



## 2019-2024 Energy Conservation and Demand Management Plan

Town of New Tecumseth  
Revised: July 1, 2019

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# ABOUT THIS PLAN

## Background

Ontario Regulation 397/11 titled, “Energy Conservation and Demand Management Plans” (hereafter “*O. Reg 397/11*”) requires a municipality to prepare and submit to the Ministry of Energy (MOE) an energy conservation and demand management plan.

This 2019-2024 Energy Conservation and Demand Management Plan (hereafter the “Energy Management Plan” or “Plan”) was developed to comply with the requirements of *O. Reg 397/11*. The Corporation of the Town of New Tecumseth’s (hereafter the “Town”) first Energy Management Plan was published on June 23, 2014.

Municipalities are required to submit a five-year conservation and demand management plan to monitor progress and update their plans. The Energy Management Plan was updated and approved by Council on June 24, 2019. The Plan will be available on the [www.newtecumseth.ca](http://www.newtecumseth.ca) website, the Town’s employee intranet site and made available in print at the Town Administration Office, located at 10 Wellington Street East, Alliston.

The Energy Management Plan is a living document that outlines resources and methodologies designed to improve energy efficiency, effectiveness and performance.

The Plan is comprised of the following core elements as required by *O. Reg 397/11*:

- A summary of the annual energy consumption and greenhouse gas (GHG) emissions for municipal operations;
- A description of the goals and objectives for conserving and reducing energy consumption and managing energy demand; and
- A description of previous, current and proposed actions to conserve energy and manage demand, including a forecast of expected results for current and proposed solutions.

The Energy Management Plan represents a considered and careful plan to understand and manage the energy needs of the municipal corporation for the period from 2019 to 2024. This Plan is not a general plan for the community, but a tool for the municipal corporation to manage its energy consumption in order to reduce its carbon footprint and to control its energy costs for heated and cooled facilities.

The Plan provides for the management of the following energy resources:

- Electrical power
- Natural gas
- Vehicle fuel including clear diesel

The Energy Management Plan provides specific program components that position the corporation as a leader in implementing concrete actions that significantly reduce emissions. The Plan is consistent with the requirements of the *O. Reg 397/11* and forms the basis for a five-year operational review beginning in 2019.

## Consultation

In 2014, the Town retained the services of Honeywell Limited to develop an Energy Infrastructure Improvement Report (Honeywell Report). The Honeywell Report detailed the energy and operational cost reduction strategies to be implemented at the Town's facilities as well as the program price and savings opportunities. The Town is continuing to work with Honeywell to complete the potential energy efficient and cost savings measures as part of the Phase 1 of the project.

The Town staff also worked closely with Alectra Utilities to understand its baseline energy consumption for both electricity and natural gas. Consultation was also conducted with operations staff, the finance department and members of the senior management team to bring together as a comprehensive plan that is both practical and achievable.



Figure 1: Prior to 2017, 95 percent of New Tecumseth's streetlight fixtures were standard cobra heads as pictured above (Goal #2).

## COMMITMENT

### Declaration of commitment

Through its Official Plan, the Town has committed to ensure that all infrastructure, including sanitary sewers, water distribution and stormwater management facilities, and roads meet the needs of present and future residents and businesses in an efficient, environmentally sensitive, cost effective and timely manner.

The Town is also committed to meeting the following reporting *O. Reg 397/11* requirements:

- To monitor and update the Energy Management Plan every five years;
- To report energy consumption and GHG emissions annually; and,
- To make the Plan and energy consumption report available on the Town's website, the Town's employee intranet site and in print at the administration centre.

## Vision

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

## Goals

Together with our partners, senior management staff have been able to identify five goals, actions and success measures that will ensure the Town maintains the services that are needed, while reducing energy consumption and managing demand for energy as part of the Energy Management Plan.

These goals are intended to act as a guide and to provide focus and direction to the Plan while remaining realistic and achievable.

## ENERGY CONSUMPTION AND GHG EMISSIONS

### About the municipality

New Tecumseth has a population of about 36,800 people based on the 2016 census and occupies a land area of 274.18 square kilometres, with a population density of 134 per square kilometre.

The *O. Reg 397/11* requires the Energy Management Plan to focus on “government owned or occupied buildings, properties and facilities or such classes of buildings, properties and facilities” including those related to the treatment or pumping of water or sewage. As such, this Energy Management Plan relates to each of the following buildings or facilities owned or leased by the Town.

<b>Building/facility</b>	<b>Number</b>
Administration offices and related facilities, including municipal council chambers	5
Public libraries	3
Indoor recreational facilities and community centres, including indoor sports facilities, indoor swimming pools, gyms and indoor courts	8
Fire stations and associated offices and facilities	3
Storage facilities where equipment, vehicles or materials are maintained, repaired or stored	4
Buildings or facilities related to the treatment of water or sewage	8
<b>Total number of facilities</b>	<b>31</b>
<b>Total floor area</b>	<b>388,288 feet<sup>2</sup></b>

Figure 2: Classification of buildings/facilities. The Town does not own or operate any ambulance stations, police stations or parking garages.

## Current energy consumption

The first reporting year for the Town’s energy consumption and GHG emissions was in 2014. However, there is a variation in the number of facilities considered between 2014 and 2016. Therefore, the year 2016 will form the baseline from which energy reductions are evaluated because it is most recent year the energy consumption was reported for all 31 facilities and buildings.

The most recent available data for current energy consumption and GHG emissions is for the year 2016. Based on the 2016 Energy Consumption and Greenhouse Gas Emissions Reporting, the total energy consumption for electricity is 11,137,150 kWh and natural gas is 684,946 cubic metre for all buildings or facilities the Town owns or leases. The total cost for electricity and natural gas is \$2,953,429 for all facilities.

Figure 3 shows the Town’s total electricity and natural gas consumption from 2014-2016. There has been a 3.5 percent reduction in electricity consumption since 2014 and a 13 percent reduction in natural gas consumption since 2014. Based on this information, from 2014-2016, the Town has met and surpassed its annual 2 percent target reduction of natural gas (Goal #1).

Year	Electricity	Variance	Natural Gas	Variance
2014	11,544,401 kWh	3.5% ↓	788137 metre <sup>3</sup>	13% ↓
2015	11,184,103 kWh		762609 metre <sup>3</sup>	
2016	11,137,150 kWh		684946 metre <sup>3</sup>	

Figure 3: Electricity and natural gas consumptions from 2014-2016.

The 2016 data demonstrates that energy related costs are a significant part of overall operating costs of the Town:

- The total cost for electricity and natural gas is \$2,953,429 for all facilities including the non-reported facilities and street lighting.
- Town’s facility an overall cost intensity of under \$7.60/sqft/year.
- The Town’s Energy Performance Index is 28 ekWh/sqft/year (The lower the ekWh/sqft/year the better the Town is performing from an electricity usage perspective).
- Approximately 6,964 litres of vehicle fuel was purchased in 2016, compared to 6,128 litres in 2015 and 9,713 litres in 2014.



Figure 4: As part of Goal #2, LED options will be considered for installation of sport lighting at Coventry Park and Doner Diamond within Riverdale Park.

## Current energy costs

Figure 5 and 6 show the Town's cost of electricity and natural gas broken down by the classification of facilities.

The total 2016 costs of electricity broken down by facilities is as follows:

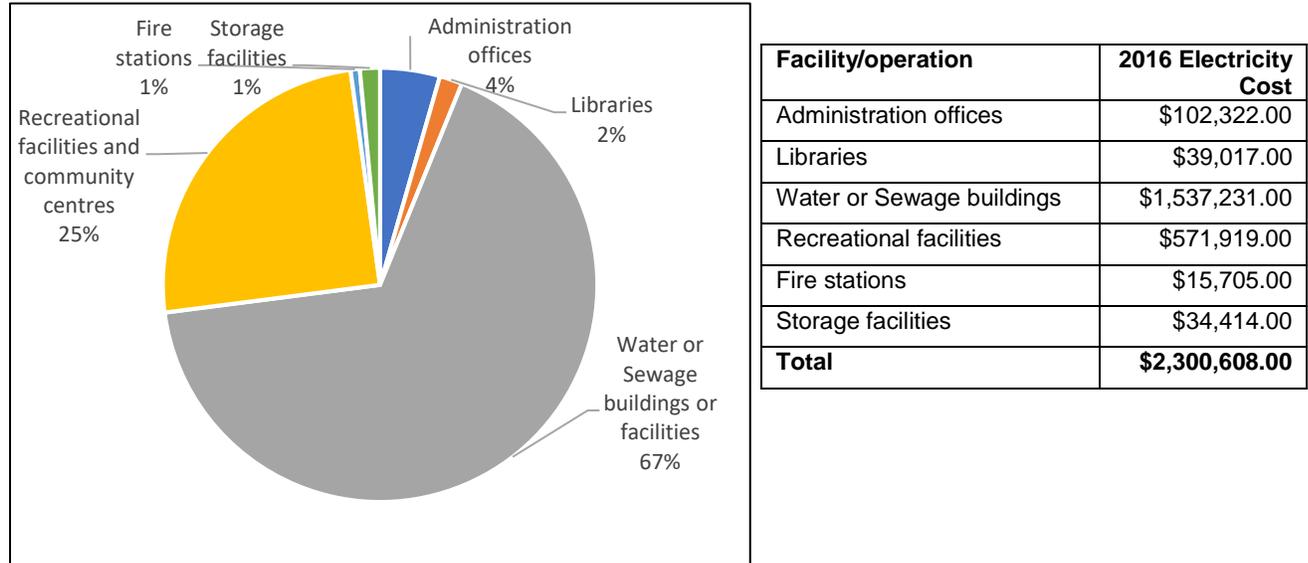


Figure 5: 2016 Total electricity costs. Note that the total electricity costs as indicated above does not include the cost of safety devices and street lighting (\$359,818.00).

The total 2016 costs of natural gas broken down by facilities is as follows:

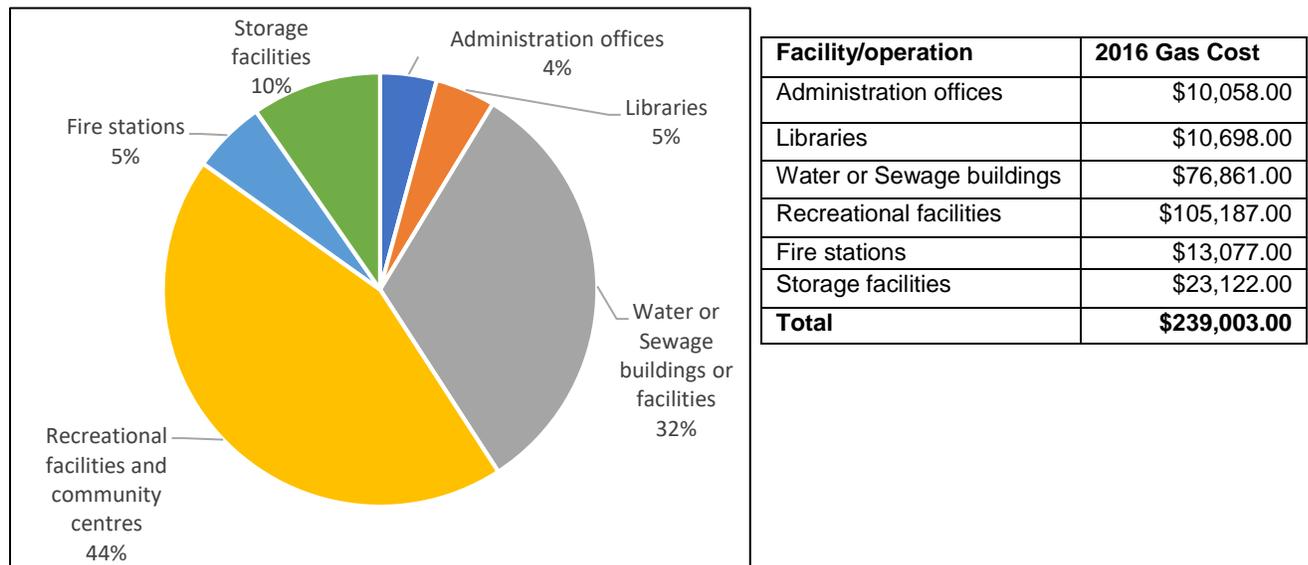


Figure 6: 2016 Total natural gas costs

Of that total energy cost, the two main energy consumers are water and wastewater facilities and the recreational facilities representing 92 percent of the total electricity

costs and 76 percent of the total gas costs. The three fire stations consume the least amount of total electricity costs at 1 percent and 5 percent of the total natural gas costs.

### Current GHG emissions

Figure 7 shows the Town’s total GHG emissions from 2014-2016. Since 2014, there has been a 13 percent reduction in GHG emissions which surpasses the Plan’s goal to reduce GHG emissions by 2 percent, annually (Goal #1).

Year	GHG emissions	Variance
2014	1979 tonnes	<b>13%↓</b>
2015	1844 tonnes	
2016	1710 tonnes	

Figure 7: GHG emissions from 2014-2016. The GHG emissions was failed to be reported in 2015 and therefore, 1844 tonnes is an estimated average between 2014 and 2016.

Of that total GHG emitted in 2016, the largest emitter is the New Tecumseth Recreation Centre located at 7300 Industrial Parkway, followed by the regional wastewater treatment plant located at 6315 14th Line and the Tottenham Fitness and Community Centre at 139 Queen Street. The three facilities listed above produced 63 percent of the total GHG emissions in 2016.

The summaries for Energy Consumption and Greenhouse Gas Emissions reporting for each Town facility, as prescribed by the *O. Reg 397/11*, for each calendar year is available for the Town’s website.

## PRIORITY ACTIONS SUPPORTING ENERGY MANAGEMENT GOALS

The following sections outline a series of goals and objectives for conserving and reducing energy consumption and managing energy demand. Under each goal, the Energy Management Plan provides a description of previous, current and proposed actions to conserve energy and manage demand, including a forecast of expected results for current and proposed solutions.

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### *GOAL #1 Reduce energy consumption and reduce GHG emissions*

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#### Alignment

The Town has been actively engaged in seeking efficiencies in energy consumption for a number of years through participation in such initiatives as Fleet Challenge Ontario, water and wastewater plant improvements, building automation and efficient lighting projects, etc.

An important goal of the Energy Management Plan is to ensure that the ongoing effort to reduce energy consumption is a priority in departmental planning and operations and corporate programs are coordinated throughout the organization to support energy related actions.

### **Success measurement**

The Town's success over the next five years will be measured against a target energy savings of 2% per year (10% reduction by 2024). The Town's goal to reduce GHG emissions over the next five years will be measured against a target GHG reduction of 2% per year (10% or 171 tonnes reduction by 2024). Quantitative targets will guide the Town's efforts on energy management.

The cumulative result of energy savings at the end of the five-year period is forecast to be approximately \$58,000.00 annually not taking into account inflation and rising energy costs, which Council can choose to use in the year 2024 to reduce taxes or reinvest in further energy saving projects. This overall goal will be achieved through implementation of other goals and initiatives. Goal #4 of this Plan provides detailed savings and additional revenues.

In order to achieve that target, this Energy Management Plan identifies opportunities (Goal #2) in the form of current and future opportunities, including considering energy conservation and energy efficiency in their acquisition of goods and services.

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*GOAL #2 Implement Phase 2 of the projects outlined in the Energy Improvement Infrastructure Report*

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### **Alignment**

The Town has already been very active and aware of energy and sustainability initiatives. In 2015, Honeywell Limited prepared the Honeywell Report detailing the energy and operational cost reduction strategies to be implemented at various Town facilities together with the costs and savings opportunities. The Honeywell Report demonstrates any proposed improvements that will continue to meet the needs of the Town and at a minimum will maintain the same design criteria and functionality levels as current.

Phase 1 of the Honeywell Report was completed in 2017 with the replacement of approximately 1800 streetlights to Light Emitting Diodes (LEDs). The Town noted a 54 percent reduction in utility usage, thus reducing the amount of GHG emitted from energy production.

The total program cost of Phase 1 was \$2,245M. Honeywell guarantees a total annual savings of \$216,352. The duration of the guarantee is nine years from the commencement date. The total anticipated savings for the nine-year period would be \$2.195M. Therefore, the program is almost breakeven over the nine-year period and the Town will continue to benefit from savings once the contract is over.

Phase 2 includes the following:

- Upgrading lights to LED lighting as well as heating, ventilation and air conditioning (HVAC) controls at Alliston Memorial Arena (AMA) and at the Beeton Joint Operations Centre (JOC);
- Upgrading the remaining street lighting to LED; and
- Completing upgrades to the remaining 6 of 11 groundwater wells to Variable-Frequency Drive (VFD) controls.

This goal will advance Phase 2 of the Honeywell Report as part of the 2019-2024 Plan. Staff have also identified further opportunities for future savings and cost avoidance. These opportunities are identified in Appendix A of the Plan.



Figure 8: Air leakage can occur because gaps lead to uncontrolled migration of conditioned air through the building envelop (Goal #2).

### **Success measurement**

Appendix A also provides a series of future opportunities that can be implemented in buildings, fleet, water and wastewater, streetlights, etc. These opportunities are designed to significantly reduce energy consumption or GHG emissions. The implementation of these projects is dependent upon staff to manage the projects and funding, both of which have a finite limit. Therefore, evaluation of success of Goal #2 can be evaluated by continuously reviewing and recommending the projects identified in Appendix A.

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*GOAL #3 Explore renewable energy opportunities through Town funded initiatives*

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**Alignment**

The Town aspires to show leadership in clean energy and is actively working towards reducing conventional energy demand by utilizing alternative energy sources. This is a significant opportunity to achieve energy efficiency by focusing on renewable energy sources such as wind, solar and biosolids.

**Success measurement**

The implementation of these projects is again dependent upon staff to manage the projects and funding. Again, success of this goal can be measured by a simple review and evaluation of future opportunities.

Town staff have identified the following large and small potential renewal energy projects over the five years of this Plan:

- Off-grid opportunities for the first self-sufficient facility in New Tecumseth;
- Installation of windmill(s) at lagoons and Town's lands;
- Purchase of solar panels to increase the use of an alternative energy source;
- Revenue opportunities to turn sewage sludge becomes a source of alternative energy; and,
- Converting cattle methane into renewable energy.

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*GOAL #4 Improve financial health by pursuing grants and incentives*

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**Alignment**

It is generally difficult to compare energy costs year over year due to the impact of weather on air conditioning, heating load, and the addition of new facilities and other effects such as extensive renovations which would result in increased energy consumption. However, it is typical for municipalities to see an increase in energy costs as they expand existing facilities or add new services.

The total cost for electricity and natural gas is \$2,953,429. After salaries, the cost of energy is one of the largest year-to-year impact to the Town's operational budget.



Figure 9: Solar panels at the Joint Operations Centre

Significant energy-related investments were made in 2015 and 2016, including executing lease agreements with third-party companies to install solar panels on the roofs of Town-owned buildings generating revenue from the leased properties.

The Town also continues to explore various grants and subsidies on an on-going basis. For example, through Alectra's retrofit funding program, the Town has submitted applications for lighting retrofits, lighting controls, and HVAC redesign. This shows that energy management focused on financial health is an effective and strategic tool for mitigating energy price increases.

### **Success measurement**

Strategic energy management includes an opportunity to reduce operating costs and positively impact the Town's bottom line as well as a decrease to the tax levy. Furthermore, investments in energy projects are easier to forecast reliably than savings or revenue increases expected by reducing energy consumption (Goal #1) and implementing energy savings projects (Goal #2).

The bottom line is that reducing operating costs in facilities directly affects the taxes and energy management investments will yield solid economic returns. The success of this goal is dependent on having a dedicated Energy Conservation Officer to act as a vehicle to track critical energy budgets, available incentives and grants.

For example, one of the on-going opportunities identified in Figure 11 is the Municipal Energy Plan Program (MEPP), administered by the Ministry of Energy, Northern Development and Mines, designed to help municipalities develop community energy plans. Opportunity exists for the Town to submit an application for the grant for the upcoming 2020 budget. The MEPP funding is available in two streams:

- Stream 1: Funds up to 50% of eligible costs, up to a maximum of \$90,000. Successful applicants have two years to complete energy plans.

- Stream 2: Funds 50% eligible costs, up to a maximum of \$25,000. Successful applicants have one year to update or enhance existing energy plans.



Figure 10: Aerial photos of the Regional WWTP, Aliiston WWTP, and the Tottenham WWTP (right to left). The three plants have been identified as facilities with opportunities for energy consumption reduction as part of Goal #2.

The following are key opportunities focused on improving the financial health of the Town:

<b>Opportunity</b>	<b>Status</b>	<b>Strategic management</b>	<b>Approximate cost benefit</b>
Alternative funding opportunities	Ongoing	In 2013, Council retained Sologix Clean Energy Corporation (formerly Solera Sustainable Energies Company) to install and maintain solar 13 photovoltaic panels on three designated roofs for 20 years increasing revenue generation from leased properties.	Sologix pays the Town \$50/kwp per year for all three roofs. In 2018, the Town was paid \$56,000.
Optimize return on investments	1-3 years	In 2019, staff began working on financing and reducing energy through RFP for Professional Services to Provide Electricity Demand Response Provider Service through Rodan Energy that is available for energy reduction initiatives. The program pays participants for turning down their electricity by a specified amount when Ontario's electricity system reaches certain pre-established targets.	Revenue is about \$15,000 for the three water/waste plants with the option of getting more facilities onboard
Pursue grants	1-3 years	Explore grants opportunities for energy conservation projects under the FCM Green Municipal Fund.	Contribution of 50% matching grant
		Explore Municipal Energy Plan Program	Stream 1 –Funds 50% of eligible costs, up to a maximum of \$90,000. Successful applicants have two years to complete energy plans. Stream 2 – Funds 50% eligible costs, up to a maximum of \$25,000. Successful applicants have one year to update or

			enhance existing energy plans.
		Town of New Tecumseth will receive \$114,585 under the 2018/2019 Dedicated Gas Tax Fund. The fund is deposited into reserves to be used for future transit expansion program, subject to Transit Feasibility Study.	\$114,585.00 towards transportation expansion program for 2018/2019
		Explore grants opportunities for retrofit projects under the Federal Community Infrastructure Improvement Fund.	Contribution of 50% of the cost of retrofit fund
Pursue subsidies	1-3 years	Staff have begun the process of applying for audit and retrofit incentives provided through Alectra Utilities.	Various
Realize increasing energy costs	1-3 years	Mitigate risk and budget variance by realizing bottom-line energy costs and anticipating the increasing costs of energy consumption.	Not applicable
	1-3 years	Analyze utility invoices to uncover billing errors and monthly trends for facilities.	Unknown

Figure 11: List of incentives and opportunities to improve the financial of the Town.

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*GOAL #5 Maximize energy savings investment through the development of communication and awareness program*

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**Alignment**

The Town is committed to ensuring that energy conservation and consumption are a priority for all staff throughout the organization through the development of ongoing communication and awareness programs. The Town has always been cognizant of the need to conserve energy.

A list of the type of behavioural and cultural actions that have led to tangible, but difficult to quantify, savings are as follows:

- Residents can apply for water conservation rebates when they switch to water-efficient toilet or investing in a rain barrel to reduce the water use in their home and impact on the environment by switching to an approved. Toilets in the home can use up to 30% of daily household water use.
- Staff routinely turn off lights in unused areas, including areas where motion sensors have not been installed.
- Office equipment (computers, printers, fax, etc.) are programed to automatically set to “sleep mode” when not in use.
- Other efforts are made to consider energy use in all aspects of day-to-day operations for example carpooling, reducing the number of off-site meetings, etc.

- The Town has actively and enthusiastically participated in the annual Earth Hour initiative and each year encourages all Town residents and businesses to come together to conserve energy and to increase awareness.

### **Success measurement**

There are also further opportunities to incorporate and encourage energy conservative practices into the corporate culture which can be used to raise awareness on conservation and corporate initiatives on a scheduled basis. This includes:

- Attending webinars, conferences and seminars focused on energy conservation and reduction;
- Partnering with stakeholders including local businesses and the Province;
- Education and training for staff to follow energy conservative behavioural practices during onboarding sessions for new employees;
- Incorporate the purchase of energy efficiency goods and services into procurement decisions; and
- Making energy conservation a key pillar in our corporate culture by adding energy consumption reduction to KPIs.

## **RESOURCES PLANNING AND PROJECT EXECUTION**

### **Monitoring and Review**

The role of monitoring progress will fall upon the Infrastructure and Development Division. The Infrastructure and Development Division will ensure that both the capital projects and behavioural changes outlined in this Energy Management Plan are maintained on a continuing basis because managing energy costs is important to both environmental and financial good stewardship.

The General Manager, Infrastructure and Development is authorized to make updates and revisions to this Plan, as required.

### **Energy Conservation Officer**

The success of the Plan is dependent on a dedicated Energy Conservation Officer to act as a vehicle to track critical energy budgets, update energy related projects and develop accountability for achieving energy reduction targets.

The dedicated person will have the lead responsibility and accountability for monitoring and achieving energy reduction targets, including, but not limited to:

- Monitoring progress of this Plan;
- Tracking energy spending by department;
- Analyzing and prioritizing projects for consideration by Council on an annual basis;
- Identifying potential projects to consider in the future;
- Creation of an energy awareness strategy for Town staff; and

- Reporting and tracking all utility incentives and grants.

The Plan has identified the need to hire a staff (Energy Conservation Officer) to take Town's initiatives to new heights. The position will be identified for Council consideration, as part of the 2020 budget process. The position will be funded through portion of the savings from the implementation of the strategies as well as grants identified in the 2019-2024 Energy Management Plan.

## EVALUATION PROGRESS AND REPORTING

### Performance Reporting

The Energy Management Plan is a living document and the senior management team will continue to review and report to Council on the progress of the initiative implementation and associated cost savings, cost containment and cost avoidances that are achieved including the identification of energy savings related to this Plan.

The exercise of developing an Energy Management Plan has created an interest in a more structured approach to energy management, tracking both energy consumption and spending, utility rates and project results. Although the Town has been proactive in the past regarding energy efficiency, this initiative provides more structure and format to the on-going activities.

### Publication

This updated plan contains a summary of the 2016 energy consumption data which must be filed with the MOE, as well as a five-year Energy Management Plan outlining planned activities for the period from 2019 to 2024.

The results of the Town's efforts will be reflected in energy consumption data required to be filed with the MOE on July 1<sup>st</sup> of each year. The energy consumption data and this Energy Management Plan are available:

- On the Town's public website: [www.newtecusmeth.ca](http://www.newtecusmeth.ca)
- On the Town's employee intranet portal at <http://intranet.newtecumseth.ca/>
- In print at the Town Administration Office, located at 10 Wellington Street East, Alliston.

## Appendix A – Current and Future Energy Saving Opportunities (GOAL #2)

Status	Category	Opportunity	Energy management benefit
Complete	Buildings	Building envelope upgrades (dealing doors and windows as needed) at the Joint Operations Centre and Alliston Memorial Arena identified as part of the Honeywell Report	Caused by pressure differences due to wind, chimney (or stack) effect, and mechanical systems, it has been shown that air leakage can represent the single largest source of heat loss or gain through the building envelopes of nearly all types of buildings.
Complete	Buildings	Occupancy sensors for public works facilities and at the NTRC	Employing the use of occupational sensors is one of the foremost ways of creating an energy efficient environment. They will contribute to the overall efficiency of the building. Occupancy sensors for light control installed at the Regional WWTP, Alliston WWTP, Mckelvey Reservoir, Tottenham Reservoir, NTRC, and Tottenham WWTP.
Complete	Buildings	Heating and maintenance of the Beeton Springs Reservoir	In 2015, the Beeton Springs reservoir building was replaced with small shed to eliminate the need for heating and maintenance of the big facility.
Complete	Recreational facilities	Retrofit fluorescent fixtures with 25-watt T8 lamps and HE electronic ballasts at the Alliston Memorial Arena identified as part of the Honeywell Report	Benefits include: improved lighting quality; reduced electricity use and connected kilowatt (kW) loads that allow additional transformer plug load capacity for equipment, computers and other electrical devices; reduced internal heat gains due to reduced connected wattage providing reduced cooling loads in the space.
Complete	Recreational facilities	Setback Cooling / Heating Equipment at the Alliston Memorial Arena and Joint Operations Centre as part of the Honeywell Report	Resulted in electrical energy, natural gas (AMA) and oil (BJOC) savings. Savings can be calculated as the difference between the annual energy consumption of the fan systems operating at pre-retrofit and post-retrofit conditions.
Complete	Streetlighting and Traffic signals	1893 units of high-pressure sodium streetlight replaced with LED streetlights for assumed subdivisions and 264 units for un-assumed subdivisions identified as part of the Honeywell Report	Savings result from increased life expectancy of new LED streetlights, and reduced maintenance cost from Hydro One. Includes a 10-year warranty on new LED fixtures (material).
Complete	Water and Wastewater	By-pass mode at Parsons Reservoir	In 2015, a by-pass mode at Parsons Reservoir was implemented to eliminate the need for Honda booster pumps running 24/7.
Complete	Water and wastewater facilities	Aeration blowers	The process now measures the dissolved oxygen in the tanks and supplies the exact amount of air required to optimize the process. New magnetic bearing blowers for aeration, one blower installed at Regional WWTP with 15 to 30% energy savings, the second one planned to be in service at the end of 2019 at Alliston WWTP.

\*All future projects are considered opportunities for exploration and are dependent upon staff to manage the projects and funding. This list is intended to serve as a guide for staff and Council during the capital planning and budgeting process. Each project will be assessed by Council as part of the normal budget processes, so the inclusion of specific projects in specific years in this plan is for illustrative purposes to provide comfort that the target is achievable.

## Appendix A – Current and Future Energy Saving Opportunities (GOAL #2)

Complete	Water and wastewater facilities	Heat recovery systems at the regional WWTP administration building	This helps achieve greater energy efficiency and lower operating costs through the utilization of waste heat. Regional WWTP administration building heat- recovery system to reduce the natural gas consumption.
1-3 years	Buildings	Induction lighting at the New Tecumseth Recreation Centre	Install new state of the art energy efficient induction light fixtures and bulbs that will reduce the light energy cost. Reduction in light energy cost by a minimum 52% less than the existing lighting system in the two ice pads and fieldhouse environment. Approximate savings of \$30,000 on average per year.
1-3 years	Buildings	Lighting retrofits at the public works facilities and JOC	All major facilities outdoor and indoor lighting is on LED Save On Energy incentive. The plan to continue to small buildings.
1-3 years	Recreational facilities	Routine Maintenance: replacement of lights, fixtures and ballasts	Lights, fixtures and ballasts in recreational facilities that are at the end of their life cycle are replaced with energy efficient hardware, such as LED lighting.
1-3 years	Recreational facilities	Coventry Park sport lighting at Ball Diamond #1	As part of the competitive bid process, LED lighting will be considered in the installation of sport lighting at Ball Diamond #1, Coventry Park to reduce energy consumption and costs. Lighting options will be dependent on bid prices, overall cost effectiveness and Council approval.
1-3 years	Recreational facilities	Doner Diamonds light replacement project at Riverdale Park	As part of the competitive bid process, LED lighting will be considered for the upgrade of sport lighting and the electrical panel at Doner Diamond, Riverdale Park to reduce energy consumption and costs. Lighting options will be dependent on bid prices, overall cost effectiveness and Council approval.
1-3 years	Water and wastewater facilities	VFDs for pumps identified as part of the Honeywell Report	Seven VFDs for motor control have been installed (wells 4,5,6,7 in Tottenham, Tottenham Reservoir, Oak St SPS) Save On Energy incentive, plan to continue replacing the rest.
3-5 years	Buildings	Require ENERGY STAR ratings for new builds	An ENERGY STAR certified home is built to be about 20% more energy efficient than a typical home. ENERGY STAR certified homes are evaluated, inspected and labelled by a third-party energy advisor. The homes are also constructed by a builder who is dedicated to building to a higher energy-saving standard.

\*All future projects are considered opportunities for exploration and are dependent upon staff to manage the projects and funding. This list is intended to serve as a guide for staff and Council during the capital planning and budgeting process. Each project will be assessed by Council as part of the normal budget processes, so the inclusion of specific projects in specific years in this plan is for illustrative purposes to provide comfort that the target is achievable.

## Appendix A – Current and Future Energy Saving Opportunities (GOAL #2)

1-3 years	Recreational facilities	Ice plant and ice arena efficiencies	The TCFC can be equipped with new concrete slab, under floor heating system, brine piping and insulation which will result in gas, hydro and GHG savings. New equipment will increase the cooling efficiency at the compressor. New energy efficient motors (brine pump, water pump and compressor) helps save electrical energy through decreased usage and makes the refrigeration plant more efficient.
3-5 years	Fleet	Renewal of fleet with green/electric vehicles, implementing green fleet policies and “right-sizing” vehicles	<p>Operation of Town vehicles and equipment contribute largely to GHG output, continuing to adopt green fleet policies will reduce GHG emissions as well as decrease fuel costs. Replacement of current fleet assets with more efficient vehicles and introducing electric vehicle technology to the fleet are two methods to reduce energy demand.</p> <p>In addition, “right sizing” vehicles, preventative maintenance programs and providing training on proper driving habits are also effective methods of reducing fuel demand.</p>
3-5 years	Parks	Energy efficient opportunities for operations	Ex. Robot lawn mowers are much more environmentally friendly and will help limit the effect on the environment and do not need to be plugged in or release gas emissions and harmful toxins. Almost all lawn mowers are powered by lithium ion batteries. They can use as little as 30 watts of power, which is less than a domestic light bulb.
1-5 years	Streetlighting and Traffic Signals	Cobra head lighting identified as part of the Honeywell Report	Future streetlight conversion to LED will occur when currently un-assumed subdivisions are assumed by the Town, which account for approximately 450 streetlight luminaires. There are currently 14 traffic signal locations that can be converted to LED.
1-3 years	Streetlighting and traffic signals	Upgrade to pedestrian heads and LED traffic signals heads identified as part of the Honeywell Report	65 signal heads can upgrade to replace the existing bulbs and 52 pedestrian displays with LED fixtures. Conversion from incandescent bulbs to LED fixtures use approximately 85% less electricity and have a significantly longer useful life.
1-3 years	Water and wastewater facilities	Aerators in the lagoon	Installation of wind turbine at Tottenham lagoon aeration to take advantage of wind energy was done in 2017 and then removed as per MOE order. Opportunity exists to obtain MOE approval and re-install the wind turbine.

\*All future projects are considered opportunities for exploration and are dependent upon staff to manage the projects and funding. This list is intended to serve as a guide for staff and Council during the capital planning and budgeting process. Each project will be assessed by Council as part of the normal budget processes, so the inclusion of specific projects in specific years in this plan is for illustrative purposes to provide comfort that the target is achievable.