

Town of Minto Energy Conservation and Demand Management Plan, 2024-2029



1 Acknowledgements

The writing of the plan engaged the Town of Minto's staff to provide institutional history on their respective facilities. The contributors to the plan are:

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Gordon Duff, Treasurer was the primary contact for Tree House Energy Services.

The Town would also like to express their gratitude to Paul McGinn of Westario Power and the province for their continued support on administration and the Save ON Energy program respectively.

2 Executive Summary

The Town of Minto is a small rural community heavily invested in facilities and infrastructure that includes three urban areas each with a number of facilities including an arena, community hall, wastewater treatment facility and water treatment plant. This investment also involves energy management which has financial and environmental benefits as well as a combination of both.

The Town's 2024-2029 Energy Conservation and Demand Management (CDM) Plan addresses technical, behavioral and organizational measures to continue to provide financial and environmental benefits in the form of reductions in energy use and greenhouse gas (GHG) emissions as well as cost recovery. This CDM Plan also complies with the requirements of Ontario Regulation 25/23: Broader Public Sector: Energy Reporting and Conservation And Demand Management Plans. Regarding benefit highlights, the Plan also reports on the following completed initiatives:

- Implementation of 14 technical projects from the previous 2019-2024 Energy Conservation and Demand Management Plan
- Retrofit and resizing of packaged rooftop unit to suit HVAC loads for a demand savings of 20-25kW
- A 22% reduction of natural gas (51,089 m³) from 2019 as compared with 2023
- Energy initiatives that amounted to a 19% reduction in emissions when comparing total annual GHG emissions in 2019 to 2023
- Revenue from previous provincial programs in the form of microFIT and FIT 4.0 payments for solar electricity generation

It was noted that the Town used 290,889 kWh more electricity in 2023 relative to 2019 which represents about a 9% increase, however, revenue from solar electricity generation offsets some of the increased electricity costs. The Plan proposes the following future initiatives:

- 14 new or updated technical, organizational and behavioral measures
- Net zero emission studies with energy and cost recovery benefits for the Palmerston and Harriston arenas that represent the largest facility-wide opportunity for future reductions in energy use and GHG emissions
- Expansion and/or addition of solar PV systems to reduce electricity use

This CDM Plan has a number of summary charts, graphs and tables to illustrate the Town's energy profile and planned initiatives at a portfolio and individual building level; more details are located in the appendices including required facilities to be reported under O.Reg. 25/23.

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3 Overview

The Town of Minto has made a range of investments in energy initiatives since its 2014 and 2019 *Energy Conservation and Demand Management Plans* were published.

The purpose of the 2024 update to Minto’s CDM Plan is to report on the results of initiatives outlined in the 2019-2023 plan while building on this previous plan to develop a new five-year road map. This CDM Plan will achieve benefits that are financial, environmental and a combination of both.

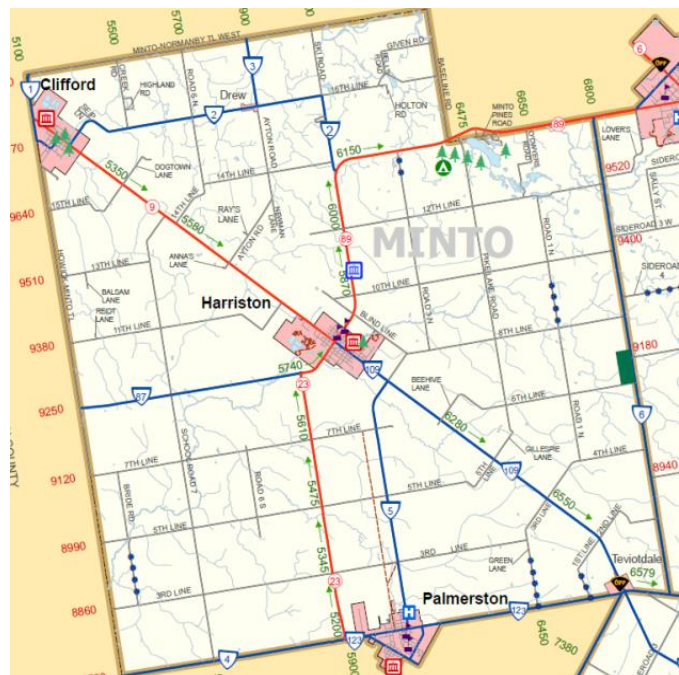
The 2024-2029 CDM Plan complies with Provincial legislative in the form of O.Reg. 25/23 and the Plan will be posted on Minto’s website.

4 Background

The following sections describe the location and characteristics of the Town. They also describe the relationship between the Town’s CDM Plan and the County of Wellington’s Climate Change Mitigation Plan as well as the Town’s Strategic Plan.

4.1 Town of Minto

Situated between major centres of southern Ontario and popular recreational areas along the eastern shore of Lake Huron and southern Georgian Bay, Minto contains the urban areas of Palmerston, Harriston and Clifford, and the rural area of the former Township of Minto. Minto is 300 square kilometers in area with a population of 9,920 people based on an update from the Town.



The Town has 3,630 private dwellings, nearly 300 km of roads and over 850 LED streetlights. For a rural municipality, Minto is heavily invested in building and plant infrastructure through the following 27 facilities:

<u>Clifford</u>	<u>Harriston</u>	<u>Palmerston</u>	<u>Former Minto Twp</u>
Arena	Area & Community Hall	Area & Community Hall	Municipal Office
Community Hall	Curling Club	Curling Club	Hwy 89 Shop
Brown St. Shop	John St. Shop	Water Treatment Plant	
Fire Hall	Water Treatment Plant	Low Street Shop	
Water Treatment Plant	Grey Wellington	Norgan Theatre	
Wastewater Lagoons	Theatre Seniors Centre	Rail Museum	
	Wastewater Lagoons	Wastewater Plant	
	Kinsmen Pool	Pool & Splashpad	
	Fire Hall	Fire Hall	
		Food Bank	

4.1.1 The County of Wellington Climate Change Mitigation Plan

Minto resides in the County of Wellington and for context the recommendations from Wellington’s Plan are “...to achieve a reduction of community emissions of 6% by 2030 and a reduction of 10% of Corporate emissions within the same timeframe...estimated 80% reduction in emissions will be needed to achieve net zero emissions by 2050.”¹ The Plan further states regarding the 10% reduction in corporate emissions that: “...focus of emissions reductions will be on existing buildings and greening the Corporate fleet. For existing buildings which is the focus of this CDM Plan, the retrofit 20% of social housing and administration buildings (efficiency improvement of 40%) are recommended by Wellington’s Plan. While Town’s CDM Plan focuses on energy, O. Reg. 25/23 requires GHG emissions to be reported; thus, it suggested that the Town also reference a GHG emissions target that aligns with the County’s target, see also Section 7.5: Energy and Environment Strategy.

4.2 Strategic Plan

On February 20th, 2024, the Town of Minto Council endorsed the new 2024-2028 Strategic Plan that consists of one goal and three actions.

Goal: Caring for Our Environment

¹ According to 2022-2030 FUTURE FOCUSED, A climate change mitigation plan for the County of Wellington <https://www.wellington.ca/media/file/future-focused-full>

Three Actions:

- i. Evaluate municipal facilities for energy efficiency upgrades.
- ii. Investigate green initiatives for Town fleet.
- iii. Implement Harriston Flood Mitigation Plan.

5 Provincial Policies

This section describes the current energy plans and regulations of the provincial government as it relates to the CDM Plan.

5.1 Ontario Energy Plan

The next planned release of Ontario's Long Term Energy Plan was 2021, however due to a proposed change in the regulation in July of 2020 that stated: "Removing the mandatory timeframe for release of the next long-term plan ensures there is enough time for the design of an effective new planning framework." that was approved in January 2021, an updated LTEP was not released in 2021. An implementation plan for the 2017 long term energy plan was released in 2018.

5.2 Regulation 25/23 (formerly Reg 507/18 of the Electricity Act)

Regulation 25/23 under the **ELECTRICITY ACT, 1998** requires public agencies prepare, publish, and implement energy conservation and demand management plans. The CDM Plan must document annual energy consumption and greenhouse gas emissions resulting from municipal operations, and describe previous, current and proposed measures for conserving and reducing the amount of energy consumed. The Plan manages municipal demand for energy and includes a forecast of the expected results of current and proposed measures. A list of the required facilities that municipalities are to include in their annual energy consumption reports can be found in Appendix C: Required Facilities, O.Reg. 25/23

The Electricity Act further requires a description and a forecast of the expected results of current and proposed activities. It is to outline measures to conserve the energy consumed by Town operations and to otherwise reduce the amount of energy consumed, including by employing such energy conservation and demand management methods as may be prescribed. The CDM Plan should summarize progress and achievements in energy conservation and other reductions since the previous plan. The CDM Plan must be posted on the Town's website and available in printed form in the municipal office.

Minto Council adopted the 2019 [*Energy Conservation and Demand Management Plan*](#) which was posted on its website as required by regulation. The proposed update to this plan addresses the five-year renewal provisions in Provincial Legislation at this time.

6 Energy Management: Goals, Objectives and Reduction Target

The goals and objectives of the Town's 2024 CDM Plan—updated from past Plans—are arranged into two columns with a suggested target.

Goals	Objectives
1. Maximize fiscal resources and cost recovery through direct and direct energy savings	I. Investigate savings opportunities including energy commodity procurement options to minimize billing costs
	II. Monitor energy performance including savings from conservation and efficiency across municipal facilities
	III. Reinvest in energy performance projects from cumulative savings while accounting for return on investment
2. Reduce the environmental impact of the municipality's operations	IV. Monitor and report GHG emissions in quarterly intervals and compare emissions data with reduction targets to ensure reductions are on track
	Investigate the development of studies to determine feasible options for retrofitting the Town's facilities to net zero emissions
3. Increase the comfort and safety of staff and patrons of the municipality's facilities	V. Integrate the analysis of heating and cooling systems with energy performance to improve comfort and safety while minimizing energy costs
4. Create a culture of conservation within the municipality	VI. Raise staff and Council awareness around energy performance that includes communicating successes and lessons learned to both internal and external stakeholders
5. Improve the reliability of the municipality's equipment and reduce maintenance	VII. Strengthen partnerships with external stakeholders such as electric and gas utilities as well service contractors where applicable
6. Set a short-term energy reduction target of <u>2%</u> for municipal energy consumption for 2029 relative to a 2023 baseline year and long-term target of <u>5%</u> beyond 2029.	VIII. Identify and implement energy conservation, efficiency and renewable energy initiatives where feasible

7 Initiative Review 2019-2024

As required by regulation, the following section provides a general review of energy initiatives in Minto for the period 2019 to 2024.

7.1 Energy Efficiency Projects

These projects are also referred to as technical initiatives and are described in more detail in Appendix A: Completed Energy Reduction Projects. Some highlights of completed projects are:

- Re-sizing of new packaged rooftop to match HVAC loads for an estimated demand savings of approximately 20-25kW
- Retrofit of variable frequency drives for water service and wastewater pumping for an estimated electricity use savings of up to 61,700kWh
- Upgrade of interior lighting to LED for an estimated electricity savings of 40-50%
- Retrofit of exterior lighting to LED for an estimated electricity savings of 70%
- Fuel switch of dehumidifier from natural gas to electricity to reduce emissions

7.2 Procurement Planning

The Town is planning to insert the following environment and energy efficiency related language into their Procurement By-Law for 2024.

“1.6 Encourage environmentally responsible and sustainable procurement while maintaining fiscal prudence.

1.7 Efforts shall be made to acquire energy-efficient products which will conserve energy and help to preserve and protect the ecosphere.”

7.3 Implementation Planning

The proposed HEET program which is the Home Energy Efficiency Transition is being lead by the County of Wellington. Major features of the program:

Financing for home retrofits: PACE financing programs offer financing and supporting services to help homeowners cover the upfront cost of home energy upgrades and navigate the process from start to finish, including the selection of appropriate upgrades, scheduling of energy audits, vetting contractor qualifications and quotes and applying for applicable incentives and rebates.

Tailored support through available energy experts, support staff, and an online, one-stop-shop platform: Homeowners will have access to energy experts and support staff to help them make decisions about home energy upgrades and move through the home retrofit process. A website with all program information and application details will also be offered to simplify the process.

Incentives and rebates for homeowners: Assuming the HEET program successfully obtains funding award from FCM, homeowner rebates will be integrated into the

program offering with FCM’s grant.

The Town of Minto will participate in the implementation of this program. It is expected this program will be in effect in 2026.

7.4 Investment Planning:

Investigate a utility billing management system to track, monitor, analyze and reporting on energy and water data.

7.5 Energy and Environment Strategy

Investigate future Environmental Plan in collaboration with Energy Plan to reduce energy demand and consumption as well as set a net zero emissions target.

7.6 Renewable Energy

The Town has a number of smaller capacity solar PV energy installations that are described in the following section. The electricity generated from these smaller capacity installations are not offsetting some of the Town’s electrical demand (including demand from the electric vehicle supply equipment (EVSE) located at various municipal facilities²) but is being provided to the provincial grid under a revenue agreement--see next section for agreement details). There may be an opportunity to expand the smaller capacity installations and/or add more solar PV installations to start to reduce the Town’s electricity demand as referenced in Table 3. Proposed Energy Conservation Demand and Management Initiatives.

7.6.1 Renewable Energy Generation

Since 2011, the Town has contributed to the provincial supply of renewable energy in collaboration with Artnjen Solar, a private provider. These contributions are from a number of installations that are described in Table 1. Solar PV Location, Capacity, Generation, and Installation Year. The average annual solar electricity generation is 860,000 which is about 25% of the Town’s 2023 electricity use and the Town continues to receive a portion of the revenue from the FIT and MicroFIT programs for contributing to the provincial supply.

Table 1. Solar PV Location, Capacity, Generation, and Installation Year

No.	Renewable Energy System Locations (e.g., which building/address)	System Type	Cap. (kW)	Annual Generation (kWh)	Install Year
1	Palmerston Jigger Shack	Roof mount	10	13,500	2014

² One EV charger was installed at the Clifford Arena and four chargers installed at the Municipal Office, Harriston and Palmerston Arenas and the Palmerston Museum

No.	Renewable Energy System Locations (e.g., which building/address)	System Type	Cap. (kW)	Annual Generation (kWh)	Install Year
2	Palmerston Fire Station	Ground mount	10	18,000	2014
3	Palmerston Old PUC (caterer)	Roof mount	10	12,000	2014
4	Palmerston New PUC	Ground mount	10	17,000	2014
5	Palmerston Waste Treatment	Ground mount	10	17,000	2014
6	Harriston Fire Station	Roof mount	10	6,200	2014
7	Harriston Water Tower	Ground mount	10	18,000	2014
8	Harriston Ambulance	Ground mount	10	14,000	2014
9	Harriston Lagoon	Ground mount	10	18,000	2014
10	Palmerston Arena	Roof mount	250	280,000	2017 2018
11	Harriston Arena	Roof mount	250	300,000	2017 2018
12	Municipal Office	Roof mount	50	70,000	2017 2018
13	Clifford Arena	Roof mount	100	80,000	2017 2018

8 Energy Consumption and Emissions

The Town used 290,889 kWh more electricity and 51,089 cubic meters (1,854,669 kBtus) less natural gas in 2019 than in 2023, representing a 9% increase in electricity and 22% reduction in natural gas. (see chart totals below). Not shown in Table 2, is the propane use at the Minto Town Shop and Town Administration Office. For the Town Shop, consumption was 23,514 litres (564,078 kBtus) and 15,316 litres (367,419 kBtus) in 2019 and 2023 respectively. For the Administrative Office, consumption was 5,800 litres (139,147 kBtus) and 4,330 litres (103,873 kBtus) in 2019 and 2023 respectively. Total propane use in 2023 was 19,646 litres (471,293 kBtus) and 29,314 litres (703,226 kBtus) in 2019 which is a 33% reduction.

Table 2 - Energy Consumption and Emissions

Property Name	Address	Postal Code	Property GFA - Self-Reported (ft ²)	Weekly Operating Hours	2019 Electricity Use - Grid Purchase (kWh)	2019 Natural Gas Use (kBtu)	2023 Electricity Use - Grid Purchase (kWh)	2023 Natural Gas Use (kBtu)	2019 Total (Location-Based) GHG Emissions (Metric Tons CO2e)	2023 Total (Location-Based) GHG Emissions (Metric Tons CO2e)
Clifford Arena	11 William St.	N0G 1M0	22,119	35	188,595	1,228,040	32,097	615,400	71	34
Clifford combined Sewer	43 James St.	N0G 1M0	0	168	131,920	0	122,370	0	4	3
Clifford combined Water	Nelson St.	N0G 1M0	0	168	117,243	0	88,012	0	3	3
Clifford Community Hall	2 William St N	N0G 1M0	6,027	23	14,453	334,234	11,987	306,808	18	17
Clifford Fire Hall	Allan St. E	N0G 1M0	4,736	42	35,718	128,024	27,366	119,438	8	7
Clifford Town Shop	3 Brown St.	N0G 1M0	1,184	168	35,360	0	38,562	0	1	1
Harriston Arena	111 George St.	N0G 1Z0	41,817	37	334,104	1,332,452	331,738	1,496,703	80	89

Property Name	Address	Postal Code	Property GFA - Self-Reported (ft ²)	Weekly Operating Hours	2019 Electricity Use - Grid Purchase (kWh)	2019 Natural Gas Use (kBtu)	2023 Electricity Use - Grid Purchase (kWh)	2023 Natural Gas Use (kBtu)	2019 Total (Location-Based) GHG Emissions (Metric Tons CO2e)	2023 Total (Location-Based) GHG Emissions (Metric Tons CO2e)
Harriston Pool	Raglan St.	N0G 1Z0	1,614	14	14,553	235,629	11,731	108,292	13	6
Harriston Town Hall	68 Elora St.	N0G 1Z0	7,965	70	40,656	171,490	53,224	111,424	10	7
Harriston Town Shop	68 Young St.	N0G 1Z0	6,641	168	33,079	418,550	27,401	326,332	23	18
Norgan Theatre	275 Main St.	N0G 2P0	3,315	30	19,687	323,776	18,714	253,518	18	14
Palmerston Arena	520 Cavan St.	N0G 2P0	44,347	46	492,627	2,464,312	565,904	1,681,378	145	105
Palmerston combined Wastewater	705 Mill Lane	N0G 2P0	0	168	458,431	0	612,202	0	13	17
Palmerston Shop	655 Lowe St.	N0G 2P0	4,144	168	34,258	280,606	35,670	244,885	16	14
Palmerston Train Station	166 William St.	N0G 2P0	2,260	22	4,368	299,244	6,942	279,198	16	15
Harriston combined Water	140 Robertson St.	N0G 1Z0	0	168	161,338	0	152,871	0	5	4
Public Washroom on Main St. W.	160 Main St W	N0G 2P0	120	25	4,257	0	3,817	0	0	0
Harriston combined Wastewater	83 William St.	N0G 1Z0	0	168	454,907	0	760,981	0	13	21
Harriston Fire Hall	87 Elora St.	N0G 1Z0	11,194	167	34,960	327,089	31,618	269,254	18	15

Property Name	Address	Postal Code	Property GFA - Self-Reported (ft ²)	Weekly Operating Hours	2019 Electricity Use - Grid Purchase (kWh)	2019 Natural Gas Use (kBtu)	2023 Electricity Use - Grid Purchase (kWh)	2023 Natural Gas Use (kBtu)	2019 Total (Location-Based) GHG Emissions (Metric Tons CO2e)	2023 Total (Location-Based) GHG Emissions (Metric Tons CO2e)
Harriston Train Station	83 Arthur St W	N0G 1Z0	2,152	19	5,163	148,983	6,840	111,643	8	6
Minto Pines	13 Minto Pines Rd	N0G 2L0	0	168	19,443	0	16,401	0	1	1
Minto Town Shop	5941 Highway #89	N0G 1Z0	6,770	168	24,202	0	22,389	0	37	24
Palmerston combined Water	164 William St	N0G 2P0	0	168	223,926	0	190,191	0	7	5
Palmerston Fire Hall	845 King St.	N0G 2P0	7,965	8	27,270	238,641	29,399	190,758	13	11
Palmerston Pool	Main St.	N0G 2P0	1,614	14	24,832	371,263	20,183	332,633	20	18
Street Lights	Palmerston, Harriston, Clifford	N0G 1Z0	9,935	84	228,819	0	241,892	0	7	7
Town Administration Office	5941 Highway #89	N0G 1Z0	9,073	52	72,607	0	67,161	0	11	9
Totals					3,236,773	8,302,331	3,527,663	6,447,662	580	471

8.1 Energy Use by Fuel Type

A pie chart of the consumption for the Town’s facilities is shown below and the figures are a calculated percentage of the number of joules for each fuel type divided by the total of number joules. Table 3 following the pie chart indicates joules for each fuel type.

Figure 1. Energy Use Breakdown by Fuel Type

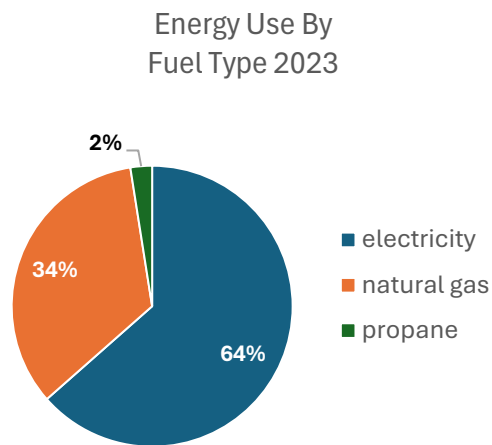


Table 3. Fuel Type and Quantity

Fuel Type in Gigajoules		
electricity	natural gas	propane
12,700	6,803	497

The top energy consumers for the Town in 2023 (in order) are: Palmerston Arena, Harriston Arena, Harriston Combined Wastewater and Palmerston Combined Wastewater. See Appendix B – Stacked Bar Chart of Energy Use by Facility, 2019-2023.

An analysis of top energy consumers in 2023 normalized by square footage was also completed and a number of other facilities such as Palmerston Pool, Palmerston Train Station, Clifford Town Shop, Public Washroom on Main St. W., Norgan Theatre, Harriston Pool, and the Palmerston Shop were identified but their total combined energy use is less than 20% of the top four consumers; thus, their energy usage is not significant as the Arenas and Wastewater plants.

9 Proposed Measures 2024-2029 (Technical, Organizational and Behavioural)

A number of technical, organisational and behavioural initiatives have been planned for the Town and are described in Table 4. Proposed Energy Conservation and Demand Management Initiatives. Technical initiatives are essentially projects at specific facilities that have been identified for energy savings (or cost recovery), reductions in emissions or a combination of both. Organizational initiatives are generally those that involve cross-departmental support that may involve policies (municipal, provincial and federal), budgets, third party funding etc. Behavioural initiatives include monitoring and tracking as well as communication and collaboration between departments.

Table 4. Proposed Energy Conservation and Demand Management Initiatives

Item No.	Initiative	Preferred State	Present State	Measures and Applicable Energy Savings	Completion Date
1	Municipal Town Hall – Lighting Upgrade (T)	Retrofit fixtures with LED lamps	The current fixtures which number 55 in quantity, have fluorescent lamps and about half of the total fixtures are 2-lamp and other half are 4-lamp	An estimate of savings could be approximately 40-50% of electrical lighting demand and consumption	2025-29
2	Palmerston Arena – Net Zero Study (T)	Reduce energy use and GHG emissions	One of the top four energy consumers in the Town’s portfolio of buildings as well as being responsible for 22% of portfolio emissions in 2023	Recommend a study to assess the feasibility of achieving emission reductions in two stages. The first stage could investigate a hybrid heating system using recently installed boilers when they’re near end of life with new heat pumps and the second stage would investigate removal of these new boilers when they’re at end of life and using remaining heat pumps for heating. See also initiative for “Explore FCM funding opportunities (O)”	2025-29

Item No.	Initiative	Preferred State	Present State	Measures and Applicable Energy Savings	Completion Date
				Energy cost recovery could be up to \$150,000	
3	Harriston Arena Net Zero Study (T)	Reduce energy use and GHG emissions	One of the top four energy consumers in the Town's portfolio of buildings as well as being responsible for 19% of portfolio emissions in 2023	Recommend a study to assess the feasibility of achieving net zero emissions as well as energy cost recovery and see also initiative for "Explore FCM funding opportunities (O)" Energy cost recovery could be up to \$90,000.	2025-29
4	Palmerston Combined Wastewater – Expand Solar PV (T)	Reduce energy use which consists solely of electricity use	One of the top four energy consumers in the Town's portfolio of buildings	Investigate the expansion of the solar PV system with expansion to be located next to the existing system to reduce electricity demand and consumption	2025-29
5	Harriston Combined Wastewater – Solar PV (T)	Reduce energy use which consists solely of electricity use	One of the top four energy consumers in the Town's portfolio of buildings	Recommend the addition of ground mount solar PV with a possible location near the lagoon to reduce electrical demand and consumption.	2025-29
6	Harriston Fire Hall – Upgrade Rooftop Unit Controls	Minimize heating and cooling energy use	Packaged rooftops unit do not appear to use advance control strategies to minimize heating and cooling energy use	Investigate the retrofit of RTUs with the latest advanced control strategies (demand control ventilation, economizers and variable speed drives for supply fans) that could result in	2025-29

Item No.	Initiative	Preferred State	Present State	Measures and Applicable Energy Savings	Completion Date
				significant energy reductions. Average electricity savings of 35% and average gas savings of 5%. ³	
7	Palmerston Fire Hall – Upgrade Rooftop Unit Controls	Minimize heating and cooling energy use	Packaged rooftops unit do not appear to use advance control strategies to minimize heating and cooling energy use	Investigate the retrofit of RTUs with the latest advanced control strategies (demand control ventilation, economizers and variable speed drives for supply fans) that could result in significant energy reductions. Average electricity savings of 35% and average gas savings of 5%. ³	2025-29
	Installing VFDs in sewage pumping stations (T)	Improve pump longevity & reduce consumption	Pumps run at 100% power all the time	Buy and install VFDs	
8	Monitor other governments' energy initiatives (O)	A consistent approach to energy conservation	Emerging and changing strategies at all levels	Adapted Minto Energy Strategy that is consistent with other strategies	ongoing
9	Explore FCM Funding	Maximize funding available for capital	Leveraging many provincial funding opportunities	Research options, determine eligibility and apply	2025-6

³ According to an April 2024 technical report by National Renewable Energy Laboratory called “End-Use Savings Shapes Measure Documentation: Advanced Rooftop Unit Control”, <https://www.nrel.gov/docs/fy24osti/89117.pdf>

Item No.	Initiative	Preferred State	Present State	Measures and Applicable Energy Savings	Completion Date
	Opportunities (O)	works and studies to inform asset decisions		Based on their energy and emissions footprint, its suggested that Palmerston and Harriston Arenas be submitted for a funding application See also Technical Initiatives for the above arenas.	
10	Monitor Federal Provincial Energy Initiatives (O)	A consistent Federal, Provincial and Municipal approach to energy	Emerging and changing strategies at senior levels	Adapted Minto Energy Strategy that helps locally and is consistent with emerging senior level strategy The Federal emissions target through the Net Zero Accountability Act ⁴ states: “...achieve net-zero greenhouse gas emissions by the year 2050.” While this is an energy plan, its suggested that an emissions target be referenced in this Plan as emissions are required to be reported by Ontario Regulation 25/23.	
11	Reduce Energy Use Through	Minimize unmoderated and/or unabated energy use	Unmoderated or unabated office energy use for plug loads	Conduct after hours audits (during unoccupied periods) of facilities to determine areas of	2025-29

⁴ <https://laws-lois.justice.gc.ca/eng/acts/c-19.3/fulltext.html>

Item No.	Initiative	Preferred State	Present State	Measures and Applicable Energy Savings	Completion Date
	Behavioural Changes (B)			unmoderated energy use to minimize waste	
12	Monitoring and Reviewing Energy Bills (B)	Flag changes 20% or more	Review of billing for payment and compliance reporting	Deputy Treasurer to alert technical staff if threshold surpassed.	ongoing
13	Better inter-departmental collaboration and workflow management (B)	Gathering asset information in real-time in a common, easily accessible format for all user needs (mobile / web-based application)	Information scattered, not aggregated	Build on Perth East form for different kinds of capital work Circulate to public works staff to fill out	

10 Estimated and Forecasted Impact of Proposed Measures

Based on energy billing for 2023, the two arenas indicated in Table 4 could have estimated savings of up to \$240,000. With the Town's interest in FCM funding—these arenas may be eligible--to maximize funding available for capital works and studies to inform asset decisions, its recommended that the Town plan for a target of net zero emissions. A net zero emissions plan could be funded from FCM's Community Building Retrofit stream and the plan will also determine options to reduce energy demand and consumption as well as recover costs. This stream will fund studies and capital projects.

Additional technical initiatives such as lighting upgrades and advanced rooftop units controls for the Municipal Office and Fire Halls respectively could be implemented and note that the impact of these savings will not be as significant when compared to the opportunity noted with the arenas because of the difference in energy use and savings potential. However, the technical initiatives outlined in this plan will have a cumulative benefit in the plan, and the organizational and behavioural measures outlined above will likely result in better reporting and monitoring of such savings.

The new net zero emissions plan which includes significant energy cost reductions that could be funded from FCM is consistent with the Town's continuous improvement approach to energy management.

11 Conclusions

The Town's 2024-2029 Energy Conservation and Demand Management Plan recommends technical, behavioral and organizational measures to continue to reduce energy use and greenhouse gas emissions as well as recover costs. Some highlights and completed initiatives include:

- Minto is a rural municipality with heavy investment in utilities and facilities including 26 facility locations and where four of these facilities comprise much of the energy and emissions footprint of the Town
- The Town has had success with the implementation of 14 technical projects including many from its 2019-2024 Energy Conservation and Demand Management Plan
- The municipality continues to receive revenue from previous provincial programs in the form of microFIT and FIT 4.0 payments for solar electricity generation
- The Town used 290,889 kWh more electricity and 51,089 cubic meters (1,854,669 kBtus) less natural gas in 2019 than in 2023, representing a 9% increase in electricity and 22% reduction in natural gas
- Energy initiatives amounted to a 19% reduction in emissions when comparing total annual emissions in 2019 and 2023
- A proposal to expand and/or add solar PV installations to reduce the Town's electricity demand
- There are 14 technical, organizational and behavioral measures and most of which are new that are outlined in the 2024-29 Energy Conservation and Demand Management Plan
- The Palmerston and Harriston arenas represent the greatest opportunity for future reductions in energy use and GHG emissions

Appendix A: Completed Energy Reduction Projects

Based on information provided by facility managers and directors, there have been 14 projects completed across 13 facilities which are described in the following table.

Table 5. Completed Energy Reduction Projects

Item No.	Facility	Project Description
1	Clifford Fire Hall	Retrofit of Energy Recovery Ventilator Retrofit of 54 lighting fixtures on the main and 2 nd floor as well as Truck Bay with LED Technology Electrical demand and consumption savings estimated between 40-50%
2	Harriston Fire Hall	Retrofit of 74 lighting fixtures on main and 2 nd floor as well as Truck Bay and Bunker Gear area with LED Technology with electrical demand and consumption savings estimated between 40-50%
3	Palmerston Fire Hall	Retrofit of 50 lighting fixtures on main and 2 nd floor as well as Truck Bay with LED Technology with electrical demand and consumption savings estimated between 40-50%
4	Clifford Arena	Upgrade of lighting to LED technology in 2021
5	Harriston Arena	Retrofit of one packaged rooftop units for heating and cooling that was completed in 2023 with one unit being downsized to better match HVAC loads and electrical demand savings estimated at 20-25kW
6	Palmerston Arena	Fuel switch of dehumidifier from natural gas to electricity completed in 2024 resulting in emissions reduction
7	Barb Wright Ball Diamond	Upgrade of LED lighting from 23 Halogen lamps (1000W) to LEDs with timer system completed in 2022 with an estimated electricity demand and consumption reduction of 70% depending on wattages of new LED lamps
8	Palmerston Combined Wastewater	Retrofit of variable frequency drives for two pumps in 2020 that slowly bring pumps up to full speed over a period of time with electrical consumption savings estimated between 3,900 kWh and 8,200 kWh depending on ramp up rate.
9	Harrison Combined Wastewater	Retrofit of variable frequency drives for two pumps in 2018 that slowly bring pumps up to full speed over a period of time with electrical consumption savings estimated between 18,700 kWh and 40,500 kWh depending on ramp up time
10	Clifford Lagoon	Retrofit of variable frequency drives for two pumps in 2016 that slowly bring pumps up to full speed over a period of time with electrical consumption savings estimated between 6,000 kWh and 13,000 kWh depending on ramp up time
11-13	Water Services	Retrofit of variable frequency drives for pumping stations at Palmerston, Harriston and Clifford in 2018, 2019 and 2020 respectively with percent reduction in electrical demand and consumption estimated between 30% to 50% depending on frequency schedule and operating hours

Appendix C: Required Facilities, O. Reg. 25/23

Column 1 Item	Column 2 Type of public agency	Column 3 Operation
1.	Municipality	<p>Administrative offices and related facilities, including municipal council chambers.</p> <p>Public libraries.</p> <p>Cultural facilities, indoor recreational facilities and community centres, including art galleries, performing art facilities, auditoriums, indoor sports arenas, indoor ice rinks, indoor swimming pools, gyms and indoor courts for playing tennis, basketball or other sports.</p> <p>Ambulance stations and associated offices and facilities.</p> <p>Fire stations and associated offices and facilities.</p> <p>Police stations and associated offices and facilities.</p> <p>Storage facilities where equipment or vehicles are maintained, repaired or stored.</p> <p>Buildings or facilities related to the treatment of water or sewage.</p> <p>Parking garages.</p>
2.	Municipal service board	Buildings or facilities related to the treatment of water or sewage.
3.	Post-secondary educational institution	<p>Administrative offices and related facilities.</p> <p>Classrooms and related facilities.</p> <p>Laboratories.</p> <p>Student residences that have more than three storeys or a building area of more than 600 square metres.</p> <p>Student recreational facilities and athletic facilities.</p> <p>Libraries.</p> <p>Parking garages.</p>
4.	School board	<p>Schools.</p> <p>Administrative offices and related facilities.</p> <p>Parking garages.</p>
5.	Public hospital	<p>Facilities used for hospital purposes.</p> <p>Administrative offices and related facilities.</p>