



Energy Conservation and Demand Management Plan

Township of North Frontenac

From: 2019-01-01 to: 2023-12-31

**Energy Conservation and Demand Management Plan
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1.0 Introduction

1.1 Overview:

The Township of North Frontenac's Energy Conservation and Demand Management Plan provides a brief background and summary of the requirements related to mandatory reporting in accordance with the Electricity Act. Results achieved under the previous plan as well as reduction targets set by the new plan are summarized. The annual costs, energy use and greenhouse gas (GHG) emissions from the 2014-2018 reporting period are provided in Appendix A. The 2016 baseline data and proposed energy reduction projects for the 2019-2023 plan can be found in Appendices B and C respectively.

1.2 Declaration of Commitment:

Council of the Township of North Frontenac will allocate the necessary resources to develop and implement a strategic Energy Conservation and Demand Management Plan that will reduce our energy consumption and its related environmental impact and fulfill our regulatory obligations.

1.3 Vision:

North Frontenac will strive to reduce our energy consumption through the wise and efficient use of resources, while maintaining an efficient and effective level of service for our residents. We currently define energy consumption as the electricity and fossil fuel use associated with maintaining our corporate facilities as defined under Regulation 507/18 of the Electricity Act, We also include energy use for streetlights.

1.4 Objectives:

To maintain our current assets and improve the energy efficiency of our facilities and processes where feasible to reduce energy consumption, greenhouse gas emissions, and maintenance costs while improving the reliability of our equipment.

The following are the strategic objectives of this energy plan: (1) Demonstrate energy management leadership and commitment within the Corporation and the community, (2) Improve the energy efficiency of our facilities by utilizing best practices to reduce our operating costs and energy consumption, (3) Demonstrate sound operating and maintenance practices, and (4) Create a culture of conservation.

2.0 Policy:

The Township of North Frontenac continues to face rising costs; to maintain and repair aging infrastructure, to deliver services to the community and to obtain the necessary energy to power facilities. The implementation and renewal of this comprehensive energy management program will ensure that energy conservation and efficiency is a key consideration in the township facility renewal actions which will reduce corporate GHG emissions and mitigate energy cost increases through decreased energy consumption. Similar to the Township's previous 2014 Energy Conservation and

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Demand Management Plan (ECDMP), this five year plan is valid from 2019 to 2023, at which time a thorough review process will be required to develop a subsequent five year plan.

3.0 Report on 2014 to 2018 Results:

3.1 Performance Target:

The Township reports actual energy usage two years prior to the current year (i.e. the report for 2017 energy consumption was submitted in 2019) on an annual basis. The energy reduction target for our facilities per the previous 2014 to 2018 ECDMP was a 3% decrease from the 2011 baseline.

3.2 Summary of Energy Consumption 2012-2016:

The total annual energy consumption for the years of 2012 to 2016 is provided in Appendix A. The baseline year of 2011 is also included.

We are pleased to report the general trend was downward and the target was exceeded, with a 6.6% reduction in Energy and a 13.7% reduction in GHG emissions from the 2011 baseline to 2016.

This reflects well on the conservation efforts proposed and implemented during the last planning period.

- Replacing the oil fired hot water boiler with new propane tube heaters in the Plevna Public Works garage along with programmable thermostats.
- Converting 100+ streetlights from High Pressure Sodium to LED.
- Updated heating / cooling system with the installation of a heat pump, and building / insulation improvements at the Snow Road Hall.
- Conversion from oil heat to propane, and extensive building renovation with new windows, doors, insulation and HVAC system at the Plevna Municipal Office (energy saving will not be reflected until 2018 report given completion date).
- Installation of a solar photovoltaic system on the roof of the Plevna Municipal Office.

3.3 Renewal Energy (Solar) Generation:

In 2013 the Township installed a 10kw rooftop photovoltaic on the Plevna Garage/ Municipal Office.

Energy directed back to the hydro network included:

Year	Energy kWh	Income
2014	10,372	\$5,695
2015	10,721	\$5,885
2016	11,674	\$6,409
2017*	7,560	\$4,150

*Note: production impacted by building renovation.

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4.0 Report on 2019 to 2023 Commitments:

Overall Performance Target:

Our renewed reduction target for the energy intensity of our facilities is 5% between now and 2023. The reporting period, based on a two (2) year delay will be for 2017 to 2021. The baseline year for comparison will be 2016. The new reduction target represents an increased commitment, beyond the commitment in the previous ECDMP.

Details regarding the 2016 Energy Consumption baseline are included as Appendix B.

Proposed energy conservation efforts for 2019 – 2023 are included as Appendix C.

5.0 Organizational Understanding:

5.1 Stakeholder Needs:

Internal stakeholders (Council, CAO, staff) need to be able to clearly communicate the corporate commitment to energy efficiency, and to develop the skills and knowledge required to implement energy management practices and measures. External stakeholders (the Province, community citizens and groups) need the municipality to be accountable for energy performance and to minimize the energy component of the costs of municipal services.

5.2 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), Public Works Department (maintenance), and Department managers (operations).

5.3 Trends in Energy Consumption:

Staff will continue to report on energy consumption as required by the Ministry of Energy before the annual July deadline. The ECDMP will be placed on the Township's website and a hardcopy will be available for the public at the Municipal Office.

5.4 Renewable Energy Utilized or Planned:

The Township of North Frontenac aspires to show leadership in the promotion and development of renewable energy systems that are compatible with our Asset Management and Land Use Planning objectives. As a result, we have identified a considerable number of energy reduction projects / initiatives for the new 2019-2023 plan (see Appendix C).

6.0 Strategic Planning

Links with other Municipal Plans:

As an integral component of the management structure, the energy management plan is coordinated with the municipality's budget planning process, preventative maintenance plans and the overall asset management plan. Energy use, cost reduction and GHG reduction support Council's Strategic Directions to provide effective, efficient and

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sustainable delivery of services; and to enhance and sustain capital assets / infrastructure.

7.0 Structure Planning

Consideration of energy efficiency for all projects:

We will incorporate life cycle cost analysis into the design procedures for all capital projects as well as procurement decisions for equipment and other municipal assets.

8.0 Resources Planning

8.1 Energy Leader:

The Chief Administrative Officer (CAO) is designated as the Energy Leader with overall responsibility for corporate energy management. All Department Managers will assist the CAO, providing updates on energy saving programs, initiatives and operational changes.

8.2 Energy Team:

All Department Managers and Supervisors will demonstrate leadership for all Township employees in energy conservation objectives. We recognize that technology alone will not achieve our energy conservation and demand management objectives. Simple actions such as turning off lights and electrical equipment, reducing the heating and cooling demand in workplaces, ensuring doors and windows are properly sealed and properly maintaining heating and cooling equipment all contribute to a reduction in energy costs.

8.3 Energy Training:

We will develop and deliver energy training for relevant staff. This training will not be limited to operators and maintainers with "hands-on" involvement with energy consuming equipment but will also include others since they also make energy consumption decisions in their daily work. Training focused on energy use and conservation opportunities associated with employee job functions will be utilized whenever possible.

9.0 Procurement Planning

Energy Purchasing:

We will tender the purchase of oil/propane in 2019 to realize costs savings from a competitive procurement process that appropriately addresses our cost considerations, available energy services, energy quality and reliability, and other performance factors.

10.0 Implementation Planning

Building Standards:

We will explore opportunities for the incorporation of energy reduction technologies and methods related to the design of new or renovated municipal buildings, appliances etc.

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11.0 Projects Execution

11.1 Municipal Level:

North Frontenac will carry out the required development of business procedures and communication programs and implement them methodically according to the planned time lines within the resource constraints that apply. The administration and implementation of this plan will be the responsibility of the CAO and Senior Management, however, it will also be the responsibility of all Township staff to be aware of their energy use and work towards conservation.

11.2 Asset Level:

We will use Department and facility energy team representatives to facilitate the implementation of facility level business procedures and communication initiatives, including energy performance reporting.

12.0 Review

Energy Plan Review:

The CAO and Senior Management will review and evaluate our energy plan, revising and updating it as necessary, on an annual basis within our corporate planning process

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Appendix A – Energy and GHG Emissions Data

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2014-2018

Year Jan 1 – Dec 31	Costs (\$)	Energy (ekWH/yr)	GHG Emissions (kg CO2e/yr)
2011	127,015	1,095,991	211,910
2012	143,681	1,239,530	236,879
2013	138,263	1,122,432	204,379
2014	155,228	1,229,497	238,518
2015	118,543	1,042,325	194,422
2016	127,588	1,023,046	182,875

Note: Data reported is from two (2) years prior (ie 2018 reports 2016 data).
Data is for Facilities and Street Lights.

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Appendix B – Baseline Data from 2016

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2019-2023

Facility Type	Cost (\$)	Energy (ekWh/yr)	GHG Emissions (kg Co2e/yr)
Office	9,823.28	78,828.40	13,594.36
Library	2,288.42	17,509.40	2,933.07
Emergency Medical Services	5,422.61	48,927.09	10,028.77
Fire	18,927.60	151,069.03	27,158.28
Community Centre	36,715.59	277,655.85	47,804.92
Public Works	46,898.35	421,647.52	79,202.46
Other	340.10	0	0
Tower	533.05	779.00	31.59
Storage Facility	1,192.75	8,820.74	1,399.24
Street Lights	5,445.91	17,809.00	722.12
Total	127,587.66	1,023,046.02	182,874.80

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Appendix C - Proposed Energy Reduction Projects

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2019-2023

Description	Facility	Contact	Status	Cost	Save (ekWh/yr)	Save (\$)	ROI
Upgrade from oil to propane heat.	Barrie Township Hall	Corey Klatt, Manager of Community Development	2019	\$12,000	0	0.00	
Details							
Upgrade from oil to propane heat.	Snow Road Fire Hall	Eric Korhonen, Director of Emergency Services/Fire Chief	Completed		0	0.00	
Details							
Upgrade from oil to propane heat.	Ward 3 Public Works Garage	Darwyn Sproule, Public Works Manager	2019		0	0.00	
Details							
Upgrades/repairs to windows, doors, insulation, caulking, exterior work, ext. To address need identified by the Building Condition Assessment.	Various Facilities	Corey Klatt, Manager of Community Development Darwyn Sproule, Public Works Manager Eric Korhonen, Director of Emergency Services/Fire Chief	2019 and ongoing		0	0.00	

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Details							
Renovation plus energy reduction improvements, propane heat, etc.	Municipal Office	Corey Klatt, Manager of Community Development	Completed		0	0.00	
Details							
Convert from electric to propane heat.	Plevna Library	Corey Klatt, Manager of Community Development	Completed		0	0.00	
Details							
Replace out of services appliances etc. with energy star devices.	All Departments	Department Managers	Ongoing		0	0.00	
Details							
Upgrade to LED lights in the Public Works sand sheds	Wards 1, 2 and 3	Darwyn Sproule, Public Works Manager	tbd.		0	0.00	
Details							
Install exhaust system in Public Works garages.	Wards 1,2 and 3	Darwyn Sproule, Public Works Manager	Ward 1 – tbd. Ward 2 – 2019 Ward 3 – tbd.		0	0.00	

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Details							
Obtain production monitoring services for rooftop photovoltaic system.	Municipal Office	Darwyn Sproule, Public Works Manager	Tbd.			0	0.00
Details							

Note: 2018 projects have been included since the reporting period is in 2020.

Date: July 5, 2019



Resolution Number 390 -19

**Resolution of the Council of the
Corporation of the Township of North Frontenac**

Moved by:

Handwritten signature of M. Roy.

Seconded by:

Handwritten signature of M. Martin.

Be It Resolved That Council receives for information the Public Works Manager's Administrative Report entitled "Energy Conservation and Demand Management Plan";

And That Council approves the Draft proposed Strategic Energy Conservation and Demand Management Plan;

And That Council directs the Public Works Manager to implement the 2019-2023 Strategic Energy Conservation and Demand Management Plan, aiming to reduce the Townships energy consumption and its related impact on the environment.

And That Council requests the PwM to look at a cost benefit analysis to install ^{net metering} ~~more~~ panels on Township owned buildings.

Handwritten signature of M. Roy.

Handwritten signature of M. Martin.

Carried

Mayor

Handwritten signature of Ron Angers.