

JULY 1, 2019



Conservation and Demand Management Plan 2019-2024

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Contents

Executive Summary	2
Energy Conservation and Demand Management Plan Definitions and Requirements.....	3
Initiatives to Meet the Goals and Targets for the Energy Management Plan 2019-2024.....	8

Executive Summary

Context

Municipalities are increasingly focusing on energy as a strategic priority to reduce operating costs, prepare for rising utility costs and to demonstrate their commitment to long-term sustainability.

The previously adopted energy management was guided by the Green Energy and Green Economy Act (2009) Reg. 391/11. Currently under Electricity Act (Regulation 507/18), municipalities are required to develop an updated energy conservation plan and are required to report annually energy consumption and greenhouse gas (GHG) emissions.

The Energy Management Plan (EMP) provides a five-year roadmap for energy management in the Town of Aylmer. It focuses on the use of electricity, natural gas, gasoline and diesel in Town facilities and fuel for fleets. It covers the period from July 2019 to July 2024 and is designed to comply with energy conservation and demand management programs under Ontario Regulation 507/18 under the Electricity Act.

The EMP addresses buildings, technologies, fleets and street and traffic signals as well as people, processes and information.

Energy Conservation and Demand Management Plan Definitions and Requirements

Under Ontario Regulation 507/18 public agencies, including municipalities are required to prepare, publish, make available to the public and implement energy conservation and demand management plans.

An energy conservation and demand management plan is composed of two parts:

1. A summary of the public agency's annual energy consumption and greenhouse gas emissions for its operations.
2. A description of previous, current and proposed measures for conserving and otherwise reducing the amount of energy consumed by the public agency's operations and for managing the public agency's demand for energy, including a forecast of the expected results of current and proposed measures.

Energy Conservation and Demand Management Plan Requirements – Part 1

The Town of Aylmer is required to provide a summary of annual energy consumption and greenhouse gas emissions. The summary requirements and reporting results are laid out in table 1 below and includes a description of the facility or operations, the size of the facility and energy use results.

On or before July 1 in each year, every public agency shall submit to the Minister, publish on its website and make available to the public in printed form at its administration building the public agency's Energy Consumption and Greenhouse Gas Emissions Reporting form for operations conducted in the year following the year to which the last annual form related.

Annual Energy Consumption and Greenhouse Gas Emissions for Operations (as reported July 1, 2019)

Energy Consumption and Greenhouse Gas Emissions Reporting - for 2017 Town of Aylmer – Table 1

Energy Consumption and Greenhouse Gas Emissions Reporting - for 2017													
Operation Name	Address	Total Floor Area	Unit	Avg hrs/W	Annual Flow (ML)	Electricity Quantity	Electricity Unit	Natural Gas Quantity	Nat Gas Unit	GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)	Energy Intensity (ekWh/Mega Litre)	Comments
Anne Street	Anne Street	0.00	Sq meters	168	33.57070	2,539.13232	kWh			43.92191	0.00000	75.63537	Annual flow not metered. Calculated based on area served as proportion of total Elm St. area served (10.9 ha = 2.2% of Elm St. 496 ha)
Caverly Road	Caverly Road	0.00	Sq meters	35	384.53710	34,631.80493	kWh			599.06096	0.00000	90.06102	Annual flow not metered. Calculated based on area served as proportion of total Elm St. area served (125 ha = 25.2% of Elm St. 496 ha)
EECC	531 Talbot Street West	9,190.00	Sq meters	70	0.00000	1,447,667.90621	kWh	142,693.94500	m ³	294,822.78460	29.96539	0.00000	
Elm Street	Elm Street	0.00	Sq meters	168	1525.94100	373,233.44566	kWh			6,456.19214	0.00000	244.59232	
Fire	323 John Street South	1,071.00	Sq meters	35	0.00000	72,960.72559	kWh	22,109.26500	m ³	43,062.44799	26.71140	0.00000	
Lagoons	9853 Rogers Road	0.00	Sq meters	168	1525.94100	283,590.67341	kWh			4,905.55147	0.00000	185.84642	
Myrtle St PW Building	23 Myrtle Street	575.00	Sq meters	40	0.00000	21,148.82306	kWh	4,248.03500	m ³	8,397.28201	10.71147	0.00000	
Old Town Hall	38 John Street South	603.00	Sq meters	18.45	0.00000	117,148.59557	kWh	3,516.04000	m ³	8,673.95656	23.80601	0.00000	
Palmer Park Bandshell	Sydenham Street West	45.00	Sq meters	4	0.00000	12,166.96730	kWh			210.46420	25.11884	0.00000	
Parks Garage	8 Parkview Heights	258.00	Sq meters	40	0.00000	35,977.35132	kWh			622.33622	12.95505	0.00000	
Police	20 Beech Street East	543.00	Sq meters	168	0.00000	83,931.98223	kWh	7,759.50500	m ³	16,122.18509	28.46943	0.00000	
Pool House/Facility	7 Myrtle Street	271.00	Sq meters	12	0.00000	38,154.60334	kWh	418.20000	m ³	1,450.65854	14.60365	0.00000	
Chipchase Crt - PW Building	32 Chipchase Crescent	1,114.80	Sq meters	40	0.00000	39,947.89161	kWh	10,405.52000	m ³	20,363.97569	12.54502	0.00000	
Town Hall	46 Talbot Street West	702.00	Sq meters	35	0.00000	125,400.29449	kWh	9,907.61000	m ³	20,900.76927	30.53044	0.00000	
Treadwell Street	Treadwell Street	0.00	Sq meters	168	30.51880	998.20683	kWh			17.26698	0.00000	32.70793	Annual flow not metered. Calculated based on area served as proportion of total Elm St. area served (9.9 ha = 2.0% of Elm St. 496 ha)

Energy Conservation and Demand Management Plan Requirements – Part 2

Plan Targets and Goals

The 2014-2019 Energy Management Plan established quantitative targets to guide the Town's efforts on energy Management and included:

- 3.9% improvement in energy intensity
- 3.9% reduction in greenhouse gas emissions

The Town will continue to use the targets above to reduce greenhouse gas emissions with the existing building stock. These targets were previously calculated based on the results of the Building Portfolio energy data analysis of the Town facilities including the equipment within those facilities. These targets can be achieved by continuing to implement the recommendations identified subject to budget approvals and on-going grant availability. The goal was to target the areas that would provide the most significant return on investment. The Town continues to be committed to reducing consumption and greenhouse gas emissions while understanding continued investment and effort will result in less overall reductions than what has been achieved over the past five years. The on-going commitment and plan is designed to change how Council, Staff and the community approaches energy conservation by continuing the discussion.

The 2019-2024 Energy Management Plan maintains the established goals and targets established with the previous plan. Long range planning for energy conservation often requires substantial investments in facility and equipment upgrades. During the period of the original plan there were several investments made supporting conservation of energy, ensuring the goals and targets set were met. Continuation of the previous goals and commitments is the Town's best strategy in achieving the overall targets and goals and in making a meaningful reduction to greenhouse gas emissions and energy conservation. The reporting mechanism is designed specific to facilities and therefore does not capture all conservation projects invested in. An example of one such investment was the conversion of all high-pressure sodium streetlights to LED technology. The Town invested \$804,000 applying energy savings to service the loan.

Projects have been undertaken during the previous five years supporting the original energy management plan adopted by Council. A significant contribution has been received through funding agreements (Gas Tax, OCIF Formula and Application Fund, OMPF, CWWF, Rural and Northern Infrastructure Fund), with higher levels of government to assist in these investments and include:

- Purchase and installation of Smart Meters to better detect usage and water loss
- Sewer separation projects to reduce flows to Aylmer lagoons and thereby reducing volumes and electricity consumption (Water Street, Cedar Street, Victoria Street)
- Large infrastructure reconstruction that reduces the frequency of watermain breaks and water loss (Talbot Street West)
- Construction of new public works facility with updated building code items and equipment designed to conserve energy
- Vehicle and Equipment Replacement Plan allowing for the replacement with technology that conserves fuel (pickup trucks, tractors, trackless, plow, aerial truck, pumper truck)
- Several new pedestrian signalizations crossovers utilizing LED technology and conserving hydro
- Upgraded and new generator equipment for pumping stations and buildings that are more efficient, reducing energy consumption
- Retrofit turbo blower at lagoons ensuring efficiencies in sewage treatment are maintained
- Fire hydrant upgrade programs to improve efficiency and reduce water loss
- Upgrades to natural gas refueling station at arena to improve efficiencies and reduce leaks
- Water heater replacements that improve efficiency and reduce water leaks at the area
- Facility roof repairs to ensure continued energy conservation at pumping station, arena and police building
- Replace HVAC systems to improve efficiency of system and conserve energy at police building, town hall and Old Town Hall
- Replacement of windows to conserve energy at police building
- Outdoor light retrofits to LED technology to conserve energy at fire hall and arena

Estimated energy intensity reductions and GHG emissions savings from measures identified in energy analysis

FACILITY	ENERGY INTENSITY REDUCTIONS	GREENHOUSE GAS EMISSIONS REDUCTIONS
Town Hall	15%	15%
Police Station	25%	25%
Fire Hall	20%	20%
East Elgin Community Complex	15%	15%
Pool House	2%	2%
Old Town Hall	15%	15%
Parks and Recreation	10%	10%
Public Works Building	2%	2%
Palmer Park Community Building	15%	15%
Sewage Treatment Facilities and Pumping Stations	25%	25%

Initiatives to Meet the Goals and Targets for the Energy Management Plan 2019-2024

- Energy conservation projects implanted in Town facilities, including lighting retrofits, timers for showers and taps, motion activated sensors in restrooms and meeting rooms, programmable thermostats, among others.
- On-going walk through assessments of facilities with a focus on identifying energy conservation opportunities.
- Replacement windows for older facilities.
- Energy efficient appliances for any replacement equipment purchased over the next five years.
- More efficient and upgraded HVAC systems for facilities
- Continue to educate and communicate to staff and facility users the value of reducing energy consumption.
- New construction should incorporate as much green technology as possible. Investigate and explore alternatives such as green roofs, natural lighting, tint for windows etc., when planning new or renovated facilities.
- When investigating energy conservation opportunities, measure the cost-effectiveness by analyzing the rate of return over the life cycle of the equipment. Projects with high capital costs will have longer paybacks but upon analysis be good investments through energy conservation savings.
- Upon analysis some energy conservation projects may not be cost-effective but instead demonstrate the Town is a leader in energy management, be highly visible and demonstrate new or emerging technologies or best practices.
- Continue collaborating with EARTH Power to identify opportunities for energy conservation programs and initiatives that will assist in obtaining the goals and targets set out in this plan.
- Develop consistent guidelines and policies for energy management to be followed at all facilities.
- Develop and implement an employee engagement and training program to promote energy efficiency.

- Develop guidelines and programs for the efficient operation of equipment and vehicles to promote energy efficiency.
- Senior management is committed to support and implement the energy management plan.
- The Town will monitor, and track energy efficiency goals and targets and report results to the Ministry using in-house and outsourced energy analysis tools.