

FIVE YEAR ENERGY CONSERVATION AND  
DEMAND MANAGEMENT PLAN

**JULY 2014 – JUNE 2019**



**THE CORPORATION  
OF THE  
MUNICIPALITY OF  
CALVIN**

**PREPARED: JUNE 2014**

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## **1.0 Introduction**

This Energy Management Plan (EMP) reports on the five (5) year period 2014 - 2019. The purpose of this plan is to provide a description of previous, current and proposed measures for conserving and otherwise reducing the amount of energy consumed by the Municipality's operations and for managing the Municipality's demand for energy.

After June 2019, the Municipality of Calvin will continue to provide the following:

- details of implemented energy conservation measures
- revised forecasts of expected results
- actual results achieved
- planned changes to help meet targets and forecasts

## **1.1 Background**

On January 1, 2012, Ontario Regulation 397.11 under the Green Energy Act 2009 requires all broader public sector organizations, which includes municipalities, to develop and implement energy conservation and demand management plans. In addition, information must be provided on their annual energy consumption for the year prior to their plan creation. This will provide a baseline for energy consumption and allow broader public sector organizations to track progress towards achieving the goals laid out in their energy management plan. The Corporation of the Municipality of Calvin was incorporated in 1887 and is located in the Ontario District of Nipissing. The municipal operations consist of the following:

- 1) Fire Hall (two bay facility)
- 2) Public Works Buildings (including two bay garage and sand storage dome)
- 3) Municipal Administrative Offices
- 4) Community Centre

## **1.2 Declaration of Commitment**

The Municipality of Calvin hereby makes a commitment to allocate the resources necessary to complete the development and implementation of a Five (5) Year Energy Conservation and Demand Management Plan with the focus on being environmentally responsible through continued reduction of energy consumption, maximization of waste diversion and through sustainable planning and environmental management systems.

## 2.0 Annual Energy Consumption

In 2011, the Ministry of Energy required all broader public sector organizations to post a summary of their annual energy consumption and greenhouse gas emissions with respect to each of their operations.

### 2.1 2011 Energy Consumption

As reported on the Ministry of Energy website:

<b>Operation</b>	<b>Sq. Ft.</b>	<b>Hydro kW/h</b>	<b>Fuel Oil Liters</b>	<b>Propane Liters</b>	<b>Kg GHG Emissions</b>
Fire Hall	3121.5	5753.00	3643.2	n/a	10396.72
Garage	2583.3	9977.37	n/a	11535.7	18609.13
Office	852.0	5343.93	950.1	n/a	3018.78
Hall	2900.3	17696.06	3180.2	n/a	10909.80

### 2.2 2012 Energy Consumption

As reported on the Ministry of Energy website:

<b>Operation</b>	<b>Sq. Ft.</b>	<b>Hydro kW/h</b>	<b>Fuel Oil Liters</b>	<b>Propane Liters</b>	<b>Kg GHG Emissions</b>
Fire Hall	3121.5	5087.42	2994.8	n/a	8679.84
Garage	2583.3	9218.51	n/a	12173.2	19644.05
Office	852.0	4667.65	632.2	n/a	2177.45
Hall	2900.3	15626.46	2116.5	n/a	7289.72

### 2.3 Analysis of the Present State of Energy Use:

STRENGTHS	WEAKNESSES
<p>Successful implementation of some energy efficiency projects in existing facilities</p> <p>Support expressed by all senior staff</p>	<p>Limited financial resources for energy efficient planning and implementation</p> <p>Minimal energy awareness, commitment, and communication</p>
OPPORTUNITIES	THREATS
<p>Audits have already identified improvements</p> <p>New regulation that requires municipal energy and greenhouse gas monitoring, planning, target-setting and reporting</p>	<p>Increasing budget constraints increase hesitance to devote funds to energy projects</p> <p>Addition of new energy efficiency projects and standards that stretch limited resources</p>

### 3.0 Goals and Objectives Achieved Between 2006-2010

The Municipality of Calvin is pro-actively working towards reducing the amount of energy use and eliminating energy waste in all four of its municipal operations.

- (i) Action: Changed water system from water treatment of well water to a cistern system that holds potable water delivered by truck. The new water system is used by the community hall/municipal office building and the roads garage. Water is regularly tested by a reputable lab and results are filed with the health unit.  
Result: Reduction in hydro cost between 2005 and 2006 for the water maintenance system was \$3,160. Elimination of the six hour backwash pumping system also reduced hydro usage.
- (ii) Action: Range hood replacement from a large industrial fan to two residential range hood fans in 2010 in the community hall kitchen.  
Result: Reduced heat loss in the kitchen and reduced hydro consumption.

- (iii) Action: Added 1" foam insulation to the entire outside envelope of the community hall/municipal office building in 2006.  
Result: Reduced heat loss in the hall and offices.
- (iv) Action/Result: In 2007 replaced two large old picture windows and frames in municipal offices with new low e argon windows and also tinted glass in these windows.  
Result: Reduced heat loss in the offices in winter and also reduced energy used for air conditioning in summer months.

### 3.1 Goals and Objectives Achieved Between 2011-2013

Municipal staff are aware of energy use and work towards conservation by utilizing the following energy-saving audits and/or programs offering grants, rebates or low-interest loans to date.

- Hydro One's Power Savings Blitz to replace light ballasts at no charge
  - Infrastructure Canada reimbursement of 75% of the cost to upgrade and make the municipal offices accessible.
- (i) Action: Replaced seven light ballasts in community hall kitchen and municipal offices in 2011 using a no charge Hydro One Power Savings Blitz program valued at \$1,560.75.  
Result: Hydro usage in the community hall was reduced by 2,069 kWh between 2011 and 2012, while usage in the municipal offices was reduced by 676 kWh.
- (ii) Action: Replaced thermostats in the front and back municipal offices to programmable thermostats in 2011.  
Result: Furnace oil usage was reduced by 1,064 liters between 2011 and 2012.
- (iii) Action: Replaced old portable air conditioner in front office with newer used air conditioner in 2012.  
Result: Contributed to hydro usage reduction by 676 kWh in the municipal office between 2011 and 2012.
- (iv) Action: Relocated thermostat at Fire Hall to back of building in 2012.  
Result: Reduced oil usage by 648 liters and reduced hydro usage by 666 kWh between 2011 and 2012.
- (v) Action/Result: Replaced east side door in the community hall by insulated quick-closing door in 2012.  
Result: Reduced heat loss in hall.

- (vi) Action/Result: Replaced the front door in the municipal offices in 2013 to an automatic door with a side window using tinted glass. Infrastructure Canada grant reimbursed 75% of the cost.  
Result: Reduced heat loss in municipal offices.

#### **4.0 Proposed Measures for Energy Conservation & Demand Management**

By July 1, 2014, the Municipality of Calvin will publish the following information on its website:

- (i) Types of municipal operations
- (ii) Annual energy consumption during the last year
- (iii) Proposed measures under its energy conservation and demand management plan
- (iv) Cost and saving estimates for its proposed measures
- (v) Estimated length of time its energy conservation and demand management measures will be in place, and
- (vi) Confirmation that the energy conservation and demand management plan has been approved by Council.

The Municipality of Calvin proposes to manage its demand for energy by implementing the following proposed measures over the next five (5) years:

##### A: Technical Measures:

- (i) Goal: Repair and upgrade of propane furnace in Sand Dome. Building mechanical room in Sand Dome to create a controlled environment for increased furnace efficiency. Work commenced in May 2014 and is scheduled for completion in June 2014.  
Result: Reduce propane and hydro usage 25-30%.
- (ii) Action: Added insulation to attic in Fire Hall in March 2014, increasing the 'R' factor from R40 to R52.  
Anticipated Result: Reduced heat loss at the Fire Hall by 10-15%.
- (iii) Goal: Installation of two solar panels on roof of Fire Hall. Research is ongoing for types of funding available and meeting budget restrictions. No time frame currently set.  
Anticipated Result: Eliminate Fire Hall hydro cost for the life span of the solar panels.

B: Behavioral Measure:

- (iv) Goal: Develop and implement an employee engagement program to solicit energy saving ideas from municipal staff and create awareness of energy conservation techniques whenever possible.  
Anticipated Result: Increase staff communication thereby creating energy-conscious employees who will actively assist in ways to reduce energy consumption such as turning off lights and lowering thermostat when they are the last to leave a room or building.

C: Organizational Measure:

- (v) Goal: Develop a policy that all new buildings be designed to LEED Silver or Gold standards.  
Anticipated Result: Significant reduction in energy consumption and GHG emissions.

## 5.0 Summary

The Municipality of Calvin is committed to allocating the resources necessary to complete the development and implementation of a five year Energy Conservation and Demand Management Plan. This is evidenced by the pro-active goals and objectives achieved over the past eight years that have successfully and measurably reduced energy consumption in all four of its municipal operations. While some of the proposed measures for the next five years are both feasible and affordable, others will depend on available funding for renewable energy projects.

On or before July 1, 2019 and on or before every fifth anniversary thereafter, the Municipality of Calvin will publish the following information on its website:

- (i) A description of current and proposed measures for conserving and otherwise reducing energy consumption and managing its demand for energy.
- (ii) A revised forecast of the expected results of the current and proposed measures.
- (iii) A report of the actual results achieved.
- (iv) A description of any proposed changes to be made to assist the municipality in reaching any targets it has established or forecasts it has made.