



**Energy Conservation
&
Demand Management
Plan
2025-2029**

Town of Erin

July 1, 2024

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I. Introduction:

Erin is a town in Wellington County, around 80 kilometers northwest of Toronto. The merged town consists of the former villages of Erin and Hillsburgh, and the old Township of Erin (which included Ballinafad, Brisbane, Cedar Valley, Crewson's Corners, Ospringle, and Orton). Erin is predominantly a rural community and most of its business is farming. The Town's population as per County of Wellington demographic updates in 2023, is 12663. The population is expected to double in the next five years due to new developments.

The Town of Erin has been actively implementing programs and measures to improve energy consumption at all facilities, including staff training and the replacement of high-energy-consuming equipment with lower-energy equipment.



Adopt environmental strategies to minimize pollution and save energy.



Go electrical and save on fuel consumption.



Reduce energy consumption.

II. Energy CDM Planning:

Provincial legislation requires all public institutions in Ontario, including municipalities, to report on their energy and water use along with greenhouse gas emissions, annually. In addition, Municipalities must develop and post an Energy Conservation and Demand Management (CDM) Plan at least once every five years as per Ontario Regulation 25/23 made under the Electricity Act 1998.

Municipalities face major challenges in addressing climate change issues, sustainability, and resiliency within communities. The goal of the energy plan is to take a systematic approach to managing energy, water usage (consumption), and expenses. Implementing an energy strategy increases efficiency and reduces the environmental footprint (GHG or greenhouse gas emissions).

- Energy planning assists municipalities with:
- Managing their energy and water use.
- Mitigating rising energy costs.
- Reducing greenhouse gas emissions.
- Demonstrating leadership and commitment in energy and water conservation and sustainability.
- Reducing their carbon footprint, by reducing greenhouse gas emissions.
- Meeting legislative requirements (O. Reg. 507/18).
- Developing best practices for identifying and evaluating energy-saving opportunities.
- Comparing results and strategies to similar organizations across the province.
- Setting goals, targets, and timelines for energy and emission reductions.
- Measuring and reporting on energy and water efficiency improvements (successes).
- Confirming the plan is supported by their local council and senior management.

This report is intended to address:

- The legislative requirements covered under Ontario Regulation 25/23 the Electricity Act 1998.
- Review the Town's first Energy CDM Plan for 2020 – 2024.
- Provide a Base Year Comparative Review (2017 vs. 2022). The progress of the Town's first Energy CDM Plan by measuring changes in energy consumption and costs in 2022 versus the plan's base year of measurement (2017).
- Provide an update on the Town's electricity, natural gas, and fuel oil usage and costs for 2022, under its major cost centers: Corporate Facilities, Parks, Water Treatment Facilities, and Street Lighting.
- Introduce changes and updates to the Town's previous energy plan under its new 5-year Energy CDM Plan for 2025 - 2029.

III. Review of Energy CDM Plan for 2020-2025:

The Town of Erin's Energy Conservation and Demand Management (CDM) Plan for 2020 to 2025 set the following goals:

1. To implement ASHRAE Level 2 energy audits on its top 3 energy-consuming facilities within the next calendar year.
2. Energy and water conservation efficiency projects/ programs will be incorporated into the annual operating and capital budget process.
3. Consider incorporating recommendations for corporate fleet vehicles and equipment fuel reduction strategies.
4. Utilize available incentive funding and favorable financing opportunities to improve the financial return of energy and water conservation projects.
5. To provide business cases for energy and water CDM projects.
6. Energy rate escalators will be factored into the business case analysis using the most recent forecasts by finance.
7. Consideration will be given to current and future costs e.g. carbon pricing impacts on Town operations.
8. Working with the Ontario Clean Water Agency (OCWA) to explore and develop opportunities for energy and water CDM improvements.

Goals achieved:

The CDM Plan 2020-2025 goals are on track since 2020 to reduce operating costs and save energy. During Covid-19, energy consumption was reduced due to the closure/minimal operations of facilities and the Town's offices. To implement the goals:

- The Town has included energy programs in the yearly capital budgets.
- ASHRAE Level 2 (Energy Audit - ASHRAE Level II) has been implemented gradually.
- Fleet was increased with new hybrid vehicles to lower the consumption of fuel.
- EV chargers were bought and placed in two public facilities for electrical vehicles.
- Light bulbs in all the Town's facilities were converted to LED lights.
- Replacing water meters and enhancing the delivery of drinking water.

Currently, the Town of Erin is building a strategic plan that will include a plan for environmental sustainability and energy savings.

IV. Energy Consumption Site Information:

The Town of Erin's energy cost centres are outlined in the table below. The Town's Energy CDM Plan's base year is 2017. The base year is used as a comparator to measure the performance of the Town's Energy CDM plan by tracking energy use and reductions for electricity, natural gas, and fuel oil. The Town's Energy Cost Centres for Electricity & Natural Gas are:

	OPERATIONS NAME	SITE ADDRESS
CORPORATE FACILITIES	Town of Erin Municipal Office	5684 Trafalgar Rd. Municipal Office
	Roads Garage/ Equipment Depot	5684 Trafalgar Rd, Roads Shop
PARKS & RECREATION	Ballinafad Community Centre	9382 Wellington Rd 42, Halton
	Erin Community Centre	14 Boland Drive.
	Hillsburgh Community Centre & Arena	95 Main Street, Erin
	Barbour Fields Lights (Hillsburgh)	5808A 8th Line
	Hillsburgh Ball Park	5808 8th Line
	McMillan Park Kiosk	109 Main Street
	Victoria Park	20 Mill Street
FIRE HALLS	Erin Fire Hall	2 Erinville Drive
	Hillsburgh Fire Hall	2 Station Street
WATER TREATMENT FACILITIES	Bel-erin Pump	5403 County Rd 52
	Delerin Pressure Tank Building	17A Delerin Cres
	Glendevon Pump (Mill St. Pump)	13 Mill Street, Hillsburgh
	Hillsburgh Booster Pumping Station	10 Mill Street, Hillsburgh
	Hillsburgh Heights Pump	8 Conc, Lot WH26, Hillsburgh
	Water Tower	3 March Street
	Well No. E7 Water Treatment Plant	46 Shamrock Rd
	Well No. E8 Water Treatment Plant	5555 8th Line, Erin
STREET LIGHTING	Various Locations	

Notes:

- The Town of Erin's Water Treatment Facilities are owned by the Town and are operated by the Ontario Clean Water Agency (OCWA). The OCWA became the operator of the Erin and Hillsburgh residential water distribution systems on June 11, 2018.
- The Ballinafad Community Centre is owned by the Town of Erin. It was previously operated by a group of volunteers. As of 2019, the Town has taken over the community centres operations.

V. Base Year Comparative Review:

In this section, the Town’s energy consumption for 2022 is compared to the Town’s base year of 2017. The base year is a reference year against which energy and emission increases, or reductions are measured. With the transfer of the Town’s Water Treatment Facilities to OCWA operational control in June 2018, all utility billing was also transferred to OCWA. The year 2022 represents year 3 of the 5-year Energy CDM Program (2020 to 2025).

a) Base Year Comparison to 2022 – Energy Consumption

The table below compares the Town’s total electricity (kWh), natural gas (m3), fuel oil (L), and overall total energy use in equivalent kilowatt hours between the base year of 2017 and 2022:

Energy Consumption	Base Year (2017)	2022	Base Year vs. 2022
Electricity (kWh)			
Corporate Facilities	130,783.00	89,470.00	-31.59%
Parks and Recreation	949,599.00	692,147.00	-27.11%
Fire Halls	98,661.00	78,614.00	-20.32%
Water Treatment Facilites	491,939.00	585,256.00	18.97%
Street Lighting	525,224.00	197,354.00	-62.42%
Total Electricity Use:	2,196,206.00	1,642,841.00	-25.20%
Natural Gas (M3)			
Total Natural Gas Use:	86,796.00	93,173.00	7.35%
Fuel Oil (L)			
Total Fuel Oil Use:	3,179.00	4,738.40	49.05%
Energy Use (ekWh)			
Corporate Facilities	384,808.00	307,170.00	-20.18%
Parks and Recreation	1,516,092.00	1,428,790.00	-5.76%
Fire Halls	235,055.00	240,498.00	2.32%
Water Treatment Facilites	491,939.00	585,256.00	18.97%
Street Lighting	525,224.00	197,354.00	-62.42%
Total Energy Use (ekWh):	3,153,118.00	2,759,068.00	-12.50%

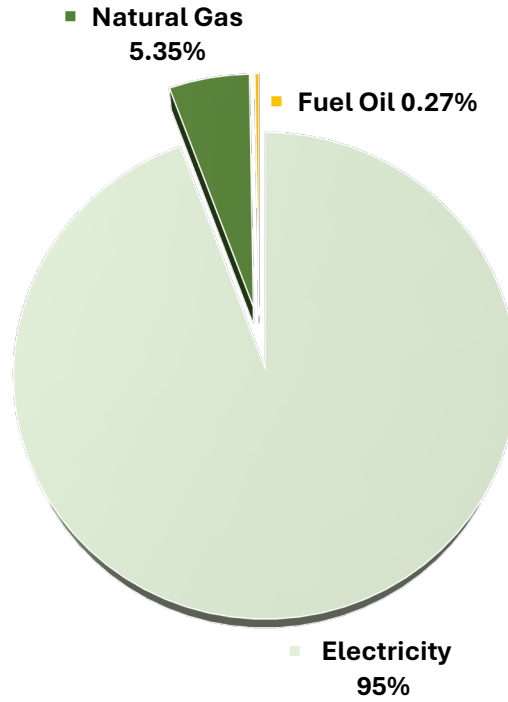
kWh = Kilowatt-hours, m3 = Cubic Metres, L = Litres, ekWh = Equivalent kWh

Energy cost comparisons were reduced compared to the base year 2017 by 12.50%. This reduction is due to facility closure during COVID-19, use of solar systems, 100% use of LED lights, and the Town's efforts to save energy.

b) Energy Cost Percentage 2022

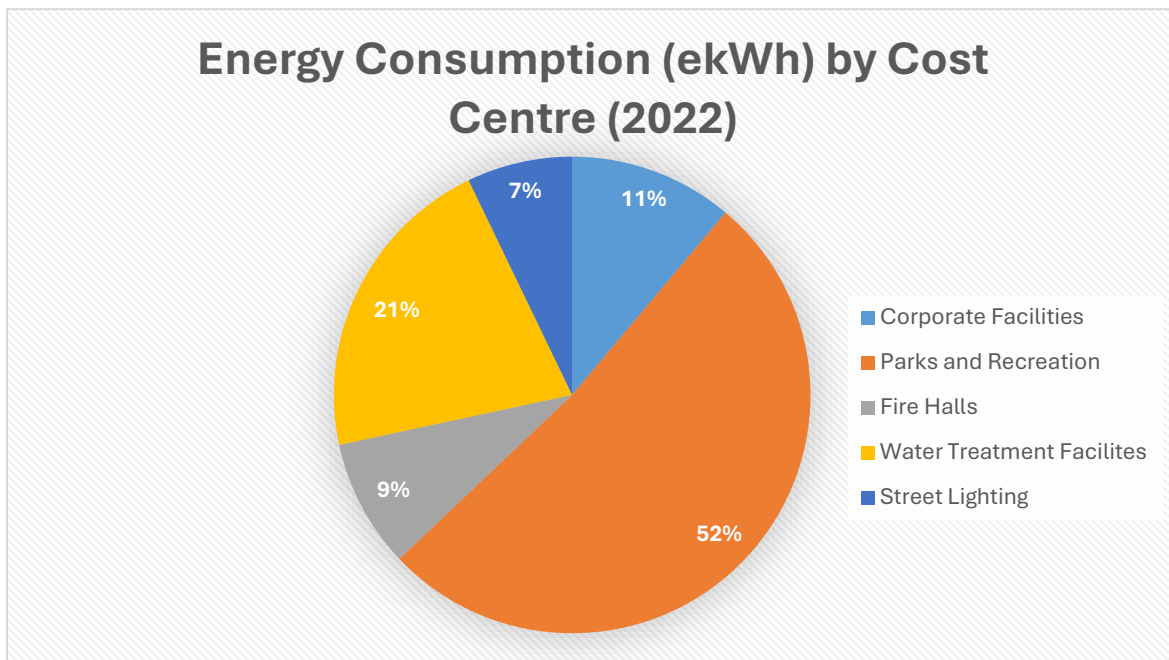
The graph below illustrates the percentage of energy costs between electricity, natural gas and fuel oil for the Town of Erin in 2022. Electricity represents approximately 88% of the Town’s total annual energy costs.

Energy Costs as a Percentage (2022)



c) Energy Consumption (ekWh) by Cost Centre for 2022

The Town's total energy consumption in equivalent kilowatt-hours for 2022 was 2,759,068 ekWh. The breakdown by cost center is illustrated below:



VI. Town Facilities Energy Overview:

The table below summarizes the square footage (Ft²) by town building:

Building Square Footage (Ft ²)	Operations Name	2022
		Town of Erin Municipal Office
	Roads Garage/ Equipment Depot	7,276
	Water Shop	5,167
	Ballinafad Community Centre	3,940
	Erin Community Centre	47,426
	Hillsburgh Community Centre & Arena	20,656
	Erin Fire Hall	4,844
	Hillsburgh Fire Hall	13,368
	Totals:	109,674

a) Energy Consumption by Facility for 2022 & 2017

The table below provides a breakdown of Electricity, Natural Gas, Fuel Oil, Total Energy Use (ekWh), and Energy Intensity by Square Foot (ekWh/ft²) by facility for 2022 and 2017:

2017 (Base Year)					
Facility/Operation Name	Electricity Use (kWh)	Natural Gas Use (M3)	Fuel Oil Use (L)	Total Energy Use (ekWh)	Energy Intensity (ekWh/ft ³)
Town of Erin Municipal Office	72,719	2,429	-	98,540	14.08
Roads Garage/Equipment Depot	39,826	15,880	-	208,630	28.67
Water Shop (Building Sold 2018)	18,238	5,588	-	77,638	15.03
Ballinafad Community Centre	25,016	-	3,179	59,287	15.05
Erin Community Centre	590,758	30,644	-	916,503	19.32
Hillsburgh Community Ctr. & Arena	305,104	19,424	-	511,581	24.77
Erin Fire Hall	26,036	4,907	-	78,198	16.14
Hillsburgh Fire Hall	72,625	7,924	-	156,857	11.73
Totals & Average ekWh/ft²	1,150,322	86,796	3,179	2,107,234	18.10

2022					
Facility/Operation Name	Electricity Use (kWh)	Natural Gas Use (M3)	Fuel Oil Use (L)	Total Energy Use (ekWh)	Energy Intensity (ekWh/ft ³)
Town of Erin Municipal Office	66,964	3,372		105,279	15.05
Roads Garage/Equipment Depot	22,506	16,199		206,570	28.39
Ballinafad Community Centre	32,226	-	4,738	74,394	18.88
Erin Community Centre	437,556	36,369		850,805	17.94
Hillsburgh Community Ctr. & Arena	204,840	24,750		486,066	23.53
Erin Fire Hall	20,044	5,214		79,289	16.37
Hillsburgh Fire Hall	78,614	7,269		161,209	12.06
Totals & Average ekWh/ft²	862,749	93,173	4,738	1,963,612	18.89

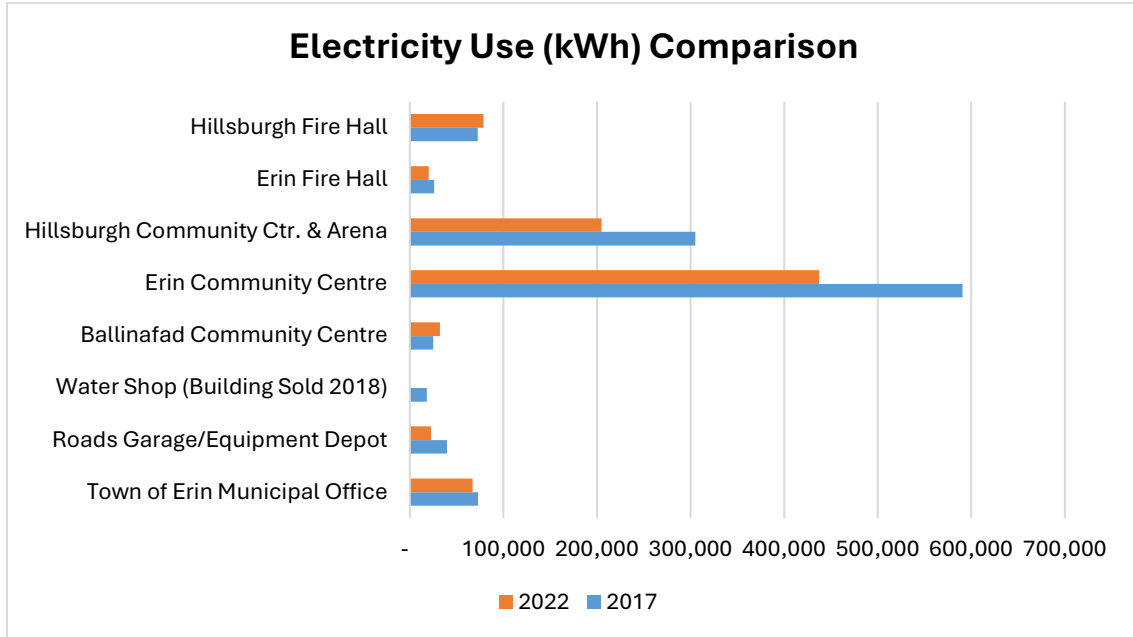
b) Energy Use Comparison (Base Year vs. 2022) – For All Facilities

The table below provides a comparison between the base year (2017) and 2022 for Electricity (kWh), Natural Gas (m³), Fuel Oil (L), Total Energy Use (ekWh), and Energy Intensity by Square Foot (ekWh/ft²) by facility for 2022:

All Facilities Energy Use (2017 vs. 2022)	Base Year (2017)	2022	Base year vs. 2022
Electricity	1150322	862749	-25.00%
Natural Gas	86796	93173	7.35%
Fuel Oil	3179	4738	49.04%
Energy Intensity Totals (ekWh)	2107234	1963612	-6.82%
Energy Intensity ekWh/ft ²	18.1	18.89	4.36%

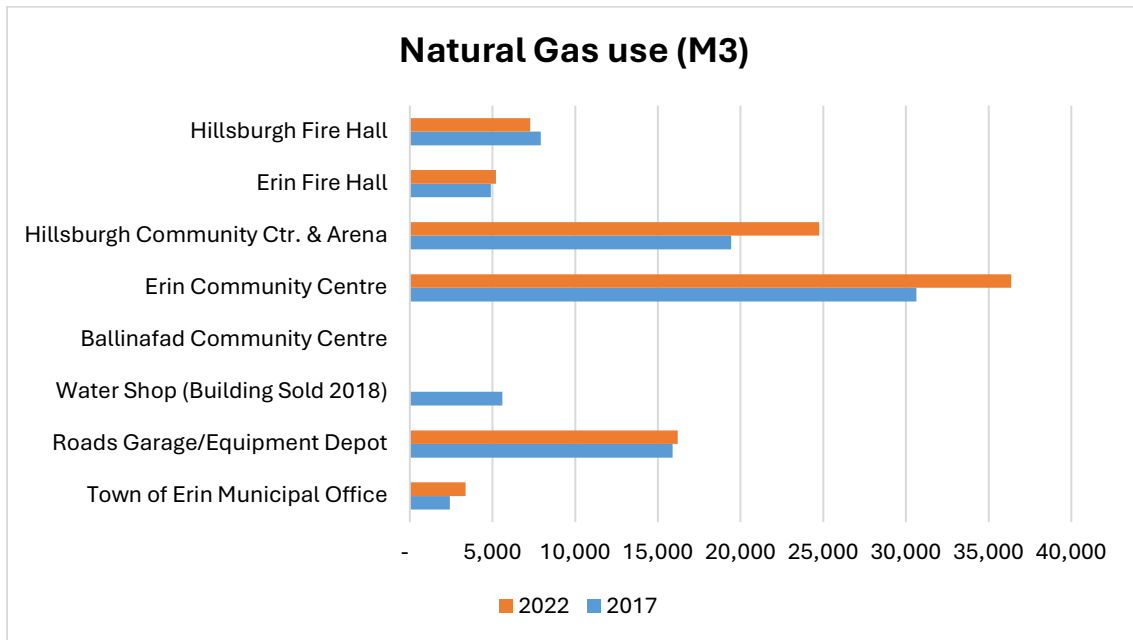
c) Electricity Use (kWh) – All Facilities

Electricity Consumption (kWh) decreased -25.20% in 2022 over the base year of 2017:



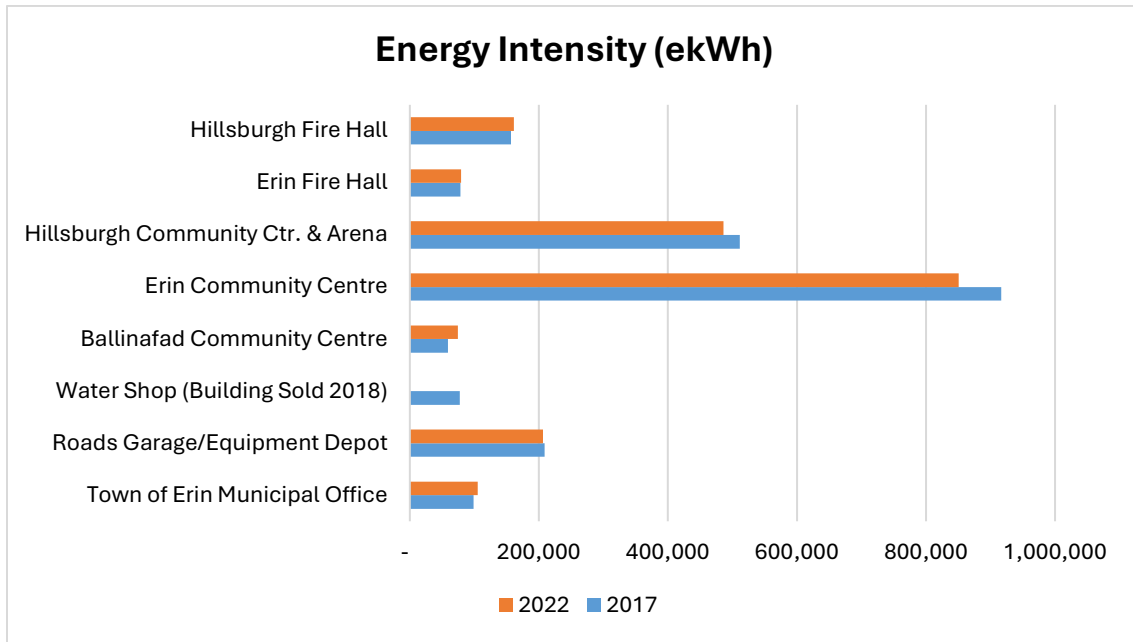
d) Natural Gas Use (m³) – All Facilities

Natural Gas Use (m³) for 2017 was 86,796 and 93,173 for 2022. This represents an increase from the base year of 7%. A significant contributor to this consumption increase is due to the change in the building footprint of the Hillsburgh Fire Hall (HFH) from its reconstruction in 2013:



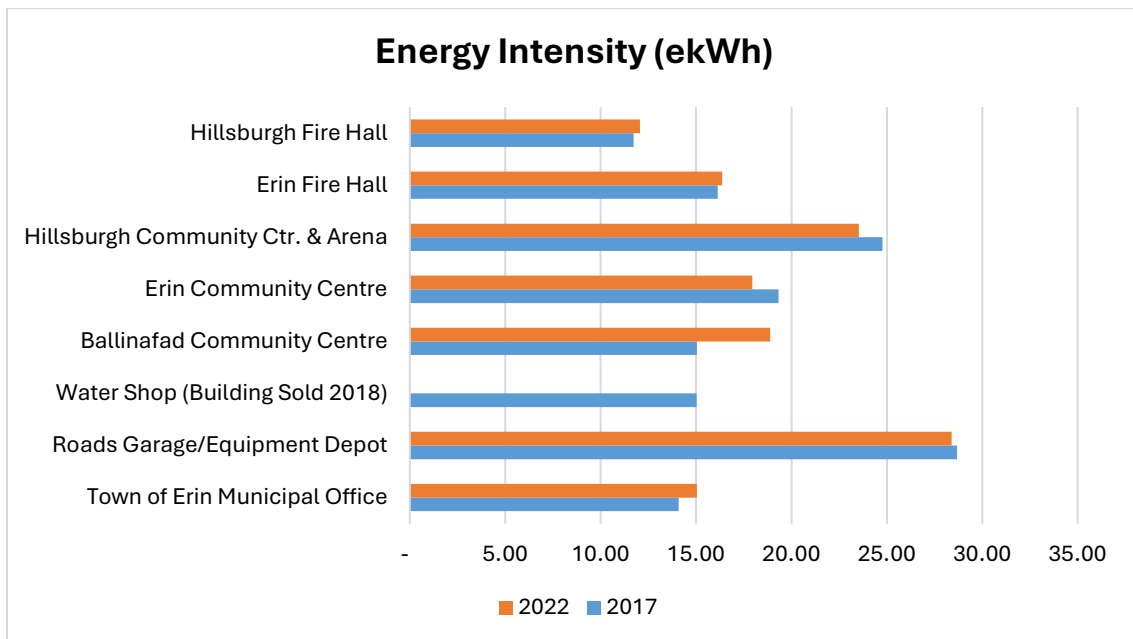
e) Energy Intensity (ekWh) – All Facilities

Energy Intensity Totals (ekWh) for 2017 was 2,107,234 and 1,963,612 for 2022. This represents a decrease from the base year of -7%.



f) Energy Intensity per Square Foot (ekWh/ft²) – All Facilities

The table below provides a breakdown of Energy Intensity ekWh/ft² by facility in 2022. The Energy Intensity per square foot (ekWh/ft²) for 2017 was 18.10 and 18.89 for 2022. This represents an increase from the base year of 0.8%:



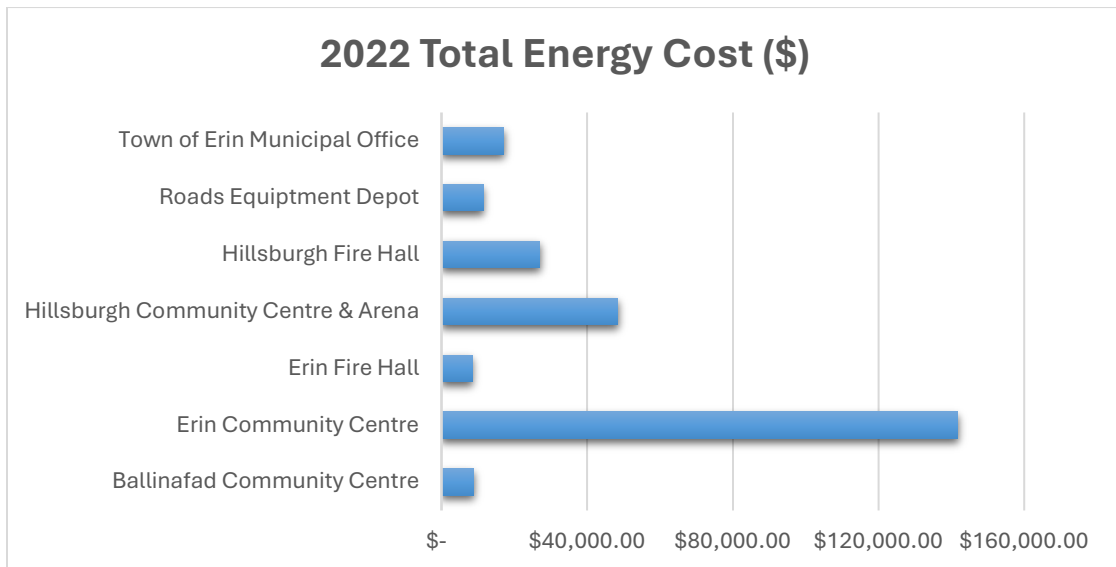
g) Energy Costs (\$) by Facility (2022)

In 2022, the total energy cost for the Town of Erin was \$263,239.57. The table below outlines electricity, natural gas, fuel oil, and total energy costs for the Town’s Facilities for 2022. This is a decrease of 21% from 2017 which its total energy cost was \$319,337.

Facilities - Energy Costs	Electricity Cost	Natural Gas Cost	Fuel Oil Cost	Total Energy Cost
Ballinafad Community Centre	\$ 5,304.52	\$ -	\$ 3,613.11	\$ 8,917.63
Erin Community Centre	\$ 82,333.00	\$ 59,392.03	\$ -	\$ 141,725.03
Erin Fire Hall	\$ 4,664.18	\$ 3,851.32	\$ -	\$ 8,515.50
Hillsburgh Community Centre & Arena	\$ 35,860.55	\$ 12,587.42	\$ -	\$ 48,447.97
Hillsburgh Fire Hall	\$ 16,500.72	\$ 10,481.39	\$ -	\$ 26,982.11
Roads Equipment Depot	\$ 5,354.16	\$ 6,168.89	\$ -	\$ 11,523.05
Town of Erin Municipal Office	\$ 14,460.13	\$ 2,668.15	\$ -	\$ 17,128.28
Totals:	\$ 164,477.26	\$ 95,149.20	\$ 3,613.11	\$ 263,239.57

h) Total Energy Cost by Facility (2022)

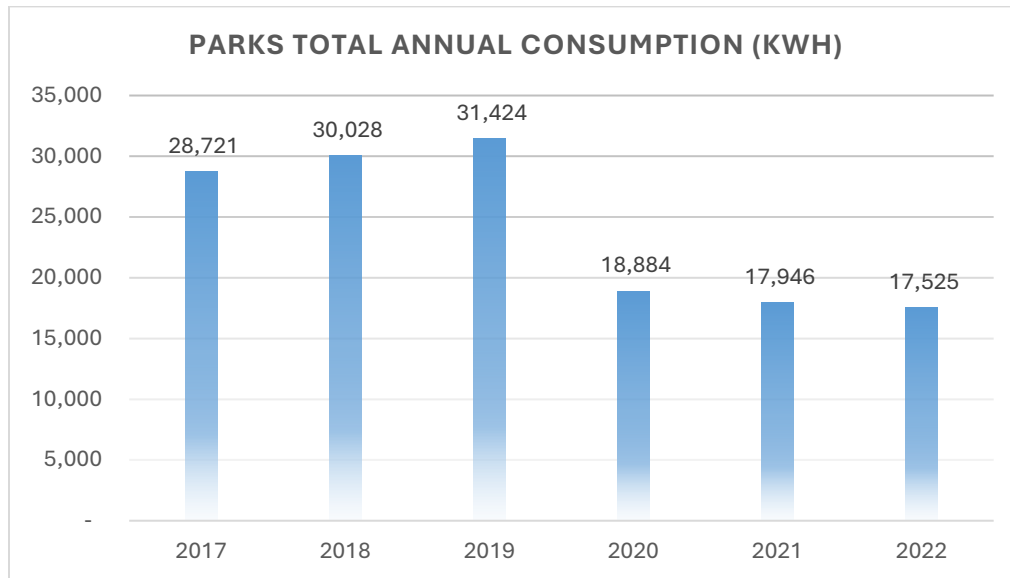
The top three energy cost facilities (Erin Community Centre, Hillsburgh Community Centre, and the Hillsburgh Fire Hall) represent over 82% of the total energy costs of all corporate facilities.



VII. Town Parks Energy Overview:

The Town of Erin has four parks with electricity meters:

1. The Barbour Field Lights
2. Hillsburgh Ball Park
3. McMillan Park Kiosk
4. Victoria Park



VIII. Water Treatment Facilities Energy Overview:

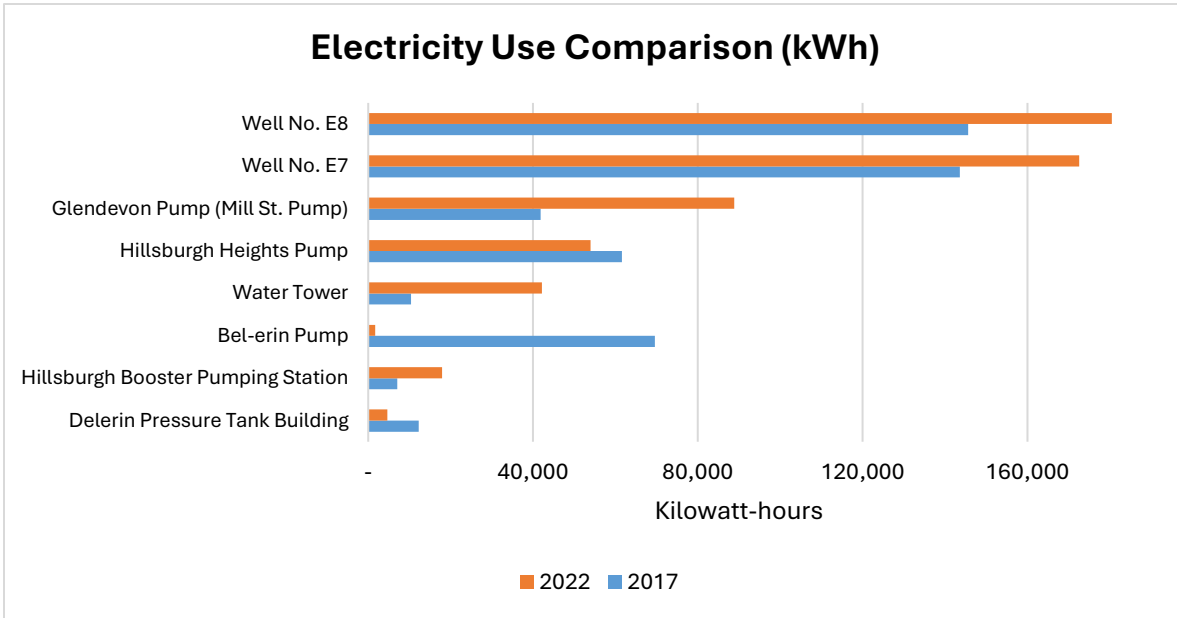
a) Electricity Use (kWh) for Water Treatment Facilities

The table below outlines the total annual electricity consumption for the Town's Water Treatment Facilities for the base year of 2017 and 2022. The total increase in electricity use from 2017 to 2022 was 19%. This increase could be due to several factors such as weather and growth and added water meters:

Water Treatment Facilities Electricity Use kWh	2017 (Base Year)	2022	Base Year vs 2022
Delerin Pressure Tank Building	12,234	4,639	-62.08%
Hillsburgh Booster Pumping Station	7,041	17,948	154.90%
Bel-erin Pump	69,551	1,654	-97.62%
Water Tower	10,422	42,138	304.32%
Hillsburgh Heights Pump	61,609	53,930	-12.46%
Glendevon Pump (Mill St. Pump)	41,882	88,847	112.14%
Well No. E7	143,600	172,546	20.16%
Well No. E8	145,600	203,554	39.80%
	491,939	585,257	

b) Electricity Use (kWh) Comparison

The graph below illustrates the total annual electricity consumption for the base year of 2017 and 2022 for the Town's Water Treatment Facilities:



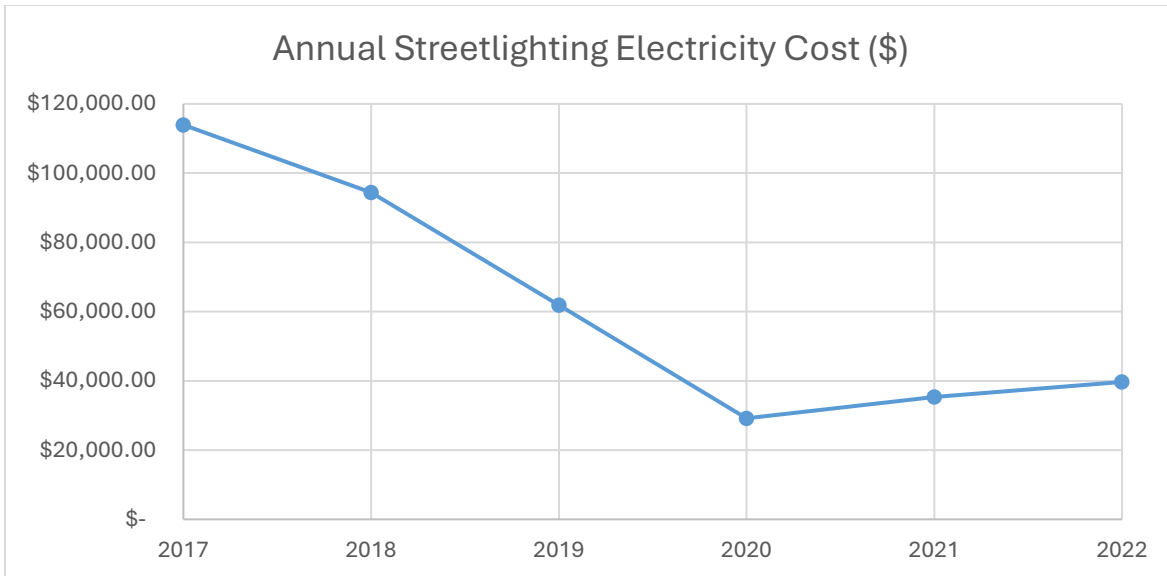
IX. Streetlights Energy Overview:

a) Energy-Efficient LED Street Lighting Conversion

All inefficient High-Pressure Sodium (HPS) streetlights were converted years ago to new energy-efficient LED streetlights. The electricity consumption (kWh) savings were 62% in 2022 compared to 2017, and the electricity cost savings were approximately 68%.

b) Total Annual Electricity Costs (Street Lighting)

The annual cost of the streetlighting is shown in the graph below. The electricity costs have significantly decreased from 2017 to 2022. There was a slight increase from 2020 to 2022 but compared to the costs before switching to LED Lights, it was minimal.



X. The Town's New Energy CDM Plan for 2025-2029:

a. Water Conservation

Water Conservation will be included in the Town's 2025 to 2029 Energy CDM Plan.

Fresh, clean water is a limited resource. Water conservation is the use of water efficiently to reduce unnecessary water usage or waste. Using less water also puts less strain on municipal or regional water, wastewater, and local septic systems. Water conservation includes policies, plans, strategies, and activities to sustainably manage the natural resources of fresh water to meet current and future demands.

b. Energy Reduction Targets

Energy and water consumption reduction targets for all municipal facilities and operations will be set as an average reduction target of 2.0% per year between 2025 and 2029 (10% over 5-years).

For targeting purposes, energy refers to electricity, natural gas, and fuel oil. The town may consider developing targets to reduce diesel and gasoline use, as this is a significant contributor to GHG emissions.

c. Energy Billing & Data Tracking

At least once a year, energy consumption, costs, intensity measures, and greenhouse gas emissions, will be reported to Town Council.

The Town will record and track all its corporate energy and water accounts every month. This will include all corporate facilities (e.g. community centres, fire halls, works yards etc.), parks, water treatment facilities and street lighting.

The Town will register with Hydro One and Enbridge to gain electronic access to its electricity and natural gas accounts. This will improve timely access and accuracy to energy consumption and cost data for reporting purposes.

d. **Energy & Sustainability Committee**

The Town of Erin will establish an Energy & Sustainability Committee (*E&S Committee*). The Committee will be chaired by the Director of Public Works (or as designated by the Senior Management Team) and will include departmental representatives from all corporate energy and water consuming facilities and operations. The E&S Committee will also include representatives that support these operations e.g. Finance. The E&S Committee will be responsible for the following:

1. The development, implementation and reporting of the Town's energy, water and GHG reduction targets as outlined in the Energy CDM Plan.
2. The E&S Committee will develop an Annual Corporate Energy and Water Conservation Action Plan for approval by the senior management team and Council. These plans may also include opportunities for renewable energy generation and energy storage.
3. The E&S Committee will meet at least quarterly.
4. The E&S Committee will be supported with necessary resources needed to meet the Energy CDM Plans reduction targets such as funding and expertise (feasibility/ engineering studies). Funding may be subject to Council approval.
5. All Town Departments and participating Boards or Agencies will be responsible for reporting to the E&S Committee at least annually on energy and water CDM projects implemented within their areas. Reporting will include a breakdown of the following:
 - i. Total project costs.
 - ii. Total project costs less incentives.
 - iii. Incremental project costs (Difference between base case and energy efficient option).
 - iv. Energy consumption reductions (annual).
 - v. Energy or water cost reductions (annual).
 - vi. Maintenance Savings (annual).
 - vii. Emission reductions (annual).
 - viii. Incentives or funding provided from external agencies e.g. utilities, other government agencies etc.
 - ix. Financial benefits i.e., simple payback, life cycle costing, and any other financial measures as determined by Finance (e.g. ROI, IRR, NPV, SIR).
 - x. Support documentation i.e., engineering studies, audits, and incentive applications.

6. The E&S Committee will be responsible for providing the council with an Annual Corporate Energy and Water Conservation progress report.

Once the report is approved or received by Council this report will then be posted for public view on the Town's website. This report will include the following:

- a) A comparison the most recent full year's energy and water consumption, cost, and GHG emission data to the previous reporting year and with the base year, i.e., 2019 would be compared to 2018 and 2012 (the base year).
- b) Report on the Town's ekWh, \$/ft² and energy intensity ekWh/sq.ft² for corporate facilities and \$/ML and ekWh/ML for water and wastewater stations at a minimum.
- c) Report on the Town's corporate greenhouse gas emissions and emission reductions.
- d) Report on the overall progress of the current Energy CDM Plan and plans or opportunities.
- e) Highlight success stories (case studies) and the value of the Town's investments in energy and water conservation. Reports will include a summary of the project name, type of project e.g. energy efficient lighting, project location, reductions in energy or water consumption, costs, incentives, specialized funding, GHG emissions financial benefits.
- f) Develop annual action plans which will identify new energy and water conservation opportunities to reduce energy and water consumption, costs and greenhouse gas emissions. This plan will review upcoming capital plans and recommend strategies for energy efficiency improvements.

e. New Energy Initiatives

1. Energy and water conservation efficiency projects/ programs developed by the E&S Committee where funding is not available, will be incorporated into the annual operating and capital budget process.
2. The E&S Committee will consider incorporating recommendations for corporate fleet vehicles and equipment fuel reduction strategies. Fuel (diesel and gasoline) along with fuel oil and natural gas are the largest corporate contributors to GHG emissions.
3. The Town will utilize available incentive funding and favourable financing opportunities to improve the financial return of energy and water conservation projects.
4. Business cases will be provided for energy and water CDM projects. Business cases will include the project base case(s) vs. the alternative CDM option(s). For CDM retrofit projects the "base case" is usually the existing equipment. For capital or life cycle replacement projects the "base case" is typically the standard efficiency replacement

option (e.g. a mid-efficiency boiler vs. a high-efficiency boiler). Business cases will identify the following:

- a) The base case and energy efficient option(s) being compared and why.
 - b) Project and equipment costs for each option will be included in capital replacement projects.
 - c) Energy or water consumption and energy demand, i.e., for both the base case and the proposed energy-efficient option(s).
 - d) Annual energy and water consumption and cost savings.
 - e) Annual maintenance and operational savings.
 - f) Financial or utility incentive/ funding.
 - g) Life cycle costing, payback, and other financial measures as determined by Finance.
5. Energy rate escalators will be factored into the business case analysis using the most recent forecasts as determined by finance.
 6. Consideration will be given to current and future costs e.g. carbon pricing impacts on Town operations. This may be considered as part of the financial benefits of energy and water conservation initiatives.
 7. The Town will continue to work with the Ontario Clean Water Agency (OCWA) to explore and develop opportunities for energy and water CDM improvements. All capital requests must include options for energy efficiency improvements.