

The Corporation of the Township of Southgate

Policy #56

Energy Management Policy and Plan

Council approved September 16, 2020





Township of Southgate

Policy # 56

Energy Management Policy

Table of Contents

Section 1: Southgate’s Declaration of Commitment:	3
Section 2: Southgate’s Vision:	3
Section 3: Southgate’s Goals and Objectives:	3
Section 4: Southgate’s Energy Reduction Target:	4
Section 5: Southgate’s Renewable Energy	4
Section 6: Southgate’s Energy Leader	4
Section 7: Southgate’s Energy Use at the Municipal Level	5
Section 8: Southgate’s Energy Asset Level Execution	5
Section 9: Southgate’s Energy Plan Review	5
Schedule A.....	6
Schedule B.....	8



Township of Southgate

Policy # 56

Energy Management Policy

Section 1: Southgate's Declaration of Commitment:

The Corporation of the Township of Southgate declares commitment to reduce energy consumption and greenhouse gases by ensuring the efficient use of energy that will continue to be a priority within all municipal facilities, by creating policies, generating reports to identify efficiencies and implement energy reduction strategies to provide leadership to the community.

Section 2: Southgate's Vision:

The Township of Southgate's vision is to be an environmentally sustainable community by striving towards future goals and objectives while providing valuable services to our residents. The Township will express the importance of conserving energy and decreasing the amount of emissions through managing the use of consumption throughout the municipal facilities.

Section 3: Southgate's Goals and Objectives:

The Township of Southgate has established the following Goals:

- Periodically audit facilities to ensure that Southgate's vision is being complied with;
- Communicate with Southgate staff the importance of conserving energy and decreasing the GHG Emissions within the municipality;
- Maintain the Township's equipment to provide dependability and security for staff;
- Providing a positive outlook for delivering and supporting Township culture while conserving Southgate's vision.

The Township of Southgate has established the following Objectives:

- Enhance the use of energy throughout the municipality;
- Set energy use reduction targets for the Township to strive towards;
- Provide an optimistic corporation culture with Township staff and residents within the community of Southgate;
- Research all applicable funding opportunities that are made available to the municipality pertaining to energy management.



Township of Southgate

Policy # 56

Energy Management Policy

Section 4: Southgate's Energy Reduction Target:

The importance for an efficient future with the **energy conservation and demand management (CDM)** vision is to have progressive and attainable targets.

The Township's Declaration of Commitment is to reduce energy consumption and greenhouse gases. With this declaration the Township will:

- Establish 2011 as the Township's foundation year in which the decrease of energy use and greenhouse gases will be measured.
- The targets are 1% reduction in energy consumption, greenhouse gases and cost savings on an annual basis between now and going forward with a 5 year plan to 2022.

Section 5: Southgate's Renewable Energy

The Township finds that it is necessary to enhance the vision mentioned in Section 2 of this policy by ensuring that the municipality is an environmentally sustainable community while providing valuable services to our residents.

The Township built the Southgate Community Services Building including the Ruth Hargrave Memorial Library in 2010 with geothermal, which is ground source energy. This facility also has a grey water supply from a rain collection tank under the parking lot for the use of toilet water.

The Township has set out future guidelines for asset improvements at facilities throughout the municipality which will enhance the use of energy and greenhouse gases. Table Section 5 attached as Schedule A: Represents the Township's annual energy asset plan.

Section 6: Southgate's Energy Leader

The Township of Southgate has delegated Public Works Manager Jim Ellis as the person responsible for providing the corporate culture in energy management.

Public Works Manager Jim Ellis is an employee who has taken the LAS Energy Management courses through AMO and understands the importance of why energy consumption should be lowered and the greenhouse gases depreciated.



Township of Southgate

Policy # 56

Energy Management Policy

Section 7: Southgate's Energy Use at the Municipal Level

The Township of Southgate staff will carry out the responsibility of effective energy consumption and reduce the greenhouse gases with direction from their supervisors with information provided at Department Head meetings. The information provided will enhance the corporate culture by providing an optimistic review of how the municipality is achieving their goals and objectives. The Energy Leader will provide staff training with energy management tools to create an energy savings culture and awareness. Department heads will receive information to view their annual results and report to their department staff.

Section 8: Southgate's Energy Asset Level Execution

Providing education to all municipal staff is essential to conserve energy consumption and greenhouse gases.

The initial action in executing the energy management plan will be to complete facility energy audits for all facilities. Each energy audit will include a technical review of the facility, its energy consumption and greenhouse gas reduction. These audits will assist the municipality to determine the future needs of each facility and what their budget requirements will be.

Section 9: Southgate's Energy Plan Review

The Township of Southgate will have annual Energy Committee meetings to evaluate and update the requirements throughout the municipality.

The Energy Committee will promote the corporate culture and will take a positive approach to decreasing energy consumption and greenhouse gases. The Public Works Manager and other Department Heads will provide all facilities with the goals and objectives of the Energy Management Plan.



Township of Southgate

Policy # 56

Energy Management Policy

Schedule A Annual Energy Asset Plan

Schedule A is updated on an annual basis.

Table: Section 5:A

Historical Energy Asset Plan

Facility	Project	Year	Completed	Target Energy	Target GHG	Capital Costs	Projected Savings
All municipal facilities	Fluorescent light replacement	2010	2010				
All municipal facilities	Programmable thermostats and temp setting	2013	2013	1%	1%		
Public Works							
Township Streetlights	Convert all lights to LED	2017	2017	60%		\$182,481.00	\$ 32,073.00
All municipal facilities	Replace outside buildings with LED wall packs	2017	2017	1%	1%	\$16,610.00	
Holstein Works Garage	Oil furnace replaced with propane	2018	2018	2%	5%	\$8,544.00	
Egremont Landfill Shop	LED light replacement	2018		1%	1%	\$8,000.00	
Hostein Works Garage	Insulate Ceiling	2017	2017	1%	1%	\$3,135.00	
Sewage Lagoon	Influent pumps converted to VFD control, Aeration Blower Replacement	2014	2014	5%	3%	\$200,000.00	
Recreation							
Dundalk Arena and Community Centre	Gas Boiler in Lobby and Olympia Room	2014	2014			\$4,000.00	
Dundalk Arena and Community Centre	Dehumidifier Replacement	2018	2018			\$21,000.00	
Swinton Park	New Boiler	2018	2018				

Annual Energy Asset Plan

Facility	Project	Year	Completed	Target Energy	Target GHG	Capital Costs	Projected Savings
Municipal Office							
Administration Offices	LED Lighting throughout office	2019		1%	1%	\$761.30	\$879.99
Public Works							
Holstein Works Garage	Overhead Door	2023		1%	1%	\$52,000	
Holstein Works Garage	Insulate Walls	2021		2%	5%	\$35,000.00	\$ 1,928.08
Wastewater	LED Lighting upgrade	2019		1%	1%	\$0.00	\$474.26
Wastewater	Wastewater upgrades	TBD		TBD	TBD	TBD	
Dundalk Works Garage	LED Lighting upgrade	2019		1%	1%	\$0.00	\$473.20
Waste Garage	Overhead Door	2025		1%	1%	\$40,000.00	
Hopeville Works Garage and Office	Insulate Attic	2020		1%	1%	\$8,356.00	
Hopeville Works Garage	Overhead Door	2024		1%	1%	\$50,000.00	
Hopeville Works Garage	Man Doors	2019		1%	1%	\$3,000.00	\$ 119.27
Dundalk Works Garage	Insulate Overhead Doors	2021		1%	1%	\$8,000.00	\$ 62.18
Recreation							
Dundalk Arena and Community Centre	Better insulation and heating/cooling system	2019		1%	1%	\$15,000.00	
Hopeville Park	LED Lighting upgrade	2019		1%	1%	\$0.00	\$451.66
Arena	LED Lighting upgrade	2019		1%	1%	\$0.00	\$510.30
Dundalk Pavillion and Pool	LED Lighting upgrade	2019		1%	1%	\$0.00	\$434.83
MacIntyre Building	LED Lighting upgrade	2019		1%	1%	\$0.00	\$660.50
Dundalk Arena and Community Centre	LED Lighting over Ice Surface Area	2024		1%	1%	\$10,000.00	
Fire							
Fire Hall	Add weather stripping	2021		1%	1%	TBD	
Total over 5 year EAP				17%	20%	\$222,117.30	\$ 5,994.27
Average Annual Savings				3.4%	4.00%	\$ 44,423.46	\$ 1,198.85



Township of Southgate

Policy # 56

Energy Management Policy

Projected Growth

- Well D5 has been completed and operational in Fall 2019.
- Wastewater upgrades are projected to occur in 2021/2022.
- Water tower to be built in Dundalk in 2021.
- Insulated attics of Hopeville Garage and Offices.
- Improved insulation and add 2 air-conditioning units for the Auditorium of Arena in 2019/2020.



Township of Southgate

Policy # 56

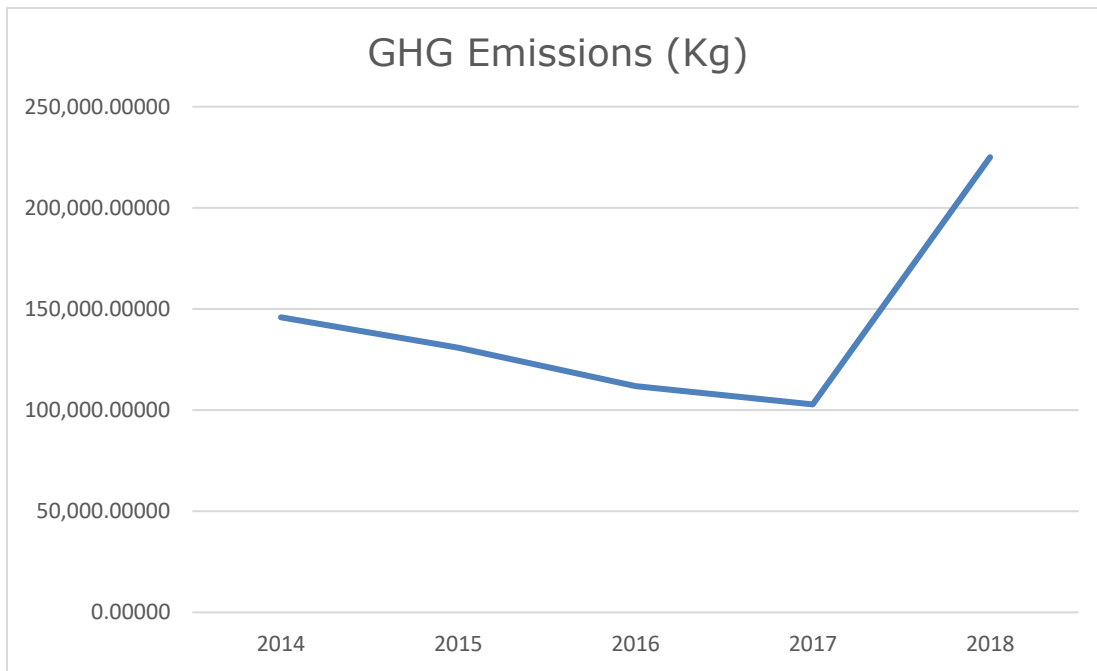
Energy Management Policy

Schedule B

Schedule B is updated on an annual basis.

Southgate's Energy Consumption

	GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)	Energy Intensity (ekWh/Mega Litre)
2014	145,801.33018	377.19782	3,170.99368
2015	130,778.93452	330.44756	3,095.51037
2016	111832.42000	296.70562	3067.00705
2017	102,820.66158	330.17475	3,092.71000
2018	225,025.29970	473.17963	2,872.32741

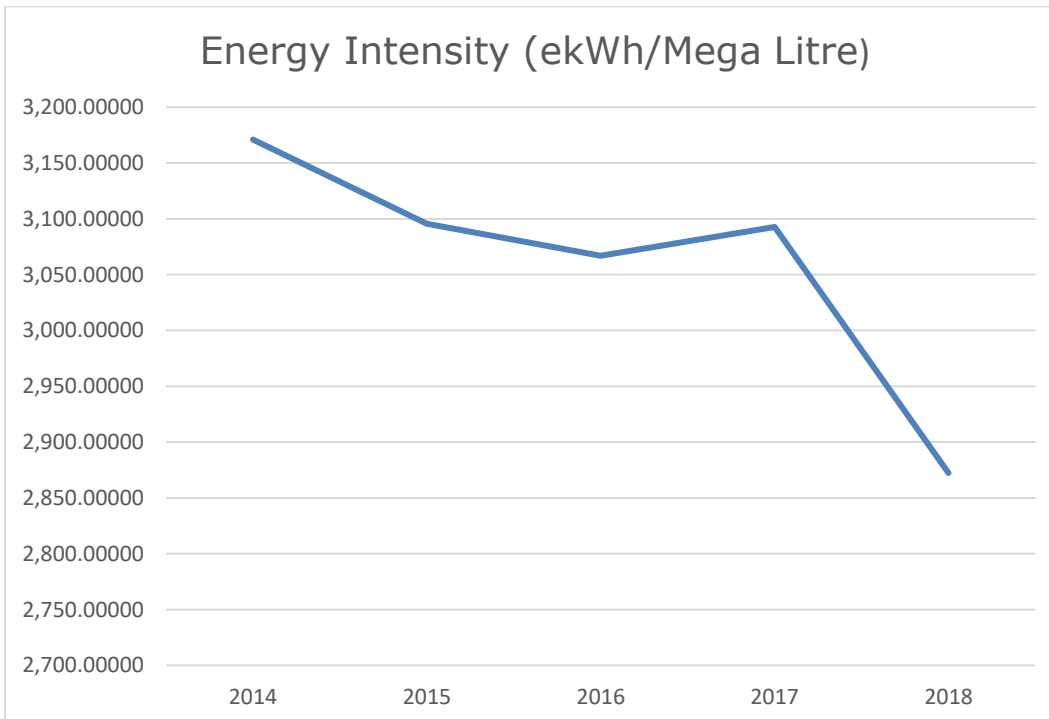
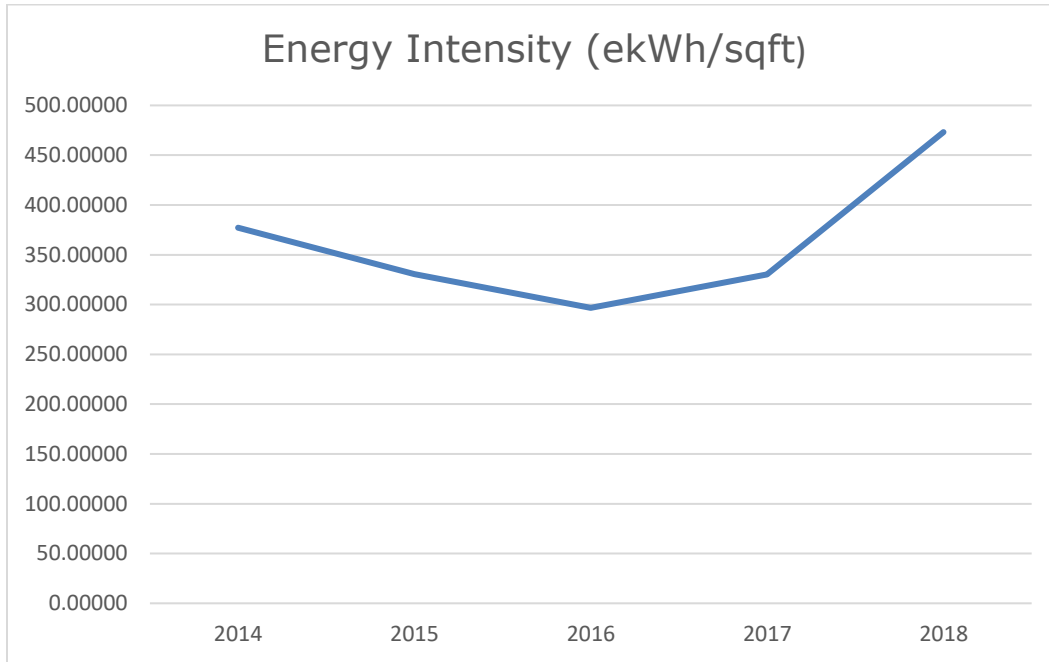




Township of Southgate

Policy # 56

Energy Management Policy





Township of Southgate

Policy # 56

Energy Management Policy

Please note that Ontario's emissions factor for electricity has dropped considerably since Broader Public Sector (BPS): Energy Reporting and Conservation Demand Management Plans reporting took effect in 2011. It has dropped from approx. 0.09kg/kWh in 2011 to 0.03kg/kWh in 2018.

Heating degree days and cooling degree days for Southgate (below) and note that 2018 had a colder winter and a warmer summer. That would suggest more electricity for Air Conditioning (AC) and Natural Gas (NG) for heating.

NOC 1B0

Year	HDD (winter)	CDD (summer)
2016	3904	247
2017	4106	120
2018	4558	266

Degree Days

Degree days measure the amount of heating or cooling necessary at your property. Degree days are measured relative to a base of 65°F(18°C). Above 65°F(18°C) it is assumed that your property will need to have cooling and below 65°F(18°C) it is assumed that your property will need to have heating.

- **Heating Degree Days (HDD)** - HDD is the equivalent number of days you would have to heat your building by 1 degree to accommodate the heating requirement. For example, if you have a day on which the temperature is 55°F degrees, that day is worth 10 Heating Degree Days because it is 10 degrees below 65°F. HDD is calculated in this way for each day of the year and summed up to get the total annual HDD.
- **Cooling Degree Days (CDD)** - CDD is the equivalent number of days you would have to cool your building by 1 degree to accommodate the cooling requirement. For example, if you have a day on which the temperature is 80°F degrees, that day is worth 15 Cooling Degree Days because it is 15 degrees above 65°F. CDD is calculated in this way for each day of the year and summed up to get the total annual CDD.

Source PM Degree Day Calculator

<https://portfoliomanager.energystar.gov/pm/degreeDaysCalculator>

*HDD – Heating Degree Days

*CDD – Cooling Degree Days