



Merrickville-Wolford Energy Conservation and Demand Management (CDM) Plan 2019 - 2023

Introduction

An Energy Conservation and Demand Management Plan is a past, present, and future document related to an organization's energy use and management: what we have done in the past, what we are doing now, and what we plan to do in the future.

Successful energy management depends on the integration of energy efficient practices into the overall conduct of the organization, is based on a regular assessment and review of energy performance, and requires the implementation of procedures and measures to reduce energy waste and increase efficiency.

The Energy CDM Plan aims to provide a basis for the Village of Merrickville-Wolford to implement improvements to its infrastructure and operations that reduce energy and water use, their associated costs, as well as environmental effects of the Village's activities.

Background

Pursuant to Ontario Regulation 397/11 under the *Green Energy Act 2009*, public agencies including municipalities, municipal service boards, school boards, universities, colleges and hospitals were required to report on their annual energy consumption and greenhouse gas emissions, beginning in 2013, and to develop and implement an Energy Conservation and Demand Management plan (CDM) starting in 2014.

On January 1, 2019, the *Green Energy Act, 2009* was repealed, along with its regulations. However, the conservation and energy efficiency initiatives were moved to the *Electricity Act, 1998*, and the Energy Conservation and Demand Management Plans O. Reg 397/11 was replaced by O. Reg. 507/18, which requires municipalities to have energy conservation and demand management plans, and to update them every five years. The CDM plan that was developed in 2014 needs to be updated this year.

Goals and Objectives

- To improve energy efficiency within Village facilities, reduce greenhouse gas emissions and energy consumption in day-to-day operations and extend the lifecycle of Village 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 Village of Merrickville-Wolford by creating a culture of conservation and sustainability;
- To reduce the environmental impact of Village operations.

Reduction Target

The energy conservation goal that was identified in the 2014 CDM plan was to decrease energy consumption by 10% over five years by replacing old furnaces with high efficiency gas furnaces at the Merrickville and Wolford community centres, the public works garage and the fire hall. That goal was accomplished.

Table 1 outlines the energy and fuel consumption and greenhouse gas emissions from 2013 (first year reported) and 2016. 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).

Table 1: Energy Consumption Comparison

Locations:	Electricity (kWh)		Natural Gas (cubic metre)		Fuel oil (litre)		Propane (litre)		GHG emissions	
	2013	2016	2013	2016	2013	2016	2013	2016	2013	2016
Blockhouse Museum	1,500	1,785							114	63
Centennial Hall	10,086	12,650			3,950	1,343		1,275	11,571	6,088
M-W Community Centre	30,203	23,517		7,502	17,432		393		50,581	15,020
M-W Fire Hall	52,838	45,585		3,086	7,803				25,359	7,454
M-W Municipal Office - Administration	31,386	23,905		3,086	3,002				10,596	6,683
Merrickville Public Library	15,244	14,153					3,469	2,416	6,505	4,226
Merrickville Rink House (outdoor ice)	33,378	3,561		2,485					2,537	4,824
Merrickville-Wolford landfill site	18,664	14,183							1,419	504
M-W Public Works Garage - Merrickville	11,873	8,497		1,543	3,238				9,758	3,219
M-W Public Works Garage - Wolford	21,247	17,943					5,643	7,165	10,311	11,678
M-W Pumping Station	260,031	51,751							19,765	1,840
M-W Sewage Treatment Plant	65,197	251,520	1,603	879					7,986	10,603
M-W Water Works	207,685	154,800							15,787	5,503
Totals	761,345	625,865							174,301	79,722

As Table 1 indicates, electricity consumption has decreased in the four year period from 2013 - 2016 by more than 10%, and greenhouse gas (GHG) emissions have been greatly reduced (in part due to reduced electricity emissions in the provincial grid with the elimination of coal-fired electricity in 2014).

GHG Emissions reports the kilograms (kg) of equivalent carbon dioxide (CO₂) units of GHG emissions attributed to the energy purchased and consumed for each operation type reported. The GHG emission factors are based on Environment Canada's National Inventory, and are calculated by the Ontario Ministry of Energy once we report our annual energy consumption.

The municipality has also promoted energy conservation over the past five years with the following measures:

- Most streetlights within the Village of Merrickville have been converted to LED
- All incandescent light bulbs in all municipal buildings have been replaced with LED or florescent lighting
- The main office, fire hall and Merrickville Community Centre all have energy efficient HVAC systems
- Office lights are kept on to minimum, and the office has heat saving blinds on the windows
- Winter snow plow routes have been designed to be cost effective and fuel efficient

The implementation of proposed energy conservation measures throughout Village-owned infrastructure will continue to promote successful conservation practices. The Village of Merrickville-Wolford 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 Village in achieving this target are:

- Changing ball diamond and rink lighting to LED
- Promoting energy-efficient development through such means as subdivision design, building orientation, and energy-efficient building designs and materials
- The Village will consider LEED (Leadership in Energy and Environmental Design) certification for all new municipal buildings and for major renovations/expansions to existing municipal buildings
- The Village will promote the protection and enhancement of tree canopies and natural areas in recognition of the benefits that trees provide in relation to energy conservation, air quality improvement, and efforts towards managing climate change
- Encourage a de-lamping campaign by asking employees to identify opportunities to reduce lighting
- Ensure all air leaks around windows and doors are sealed
- When replacing aging equipment, replace with energy saving models
- Replace antiquated appliances with energy efficient models
- Ensure computer monitor power management software is enabled
- Encourage water conservation by installing water saving devices in Village facilities
- Encourage property owners to disconnect downspouts from drainage tiles and sump pumps from the municipal sanitary sewer system
- Undertake a sanitary grouting program and a Sanitary Sewer Infiltration & Sewage Treatment Plan Inflow Study to optimize capacity of the sewage treatment plant

Asset Management

Asset Management planning takes into consideration the potential impacts of climate change and provides the Village of Merrickville-Wolford with the information it needs to make decisions on how best to manage capital assets in a sustainable way, as well as take actions that may be required to address vulnerabilities that may be caused by climate change to the Township's overall capital assets. In addition, climate change will be considered as part of the Village's risk analysis within its Asset Management Plan. The awareness of infrastructure risks will help to enable the Village to balance the potential cost of climate change vulnerabilities with the cost of proactively reducing or eliminating these vulnerabilities before they occur.

Summary

The Village of Merrickville-Wolford's Energy CDM Plan will assist the Village in meeting its energy related goals. These energy related goals will need to be established annually through Council's approval of the budget. This plan can help reduce overall energy usage and costs within the Village through the implementation of effective energy reduction strategies, initiatives and programs.