Energy Conservation and Demand Management Plan (CDM) 2019-2023

Commitment

The County of Elgin is committed to responsible energy conservation and management. 2013 was the inaugural year for reporting the County's energy consumption and greenhouse emissions for each of the County owned facilities as required by the Provincial Green Energy Act. In addition to recording energy consumption, the report also sets out the County`s emissions generated by the energy it consumes. The Energy Conservation and Demand Management Plan (CDM) is a living document that structures resources and methodologies designed to improve energy efficiency, effectiveness, and performance.

THAT the County of Elgin Council is committed in allocating necessary resources to develop and implement a five-year Energy Conservation and Demand Management Plan as required under Regulation 397/11 of the Green Energy Act. The Plan was endorsed by the County of Elgin Council on September 10, 2019.

Vision

The County of Elgin will continue to reduce energy consumption and mitigate costs through the wise use of energy. This will involve a collaborative effort to increase conservation awareness and a better understanding of energy management within the Corporation.

Goals

The County of Elgin will continuously improve the energy efficiency of our facilities and processes in order to reduce our operating costs, our energy consumption and the associated greenhouse gas emissions. The County of Elgin Energy Conservation and Demand Management Plan will strive to achieve the following goals:

1) Maximize fiscal resources and avoid cost increases through direct and indirect energy savings.

2) Reduce the environmental impact of the County’s operations.

3) Increase conservation knowledge and mindfulness among staff through education and utilizing best practices.

4) Increase the comfort and safety of the staff and patron of the County owned facilities.

5) Improve the reliability of County equipment and reduce maintenance costs.

6) Promote a culture of energy conservation within the County.

Overall Targets

The County will reduce our consumption of fuels and electricity in all County operations by an average of 2% per year between now and 2023.

Objectives

In order to achieve the success of the strategic direction of the Energy Plan, there are a number of goals and objectives that align with its development and implementation. The following are the strategic objectives:

1) The creation of a culture of conservation within the County will serve to reduce greenhouse gas emissions and ensure the wise use of resources and fiscal accountability through savings and cost avoidance will lead to both direct and indirect savings.

2) Demonstrate leadership within the County and community as to the commitment to energy management and the investigation of new and emerging technologies.

3) Demonstrate sound operating and maintenance practices to complement the energy efficiencies implemented through the capital asset renewal program.

4) Provide a forum for discussion within the Corporation on energy management to be able to explore new ideas and trends.

5) With the development of the Energy Plan, all County Departments will have a roadmap and a forum to continue to ensure energy management is a consideration in all operations and facility based decisions.

The integration of operational process, facility based infrastructure improvements and staff awareness is critical to move the County towards the goal of reducing GHG emissions and transition to a carbon neutral future.

Organizational Understanding

The County is often challenged to address the need to provide increased services while working within a constrained operating and capital expenditure budget. The financial challenges facing municipal governments today warrants the need to increase efforts throughout the organization to reduce energy use and thereby the cost. Conservation and system optimization are important steps in the management of energy costs. To this end, energy efficient lighting, variable speed drive motors, and building automation systems have been introduced to assist in energy management.

Recognizing that the County of Elgin Energy Conservation and Demand Management Plan is a living document, the Senior Management Team will continue to review and report to Council on the progress of the initiative implementation and associated cost savings, cost containment and cost avoidances that are achieved including the identification of energy savings related thereto.

Staffing Requirements and Duties

Energy efficiency will be incorporated into standard operating procedures and the knowledge requirement for operational jobs.

Consideration of Energy Efficiency for all Projects

The intent is to make energy conservation and demand management part of the County's normal course of business for all facilities and operational retrofits, including capital renewal and life cycle replacement projects. Success means incorporating CDM options at the initial stages of the project design. This ensures that options for improving energy efficiency are considered, evaluated, and quantified in terms of life cycle costing analysis, including cost, maintenance and emission reduction.

Energy Consumption Reporting

The summaries for Energy Consumption reporting for each County owned facility for each program and building specific for the calendar year 2017 is included as Appendix A. As part of the mandatory provincial reporting, these reports are posted on the County's website at: elgincounty.ca

Renewable Energy Utilized or Planned

While the County of Elgin does not currently utilize renewable energy systems, staff will continue to investigate the potential to develop renewable energy systems throughout our County owned facilities and operations.

Planning - Energy Leader

The Engineering Services Department is designated as leader of energy planning and has been given overall responsibility for the Energy Conservation & Demand Management Plan. The Engineering Services Department is supported in this role through collective decision making of the Management Team represented by the CAO, Department Directors, with the collection of energy consumption data and facility delegated to the appropriate staff members.

Project Execution - Asset Level:

In order to sustain a corporate culture of conservation, staff must be engaged in an effective awareness and education program. Although Engineering Services Department staff has the lead responsibility in ensuring County facilities operate efficiently, all County staff should be familiar with and utilize energy efficient measures where possible. The first step in implementing an energy management program is the completion of energy audits for municipal facilities. Audits involve a technical review of a facility and its operations, the development and analysis of a baseline energy profile for the facility and identification of energy management opportunities and savings.

Project Execution - Municipal Level:

The administration and implementation of this plan will be responsibility of the Engineering Services Department. Since we all use energy in our daily activities, it will also be the responsibility of all County staff to be aware of their energy use and work towards a culture of conservation. Through staff training and web base energy management tools, staff will be able to see the results of their efforts, and benchmark between corporate facilities and with industry standards

Future Projects

Proposed Energy Conservation Measures for 2019 – 2013 are listed in Appendix B

Past Project

Elgin Manor – Exterior Lighting Upgrades – 2017
Replaced (24) original exterior pole-light heads to LED
Project Cost: $15,750; Incentive Received from Save on Energy: $2,010
Actual Energy Savings(kWh): 22,428.000

Administrative Building – LED Lighting Upgrades – 2017
Replaced (23) T8 Light Troffer Fixtures to LED
Project Cost: $2,684; Incentive Received from Save on Energy: $950
Actual Energy Savings(kWh): 2,878.600
Actual Demand Reduction(kW): 0.630

Administrative Building – LED Lighting Upgrades – 2018
Replaced (10) T8 Light Troffer Fixtures to LED
Project Cost: $1,200; Incentive Received from Save on Energy: $485
Actual Energy Savings(kWh): 921.690
Actual Demand Reduction(kW): 0.310

Energy Plan Review

The Engineering Services Department will review and evaluate the County of Elgin Energy Conservation and Demand management Plan annually, revising and updating as necessary within the corporate budget planning process.

Energy Consumption

The energy consumption progress will be monitored on an annual basis as part of the plan review process to ensure the County is on target to achieve its target of 2% each year in the consumption of fuels and electricity.

Appendix A: Energy Consumption and Greenhouse Gas Emissions Reporting - for 2017

Energy Consumption and Greenhouse Gas Emissions Reporting - for 2017	
Confirm consecutive 12-mth period (mth-yr to mth-yr)	Jan/2017 - Dec/2017
Sector	Municipality
Agency Sub-sector	Municipal
Organization Name	County of Elgin

Operation Name	Operation Type	Address	City	Postal Code	Total Floor Area	Unit	Avg hrs/wk	Annual Flow (ML)	Electricity Quantity	Electricity Unit	Natural Gas Quantity	Natural Gas Unit	GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)	Energy Intensity (ekWh/Mega Litre)	Building / Operation Identifier	Comments
BOBIER VILLA	Long-term care	29491 PIONEER LINE	DUTTON	N0L 1J0	47,900.00	Sq. Ft.	168	0.00000	833,575.00000	kWh	113,028.10000	Cubic Meter	228,113.15797	42.48043	0.00000		
COUNTY OF ELGIN ADMINISTRATION BUILDING	Administrative offices and related facilities, including municipal council chambers	450 SUNSET DRIVE	ST. THOMAS	N5R 5V1	87,000.00	Sq. Ft.	40	0.00000	897,684.00000	kWh	47,511.41000	Cubic Meter	105,354.49239	16.12212	0.00000		
ELGIN MANOR - WASTE WATER TREATMENT PLANT	Facilities related to the treatment of sewage	39232 FINGAL LINE	ST. THOMAS	N5P 3S5	0.00	Sq. Ft.	168	12.49820	16,676.41000	kWh			288.46854	0.00000	1,334.30494		
ELGIN MANOR	Long-term care	39232 FINGAL LINE	ST. THOMAS	N5P 3S5	83,200.00	Sq. Ft.	168	0.00000	1,201,279.00000	kWh	167,945.10000	Cubic Meter	338,301.26472	35.89137	0.00000		
TERRACE LODGE	Long-term care	475 TALBOT ST. E.	AYLMER	N5H 3A5	57,600.00	Sq. Ft.	168	0.00000	1,112,237.00000	kWh	113,211.90000	Cubic Meter	233,280.95049	40.19840	0.00000		

Appendix B: Proposed Energy Conservation Measures for 2019 - 2023

Facility	Measure	Estimated Cost	Estimated Energy Savings (kWh) per yr	Target Date
Administrative Building	Installation of interior LED lighting	$ 50,000	5,857.200	2020
Administrative Building	Elevator(s) Replacement	$ 2,500,000	13,985.600	2020/2021
Administrative Building	Window Replacement	$ 165,000	32.500	2022/2023
Administrative Building	Roof Replacement	$ 250,000	284.600	2020
Administrative Building	Cooling Tower Replacement	$ 100,000	253.000	2020
Administrative Building	Adding T-Stat controls to BAS	$ 15,000	1,526.500	2019
Bobier Villa	Hallway - Installation of interior LED lighting	$ 50,000	5,857.200	2019
Bobier Villa	HVAC Replacement	$ 150,000	1,198.000	2020/2021
Bobier Villa	Flat Roof Replacement	$ 100,000	112.000	2019
Bobier Villa	Spa Renovations - Installation of interior LED lighting	$ 2,000	859.500	2020
Bobier Villa	Adding T-Stat controls to BAS	$ 40,000	1,526.500	2021
Elgin Manor	HVAC Replacement	$ 114,000	1,195.000	2023
Elgin Manor	Garbage Compactor Replacement	$ 25,000	546.900	2019
Elgin Manor	140 deg. Hot Water Storage Tank Re-lining	$ 10,000	560.000	2020
Elgin Manor	Installation of interior LED lighting	$ 50,000	5,241.000	2019
Elgin Manor - WWTP	Pump Replacement	$ 95,000	687.000	2023
Terrace Lodge	Building Re-development	$ 26,000,000	TBD	2023
White Station - County Garage	TBD			
TOTAL		$ 29,716,000	39,722.500	