Township of Southwold

Energy Conservation and Demand

Management Plan

2020 - 2024

Introduction

Ontario regulation 507/18 was established to help public agencies better understand their energy usage, develop conservation plans to guide energy savings and demonstrate government leadership in conservation.

Energy efficiency is something that should be actively pursued and can result in a number of benefits. By utilizing less energy, there will be a smaller environmental impact through a reduction in the release of greenhouse gases, which contribute to global warming. In addition to this there is also the financial impact from purchasing less energy, which results in cost savings.

Southwold consumed 185,603 kWh of electricity and 48,281 cubic meters of natural gas in 2017. Greenhouse gas emissions were 94,492 kg in 2017. The 2018 Greenhouse gas emissions were 93,002 kg, which is a decrease of 1.59%. These numbers are higher than the projected 2.5% decrease in greenhouse gas emissions. (Appendix 1)

The higher than average electricity consumption in 2018 can be attributed to the construction of the new waste water treatment plant located in Talbotville. The impact of the new facility has had a significant impact on the reduction of energy consumption, however there is a decrease in electricity consumption in 2019.

A full breakdown of Southwold's Energy consumption for 2018 can be found in Appendix 2.

The Township of Southwold has established a chart outlining the Technical, Organizational, and Behavioral Measures, that will help in reducing our energy consumption and reach our goal of a 2.5% decrease in greenhouse emissions by encouraging staff and facility user to be more aware of energy usage. (Schedule 1)

Goals & Objectives

It is difficult to project the future reduced consumption rate; however it is the intent of the municipality to:

- Reduce Overall Energy Consumption 2.5% from the average consumption by 2020 targets of 211,128 kWh & 43,312 cubic meters
- Reduce Greenhouse Gas Emissions 2.5% from the average consumption by 2020 Target of 87128 Kg
- Promote sustainability and energy conservation throughout the Municipality.

The goals set for the Township of Southwold will be reviewed annually.

Proposed Technical Measures

- The Township of Southwold will continue to retrofit or replace old lighting fixtures with new LED lighting as needed.
- Over the next 5 years, all restroom fixtures will be replaced with WaterSense low flow products as needed.

Proposed Organizational Measures

- The Township of Southwold will use energy bench marking data to address energy efficiency in all buildings.
- Adopting a LEED policy for new and existing buildings.
- Investigate green energy opportunities to improve efficiency and lower carbon foot print (such as solar, wind or geothermal power).
- Energy conservation culture to be encouraged throughout the Township's operations.
- Solicit Energy saving ideas from Southwold's Facility users (Fire Department, Roads etc).
- Establishing a green team with members from across the Township of Southwold departments.
- Work with other Broader Public Sector organizations to develop relationships that foster energy conservation.

Behavioural Measures

- Lights off programs.
- Review building automation systems every month to ensure temperature and lighting settings and schedules are where they are supposed to be.
- Use energy efficient shades to take advantage of daylight harvesting, solar heat gain in the winter, and cooling in the summer.
- Staff meetings to include information on energy use in their department and energy use information on the building.

Cost & Savings Estimates for Proposed Measures

While the Township is planning to reduce its energy consumption, it does not anticipate any cost savings due to projected energy cost increases during the next five years. Energy costs increases should be netted out by conservation efforts.

Timeline

(Present to 2024) Ongoing efforts to conserve energy

(Yearly June) Review results from previous year

(Yearly June) Promote energy conservation to staff via email

(Yearly June) Review Energy saving ideas from staff

(Yearly June) Investigate Green Energy opportunities

(As needed) Record any retrofitting efforts

Proposed Projects

The Township of Southwold Fire Department will be building a new Fire Station in Talbotville in 2021, with projected completion by the end of that year. The committee responsible for the project will be looking into green energy alternatives for heating and cooling elements, as well as lighting.

Renewable Energy Operated by Southwold and Future Plans

Southwold currently does not operate any renewable energy generation facilities.

Southwold currently harnesses ground source geothermal energy at the office facilities located at 35663 Fingal Line. This was implemented during the 2011 renovations and expansion to the facility.

Southwold currently does not harness solar source energy. There are no plans to harness solar energy in the future, but Southwold will actively investigate this alternative for future consideration where they are feasible.

The Township of Southwold of Southwold will look into green energy savings for the Waste Water Treatment Plant.

Plan Approval

The Township staff is committed to energy conservation and demand management. This plan was adopted by Council at the June 24th, 2019 Council meeting.

CDM Plan Public Availability

Southwold's CDM plan will be made available on the Township of Southwold's website, www.southwold.ca

Physical copies will be made available at the municipal office located at 35663 Fingal Line for the public.

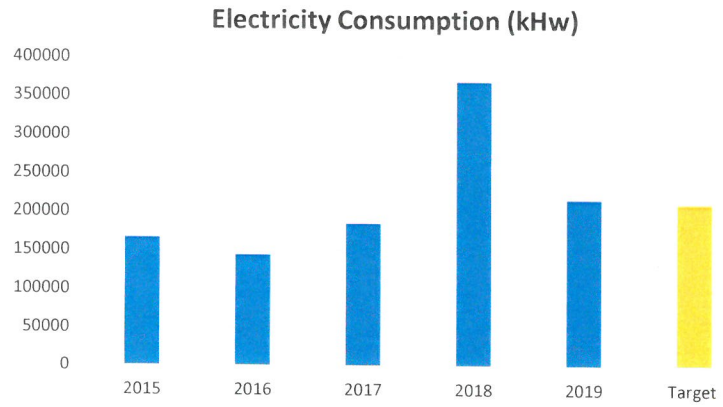
Conclusion

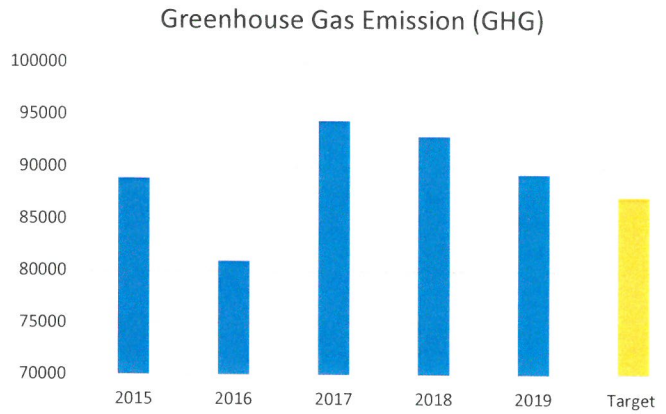
In conclusion, if Southwold pursues the proposed measures they will be able to achieve the goals of a 2.5% reduction in energy and greenhouse gas consumption and the promotion of sustainability and conservation for a better future.

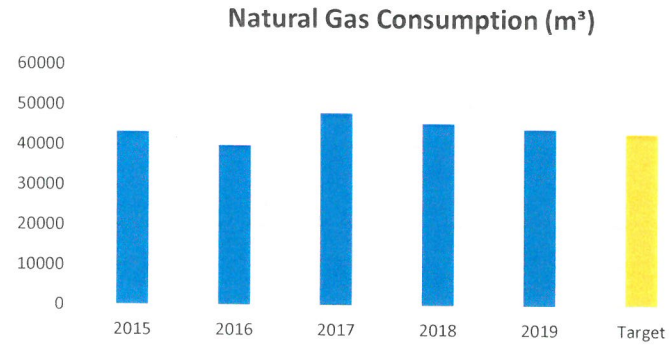
Appendix 1 - Historical Results and Future Target

	2015	2016	2017	2018	2019	Target
Electricity Consumption (kWh)	166751	144727	185603	369088	216542	**211128**
Greenhouse Gas Emissions (Kg)	88937	81017	94493	93003	89363	**87128**
Natural Gas Consumption (m3)	43463	40131	48282	45815	44423	**43312**

*Note - 2019 is based on average consumption







greenenergy
keeping earth a nice place

Appendix 2

Natural Gas Consumption 2018

Operation Name	Natural gas to report		January	February	March	April	May	June	July	August	September	October	November	December
Buildings /Location	**Amount**	**Units**	**Amount**	**Amount**	**Amount**	**Amount**	**Amount**	**Amount**	**Amount**	**Amount**	**Amount**	**Amount**	**Amount**	**Amount**
Roads Office	0	Cubic meter	0	0	0	0	0	0	0	0	0	0	0	0
Roads Shop	13915.67447	Cubic meter	4347.545	3266.973	2163.95	1964.675	421.002	87.006	75.78	87.006	72.973	258.213	1316.334	1900.121
Roads Garage	4641.749118	Cubic meter	2225.695	1431.407	656.764	457.488	47.713	0	0	0	0	33.68	294.7	541.688
Fingal Park	0	Cubic meter	0	0	0	0	0	0	0	0	0	0	0	0
Talbotville Park	0	Cubic meter	0	0	0	0	0	0	0	0	0	0	0	0
Library	3.972	Cubic meter	0	0	0	0	0	0	0	0	0	0.993	0	2.979
Keystone Complex	6386.90675	Cubic meter	2188.773	1127.456	951.093	799.927	141.719	53.54	37.792	6.3	34.644	211.004	639.312	985.737
Plaza	7928.420417	Cubic meter	2049.717	1487.634	1313.845	1125.16	536.263	17.875	19.862	27.806	6.952	250.256	765.665	1067.561
Admin Office	53.91711765	Cubic meter	26.813	10.924	4.965	4.965	0.993	0.993	1.986	0.993	0.993	1.986	1.986	8.938
Medical Centre	894.9029722	Cubic meter	269.125	198.616	140.024	129.1	22.841	0	0	0	0	19.862	80.439	132.08
Shedden Fire Hall Statio	6477.733	Cubic meter	1942.22	1161.965	1032.856	948.657	342.415	44.906	56.135	58.941	36.487	190.853	623.083	760.611
Talbotville Fire Hall Stat	3201.908031	Cubic meter	813.333	537.256	408.156	381.343	44.689	0	0	0.993	0	117.183	366.447	608.758
Storage/Water	2309.545167	Cubic meter	589.89	407.163	358.502	279.055	133.211	38.73	46.675	53.626	38.73	80.439	193.651	302.889
***TOTAL**	**45814.72904**													

Electricity Consumption 2018

Operation Operation	Electricity to report		January	February	March	April	May	June	July	August	September	October	November	December
	Amount	**Units**	**Amount**	**Amount**	**Amount**	**Amount**	**Amount**	**Amount**	**Amount**	**Amount**	**Amount**	**Amount**	**Amount**	**Amount**
Corporatior Administrative offices and related facilities, including municipal council chambers														
Office share with roads	68249.35294	kWh	10637	8920	8003	6519	4601	4714	4752	4909	4639	4233	5046	6282
Fingal Park	3238	kWh	51	43	34	11	181	431	803	635	648	206	115	104
Talbotville Park	832.9714286	kWh	38	32	32	37	46	233	179	180	40	27	1	1
Library	519.8	kWh	161	88	56	46	16	15	16	15	15	17	47	83
Keystone	41828.82857	kWh	5688	3726	3439	3500	2767	6147	4759	3139	0	3915	3458	3241
Shedden Fire Hall	16453.97143	kWh	1578	1332	1241	1371	1162	1251	1695	1741	1691	1441	1249	1243
Talbotville Fire Hall	10244.57576	kWh	1249	905	864	1117	816	725	839	736	746	834	840	1217
Chlorination Station	9486.2	kWh	2184	1654	1334	1358	514	239	215	204	211	260	1028	1034
Medical Centre	10909.4	kWh	588	527	635	805	939	1213	1351	1354	1170	917	832	780
Waste Water Treatment	184453.7143	kWh	7020	25560	28260	27000	12420	9720	9360	12060	11160	15300	13860	14940
Talbotville Fire Hall Port	7614.909091	kWh	3273	854	210	269	178	341	116	115	72	952	1722	1199
Stoss Farm	0	kWh	0	0	0	0	0	0	0	0	0	0	0	0
Plaza	11415.74286	kWh	902	855	858	940	775	905	1483	1291	1211	758	830	917
Shedden Storage/Water	3840.828571	kWh	228	190	209	171	197	527	588	564	547	314	203	181
***TOTAL**	**369088.2949**													

* Note the totals are less the portion of energy consumed in December 2017.

Schedule 1

Technical

Measure	Party Responsible	Expected Date of Implementation	Lifespan	Costs ($)	External Funding Source (if applicable)	Savings (kWh/m3)	Key Performance Indicator
Over the next 5 years replace all restroom fixtures with WaterSense certified low flow products.	Treasury	Q1/2020	25 years	$5,000	Green Lane Trust Fund / Research Green Energy programs.	TBD	Water savings Number of buildings participating

Organzational

Measure	Party Responsible	Expected Date of Implementation	Lifespan	Costs ($)	External Funding Source (if applicable)	Savings (kWh/m3)	Key Performance Indicator
Adopt LEED Policy for new and exisiting buildings.	Council	Q1/2020	ongoing	$0		TBD	
Energy Bench Marking	Treasury	Q1/2020	ongoing	$0			ekWh/sqft
Incorporate life cycle costing when purchasing related to building systems, such as lighting, office equipment and paper. Life cycle analysis looks at the overall cost of purchasing, operating and disposing a product.	Treasury	Q1/2020	ongoing	$0	N/A	TBD	Number of initiatives evaluated Energy savings
Implement a temperature set point policy	Treasury	Q1/2020	ongoing	$0	N/A	TBD	ekWh savings $ saved
Initiate monthly water consumption monitoring. New and existing fixtures will be monitored for leaks and repaired as required.	Public Works	Q1/2020	ongoing	negligible			Track annual water use over time Identify leaks
Establish a Green Team with representation from core function areas, financial and building operations. Green team will meet annually, review all new and existing energy conservation initiatives, and develop energy saving plans for Council approval.	CAO/Clerk Council	Q1/2020	ongoing	negligible			Energy savings Dollar savings
Work with other BPS (County of Elgin) organizations in the community to develop relationships that foster energy conservation. Develop relationships with BPS organizations in the community.	CAO/Clerk	Q1/2020	ongoing	negligible			
Solicit Energy saving ideas from Southwold's Facility users	all staff		ongoing	negligible			Energy savings Dollar savings

Behavioural

Measure	Party Responsible	Expected Date of Implementation	Lifespan	Costs ($)	External Funding Source (if applicable)	Savings (kWh)	Key Performance Indicator
Review building automation systems every month to ensure temperature and lighting settings and schedules are where they are supposed to be.	Building Department	Q1/2020	4 years	minimal	N/A	TBD	Number of participants
Encourage staff to lower shades in the summer to keep heat out and raise them in the winter to let heat in.	all staff	Q2/2019	ongoing	none		TBD	Energy Saved Number of buildings that save energy
Celebrate successful projects and initiatives with awards and pizza lunches	all staff	Q1/2020	ongoing	$500			Number of events Participation across the organization