

The Corporation of the Municipality of Arran-Elderslie
Conservation and Demand Management Plan
2024-2029



Conservation and Demand Management Plan | **Agenda**

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Conservation and Demand Management Plan | **Background**

On January 1, 2019, a new regulation was introduced under the Electricity Act, 1998 titled Ontario Regulation 507/18 Broader Public Sector: Reporting and Conservation and Demand Management Plan. This replaces Ontario Regulation 397/11, Energy Conservation and Demand Management Plans, under the now repealed Green Energy Act, 2009.

The Municipality implemented a Conservation and Demand Management Plan in 2014, which was created to meet the requirements of Ontario Regulation 397/11. It was used as a guiding document to promote energy efficiencies throughout all municipal operations. The creation of the Plan has resulted in a more structured approach as it relates to tracking energy consumption and spending.

Through the course of the Plan, staff and resources have been continuously allocated to energy conservation in an effort to reduce the Municipality's carbon footprint.

Conservation and Demand Management Plan | **Municipal Commitment**

The Municipality of Arran-Elderslie will continue to seek energy efficiencies with new infrastructure and invest in existing buildings to upgrade where possible. Municipal Council is supportive of staff sourcing energy efficient projects and is committed to investments that will reduce greenhouse gas emissions. Staff will continue to seek efficiencies in daily operations and when planning long term. All staff will continue to educate and promote energy efficiency to increase awareness and understanding among residents.

The Municipality of Arran-Elderslie will update the Conservation and Demand Management Plan at the duration of this Plan in 2029, or as required by legislation.

Conservation and Demand Management Plan | **Vision**

The Municipality of Arran-Elderslie will strive to continuously reduce overall energy consumption while optimizing the delivery of services and enhance the overall quality of life for residents of today and tomorrow.

Conservation and Demand Management Plan | **Goals & Objectives**

The following are the Municipality of Arran-Elderslie's goals and objectives as it relates to energy conservation and demand management.

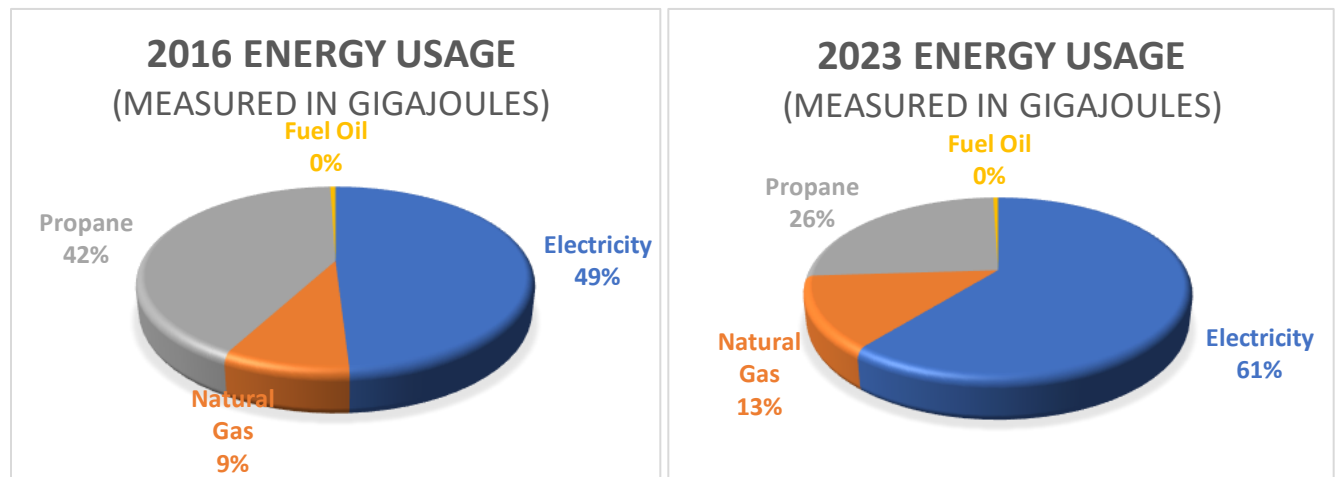
- Identify and implement various energy efficiencies in all municipal operations
- Utilize best practices to reduce municipal operating costs, energy consumption and greenhouse gas emissions
- Achieve cost savings through various energy initiatives and identify potential funding opportunities available to encourage efficiency enhancements
- Demonstrate leadership and awareness by creating a culture of conservation and sustainability
- To improve the reliability of the Municipality's equipment and reduce maintenance costs
- Leverage opportunities to reduce operating costs by creating a positive impact with predictable usages of energy management projects

The following is a series of datasets from the previous five years regarding the progress that the Municipality has made with reducing its carbon emissions.

The Municipality has worked to augment its usage types to more environmentally conscious and economical sources of energy.

Consumption by Energy Type

The charts below illustrate the changes in type of consumption between the baseline year of 2016, and the final year of the Plan, 2023.

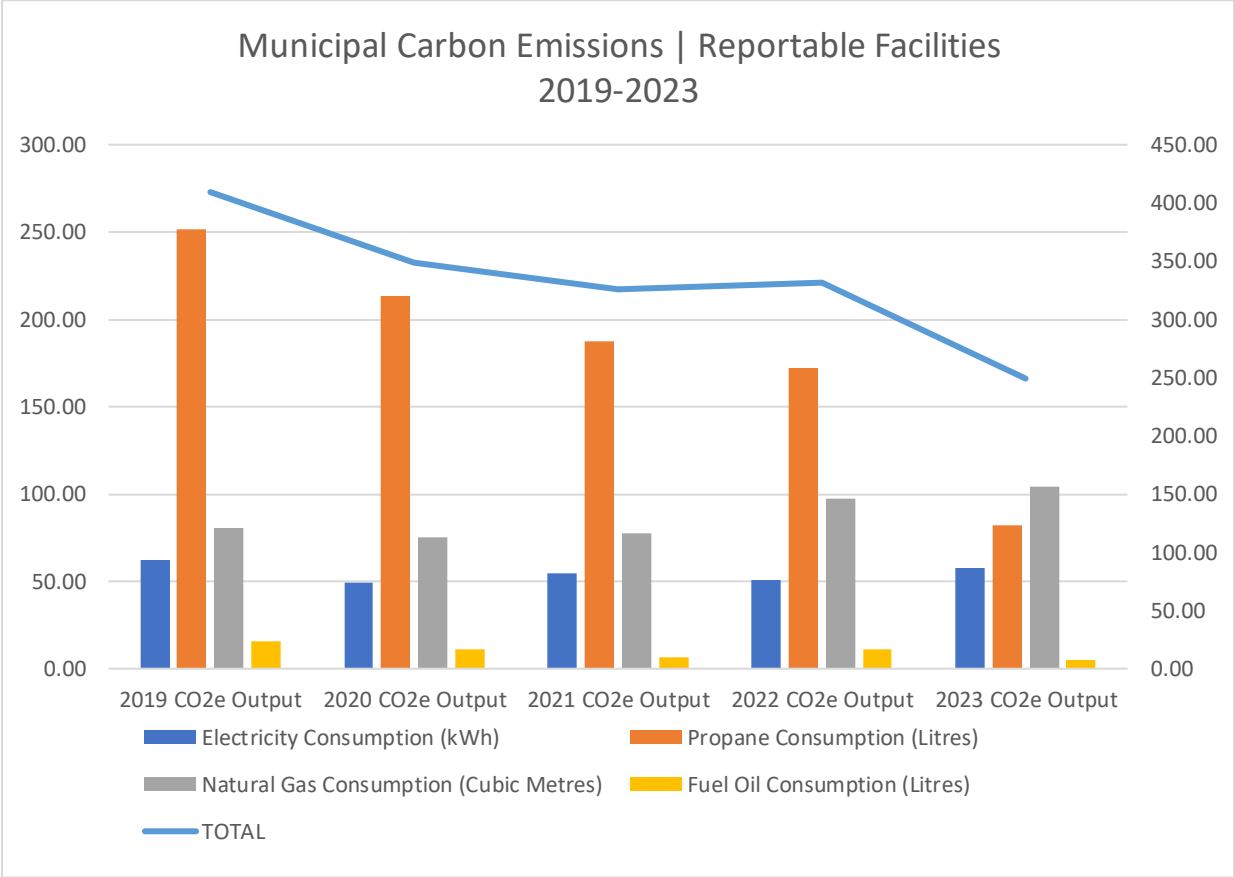


The above indicates the positive changes by eliminating fuel oil usage. The Municipality has decreased its propane usage and has a slight increase in natural gas consumption. This change is expected to continue as the Municipality continues to convert to natural gas. Electricity consumption has also increased.

Note: The information in the above charts is from reportable facilities within the Municipality.

Municipal Carbon Emissions in Reportable Facilities

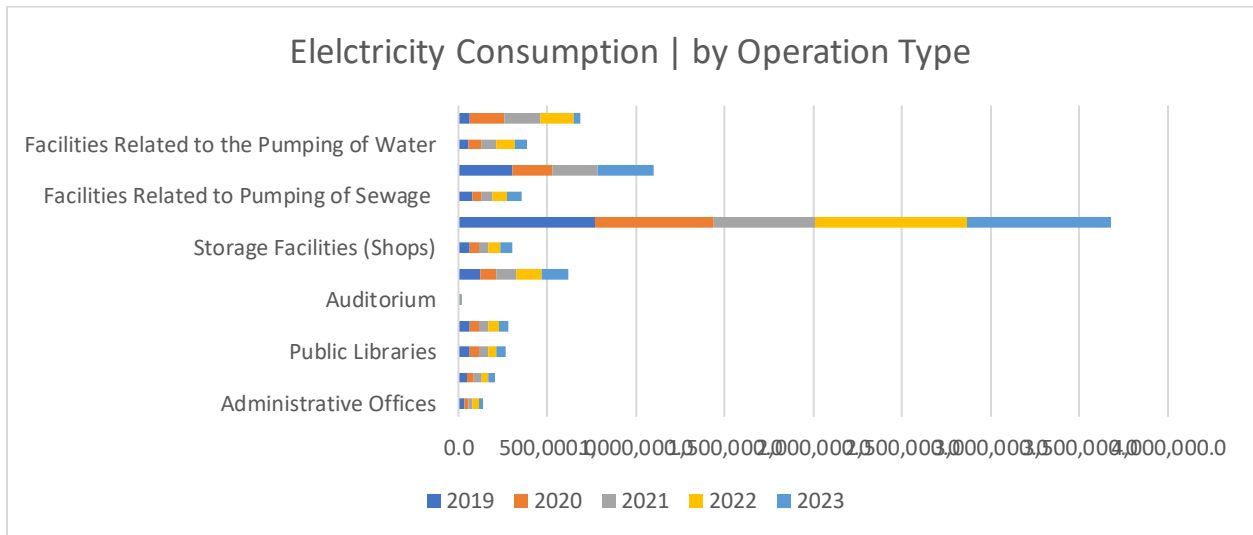
The chart below shows the breakdown of energy usage by type, while also indicating the Municipality’s output of carbon emissions (CO2e).



The Municipality’s average CO2e outputs from 2019-2023 has shown a steady decrease. The Municipality will continue to look at energy saving initiatives to continue this trend.

Municipal Electricity Consumption

The chart below illustrates the electricity use in the various facets of municipal operations. Ice rinks continue to use the largest amounts of energy with Facilities Related to the Treatment of Sewage and Facilities Related to the Treatment of Water following as the next largest consumers.



Although it appears that electricity consumption remains stable of the larger facilities, it has been reduced in various smaller facilities.

When comparing electricity consumption to the Municipality's baseline year, which was reported at 1,668,978.95 kWh, the average overall consumption from 2019 to 2023 was 1,547,576.43 kWh, which is an increase of 121,402.52 kWh, or a 7.5% increase on average.

Equipment Consumption

Although the previous Plan indicated that the Municipality would report on it emission outputs in equipment, staff did not have the capacity to track and report on this aspect of operations. The Municipality will endeavor to find solutions to report on fleet emissions and seek opportunities to reduce carbon emissions within this area.

Conservation and Demand Management Plan | Energy Savings Projects 2019-2024

<u>Facility</u>	<u>Measure</u>	<u>Completion</u>
Arran-Elderslie Municipal Office	Furnace Replacement and Rebuilt Air Exchanger	2023
	Switch HVAC system from propane to natural gas	2022
	Replace desktop computers with laptop computers	Ongoing
	Lower level renovation including efficient bulbs and HVAC systems	2023
Arran-Elderslie Water Plant	Installation of two VFD's	2020
Chesley Community Centre	Arena and Curling Club Roof Replacement	2024
	Replace Arena lights to LED	2019
Chesley Lagoon	Replace inefficient blower	2020
Elderslie Shop	Switch HVAC system from propane to natural gas	2023
	Replace four bay doors	2020
	Install for new infrared heaters	2023
Chesley Medical Clinic	Roof Replacement	2024
Chesley Water Shop	Insulated building	
Chesley Town Hall/Bijou	Furnace Replacement	2021
Paisley Community Centre	Lounge Roof Replacement	2021
	Library relocation to upper level – HVAC work completed throughout	2023
	Replaced Arena lights to LED	2021
Paisley Sewage Treatment Plant	Replace inefficient blower	2023
Paisley Shop	Replace fuel oil furnace with high efficiency natural gas unit	2022
Paisley Town Hall	Window Replacement	2021

Tara Community Centre	Replaced Arena Lights to LED	2019
Tara Fire Hall	Replace fluorescent lights with LED	2020
Tara Well #3	Pump drive motor replaced to proper size	2021

Conservation and Demand Management Plan | **Reduction Target**

The Municipality of Arran-Elderslie will continue to strive to reduce its overall carbon footprint within all aspects of its business. The Municipality will aim to further reduce its emissions output by one percent from 2024 through 2029, using 2022 as baseline data.

Conservation and Demand Management Plan | **2024-2029 Plan**

The Municipality of Arran-Elderslie will continue its investment into energy efficiencies and promoting environmental stewardship. The following are potential projects that will be considered during the upcoming five years.

Facility	Measure	Estimated Cost	Anticipated Completion
Arran-Elderslie Municipal Office	Replace desktop computers with laptop computers	\$ 10,000	ongoing
Chesley Community Centre	Replace arena roof and increase insulation	\$ 500,000	2024
Chesley Lagoon	Replace two sewage pumps	\$40,000	2025
Chesley Park	Well Replacement – VFD, energy efficient motor	\$500,000	2025
Paisley Community Centre	Flat Roof Replacement	\$ 75,000	2025
Paisley New Fire Hall & Shop	Build a new shop and hall including LED lighting, in floor heat, future solar options, R28 insulation system, R60 roof insulation	\$ 5,000,000	2025
Paisley Old Fire Hall	Decommission facility and remove from Municipal portfolio	Unknown	2025

Paisley Old Library	Decommission facility and remove from Municipal portfolio	Unknown	2025
Paisley Sewage Treatment Plant	Replaced two VFD's	\$10,000	2027
	Replace lighting to LED	\$10,000	2026
Paisley Shop	Utilize for storage and keep utility usage to a minimum	\$ 0	2025
Tara Community Centre	West roof replacement	\$ 15,000	2024
	Arena roof repair and seal	\$ 30,000	2025

<u>Equipment</u>	<u>Measure</u>	<u>Estimated Cost</u>	<u>Anticipated Completion</u>
Fleet	Replace gas pickup truck with diesel pickup truck	\$ 75,000	2024
Fleet	Replace car with hybrid model	\$ 40,000.00	2026
Fleet	Replace Grader with unit that has better emissions		2027
Fleet	Replace pickup truck	\$ 25, 000	2025

<u>Behavioural Change</u>	<u>Who will Lead</u>	<u>Who is Involved</u>	<u>Timing</u>
Turn off computers during evenings and weekends	Council/CAO	All Staff	Ongoing
Turn off lights when leaving a room	Council/CAO	All Staff	Ongoing
Create an energy savings challenge among departments	Council/CAO	All Staff	2026
Develop "Conservation Champions" among team members	Senior Management	All Staff	2025
Continue to invest in energy conservation training opportunities for all employees	Council/CAO	All Staff	Ongoing
Continue to learn creative and innovative ways to increase energy efficiency in Municipal portfolio	Senior Management	All Staff	Ongoing

Conservation and Demand Management Plan | **Renewable Energy**

The Municipality currently does not have renewable energy systems but is committed to explore the viability of implementing such systems within Municipal facilities. Research regarding technical and economic feasibility of incorporating a renewable energy system will be performed and presented to Municipal Council as it becomes available.

Conservation and Demand Management Plan | **Municipal Energy Leader**

The Municipality of Arran-Elderslie will continue to incorporate energy management planning as an integral component of the management structure, including the Municipality’s budget process and overall asset management plan. Municipal Council, in cooperation with the management team will be responsible for leading the Municipality in a supportive energy conscious environment.

Municipal energy data is managed by the Municipal Treasurer. The data is received via supplier invoices and reported to the Ministry annually, as required under Ontario Regulation 507/18.

Conservation and Demand Management Plan | **Energy Use – Municipal Level**

Municipal staff will implement energy efficiencies and reduction at the direction of the management team. Municipal Council will provide adequate resources and provide skill training for employees that are involved with energy consumption systems, in order to enhance their capacity to achieve energy efficiency improvements.

Conservation and Demand Management Plan | **Asset Level Execution**

Providing education to all staff is essential to energy conservation and reducing greenhouse gases. Training focused on energy use and conservation opportunities associated with an employee’s daily workflow will be utilized where possible.

Life-cycle cost analysis of HVAC systems (boilers, chillers, pumps, motors), lights and controls, building envelope, water and sewage usage will identify projects to be undertaken and assist with long term capital planning and budgeting.

Conservation and Demand Management Plan | **Plan Review**

The Municipality of Arran-Elderslie will annually review, evaluate and update the Plan, as required by Ontario Regulation 507/18.