

THE CORPORATION OF THE MUNICIPALITY OF SOUTH HURON
ENERGY CONSERVATION AND DEMAND MANAGEMENT PLAN (2019 – 2023)
Effective July 1st, 2019

EXECUTIVE SUMMARY

The Municipality of South Huron is required to comply with O. Reg 507/18 (*Broader Public Sector: Energy Reporting and Conservation Demand Management Plans*) under the Electricity Act (1998) as the transferred authority in December 2018. Previously, the preparation of a conservation and demand management (CDM) plan was a requirement of O. Reg 397/11 (*Energy Conservation and Demand Management Plans*) under the Green Energy Act (2009). The purpose of this CDM plan is to satisfy the requirements as described in O. Reg 507/18.

ONTARIO REGULATION 507/18

O. Reg 507/18 (*Broader Public Sector: Energy Reporting and Conservation Demand Management Plans*), Section 5, Subsection (3) provides requirements for the preparation of a CDM plan:

On or before July 1, 2019 and on or before every fifth anniversary thereafter, every public agency shall publish on its website and intranet site, if it has either or both, and make available to the public in printed form at its head office all of the information that is required to be published and made available under subsection (1), the Energy Consumption and Greenhouse Gas Emissions Reporting form that is required to be submitted and published on or before July 1 of that year and the following information:

- 1. A description of current and proposed measures for conserving and otherwise reducing energy consumption and managing its demand for energy.*
- 2. A revised forecast of the expected results of the current and proposed measures.*
- 3. A report of the actual results achieved.*
- 4. A description of any proposed changes to be made to assist the public agency in reaching any targets it has established or forecasts it has made.*

BACKGROUND

The Municipality prepared a CDM plan in 2014 for the period from 2014-2018 as required by the previous authority O. Reg 307/11 under the Green Energy Act (2009). The primary objective of the plan is to improve the overall management of the energy consumption for the Municipality of South Huron.

The CDM plan must include all municipal buildings or facilities which are described under Table 1 in the O. Reg 507/18:

1. Administrative offices and related facilities, including municipal council chambers.
2. Public libraries.
3. Cultural facilities, indoor recreational facilities and community centers, 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.

A total of 30 Municipal buildings and facilities are reportable under the regulation. The Municipal energy profile includes electricity purchased from Hydro One and natural gas purchased from Union Gas.

BASELINE INVENTORY AND COMPARISON

In 2012, the Municipality completed an energy consumption inventory which accounted for all municipal facilities. The use of electricity within the Municipality attributed to 1,836,166.85kwh and was 82% of the total energy consumption. Natural gas attributed for 191,581.11m³ and was 18% of the consumption. The total cost for electricity and natural gas in 2012 was \$327,785.78. Of particular note from the previous CDM plan, the Municipal Offices, Stephen Township Arena, South Huron Recreation Centre and the wastewater treatment facility combined accounts for 63% of all electricity use and 55% of all natural gas use.

PROJECT UPDATES FROM 2014 CDM PLAN

As described in the 2014 CDM, a total of 19 projects were identified as a priority for implementation within Municipal facilities over a five year period.

A total of 13 projects were completed within the five year period. The remaining 6 projects identified for implementation in the 2014 CDM plan were not completed based on further investigations which determined that the projects were not appropriate for the Municipality within the five year period.

Project description, target year and implementation information are described in *Appendix A*.

ENERGY CONSERVATION STRATEGIES (2019 – 2023)

Over the next five years, the Municipality is committed to prioritizing the management of energy consumption through various strategies which fall within one of the following pillars: technical, behavioral and organizational. Through the implementation of strategies focused on energy conservation and efficiencies, the Municipality will build the capacity to achieve the desired reductions.

The following describes the strategies that will be developed by the Municipality over the period of 2019 – 2023:

- *Policies and Procedure* – develop all Municipal policies and procedures with an inclusion of an “energy conservation and efficiency” lens.
 - *Procurement* – outline requirements for procurement to ensure that the most energy efficient and cost effective equipment is purchased.
 - *Buildings (new construction or upgrades)* – considerations to ensure that the most energy efficient and cost effective design is utilized for the project.
- *Energy Monitoring* – complete detailed energy consumption comparisons monitoring reviews to describe existing conditions and future opportunities to address inefficiencies. Energy consumption comparisons and monitoring reviews will be completed using input from all staff.
- *Technical Standards and Financial Viability* – the Municipality initiated utilizing the RETScreen program in 2019. The program is designed to assist in determining the technical and financial viability of projects related to energy efficiency. It captures the technical and financial viability of potential energy projects on a facility specific basis. The Municipality will continue to populate the program with facility specific data. Once the program is populated, it will be utilized for every future energy project to identify the most appropriate energy savings opportunities.
- *Energy Training and Engagement*– providing staff training opportunities to increase technical knowledge in order to ensure an “energy conservation and efficiency” lens for all municipal decisions. The training and engagement initiative will broaden the number of staff familiar with energy conservation and efficiency concepts and technologies across all Municipal operations.
- *Communications on Energy Performance* – regular communication housed on the Municipal website to provide information on energy performance which will ensure accountability and continual improvement.
- *Energy Management Team* – The management team within the Municipality will drive the success of all the strategies mentioned above.

PROPOSED ENERGY CONSERVATION PROJECTS (2019 – 2023)

The 2014 CDM determined that the two community centers accounted for 35% of total energy consumption within the Municipality owned facilities. In 2019, the Municipality initiated a Recreation Master Plan and Facility Review. The review will determine the future needs of recreation and facilities in South Huron. Recommendations from the Master Plan will guide the future use of the facilities and ultimately, guide whether future energy retrofits will occur

within the existing facilities or new energy efficiencies will be incorporated into a new facility design.

The following energy conservation projects have been identified as a priority for the Municipality to complete during the period of 2019-2023, dependent on the recommendations from the Recreation Master Plan and Facility Review.

- Lighting Retrofits (all facilities)
- Dehumidifier Optimization (arena facilities)
- Heat Recovery (arena facilities)
 - Warm room integration
 - Stand heater integration
- Wall pack replacement at sheds (carry over from 2014 CDM projects)

Appendix B outlines the energy conservation projects in cost and projected energy savings.

MUNICIPAL UNDERTAKINGS INCORPORATING ENERGY

A number of plans and studies have been initiated within the Municipality that will incorporate energy conservation and demand management.

- *Asset Management Plan*: In accordance with O. Reg 588/17 (*Asset Management Planning for Municipal Infrastructure*), the Municipality is preparing a strategic asset management policy and plan for all municipal assets. Contained within this plan will be a summary of energy usage and efficiency as related to operating costs of each asset.
- *Climate Change Adaptation Plan*: The Municipality received funding through the MCIP program to create and implement a Climate Change Adaptation Plan over the period of May 2019 – May 2021. Energy conservation, as it relates to supply and demand, will be included within the scope of the plan and it is anticipated priority actions related to energy will be highlighted.
- *Partners for Climate Protection Program*: In 2017, the Municipality committed to reducing GHGs and acting on climate change with their obligation to the Partners for Climate Protection Program. This program aims to provide a framework that guides the Municipality through the process of reducing GHG emissions. The next step of the program is to create a baseline emissions inventory (Milestone 1) for all sources, including energy, in order to set an emission reduction target (Milestone 2).

ENERGY REDUCTION TARGET

Once the energy strategies are established as described previously, the Municipality set an appropriate reduction target based on the direction identified for the Municipality through current investigations and undertakings. It is assumed that the target will fall between a 1 – 5% reduction for the period of 2019 – 2023, based on 2018 energy consumption.

If all of the proposed projects outlined in this plan were implemented in 2019-2023, it is estimated that the total energy savings will be 167,836 kWh. Implementation of these projects will be subject to the recommendations of the Recreation Master Plan and Facility Review, as well as annual Council budget approval.

SUMMARY

The Municipality of South Huron under O. Reg 507/18 prepared an updated CDM plan for the period of 2019-2023 effective July 1st, 2019. Based on the projects identified in the previous CDM plan, a total of 13 out of 19 projects were completed within the time period specified. The 6 projects identified not completed were determined to be not appropriate for the Municipality within the five year period. Some of the projects not completed from the previous plan will be carried over for completion under the current CDM plan.

Over the next five years (2019 – 2023), the Municipality is committed to prioritizing the management of energy consumption through various strategies which fall within one of the following pillars: technical, behavioral and organizational. Through the various strategies focused on energy conservation and efficiencies, the Municipality will build the capacity to achieve the desired reductions and successful energy project implementation.

In 2019, the Municipality initiated a Recreation Master Plan and Facility Review. The review will determine the future needs of recreation and facilities in South Huron. Recommendations from the Master Plan will guide the future use of the facilities and ultimately, guide whether future energy retrofits will occur within the existing facilities or new energy efficiencies will be incorporated into a new facility design. Given the substantial energy consumption of 35% of total energy consumption within all Municipal facilities, the community centers will be a priority once recommendations are known.

APPENDIX A: COMPLETION TRACKING OF PROJECTS IDENTIFIED IN THE 2014 CDM PLAN

PROJECT	PROPOSED UPDATE YEAR	COMPLETION DATE
Grand Bend Sewage Treatment Plant Upgrade (Energy efficient technologies, such as LED lighting, upgraded building insulation, energy efficient pumps and motors complete with variable speed drives)	2014	Completed 2016
Grand Bend Sanitary Pumping Station #2 Upgrade (Upgrade to more energy efficient pumps with variable speed drives)	2014	Completed 2015
Upgrade Aeration System in Lagoon Cell (Replacement of the aeration pipes and heads in the lagoon aeration cell with a more efficient system)	2015	Completed 2015
William Street Sanitary Pumping Station Upgrade (Upgrades to more energy efficient pumps with variable speed drives)	2016	Completed 2016
Stephen Township Arena Seasonal Controller (This new unit will help to maintain fan speed throughout the arena)	2018	Completed 2018
Stephen Township Arena Wall Packs (Replace existing outside Down Lights with new, more efficient bulbs)	2015	Completed 2015
Stephen Township Arena Re-Lighting (Replace all existing lights in the Foyer & Dressings Rooms. Over 100 new bulbs will be put in creating a reduction in energy consumption)	2017	Not completed within the 2014-2018 period
Stephen Township Arena Installation of Dressing Room Sensors (Sensor lighting will be installed in all dressing rooms at the arena)	2016	Completed 2016
Dashwood Hall Wall Packs (Replace existing outside Down Lights with new, more efficient bulbs)	2017	Completed 2017
Dashwood Hall Re-Lighting (Plan to replace all existing lights in the kitchen and hallways)	2018	Not completed within the 2014-2018 period
South Huron Recreation Centre Wall Packs (Replace existing outside Down Lights with new, more efficient bulbs)	2015	Completed 2015
South Huron Recreation Centre Refrigeration Plant	2014	Completed 2014

(The objective of this project was to ensure that the new plant is efficient in its operating and maintenance costs, will provide space and hot water heating via a heat recovery system, and will not experience any loss of ice throughout the life of the system)		
South Huron Recreation Centre Installation of Dressing Room Sensors (Sensor lighting will be installed in all dressing rooms at the arena)	2014	Completed 2014
Exeter Town Hall & Library Installation of Base Board Heat Controller (A control system will be installed that will help to maintain the temperatures in the Town Hall & Library)	2016	Not completed within the 2014-2018 period
Exeter Town Hall & Library Wall Packs (Replace existing outside Down Lights with new, more efficient bulbs)	2018	Completed 2016
Exeter Town Hall & Library Installation of Lighting Sensors (Sensor lighting will be installed throughout these two office spaces)	2015	Completed 2015
Stephen Shed Wall Packs (Replace existing outside Down Lights with new, more efficient bulbs.)	2016	Not completed within the 2014-2018 period
Usborne Shed Wall Packs (Replace existing outside Down Lights with new, more efficient bulbs)	2017	Not completed within the 2014-2018 period
Exeter Shed Wall Packs (Replace existing outside Down Lights with new, more efficient bulbs)	2018	Not completed within the 2014-2018 period

APPENDIX B: PROPOSED ENERGY CONSERVATION PROJECTS (2019-2023)

PROPOSED PROJECTS	Estimated Project Cost (\$)	Estimated Energy Savings (kWh)	Proposed Update Year				
			2020	2021	2022	2023	2024
Dehumidifier Optimization (Stephen Arena)*	\$11,600	29300		√			
New ice surface LED lights (Stephen Arena)*	\$20,000	11500	√				
New ice surface LED lights (SHRC Arena)*	\$20,000	15500	√				
Heat Recovery - Stand Heater Integration*	\$20,000	29800					√
Dehumidifier Optimization (SHRC)*	\$11,600	29300		√			
Heat Recovery - Warm Room Integration*	\$15,000	36500			√		
T8 to LED (SHRC)*	\$3,000	7136		√			
T12 to LED (Ag. Building)*	\$2,000	500			√		
T8 to LED (Town Hall)	\$3,000	5500				√	
New LED (Dashwood CC-Kitchen)	\$2,000	600		√			
Wall packs and Truck Bay (Stephen Shed)	\$1,800	700		√			
Wall packs and Truck Bay (Exeter Shed)	\$1,800	700		√			
Wall packs and Truck Bay (Usborne Shed)	\$2,100	800		√			

*Project implementation dependent on the recommendations from the Recreation Master Plan and Facility Review.