



Energy Management Plan

June 21, 2019



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1.0 INTRODUCTION

1.1 Background

Municipal environmental, societal, and fiscal pressures accentuate the need for an Energy Management Plan (EMP).

Environmental

Climate change is one of the most important environmental issues today. Climate change is caused by the increase in concentration of greenhouse gases (GHGs) in the atmosphere. Canada's total greenhouse gas emissions in 2017 were 716 megatonnes (Mt) of carbon dioxide equivalent (CO₂eq). GHGs trap heat in the Earth's atmosphere, just as the glass of a greenhouse keeps warm air inside. Human activity increases the amount of GHGs in the atmosphere, contributing to a warming of the Earth's surface. This is called the enhanced greenhouse effect. Over the past 200 years, humans have released GHGs into the atmosphere primarily from burning fossil fuels. As a result, more heat is being trapped and the temperature of the planet is increasing. Sea levels are rising as Arctic ice melts, and there are changes to the climate, such as more severe storms and heat waves. All of this impacts the environment, the economy and human health.¹

Societal

Electricity blackouts in recent years heightened societal concerns surrounding the stability and security of our energy supply. Energy has been imbedded into most societal practices. If energy consumption is not managed appropriately the frequency of energy interruption and the subsequent societal disruption will increase.

Fiscal

The fossil fuels traditionally used for the generation of energy are becoming no longer financially accessible or environmentally acceptable. The Province of Ontario's long-term energy plan, Delivering Fairness and Choice, released in October 2017, projects rates to be constant to 2020 and then a gradual rise in rates, about 5 percent per year from 2021 to 2027. The Government remains committed to avoiding sharp increases through initiatives outlined in the 2017 plan. The price outlook for industrial enterprises will also rise by inflation in the next five years. The actual price paid by a large industrial electricity consumer is dependent on their

¹ Environment Canada website (<http://www.ec.gc.ca>)

consumption patterns and can vary among industries and specific consumers. The outlook for fuel supply and demand depends on uncertainties such as policy and program decisions over the next 20 years along with technological innovations.²

Ontario Regulation 397/11 directs all public agencies in Ontario to prepare, publicly report, and implement energy conservation and demand management plans that must be updated every 5 years. Annual reporting of energy consumption and greenhouse gas emissions is required by July 1st.

The regulation sets out the foundation for developing a corporate Energy Management Plan.

1.2 Purpose of the Energy Management Plan

The Municipality of Mississippi Mills' EMP is a strategic plan that aims to provide a basis for the Municipality to move forward on implementing improvements to its facilities and operations that reduce energy use, their associated costs as well as the environmental effects of the Municipality's activities.

The plan aims to give the Municipality a leading edge in energy while enhancing its economic vitality. Therefore, it goes beyond the short-term, "least financial cost" objective and considers the Municipality's long-term economic, environmental and social well-being.

Energy management includes electricity, natural gas and water commodity management. The EMP defines actions in the following key areas:

- Energy management information system
- Energy training and awareness
- Facility operations
- Energy conservation in existing facilities
- New construction
- On-site generation and demand response
- Development of culture of energy conservation

² News Ontario Website (<https://news.ontario.ca>)

- Financial considerations

1.3 Key Implemented Actions

1.3.1 Lighting Upgrades

In 2013 and 2014, lighting updates were completed in a number of municipal facilities. In addition, many of the Municipality's Christmas decorations were converted to LED. In 2017 exterior lighting was replaced with LED fixtures at a number of municipal facilities including: The Municipal Office, Almonte and Pakenham Fire Stations, Almonte branch of the Mississippi Mills Library, and the Almonte Daycare. In 2018, streetlights were converted to LED with the exception of decorative fixtures in the Almonte downtown core. Office lights at the Ramsay garage and all lighting at the Pakenham garage were converted to LED in 2018.

1.3.2 Natural Gas Furnaces and Water Heaters

In 2009, the propane heater in the Ramsay Ward Garage was replaced with a natural gas model.

Furnaces were replaced with natural gas high efficiency models at the following facilities in the years indicated:

- in 2010 in the Almonte Community Centre lobby and in the upper hall in the Stewart Community Centre
- in 2011 at the Almonte Ward Garage
- in 2012, two furnaces in the Pakenham Fire Station
- in 2019, a new energy efficient furnace at the old Registry Office

In 2012, the natural gas hot water tank at the Pakenham Garage was replaced with a high efficiency gas model. In 2013, the hot water tank at the Stewart Community Centre, Almonte Fire Station and the electric model in the Ramsay Garage were replaced with high efficiency natural gas models. In 2019 a new energy efficient how water heater was installed at the Almonte Old Town Hall.

1.3.3 Windows, Repointing and Insulation

Between 2006 and 2011, all windows were replaced and all exterior walls were repointed at the Almonte Old Town Hall.

In 2010, insulation was installed on the original portion of the Pakenham Fire Station.

1.3.4 Energy Management Tool

The Municipality of Mississippi Mills has implemented an Energy Management Tool (EMT) provided by the Local Authority Services (LAS), Association of Municipalities of Ontario (AMO). It is currently used to track ongoing energy usage based on utility bills and to assess the data needed to identify opportunities for energy conservation improvements, whether operational or capital.

1.3.5. Roofing, Low E Ceiling, Garage Doors

Between 2005 and 2006, a new steel roof and Low E ceiling were installed in the Stewart Community Centre.

In 2012, the roof was replaced at the Almonte Branch of the Mississippi Mills Public Library.

In 2013, the roof was replaced at the Almonte Lawn Bowling Club.

In 2013, three garage doors were replaced with insulated garage doors on the Almonte Public Works Garage.

In 2018, five garage doors were replaced at the Ramsay garage with insulated garage doors, the office windows and exterior doors were also replaced.

In 2018, the roofing was replaced at the Old Registry Office

1.3.6 Wastewater Treatment Plant

In 2017, the ultraviolet actuators, screw compressor and alum pumps formed part of the optimization plan to reduce energy consumption at the plant

In 2018, the ATAD and SNOR tanks were insulated

2.0 MISSISSIPPI MILLS' COMMITMENT

2.1 Declaration of Commitment

The Municipality of Mississippi Mills will use existing resources and leverage outside agencies where appropriate to reduce our energy consumption and its related environmental impact.

2.2 Vision

We exercise stewardship in our use of finite energy resources to demonstrate leadership, optimize our delivery of services, and enhance the overall quality of life in our community.

2.3 Policy

We will attempt to incorporate energy efficiency into all areas of our activity including our organizational and human resources management procedures, procurement practices, financial management and investment decisions, and facility operations and maintenance.

2.4 Goals

Consistent with the vision of this plan, the Municipality of Mississippi Mills establishes the following triple bottom line goals:

Economy:	1. Manage energy costs.
Society:	2. Support a vibrant, prosperous community.
Environment	3. Reduce greenhouse gas (GHG) emissions.

2.5 Objectives

Implementation of the EMP will achieve the following objectives aligned with the above goals:

1. To create a culture of energy efficiency and sustainability.
2. To promote sustainable use of resources through:
• Energy conservation
• Energy efficiency
• Renewable energy

3. To reduce energy operating costs through implementation of best practices and advanced technologies.
4. To increase the comfort and safety of occupants in Municipal facilities.
5. To increase equipment reliability and reduce maintenance costs.
6. To be seen as a leader in the community for energy conservation in the hopes that it will generate interest in the community to reduce its GHG emissions

2.6 Overall Target

Concerns over sharp increases in energy prices and the negative environmental impact of fossil fuel consumption have raised interest in energy conservation, sustainability, local control and predictable energy rates.

The Municipality of Mississippi Mills’ EMP includes comprehensive actions to manage the Municipality’s energy use.

Using 2018 as a baseline, the Municipality has set a target to reduce energy consumption by up to 2% within this five year EMP:

2.7 Energy Management Team:

We have appointed the following positions to act as departmental energy efficiency team members:

- 1. Chief Administrative Officer (CAO)
- 2. Director of Roads and Public Works
- 3. Recreation Manager
- 4. Community Economic and Cultural Coordinator
- 5. Daycare Director
- 6. Treasurer
- 7. Fire Chief

3.0 MISSISSIPPI MILLS' ORGANIZATIONAL UNDERSTANDING

3.1 Our Municipal Energy Needs:

We need reliable, low-cost, sustainable energy sources delivering energy to the most efficient facilities and energy-consuming technology feasible.

3.2 Stakeholder Needs:

Internal stakeholders (Council, committees of council, CAO, staff) need:

- a) An up-to-date and relevant energy management plan with clear vision, goals, and targets in order to clearly communicate the corporate commitment to energy efficiency;
- b) Timely, regular reports and information to maintain awareness of energy use; and
- c) Training and support to develop the skills and knowledge required to implement energy management practices and measures.

External stakeholders (residents, community organizations, businesses, Province) need:

- a) The municipality to be accountable for energy performance and to minimize the energy component of the costs of municipal services; and,
- b) The municipality to reduce the carbon footprint associated with its corporate energy use.

3.3 Current Municipal Energy Situation

Energy Consumption and Demand:

The total annual energy consumption, cost and greenhouse gas emissions from 2013 versus 2018 are outlined in the chart below:

Facility Name	Address	Facility Total Area (m2)	Fuel Types	Consumption in 2013	Consumption in 2018	Total Annual Energy Cost in 2013	Total Annual Energy Cost in 2018	2013 GHG Emissions (tonnes CO2e/year)	2018 GHG Emissions (tonnes CO2e/year)
Municipal Office	3131 Old Perth Road	755	Natural Gas	3,937 m3	3,540 m3	\$2,224	\$1,960	7.44	6.69
Municipal Office	3131 Old Perth Road	755	Electricity	96,485 kWh	127,018 kWh	\$13,802	\$13,578	9.27	12.19
Almonte Old Town Hall	14 Bridge St.	1,263	Natural Gas	17,972 m3	18,908 m3	\$6,011	\$6,686	33.98	35.74
Almonte Old Town Hal	14 Bridge St.	1,263	Electricity	100,654 kWh	113,885 kWh	\$12,943	\$11,201	9.67	10.93
Almonte Old Town Hal	14 Bridge St.	1,263	Water	148,043 gallons	99,430 gallons	\$2,421	\$2,405	N/A	N/A
Mississippi River Power Corporation	28 Mill St.	301	Natural Gas	5,426 m3	5,666 m3	\$2,439	\$2,397	10.26	10.71
Mississippi River Power Corporation	28 Mill St.	301	Electricity	14,346 kWh	10,707 m3	\$1,938	\$1,652	1.38	1.03
Mississippi River Power Corporation	28 Mill St.	301	Water	35,856 gallons	17,378 gallons	\$1,700	\$1,959	N/A	N/A
Library-Almonte Branch	155 High St.	781	Natural Gas	8,933 m3	12,710 m3	\$3,543	\$4,968	16.89	24.02
Library-Almonte Branch	155 High St.	781	Electricity	54,461 kWh	50,180 kWh	\$5,327	\$5,122	5.23	4.81
Library-Almonte Branch	155 High St.	781	Water	22,877 gallons	28,817 gallons	\$680	\$922	N/A	N/A
Library-Pakenham Branch	128 MacFarlane St.	153	Natural Gas	1,037 m3		\$891		1.96	
Library-Pakenham Branch	128 MacFarlane St.	153	Electricity	10,877 kWh		\$1,653		1.04	
Library-Pakenham Branch	128 MacFarlane St.	279	Natural Gas		2,717 m3		\$1,708		5.14
Library-Pakenham Branch	128 MacFarlane St.	279	Electricity		21,177 kWh		\$3,230		2.04
Mississippi Mills Fire Station 1	478 Almonte St.	1,010	Natural Gas	22,957 m3	23,852 m3	\$7,376	\$7,781	43.4	45.08
Mississippi Mills Fire Station 1	478 Almonte St.	1,010	Electricity	28,084 kWh	38,077 kWh	\$2,854	\$3,969	2.70	3.66

Facility Name	Address	Facility Total Area (m2)	Fuel Types	Consumption in 2013	Consumption in 2018	Total Annual Energy Cost in 2013	Total Annual Energy Cost in 2018	2013 GHG Emissions (tonnes CO2e/year)	2018 GHG Emissions (tonnes CO2e/year)
Mississippi Mills Fire Station 1	478 Almonte St.	1,010	Water	33,876 gallons	26,178 gallons	\$794	\$892	N/A	N/A
Mississippi Mills Fire Station 2	106 Jeanie St.	343	Natural Gas	6,322 m3	6,974 m3	\$3,007	\$3,333	11.95	13.18
Mississippi Mills Fire Station 2	106 Jeanie St.	343	Electricity	8,494 kWh	8,368 kWh	\$1,423	\$1,444	0.81	0.80
Cedar Hill Hall	270 Cedar Hill Side Rd.	160	Electricity	1,168 kWh	3,403 kWh	\$1,119	\$769	0.11	0.33
Ramsay Public Works Garage	3167 Old Perth Road	813	Natural Gas	11,012 m3		\$4,031		20.82	
Ramsay Public Works Garage	3167 Old Perth Road	813	Electricity	26,711 kWh		\$10,915		2.57	
Ramsay Public Works Garage	3167 Old Perth Road	1,393	Natural Gas		28,375 m3		\$9,237		53.63
Ramsay Public Works Garage	3167 Old Perth Road	1,393	Electricity		65,692 kWh		\$22,629		6.31
Pakenham Public Works Garage	175 Five Arches Drive	285	Natural Gas	7,634 m3	6,974 m3	\$3,096	\$3,307	14.43	15.24
Pakenham Public Works Garage	175 Five Arches Drive	285	Electricity	21,674 kWh	22,686 kWh	\$3,123	\$2,718	2.08	2.18
Almonte Public Works Garage	482 Almonte St.	475	Natural Gas	14,227 m3	16,349 m3	\$4,206	\$5,792	26.90	30.90
Almonte Public Works Garage	482 Almonte St.	475	Electricity	17,962 kWh	7,416 kWh	\$2,245	\$1,203	1.72	0.71
Almonte Public Works Garage	482 Almonte St.	475	Water	62,033 gallons	30,576 gallons	\$1,086	\$943	N/A	N/A
Gemmill's Bay Pump Station	248 Almonte St.	27	Electricity	258,000 kWh	260,160kWh	\$31,906	\$37,616	24.78	24.97
Well 5	482 Almonte St.	20	Electricity	41,414 kWh	38,159 kWh	\$4,183	\$4,348	3.98	3.70
Well 6	49 Christian St.	20	Electricity	81,578 kWh	37,218 kWh	\$8,210	\$4,260	7.83	3.57
Well 7 & 8	195 Paterson St.	125	Electricity	210,962 kWh	252,607 kWh	\$26,315	\$29,492	20.26	24.25
Well 3	307 Victoria St.	20	Electricity	38,078 kWh	38,744 kWh	\$3,821	\$4,420	3.66	3.76
Howie Rd. Landfill	1470 Howie Rd.	37	Electricity	9,724 kWh	8,828 kWh	\$1,509	\$1,454	9.34	0.85

Facility Name	Address	Facility Total Area (m2)	Fuel Types	Consumption in 2013	Consumption in 2018	Total Annual Energy Cost in 2013	Total Annual Energy Cost in 2018	2013 GHG Emissions (tonnes CO2e/year)	2018 GHG Emissions (tonnes CO2e/year)
Almonte Daycare Centre	208 State St.	632	Natural Gas	10,220 m3	10,628 m3	\$3,852	\$4,084	19.32	20.09
Almonte Daycare Centre	208 State St.	632	Electricity	43,544 kWh	41,458 kWh	\$4,374	\$4,432	4.18	3.98
Almonte Daycare Centre	208 State St.	632	Water	163,221 gallons	235,374 gallons	\$2,096	\$3,470	N/A	N/A
Wastewater Treatment Plant / Biosolids Building	220 Wolf Grove Road	1603/395	Natural Gas	91,626 ekWh	87,084 ekWh	\$17,615	\$22,428	16.30	15.50
Wastewater Treatment Plant / Biosolids Building	220 Wolf Grove Road	1603/395	Electricity	1,820,089 kWh	1,610,120 kWh	\$210,829	\$248,958	175.08	156.18
Pakenham Arena	112 MacFarlane St.	2,787	Natural Gas	25,811 m3	24,227 m3	\$8,038	\$7,720	48.80	45.79
Pakenham Arena	112 MacFarlane St.	2,787	Electricity	360,952 kWh	321,801 kWh	\$52,681	\$63,222	34.67	30.89
Almonte Arena/Curling Rink	182 Bridge St.	5,037	Natural Gas	67,914 m3	79,396 m3	\$19,670	\$24,084	128.4	150.05
Almonte Arena/Curling Rink	182 Bridge St.	5,037	Electricity	746,957 kWh	667,800 kWh	\$67,525	\$88,767	71.74	64.11
Almonte Arena/Curling Rink	182 Bridge St.	5,037	Water	16,598 gallons		\$1,068	\$11,215	N/A	N/A
Old Registry Office	125 Brougham St.	130	Natural Gas	3,733 m3	2,021 m3	\$1,978	\$1,491	7.06	3.82
Old Registry Office	125 Brougham St.	130	Electricity	2,388 kWh	1,697 kWh	\$431	\$788	0.23	0.16
TOTAL									

Energy Supply:

The types of energy used in the operation of the Municipality of Mississippi Mills' facilities and delivery of services include:

- Electricity – provided by Hydro One and Ottawa River Power Corporation
- Natural Gas – provided by Enbridge Gas

3.4 How Energy is Currently Managed

The management of our energy is a combination of energy data management, energy supply management, and energy use management.

Energy Data Management: Our municipal energy data is managed through the Finance department. The data is received via the LAS Energy Management Tool (EMT), then tracked and/or monitored using the trend analysis reports generated by the EMT.

Energy Supply Management: Our municipal energy is supplied via providers as outlined below:

- Electricity: Mississippi Mills has adopted a hedging strategy by purchasing our electricity through Local Authority Services electricity purchasing program.
- Natural Gas: Mississippi Mills has adopted a hedging strategy by purchasing our natural gas through Local Authority Services bulk gas purchasing program.

Energy Use Management: Day to day management of energy has been primarily the responsibility of facility managers. The tools available to the facility managers to aid in their efforts to reduce energy use include: LAS' Energy Management Tool (EMT) and Energy Planning Tool (EPT).

3.5 Renewable Energy Utilized or Planned

The Municipality of Mississippi Mills aspires to show leadership in the promotion and development of renewable energy systems that are compatible with our asset management and land use planning objectives. As a result, we will investigate the potential to develop solar photovoltaic systems on the rooftops of all corporate facilities with sound, south-facing roofs.

4.0 STRATEGIC PLANNING

4.1 Long-term strategic issues

We will develop and implement energy policies, organize for energy management, develop the required skills and knowledge, manage energy information, communicate with our stakeholders, and invest in energy management measures.

4.2 Links with other municipal plans and management processes:

As an integral component of the management structure, the energy management plan is to be coordinated with the Municipality's budget planning process, preventative maintenance plans, and the overall asset management plan.

4.3 Departmental responsibilities

We will incorporate energy budget accountability into departmental responsibilities.

4.4 Consideration of energy efficiency for all projects

We will incorporate life cycle cost analysis into the design procedures for all capital projects.

4.5 Resources Planning

We will incorporate energy efficiency into standard operating procedures and the knowledge requirement for operational jobs.

4.6 Staff Training and Communication

- **Communication programs:** We will develop a communication strategy that creates and sustains awareness of energy efficiency as a corporate priority among all employees and conveys our commitment and progress to our stakeholders.
- **Energy Awareness Training:** We will develop and deliver training focused on the energy implications of employees' job functions and the day-to-day opportunities for conserving energy found in the workplace and at home.
- **Energy Skills Training:** We will develop and deliver skills training for operators, maintainers and other employees that have "hands-on" involvement with energy consuming systems in order to improve the team's ability to achieve energy efficiency improvements.

- Business Procedures: We will carry out a comprehensive review of all business processes and modify them as necessary in order to incorporate any energy efficiency considerations.

4.7 Development of Energy Projects

- Internal assessments: We will develop a methodology for the internal assessment of energy performance of municipal facilities and their energy loads. In addition, a process will be developed for identifying and cataloguing energy efficiency improvements.
- Staff suggestions: We will implement a dynamic process for submitting and processing staff suggestions for energy efficiency improvements.
- Energy audits: We will establish the criteria for the requirement and frequency of municipal facility energy audits. The energy audits will be carried out based on the developed policy.

4.8 Investment in Energy Projects

- Investment criteria: We will develop and/or clarify as necessary the financial indicators that are applied to investment analysis and prioritization of proposed energy projects, taking due consideration of the priority given to energy efficiency projects versus other investment needs (life cycle versus simple payback).
- Consideration of energy efficiency for all projects: Life cycle cost analysis will be incorporated into the design procedures for all energy projects.
- Budgetary resources for energy projects: Energy projects will be integrated into our capital planning and budget development procedures.
- Capital: Savings and incentives from previous energy efficiency projects will be incorporated into our annual capital planning procedures as a separate envelope.
- Other sources of funds for energy projects: The Energy Management Team will be mandated to investigate, document, and communicate funding sources for energy projects, including government and utility grant incentives.

4.9 Procurement

- Energy purchasing: The Municipality uses Local Authority Services which is a division of the Association of Municipalities of Ontario to negotiate energy purchase contracts that appropriately address our cost considerations, available energy services, energy quality and reliability, and other performance factors.
- Consideration of energy efficiency of acquired equipment: Our purchasing procedures will be modified as required to incorporate energy efficiency into the criteria for selection and evaluation of materials and equipment.
- Standards for new buildings: We will develop criteria for the design and/or acquisition of new buildings that include energy performance factors and that use as appropriate the principles embedded in performance standards such as Leadership in Energy and Environmental Design (LEED) and the Model National Energy Code for Buildings.

5.0 EXECUTION OF ENERGY MANAGEMENT PLAN

Year	Quarter	Department	Location	Type	Objective	Action	Cost/Savings Estimate (if applicable)	Owner	Status
2014	Q2	All	All facilities	Program	Awareness	Add energy awareness to management meetings	N/A	CAO	Ongoing
2014	Q3	Daycare	Almonte Daycare Centre	Project	Energy Efficiency	Replace lighting	\$6,500.00	Daycare Director	Converted fixtures to LED
2014	Q3	Finance	All facilities	Process	Awareness	Energy reports to be distributed to building managers on a monthly basis	N/A	Treasurer	Ongoing
2014	Q3	Finance	All facilities	Process	Procurement	Incorporate life-cycle costing into procurement process	N/A	Treasurer	Ongoing
2014	Q3	Culture	Almonte Old Town Hall	Project	Energy Efficiency	New LED lights	\$4,000.00	Community Economic And Cultural Coordinator	70% complete to be completed 100% by 2023
2014	Q3	Culture	Almonte Old Town Hall	Project	Energy Efficiency	New high efficiency fridge in auditorium	\$800.00	Community Economic And Cultural Coordinator	Completed
2014	Q4	General	All	Program	Awareness	Make use of visual displays to demonstrate the implications of current behaviors	\$1,000.00	Energy Management Team	Ongoing

Year	Quarter	Department	Location	Type	Objective	Action	Cost/Savings Estimate (if applicable)	Owner	Status
2014	Q4	Library	Pakenham	Project	Energy Efficiency	Replace exterior incandescent lamps with LED's	\$500.00	Chief Librarian	Completed
2014	Q4	Recreation	Almonte Community Centre	Project	Energy Efficiency	Replace fridges in canteen, curling and office areas	\$3,000.00 / \$500.00 year year savings	Recreation Manager	Completed
2015	Q2	Daycare	Almonte Daycare Centre	Project	Energy Efficiency	Replace water heater	\$2,000.00	Daycare Director	To be completed 2020/2021
2015	Q2	Recreation	Almonte Community Centre	Project	Energy Efficiency	Replace furnace in upper hall	\$18,000.00	Recreation Manager	Completed
2015	Q3	Fire Department	Almonte Fire Station	Project	Energy Efficiency	Add insulation in office area	\$2,500.00	Fire Chief	To be completed in 2020
2015	Q3	Library	Almonte & Pakenham Branches	Project	Energy Efficiency	Purchase programmable thermostats for furnaces	\$600.00	Chief Librarian	Completed
2015	Q3	Public Works	Almonte Garage	Project	Energy Efficiency	Replace windows	\$16,000.00	Director of Roads and Public Works	Completed by ORPC
2015	Q3	Public Works	Pakenham Garage	Project	Energy Efficiency	Replace lighting	\$7,000.00	Director of Roads and Public Works	Completed

Year	Quarter	Department	Location	Type	Objective	Action	Cost/Savings Estimate (if applicable)	Owner	Status
2015	Q3	Public Works	Ramsay Garage	Project	Energy Efficiency	Replace exterior lights with LEDs	\$4,000.00	Director of Roads and Public Works	Completed
2015	Q3	Public Works	Howie Rd Landfill Site Scale House	Project	Energy Efficiency	Replace lights	\$500.00	Director of Roads and Public Works	To be completed in 2019
2015	Q3	Recreation	Almonte Community Centre	Project	Energy Efficiency	Replace roof at ACC	\$60,000.00	Recreation Manager	Completed
2015	Q3	Recreation	Almonte Community Centre	Project	Energy Efficiency	Replace the condenser unit with high efficiency model	\$70,000.00 / \$5,000.00 per year savings	Recreation Manager	Completed
2015	Q3	Recreation	Stewart Community Centre	Project	Energy Efficiency	Replace exterior windows in upper hall	\$7,000.00	Recreation Manager	Completed
2016	Q3	Daycare	Almonte Daycare Centre	Project	Energy Efficiency	Replace 2 furnaces with high efficiency gas furnace on 1 st floor	\$10,000.00	Daycare Director	To be completed in 2021
2016	Q3	Daycare	Almonte Daycare Centre	Project	Energy Efficiency	Replace roof and flashing	\$80,000.00	Daycare Director	To be reviewed in 2021
2016	Q3	Daycare	Almonte Daycare Centre	Project	Energy Efficiency	Replace Toddler room window	\$2,000.00	Daycare Director	Completed

Year	Quarter	Department	Location	Type	Objective	Action	Cost/Savings Estimate (if applicable)	Owner	Status
2016	Q3	Daycare	Almonte Daycare Centre	Project	Energy Efficiency	Replace exit signs	\$7,000.00	Daycare Director	To be completed in 2019
2016	Q3	Public Works	Pakenham Garage	Project	Energy Efficiency	Replace main doors	\$2,500.00	Director of Roads and Public Works	Completed
2016	Q3	Public Works	Ramsay Garage	Project	Energy Efficiency	Replace exterior windows and main doors	\$19,600.00	Director of Roads and Public Works	Completed
2016	Q3	Recreation	Almonte Community Centre and Stewart Community Centre	Project	Energy Efficiency	Replace stoves in upper halls	\$1,000.00	Recreation Manager	Completed
2016	Q3	Recreation	Almonte Community Centre	Project	Energy Efficiency	Improve ice plant control system and condenser unit	\$95,000.00 / \$11,500.00 per year savings	Recreation Manager	To be reviewed in 2024
2016	Q4	Library	Pakenham Branch	Project	Energy Efficiency	Windows	\$3,000.00	Chief Librarian	Completed
2017	Q3	Daycare	Almonte Daycare Centre	Project	Energy Efficiency	Replace fire suppression system for kitchen exhaust hood; replace exhaust fan	\$32,000.00	Daycare Director	To be completed in 2020/2021
2017	Q2	Library	Almonte Branch	Project	Energy Efficiency	Diffusers	\$5,000.00	Chief Librarian	To be completed in 2019

Year	Quarter	Department	Location	Type	Objective	Action	Cost/Savings Estimate (if applicable)	Owner	Status
2017	Q3	Recreation	Stewart Community Centre	Project	Energy Efficiency	Improve ice plant control system	\$98,000.00 / \$10,000.00 per year savings	Recreation Manager	To be reviewed in 2024
2017	Q3	Recreation	Almonte Community Centre	Project	Energy Efficiency	Replace bar fridges in upper hall	\$5,000.00	Recreation Manager	Complete
2018	Q2	Library	Almonte Branch	Project	Energy Efficiency	Replace External Condensing Unit	\$15,000.00	Chief Librarian	Repaired in 2018
2018	Q2	Library	Almonte Branch	Project	Energy Efficiency	Redirect exhaust to HRV (heat recovery ventilation)	\$5,000.00	Chief Librarian	Replaced HRV in 2018
2018	Q3	Daycare	Almonte Daycare Centre	Project	Energy Efficiency	Replace main electrical and distribution panels on first floor	\$15,000.00	Daycare Director	To be completed in 2022
2018	Q3	Daycare	Almonte Daycare Centre	Project	Energy Efficiency	Replace 2nd floor furnace with high efficiency gas	\$30,000.00	Daycare Director	Completed
2018	Q3	Daycare	Almonte Daycare Centre	Project	Energy Efficiency	Replace industrial fridge	\$4,000.00	Daycare Director	To be completed in 2022
2018	Q3	Library	Pakenham Branch	Project	Energy Efficiency	Replace furnace and air conditioning unit	\$6,000.00	Chief Librarian	Completed

Year	Quarter	Department	Location	Type	Objective	Action	Cost/Savings Estimate (if applicable)	Owner	Status
2018	Q3	Library	Almonte Branch	Project	Energy Efficiency	Replace 2 "large" furnaces	\$35,000.00	Chief Librarian	To be completed in 2021
2018	Q3	Library	Almonte Branch	Project	Energy Efficiency	Replace hot water heater	\$2,000.00	Chief Librarian	To be completed in 2021
2018	Q3	Library	Pakenham Branch	Project	Energy Efficiency	Replace hot water heater	\$6,000.00	Chief Librarian	Completed
2018	Q3	Recreation	Almonte Community Centre & Curling Club	Project	Energy Efficiency	Replace ice surface bulbs with LED	\$80,000.00 / \$6,400.00 per year savings	Recreation Manager	To be completed in 2020/2021
2018	Q3	Recreation	Almonte Community Centre	Project	Energy Efficiency	Replace transformers with high efficiency transformers	\$17,000.00 / \$2,500.00 per year savings	Recreation Manager	To be reviewed in 2024
2019	Q3	Public Works	Pakenham Garage	Project	Energy Efficiency	Replace garage and office heaters with high efficiency	\$40,000.00	Director of Roads and Public Works	To be completed in 2019
2019	Q3	Recreation	Stewart Community Centre	Project	Energy Efficiency	Replace ice surface lights	\$45,000.00 / \$3,500.00 per year savings	Recreation Manager	To be completed in 2020/2021

6. EVALUATION OF ENERGY MANAGEMENT PLAN

The results of our energy management plan will be evaluated by monitoring our progress towards our targeted performance, and by reporting the findings to our various stakeholders. In addition, our evaluation will include a review and update of the energy management plan as necessary. The evaluation process is ongoing and provides the critical feedback that leads to continuous improvement.

Monitoring Progress

Measurement and verification of energy projects: Standard methods for savings verification will be adopted and a measurement and verification (M&V) plan will be incorporated into all energy projects.

Review & Reporting

Reporting for the *Green Energy Act* (GEA): Reporting requirements for the Green Energy Act and other pertinent provincial legislation will be factored into our reporting procedures.

Reports to accountable staff: The energy management team will be provided with timely and regular energy consumption reports.

We will review and evaluate our energy management plan, revising and updating it as necessary, on an annual basis within our corporate planning process.