



# Energy Conservation & Demand Management Plan (2015-2019)

**DATE:**

December 15<sup>th</sup>, 2014

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## OUR COMMITMENT TO ENERGY CONSERVATION

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### Message from the Mayor

The Town of Hawkesbury is committed to acting responsibly, maximizing the use of tax dollars and being transparent with its ratepayers. In order to fulfill this obligation, and in light of rising energy costs and recent regulatory requirements, the Town has developed a 5-year corporate Energy Conservation & Demand Management Plan. Managing our energy use makes good economic sense. It ensures that the Town makes prudent use of funds, while fulfilling our commitment to protect the environment for future generations. This 5-year Corporate Energy Conservation & Demand Management Plan lays out our vision and our continuing commitment to energy conservation. Our vision is simple:

The Town of Hawkesbury will approach energy management proactively. We will pursue energy solutions that will lead to environmental, societal, and economic benefits. We intend to honour the Town's commitment to environmental, social and fiscal leadership by taking action to reduce energy consumption and greenhouse gas emissions within our operations. I fully endorse the contents of this Plan and support its implementation.

Sincerely,

A handwritten signature in black ink that reads "Jeanne Charlebois". The signature is written in a cursive style with a large initial 'J'.

Jeanne Charlebois

Mayor of Hawkesbury

## SECTION 1 – OVERVIEW

### Introduction

Under Ontario Regulation 397/11 of the Green Energy Act, the Town of Hawkesbury (the Town) is required to develop and publish an Energy Conservation and Demand Management Plan (Plan). This Plan has been structured to comply with each of the requirements specified in the regulation.

Senior management of the Town approved this Plan in December 2014. It is anticipated that this Plan will be adopted by council in late 2014.

The Town intends to revisit and update this Plan every five years, as required under the regulation. The Town's Energy Officer, Guillaume Boudrias has overall responsibility for the maintenance and implementation of this plan.

### Plan Development

The Town assembled a committee to steer the development of this Plan with support and direction from Posterity Group, an energy management consultancy. Town committee members include:

- Guillaume Boudrias, Capital Project Coordinator
- Ken Wetzel, Director of Technical Services
- Marc Charlebois, Town Electrician
- Gerry Dicaire, Municipal Building Superintendent
- Richard Guertin, Waterworks Superintendent

This Plan was created in three steps, by:

- 1) Assessing the Town's current state of energy management,
- 2) Establishing its energy management vision & objectives, and
- 3) Defining specific and measurable actions for improvement.

Accordingly, this Plan identifies the Town's current energy management practices, its goals and objectives for improvement, specific actionable steps to achieve these goals, and a commitment to continually assess progress, revisit the contents of this plan and make revisions as required.

### Plan Scope

For the purposes of this Plan, energy management has been defined as the continuous process of managing behavioural, organizational and technical change in support of improved energy performance. This Plan will serve as a guide to empower all Town personnel to improve energy management practices.

Exhibit 1, overleaf, provides an overview of the Town infrastructure considered to be within the boundaries of this Plan. Its infrastructure is divided into three main energy account centres: Reportable Facilities<sup>1</sup>, Water & Sewage, and Street Lighting.

### Plan Structure

Details are presented under the following sections:

- Section 2 – Ontario's Energy Picture
- Section 3 – Current State of Energy Management
- Section 4 – Our Successes
- Section 5 – Baseline Energy Use
- Section 6 – Energy Management Policy
- Section 7 – Actions
- Section 8 – Plan for Continuous Improvement

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<sup>1</sup> Facilities for which energy use must be reported to the Ministry of Energy annually under O. Reg. 397/11.

**EXHIBIT 1 – TOWN FACILITIES AND INFRASTRUCTURE WITHIN THE SCOPE OF THIS PLAN**

Name	Address	Use	Floor Area (ft <sup>2</sup> )
<b>Facilities</b>			
City Hall	600 Higginson Street Hawkesbury	Administrative office	8,445
Municipal Garage	855 Main Street East Hawkesbury	Storage facility	9,955
Robert Hartley Sports Complex	425 Cartier Boulevard Hawkesbury	Indoor recreational facility	67,371
Hawkesbury Public Library & Daycare	550 Higginson Street Hawkesbury	Public library	10,710
Maison de l'île Cultural Centre	2 John Street Hawkesbury	Cultural facility	2,410
Club âge d'or+100% Actif Social Clubs	421 Cartier Boulevard Hawkesbury	Cultural facility	7,052
Hawkesbury Fire Station	780 Spence Avenue Hawkesbury	Fire station	11,952
OPP Police Station	419 Cartier Boulevard Hawkesbury	Police station	13,908
Confederation Park	1 John Street Hawkesbury	Cultural facility	832
Old Mills Park	527 James Street Hawkesbury	Cultural facility	832
Place des Pionniers	351 Main Street East Hawkesbury	Cultural facility	832
<b>Water and Sewage</b>			
Water Purification & Distribution Plant	670 Main Street West Hawkesbury	Water treatment	16,911
Water Source Pumping Station	601 Main Street West Hawkesbury	Water pumping	9,965
Sewer Treatment Plant	815 Main Street East Hawkesbury	Sewage treatment	5,998
Giroux Sewage Pumping Station	McGill Street Hawkesbury	Sewage pumping	200
Chartrand-Mario Sewage Pumping Station	560 Mario Street Hawkesbury	Sewage pumping	220
James Sewage Pumping Station	790 James Street Hawkesbury	Sewage pumping	410
<b>Street Lighting</b>			
Street Lights	Various	Other	N/A

## SECTION 2 – ONTARIO’S ENERGY PICTURE

### Energy Supply and Pricing Forecasts for Ontario

In 2013, Ontario had a total electricity supply mix of 162.9 terawatt-hours (TWh), including avoided energy use as a result of conservation. Looking forward, supply requirements are expected to increase by approximately 20% over the next two decades.

Acknowledging that energy efficiency is the most cost-effective source of new energy supply, Ontario’s 2013 Long-Term Energy Plan places a strong emphasis on conservation and demand management to avoid adding new generation to the grid. For example:

- In 2013, conservation represented 5%, or 8.6 TWh, of Ontario’s total electricity supply;
- Over the next 20 years, the Province expects to offset almost all growth in electricity demand through energy efficiency programs and improved codes and standards. This represents a conservation forecast of 30 TWh, or 16% of Ontario’s total electricity supply mix by 2032.

Ontario municipalities are expected to contribute to this conservation target by developing energy management plans and taking action to improve their energy performance. Electricity costs are expected to increase over 20%, or roughly 4% per year, over the next five years. This further supports the need for Ontario municipalities to carefully manage their electricity use.

Natural gas prices have also begun to rise after a period of historically low rates. As a result of significant increases in spot market prices through the

winter of 2013/2014, Enbridge’s 40% rate increase was approved by the Ontario Energy Board in April 2014. Although this rate may be subject to change, any upward trend in gas costs will impact municipalities’ bottom lines.

### Green Energy Act and Regulation 397/11

Ontario Regulation 397/11 of the Green Energy Act was developed to help public agencies, including municipalities, understand and better manage their energy consumption. Under the regulation, the Town is required to develop and publish a five-year corporate energy conservation and demand management plan and update this plan every five years.

Energy conservation and demand management plans are required to include:

- A summary of the Town’s energy consumption and emissions,
- A description of previous and current energy conservation measures,
- A description of renewable energy measures,
- Details on the goals, objectives and proposed measures that have been developed,
- A forecast of expected results for current and proposed measures, and
- A commitment from the Town’s senior management.

This Plan has been structured to comply with each of the requirements specified in the regulation.

## SECTION 3 – CURRENT STATE OF ENERGY MANAGEMENT

### Energy Management Primer

Energy management is the continuous process of managing change in the Town’s behavioral, organizational, and technical practices.

The Town’s current state of energy management has been assessed across eight equally weighted categories: Commitment, Planning, Organization, Projects, Financing, Tracking, Communication, and Training. Exhibit 2 defines these 8 practice categories.

Energy management practices are improved by following the Plan-Do-Check-Act principles of ISO 50001, an international energy management standard.

**Plan.** This Plan documents the Town’s energy management objectives and the actions that have been defined to improve its energy performance.

**Do.** The Town intends to use this Plan as a roadmap to undertake actions and achieve its desired objectives.

**Check.** Performance indicators linked to each action will allow the Town to readily measure whether change is successful.

**Act.** The Town is committed to continually assessing progress towards this Plan, revisiting its contents and making revisions every five years.

**EXHIBIT 2 – CORE ENERGY MANAGEMENT PRACTICE CATEGORIES**

<p style="text-align: center;"><b><u>COMMITMENT</u></b></p> <p style="text-align: center;">An energy policy endorsed by Council, and with clear targets, catalyzes change from the top down.</p>	<p style="text-align: center;"><b><u>PLANNING</u></b></p> <p style="text-align: center;">An energy management plan provides a roadmap to achieve targets.</p>	<p style="text-align: center;"><b><u>ORGANIZATION</u></b></p> <p style="text-align: center;">Energy management is most effective when it’s an integral part of all Town operations.</p>
<p style="text-align: center;"><b><u>PROJECTS</u></b></p> <p style="text-align: center;">Routine assessment of technical, behavioural, and operational projects reduces missed opportunities.</p>		<p style="text-align: center;"><b><u>FINANCING</u></b></p> <p style="text-align: center;">A commitment to fund opportunities that meet established investment criteria facilitates project development.</p>
<p style="text-align: center;"><b><u>TRACKING</u></b></p> <p style="text-align: center;">You can’t manage what you don’t measure. Energy performance can be managed by monitoring and benchmarking.</p>	<p style="text-align: center;"><b><u>COMMUNICATION</u></b></p> <p style="text-align: center;">Showcasing the value and performance of energy management increases support and buy-in.</p>	<p style="text-align: center;"><b><u>TRAINING</u></b></p> <p style="text-align: center;">Awareness and capacity development enable operational and behavioural change.</p>

### Assessment of Current Practice

Each of the eight energy management practice categories can be divided into practice levels: One is the lowest score and means there are plenty of room for improvement, while a score of five means that the Town’s operations are aligned with best practices.

Progressing upward across all eight categories will ensure that the Town optimizes the way it manages energy.

Based on a self-assessment, the Town’s current energy management performance across the eight categories is shown highlighted in Exhibit 3. Additional notes are provided for each practice category.

**EXHIBIT 3 – THE TOWN’S CURRENT STATE OF ENERGY MANAGEMENT PRACTICES**

C O M M I T M E N T	1	2	3	4	5
		No policies	An undocumented set of guidelines or policies	Un-adopted energy policy set by municipal staff	A formal energy policy exists but lacks active commitment from council
	<b>Description of Current Practice: 4</b> – The development of this plan represents a formal energy policy, which has been presented to and endorsed by town council.				
P L A N N I N G	1	2	3	4	5
	No energy management plan	One person delegated to develop an energy management plan	Only technical municipal staff are involved in developing an energy management plan	All municipal departments are represented on the planning team with some support from council	An energy management plan covers all major practice categories, defines how targets will be achieved, and is implemented by all applicable municipal departments and staff
	<b>Description of Current Practice: 4</b> – All major departments, including the electrician, building superintendent, director of technical services, and the capital projects coordinator had significant input into this plan, which was then endorsed by town council.				
O R G A N I Z A T I O N	1	2	3	4	5
	No one is accountable for energy management	Energy management is the part time responsibility of a municipal staff member with limited authority	Energy management is the part time responsibility of a municipal staff member with authority	Energy is managed via an energy committee which works directly with municipal departments and staff	Energy management is fully integrated into council’s agenda with clear delegation of responsibility to the energy committee, and subsequently to municipal departments and staff
	<b>Description of Current Practice: 2</b> – As part of this plan, Guillaume Boudrias has been named as the Energy Officer.				



	1	2	3	4	5
P R O J E C T S	No mechanism to identify or develop energy efficiency opportunities	Informal assessments with ad hoc resources to identify energy efficiency opportunities	Development of energy efficiency opportunities on an infrequent basis with selected implementation	Infrequent but formalized energy efficiency opportunity identification, basic business cases and implementation	Ongoing identification of projects (retrofit, renewable energy, behavioural, operational, and maintenance), development of business cases, and implementation
	<b>Description of Current Practice: 4</b> – The Town of Hawkesbury has completed infrequent but formalized energy efficiency project identification.				

	1	2	3	4	5
F I N A N C I N G	No investment in energy efficiency	Only low cost measures considered for financing	Investment using short term or simple payback criteria only, no consideration for life cycle costing	Investment using life cycle costing and/or internal rate of return	Clearly defined commitment (policy) to implementation and financing mechanism(s) for energy efficiency projects
	<b>Description of Current Practice: 4</b> – Town of Hawkesbury has previously invested using short term funding, simple payback and an assortment of incentives. Where possible, life cycle costing is considered.				

	1	2	3	4	5
T R A C K I N G	No energy data being tracked or benchmarked	Cost reporting based on utility invoice data, no benchmarking	Facility level performance is monitored against baseline using utility data with ad hoc use of findings, no benchmarking	Facility level performance is monitored against baseline and benchmarked using key performance indicators, results from major projects are measured	Energy accounting system sets targets, forecasts use, monitors use against baseline and forecast, and identifies faults. Savings are tracked at a project and system level using sub-meters. Performance is benchmarked.
	<b>Description of Current Practice: 2</b> – The Town has been tracking cost using utility invoices. Performance benchmarking is not part of the Town’s activities, although some basic benchmarking has been included as part of this plan.				

	1	2	3	4	5
C O M M U N I C A T I O N	No promotion of energy efficiency	Informal methods employed to promote energy efficiency	Energy efficiency related activities are reported or marketed occasionally within the municipality.	The value of energy efficiency and the performance of energy management is reported and marketed routinely within the municipality.	The value of energy efficiency and the performance of energy management is reported and marketed both within the municipality and externally to residents and stakeholders
	<b>Description of Current Practice: 2</b> – Town council is informed of municipal facility improvements, up to and including energy efficiency projects.				

	1	2	3	4	5
<b>T R A I N I N G</b>	No energy management or operational training	One municipal staff member has received training in energy management practices	Technical municipal staff have received training in energy efficiency management practices	Energy committee members, and technical municipal staff have received training in energy management practices	Council has received training in energy management practices, and energy committee members, and technical municipal staff receive ongoing training.
	<b>Description of Current Practice: 1</b> – Municipal staff have not taken part in any training related to energy management.				

## SECTION 4 – OUR SUCCESSES

### Energy Conservation Measures

The Town has undertaken a number of energy conservation projects in the past 5 years, largely concentrating on a town-wide lighting retrofit in 2012. In addition to the lighting, several projects were completed at the larger users, primarily the Robert Hartley Sports Complex.

### Renewable Energy Measures

The Town does not currently generate any renewable energy.

**EXHIBIT 4 – PREVIOUS & CURRENT ENERGY CONSERVATION MEASURES**

Building	Project	Implementation Date	Brief Description
<b>Portfolio-Wide</b>			
All Sites	T8 Retrofit	2012	A town-wide project involved replacing all T12 lighting with new, efficient T8 alternatives.
<b>Facilities</b>			
Robert Hartley Sports Complex	Lighting Retrofit	2008	Light fixtures were changed from 400W high pressure sodium to 250W metal halide fixtures.
Robert Hartley Sports Complex	Heat Pump Replacement	2012	The heat pump used to control pool humidification was replaced and now uses waste heat to supplement pool heating.
Robert Hartley Sports Complex	Shower Controls	2009	All showers were converted to use push button controls, reducing unnecessary runtime.
Hawkesbury Fire Station	T5 Retrofit	2012	All high bay lighting was converted to T5 high output fluorescent fixtures.
City Hall	Cooling Retrofit	2011	Window box-type air conditioners are being replaced by ductless mini split air conditioning systems.
City Hall	DHW Tank Right-Sizing	Ongoing	Larger domestic hot water tank heaters are being replaced with smaller tanks designed to serve individual washrooms.
Sewer Treatment Plant	New Plant Construction	2013-14	New plant was constructed using new energy efficient features, including variable speed drive pumps.

## SECTION 5 – BASELINE ENERGY USE

The Town has developed an energy baseline to provide a quantitative reference case for comparing its future energy performance.

Energy consumption data for 2012 were collected from utility bills for each of the Town’s accounts. For the purposes of this plan, accounts have been divided into three categories: “Facilities”, which include all buildings for which energy consumption data must be reported to the Ontario Ministry of Energy, “Water and Sewage”, including the filtration plant, lagoon and pumping station, also reported to the Ontario Ministry of Energy, and “Street Lighting”, which represents a large portion of the Town’s energy use, but whose energy

consumption data is not reported to the Ontario Ministry of Energy.

The resulting data set is representative of the Town’s current level of energy performance; however, it has not been corrected for yearly weather variations.

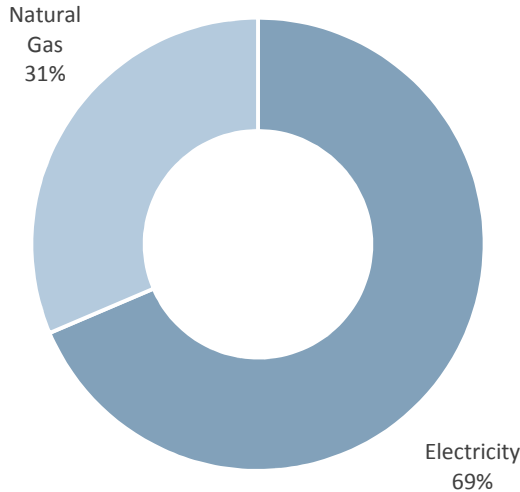
Exhibit 5 presents the Town’s baseline energy consumption for its portfolio by fuel type and in aggregate, expressed in equivalent kilowatt hours (ekWh). In 2012 the Town total energy use was **11,798,366 ekWh**. This represents an energy expense of **\$1,357,300** and **1325 tonnes of greenhouse gas (GHG) emissions** per year.

**EXHIBIT 5 – TOWN ENERGY BASELINE (2012)**

Account	Electricity (kWh)	Natural Gas (m <sup>3</sup> )	Energy Consumption [ekWh]	Energy Cost [\$]
<b>Facilities</b>				
Robert Hartley Sports Complex	2,301,600	185,800	4,222,772	\$419,560
Hawkesbury Public Library & Daycare	237,750	33,311	582,186	\$48,987
Hawkesbury Fire Station	145,767	18,848	340,655	\$29,404
City Hall	152,000	9,035	245,422	\$26,414
OPP Police Station	137,323	5,076	189,809	\$22,629
Municipal Garage	80,424	11,930	203,780	\$16,836
Club âge d'or+100% Actif Social Clubs	94,055		94,055	\$14,108
Maison de l'île Cultural Centre	74,173		74,173	\$11,126
Confederation Park	24,354		24,354	\$3,653
Place des Pionniers	20,054		20,054	\$3,008
Old Mills Park	18,086		18,086	\$2,713
<b>Water and Sewage</b>				
Sewer Treatment Plant	2,668,000	43,713	3,119,992	\$417,685
Water Purification & Distribution Plant	1,088,519	50,632	1,612,054	\$183,531
Water Source Pumping Station	170,738		170,738	\$25,611
James Sewage Pumping Station	21,748		21,748	\$3,262
Chartrand-Mario Sewage Pumping Station	1,574		1,574	\$236
Giroux Sewage Pumping Station	594		594	\$89
<b>Street Lighting</b>				
Street Lighting	856,320		856,320	\$128,448
<b>Total by Fuel Source (ekWh)</b>	<b>8,093,079</b>	<b>3,705,287</b>	<b>11,798,366</b>	<b>\$1,357,300</b>

Exhibit 6 shows the breakdown of the Town’s total baseline energy consumption by energy source.

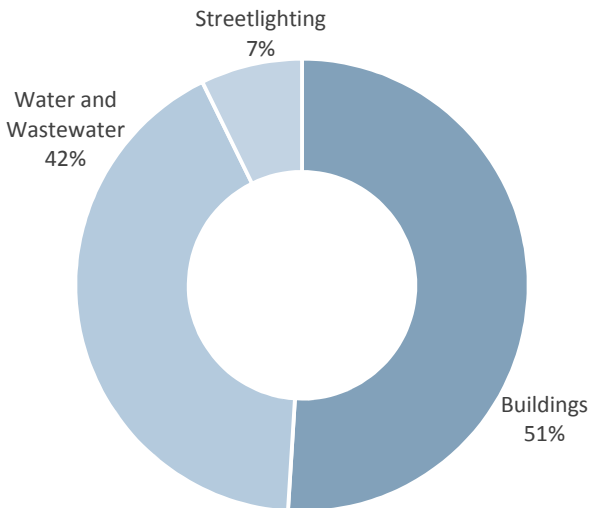
**EXHIBIT 6 – ENERGY USE BY SOURCE**



As shown, electricity consumes the majority of Town energy. As a general rule, natural gas is used for space heating needs where available.

Exhibit 7 shows the breakdown of the Town’s total baseline energy by account centre.

**EXHIBIT 7 – ENERGY USE BY ACCOUNT CENTRE**



Buildings account for 51% of Town energy use, while water and wastewater and street lighting accounts for approximately 42% and 7% respectively.

Large accounts are described in detail in Exhibit 8.

**EXHIBIT 8 – LARGE ENERGY-USING ACCOUNTS**

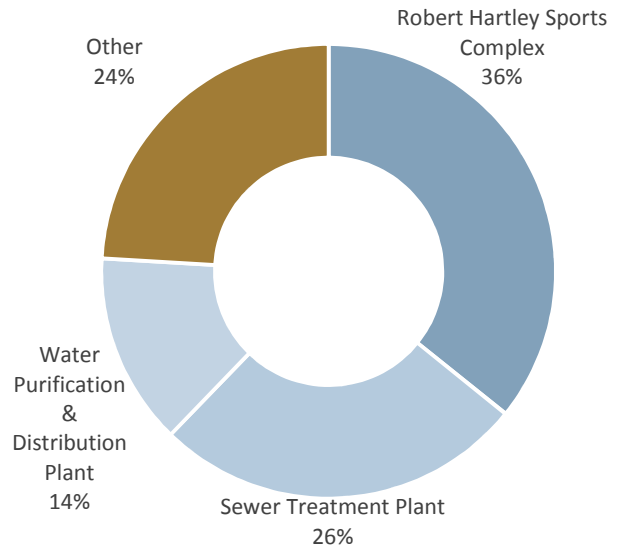


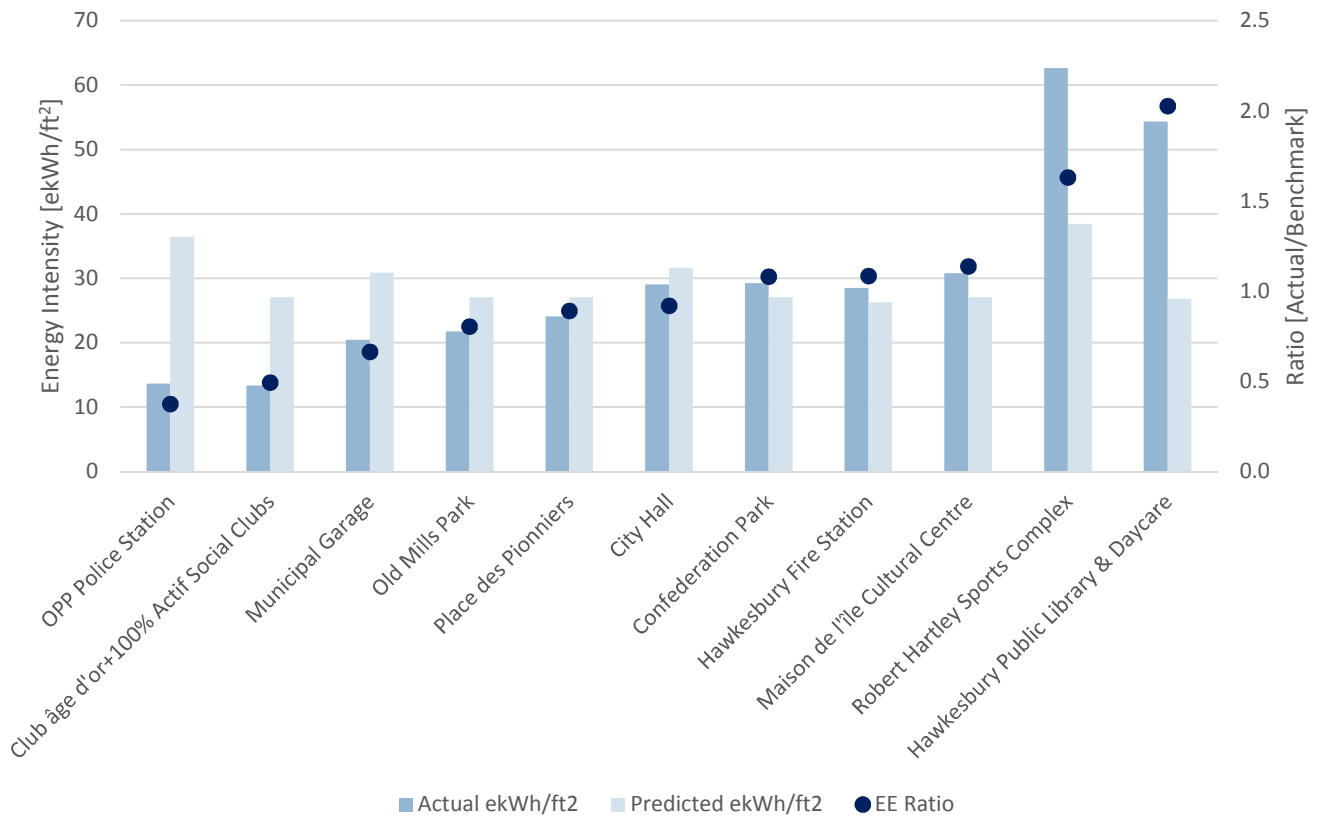
Exhibit 8 highlights four accounts which represent the majority (76%) of the Town’s annual energy consumption:

- The Robert Hartley Sports Complex uses 36% of all Town energy. Due to the high use and capital renewal opportunities, this is likely the best target for energy efficiency projects.
- The sewer treatment plant is the next largest user at 26%, although this plant has since been replaced.

### Facility Benchmarks

To put Exhibit 5 through Exhibit 8 into perspective, it is helpful to compare facility energy use to average benchmarks in Ontario’s municipal sector. Exhibit 9 presents the energy intensities of the Town’s facilities in ordered from best (left) to worst (right) compared to average Ontario municipal benchmarks for 2011. Energy intensity is measured in equivalent kilowatt-hours per square foot (ekWh/ft<sup>2</sup>). Benchmarking data are available for selected facility types only, and are drawn from the 2011 submissions to the Ontario Ministry of Energy, which was subsequently adjusted for 2011 weather.

**EXHIBIT 9 – FACILITY ENERGY BENCHMARKS**



It should be noted that the benchmarked Town facilities perform reasonably well as a whole against other municipal districts, with nine facilities consuming less than or equal energy than the comparable benchmark for their facility type, and two consuming

more energy than their peers across the province. However, as is shown in the actions section, there are many energy efficiency projects which can further reduce the Town’s energy consumption.

## SECTION 6 – ENERGY MANAGEMENT POLICY

Whereas sections 3 through 5 present information on the Town’s current state of energy management, this section outlines the Town’s goals for improving its energy management practices in the form of a policy.

### The Town of Hawkesbury’s Energy Management Policy

The Town of Hawkesbury’s Energy Management Policy outlines the Town’s commitment to energy management, its vision statement, strategic objectives, and short- and long-term targets.

**Commitment** To ensure that our energy management vision is realized, town council and senior staff will incorporate energy management into all relevant areas of activity including our organizational management procedures, procurement practices, capital asset and investment decisions, and facility operations and maintenance. This will be accomplished by:

1. Ensuring the necessary resources are allocated to enable the implementation of actions outlined in the Town’s Energy Conservation & Demand Management Plan (Plan);
2. Holding all Town staff accountable and responsible for managing energy through corporate targets; and
3. Ensuring that Town staff, council and ratepayers are updated regularly on progress as measured against the targets and performance indicators included in the Plan.

**Vision** The Town of Hawkesbury will exercise stewardship in our use of energy resources in order to reduce costs, demonstrate leadership, and optimize our delivery of services to ratepayers.

**Objectives** The Town is focused on changing the way energy is used across the facilities and infrastructure within the scope of the Plan. Our three core objectives, outlined below, will help us reach our targets:

**Projects: Level 5 practice**

Improve capacity to identify and develop energy efficiency opportunities, specifically in the context of scheduled capital renewal. Improved development of business case will help to navigate through the funding process.

**Communication: Level 3 practice**

Energy efficiency related activities are reported are marketed occasionally within the municipality. In general, the frequency of outreach should be based on the completion of projects.

**Training: Level 3 practice**

Technical municipal staff have received training in energy efficiency management practices. More specifically, new staff have received ample time with departing staff to maintain institutional knowledge.

**Targets** The following targets have been set in the context of the Town’s current performance and the opportunities for improvement identified within this Plan. Progress toward these targets will be measured in terms of equivalent kWh (ekWh) of energy consumed.

**Short-Term:** 5% reduction in energy consumption by 2019 over the base year of 2012.

**Long-Term:** 7.5 % reduction in energy consumption by 2024 over the base year of 2012.



## SECTION 7 – ACTIONS

This section defines actions associated with each of the objectives outlined in Section 6. Each action is linked to a responsibility group, a cost estimate

where possible, a targeted completion date, and performance indicators for measuring success.

### EXHIBIT 10 – ENERGY MANAGEMENT ACTIONS

Commitment				
Actions	Groups/Persons Responsible	Cost Estimate	Completion Date	Performance Indicator
Draft and endorse commitment letter	Mayor	Internal labour costs	Complete (included within this Plan)	Commitment letter finalized and endorsed
Draft Energy Policy and obtain council endorsement	Energy Officer	Internal labour costs	Complete (included within this Plan)	Energy Policy finalized and endorsed

Planning				
Actions	Groups/Persons Responsible	Cost Estimate	Completion Date	Performance Indicator
Assess current state of energy management, set objectives and define specific actions for improvement	Energy Officer	Internal labour costs	Complete (this Plan)	<ul style="list-style-type: none"> <li>The Energy Management Balanced Scorecard has been used to assess the current state of energy management.</li> <li>Actions have been defined and linked to a responsibility group, a cost estimate, and a targeted completion date.</li> <li>Results have been reported as part of this Plan.</li> </ul>
Add language to tender documents requiring certain efficiency levels, e.g. 'Equipment must meet ENERGY STAR or saveONenergy efficiency requirements'	Energy Officer	No additional costs	Q1 2015	All bidders specify high efficiency equipment, ensuring that the Town is not forced to select lesser equipment to satisfy requirements to select the low bid.

Communication				
Actions	Groups/Persons Responsible	Cost Estimate	Completion Date	Performance Indicator
Broaden outreach by using water bills, social media and local newspapers to promote ongoing and potential projects as well as energy efficiency best practices.	Energy Officer	Internal labour costs; limited advertising cost	Ongoing	Residents are more aware of the Town's energy efficiency activities as well as general energy efficiency best practices.

Projects - Portfolio-Wide						
Actions	Cost Estimate	Completion Date	Projected Savings	Estimated Payback	Performance Indicators	Next Steps
<b>Street Lighting</b> Proceed with planned LED streetlight retrofit	\$529,580	Q4 2015	590,000 kWh/year as per study	5.7 years	All HPS street lighting replaced	Solicit and compare quotes
<b>All Sites</b> Convert exterior building-mounted HPS lighting to LED equivalents	\$400 per fixture	Q4 2017	40-50% of existing fixture use	3-5 years	All HID wallpack lighting replaced with LED alternative	Contact your electrical contractor to discuss options and solicit quote
<b>All Sites</b> Implement programmable thermostat checkup program to ensure settings remain in place	Internal labour	Q1 2016	5-15% of HVAC costs in affected space	N/A	All thermostats are consistently set based on seasonal and space needs	Collect list of all programmable thermostats and establish checkup schedule

Projects - Site-Specific						
Actions	Cost Estimate	Completion Date	Projected Savings	Estimated Payback	Performance Indicators	Next Steps
<b>Robert Hartley Sports Complex</b> Replace 400W metal halide light fixtures in the pool area with T5HO fluorescent fixtures	\$400 per fixture	Q2 2019	40% of existing fixture energy use	3-5 years	Pool lighting replaced with T5 fluorescent fixtures	Contact your electrical contractor to discuss options and solicit quote
<b>Robert Hartley Sports Complex</b> Modernize refrigeration plant to utilize new controls technologies	>\$500,000 depending on options	Q2 2018	Up to 30% of existing ice plant energy use	>5 years - this is a capital renewal project	Ice plant replaced with new, efficient equipment	Contact your refrigeration contractor to discuss options and solicit quote
<b>Hawkesbury Public Library &amp; Daycare</b> Explore converting constant volume air system to variable air volume	Variable, depends on scope	Q4 2018	Up to 25% of heating and cooling costs	5-8 years	All air systems upgraded to VAV, increasing efficiency and reducing controls issues	Contact your mechanical contractor to discuss scope and solicit quote

Projects - Site-Specific						
Actions	Cost Estimate	Completion Date	Projected Savings	Estimated Payback	Performance Indicators	Next Steps
<b>Hawkesbury Public Library &amp; Daycare</b> Replace incandescent lighting in play area with LED alternatives	\$400 per fixture	Q4 2017	50% of existing fixture energy use	3-4 years	All incandescent lighting removed from play area	Contact your electrical contractor to discuss options and solicit quote
<b>Hawkesbury Public Library &amp; Daycare</b> Explore installing an automation system	\$10,000 and up, depending on options	Q4 2018	Depends on affected systems	4-8 years depending on scope	Major equipment controlled using automation system	Contact your controls contractor to discuss options and solicit quote
<b>Hawkesbury Fire Station</b> Rationalize HVAC systems to eliminate controls issues between office and dispatch	\$5,000 - \$10,000 depending on options	Q3 2019	10-15% of HVAC energy use	8-10 years	Control of the office and dispatch areas are separated	Contact your mechanical contractor to discuss options and solicit quote
<b>Hawkesbury Fire Station</b> Install programmable thermostat to set back space heating during unoccupied periods	\$300 installed	Q1 2015	5-15% of space heating in affected area	1-3 years	Heating setback implemented in unoccupied spaces	Contact your mechanical contractor to solicit quote
<b>Hawkesbury Fire Station</b> Install lighting controls to reduce runtime in garage	Approximately \$1,000	Q2 2016	Up to 30% of existing fixture use	1-3 years	Garage lighting runtime significantly reduced	Contact your electrical contractor to discuss options and solicit quote
<b>City Hall</b> Gradually reduce reliance on electric heating systems	Variable, depends on scope	Q4 2019	40% cost savings for affected systems	3-5 years	Use of electric heating reduced	Contact your mechanical contractor to discuss options and solicit quote
<b>City Hall</b> Install lighting controls to reduce runtime in washrooms	\$200 per sensor	Q2 2017	30% of washroom lighting runtime	1-3 years	Washroom lighting controlled using occupancy sensors	Contact your electrical contractor to discuss options and solicit quote
<b>OPP Police Station</b> As rooftop ventilation units reach end-of-life, high efficiency alternatives should be specified	Additional \$1,500 per rooftop	Q4 2017	Up to 25% of heating and cooling costs	1-3 years	Ventilation systems using advanced controls, including demand-controlled ventilation	Contact your mechanical contractor to solicit quote

Projects - Site-Specific						
Actions	Cost Estimate	Completion Date	Projected Savings	Estimated Payback	Performance Indicators	Next Steps
<b>Golden Age Club</b> As rooftop ventilation units reach end-of-life, high efficiency alternatives should be specified	Additional \$1,500 per rooftop	Q4 2017	Up to 25% of heating and cooling costs	1-3 years	Ventilation systems using advanced controls, including demand-controlled ventilation	Contact your mechanical contractor to solicit quote
<b>Golden Age Club</b> Modify controls to prevent ventilation units from fighting each other	Under \$1,000	Q3 2016	Up to 15% of existing HVAC costs	1-3 years	Both ventilation units work together to maintain space temperature	Contact your mechanical contractor to discuss options and solicit quote
<b>Maison D'Ile Cultural Centre</b> Convert forced air furnace to use propane	\$5,000-10,000	Q4 2017	40% of heating costs	3-5 years	Electric heating eliminated	Contact your mechanical contractor to solicit quote
<b>Sewer Treatment Plant</b> If energy use targets aren't met, commission energy audit.	\$15,000	Q4 2019	N/A	N/A	Sewer treatment plant operating as designed	Measure energy use against targets
<b>Water Purification and Distribution Plant</b> Assess the benefits of a generator to displace diesel use and to avoid peak electricity demand	>\$100,000	Q3 2015	Depends on size of system	3-5 years	Generator installed to avoid peak demand and provide electricity year-round	Discuss options with mechanical contractor as well as the gas utility
<b>Water Source Pumping Station</b> Assess the benefits of using a cogeneration system to provide backup power and electricity production	>\$100,000	Q4 2019	Depends on size of system	3-5 years	Generator installed to avoid peak demand and provide electricity year-round	Discuss options with mechanical contractor as well as the gas utility

## SECTION 8 – PLAN FOR CONTINUOUS IMPROVEMENT

This Plan will be reviewed on an on-going basis to re-assess objectives and associated actions based on the output of the monitoring process. The plan for undertaking this annual review is described below:

<b>Review Frequency:</b>	Annually
<b>Responsibility:</b>	Energy Officer
<b>Process for Performing Review:</b>	<p>A short report, notionally not to exceed two pages, should be completed yearly.</p> <p>This report will:</p> <ul style="list-style-type: none"> <li>▪ Suggest revisions to the Plan’s Objectives (Section 6) to ensure that they reflect the Town’s current priorities.</li> <li>▪ Assess progress against energy use targets (Section 6) upon the completion of each calendar year. This should occur in concert with annual energy use reporting to the Ontario Ministry of Energy.</li> <li>▪ Assess progress toward completion of actions and associated performance indicators (Section 7), with a special emphasis on high priority actions.</li> </ul>

As required by the Ontario Ministry of Energy, this Plan will be formally revised every five years.