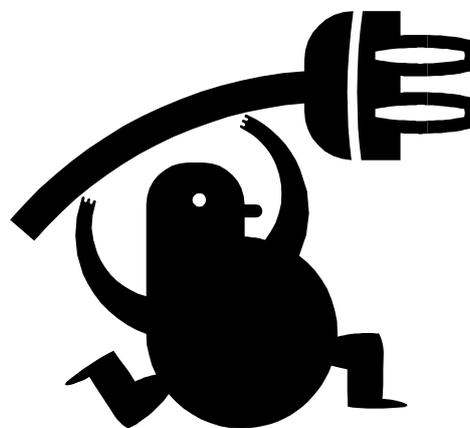
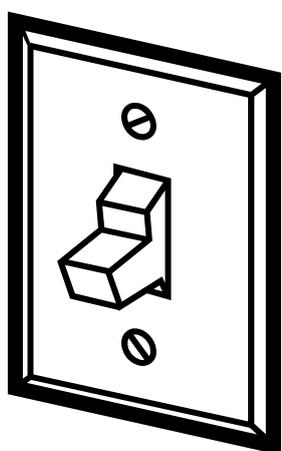


# Township of Cramahe Energy Conservation and Demand Management Plan



Employees Covered: All  
Revision No 1: June 13, 2014  
Revision No 2: June 10, 2015  
Due for review: June 17, 2016  
Person Responsible: Mora Chatterson, Treasurer



# Township of Cramahe

## Energy Conservation and Demand Management Plan

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## The Township of Cramahe and the Green Energy Act

- On May 14, 2009, the Government of Ontario passed the Green Energy and Green Economy Act (GEGEA).<sup>1</sup> The GEGEA enacts the Green Energy Act and amends over 16 other Acts.
- The stated purpose of the GEGEA is to “green” Ontario through increased energy conservation and renewable energy generation.

**What does this mean for the township?**



As part of an initiative to conserve energy, the *Green Energy Act* gives the province the power to create regulations requiring municipalities to develop an Energy Conservation and Demand Management Plans (CDM Plan).



This is the path The Township of Cramahe is taking . . . . .

## **Township of Cramahe**

### **Energy Conservation and Demand Management Plan July 2014 to December 2019**

#### **Part 1 - Commitment**

##### **1.1 Declaration of Commitment to Environmental Stewardship for the Township:**

We will demonstrate the responsible use and protection of our natural environment through conservation and sustainable practices. (2013-2014 Strategic Plan) We will allocate the necessary resources to develop and implement a strategic energy management plan that will reduce energy costs in our municipally owned facilities. We will create new sources of green energy where feasible and reduce and eliminate waste in our municipal buildings through diversion or elimination.

##### **1.2 Vision:**

The Vision of the Corporation is to reduce the total energy consumption through the wise and efficient use of energy and resources, while still maintaining an efficient and effective level of service to enhance the overall quality of life in our community. This vision can be achieved through the integration of energy efficient facilities, operational efficiencies and building a culture of energy awareness within the Corporation.

##### **1.3 Policy**

We will incorporate energy efficiency into all areas of our activity including our human resources management procedures, procurement practices, financial management and investment decisions, and facility operations and maintenance.

##### **1.4 Goals**

The Energy Conservation and Demand Management Plan was completed to help achieve the following goals:

- Reduce the environmental impact of the Township's operations.
- Maximize fiscal resources through direct and indirect energy savings.
- Improve the reliability of Twp. equipment and reduce maintenance.
- Provide the guidance and leadership necessary for the adoption of a culture of sustainability.

## 1.5 Overall Target

The Township of Cramahe will set reasonable and measurable targets in order to meet our goals in the Energy Conservation and Demand Management Plan. The target will equate to approximately 1.5% reduction in energy per year. The base line will be 2011. The energy reduction target will be applied to natural gas, propane and electricity.

## 1.6 Objectives:

- a) To implement energy audits on all municipal facilities during the next five years;
- b) To reduce total energy consumption in municipal facilities, normalized to weather conditions, by 4.5% over the next 3 years;
- c) To reduce energy consumption in the municipal recreation complex by 3% by the year 2015-2016.

## Part 2 - Organizational Understanding

### 2.1 Our Municipal Energy Needs:

Concerns surrounding energy consumption with regard to climate change and air pollution have been well documented. In order to address these concerns, the Township of Cramahe needs low-cost sustainable energy sources delivering energy to efficient facilities and energy-consuming technology

### 2.2 Stakeholder Needs:

Internal stakeholders (Council, committees of council, CAO, staff) need

- a) An up-to-date and relevant energy management plan with clear vision, goals and targets in order to clearly communicate the commitment of the Corporation to energy efficiency
- b) Timely, regular reports and information to maintain an awareness of energy use
- c) Training and support to develop the skills and knowledge required to implement energy management practices and measures.

### 2.3 Municipal Energy Situation:

Township of Cramahe Current State of Energy Management

- a) **Energy Data Management** - While the Township of Cramahe has historically been concerned about energy consumption and costs, the need for an increase in municipal energy management is necessary. To meet this need the Township will design a comprehensive program for collecting and analyzing monthly energy billing information, and ensuring staff is informed about energy consumption.
- b) **Energy Supply Management** - In 2011 the Township of Cramahe formed a Green Team Committee, composed of two members of Council, staff and public representatives, to investigate energy use and savings in the Township. By working with LAS this committee began an energy audit of a number of facilities in 2012. With the continued assistance of

LAS, the Township prepared a summary of annual energy consumption and greenhouse gas emissions for its operations in 2012 and 2013. .

- c) **Energy Use in Facilities** - The Township of Cramahe facility staff has been preparing a comprehensive audit of energy use in the Keeler Centre. This information, together with the appropriate energy management software, will equip staff with the resources to make effective energy management decisions.
- d) **Equipment Efficiency** - The Township of Cramahe is investigating a number of measures to improve energy efficiency of municipal equipment. This includes solar photovoltaic applications at the Keeler Centre, ancillary space interior lighting upgrades in the arena, the use of more efficient generators at the waste water treatment plant and installation of energy saving materials and equipment at the water treatment plant. As the understanding of corporate energy consumption improves, staff will be equipped with the knowledge necessary to make informed decisions.

This improved understanding will also reveal how simple actions like commissioning and maintenance procedures can improve existing equipment efficiencies.

- e) **Organizational Integration** - Day to day management has been primarily the responsibility of the Township department heads. Future involvement will include the CAO, Director of Operations, Director of Finance(Treasurer), and Manager of Facilities. Staff across all departments will be given the necessary tools to address corporate energy concerns such as budgeting, procurement, conservation and generation.

## 2.4 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), Operations Department, and department managers.

## 2.5 Summary of Current Energy Consumption, Cost and GHGs

The total annual energy consumption in municipal operations, based on 2011 benchmark data, is **585917.28 kilowatt-hours per year (ekWh/yr)** and **Green House Gas Emissions of 92,033.67 tonnes** (kgCO<sub>2</sub>e/m<sup>2</sup>/yr Carbon Dioxide CO<sub>2</sub> Emissions Indicator. One tones = 1000 kilograms.)

## 2.6 Renewable Energy Utilized or Planned

The Township of Cramahe 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 are investigating the potential to develop a solar photovoltaic system on the rooftop of the Keeler Centre. Other facilities will be examined in the next five years to consider the potential to develop other renewable energy systems.

## Part 3 – Planning

### 3.1 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, environmental management plan and the overall asset management plan. The Township commitment to the Energy Conservation and Demand Management Plan shall be an integral part of the Strategic Plan. The success of the Energy Conservation and Demand Management Plan can only be determined through the measurement of reduced consumption. The implementation of an energy tracking tool can help the Township monitor progress, provide timely and consistent reports to ensure efficiencies in facility operations and highlight problem areas.

### 3.2 Structure Planning

**Staffing requirements and duties** - We will incorporate energy efficiency into standard operating procedures and the knowledge requirements for operational jobs.

### 3.3 Resources Planning

- a) **Energy Leader** - As the Energy Leader, the Municipal Treasurer will clearly demonstrate leadership and overall responsibility for corporate energy management. The Energy Leader will act as staff liaison to the Green Team.
- b) **Energy Team**  
The Township will appoint employees to act as part of the Energy Team. The Energy Team will be comprised of the following staff members  
Manager of Parks and Facilities  
Director of Operations  
Chief Building Official  
Fire Chief
- c) **Green Team** - The Energy Team will be appointed by and act as an advisory Committee of Council. The Green Team is comprised of members of the public and members of Council.
- d) **Energy Training** - We will develop and deliver energy training for relevant staff and Council members. Energy management training will be integrated into corporate training for new staff.

### 3.4 Procurement Planning

**Consideration of energy efficiency of acquired equipment** - Our purchasing procedures will be modified to incorporate energy efficiency into the criteria for the selection of materials and equipment. This will include setting minimum standard ENERGY STAR rated equipment. All new and retrofit motor replacements (fans, pumps, etc.) shall specify high efficiency motors as a minimum standard. By-law 2013-11 will be revised to reflect this.

### 3.5 Implementation Planning

**Communication Programs** - We will develop a communication strategy that creates and sustains awareness of energy efficiency as a corporate priority among all employees, and conveys our commitment and progress to our stakeholders. Raising awareness of staff on an ongoing basis is an integral part of the plan. This may include circulating reminder stickers to turn off lights and computers, putting up energy conservation displays, promoting home energy audits, etc.

### 3.6 Investment Planning

**Internal Funding Sources** - Initially, the budget for energy consumption will remain constant year to year only reflecting increasing energy pricing. As savings are realized the difference between the budgeted expense and the actual shall be transferred on an annual basis to an energy saving reserve to be applied to future energy saving projects, (i.e. infrastructure costs, software acquisitions etc.). This procedure will be reviewed by the Council of the Township of Cramahe at the end of Year 4.

## Part 4 - Execution

### 4.1 Projects Execution

**Municipal Level** - The administration and implementation of projects related to this plan will be the responsibility of the CAO. Since we all use energy in our daily activities it will also be the responsibility of all Township staff to be aware of their energy use and work towards a culture of conservation.

**Asset Level - (facilities, equipment and fleet)** In order to sustain a culture of conservation, staff should be engaged in an effective awareness and education program. The first step in implementing an energy management program is the completion of energy audits for corporate facilities. Another important component is the re-commissioning of township facilities. This involves examining the original mechanical design and operating specifications and recalibrating the settings to suit today's energy efficient standard practices. This should be carried out with appropriate timelines over the next five years. The use of renewable energy measures can also help reduce overall corporate greenhouse gas emissions. The use of technologies such as solar, wind and geothermal can show community leadership and help raise awareness of the benefits of utilizing renewable energy.

## Part 5 – Review

### 5.1 Energy Plan Review

As a part of the energy management strategy, monitoring and reporting is an essential tool to track consumption and dollar savings. The Energy Team will be responsible for providing a progress report with energy consumption data and initiatives undertaken within the calendar year to Council on an annual basis.

### 5.2 Discussion of Progress

A review of the Corporate goals and objectives in the Energy Conservation and Demand Management Plan will be reviewed and updated on an annual basis.

## Part 6 – Evaluation

### 6.1 Evaluation Progress

a) **Energy Consumption** - The reduction in energy consumption will be reported on the Township website in the first quarter for the previous year. This will be done on an annual basis

b) **Green House Gas Emission** - The corresponding reduction in greenhouse gas emissions from natural gas and electricity will be reported on the Township website on an annual basis.

## Part 7 – Projects and Programs

Building name	Scope	Type of Project or Program	Due Date	Cost of project	Implemented or Completed	
					Yes	No
All		Create Employee Awareness Program	June 17, 2015	Free	X	
All		Create Audit Template and Booklets	June 17, 2015	Free	X	

All		Implement Employee Awareness Program	May 01, 2016	\$1000		X
All		Perform Audits on all Municipal Buildings	May 01, 2016	Free		X
Keeler Center (Inside)	Changed out 11 interior fluorescent light fixtures to LED in the following places: 1. Lobby 2. Main floor washroom 3. Mezzanine	LED light replacement	July 23, 2014	\$4,910.97	X	
Keeler Center (Exterior)	Changed out 13 exterior fluorescent light fixtures to LED in the following places: Wall packs on perimeter of building	LED light replacement	December 4 <sup>th</sup> , 2014	\$6,008.67	X	
Keeler Center	Allocation of \$10,000 budget to continue to replace lights throughout Keeler Center in the following places: Change rooms Rotary Hall Washrooms (Upstairs)	LED light replacement	2015	\$10,000.00		X

## Part 8 - Municipal Buildings Covered By This Plan

### 1. Municipal Offices Colborne

1 Toronto Street Colborne

65' x 40' = 2,600 sq. ft. (3 storeys)

Total Floor Area = 7,800 sq. ft.

### 2. South Public Works Garage/Fire Hall (includes small office space)

34 Victoria Street, Colborne

170' x 40' = 6,800 sq. ft.

### 3. Colborne Library

6 King Street West

50.5' x 45' + 30' x 27' = 3,082.5 sq. ft.

### 4. Registry Office (Art Gallery)

51 King Street East

38' x 45' = 1,710 sq. ft.

### 5. Castleton Town Hall/Library

1780 Percy Street, Castleton

1,914 x 2 + vestibule = 2,000 sq. ft. (lower level library/upper level hall)

Total Floor Area = 4,000 sq. ft.

### 6. North Fire Hall

2221 Spring Street, Castleton

40' x 60' = 2,400 sq. ft.

### 7. Keeler Centre Ice Rink (Includes banquet center upstairs)

80 Division Street, Colborne

129' x 246' = 32,976 sq. ft.

Total floor area 39,405 sq. ft.

### 8. Sewage Treatment Plant

1108 Ontario Street, Colborne

30' x 40' = 1,200 sq. ft.

### 9. North Public Works Garage

2967 County Road 25

108' x 51' = 5,508 sq. ft.

### 10. Municipal Well Main Pump House

321 Purdy Road, Colborne

2 buildings = 950 sq. ft. & 204 sq. ft.

## Part 9 – Summary

The table below shows that there is more work to be done.

<b>Energy Consumption</b>							
From: 2011-01-01 To: 2013-12-31							
Facility Name	Address	Total Area (m2)	Fuel Types	2011	2012	2013	Overall Consumption
				Consumption	Consumption	Consumption	2011-2013 (%)
Colborne Library	6 King Street West	286	Natural Gas	1828.00 m3	1707.41 m3	1757.826 m3	Gas Decrease 3.9%
			Electricity	16374.00 kWh	17012.00 kWh	17666kWh	<b>Electricity Increase 7.4%</b>
Registry Office (Art Gallery)	51 King Street East	159	Natural Gas	3702.00 m3	3512.53 m3	3546.463 m3	Gas Decrease 4.2%
			Electricity	6393.00 kWh	9106.24 kWh	8124.9 kWh	<b>Electricity Increase 21.4%</b>
North Firehall	2221 County Road 25	223	Natural Gas	3928.00 m3	4068.291 m3	4452.985 m3	<b>Gas Increase 11.8%</b>
			Electricity	8139.00 kWh	7982.38 kWh	6840.61 kWh	Electricity Decrease 16%
South Garage/Firehall	28 Victoria Street	632	Natural Gas	5671.00 m3	6987.790 m3	6548.597 m3	<b>Gas Increase 13.4%</b>
			Electricity	43945.00 kWh	67667.30 kWh	68451.80 kWh	<b>Electricity Increase 35.8%</b>
Castleton Townhall	1780 Percy Street	372	Natural Gas	5599.00 m3	5332.333 m3	5440.683 m3	Gas Decrease 2.9%
			Electricity	15806.00 kWh	13943.4 kWh	13684.2 kWh	Electricity Decrease 13.5%
Keeler Centre	80 Division Street	3661	Natural Gas	12384.00 m3	18327.859 m3	14190.255 m3	<b>Gas Increase 12.8%</b>
			Electricity	<b>Not Available</b>	875071.00 kWh	819633 kWh	Electricity Decrease 6.4%
North Public Works Yard	2967 County Road 25	512	Propane	<b>Not Available</b>	<b>Not Available</b>	14730 L	<b>Not Available</b>
			Electricity	<b>Not Available</b>	42058.40 kWh	38887.4 kWh	Electricity Decrease 7.6%
Municipal Well Main Pump House	321 Purdy Road	88	Electricity	<b>Not Available</b>	282769.00 kWh	207087 kWh	Electricity Decrease 26.8%
			Flow Cu. Meters	364317	<b>Not Available</b>	330448	
Municipal Office	1 Toronto Street	725	Natural Gas	7997.00 m3	9377.849 m3	9253.475 m3	<b>Gas Increase 13.6%</b>
			Electricity	58363.00 kWh	53828.40 kWh	50757.7 kWh	Electricity Decrease 13.1%
Sewage Treatment Plant	1108 Ontario Street	111	Electricity	<b>Not Available</b>	227805.00 kWh	653932 kWh	<b>Electricity Increase 65.2%</b>