



Georgian Bluffs

DEEPLY ROOTED. SUSTAINABLY GROWING.

Energy Conservation and Demand Management Plan

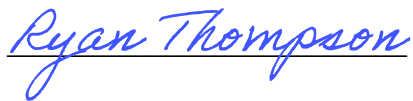
2024-2029

Introduction

In compliance with Ontario Regulation 25/23, the Township of Georgian Bluffs has developed a comprehensive 5-Year Energy Conservation and Demand Management (ECDM) Plan. This plan reflects on progress made since the 2019 ECDM and outlines strategic energy conservation actions through 2029. The ECDM Plan is closely aligned with the Township's Corporate Climate Action Plan (CorCAP), integrating established goals and strategies to enhance sustainability efforts.

Ontario Regulation 25/23 mandates that all public agencies prepare, publish, and implement an ECDM plan. The Township's ECDM Plan not only meets these regulatory requirements but also establishes the framework to support ongoing energy and sustainability initiatives across municipal infrastructure, operations, and programs. It identifies opportunities to enhance energy conservation measures and refine current strategies, with the understanding that implementation is contingent on operational appropriateness, funding availability and budget approvals.

As part of our commitment to climate leadership through the CorCAP, the Township of Georgian Bluffs aims to reduce greenhouse gas (GHG) emissions and strengthen its financial resilience against climate change impacts. The ECDM Plan is a critical component in advancing these objectives, ensuring that energy conservation and sustainability remain at the forefront of municipal planning and operations.



Chief Administrative Officer

Ryan Thompson
177964 Grey Road 18
Owen Sound ON. N4K 5N5
(519) 376-2729
rthompson@georgianbluffs.ca

Introduction.....	1
Chief Administrative Officer	1
2019-2023 in review	2
Overall GHG emission reduction	2
Overall energy consumption reduction	3
Overview of Facilities & Usage.....	4
Commitment	4
Declaration of Commitment:	4
Vision:.....	4
Goals:	4
Overall Target:	4
Objectives:	4
Organizational Understanding.....	5
Energy Initiatives:.....	5
Resource Planning	6
Consideration of Energy Efficiency for all Projects	6
Energy Leader	6
Energy Team	6
Internal Resources	6
Energy Reporting Compliance	6
Energy Training	6
Plan Review & Evaluation of Progress.....	7
Public Posting Statement.....	7
Senior Management Approval	7
Approval Statement:	7
Contacts	8
Chief Administrative Officer	9
Appendix	9
Appendix 1: Energy use on per building basis from 2019-2023.....	9

2019-2023 in review

Overall GHG emission reduction

In 2023, buildings owned by the Township of Georgian Bluffs saw a reduction of approximately 23% or 62,000kg of CO₂ compared to the 2019 numbers. (fig.1) The bulk of this change can be attributed to the following two factors:

- 1) Updating heating sources in several buildings from oil or propane, to electric.
- 2) Divesting buildings that were no longer operationally required.

These actions have resulted in a significant reduction in emissions, and we have surpassed the 2019 ECDM goal of 10% reduction.

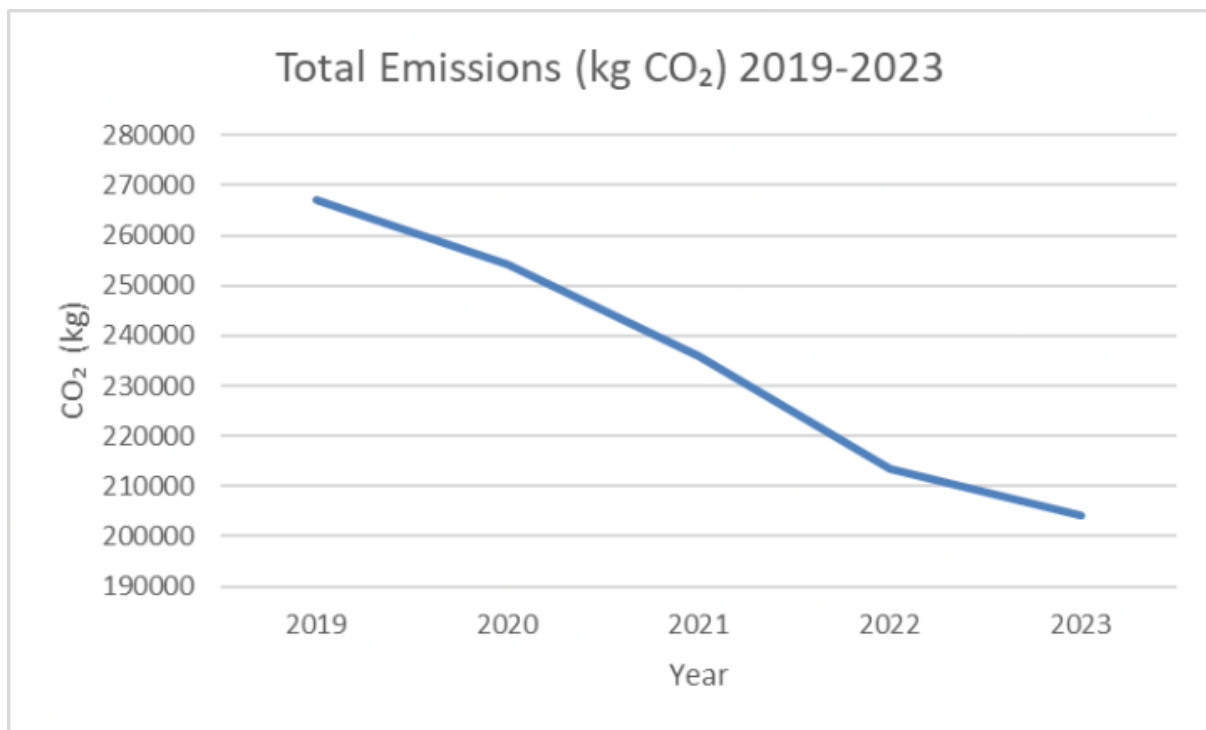


Figure 1, total kg of CO₂ emissions 2019-2023

Overall energy consumption reduction

In 2023, buildings owned by the Township of Georgian Bluffs saw an 11% or approximately 326,772 ekWh reduction of energy consumption compared to 2019 (fig. 2). There are a few factors that are worth considering in these numbers:

- 1) Covid-19 impacted our facility energy use significantly, so a rebound increase after that time was to be expected.
- 2) Increased programming in arenas has increased energy use, but this is relative to empty or under-programmed community centres.

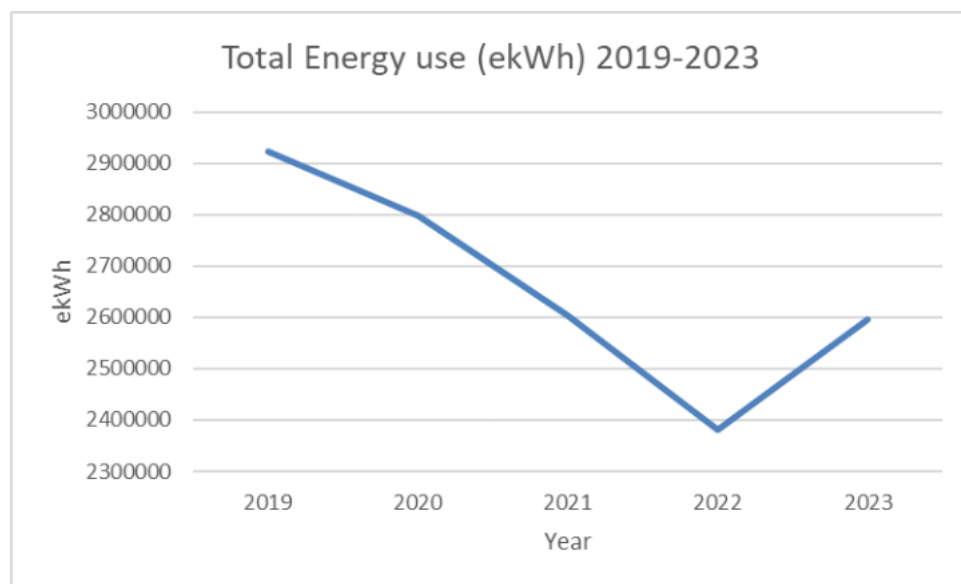


Figure 2, total energy use (ekWh) 2019-2023

Key Points:

- The reduction actions taken so far have been impactful, and the short-term GHG reduction goals laid out in the 2019 ECDM were accomplished.
- The 2019-2023 window of energy use is not typical of optimal facilities use.
- To achieve CorCAP goals, natural gas furnaces will need to be replaced with heat pumps and building energy efficiency improvements. Where practical, solar panels will need to be added to Township facilities.
- A Facilities master plan will be required to identify which buildings will be able to be brought up to required efficiency levels, and which buildings have reached their end of useful service life and need to be retired.

Overview of Facilities & Usage

Detailed energy use and emissions can be seen on a per-building basis from 2019 to 2023 in appendix 1.

Commitment

Declaration of Commitment:

The Township of Georgian Bluffs has allocated the necessary resources to develop and implement a strategic energy management plan that will reduce energy consumption and its related environmental impact. We will use our existing in-house resources and employ the services of private and public sector agencies to develop and implement a comprehensive strategic energy management plan. The asset management plan and facilities management plan will be essential to achieving energy management goals.

Vision:

The Township of Georgian Bluffs will reduce energy consumption and strive to transition to a carbon-neutral future through electrification of its vehicles and building heating systems and through otherwise prudent and efficient use of energy and resources. The Township will also install solar energy systems where practical.

Goals:

To implement comprehensive corporate energy management policy to reduce energy consumption through electrification, improving the energy efficiency of our facilities and equipment.

Overall Target:

The Township of Georgian Bluffs will aim to reduce consumption of energy in all operations by an average of 2% per year between 2024-2029, resulting in an additional 10% reduction in energy consumption by the year 2029.

Objectives:

The creation of a culture of conservation will:

1. Demonstrate leadership within the Organization and the larger community to reduce greenhouse gas emissions through the implementation of best practices.
2. Undertake an energy audit of all Township facilities and assets to assist in the development of an action plan to reduce energy consumption.
3. Implement energy tracking methods so consumption can be monitored and analyzed.
4. Implement strategies within the Township's fleet to conserve fuel and reduce greenhouse gas emissions, replacing internal combustion engines with electric as they become operationally viable. □

Organizational Understanding

Energy Initiatives:

The Township of Georgian Bluffs has implemented a wide range of initiatives to reduce GHG emissions. These range from small operational changes to asset replacement.

They include:

- LED installations at every facility, using the Save ON Energy program for retrofits and specifying energy efficient lighting as part of new builds and renovations.
- Adequately maintaining and servicing equipment such as HVAC units, boilers, and furnaces to ensure they are operating efficiently.
- Updating heating systems with low or zero emissions options in all new builds and end of service replacements.
- Continuing to analyze and upgrade to more efficient lighting and other improvements at facilities such as Kilsyth Arena at Derby Community Centre and Kemble Arena, Baseball Diamond Lighting, fixtures in Roads Department depots, and exterior lighting such as wall packs on buildings and parking lot lights.
- Asset management and life cycle analysis of old pumps and motors in water plants and refrigeration plants as well as HVAC units, boilers, furnaces, air conditioners, etc. to consider updating aging equipment to more efficient (and cost effective) equipment.
- Continuing to integrate renewable energy sources, such as solar panels, either to directly feed facilities or leasing space to offset the Township's GHG impacts.
- Implementing basic efficiency standards such as regulating indoor temperature standards for occupied and unoccupied indoor spaces, considering lower set points for hot water tank temperature, and continuing to employ energy saving devices such as timers and occupancy/motion sensors.

- Making energy conservation a priority on applicable projects, including adding a section in Request for Tender packages stating preference will be given to assets that are “Energy Star” rated or will use less energy.

Resource Planning

Consideration of Energy Efficiency for all Projects

We will incorporate life cycle analysis of costs and GHG emissions into the design procedures for all capital projects.

Energy Leader

The Chief Administrative Officer will lead the Corporate Energy Management Plan, ensuring systemic alignment with the objectives set out in this plan.

Energy Team

The Township's senior staff shall have a quarterly standing agenda item to review the Township's operations and ensure that the activities are consistent with the conservation and energy management plan.

Internal Resources

We will provide ongoing training opportunities for our staff to ensure they are knowledgeable in energy management and can provide "best practices" information to the operational departments.

Energy Reporting Compliance

The Township of Georgian Bluffs complies with the annual energy and emissions reporting requirements under Ontario Regulation 25/23 by submitting all required facility data to the Ministry through the ENERGY STAR Portfolio Manager platform. Annual reports include facility energy consumption, GHG emissions, and floor area, submitted by July 1 each year as required.

Energy Training

We will incorporate energy management training into employee orientation and future training opportunities offered through the Township. Energy management training opportunities will be:

1. Integrated into corporate training courses for new staff.

2. Integrated into ongoing staff training.
3. Designed to allow for the internal capacity building necessary to ensure that staff are making informed decisions and reducing the need for costly external assistance.
4. Supportive of existing software and other tools that support energy management.

Plan Review & Evaluation of Progress

Senior Management will review the Township of Georgian Bluffs Energy Conservation and Demand Management Plan as necessary, ensuring to make updates after the completion of significant undertakings such as energy audits. The Plan should be reviewed annually as part of the capital and operating budget process.

The Township's energy consumption will be monitored regularly and evaluated annually to review the outcomes of energy saving initiatives. This review is necessary to ensure that the Township remains on target for a 2% annual reduction in energy consumption, and 10% total over the next five years.

Public Posting Statement

The Township of Georgian Bluffs has made this document publicly available, by posting on our official website <https://www.georgianbluffs.ca/>. Hard copies are available by request and can be collected at our Admin Office during business hours.

Senior Management Approval

In compliance with Ontario Regulation 25/23, this Energy Conservation and Demand Management Plan has been reviewed and formally approved by the Township's senior management prior to publication.

Approval Statement:

This Energy Conservation and Demand Management Plan (2024–2029) was approved by the Senior Management Team of the Township of Georgian Bluffs on , in accordance with the requirements of Ontario Regulation 25/23.

Contacts

Chief Administrative Officer

Ryan Thompson
177964 Grey Road 18
Owen Sound ON. N4K 5N5
(519) 376-2729
rthompson@georgianbluffs.ca

*Report prepared by Riel Warrilow,
Environmental Initiatives Officer
Township of Georgian Bluffs*

Appendix

Appendix 1: Energy use on per building basis from 2019-2023

Energy Consumption and GHG Emissions

From: 2019-01-01 To: 2019-12-31

Facility Name	Electricity (kWh)	Electricity Emissions (kg CO2)	Natural Gas (m3)	Natural Gas Emissions (kg CO2)	Fuel Oil 1&2 (L)	Fuel Oil 1&2 Emissions (kg CO2)	Propane (L)	Propane Emissions (kg CO2)	Combined Emissions per facility (kg CO2)
Airport - Maintenance Building	71160	2063.640	11743	22558.303					24621.943
Airport - Resturant Building	2961	85.869	17	32.657					118.526
Airport - Terminal	85506	2479.674	5269	10121.749					12601.423
Biodigester	178998	5190.942							5190.942
Derby Community Centre	57038	1654.102							1654.102
Derby Roads Shop	19172	555.988					9898	14995.47	15551.458
East Linton Water Treatment Plant	158433	4594.557	11890	22840.69			682	1033.23	28468.477
Inter-Township Fire Hall	50353	1460.237	8340	16021.14					17481.377
Kemble Community Centre	19361	561.469			1859	5117.827			5679.296
Keppel Road Shop	25011	725.319					11578	17540.67	18265.989
Pottawatomi Water Treatment Plant	24204	701.916					717	1086.255	1788.171
Sarawak Roads Depot	22455	651.195	11318	21741.878					22393.073
Shallow Lake Community Centre	306375	8884.875	30217	58046.857			3590	5438.85	72370.582
Shallow Lake Water Treatment Plant	119281	3459.149	10943	21021.503					24480.652
Township of Georgian Bluffs Administration Office	34485	1000.065	8062	15487.102					16487.167
Totals	1174793	34068.997	97799	187871.879	1859	5117.827	26465	40094.475	267153.178

Energy Consumption and GHG Emissions

From: 2020-01-01 To: 2020-12-31

Facility Name	Electricity (kWh)	Electricity Emissions (kg CO2)	Natural Gas (m3)	Natural Gas Emissions (kg CO2)	Fuel Oil 1&2 (L)	Fuel Oil 1&2 Emissions (kg CO2)	Propane (L)	Propane Emissions (kg CO2)	Combined Emissions per facility (kg CO2)
Airport - Maintenance Building	71640	2579.040	12605	24214.205					26793.245
Airport - Resturant Building									0.000
Airport - Terminal	82479	2969.244	5141	9875.861					12845.105
Biodigester	172083	6194.988							6194.988
Derby Community Centre	43447	1564.092							1564.092
Derby Roads Shop	11430	411.480					12569	19042.035	19453.515
East Linton Water Treatment Plant	184445	6640.020	10756	20662.276					27302.296
Inter-Township Fire Hall	49865	1795.140	5885	11305.085					13100.225
Kemble Community Centre	25686	924.696			115	316.595			1241.291
Keppel Road Shop	22147	797.292					12018	18207.27	19004.562
Pottawatomie Water Treatment Plant	24542	883.512							883.512
Sarawak Roads Depot	19516	702.576	9984	19179.264					19881.840
Shallow Lake Community Centre	294530	10603.080	25744	49454.224			468	709.02	60766.324
Shallow Lake Water Treatment Plant	123397	4442.292	12800	24588.8					29031.092
Township of Georgian Bluffs Administration Office	38977	1403.172	7733	14855.093					16258.265
Totals	1164184	41910.624	90648	174134.808	115	316.595	25055	37958.325	254320.352

Energy Consumption and GHG Emissions

From: 2021-01-01 To: 2021-12-31

Facility Name	Electricity (kWh)	Electricity Emissions (kg CO2)	Natural Gas (m3)	Natural Gas Emissions (kg CO2)	Fuel Oil 1&2 (L)	Fuel Oil 1&2 Emissions (kg CO2)	Propane (L)	Propane Emissions (kg CO2)	Combined Emissions per facility (kg CO2)
Airport - Maintenance Building	97560	4292.640	12068	23182.628					27475.268
Airport - Resturant Building									0.000
Airport - Terminal	72906	3207.864	2920	5609.32					8817.184
Biodigester	176232	7754.208							7754.208
Derby Community Centre	42866	1886.104							1886.104
Derby Roads Shop	12427	546.788					9539	14451.585	14998.373
East Linton Water Treatment Plant	233880	10290.720	8636	16589.756					26880.476
Inter-Township Fire Hall	52781	2322.364	6911	13276.031					15598.395
Kemble Community Centre	23167	1019.348							1019.348
Keppel Road Shop	19894	875.336					11110	16831.65	17706.986
Pottawatomi Water Treatment Plant	21209	933.196							933.196
Sarawak Roads Depot	19992	879.648	10586	20335.706					21215.354
Shallow Lake Community Centre	284367	12512.148	22664	43537.544			49	74.235	56123.927
Shallow Lake Water Treatment Plant	116784	5138.496	8253	15854.013					20992.509
Township of Georgian Bluffs Administration Office	38314	1685.816	6767	12999.407					14685.223
Totals	1212379	53344.676	78805	151384.405	0	0	20698	31357.47	236086.551

Energy Consumption and GHG Emissions

From: 2022-01-01 To: 2022-12-31

Facility Name	Electricity (kWh)	Electricity Emissions (kg CO2)	Natural Gas (m3)	Natural Gas Emissions (kg CO2)	Fuel Oil 1&2 (L)	Fuel Oil 1&2 Emissions (kg CO2)	Propane (L)	Propane Emissions (kg CO2)	Combined Emissions per facility (kg CO2)
Airport - Maintenance Building									0.000
Airport - Resturant Building									0.000
Airport - Terminal									0.000
Biodigester	141601	7221.651							7221.651
Derby Community Centre	56400	2876.400							2876.400
Derby Roads Shop	13178	672.078					10584	16034.76	16706.838
East Linton Water Treatment Plant	221350	11288.850	7988	15344.948					26633.798
Inter-Township Fire Hall	53222	2714.322	7004	13454.684					16169.006
Kemble Community Centre	37429	1908.879							1908.879
Keppel Road Shop	30260	1543.260					12627	19129.905	20673.165
Pottawatomi Water Treatment Plant	17645	899.895							899.895
Sarawak Roads Depot	21670	1105.170	10956	21046.476					22151.646
Shallow Lake Community Centre	309899	15804.849	25379	48753.059			65	98.475	64656.383
Shallow Lake Water Treatment Plant	128814	6569.514	6880	13216.48					19785.994
Township of Georgian Bluffs Administration Office	44625	2275.875	5907	11347.347					13623.222
Totals	1076093	54880.743	64114	123162.994	0	0	23276	35263.14	213306.877

Energy Consumption and GHG Emissions

From: 2023-01-01 To: 2023-12-31

Facility Name	Electricity (kWh)	Electricity Emissions (kg CO2)	Natural Gas (m3)	Natural Gas Emissions (kg CO2)	Fuel Oil 1&2 (L)	Fuel Oil 1&2 Emissions (kg CO2)	Propane (L)	Propane Emissions (kg CO2)	Combined Emissions per facility (kg CO2)
Airport - Maintenance Building									0.000
Airport - Resturant Building									0.000
Airport - Terminal									0.000
Biodigester	121440	3643.200							3643.200
Derby Community Centre	64105	1923.150							1923.150
Derby Roads Shop	27932	837.960					12543	19002.645	19840.605
East Linton Water Treatment Plant	240201	7206.030	10708	20570.068					27776.098
Inter-Township Fire Hall	53506	1605.180	6472	12432.712					14037.892
Kemble Community Centre	35871	1076.130							1076.130
Keppel Road Shop	29994	899.820					13491	20438.865	21338.685
Pottawatomi Water Treatment Plant	15150	454.500							454.500
Sarawak Roads Depot	22888	686.640	9044	17373.524					18060.164
Shallow Lake Community Centre	325867	9776.010	25275	48553.275			3597	5449.455	63778.740
Shallow Lake Water Treatment Plant	118510	3555.300	9691	18616.411					22171.711
Township of Georgian Bluffs Administration Office	47252	1417.560	4548	8736.708					10154.268
Totals	1102716	33081.48	65738	126282.698	0	0	29631	44890.965	204255.143

Emission Factors

Energy Type	Units	kg/CO ₂ produced per unit of fuel				
		2019	2020	2021	2022	2023
Electricity	kWh: kilowatt hour	0.029	0.036	0.044	0.051	0.030
Light Fuel Oil 1 & 2	L: litre	2.753	2.753	2.753	2.753	2.753
Natural Gas	m3: cubic meter	1.921	1.921	1.921	1.921	1.921
Propane	L: litre	1.515	1.515	1.515	1.515	1.515
		https://publications.gc.ca/collections/collection_2024/eccc/En81-4-2022-1-eng.pdf				https://publications.gc.ca/collections/collection_2024/eccc/En84-294-2024-eng.pdf

	2019	2020	2021	2022	2023
Total kgs of CO ₂	267153.178	254320.352	236086.551	213306.877	204255.143

Energy use by type	2019	2020	2021	2022	2023
Electricity (kWh)	1174793	1164184	1212379	1076093	1102716
Natural Gas (m3)	97799	90648	78805	64114	65738
Oil (L)	1859	115	0	0	0
Propane (L)	26465	25055	20698	23276	29631

Unit	ekWh
1 kWh	1 kWh
1 m3	10.55 kWh
1 L	1.04 kWh
1 L	27 kWh

Energy use by type (ekWh)	2019	2020	2021	2022	2023
Electricity	1174793	1164184	1212379	1076093	1102716
Natural Gas	1031779.45	956336.4	831392.75	676402.7	693535.9
Oil	1933.36	119.6	0	0	0
Propane	714555	676485	558846	628452	800037

	2019	2020	2021	2022	2023
Total	2923060.81	2797125	2602617.75	2380947.7	2596288.9

Energy use by type (ekWh)	2019	2020	2021	2022	2023
Electricity	1174793	1164184	1212379	1076093	1102716
Natural Gas	1031779.45	956336.4	831392.75	676402.7	693535.9
Oil	1933.36	119.6	0	0	0
Propane	714555	676485	558846	628452	800037
Total	2923060.81	2797125	2602617.75	2380947.7	2596288.9

