order to reduce energy consumption, decrease operating costs and to set an example for the community as to why conservation is important. It is the intention of the municipality to further develop the Energy Conservation Plan and enhance the municipality's commitments as projects develop through Council's approval and as the Town's aging infrastructure requires rehabilitation and/or replacement. Similar to the Town's previous 2014 Energy Conservation and Demand Management Plan, this five year plan is valid from 2019-2023, at which time a thorough review process will be required for a subsequent five year plan.

The Town of Goderich has 18 facilities (in addition to street lighting) that are identified as reportable under O. Reg 397/11. These include water and wastewater facilities, recreation and administration facilities, parks and public works garages, as well as community and medical centers, just to name a few. 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 Council budget discussions 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

- To improve energy efficiency within Town facilities, reduce greenhouse gas emissions and energy consumption in day-to-day operations and extend the lifecycle of Town assets, where possible;
- To maximize fiscal resources through direct and indirect energy cost avoidance;
- To increase conservation knowledge and mindfulness among staff through education and utilizing best practices;
- To demonstrate leadership and awareness within the Town of Goderich community by creating a culture of conservation and sustainability;
- To increase the comfort and safety of the staff and citizens while using Town facilities;
- To support Ontario's Long-Term Energy Plan target of 30 TWh by 2032; and
- To support Ontario's Conservation First policy, where conservation is the first resource considered before building new generation and transmission facilities, wherever cost-effective.

Reduction Target

The Town's energy consumption benchmark, based on 2016 electricity, natural gas and greenhouse gas emission data, can be found in Appendix A. A requirement of O. Reg 397/11 involves municipalities reporting electricity and natural gas consumption to the Ministry of Energy on an annual basis. Municipalities report energy and natural gas usage two years prior to the current year (i.e., the report for 2016 energy consumption was submitted in 2018).

The completion of the energy consumption projects from the Town's 2014 Energy Conservation and Demand Management Plan has built the foundation for successful energy management practices. The completed projects from the previous Energy Plan can be found in Appendix B.

The implementation of proposed energy conservation measures throughout Town-owned infrastructure will continue to promote successful conservation practices. The Town of Goderich is aiming to reduce its energy consumption within its facilities by 1-5% between 2019 and the end of 2023. The proposed energy conservation measures to support the Town in achieving this target can be found in Appendix C.

Council will review the proposed energy conservation measures during annual budget discussions. These proposed measures may change as technology is improved, or the priorities of Council are altered.

Incentive Funding

To ensure that the Town of Goderich will take advantage of all funding and grant opportunities related to energy efficient projects, the Town will liaise with representatives from local utility providers. Town staff and utility representatives are in a unique position to review current and future process improvements, program implementations and projects that can meet future funding requirements. As funding opportunities arise that are suitable for specific energy conservation projects, Town 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 Town of Goderich's contribution to climate change through greenhouse gas emissions will be mitigated in accordance with local reduction targets, financial capacity, and stakeholder support. In addition, climate change will be considered as part of the Town's risk analysis within its asset management plan. Awareness of infrastructure risks will enable the municipality to balance the potential cost of climate change vulnerabilities with the cost of proactively reducing or eliminating these vulnerabilities before they occur.

Summary

The Town of Goderich'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 Town of Goderich is a large energy user and has significant energy expenditures. This Energy Conservation 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 Benchmark (2016)

Facility	Address	Total Floor Area (m2)	Electricity (kWh)	Natural Gas (m3)	GHG Emissions (kg CO2 e)	Energy Intensity (ekWh/m2)
Airport Shed	33868A Airport Road	418	11,457		16,090	27
Airport Terminal	33868A Airport Road	149	25,721	1,463	3,680	173
Cemetery Shed	35454 Huron Road	128	4,406		157	34
Child Care Centre	376 Cambridge Street	1,000	107,500	9,616	22,001	108
Fire Hall	248 Suncoast Drive East	644	36,715	8,540	17,451	57
Goderich Library	52 Montreal Street	1,100	155,726	16,543	36,812	142
Goderich OPP Station	50 The Square	210	91,008	4,648	12,023	433
Maitland Recreation Centre	190 Suncoast Drive	7,097	2,313,472	94,354	260,628	326
Maitland Valley Medical Centre	180 Cambria Road North	14,190	263,520	11,736	31,557	19
Memorial Arena	180 McDonald Street	2,783	312,351	27,874	63,802	112
Municipal Office	57 West Street	1,998	232,320	158	8,558	116
Parks Building	371 Parsons Court	368	20,365	2,396	5,254	55
Public Works Garage	361 Cambridge Street	650	62,600	12,465	25,792	96
Reservoir-Booster Pump Station	371 Parsons Court	184	122,760	534	5,373	667
Streetlights	57 West Street		383,997		13,650	
Tourism Centre	93 Hamilton Street	60	46,575	1,842	5,137	776
Water Pollution Control Plant	211 Sunset Drive	408	747,900	4,397	34,899	1,833
Water Treatment Plant	100 Cove Road	615	769,320		27,348	1,251
TOTAL		32,002	5,707,714	196,565	590,212	6,226

Appendix B: Completed Energy Consumption Projects from previous 2014 CDM Plan

Facility	Measure	Estimated Savings (kWh)	Completion Date
Maitland Recreation Centre	Replacement of Building Automation System	7,500	2018
	Installation of new air compressor	3,000	2018
	Heat Pump Repairs	1,500	2018
	LED Interior lighting upgrade	42,275	2017
	Exterior lighting upgrade	13,041	2017
Water Treatment Plant	Installation of VFD on low lift pump #3	200,000	2018
Town Hall	Replacement of HVAC units (2)	900	2018
Town Streetlighting	Upgrade to LED streetlights	864,968	2016
Airport Terminal	Upgraded LED Exit Signs (4)	2,920	2016
Fire Hall	Replaced overhead doors (4 front and 4 back)	800	2016
Childcare Centre	Replacement of HVAC unit	500	2016
	Replaced two exterior doors	300	2016
	Replacement of HVAC units (2)	900	2015
	Roof replacement	5,000	2015
Public Works Garage	LED Interior lighting upgrade	1,000	2016
	Installation of automatic remote garage doors	300	2016
Library	Replacement of HVAC unit	500	2017
	LED interior lighting upgrade	5,000	2016
Hydro Operations Building	Replacement of HVAC unit	500	2016
	Insulation work	2,500	2016
MacKay Hall	Roof Replacement (flat roof)	2,000	2017
	Replacement of HVAC unit	500	2016
TOTAL		1,155,904	

Appendix C: Proposed Energy Conservation Measures for 2019-2023

Facility	Measure	Estimated Cost	Estimated Energy Savings (kWh)	Target Date
Agricultural Park	Replacement of sports park lighting with LED	\$ 1,000,000.00	50,000	2018/2019
Memorial Arena	Replacement of siding and insulation	\$ 50,000.00	1,000	2020/2021
Maitland Recreation Centre	Pool pump replacement	\$ 47,000.00	5,000	2020
	Replacement of arena dehumidifier	\$ 26,000.00	3,000	2020
Water Treatment Plant	Installation of residential water meters throughout Town	\$ 1,700,000.00	40,000	2021
	Update of electrical wiring	\$ 50,000.00	7,500	2019/2020
	Installation of interior LED lighting	\$ 20,000.00	30,000	2021
	Conversion of exit signs to LED	\$ 600.00	500	2021
Wastewater Treatment Plant	Installation of VFD's at aeration tanks	\$ 335,000.00	80,000	2019
	Update of electrical wiring	\$ 50,000.00	7,500	2020/2021
	Installation of interior LED lighting	\$ 20,000.00	30,000	2022
	Conversion of exit signs to LED	\$ 600.00	500	2022
Town Hall	Installation of interior LED lighting	\$ 2,000.00	8,000	2020
	Replacement of windows (original building)	\$ 25,000.00	10,000	2020/2021
	Installation of interior LED lighting	\$ 1,000.00	1,500	2023
Airport	Edge lighting along runway (runway 14-32)	\$ 1,000,000.00	50,000	2022
	Edge lighting along runway (runway 10-28)	\$ 1,000,000.00	50,000	2023
	Edge lighting along runway (taxiway)	\$ 1,000,000.00	50,000	2024
	Terminal building window replacement	\$ 25,000.00	15,000	2020
	Maintenance building roof replacement	\$ 44,000.00	10,000	2021
	Maintenance building gas furnace	\$ 5,000.00	1,500	2020
Parks Building	Installation of interior LED lighting	\$ 1,000.00	850	2023
Fire Hall	Installation of interior LED lighting	\$ 2,000.00	1,000	2023
ChildCare Centre	Installation of interior LED lighting	\$ 2,000.00	1,000	2024
MacKay Centre	Installation of interior LED lighting	\$ 2,000.00	1,000	2023
Maitland Valley Medical Clinic	Installation of interior LED lighting	\$ 5,000.00	2,500	2024
Tourist Information Centre	Installation of interior LED lighting	\$ 1,000.00	1,000	2022
Cemetery Shed	Installation of interior LED lighting	\$ 800.00	850	2022
TOTAL		\$ 6,415,000.00	459,200	

*Note: Estimated costs do not include incentive funds received from the GHG Challenge Fund Grant, SaveOnEnergy Incentive programs, or any other energy management incentive opportunity that can be applied to projects in the future.

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

TABLE 1

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 offices 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 than 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.