



## Energy Conservation & Demand Management Plan



**Municipality of Strathroy-Caradoc**

Energy Conservation & Demand  
Management Plan

2014-2020

*Updated to July 2015*

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## Introduction

Ontario Regulation 397/11 made under the Green Energy Act, 2009, requires every public agency to prepare, publish and make available to the public, and implement energy conservation and demand management plans.

A summary of the public agency's annual energy consumption and greenhouse gas emissions for its operations must also be prepared and made available to the public. Also required is a description of previous, current and proposed measures for conserving and otherwise reducing the amount of energy consumed by the public agency's operation and for managing the public agency's demand for energy, including a forecast of the expected results of current and proposed measures.

The Municipality of Strathroy-Caradoc is prescribed as a public agency and therefore is required to record the annual energy consumption in our facilities. As well, the Municipality has produced this report stating our goals for conserving and reducing energy, proposed energy conservation measures including estimated costs and savings, and a description of renewable energy generation facilities and the amount of energy produced.

The Municipality of Strathroy-Caradoc is committed to demonstrating leadership in environmental stewardship. Evidence of the municipality's efforts in this regard can be seen in our recent investments in alternative energy (rooftop solar photovoltaic systems), ongoing efforts in the management and enhancement of our urban forest in partnership with the St. Clair Region Conservation Authority, and continuous improvement in our waste management and recycling activities among other areas.

This report examines another critical area of stewardship – that of energy conservation – with the overall objective of reducing costly energy waste and greenhouse gas emissions.



## Goals & Objectives

The Municipality of Strathroy-Caradoc has many goals and objectives for conserving and otherwise reducing energy consumption and managing our demand for energy. We are driven to improve the energy efficiency of our buildings and operations due to the rising fuel costs, energy security and environmental concerns. We have developed a plan to **reduce energy consumption by 5 percent by the year 2020** using 2012 energy consumption data as a baseline (see data below).



The Municipality is making an effort to encourage growth in clean, renewable sources of energy, as well as focusing our energy savings efforts on electrical, water, heating and cooling consumption at our facilities to create potential savings. The Municipality of Strathroy-Caradoc will also develop focused training programs for building operations staff and will prioritize future initiatives to be taken with respect to energy reduction targets. We are also committed to introducing energy efficient systems into our buildings as new facilities are constructed and others undergo renovations.

Many improvements have been made to our facilities in the past to reduce greenhouse gas emissions and many more efforts are ongoing. The Municipality provides a full range of services to its residents including: municipal administration services, municipal planning, building approvals, by-law enforcement, water and waste-water services, police and fire services, public works, waste management and parks and recreational services.

## Overview of Facilities & Usage

To deliver its services, the Municipality operates a number of facilities. An overview of principal municipal facilities can be found in the chart below (based on 2012 energy consumption data):

BUILDING DESCRIPTION & ADDRESS	FLOOR AREA SQ. FT.	ELECTRICITY USAGE (kWh)	Greenhouse Gas Emissions (Kg)
PUBLIC WORKS BUILDING 475 METCALFE ST W.	3,572 sq. ft.	3,384 kWh	9,108.68306 Kg
STRATHROY LIONS OUTDOOR POOL 235 CARADOC ST N.	1,260 sq. ft.	25,901 kWh	1,945.73680 Kg
POLICE SERVICES BUILDING 299 FRANCES ST.	10,820 sq. ft.	194,029 kWh	42,393.05068 Kg
WEST MIDDLESEX MEMORIAL CENTRE 334 METCALFE ST W.	36,200 sq. ft.	548,845 kWh	142,221.59022 Kg
TOWN HALL ADMINISTRATION OFFICE 52 FRANK ST.	11,902 sq. ft.	199,185 kWh	30,582.05982 Kg
STRATHROY PUBLIC LIBRARY/MUSEUM 34 FRANK ST.	5,000 sq. ft.	123,730 kWh	21,038.44844 Kg
SCOUT HOUSE MEETING HALL 208 CARADOC ST N.	2,886 sq. ft.	8,086 kWh	10,782.83308 Kg
GEMINI SPORTSPLEX ARENA 667 ADAIR BLVD.	78,000 sq. ft.	1,497,484 kWh	440,687.62502 Kg
MOUNT BRYDGES FIRE HALL 686 BOWAN ST.	5,400 sq. ft.	24,431 kWh	8,087.98547 Kg
CARADOC COMMUNITY CENTRE 565 LIONS PARK DRIVE	10,840 sq. ft.	56,309 kWh	30,562.98676 Kg
MOUNT BRYDGES LIBRARY 22501 ADELAIDE RD.	3,786 sq. ft.	20,718 kWh	5,931.21366 Kg
LIBRARY ADMIN OFFICE 34B FRANK ST.	5,000 sq. ft.	75,883 kWh	5,922.57040 Kg
STRATHROY FIRE HALL 23 ZIMMERMAN ST.	8,084 sq. ft.	51,177 kWh	17,972.71620 Kg
MELBOURNE FIRE HALL 21912 MELBOURNE RD.	3,224 sq. ft.	n/a	5,168.40892 Kg
PUBLIC WORKS BUILDING 8605 FALCONBRIDGE DR.	12,792 sq. ft.	n/a	32,825.28340 Kg
RECREATION FACILITY - CONCESSION 231 YORK ST.	2,400 sq. ft.	3,810 kWh	804.20240 Kg

BUILDING DESCRIPTION & ADDRESS	FLOOR AREA SQ. FT.	ELECTRICITY USAGE (kWh)	Greenhouse Gas Emissions (Kg)
RECREATION FACILITY – SOCCER BLDG 231 YORK ST.	5,020 sq. ft.	31,600 kWh	2,107.28000 Kg
ENVIRONMENTAL SERVICES BLDG 351 FRANCES ST.	17,222 sq. ft.	155,952 kWh	12,327.29280 Kg
PUMPING STATION 8673 GLENDON DR.	5,750 sq. ft.	118,816 kWh	10,630.66880 Kg
TRI-TOWNSHIP ARENA 22647 ADELAIDE RD.	28,556 sq. ft.	3,181 kWh	230.65600 Kg
PUMPING STATION 113 SECOND ST.	1,938 sq. ft.	497,266 kWh	41,045.10640 Kg
SEWAGE TREATMENT PLANT 27886 PIKE RD	5,125.00	1,930,105 kWh	9,108.68306

\* For complete energy consumption data for 2011 and 2012, see appendix.

## Commitment

### Declaration of Commitment:

As per Council directive, the Municipality Of Strathroy-Caradoc will allocate the necessary resources to develop and implement a strategic energy management plan that will reduce energy consumption and its related environmental impact.

### Vision:

The Municipality of Strathroy-Caradoc will exercise stewardship in its use of finite energy resources to demonstrate leadership, optimize delivery of services, and enhance the overall quality of life in the community.

### Goals:

To continuously improve the energy efficiency of the Municipality's facilities and processes in order to reduce operating costs, energy consumption and the associated greenhouse gas emissions.

### Overall Target:

The Municipality will reduce consumption of fuels and electricity in all operations by an average of 1% per year between now and 2020, resulting in a 5% reduction in **energy consumption by the year 2020** (using 2012 energy consumption data as a baseline).

### Objectives:

The creation of a culture of conservation within the Corporation will serve to:

- Reduce greenhouse gas emissions and ensure the wise use of resources.
- Demonstrate fiscal accountability through savings and elimination of energy waste, leading to both direct and indirect savings.
- Demonstrate energy management leadership and commitment within the Corporation and community.
- Demonstrate sound operating and maintenance practices.
- Provide a forum for discussion within the Corporation on energy management to explore new ideas and trends.



## Organizational Understanding

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

The total annual energy consumption in municipal operations was 5,569,892 kWh/yr in 2012 (most recent data available), with total 2012 Greenhouse Gas (GHG) emissions estimated at 872,376 kg.



### Renewable Energy Utilized or Planned:

The Municipality of Strathroy-Caradoc aspires to show leadership in the promotion and development of renewable energy systems that are compatible with corporate asset management and land use planning objectives. As a result, the Municipality of Strathroy-Caradoc has recently installed solar photovoltaic systems on the rooftops of 13 municipal facilities, and will continue to investigate ground mount solar panel opportunities on municipal property.

### Past Energy Initiatives:

The Municipality of Strathroy-Caradoc has implemented several energy reducing initiatives in the recent years including:

- Installation of 13 solar photovoltaic systems on the rooftops of 13 municipal facilities
- Complete lighting retrofit to LED in the municipal administration office (Town Hall) as part of the OPA SaveONEnergy program
- Energy efficiency upgrades to existing facilities (insulation, windows, HVAC systems, enhanced control systems, lighting upgrades, etc.) as part of recent renovation and expansion projects including the Strathroy Library & Museum, Strathroy & Area Senior's Centre, Town Hall Administration building and the West Middlesex Memorial Centre
- Installed test street light LED retrofits at key locations throughout the community
- Integration of energy efficient systems, including pumps and filtration, into the development of the new Aquatic Park and community splash pad projects
- Ongoing upgrades to water and wastewater facilities and equipment
- Performed energy audits of key municipal facilities (ie. Gemini Sportsplex Arena, Environmental Services) performed by Energy Conservation Advisor Stephen Downs of Local Authority Service/AMO.

## Resource Planning

### Energy Leader:

The CAO is designated as leader of energy planning and has been given overall responsibility for corporate energy management. The CAO is supported in this role through the collective decision making of the municipal Management Team, represented by Directors and Managers across all municipal departments. The Community Development Manager is responsible for assisting where needed with the coordination of energy management activities identified by the municipal Management Team and approved by the CAO.



### Strategic Planning:

The municipal Management Team is responsible for reviewing energy consumption in the various facilities operated within their departments for opportunities in energy conservation and demand management. Directors and managers will actively pursue the development of energy audits for their respective facilities to identify priorities in energy conservation. This information will be reviewed with the Management Team on a regular basis to establish mutual priorities for budget and resource allocation.

## Projects Execution

### **Municipal Level:**

The Municipality of Strathroy-Caradoc will carry out the required development of operations 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 municipal Management Team however, as all members of staff use energy in their daily activities, it will also be the responsibility of all municipal staff to be aware of their energy use and work towards conservation. Through staff engagement and web based energy management tools, staff will be able to see the results of their efforts, and measure energy consumption in corporate facilities against industry standards.



### **Asset Level:**

The Municipality of Strathroy-Caradoc will use department and facility management representatives to facilitate the implementation of facility level operations procedures and communication initiatives, including energy performance reporting.

In order to sustain a corporate culture of conservation, staff must be engaged in an effective awareness and education program. Although management staff have a leadership responsibility in ensuring Municipal facilities operate efficiently, all Municipal staff should be familiar with and utilize energy efficient measures where possible. In addition, any facilities requiring rehabilitation, renewal and/or replacement will incorporate energy saving strategies where possible.

## Plan Review & Evaluation of Progress

### Energy Conservation & Demand Management Plan Review:

Senior Management will review and evaluate the Municipality of Strathroy-Caradoc Energy Conservation & Demand Management Plan, revising and updating it as necessary, on an annual basis within the corporate budget planning process.



### Energy Consumption:

The Municipality's energy consumption progress will be monitored on an annual basis as part of the plan review process to ensure the municipality is on target to achieve its energy reduction goals. An average reduction of 1% per year in the consumption of fuels and electricity in all operations is to be achieved through the measures described in this plan.

## Programs

To achieve its energy conservation goals, the Municipality of Strathroy-Caradoc will implement the following programs:

### **Energy Awareness at Council & Senior Management Level**

The municipality will add energy awareness to Management Team meeting discussions. This will provide a platform to discuss topics like the current costs of energy consumption, future implications of current usage, areas for improvements and ways to reduce energy use. An annual update report on the progress of conservation and demand management strategies will be prepared for review by Strathroy-Caradoc Council.



### **Employee Participation Program**

Employees from all departments of the Municipality will be invited to recommend ideas to reduce energy use in their departments.

### **Energy Accounting**

Monthly utility usage and costs should be monitored by directors and managers to identify trends and emphasize anomalies to better predict future usage requirements.

### **Efficiency Standards**

Standards of performance will be developed to identify and implement temperature regulations for each building for the following:

- Indoor temperature for occupied space
- Indoor temperature for unoccupied space
- Desirable hot water tank temperature
- Maximum light levels for occupied space

### **Energy Efficiency Purchasing Standards**

All potential asset purchases will be subject to energy use evaluations to determine the energy consumption of the potential purchase. In the decision making process, preference will be given to asset's that use less kWh or are Energy Star rated.

### **After Hours Lights Out**

The Municipality will adopt a strategy to ensure that lighting is turned off during periods where facilities are not in use after hours. Staff using the facilities after hours will be advised to keep only the areas of occupation lit outside of regular operating hours.

## Projects

### 2014 Energy Conservation Accomplishments:

Energy conservation-related initiatives completed in 2014 are as follows:

- Replacement of two inefficient air conditioning compressors servicing the Strathroy Library facility
- Rooftop HVAC unit replacement at the Environmental Services office
- Strathroy Wastewater compressor/blower replacement
- SCADA (supervisory control and data acquisition) software upgrade to control water and wastewater equipment and conditions
- Installation of automated controls for bleacher heaters at the Gemini Sportsplex arena to limit and control time of use
- Compressor and brine pump upgrades at the Tri-Township arena



### 2015 Energy Conservation Initiatives:

Energy conservation-related initiatives currently under way for 2015 are as follows:

- Implementation of a full conversion of existing street light inventory (1839 lights) to Light Emitting Diode (LED) technology, representing over 50% savings in energy consumption and a reduction in maintenance costs of approximately 80%;
- HVAC Replacement to improve efficiency at Caradoc Community Centre
- HVAC Replacement to improve efficiency at Police Services Station
- Installation of 350 membranes on aerator systems to improve efficiency of wastewater operations;
- Integration of automated control systems at Gemini Sportsplex arena, West Middlesex Memorial Centre arena and Tri-Township arena;
- Installation of new air flow louvres at Mount Brydges Water pump station;
- Installation of new electric vehicle charge stations planned for downtown Strathroy in partnership with Sun Country Highway;
- Conversion of exterior lighting at municipal office and Strathroy & Area Senior's Centre to LED;

## Contacts

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