

# **Energy Conservation & Demand Management Plan**

Original Plan: October 7, 2014

Updated Plan: June 27, 2019

The Township of Bonnechere Valley

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## **1.0 INTRODUCTION**

The Township of Bonnechere Valley (TBV) developed and implemented its first Energy Conservation and Demand Management Plan (the Plan) in 2014, in accordance with Ontario Regulation 397/11. TBV has revised and updated the Plan for the period of 2019 to 2024. The next update will be required by July 1, 2024.

The Township is a small, picturesque municipality located in Renfrew County in eastern Ontario. It was formed in 2001 through the amalgamation of the South Algona, Sebastopol and Grattan, and the Village of Eganville. TBV has a population of approximately 3,674 people, with Eganville being the largest residential area at a population of 1,022.

The area is rich in natural beauty, known for its lake and rivers, especially the Bonnechere River which flows directly through the village of Eganville. TBV is also a popular destination with astronomers for star gazing, due to the vivid dark sky and high altitude. The municipality lays claim to the highest populated point in Ontario, with Foymount/Sebastopol being approximately 500 metres above sea level. Beyond tourism, key economic drivers include farming and agriculture, forestry, and aggregate resource mining.

### **1.1 PLAN STRUCTURE**

The structure of this Plan follows the framework laid out by Local Authority Services' Energy Planning Tool. Local Authority Services (LAS) is a subsidiary of the Association of Municipalities of Ontario. The LAS framework involves 5 key steps: Commitment, Understanding, Planning, Execution, and Evaluation. Each step is outlined, in order, below.

## **2.0 COMMITMENT**

### **2.1 DECLARATION**

The Township of Bonnechere Valley will use existing resources and leverage outside agencies where appropriate to reduce our energy consumption and its related environmental impact.

### **2.2 VISION**

We are continually reducing our total energy consumption and associated carbon footprint through wise and efficient use of energy and resources, while still maintaining an efficient and effective level of service for our clients and the general public.

### **2.3 GOALS**

1. To maximize the efficient use of the Township's fiscal resources.
2. To minimize negative environmental impact of Township operations.

### **2.4 OVERALL TARGET**

Over the previous five (5) years, our total energy consumption initially fell (in 2015), but has steadily increased since that time. In 2018, our total consumption was approximately 1.9 million equivalent kilowatt-hours (ekWh), which represented a 7.8% decrease from our 2013 figure.

Going forward, by 2023 we will endeavour to reduce the energy consumption per square foot of our municipal facilities by 15%, versus our 2018 figure.

### **2.5 OBJECTIVES**

1. To improve the energy efficiency of our facilities by utilizing best practices to reduce our energy consumption and mitigate the impact of energy cost increases.
2. To create a culture of energy conservation among Township staff.
3. To improve municipal staff knowledge in energy consumption and energy conservation.
4. To reduce greenhouse gas emissions associated with our energy use.

## **3.0 UNDERSTANDING**

### **3.1 MUNICIPAL ENERGY SITUATION**

TBV uses three types of energy in its facilities: electricity, fuel oil, and propane. Electricity is currently purchased through Local Authority Services' (LAS) bulk purchase program. LAS, is a subsidiary of the Association of Municipalities of Ontario (AMO). The LAS program is intended to provide municipalities with a hedge against price fluctuations, and therefore save them money on electricity. Between July 2013 and December 2018 the Township has saved approximately \$23,000 by using the LAS program.

Fuel oil and propane are currently purchased from McCarthy Fuels located in Killaloe, Ontario.

### **3.2 HOW WE MANAGE ENERGY TODAY**

TBV has a solid history in energy conservation initiatives. In 2006 the Township performed energy audits on nine of its facilities, most of which were the highest energy use buildings. Since that time the Township has used those audit recommendations as a strategy for energy conservation projects at each facility.

In addition, TBV began LED streetlight replacement program in 2010. Since that time all streetlights have been upgraded to the much more efficient LED technology.

Energy conservation projects over the past decade have fallen into the categories of lighting, heating/cooling/ventilation, insulation, windows, and motors/pumps. Examples of specific projects completed to date are outlined in Appendix B.

### **3.3 SUMMARY OF ENERGY CONSUMPTION, COST, AND GHGS**

TBV's energy consumption is driven mainly by the town of Eganville, due to the concentration of several high energy use facilities (i.e. Eganville Arena, Sewage Treatment and Water Filtration Facilities).

In order to track total energy consumption, the propane and fuel oil consumption amount have been converted into equivalent kilowatt hours (ekWh). For total greenhouse gas emissions, the emissions derived from the use of various energy types have been converted into equivalent kilograms of carbon dioxide (ekgCO<sub>2</sub>). For the calendar year 2018, the Township used 1,918,454 ekWh of energy, at a total cost of \$142,703, and generating about 213,092 ekgCO<sub>2</sub> of greenhouse gas emissions.

The associated 2018 consumption amounts and costs for the three energy sources are outlined below.

**Table 1 - 2018 Energy Consumption**

2018 Energy Consumption		
Energy Source	Energy Amount	Cost
Electricity	1,382,053 kWh	\$105,808
Oil	16,643 L	\$12,546
Propane	50,445 L	\$24,348
Source: Township of Bonnechere Valley data		

Based upon 2018 data, the existing energy rates and associated greenhouse gas emissions are as follows:

**Table 2 - Energy Rates & GHG Emissions**

Energy Source	Cost per Unit Purchased*	Cost per ekWh of Energy**	GHG Emissions (kg of CO <sub>2</sub> eq) per ekWh of Energy**
Electricity	\$0.071 / kWh	\$0.071	0.060
Fuel Oil (#2)	\$0.75 / litre	\$0.069	0.255
Propane	\$0.482 / litre	\$0.067	0.218
* Calculated using the Township's total annual cost / total annual consumption for each energy source			
** Calculated using conversion factors from Natural Resources Canada (NRCAN). Electricity GHG emission value from Intrinsic's 2016 report of GHG Emissions Associated with Various Methods of Power Generation in Ontario.			
Source: Township of Bonnechere Valley data, Natural Resources Canada conversion factors			

### **GHG Emissions**

When we consume energy, it is almost guaranteed that there is some level of GHG emissions resulting from its use. These GHG emissions are primarily from the burning of fossil fuels for heat.

In TBV, propane and fuel oil are used directly for heating applications in various municipal buildings, as well as for water heating and cooking. Greenhouse gas emissions from the use of fuel oil and propane are a direct byproduct of the combustion of the fuels themselves. However, GHG emissions associated with electricity use are a bit different. In Ontario, GHG emissions from electricity are dependent on the way it is generated in the Province. Ontario currently uses a mix of nuclear, hydroelectric, natural gas, and non-hydro renewable sources to generate electricity. Each component of this mix has a different level of GHG emissions associated with it.

This generation mix (and thus the amount of GHG emissions associated with electricity use) can change slightly on an annual basis. One of the biggest changes to the electricity mix in Ontario occurred between 2005 and 2014, when Ontario phased out coal across the province. This change has significantly reduced the amount of GHG emissions per kWh of electricity, especially in comparison to values prior to 2014.

Please note that in this report, we have ignored auxiliary sources GHG emissions from energy use, such as GHG's emitted during construction, manufacturing, transportation, etc.

### 3.4 TRENDS IN ENERGY CONSUMPTION

#### 3.4.1 OVERALL TOWNSHIP TREND

Overall, TBV's energy use, and the associated greenhouse gas (GHG) emissions have risen over the past three years. At the same time, the total cost of energy has fallen. The cost decrease can be largely attributed to drop in the average cost per kWh for electricity in 2017 (19% decrease) and 2018 (20% decrease). The table below provides a summary.

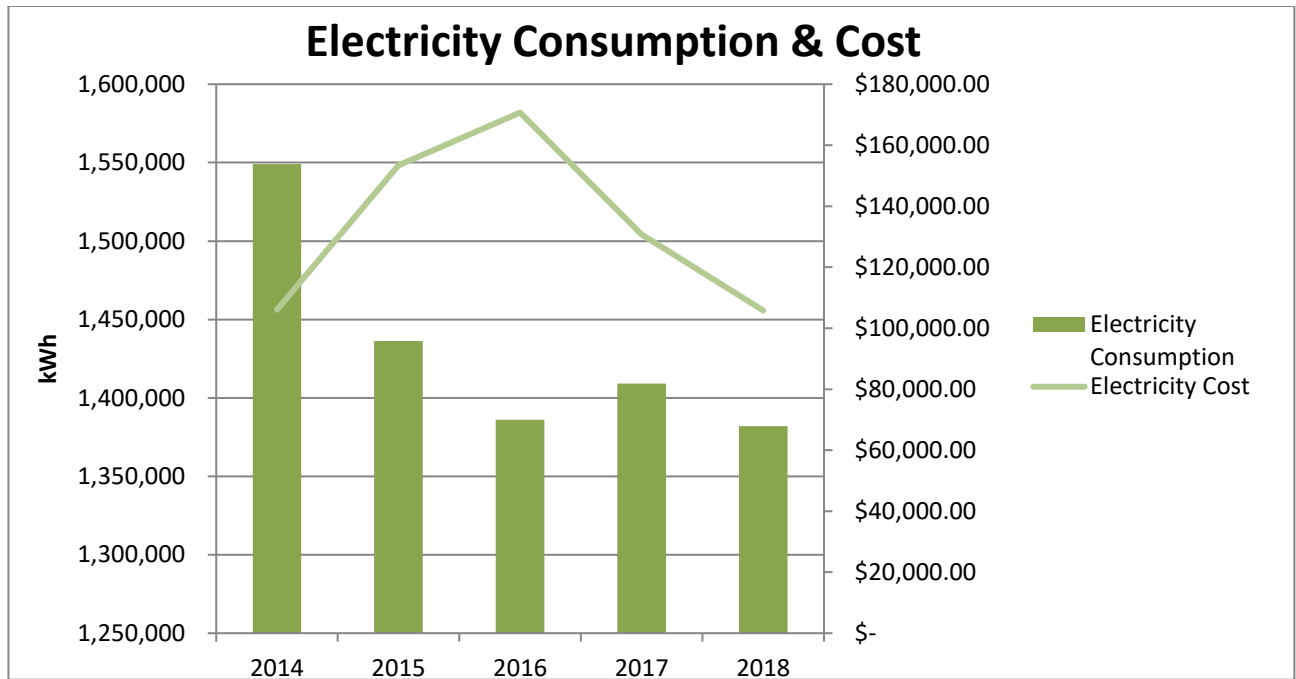
**Table 3 - 3-Year Energy Trend**

Year	Energy Use (ekWh)	Cost	GHG Emissions (kgCO <sub>2</sub> e)
2016	1,883,194	\$203,224	204,929
2017	1,907,986	\$164,862	207,354
2018	1,918,454	\$142,703	213,092

#### 3.4.2 ELECTRICITY CONSUMPTION TREND

Data for TBV's electricity consumption is more readily available, and both consumption and costs for the past five years are shown in Figure 1.

TBV's overall electricity consumption has trended downward during that time, despite a slight increase (1.7%) in 2017. During the past 3 years in particular, the electricity consumption figures were 1,386,074 kWh in 2016, 1,409,066 kWh in 2017 and 1,382,053 kWh in 2018. The resulting electricity costs were approximately \$170,688 (2016), \$130,729 (2017), and \$105,808 (2018), representing a 23% decrease from 2016 and further 19% decrease from 2017. As noted above, the average cost of electricity per kilowatt hour, fell significantly in each of 2017 and 2018.



**Figure 1 - Electricity Consumption & Cost**

\*Source: Energy Consumption and Cost Data from Township of Bonnechere Valley

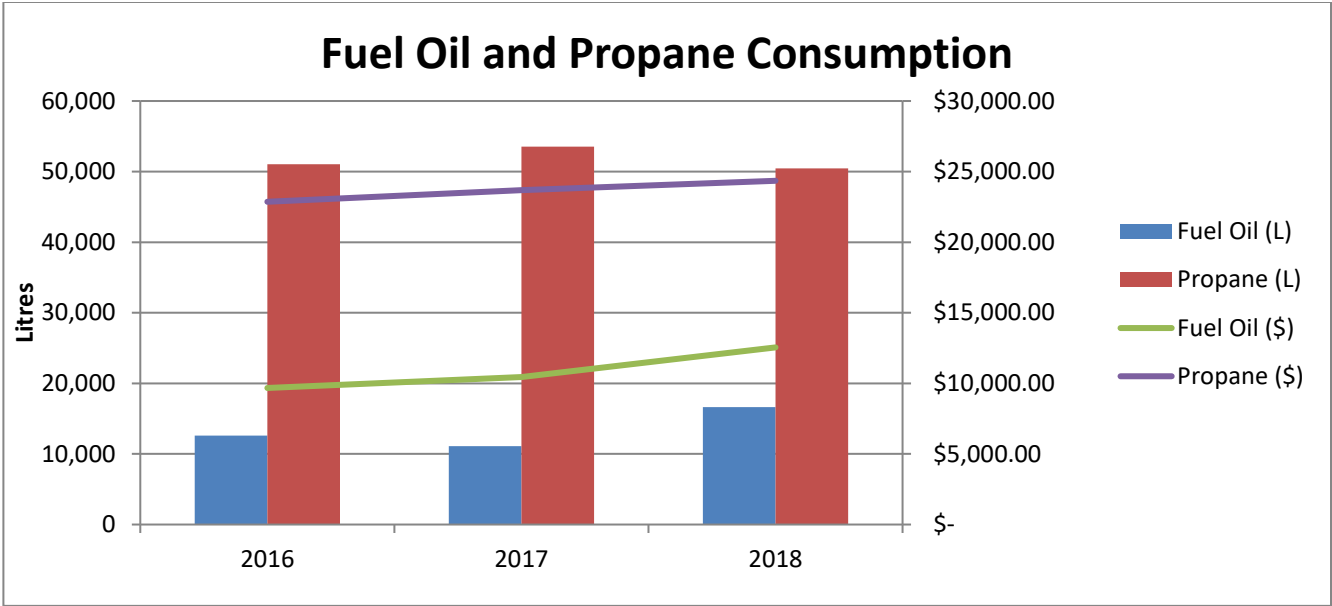
**3.4.3 FUEL OIL AND PROPANE CONSUMPTION TREND**

Many of TBV's facilities use fuel oil and propane for heating during the winter months. Consumption of these fuels is directly impacted by fluctuations of temperature from year-to-year. The consumption figures noted below are based upon annual purchased amounts.

Total fuel oil use decreased by 12% in 2017 and increased by 49% in 2018, with the resulting consumption figures being 12,586 litres in 2016, 11,108 litres in 2017 and 16,643 litres in 2018. The associated fuel oil costs for each year were \$9,673, \$10,450, and \$12,546 respectively.

Total propane use increased by 5% in 2017 and decreased by 6% in 2018, with the resulting consumption figures being 51,051 litres in 2016, 53,543 litres in 2017 and 50,445 litres in 2018. The resulting propane costs have increased each year, with the associated amounts being \$22,863, \$23,682, and \$24,348 respectively.





**Figure 2 - Fuel & Propane Consumption**

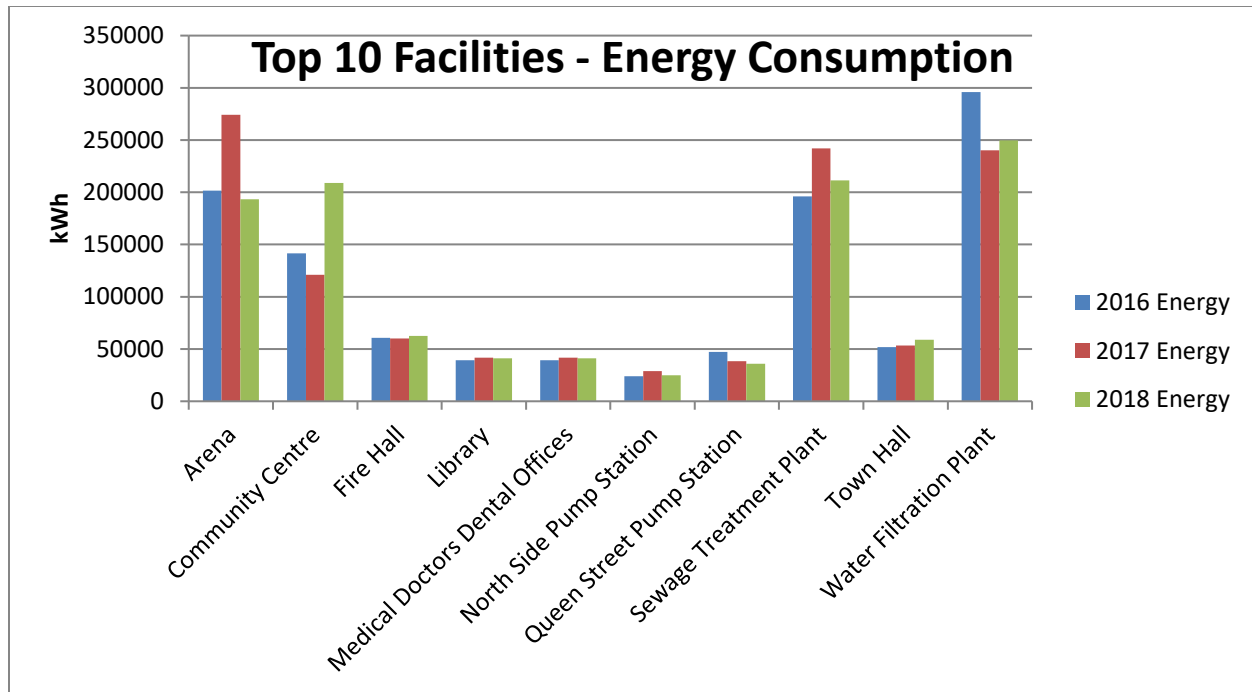
*\*Source: Energy Consumption and Cost Data from Township of Bonnechere Valley*

**3.4.4 GREENHOUSE GAS EMISSIONS TREND**

TBV's GHG emissions have increased slightly, growing by 1.2% and 2.7% respectively in 2017 and 2018, with the resulting GHG emission in CO<sub>2</sub>e/year being 205 tonnes in 2016, 207 tonnes in 2017 and 213 tonnes in 2018. [Note: 1 tonne equals 1,000 kg]

**3.4.5 ENERGY TREND OF TOP 10 BUILDINGS**

Below is a graph showing the three year energy trend of TBV's top 10 buildings in terms of total energy consumption.



**Figure 3 - Top 10 Facilities in Energy Consumption**

\*Source: Energy Consumption and Cost Data from Township of Bonnechere Valley

### 3.4.6 STREETLIGHT ENERGY CONSUMPTION TREND

TBV initiated a streetlight upgrade program in 2010, replacing older high pressure sodium lamps with much more efficient LED lamps. The replacements occurred over several years, as required maintenance was being performed, and all streetlights have been upgraded as of 2019.

**Table 4 - Streetlight Consumption & Cost**

Year	Consumption (kWh)	Cost
2016	8,582	\$1,011
2017	9,242	\$803
2018	11,931	\$804

Source: LAS Streetlight Account Data

The streetlights are part of the LAS electricity purchase program, and while annual consumption has risen in each of the past two years, the cost has fallen due to lower prices paid for electricity (per kWh) in 2017 and 2018. The cause of the increase in consumption in 2017 and 2018 is unknown, and should be investigated.

### 3.5 RENEWABLE ENERGY UTILIZED OR PLANNED

TBV owns the Eganville Generating Corporation, which operates the Eganville Dam. The hydroelectric dam has a capacity 750kW. All electricity generated feeds into the Hydro One electricity grid for which the Township is paid an average rate of 12.5 cents/kWh. The dam is located on the Bonnechere River and is part of a larger hydroelectric system in Renfrew County. The dam has cultural and historic value for Eganville, and generates a significant

amount of electricity for the Region. The total electricity generated over the past five year is shown in Figure 4. TBV plans to continue to own and operate the dam.

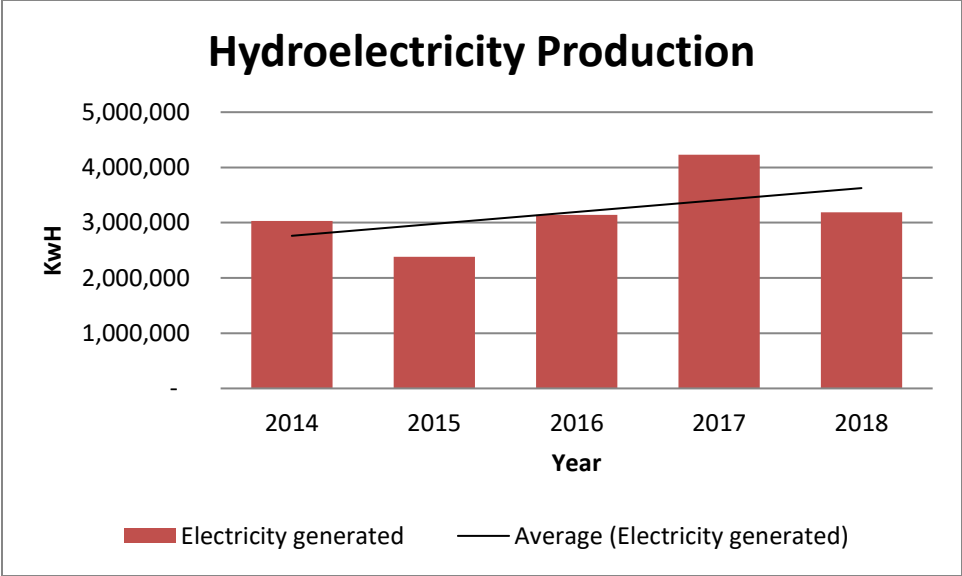


Figure 4 - Hydroelectricity Production - 2014-2018

## **4.0 PLANNING**

### **4.1 STRUCTURE PLANNING**

The 5-year Energy Conservation and Demand Management Plan includes both short term and mid-term strategies. Short-term is defined as years one through three of the Plan. While some headway was made during the previous Plan, a number of the focus areas have been carried over to this Plan. The short-term focus areas will be:

- Establishment of an Energy Management Team;
- Maintaining the annual energy consumption tracking and reporting process;
- Completing training and education of Township staff;
- Implementing no cost & low cost programs, processes, and projects; and
- Planning for larger expenditures in coming years

Mid-term is defined as years four and five of the Plan. Mid-term focus areas will be:

- Higher cost programs, processes, and projects

### **4.2 ENERGY LEADER**

TBV will develop a more focused effort on energy management through the creation of an energy management team. This team will be responsible for the implementation of the Plan and review of the corporate energy management strategies. The team will meet on a quarterly basis to review energy consumption reports, provide updates on energy initiatives, and discuss successes and challenges.

### **4.3 ENERGY TRAINING**

TBV will train staff on energy use and energy conservation. General training will be offered for all staff, while additional, more technical training will be offered for operations staff. Natural Resources Canada Dollars to Sense energy workshops will be considered as a training option where applicable.

### **4.4 ENERGY PURCHASING**

TBV will continue to purchase electricity through Local Authority Services' Electricity Program. Other energy sources (propane, oil) will be purchased through local suppliers.

### **4.5 PROGRAMS/PROCESSES/PROJECTS**

Energy conservation initiatives will take the form of programs, processes, and projects. Below is a list of initiatives to be considered over the duration of this Plan.

#### **4.5.1 PROGRAMS**

- Continue to utilize the 2006 energy audit recommendations to develop similar initiatives in un-audited buildings. See *Appendix A for a summary of Energy Audit Recommendations*.
- Develop an energy audit program for the Top 10 energy use buildings where two buildings are audited per year (that were not audited previously). Ensure that the audits focus on heating (building & water), which is generally the largest energy consumption activity.
- Continue with the upgrade of T12 lamps and/or fixtures to T8 lamps or LED technology, as they require replacement.
- Investigate the use of LAS Facility Lighting Service for all facilities.
- Host quarterly Lunch & Learn sessions for Township staff to support the creation of a culture of conservation.
- Investigate the possibility of participation in a demand management program to conserve energy and save money by reducing demand on the provincial electricity grid during peak periods.
- Develop stories/case studies of successful TBV energy initiatives and share with entire Township staff and community.

#### **4.5.2 PROCESSES**

- Implement a process to track on a monthly basis energy use and cost for each building.
- Implement regular review of energy consumption data by appropriate TBV staff members.
- Implement building start-up and shut-down schedules, where appropriate, and add into standard work procedure for key building personnel to eliminate waste and maximize equipment efficiencies.
- Where possible, make use of 'free' cooling in summer by programming building control system to bring in 100% outdoor air at night.
- Ensure that building humidity is properly controlled.
- Turn off printers and copiers at night and on weekends, where possible.
- Where possible, consider consolidation of operations to reduce costs and energy consumption.
- Strive for high efficiency new buildings or renovations (particularly insulation, HVAC arrangement/airflow properties, and lighting).
- Investigate the potential to bring natural gas to the community.

#### **4.5.3 PROJECTS**

- Complete an internal review of all Township buildings not audited, to confirm: type of lighting, type of heating/cooling, type of thermostats, presence of exhaust fans, presence/type/age of pumps, presence/condition of weather stripping and floor sweeps, other equipment that utilizes energy.
- Install and use programmable thermostats in applicable buildings.

- Install motion sensors in buildings where applicable (particularly bathrooms, storage areas, etc.).
- Increase insulating properties of buildings on an as-needed basis (the public works garage for sure).
- Investigating the use of solar thermal and/or geothermal heat pump systems to reducing thermal loads relating to building space and water heating.
- Continually investigate and pursue, where possible, energy conservation funding opportunities.
- Complete an analysis of energy demand for the various Township buildings – including drivers of demand and associated costs.
- Investigate the possibilities of renewable energy projects (i.e. solar, small-scale wind) at Township owned facilities and properties.
- Install an alarm system to warn personnel when overhead doors are left open.
- Investigate using free computer programs like “Edison” to automatically shut down computers when not in use.
- Install occupancy (motion) sensors for lights, where appropriate. Especially consider bathrooms and storage areas.
- Enhance building envelope by replacing caulking, weather-stripping, and insulation where appropriate.
- Investigate the potential to combine the 2 existing electricity meters at the TBV Roads Department garage on Hwy 512 in an effort to reduce fixed costs associated with each meter.
- Consider upgrading building insulation at the TBV Roads Department garage on Hwy 512.
- Investigate re-commissioning of buildings that have experienced significant change in use, space configuration, or expansion since their construction.
- Review and upgrade/remove/replace baseboard heaters, and install remote thermostats for baseboard heaters as applicable.
- Invest in plug-load power monitors to be shared between facilities.
- Convert baseball field lighting to LED technology.

## **5.0 EXECUTION**

### **5.1 MUNICIPAL LEVEL**

On an annual basis the Township's Energy Team will develop an Energy Action Plan, made up of a variety of programs, processes and projects. Action Plan items will be limited to one year for completion. Larger action items can be broken down into smaller steps to meet the one year timeline. Each year a new Energy Action Plan will be developed. By limiting actions to a single year, it facilitates forward movement on many projects simultaneously and allows for the incorporation of new information or technologies that may come available during the term of the Energy Management Plan.

The Energy Team will implement and monitor the energy projects of the Township and will report annually to municipal council on its successes and challenges in implementing the Energy Action Plan.

The Energy Team will also review and update the Energy Conservation and Management Plan every 5 years as legislated by O.Reg. 507/11 under the Electricity Act.

### **5.2 ASSET LEVEL**

Once the annual Energy Action Plan is completed, it will be the responsibility of the operations team to implement the various action items. In particular, the individual with responsibility for the specific buildings will be responsible for the implementation of the initiatives associated with those buildings. Tracking and reporting will be included in the implementation to allow for measurement of the impact of the actions. Facility energy use will be tracked and communicated on a regular basis to those responsible for the various assets.

In addition, the department heads will review current practices of the facilities to ensure consistency across the Township.

### **5.3 INITIATIVES COMPLETED TO DATE**

A number of initiatives described in TBV's 2014 Plan have been completed. These include:

- Converting T12 building lighting to more efficient T8 lighting as replacements are needed;
- Converting all streetlights to LEDs;
- Tracking and reviewing energy consumption;
- Substantial upgrades to the Eganville Arena; and,
- Seeking vendor input in relation to increasing energy efficiency through TBV's tendering process.

## 6.0 EVALUATION

### 6.1 ENERGY PLAN REVIEW

The Energy Management Team will review progress towards the goals and objectives of the Energy Conservation and Demand Management Plan on an annual basis.

In addition, progress on the annual Energy Action Plan initiatives will be tracked and reviewed by the Energy Management Team on a quarterly basis. The regularly tracked energy consumption data will be used to evaluate the success of the implemented energy initiatives. To the extent possible, the costs and resulting energy and greenhouse gas savings of each energy initiatives will be calculated as part of the evaluation. The actions that were not completed by year's end will be re-evaluated for the potential inclusion in the following year's Energy Action Plan. By creating single-year Energy Action Plans, the Township will be able to adjust speed, size, and complexity of energy project based on current and future internal and external conditions.

#### 6.1.1 ENERGY CONSUMPTION BASELINE

The energy consumption over the term of the original Plan can act as a baseline against which TBV can measure its performance under the current Plan. The total energy consumption of the municipality during the original Plan (expressed in ekWh) is shown in Figure 5. After falling 7.4% in 2015, the total energy consumption has shown a slow but steady increase.

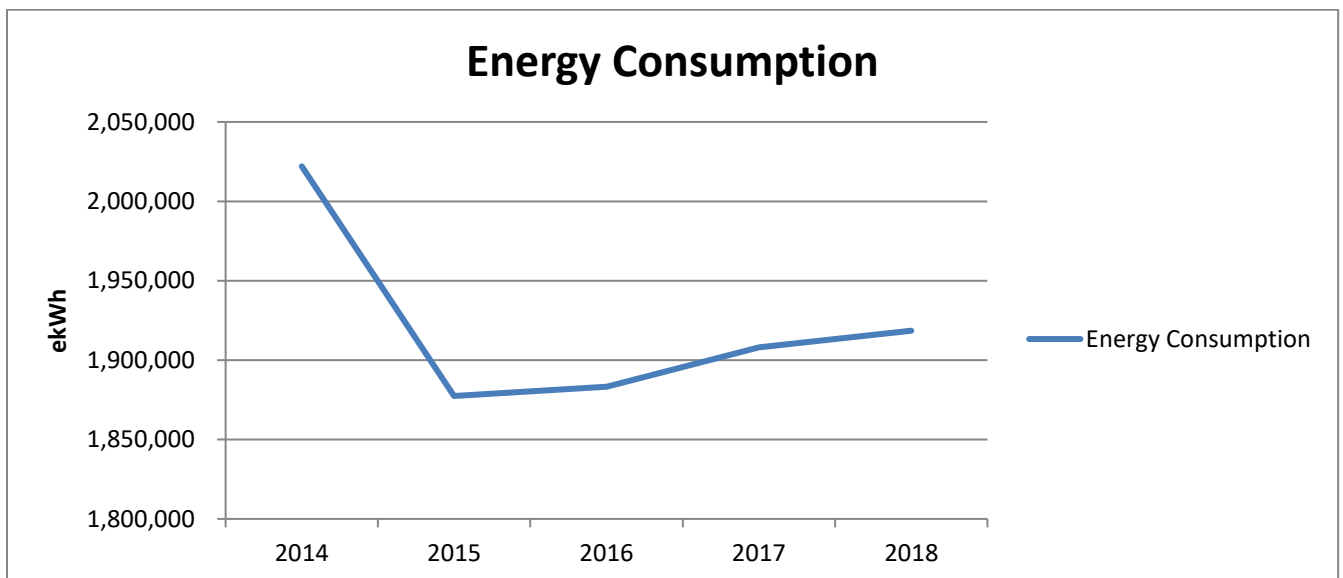


Figure 5 - Total Energy Consumption - 2014 - 2018



## **7.0 CLOSING**

As with the original Plan, this updated TBV Energy Conservation & Demand Management Plan has taken a short and non-complex approach. The community is proud of the many energy conservation initiatives taken to date, particularly given the relatively small budget and staff resources available to complete them.

TBV will continue in its quest to manage energy effectively and efficiently, in a stepped and pragmatic fashion.

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**Appendix A**  
**Recommendations from 2006 Energy Audits**

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Summary of Initiatives from 2006 Energy Audits				
Completed (X) or Incomplete (O)	Action Item	Cost	Annual Savings	Payback (Years)
<b>Eganville Arena / Eagle's Nest Hall</b>				
	<b><u>Eagle's Nest</u></b>			
O	Add new R24 roof membrane to Eagle's Nest roof	\$ 100,000	\$ 1,300	77
O	Implement ice temperature monitoring system to allow ice temperature to rise during off-hours and then chilled to appropriate hardness prior to occupied periods			
	<b><u>Eganville Arena Lighting:</u></b>			
X	Replace arena light with energy efficient, metal halide fixtures	\$ 15,200	\$ 2,600	6
O	Replace all incandescent lights with T-8 fluorescent	\$ 780	\$ 288	3
O	Replace T-12 fluorescent with T-8 fluorescent	\$ 8,350	\$ 1,128	7
O	Replace all incandescent exit lamps with LED type lamps	\$ 500	\$ 108	5
	<b><u>Eganville Arena Heating, Ventilation, and Air Conditioning:</u></b>			
O	Install low-emissivity (low-E) ceiling in arena to reduce ice surface heat gain	\$ 44,000	\$ 5,500	8
X	Insulate weather-stripping on south-facing overhead door	\$ 500	\$ 350	
O	Replace two (2) exterior overhead doors in arena with new R20 insulated doors	\$ 4,000	\$ 700	6
O	Install insulated motorized dampers on air intake/exhaust louvres in services areas	\$ 4,000	\$ 250	16
X	Replace bathroom exhaust fans with heat recovery ventilator with electric coil	\$ 10,000	\$ 1,400	7
O	Install programmable thermostats for temperature setback on baseboard heaters (3) in Eagle's Nest	\$ 300	\$ 200	0.5
O	Ventilation - install three 48" x 48" motorized dampers to prohibit outdoor air infiltration	\$ 3,000	\$ 100	30
O	Service area ventilation - install insulated motorized damper	\$ 1,000	\$ 150	7
<b>Municipal Office / Bonnechere Museum/Library/Grattan Garage/Sewage Treatment Plant/Water Treatment Plant</b>				
	<b><u>Lighting upgrades</u></b>			
O	Municipal Office - replace T-12 with T-8 / replace exit lights with LED	\$ 4,227	\$ 1,012	4
X	Bonnechere Museum - replace T-12 with T-8 / replace incandescent with CFL	\$ 951	\$ 304	3
X	Library / Senior's Centre - replace T-12 with T-8	\$ 3,748	\$ 1,920	2
X	Grattan Garage/Office - replace T12 with T-8 / replace incandescent with CFL	\$ 1,563	\$ 368	4
X	Sewage Treatment Plant - replace T-12 with T-8	\$ 501	\$ 115	4
40% Complete	Water Treatment Plant - replace T-12 with T-8 / replace exit signs with LED	\$ 4,384	\$ 957	5
	<b><u>High Efficiency Motors</u></b>			
X	Water Treatment Plant - replace 3 high lift pumps/motors	\$ 18,120	\$ 11,462	2
	<b><u>Weather Stripping and Sealing</u></b>			
O	Old firehall - replace weather stripping and install floor sweeps	\$ 600	\$ 600	1
O	Sewage Treatment Plant - replace weather stripping/caulking	\$ 400	\$ 300	1
	<b><u>Thermostats</u></b>			
O	Library - replace line type thermostats with programmable type	\$ 750	\$ 700	1
O	Grattan Garage/Office - replace line type thermostats with programmable type	\$ 600	\$ 600	1
O	Municipal Office - replace line type thermostats with programmable type	\$ 300	\$ 300	1

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**Appendix B**  
**Specific Projects Completed to Date**

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#### *Lighting Upgrades:*

- Eganville Arena – replaced ice surface lights (2006)
- Library – switched to T-5 fluorescent lighting (2007)
- Sebastopol Firehall – switched to T-8 fluorescent lighting (2007)
- Storage/Martial Arts – switched to T-8 lighting (2007)
- Grattan Garage/Office – switched to T-8 lighting (2007)
- Sewage Treatment Plant – switched to T-8 lighting (2008)
- North Pump Station – switched to T-8 lighting (2008)
- Water Treatment Plant – switched fifty T-12's to T-8 (2008)
- Dewatering Plant – switched to T-8 (2008)
- Eganville Arena – replaced ice surface lights with LED (2016)

#### *Heating & Cooling Equipment:*

- Community Centre – installed new air conditioner & replace three hot water tanks (2009)
- Ice Plant - 2<sup>nd</sup> dehumidifier added (2008)
- Water Treatment Plant – installed motor driven dampers on fans (2013)
- Grattan Garage – changed to propane tube heaters (2007)
- Grattan Garage – changed to propane hot water tank (2007)
- Eganville Arena – replaced ice pad with brine lines, installed propane heaters over bleacher areas (2017)
- Eagle's Nest Hall – installed ceiling fans (2018)
- Arena- installed five heaters (2017)
- Roads Office – installed propane furnace (2014)

#### *Equipment:*

- Water Treatment Plant – replaced existing low lift/high lift pumps (2013)
- Water Treatment Plant – installed insulated motor driven damper fans (2013)
- Pump houses (Queen St., Southside, Mill St.) – replaced pumps and controls (2011)
- Eganville Arena – installed new compressor (canteen area) and new hot water (2018)

#### *Insulation:*

- Queen St. pump house – upgraded insulation in walls to R20 and roof to R40 (2011)
- Library – reinsulated walls (2007)
- Sewage Treatment Plant – upgraded roof insulation to R40 (2011)

#### *Windows:*

- Storage/Martial Arts – upgraded 2 windows to thermo pane (2012)
- Roads Office- Installed 8 double glazed windows (2017)

#### *Roof Upgrades:*

- Arena – Completely renovated the roof (2016)
-

*Grattan Garage:*

- installed R22 steel roof and insulation (2007)