



Township of O'Connor

5 Year

Energy Conservation & Demand Management Plan

2014 - 2018

INTRODUCTION

The Township of O'Connor has developed and implemented an Energy Conservation and Demand Management Plan in accordance with Ontario Regulation 397/11 under the Green Energy Act, 2009. The plan covers a span of 5 years and will be revised and updated as required.

Required elements of the 5 year plan are:

- Information on the municipality's annual energy consumption during the last year for which complete information is available for the full year.
- Goals and objectives of the municipality to conserve and reduce energy consumption.
- Proposed measures and plan for cost savings (estimates), proposed measures and estimated length of time these measures will be in place.
- Reporting on any renewable energy generation facility that is operated by the Municipality.
- Confirmation that the public agency's senior management has approved the Conservation and Demand Management Plan.

The infrastructure owned and operated by the Township of O'Connor that are targeted in this plan are the Municipal Office, Community Centre, Garage and Fire Hall. The Township does not provide water or sewage treatment, does not provide street lighting on municipal roadways and does not own or operate renewable energy generation facilities.

ANNUAL ENERGY CONSUMPTION

The Township of O'Connor utilizes three types of energy in its facilities: electricity, fuel oil and propane. Currently fuel oil is purchased through the Local Authority Services' (LAS) bulk purchase program. LAS is a subsidiary of the Association of Municipalities of Ontario (AMO) and is a program intended to provide municipalities with cost savings and information on price fluctuations.

Electricity is purchased through Hydro One and propane is purchased through Cal Gas, located in Thunder Bay, Ontario.

Schedule "A" of this Plan is the Township's annual energy consumption starting with 2011 and 2012 for the 2014 reporting year. The schedule will be updated accordingly July 1st of each year.

GOALS AND OBJECTIVES

Goals: The goals of the Township are to maximize the efficient use of its fiscal resources and to minimize the negative environmental impact of our operations.

Overall Target: The overall target of the Township is to reduce the energy consumption per square foot of our municipal facilities by 10% in comparison with our 2012 figure.

Objectives: The objective of the Township is to:

- improve the energy efficiency of our facilities by utilizing best practices to reduce our energy consumption and at the same time to lessen the financial impact of increasing energy costs,
- promote energy conservation within the organization by improving municipal staff knowledge in energy consumption and energy conservation,
- and to reduce greenhouse gas emissions that result from our energy use.

MEASURES AND COST SAVINGS

Behavioural Measures for all Municipally Owned Facilities: Council and municipal staff members are aware of the increasing costs associated with the operation of a municipality. Budget deliberations bring to light the increasing need to conserve energy and save on energy costs as these same costs increase every year. Revenues generated through property taxation to meet the financial needs of the municipality must take into consideration the financial burden on the ratepayers. With this in mind the Council and staff members are aware that measures must be taken to reduce costs and are encouraged to share suggestions or ideas that will promote energy conservation.

In 2009 the Township had an energy audit completed for Community Centre/Municipal Office, Municipal Garage and Municipal Fire Hall. The Energy Audit provided energy consumption amounts for 2008 and recommendations to improve energy efficiency.

Municipal Office

Technical Measures: The Municipal Office operates an average of 31 hours per week. The construction of the office was completed in March of 2010. Energy efficiency was a priority when the building was being designed. While the Energy Audit was being conducted for the Community Centre, Garage and the Fire Hall the drawings for the construction of the new Municipal Office were also reviewed for recommendations on energy saving measures prior to construction. The office was equipped with a radiant in-floor heating system, providing an excellent thermal storage system, and zoned heating and ventilation separations. To conserve energy the Township did not put in central air conditioning, however thermal window coverings were installed to help keep the interior temperature of the office cool on hot days.

Organizational Measures: It is the position of Council that the most affordable and practical options be used during the construction process and for any new construction or updates in the future. To conserve energy all interior lighting is turned off when the building is not in use. For security reasons, the office building was equipped with outdoor sentinel lighting.

Community Centre

Technical Measures: The Community Centre operates an average of 7 hours per week. In 2004 a new energy efficient furnace was installed in the centre. In 2011 the basement of the centre was retrofitted with energy efficient lighting and exit signs and a more energy efficient hot water tank was installed. Beginning in 2013 and into 2014 the Centre underwent renovations which included the replacement and installation of more energy efficient appliances which included a

new cooler, freezer and dishwasher and a new front door was installed. The oil-fired heating equipment is annually maintained.

Recommendations made as a result of the Energy Audit completed in 2009 included:

- Sealing all openings and penetrations to stop interior air from entering the attic, sealing gaps around ceiling light fixtures, plumbing stacks, wiring, chimneys and the tops of interior walls, caulk and seal around any window framing and inspect and repair weather stripping around any door system.
- Use of heat recovery ventilation to eliminate the absolute cold-air intake that is being supplied to the forced air system.
- Installation of a ventilation system to keep air pressures balanced so that there is not potential for back-drafting.
- Replacement of upstairs lighting fixtures with more energy efficient lighting.
- Outdoor light bulb replacement and sensor controls to avoid excess usage.
- Installation of overall occupancy sensors to ensure that the interior lighting is only utilized when required and human error does not go undetected for extended periods of time.
- Keep electric heating units off when not required and separation maintained.
- Keep thermostat continually set at low temperatures.
- When a new heating system installation is required it is recommended that a hi-efficiency unit with a DC variable speed blower motor be considered.

It is the Township's plan to improve the energy efficiency of the building through energy programs when they become available.

Organizational Measures: There is no new construction in the foreseeable future, however it is the position of Council that if any new construction or improvements are to be made that the highest and most affordable and practical options be researched and implemented. In order to conserve energy the heating temperature is set low and all lighting is turned off when the facility is not in use.

Municipal Garage

Technical Measures: The garage operates an average 43 hours per week. In 2006 a new energy efficient furnace was installed. In 2008 ceiling installation was applied. In 2009 existing windows were replaced with energy efficient ones. In 2011 the garage was retrofitted with energy efficient lighting. The oil-fired heating equipment is annually maintained. The 40 gallon hot water tank was replaced with a 23.7 gallon tank.

Recommendations made as a result of the Energy Audit completed in 2009 included:

- Installation of programmable thermostats.
- Exterior door weather stripping or door changes.
- Repair building joint seal.
- Install additional R-value in shop B attic and in exterior walls.
- Install heat recovery ventilation to replace exhaust air with clean pre-heated air.
- Install occupancy controls on lighting were feasible.

- Seal gaps around ceiling light fixtures, plumbing stacks, wiring, chimneys and the tops of interior walls.
- Install weather stripping around the hatch or door and use hooks with eye bolts or a latch to hold the hatch firmly against the weather stripping.
- When a new heating system installation is required that a hi-efficiency unit with a DC variable speed blower motor be considered.
- Separate heating zones to provide the best efficiency upgrade due to the fact that there is a considerable difference in the desired temperatures between the dual uses of the building.
- LED retrofits for lighting for exit signs that are illuminated 100% of the time.

Organizational Measures: There is no new construction in the foreseeable future, however it is the position of Council that if any new construction or improvements are to be made that the highest and most affordable and practical options be researched and implemented. In order to conserve energy all lighting is turned off when the facility is not in use and during daytime operations lights are off with the exception of one in the main shop area.

It is the Township's plan to improve the energy efficiency of the building through energy programs when they become available.

Municipal Fire Hall

Technical Measures: The fire hall operates an average of 3 hours per week. In 2011 the fire hall was retrofitted with energy efficient lighting.

Recommendations made as a result of the Energy Audit completed in 2009 included:

- Seal all openings and penetrations to stop interior air from entering the attic.
- Close and seal attic access and properly insulate and seal access door.
- Install weather stripping around the attic access hatch or door and use hooks with eyebolts or a latch to hold the hatch firmly against the weather stripping.
- Seal gaps around ceiling light fixtures, plumbing stacks, wiring, chimney and the tops of interior walls.
- Future work on exterior wall surfaces areas should simultaneously incorporate an increased insulation value to increase heat retention capacity.
- Clean and maintain heating system on an annual basis.
- Continual low temperature setting in the garage bays should be maintained and/or controlled.
- Ensure the supplemental electric heaters are thermostatically controlled if required use is for extreme low temperatures or occupancy controlled if the requirements are for human occupancy to increase the area temperature when the building is in use.
- Replacement of hot water heater with an energy efficient model with smaller capacity, possibly a tankless system.
- Install heat recovery ventilation system.

Organizational Measures: There is no new construction in the foreseeable future, however it is the position of Council that if any new construction or improvements be made that the highest and most affordable and practical options be researched and implemented. In order to conserve energy all lighting is turned off when the facility is not in use. As an emergency facility

the temperature is maintained at a constant level to ensure that emergency response equipment is ready to roll immediate. To conserve energy the air exhaust fan is on a timer switch so as not to run on a continuous basis when vehicles leave out on a call. The weather stripping on the front main door has recently been replaced.

It is the Township's plan to improve the energy efficiency of the building through energy programs that become available.

COUNCIL CONFIRMATION

Declaration of Commitment

The Township of O'Connor will use existing resources and leverage outside agencies where appropriate to reduce our energy consumption and its related environmental impact.

Vision

The Township is continually looking to reduce our total energy consumption and associated carbon footprint while providing an efficient and effective level of service for our residents.

Resolution

On June 23, 2014 the Council of the Township of O'Connor passed resolution # 6 (Schedule "B") adopting the Energy Consumption and Demand Management Plan. The resolution confirms Council's approval of the Plan and affirms their commitment to implement the plan.

Schedule "A"

Energy Consumption
&
Greenhouse Gas
Emissions Reporting

2011 to 2014

Press TAB to move to input areas. Press UP or DOWN		Energy Consumption and Greenhouse Gas Emissions Reporting - for	
Confirm consecutive 12-month period (month-year to month-year)	January 2011 to December 2011		
Type of Public Agency (Sector):	Municipal	Please fill in the mandatory fields indicated in red, in a	
Agency Sub-sector	Municipality		
Organization Name	The Corporation of the Township of O'Connor		
Operation Name	Operation Type	Address	City
<i>Gatsby Administration Centre</i>	<i>Administrative offices and related facilities, including municipal council chambers</i>	<i>512 Smithson Avenue</i>	<i>Toronto</i>
O'Connor Municipal Office	Administrative offices and related facilities, including municipal council chambers	330 Highway 595	O'Connor Township
O'Connor Community Centre	Community centres	330 Highway 595	O'Connor Township
O'Connor Roads Department Garage	Storage facilities where equipment or vehicles are maintained, repaired or stored	329 Highway 595	O'Connor Township
O'Connor Fire Hall	Fire stations and associated offices and facilities	325 Highway 595	O'Connor Township

2011

In addition to submitting data on your energy usage.

Postal Code	Total Floor Area of the Indoor Space in which Operation is Conducted	Average # Hours Per Week	Annual Flow (Mega Litres)	Annual Energy Usage		
				Electricity	Natural Gas	Fuel Oil
M7A 2J1	361,280.00 Square feet	40		5,103,348.00000 kWh	410,325.00000 Cubic meter	
POT 1W0	1,148.50 Square feet	32		7,082.02751 kWh		
POT 1W0	6,148.00 Square feet	7		8,295.53249 kWh		4,000.00000
POT 1W0	3,538.00 Square feet	40		6,687.10000 kWh		5,674.77000
POT 1W0	2,301.00 Square feet	3		9,284.16000 kWh		



Energy Type and Amount Purchased and Consumed in Natural Units

1 & 2	Fuel Oil 4 & 6	Propane	Coal	Wood	District Heating	Renewable?
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					<i>25.64000 Giga Joule - steam or hot water</i>	<i>No</i>
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1,997.94000 Litre

Litre

Litre

4,581.36000 Litre

				Total (These columns will calculate when file is Saved)			
If Yes, enter Emission Factor	District Cooling	Renewable?	enter Emission	GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)	(ekWh/Mega Litres)	Comments
23.40500	Giga Joule - chilled water	No					Click above cell to tog Click above cell to toggle units
				3,651.34959	18.39674		
				11,573.26660	8.36152		
				16,012.36975	19.17708		
				7,816.27934	18.03288		

Energy Consumption and Greenhouse Gas Emissions Reporting - for 2012

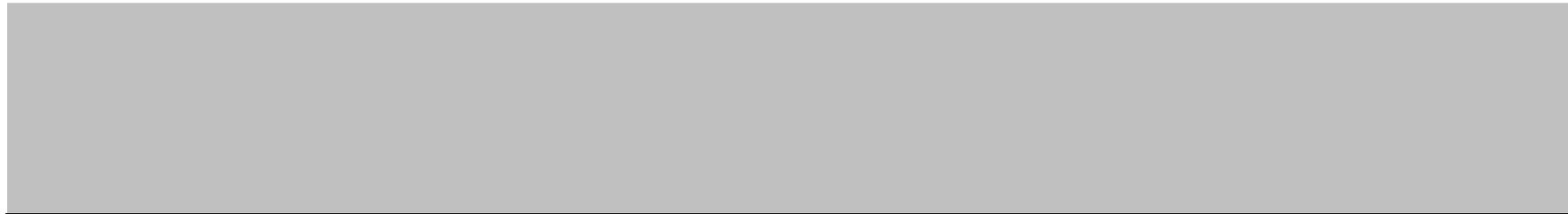
UP or DOWN ARROW in column A to					
Confirm consecutive 12-mth period (mth-yr to mth-yr)	January 1, 2012 to December 31, 2012				
Sector					
Agency Sub-sector	Township				
Organization Name	Township of O'Connor Please fill in the mandatory fields indicated in red, in addition to				
Operation Name	Operation Type	Address	City	Postal Code	Total Floor Area
<i>Stephenson Building</i>	<i>Administrative offices and related facilities, including municipal council chambers</i>	<i>2160 Yonge Street</i>	<i>Toronto</i>	<i>M7A 2G5</i>	<i>135034</i>
O'Connor Municipal Office	Administrative offices and related facilities, including municipal council chambers	330 Highway 595	O'Connor Tc P0T 1W0		1148.5
O'Connor Community Centre	Community centres	330 Highway 595	O'Connor Tc P0T 1W0		6148
O'Connor Roads Department Garage	Storage facilities where equipment or vehicles are maintained, repaired or stored	329 Highway 595	O'Connor Tc P0T 1W0		3538
O'Connor Fire Hall	Fire stations and associated offices and facilities	325 Highway 595	O'Connor Tc P0T 1W0		2301

o submitting data on your energy usage.

Unit	Avg hrs/wk	Annual Flow (Mega Litres)	Energy Type								
			Electricity		Natural Gas		Fuel Oil 1 & 2		Fuel Oil 4 & 6		Propane
			Quantity	Unit	Quantity	Unit	Quantity	Unit	Quantity	Unit	Quantity
Square meters	70	23516.00224	2181065	kWh	125300	Cubic meter		Litre		Litre	
Square feet	32	0	10562.55355	kWh	0	Cubic Meter	0	Litre	0	Litre	2252.2
Square feet	7	0	12372.44645	kWh	0	Cubic Meter	3923.9	Litre	0	Litre	0
Square feet	40	0	5960	kWh	0	Cubic Meter	4834.1	Litre	0	Litre	0
Square feet	3	0	7956	kWh	0	Cubic Meter	0	Litre	0	Litre	3467.5

Type and Amount Purchased and Consumed in Natural Units

Type	Coal		Wood		District Heating			District Cooling			
	Quantity	Unit	Quantity	Unit	Quantity	Unit	Renewable?	If Yes, enter Emission Factor	Quantity	Unit	Renewable?
Litre		Metric Tonne		Metric Tonne	26.73	Giga Joule	No	0	20.506	Giga Joule	No
Litre	0	Metric Tonne	0	Metric Tonne	0	Giga Joule			0	Giga Joule	
Litre	0	Metric Tonne	0	Metric Tonne	0	Giga Joule			0	Giga Joule	
Litre	0	Metric Tonne	0	Metric Tonne	0	Giga Joule			0	Giga Joule	
Litre	0	Metric Tonne	0	Metric Tonne	0	Giga Joule			0	Giga Joule	



	Total (calculated in webform)				
If Yes, enter Emission Factor	GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)	Energy Intensity (ekWh/Mega Litre)	Building / Operation Identifier	Comments

0					<i>max. 255 characters</i>
	4485.031808	22.98369135	0		
	11920.72839	8.891243595	0		
	13794.41602	16.41064211	0		
	6107.45626	14.05234657	0		

Energy Consumption and Greenhouse Gas Emissions Reporting - for 2013					
Press TAB to move to input areas. Press UP					
Confirm consecutive 12-mth period (mth-yr to mth-yr)	Jan/2013 - Dec/2013				
Sector	Municipality				
Agency Sub-sector	Municipal				
Organization Name	Township of O'Connor				
Please fill in the mandatory fields indicated in red, in addition to					
Operation Name	Operation Type	Address	City	Postal Code	Total Floor Area
<i>Stephenson Building</i>	<i>Administrative offices and related facilities, including municipal council chambers</i>	<i>2160 Yonge Street</i>	<i>Toronto</i>	<i>M7A 2G5</i>	<i>135,034.00</i>
O'Connor Community Centre	Community centres	330 Highway 595	O'Connor To POT 1W0		6,148.00
O'Connor Fire Hall	Fire stations and associated offices and facilities	325 Highway 595	O'Connor To POT 1W0		2,301.00
O'Connor Municipal Office	Administrative offices and related facilities, including municipal council chambers	330 Highway 595	O'Connor To POT 1W0		1,148.50
O'Connor Roads Department Garage	Storage facilities where equipment or vehicles are maintained, repaired or stored	329 Highway 595	O'Connor To POT 1W0		3,538.00

submitting data on your energy usage.

Unit	Avg hrs/wk	Annual Flow (Mega Litres)	Energy Type								
			Electricity		Natural Gas		Fuel Oil 1 & 2		Fuel Oil 4 & 6		Propane
			Quantity	Unit	Quantity	Unit	Quantity	Unit	Quantity	Unit	Quantity
Square meters	70	23516.00224	2,181,065.00000	kWh	125,300.00000	Cubic meter		Litre		Litre	
Square feet	11	0.00000	14,193.32096	kWh			4,210.30000	Litre			
Square feet	3	0.00000	11,132.00000	kWh							3,692.70000
Square feet	32	0.00000	7,715.67904	kWh							3,811.30000
Square feet	40	0.00000	6,648.00000	kWh			6,460.32000	Litre			

Type and Amount Purchased and Consumed in Natural Units

	Coal		Wood		District Heating				District Cooling			
Unit	Quantity	Unit	Quantity	Unit	Quantity	Unit	Renewable?	If Yes, enter Emission Factor	Quantity	Unit	Renewable?	If Yes, enter Emission Factor
Litre		Metric Tonne		Metric Tonne	26.73000	Giga Joule	No	0.00000	20.50600	Giga Joule	No	0.00000

Litre

Litre



Total (calculated in webform)				
GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)	Energy Intensity (ekWh/Mega Litre)	Building / Operation Identifier	Comments
<i>max. 255 characters</i>				
12,594.69002	9.68949	0.00000		
6,536.55720	16.12070	0.00000		
6,459.63651	30.04896	0.00000		
18,175.31079	21.55904	0.00000		

Energy Consumption and Greenhouse Gas Emissions Reporting - for 2014					
Press TAB to move to input areas. Press UP					
Confirm consecutive 12-mth period (mth-yr to mth-yr)	Jan/2014 - Dec/2014				
Sector	Municipality				
Agency Sub-sector	Municipal				
Organization Name	Township of O'Connor				
Please fill in the mandatory fields indicated in red, in addition to					
Operation Name	Operation Type	Address	City	Postal Code	Total Floor Area
<i>Stephenson Building</i>	<i>Administrative offices and related facilities, including municipal council chambers</i>	<i>2160 Yonge Street</i>	<i>Toronto</i>	<i>M7A 2G5</i>	<i>135,034.00</i>
O'Connor Community Centre	Community centres	330 Highway 595	O'Connor To POT 1W0		6,148.00
O'Connor Fire Hall	Fire stations and associated offices and facilities	325 Highway 595	O'Connor To POT 1W0		2,301.00
O'Connor Municipal Office	Administrative offices and related facilities, including municipal council chambers	330 Highway 595	O'Connor To POT 1W0		1,148.50
O'Connor Roads Department Garage	Storage facilities where equipment or vehicles are maintained, repaired or stored	329 Highway 595	O'Connor To POT 1W0		3,538.00

submitting data on your energy usage.

Unit	Avg hrs/wk	Annual Flow (Mega Litres)	Energy Type								
			Electricity		Natural Gas		Fuel Oil 1 & 2		Fuel Oil 4 & 6		Propane
			Quantity	Unit	Quantity	Unit	Quantity	Unit	Quantity	Unit	Quantity
Square meters	70	23516.00224	2,181,065.00000	kWh	125,300.00000	Cubic meter		Litre		Litre	
Square feet	9	0.00000	13,686.75000	kWh			5,622.50000	Litre			
Square feet	3	0.00000	6,558.06000	kWh							6,075.00000
Square feet	32	0.00000	9,102.22200	kWh							4,588.70000
Square feet	40	0.00000	6,128.42000	kWh			7,500.50000	Litre			

Type and Amount Purchased and Consumed in Natural Units

Type	Coal		Wood		District Heating			District Cooling				
	Quantity	Unit	Quantity	Unit	Quantity	Unit	Renewable?	If Yes, enter Emission Factor	Quantity	Unit	Renewable?	If Yes, enter Emission Factor
Litre		Metric Tonne		Metric Tonne	26.73000	Giga Joule	No	0.00000	20.50600	Giga Joule	No	0.00000

Litre

Litre

Total (calculated in webform)				
GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)	Energy Intensity (ekWh/Mega Litre)	Building / Operation Identifier	Comments
<i>max. 255 characters</i>				
15,926.03516	12.08276	0.00000		
9,623.87234	21.41186	0.00000		
7,435.30229	36.01509	0.00000		
20,760.24179	24.58088	0.00000		

Schedule "B"

TOWNSHIP OF O'CONNOR
R. R. #1 KAKABEKA FALLS, ONTARIO POT 1W0

JUNE 23, 2014

NO. 6

Moved by

G. Garbutt

Seconded by

J. Loan

WHEREAS ONTARIO REGULATION 397/11 - ENERGY CONSERVATION AND DEMAND MANAGEMENT PLAN MANDATES THAT ALL PUBLIC AGENCIES (INCLUDING MUNICIPALITIES) DEVELOP AN ENERGY MANAGEMENT PLAN BY JULY 1, 2014 AND PROVIDE THEIR ENERGY CONSUMPTION INFORMATION TO THE PUBLIC ANNUALLY;

AND WHEREAS THE REGULATION REQUIRES CONFIRMATION THAT THE PUBLIC AGENCY'S SENIOR MANAGEMENT HAS APPROVED THE ENERGY CONSERVATION AND DEMAND MANAGEMENT PLAN;

THEREFORE BE IT RESOLVED THAT THE COUNCIL OF THE TOWNSHIP OF O'CONNOR DOES HEREBY APPROVE THE 5 YEAR ENERGY CONSERVATION AND DEMAND MANAGEMENT PLAN 2014-2018.

[Signature]
MAYOR

CARRIED

DEFEATED

RECORDED VOTE

GWEN GARBUTT

BISHOP RACICOT

JERRY LOAN

JIM VEZINA

RON NELSON