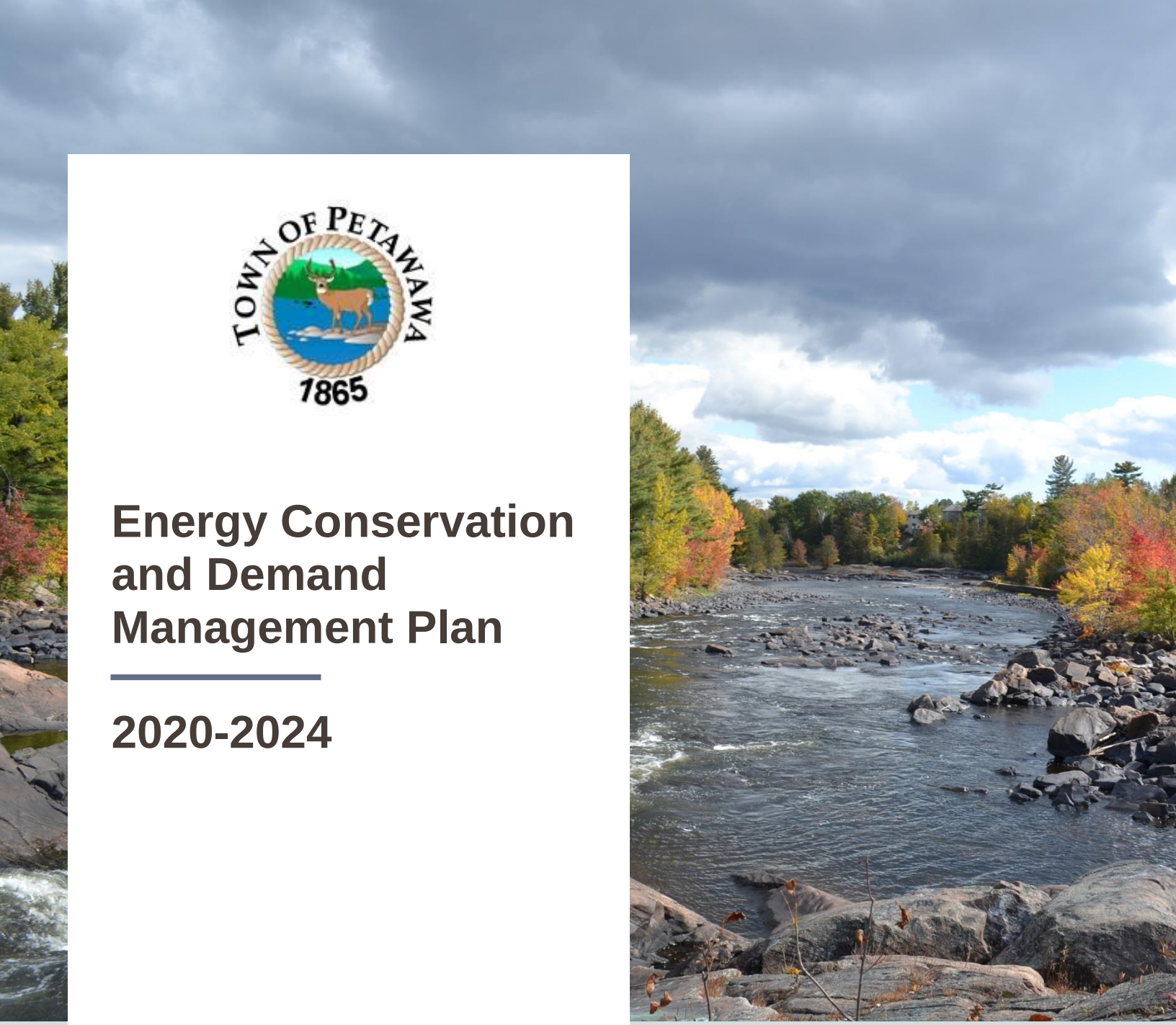

Energy Conservation and Demand Management Plan

2020-2024

July 1, 2019

Town of Petawawa

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Schedules

Disclaimer: This document has been prepared by the Ontario Clean Water Agency on behalf of the Town of Petawawa in accordance with Ontario Regulation 507/18 under the Electricity Act, 1998 for submission to the Ministry of Energy, Northern Development and Mines. This Plan is constantly evolving and may be revised to reflect the most current information and circumstances. The Town of Petawawa, its council, directors, officers, shareholders or representatives do not accept any liability whatsoever by reason of, or in connection with, any information in this document or any actual or purported reliance on it by any person. The Town of Petawawa may update any information in this document at any time.

Executive Summary

In 2014, the Town of Petawawa developed a five year Conservation and Demand Management (CDM) Plan for the Town in compliance with the requirements of *Ontario Regulation 397/11* under the *Green Energy Act*, 2009 (Broader Public Sector: Energy Reporting and Conservation and Demand Management Plans). This regulation was revoked on January 1, 2019 and replaced with *Ontario Regulation 507/18* under the *Electricity Act*, 1998.

The Town of Petawawa retained the Ontario Clean Water Agency (OCWA) to build on the Town's first CDM Plan originally developed in 2014 incorporating the experience gained in energy conservation over the last five years. This updated CDM plan was developed as per the regulation and guidelines provided by Ministry of Energy, Northern Development and Mines and covers the period from 2020 to 2024. The plan was presented to Council and approved on June 24, 2019.

The plan describes our Town's:

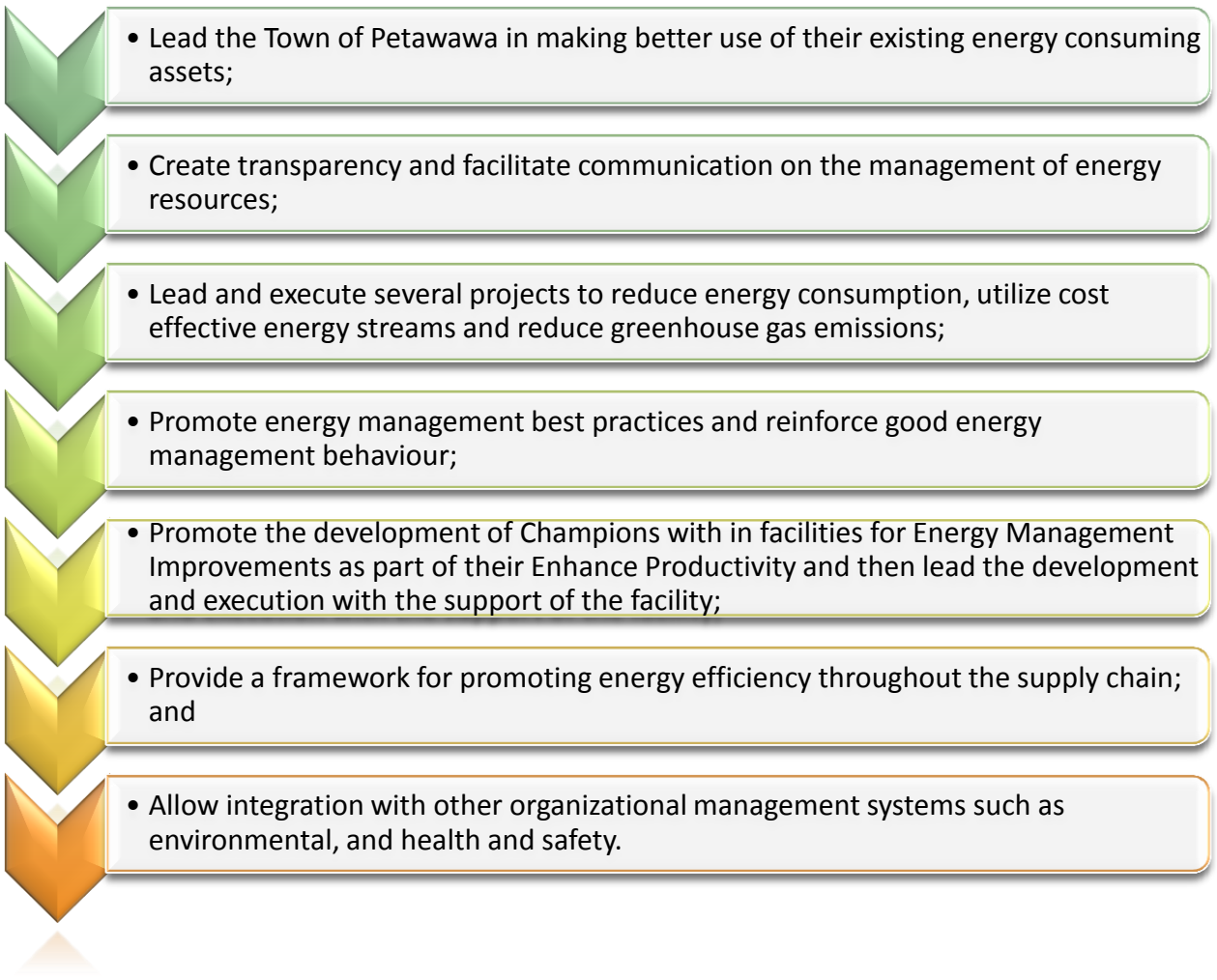
Optimizing energy consumption will be essential if we are to meet future energy needs and witness a global transition to sustainable energy sources. The Town must implement changes in the way we use energy to meet our needs (energy conservation) and use the most efficient equipment and measures (energy efficiency) to reduce consumption and costs.

The Town of Petawawa is committed to the promotion of responsible energy management through the implementation of economically viable energy efficiencies and environmental care throughout all

facilities, plants and equipment. The Municipality will take reasonable efforts to minimize impacts to the environment when allocating resources, while recognizing the needs of our residents and visitors.

The Town of Petawawa will exercise stewardship in the use of finite resources to demonstrate leadership, optimize our delivery of services, and enhance the overall quality of life in the community. We will strive to continually reduce our total energy consumption and associated carbon footprint through wise and efficient use of energy and resources.

The Town of Petawawa's Energy Conservation and Demand Management Plan was completed to help achieve the following objectives:



Overall ***electricity consumption across all municipal buildings reported on were reduced by 25% by 2018 compared to the 2014 baseline*** consumption levels while overall natural gas consumption increased by 16% compared to 2014 levels.

Concerns over ever-increasing energy prices and the negative impact of fossil fuels on the environment have raised interest in energy conservation, sustainability, and predictable energy rates.

The Town of Petawawa will thus strive to ***reduce our energy consumption by an additional 5-8% in municipal operations by 2025 compared to the 2018 reductions***. This Energy Reduction Target will apply to all departments and facilities owned by the Municipality.

The Town commits to the following objectives for the 2020-2024 period:

1

- Improve the municipality's understanding of energy consumption.

2

- Increase staff awareness and motivate staff to use energy more efficiently.

3

- Improve awareness of climate change and greenhouse gas emissions.

4

- Report energy performance changes and improvements annually.

5

- Improve the efficiency of energy use through low–cost opportunities by implementing the following:
  - Sound operating and maintenance practices;
  - Employee training, and staff awareness;
  - Monitoring and tracking system; and
  - Energy Demand Management program.

Included herein are the measures that will be undertaken to support the achievement of these objectives and goals.

Introduction and Purpose

In 2014, the Town of Petawawa developed a five year Conservation and Demand Management (CDM) Plan for the Town in compliance with the requirements of *Ontario Regulation 397/11* under the *Green Energy Act*, 2009 (Broader Public Sector: Energy Reporting and Conservation and Demand Management Plans). This regulation was revoked on January 1, 2019 and replaced with *Ontario Regulation 507/18* under the *Electricity Act*, 1998.

Under *Ontario Regulation 507/18,* the requirements for broader public sector energy planning and reporting are identical to those under the former *Ontario Regulation 397/11*.

Under *Ontario Regulation 507/18*, all BPS organizations, including municipalities and townships, are required to report annually on energy use and greenhouse gas (GHG) emissions. The organizations are also required to develop a five-year CDM plan and update it every five years, with the first update due July 1, 2019.

The Town of Petawawa retained the Ontario Clean Water Agency (OCWA) to build on the Town's first CDM Plan originally developed in 2014 incorporating the experience gained in energy conservation over the last five years. This updated CDM plan was developed as per the regulation and guidelines provided by Ministry of Energy, Northern Development and Mines and covers the period from 2020 to 2024. The plan was presented to Council and approved on June 24, 2019.

The baseline GHG emissions and energy consumption report reflects data gathered and submitted to the Ontario Ministry of Energy, Northern Development and Mines on July 1, 2013 for the year 2011, as required by *O. Reg. 397/11*. In order to review the results and accomplishments of the 2014 to 2019 CDM plan targets and objectives and to determine the present state of energy management in the Town of Petawawa, we have summarized the energy and GHG reports for 2011 to 2018. Additionally, this plan incorporates historical data of energy use and actions and steps already taken with the intention of realizing energy savings.

The plan describes our Town's:

- New energy conservation goals and objectives;
- Current and proposed energy conservation measures;
- Results from the first CDM plan; and
- Changes made from the previous plan to help achieve the new goals and objectives.

In addition to energy conservation, the updated CDM plan supports our capital plan and other key strategic plans. This CDM Plan is intended to serve as a guide for staff and Council during the capital planning and budgeting process.

The Town of Petawawa is faced with increasing infrastructure costs and increasing energy costs affecting all of its facilities. As such, the Town must explore all avenues for cost savings, including energy efficiency projects. In that sense, ***this plan represents an important financial tool for the Town of Petawawa.***

Hard copies of the plan are available at the Town Hall located at 1111 Victoria Street in Petawawa.

Municipal Energy Background

Increased economic activity in Ontario results in rise of GHG emissions and presents a challenge to fulfilling the provincial environmental objectives expressed in the government's Made-in-Ontario Environment Plan.

Optimizing energy consumption will be essential if we are to meet future energy needs and witness a global transition to sustainable energy sources. The Town must implement changes in the way we use energy to meet our needs (energy conservation) and use the most efficient equipment and measures (energy efficiency) to reduce consumption and costs.

Energy consumption and costs are relatively high in Ontario. The figure below shows the significant increase in electricity costs over the last decade, taxing municipal reserves.

In 2014, the primary source of energy for municipal operations (facilities, social housing, and street lighting) in Ontario was electricity (63%) and natural gas (35%), with minor use of other fuels including hot water and steam from district heating, chilled water from district cooling, propane, and fuel oils. Municipalities spent an estimated $917 million on electricity and $105 million on natural gas in 2014[1].

[1] Ontario Municipal Energy Profile, ICF, 2018

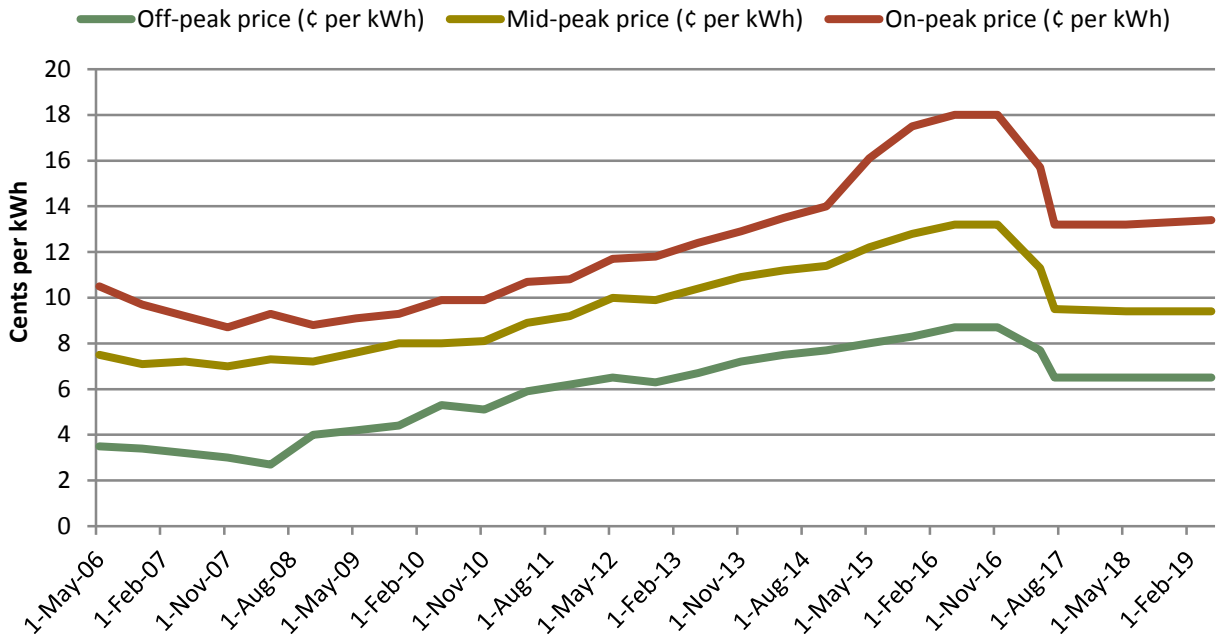


Figure 1: Historical TOU Electricity Rates[2]

The Ontario water and wastewater treatment sectors are the largest municipal electricity consumers, representing more than a third of annual electricity consumption. In 2011, water and wastewater systems used about 1,815 gigawatt-hours (GWh) of electricity (enough to power about 200,000 homes) and 40 million m^3 of natural gas (enough to heat approximately 15,000 homes). This energy use may rise due to ever-more stringent treatment requirements, but these systems also have many opportunities to become more energy efficient, and even to generate renewable energy.[4]

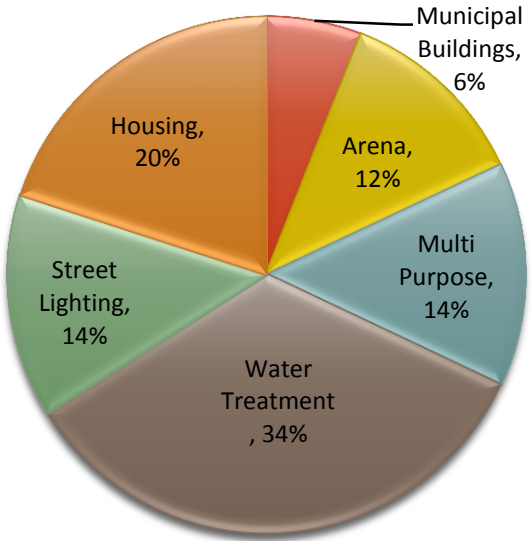


Figure 2: Municipal Energy Use by Sector in Ontario[3]

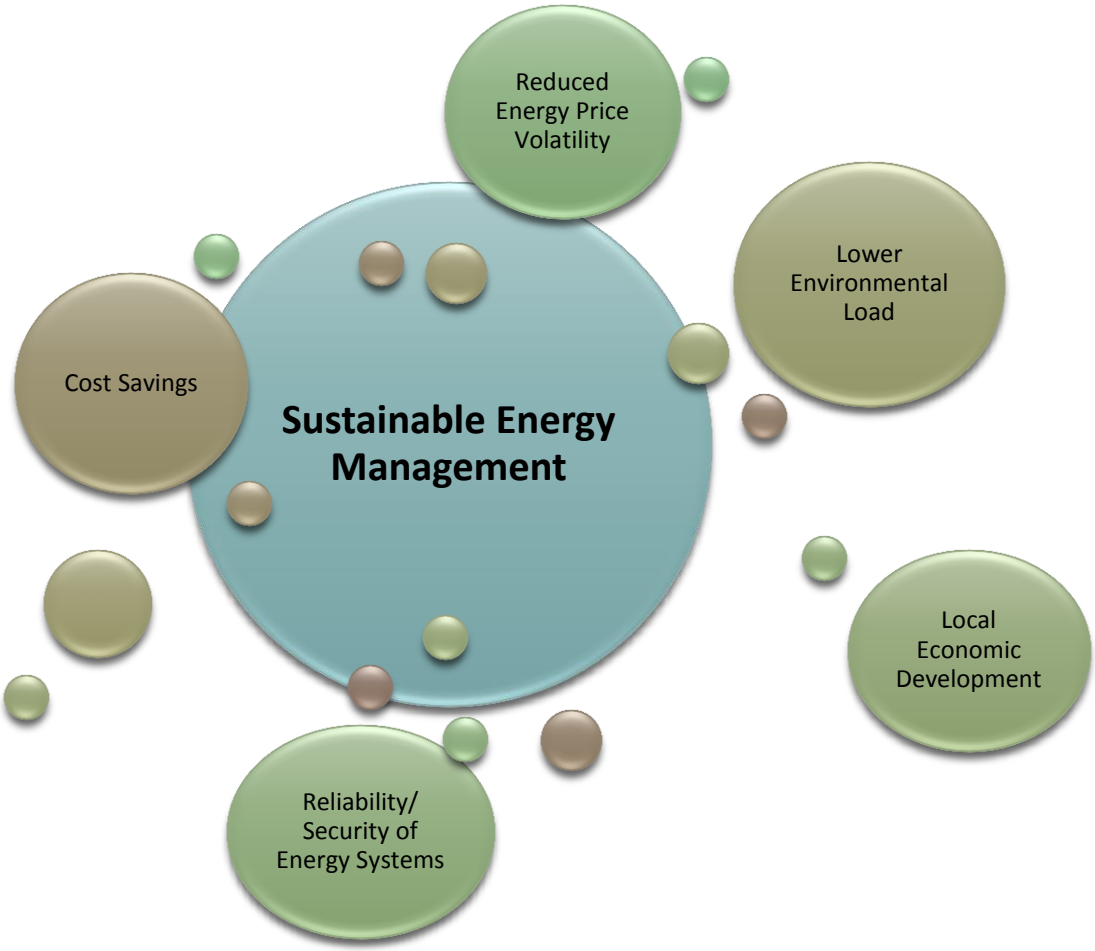
Managing municipal energy consumption efficiently means providing the same services with less energy. Energy conservation measures are often the lowest cost options for providing

[2] Ontario Energy Board, 2019

[3] Study Report: Market Characterization & Conservation Potential for Ontario's Drinking Water & Wastewater Treatment Plants (Dec. 2018), IESO, Posterity Group, 113.

[4] Every Drop Counts, ECO, 2017

many other environmental, economic and social benefits. This also results in cost savings, lower environmental load by avoiding GHG and local air, water and land emissions associated with energy production and consumption, local economic development opportunities and associated new jobs, enhanced reliability of energy systems, and reduced price volatility, and improved energy supply security.



Commitment

The Town of Petawawa is committed to the promotion of responsible energy management through the implementation of economically viable energy efficiencies and environmental care throughout all facilities, plants and equipment. The Municipality will take reasonable efforts to minimize impacts to the environment when allocating resources, while recognizing the needs of our residents and visitors.

Vision

The Town of Petawawa will exercise stewardship in the use of finite resources to demonstrate leadership, optimize our delivery of services, and enhance the overall quality of life in the community. We will strive to continually reduce our total energy consumption and associated carbon footprint through wise and efficient use of energy and resources

Goals and Objectives

The Town of Petawawa's Energy Conservation and Demand Management Plan was completed to help achieve the following objectives:

- Lead the Town of Petawawa in making better use of their existing energy consuming assets;
- Create transparency and facilitate communication on the management of energy resources;
- Lead and execute several projects to reduce energy consumption, utilize cost effective energy streams and reduce greenhouse gas emissions;
- Promote energy management best practices and reinforce good energy management behaviour;
- Promote the development of Champions with in facilities for Energy Management Improvements as part of their Enhance Productivity and then lead the development and execution with the support of the facility;
- Provide a framework for promoting energy efficiency throughout the supply chain; and
- Allow integration with other organizational management systems such as environmental, and health and safety.

2014-2019 Energy Reduction Targets

There are always opportunities for improvement with regard to energy conservation and demand management and the Town of Petawawa is committed to continuously monitor energy consumption and implement energy efficient practices where applicable. The following is a list of energy conservation projects identified in the 2014 CDM plan.

Projects Implemented

The 2014 CDM Plan listed all of the energy improvements limited to the following scope:

- Electricity
- Natural Gas
- Diesel (future)
- Water (future)

1. Process Improvements

Action	Description	Performance Measures	Lead	Status
1.1 Operations:				
1.1.1 Develop a corrective maintenance program for Town Facilities	Develop a corrective maintenance program for all Town owned facilities. Components of the corrective maintenance program will be limited to HVAC, but will be expanded in the future.	Program created and implemented Addresses Vital Element 3.2.3	Director of Public Works	Completed
1.1.2 Develop and implement a facility walk-through checklist to be used by facility managers	The walkthrough checklist will enable facility managers to optimize operations and use of mechanical equipment	Checklist created and completed on a regular basis – file in a central location Addresses Vital Element 3.2.3	Senior Staff	Under Review
1.2 Data Management:				
1.2.1 Receive electricity and natural gas billing information and track monthly	Receive and monthly input data from utilities into central database	Duty assigned to staff and tracking spreadsheet created Addresses Vital Element 3.2.1	Director of Public Works	Completed

		and 3.3.1		
1.2.2 Create baseline	Create baseline with current data	Establishment of baseline Addresses Vital Element 3.2.1	Director of Public Works	Completed
1.2.3 Determine gaps and create plan to address	Review the current data being gather and determine if there are any gaps. Create plan to address gaps and additional data required for energy monitoring	Creation and implementation of plan Addresses Vital Element 3.2.3	Director of Public Works	Completed
1.2.4 Provide comprehensive energy data to senior management	Develop a process to report quarterly and annually the energy data to senior management	Number of reports issued Addresses Vital Element 3.2.3	Director of Public Works	Ongoing
1.3 Energy Awareness:				
1.3.1 Develop an energy communication plan	The target audience of the communications plan include Town Council, Staff and community The purpose of the communications plan is to promote the Town's energy initiatives, energy use ad savings Established Energy Reduction Month "Turn out the lights" Challenge	Plan developed and communicated to all Addresses Vital Element 3.2.3	Director of Public Works	Ongoing
1.3.2 Develop Recognition Program	Develop clear recognition levels for Internal and External sources. Determine type and action	Number of persons/facilities recognized. Addresses Vital Element 3.3.2	Director of Public Works	Ongoing
1.4 Resources:				
1.4.1 Add energy	An identified gap in the	Director of Public	CAO	Completed

management under the responsible duties of the Director of Public Works	organization is the need for a dedicated person to implement the energy management plan and coordinate energy initiatives in the Town	Works role added to existing job description Addresses Vital Element 3.1		

2. Program Implementation

Action	Description	Performance Measures	Lead	Status
2.1 Operations:				
2.1.1 Complete Facility Condition Assessments	Complete Facility Condition Assessments for all Town owned facilities.	Completion of all Assessments Addresses Vital Element 3.2.2	Director of Public Works	Completed
2.1.2 Develop and implement operating procedures for applicable Town facilities	Develop operating procedures to optimize energy efficiency and usage at Town facilities Senior managers and staff will incorporate into their job function	Number of operating facilities developed and implemented Addresses Vital Element 3.2.2	Senior Staff	Completed
2.2 Training:				
2.2.1 Implement training for identified staff on the Town's energy management plan	Provide training for staff on the implementation of the Corporate Energy Management Plan	Number of employees trained Addresses Vital Element 3.4	Director of Public Works	Completed – Director of PW attends annual training
2.2.2 Provide continual training for Energy Management Staff	Energy Management staff to attend one (1) training session or convention per year	Number of training sessions Address Vital Element 3.4	Director of Public Works	Completed
2.3 Energy Planning:				
2.3.1 Update the Corporate Energy	Review and update the Corporate Energy Management Plan every five	Update report to Council for endorsement	Director of Public Works	Completed

Management Plan	(5) years, with annual status updates. Receive approval and endorsement from Council and Senior Management	Addresses Vital Element 3.1 and 3.3.1		
2.3.2 Benchmark	Benchmark with similar Municipalities and Facilities Conduct one (1) benchmarking visit / activity per year	Number of Benchmark activities Addresses Vital Element 3.3.1	Director of Public Works	Ongoing

3. Projects Implementation

Action	Description	Performance Measures	Lead	Status
3.1 Operations:				
3.1.1 Implement commissioning and recommissioning into facility maintenance program	Conduct commissioning and recommissioning at Town facilities Incorporate into regular facility maintenance program	kWh/cost saving realized from actions taken Addresses Vital Element 3.2.2	Director of Public Works	Ongoing
3.2 Retrofits:				
3.2.1 Continue to implement mechanical and building system upgrades	Incorporate regular mechanical and electrical upgrades of system in Town facilities Implement energy efficient standards when replacing equipment	Number of system upgrades implemented Resulting impact on energy use & cost Addresses Vital Element 3.2.3	Senior Staff	Completed
3.2.2 Partnership with utilities to ensure optimization of incentive funds	Network and communicate regularly with utilities on incentive programs	Amount of incentive funding provided by utilities Addresses Vital Element 3.2.2	Director of Public Works	Completed

3.3 Lighting:				
3.3.1 Convert old street lights	Convert or replace old street lights with new LED models Research replacing all Street Lights in one contract or systematically replacing a few a year LED (25 watts) vs HPS (150 watts)	Amount of Street Lights converts to LED Addresses Vital Element 3.2.3	Director of Public Works	Completed
3.4 WTP and WWTP:				
3.4.1 Investigate and implement energy efficient project	Conduct Audits of the two facilities and implement project which demonstrate a return on investment of 8 years	Number of projects completed Resulting impact on energy use & cost	Director of Public Works	Completed
3.5 Public Works Garage & Civic Centre:				
3.5.1 Investigate and implement energy efficient project	Conduct Audits of the two facilities and implement project which demonstrate a return on investment of 8 years	Number of projects completed Resulting impact on energy use & cost	Director of Public Works Senior Managers	Completed

Street Light Conversion

Street lights were converted to LED in 2014-2015. This project resulted in a reduction in electrical energy costs for street lighting from $170k to $80k.

Civic Centre and Library Upgrades

Washrooms, halls and meeting rooms were retrofitted with LED lighting. Heating and ventilation in the dressing rooms, lobby and office areas were upgraded to energy efficienct systems including programmable controls.

2014-2019 Energy Consumption Summary

Tracking Energy Consumption and Savings

Annual energy reporting is required under the regulation and allows our Town to understand how energy is used in our buildings, identify potential energy conservation opportunities and track progress on energy conservation efforts. In addition to including the municipality's 2017 annual energy report as required under the regulation, we have also included and considered our 2018 annual energy consumption information, which helped us to report on our achievements and inform the development of new measures (see Schedule 1). Our previous years' annual energy reports, along with the 2014 energy conservation and demand management plan can be found on our website.

Overall ***electricity consumption across all municipal buildings reported on were reduced by 25% by 2018*** compared to the 2014 baseline consumption levels while overall natural gas consumption increased by 16% compared to 2014 levels.

From 2014 to 2019, the greatest reduction achieved at the Town of Petawawa was:

71%

- reduction in annual electricity consumed by streetlights by switching the lightbulbs to LED

In addition to the municipality benefitting from reducing its energy use, residents and local businesses also benefit from more efficient use of tax payer dollars and better maintained/operated public buildings and facilities.

Please see Schedule 1 for a detailed analysis of the Town's energy consumption from 2011 to 2018.

Looking forward: 2020-2024

Concerns over ever-increasing energy prices and the negative impact of fossil fuels on the environment have raised interest in energy conservation, sustainability, and predictable energy rates.

The Town of Petawawa will thus strive to ***reduce our overall energy consumption by an additional 5-8% in municipal operations by 2025 compared to the 2018 reductions***. This Energy Reduction Target will apply to all departments and facilities owned by the Municipality.

The Town commits to the following objectives for the 2020-2024 period:

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  - Energy Demand Management program.

Proposed Energy Conservation Measures

Potential energy conservation projects were identified by comparing building-level energy benchmarks to the median energy benchmark for that building type.

Technical Measures

Efficiency Measure	Timeline
Install energy efficient LED lighting for the arena ice surface	To be completed 2020
Investigate options to bring more natural light into facilities	To be completed 2020
WWTP energy efficiency study implementation	To be investigated 2021

Organizational Measures

Efficiency Measure	Timeline
Report to senior staff and council monthly and yearly on energy	Ongoing
Creation of an Energy Management Team	To be completed 2020

Behavioural Measures

Efficiency Measure	Timeline
Turn off lights on sunny days	Ongoing
Utilize the skylights in the Library corridor turn off lights	Ongoing
Place poster near kitchen/bathroom sinks reminding users to limit water usage where appropriate	To be completed 2020
Place poster/sticker near light switch in rooms reminding users to turn off lights when no one is in the room	To be completed 2020
Ensure the temperature of facilities meets the needs of the users	To be completed 2020

Renewable Energy Projects

Efficiency Measure	Timeline
Biogas Feasibility and Energy Recovery Study	To launch 2020
Investigate options for solar energy	To be investigated 2021

Biogas Feasibility and Energy Recovery Study

In June 2019, a study was completed that identified opportunities for the diversion of organics from landfill, the generation of renewable energy and the beneficial use of digestate that could transform the wastewater treatment plant into a net zero water resource recovery facility. The recommendations of the study are being brought to Council for potential implementation.

Plan Implementation

Ontario Regulation 507/18 requires increased municipal energy management and engagement. Development of an energy conservation strategy as part of an overall sustainability plan is a complex process. The main driver for a local municipality to change the way energy is used, relates to fiscal benefits and financial incentives. Energy is a manageable input to the business process, much like any other resource cost. The Town of Petawawa is maintaining and developing current and planned services that continue to be affordable to taxpayers.

Current practices must be enhanced and new approaches must be developed. To meet these needs, the Town of Petawawa will consider designing a comprehensive program for collecting and analyzing monthly energy billing information, and ensuring that staff is informed about energy consumption. The resulting energy costs and consumption database will be used to monitor excessive variations, targeting facility follow-up assessments, and determining areas that could be candidates for improved conservation. These monitoring enhancements will improve the Town's understanding of the bottom line impact of energy management.

In order to establish a baseline for managing energy costs, the Town has captured information critical to energy management planning. This formalizes the process involved in understanding the relative magnitude of energy costs, the possible ways to reduce energy use, energy targets that are likely to be achievable, and other associated activities that need to occur.

This CDM Plan provides the "big picture" view as an ongoing framework for optimizing overall energy use and achieving success.

CDM Planning is intended to be a process of "continuous improvement." The Town of Petawawa follows *NRCAN, ISO 50001*'s four step plan–do–check–act management methodology, used in business for the control and continuous improvement of processes.

PLAN

Establish the energy conservation objectives and processes necessary to deliver results in accordance with the expected outputs: the energy conservation targets or goals. Start on a small scale to test possible effects and financial feasibility. Develop an Energy Conservation Demand Management Plan prioritizing budgets, resources, and timelines.

DO

Implement the plan and collect data for analysis in the following "CHECK" and "ACT" steps. Develop projects' design and execution, preparing status reports, and implementing the communication strategy.

CHECK

Study the actual results (measured and collected in "DO" above) and compare against the expected results (targets or goals from the "PLAN") to ascertain any differences. Evaluate any deviations in implementation from the plan and also evaluate the appropriateness and completeness of the plan to enable the execution, i.e., "Do".

ACT

Recommend improvements and adjustments to the initial plan; determine the course of corrections and modifications to the plan.

The Town of Petawawa implements tools to maintain and continually improve energy conservation and demand management. Benchmarking is the process that the Town has implemented for collecting, analyzing and relating energy performance data of comparable activities to evaluate and comparing performance between or within entities.

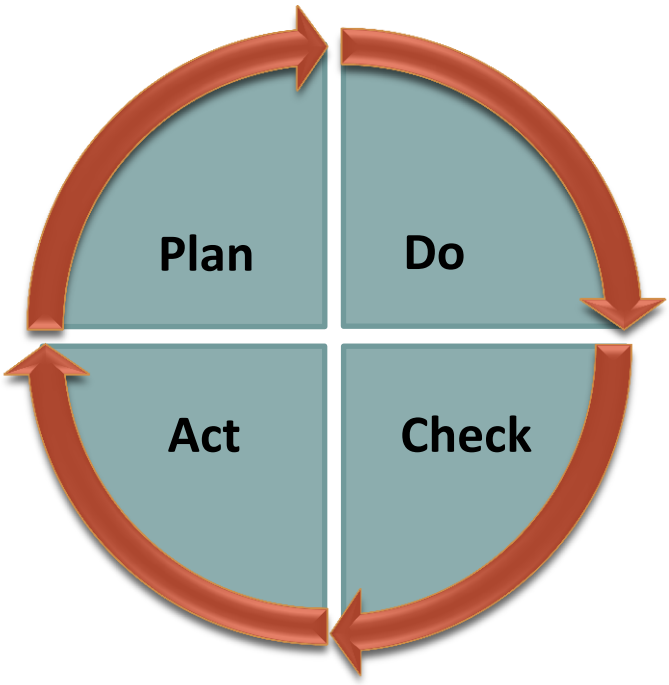


Figure 3: ISO 50001 Plan-Do-Check-Act Project Planning Cycle

Four Pillars for a Successful Energy Management Program

Top Management Support

Top Management shall make a commitment to allocate manpower and funds to achieve continuous improvement. To establish the energy management program, the Town should:

- ✓ Obtain Council endorsement
- ✓ Assign energy management responsibility
- ✓ Institute an energy policy

Strategy Plan

Assess Energy Performance

Understanding current and past energy use helps the Town of Petawawa identify opportunities to improve energy performance and gain financial benefit.

- ✓ Data Collection, analysis, evaluation and management
- ✓ Establish Baselines and Benchmarks
- ✓ Conduct Technical Assessments & Audits

Set Goals

Performance goals drive energy management activities and promote continuous improvement. Setting clear and measurable goals is critical for understanding intended results, developing effective strategies, and reaping financial gains.

- ✓ Determine Scope
- ✓ Estimate Potential Improvement
- ✓ Establish Goals

Create and Implement Action Plan

Once past performance has been assessed and the goals set, an Action Plan can be created. A detailed action plan is used to ensure a systematic process to implement energy performance measures. Unlike the policy, the action plan is regularly updated, most often on an annual basis, to reflect achievements, changes in performance, and shifting priorities.

- ✓ Define Technical Steps and Targets
- ✓ Determine Roles and Resources
- ✓ Create a Communication Plan
- ✓ Raise Awareness and Motivate

Technical Ability

Investments must be made in training and systems. Staff must have adequate technical ability for analyzing and implementing energy saving options.

- ✓ Industry Seminars & Conferences
- ✓ Certified Director of Public Works
- ✓ Other Energy related training

Monitoring Systems

Evaluate Progress

Evaluating progress includes formal review of both energy use data and the activities carried out as part of the action plan as compared to your performance.

- ✓ Measure results
- ✓ Gather tracking data
- ✓ Benchmark
- ✓ Review action plan

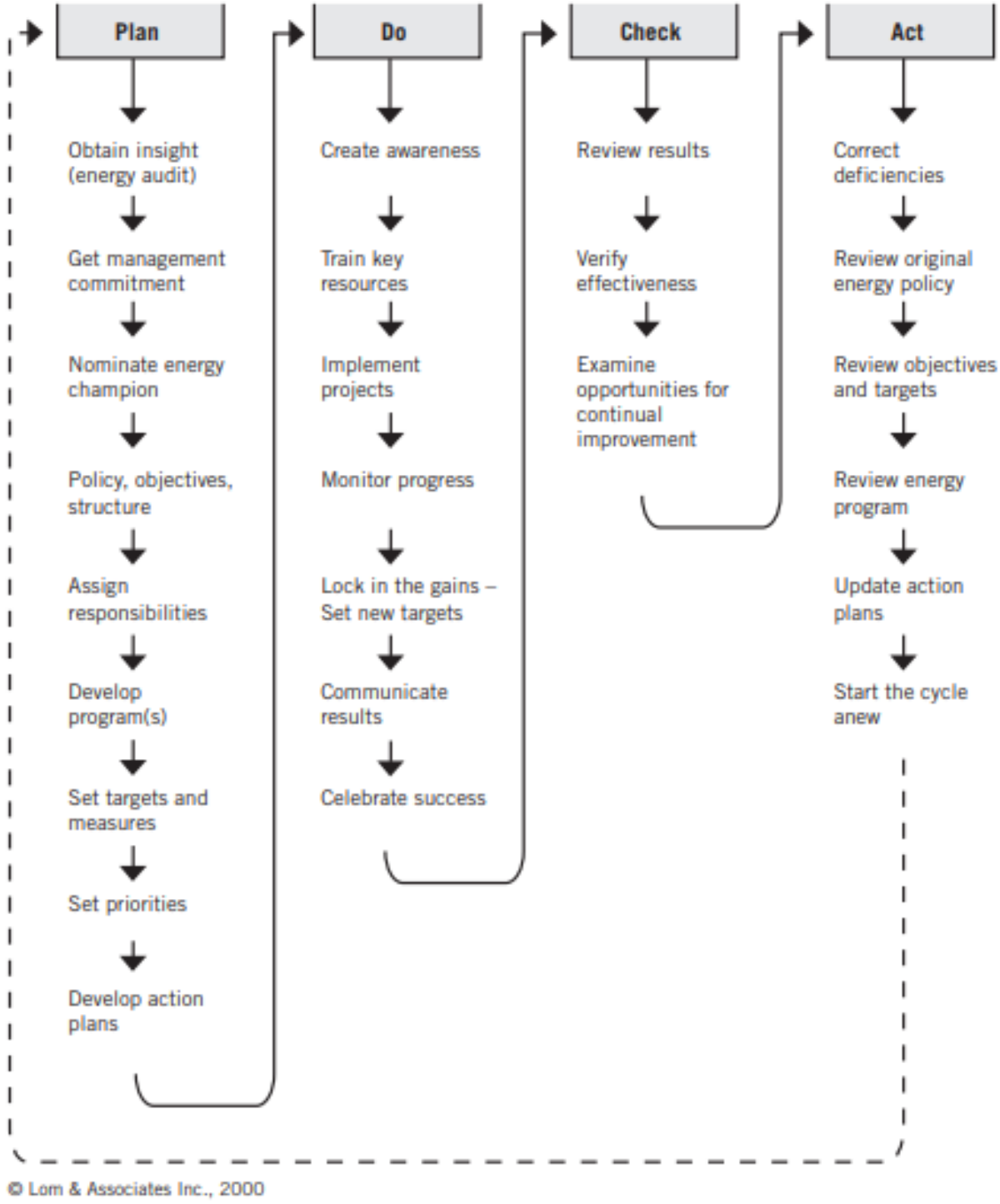
Recognize Achievements

Providing and seeking recognition for energy management achievements is a proven step for sustaining momentum and support for your program.

- ✓ Internal Recognition
- ✓ Determine recognition type and action
- ✓ External Recognition

The detailed energy conservation project planning process is visually illustrated below.

Energy Conservation Project Planning Process[5]

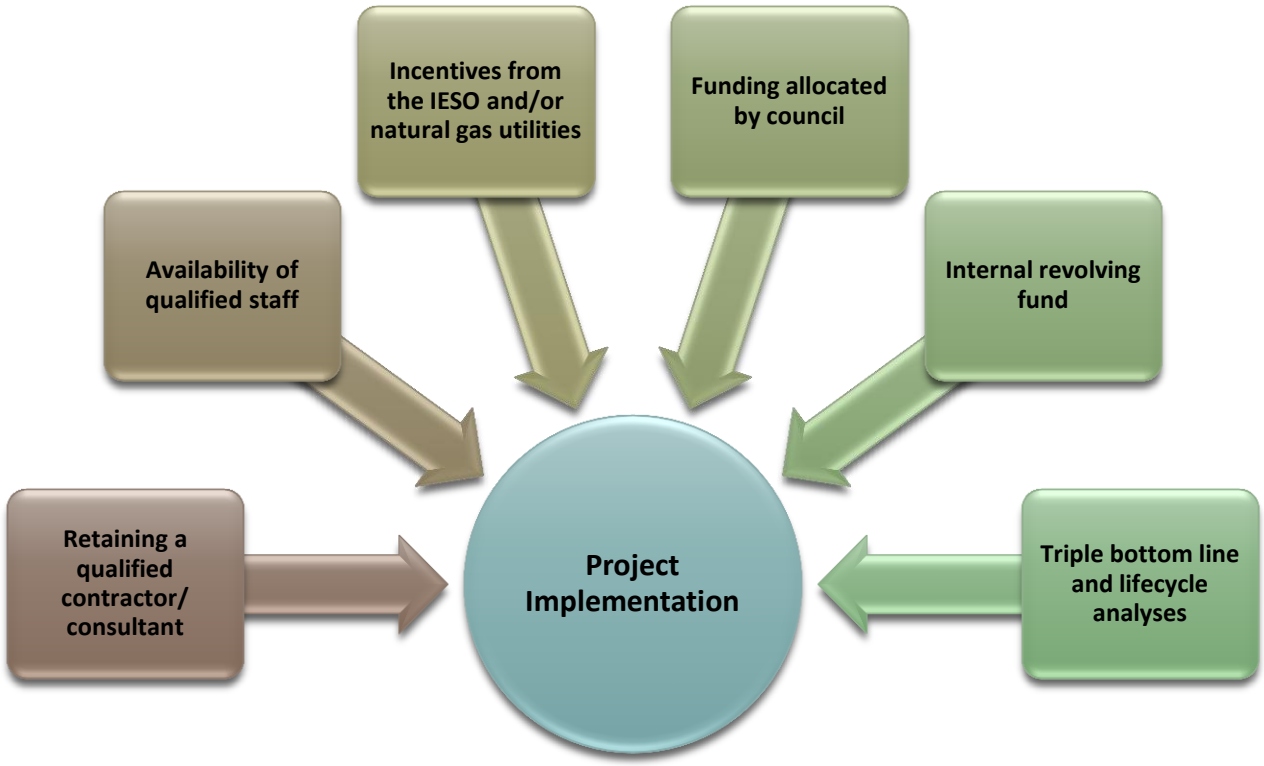


[5] Energy Efficiency Planning and Management Guide, CIPEC, 2002

Evaluation Metric Development

Energy conservation projects will be evaluated using an internal rate of return (the rate of interest the project could generate), along with simple payback (the number of years it would take to pay off the project from the savings). Hydro cost savings and life cycle analysis will be used to derive these parameters. In addition, more costly conservation projects will be bundled with more cost-effective ones to ensure their successful implementation.

Implementation of the proposed projects depends on:



Progress on projects will be monitored using the annual energy reports prepared under the regulation. A separate summary for each project will be prepared and archived.

Timelines

Timelines are assigned based on measures/facility prioritization. These timelines allow for flexibility during implementation, and will be dependent upon the costs/incentives and business decisions driven by the Town of Petawawa. We will carry out the required development of business procedures and communication programs and implement them methodically according to the planned timelines within the resources constraints that apply.

Responsibilities

The Town of Petawawa will implement an Energy Management Team to create and maintain a methodical focus on energy costs. This Team will provide a vehicle for key staff from critical departments to track energy budgets, update energy related projects and develop accountability for achieving energy reduction targets. The Team will have the lead responsibility and accountability for monitoring and achieving energy reduction targets.

The proposed Team shall be established upon finalization of this CDM Plan update having regard to the following structure:

- One key staff person from each major energy consuming departments
- One key staff person from Financial Services shall be required to participate

The role of monitoring progress will fall upon an Energy Management. The Team will ensure that both the capital projects and behavioural changes outlined in this Plan are maintained on a continuing basis seeing as ***managing energy consumption is important to both environmental and financial good stewardship.***

A specific mandate and the Terms of Reference created by the Team upon creation and shall be based generally on the following:

- Track energy spending by department
- Analyze and prioritize projects for consideration by Council on an annual basis
- Identify potential projects to consider in the future
- Consider a corporate strategy for back-up generators
- Create an energy awareness strategy for Town staff
- Report and track all utility incentives

Participation and education will be solicited from utility partners, both electrical and gas supplier (if applicable), to ensure up to date information on incentive programs, energy rates and other available assistance. Active participation from these partners will make the Energy Management Team that much more effective.

Monitoring and Evaluation

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

Annual Energy and GHG Emissions Reporting and Five-Year Plan Update

Ontario Regulation 507/18 requires that the Town of Petawawa report on the results of the CDM Plan at the end of the five-year planning period. As in this update, in the next update due in 2024, the Town of Petawawa will provide an update to include any revisions to the 2020-2024 CDM Plan. The Town of Petawawa has submitted and published all of its annual Energy and Greenhouse Emission Reports and will continue to do so annually until July 1, 2024. At that time, the revised Plan will provide:

- A description of current and proposed measures for conserving and otherwise reducing energy consumption and managing its demand for energy;
- A revised forecast of the expected results of the current and proposed measures;
- A report of the actual results achieved;
- A description of any proposed changes to be made to assist the public agency in reaching any targets it has established or forecasts it has made; and
- Any additional Council initiatives geared at achieving or establishing new targets.

Incentive Funding

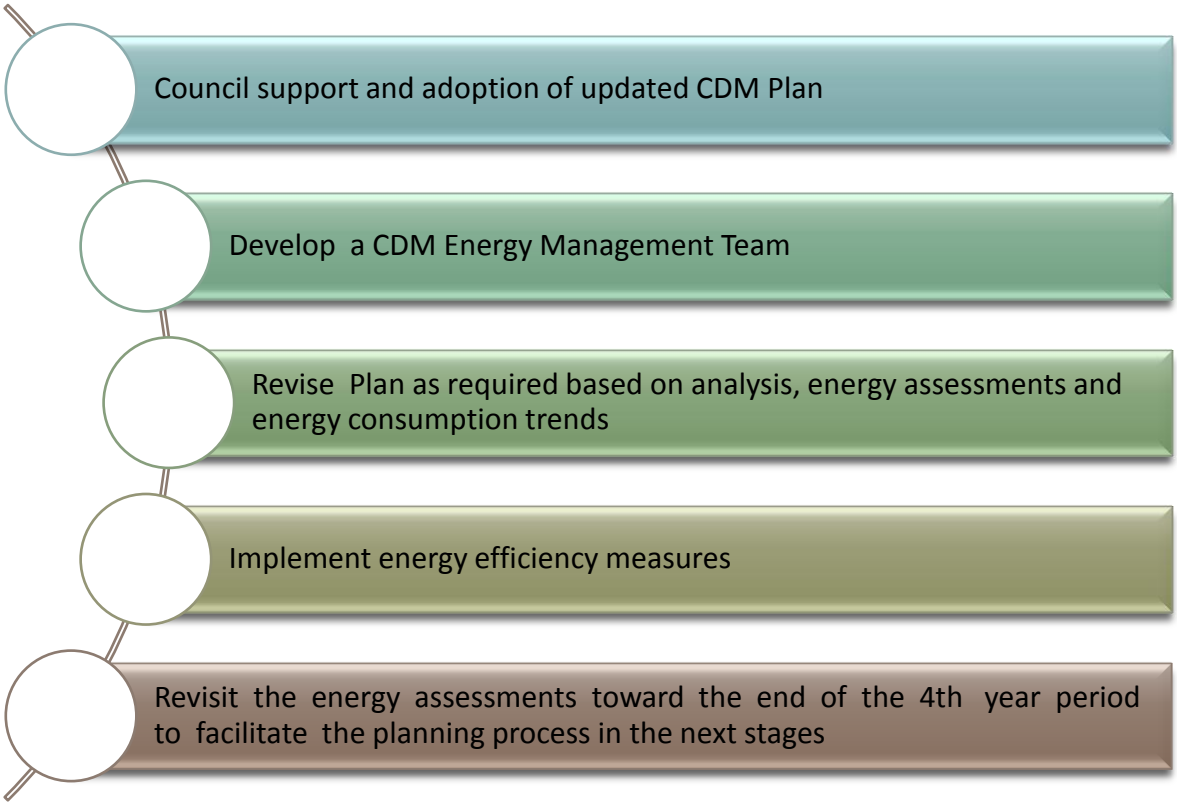
To ensure that the Town of Petawawa will take advantage of all funding and grant opportunities related to energy efficient projects, the Town will liaise with representatives from local utility providers. Town staff and utility representatives are in a unique position to review current and future process improvements, program implementations and projects that can meet future funding requirements. As funding opportunities arise that are suitable for specific energy conservation projects, Town Staff will report to Council and clearly outline the cost savings associated with a successful application.

Conclusions and Recommendations

Conclusions

- ✓ The Town of Petawawa is on its way to the implementation of a structured Conservation Program
- ✓ The Town of Petawawa plans to further investigate investment decisions in technologies to reduce electricity and natural gas expenditures and revise the current plan where appropriate
- ✓ Reasonable reductions must be targeted based on analysis through facility assessments
- ✓ A structured implementation framework will be followed to ensure the success of the CDM initiative

Recommendations



Schedule 1:
Actual 2011-2018 Energy Consumption

2011-2018 Municipal Energy Consumption

A lot of changes have occurred to the Town's facilities over the last five years, many of which resulted in energy efficiencies and consumption reductions. That said, even though a facility may have experienced an increase in energy consumption, the increase in facility floorplan and/or services offered must accounted for when evaluating energy consumption.

Table S-1: Change in Electricity Consumption (2011-2018)

Total Annual Electricity Consumption (kWh)				
Facility	**2011**	**2014**	**2018**	**2014-2018 Electricity Consumption Variance**
Civic Centre	822,731.00	602,511.00	742,698.62	**23%**
Fire Station #1	20,071.16	29,211.62	18,655.92	**-36%**
KinHut	42,588.00	34,828.80	38,512.00	**11%**
Norman Behnke Hall	24,789.26	23,390.39	21,241.49	**-9%**
OPP Station	131,223.47	120,166.80	108,067.60	**-10%**
Outdoor Rink/Change Room	7,268.36	8,806.31	9,316.32	**6%**
Petawawa Town Hall	87,482.16	85,811.44	93,483.76	**9%**
Point Canteen Beach	7,202.87	6,351.36	7,304.63	**15%**
Public Works Garage	45,754.00	6,351.36	7,304.63	**15%**
Streetlights	865,466.10	850,870.45	242,605.83	**-71%**
Harry Street Pumping Station	31,993.56	37,164.10	35,090.79	**-6%**
Water Booster Station #1	42,652.00	40,440.25	25,583.99	**-37%**
Water Booster Station #2	99,594.56	94,683.94	96,713.25	**2%**
WWTP	1,150,209.00	1,012,960.00	769,602.10	**-24%**
TOWN TOTAL	**3,379,025.50**	**2,953,547.82**	**2,216,180.93**	**-25%**

Table S-2: Change in Natural Gas Consumption (2011-2018)

Total Annual Natural Gas Consumption (m^3)				
Facility	**2011**	**2014**	**2018**	**2014-2018 Natural Gas Consumption Variance**
Civic Centre	19,213.00	29,073.00	29,307.00	**1%**
Fire Station #1	5,972.00	9,030.00	9,585.00	**6%**
KinHut	-		-	
Norman Behnke Hall	3,151.00	4,760.00	4,536.00	**-5%**
OPP Station	3,630.00	6,193.00	5,335.00	**-14%**
Outdoor Rink/Change Room	-		-	
Petawawa Town Hall	8,038.00	13,861.00	12,671.00	**-9%**
Point Canteen Beach	-		-	
Public Works Garage	17,044.00	31,370.00	30,713.00	**-2%**
Streetlights	-		-	
Harry Street Pumping Station	1,608.00	1,891.00	1,661.00	**-12%**
Water Booster Station #1	-	-	-	**-**
Water Booster Station #2	-	-	-	**-**
WWTP	43,821.00	34,745.00	58,382.00	**68%**
TOWN TOTAL	**102,477.00**	**130,923.00**	**152,190.00**	**16%**

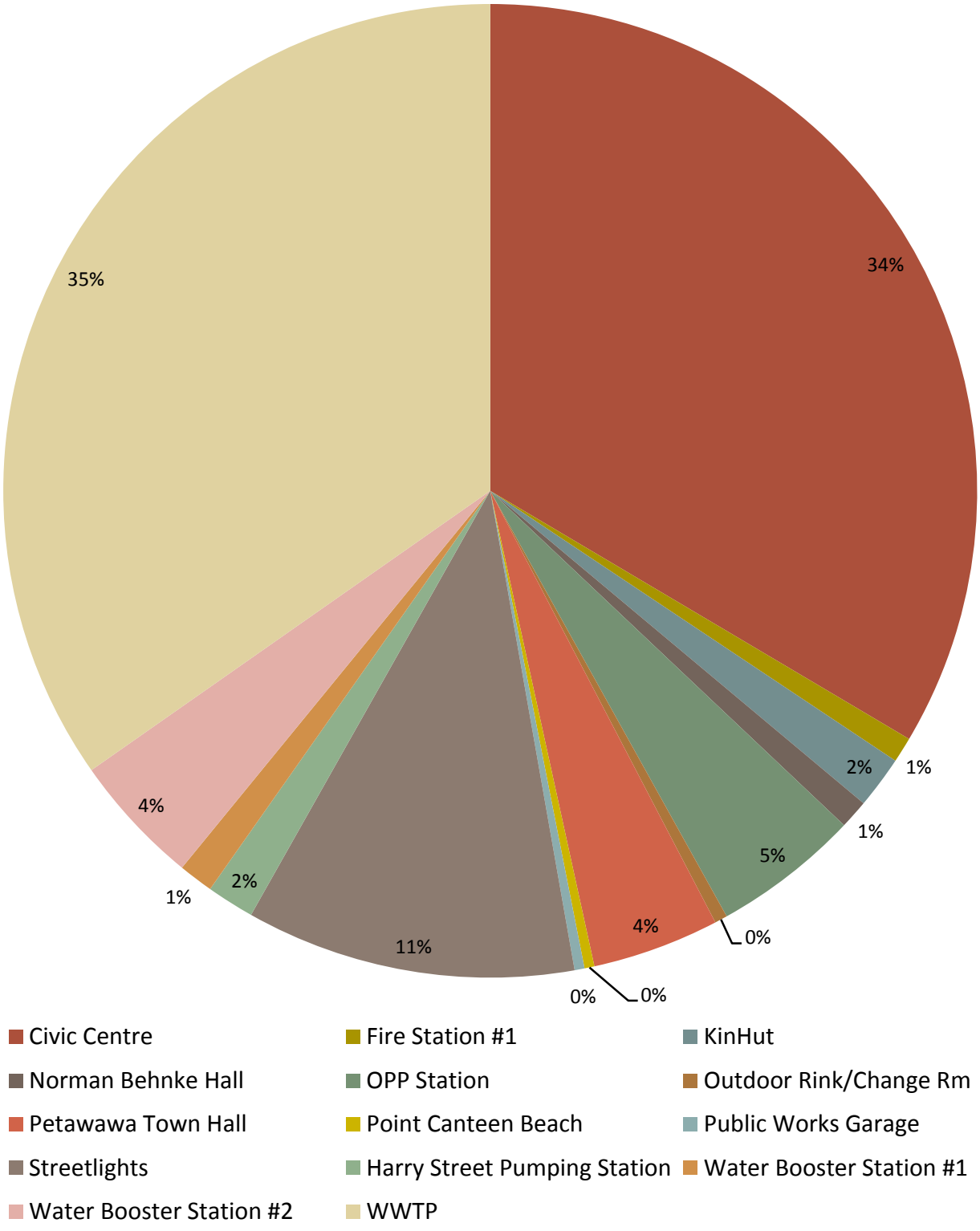


Figure S-1: 2018 Township Electricity Consumption Profile

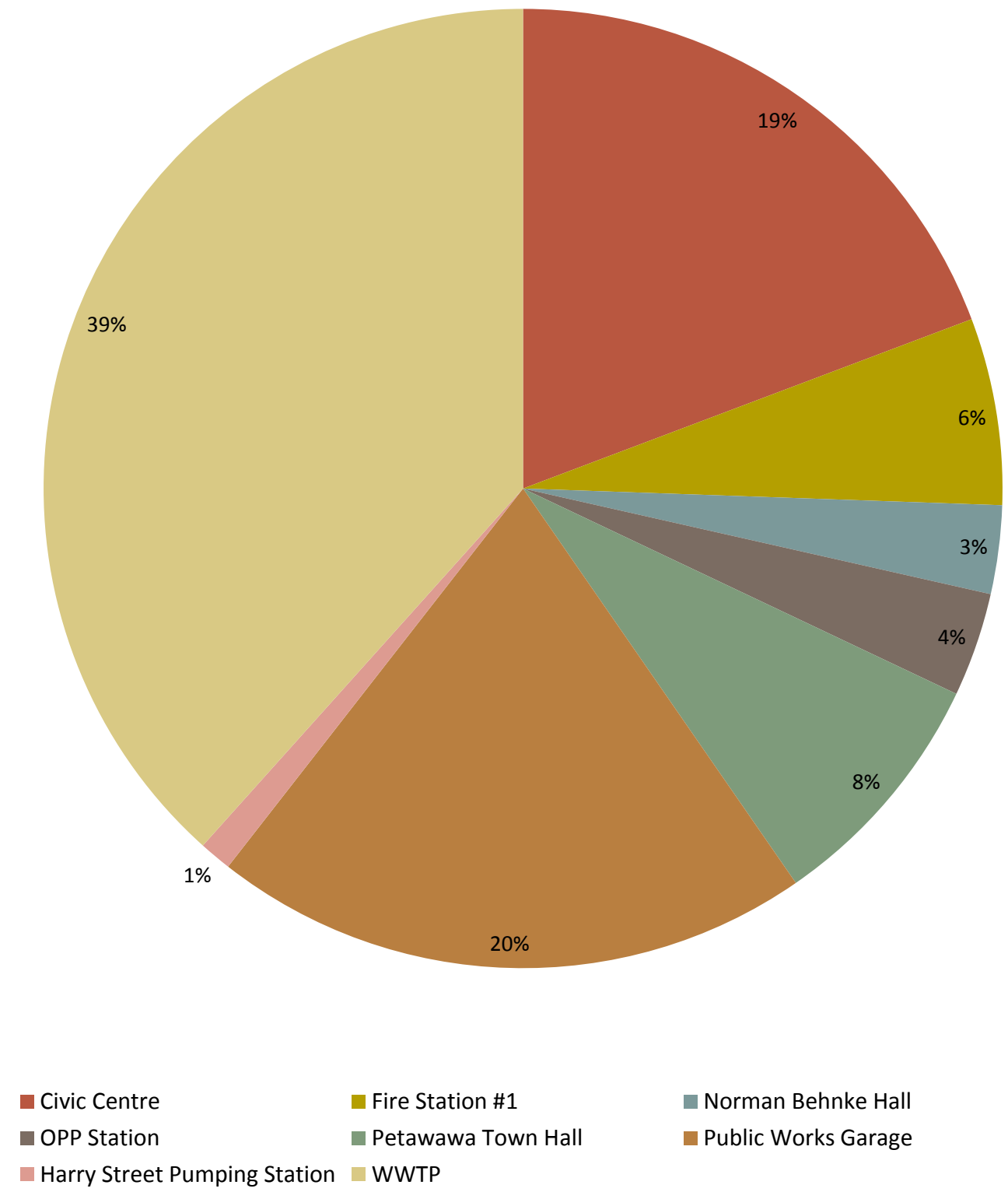


Figure S-2: 2018 Town Natural Gas Consumption Profile

Schedule 2:
Council Resolution Adopting 2019 CDM Plan Update

Schwanz Road reconstruction project and the Sand Dome have been awarded and the reconstruction of John Street is on schedule.

MOVED BY: **James Carmody**
SECONDED BY: **Murray Rutz**

That the Public Works monthly report for June be accepted as information.

CARRIED

2. Operations Activity Report – May 2019

David Unrau provided an overview of the monthly report. Mr. Unrau reported the staff in the Public Works Department also spent the majority of their time on the flood emergency. Mr. Unrau recognized Andrew Weisenberg, Mechanic/Operator, on his successful completion of the training course for emergency vehicles at the Ontario Fire College.

MOVED BY: **Gary Serviss**
SECONDED BY: **Theresa Sabourin**

That the Operations monthly report for May be accepted as information.

CARRIED

3. Water and Wastewater Monthly Report – May 2019

David Unrau provided an overview of the report submitted by OCWA. Mr. Unrau highlighted the compliance of both legislative and health and safety regulations noted in the May report.

MOVED BY: **Matthew McLean**
SECONDED BY: **Gary Serviss**

That the Water and Wastewater monthly report for May be accepted as information.

CARRIED

4. PW-15-2019 – Town of Petawawa Energy Conservation and Demand Management (CDM) Plan 2020-2024

David Unrau provided an overview of the report.

MOVED BY: **James Carmody**
SECONDED BY: **Murray Rutz**

That Council adopts the Town of Petawawa Energy Conservation and Demand Management Plan 2020-2024 as presented.

CARRIED