
ENERGY MANAGEMENT PLAN

JUNE 2014. UPDATED OCTOBER 2017.



 **Oxford County**
growing stronger...together

Energy Management Plan

Reporting update, October 2017

As of October 2017, Oxford County has provided a reporting update to the original Energy Management Plan published in June 2014. The new reporting information below relates to annual energy consumption, energy conservation measures and renewable energy generation. Moving forward, Oxford County plans to issue reporting updates related to the Energy Management Plan on a yearly basis.

Annual energy consumption

The following table summarizes the annual energy consumption submitted by Oxford County to the Ministry of Energy to maintain compliance with O. Reg. 397/11. Each submission varies in energy significantly due to changes in requirements for submissions and the County volunteering additional information.

Year	Electricity (kW·h)	Natural Gas (m ³)	Fuel Oil 1&2 (L)	Propane (L)	Total Energy (ekW·h)	Total Emissions (tonne CO ₂ e)
2011	14,720,211	591,554	0	27,326	21,199,002	2,604
2012	21,382,714	507,382	0	30,876	26,991,931	3,060
2013	18,592,735	527,365	0	37,466	24,460,643	2,468
2014	19,070,532	348,906	0		22,778,505	1,423
2015	29,379,600	1,414,027	4,765	53,466	44,834,284	3,960

Energy conservation measures

The table below summarizes energy conservation measures in recent years. To improve on this table, the County is in the process of creating an enhanced version to properly align with the County's energy & emissions goals.

Project	Project Savings		GHG Emissions Savings (kg CO ₂ e)	Project Costs	Project Incentive	Project Payback (Years)	Project Life (Years)
	Electricity (kW·h)	Natural Gas (m ³)					
Lighting	100,000	-	4,300	\$110,000	\$16,000	6.3	12
BAS Upgrade	100,000	-	4,300	\$58,000	\$10,000	3.2	20
Wastewater Process Improvements	850,000	-	36,550	\$15,000	\$0	0.1	20
Energy Assessments	TBD	TBD	-	\$38,100	\$16,900	-	-
Total	1,050,000	-	45,150	\$221,100	\$42,900		-

Renewable energy

The table below highlights the solar photovoltaic (PV) systems owned by Oxford County. The total installed capacity is at 392 kW with a typical electricity generation of 482,120 kWh. There are three projects that are in the planning stages or under construction with a capacity of 630 kW and the ability to generate over one million kWh.

Site	Solar PV Size (kW)	Project Annual Generation Electricity (kW•h)
Woodstock Patrol Yard 10 kW Solar PV	10	10,800
Southside WTF 10 kW Solar PV	10	12,670
Tunis 10 kW Solar PV	10	11,250
161 Fyfe Ave.	9.5	13,520
816 Alice St.	9.5	13,470
215 Lisgar Ave	9.7	13,440
Oxford County Administration Building	10	11,550
Mill St. EMS	10	10,840
Public Works - Zenda Line	10	12,380
George Johnson 53 kW PV Solar	53	85,200
BCSF 250 kW PV Solar	250	287,000
Woodstock WWTP 10 kW Solar PV	10	11,250
Woodstock WWTP 500 kW Net Meter Solar PV	500	864,000
OCWMF 120 kW Net Meter Solar PV	120	137,500
Total - Existing	392	482,120
Total - Planned or In Progress	630	1,012,750
Total	1,022	1,494,870

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Background

In 2009, Ontario Regulation 397/11, under the Green Energy Act, directed all public agencies in Ontario to prepare an energy conservation and demand management plan. Additionally, mandated annual reporting of energy consumption and greenhouse gas emissions commenced on July 1, 2013. Energy Conservation and Demand Management plan is required by July 1, 2014, and is reviewed and revised every five years thereafter. This plan fulfils the County's monitoring and reporting requirements under the Green Energy Act. The Energy Management Plan should include all energy sources such as natural gas, electricity, fleet fuel and water.

Intent of Plan

- Reduce the County's overall carbon footprint
- Reduce operation costs
- Reduce supply risks by reducing energy use
- Provide accountability to the residents of Oxford County

Relationship to the County Strategic Plan

The Energy Management Plan meets the County's initiative as set out in the following sections of the strategic plan:

3. ii. A County that Thinks Ahead and Wisely Shapes the Future – Implement development policies and community planning guidelines that:

-Actively promote the responsible use of land and natural resources

3. iii. A County that Thinks Ahead and Wisely Shapes the Future - Apply social, financial and environmental sustainability lenses to significant decisions by assessing options in regard to:

-Responsible environmental stewardship

4. ii. A County that Informs and Engages - Better inform the public about County programs, services and activities through planned communication by:

-Implementing a County Report Card that engages and informs our community and celebrates our successes and our history

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Immediate and Current Strategies

Lighting



- Turning off lighting and computer equipment when not in use
- Usage of compact fluorescents and elimination of incandescent lighting
- Upgrading lighting systems to T5, LED and compact fluorescents equipment change-out to most efficient model that meets the application
- Replacing appliances with low Energy Star rating
- Reduce, reuse and recycle waste

Heating/Cooling



- Using occupied and unoccupied set points to provide people comfort yet capitalize on energy savings
- Ensure all hot water tanks are set no higher than 55-60°C (130-140°F)
- HVAC filters are changed regularly to ensure a clean, healthy environment and equipment does not operate under unnecessary load
- Variable speed drive installations in air handling systems
- Installation of high efficiency furnaces

Water Consumption



- Installation of low-flush water closets and shower heads
- Utilization of high efficiency washing machines
- Review and reporting on County operations use of water
- Water Efficiency Program adopted by County Council encompassing measures resulting increasing water efficiency at the municipal level

Alternate Programs



- Fit and Micro-fit solar programs and ongoing plans for solar panel installations
- Business and Industrial Incentive Programs to increase efficiency of buildings and operations with lighting and equipment upgrades
- Federation of Canadian Municipalities-Partner for Climate Control is a network of municipal governments committed to reducing greenhouse gases and acting on climate change

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Fleet/Transportation



- Utilize mass transit for attending conferences and workshops whenever possible
- Evaluate vehicles, including modifications to existing vehicles, to use alternative fuels
- Promote teleconferencing
- Educating community and staff alternate transportation options (walking, cycling)
- Evaluate vehicles on life cycle cost
- Carpooling

Construction



- Minimum roof insulation of R30 insulation where possible
- Minimum wall insulation R20 where possible
- Retrofit garage doors with automatic openers where practical
- Develop for Council approval construction standards for new construction or upgrades

5 Year Goals

The following represent the goals of the Energy Management Plan that, when compared to results achieved, will continue to justify investments in conservation, modifying the plan as required to meet conservation targets.

1. 10% overall County reduction in electricity by 2019
2. 10% reduction in carbon emissions by 2019
3. Replace all exterior lighting to LED lighting by 2019
4. Develop a green energy plan for fleet by Q4 2015
5. Domestic Hot Water Demand systems (where applicable) installed by 2019
6. Building conditions and energy audit report for all Municipal owned buildings - 2015
7. Develop construction and renovation standards with energy efficiency as the driver

Approach

1. **Senior Management commitment to and advocacy for energy reduction** and a commitment to make energy management an integral part of the organizational structure and culture.

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2. **Create an Energy Management Team** consisting of a representative from each department, responsible and empowered to take ownership of energy management in their respective areas.
3. **Staff engagement (all business units)** promoting energy savings within their groups, rewards with proven cost saving measures.
4. **Communications business unit** that can share the plan to staff and public according to best practices for communications.
5. **Facilities** to conduct energy audits, usage of programmable thermostats, building automation systems, and energy efficient equipment installation or replacement for new, renovated and existing County buildings.
6. **Construction** liaises with Facilities regarding living standards for efficient building construction, constructing facilities with sustainable energy as part of the building system.

Assessment/Benchmarking

Assessment is a requirement through measurement and verification in order to clearly understand resources and costs invested to reduce energy producing the expected results. This is accomplished by:

- Developing the assessment and benchmarking in 2014/2015, report to Council in 2015
- Benchmarking and compare with similar buildings
- Metering and monitoring consumption
- Reviewing baseline and assess potential for further savings
- Identification of major/high energy use equipment and ways to replace with more efficient, energy saving equipment
- Identify and prioritize systems for evaluation
- Reviewing and adjusting operating procedures
- Evaluating past projects and best practices
- Hire energy professional engineers to evaluate the actual performance of building systems and seek out the potentials for energy savings

Resources

Resources must be deployed to facilitate the execution of the plan with budgets, status reporting and internal/ public communications to share the successes. The plan should ensure budget, resources and timelines are established to meet the objectives of the plan. Resources to be set out in 2015 and subsequent budget.