



Centre Wellington

Township of Centre Wellington

Energy Conservation and Demand Management Plan, 2025-2029



Acknowledgements

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Executive Summary

The Township of Centre Wellington is located in south-central Ontario on the Grand River and is part of Wellington County. The Township has a total population of 30,000 and includes Township of Fergus, Village of Elora and the Townships of Nichol, Pilkington, West Garafraxa, Belwood. Amongst these communities, there are total of 39 municipal facilities including arenas, administrative offices, water and wastewater.

The Township mentions their facilities in their Strategic Plan, 2023-2027 under Goals 4 and 5 which are “Championing Environmental Stewardship” and “Provide Innovative and Sustainable Governance” respectively. The relationship of this Plan to the Energy Management and Conservation Demand Management (CDM) Plan, 2025-2029 is through the Strategic Plan’s intent to “Develop proactive climate change strategies”. The CDM Plan reports on the results of previous projects--from the 2019-2023 CDM Plan as well as ones completed in 2024--and also presents initiatives to achieve further energy and emission reductions. Some major highlights of completed projects:

- Installed variable speed drives in both brine pumps at Elora Community Centre and in the Pad B brine pump at Fergus Sportsplex
- Upgraded lighting at Elora West and Fergus East Public Work Garages to LED
- Retrofitted dimmable halogen pot lights with dimmable LED in the Theatre on the Grand
- Installed 3 ductless split HVAC units in office areas, replaced windows and sealed air leaks in the Queen Street Shop
- Replaced dehumidifiers in the Fergus Sportsplex that served Pad (rink) B in 2021

These projects have contributed to an overall decrease in (unnormalized) energy use of 10.3% using 2019 as the base line year and 2023 as the performance year--a fundamental recommendation is for monthly data (instead of annual data) to be tracked in Portfolio Manager going forward so that weather effects on energy use are considered for base line purposes. While energy use has decreased by 10%, it was noted that electricity use has increased by about 2%; emissions have decreased by about 14%. For deeper energy and emissions reductions to be sustainable in the long term, it’s recommended that a broader approach be implemented that involves this CDM Plan and a net zero emissions study working in concert. For this CDM Plan, it’s recommended that a total energy reduction target of at least 2% over the course of the next four years be included as part of a broader and longer term plan for an emissions reduction target of net zero to align with municipal, provincial and federal plans and targets by 2050. Targets and access to capital as well as third party funding sources discussed during the writing of this Plan, evolved into **a recommendation for a net zero emission study that would provide an implementation road map--including renewable technology--in the long term and a 2% energy reduction in the short term over the next four years.** This road map could also work in concert with corporate asset management and study funding is available for one or more facilities which could include the top energy users and emitters which are the Fergus Sportsplex and the Elora Community Centre.

1 Background and Introduction

The Township of Centre Wellington is located in south-central Ontario on the Grand River and is part of Wellington County. The Township has a total population of 30,000 and includes Township of Fergus, Village of Elora and the Townships of Nichol, Pilkington, West Garafraxa, Belwood. Amongst these communities, there are total of 39 municipal facilities including arenas, administrative offices, water and wastewater.

The Township mentions their infrastructure and climate in their Strategic Plan, 2023-2027 which has five goals.

- Goal One: Create the Conditions for Economic Prosperity
- Goal Two: Improve the Activity, Health and Wellness of our Community
- Goal Three: Managing Growth while Enhancing the Community's Unique Character
- Goal Four: Championing Environmental Stewardship
- Goal Five: Provide Innovative and Sustainable Governance

The connection between the Strategic Plan and Energy Management and Conservation Demand Management (CDM) Plan, 2025-2029 is described in the following section.

2 Energy Management

2.1 Plans and Regulations: Municipal, Provincial and Federal

The Strategic Plan includes actions to “Develop proactive climate change strategies” and “Provide sustainable and resilient infrastructure for our community” under Goals 4 and 5 respectively.



Championing environmental stewardship.



Provide innovative and sustainable governance.

This CDM Plan includes initiatives to build on these actions. It also reports on the results of initiatives outlined in the 2019-2023 plan and builds on the previous plan to develop a new four year road map. This CDM Plan will include initiatives that have the potential for sustainable revenue benefits in the form of cost recovery and environmental benefits in terms of energy and emission reductions. Some initiatives may also provide a combination of both.

Ontario Regulation 25/23

This CDM Plan also satisfies Regulation 25/23 Broader Public Sector: Energy Reporting and Conservation and Demand Plans Management Plans. This regulation falls under the ELECTRICITY ACT, 1998 that 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 types of facilities that municipalities are required to include in their annual energy consumption reports can be found in Appendix B: 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 Township 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 Township's website and available in printed form in the municipal office.

Powering Ontario's Growth

Related to O. Reg. 25/23 and energy management, Ontario has a plan to provide families and industries with reliable, low-cost and clean power¹ with ten actions including:

Energy Efficiency: Planning for the future of energy efficiency programs in Ontario

Next Competitive Electricity Procurement: Start planning for Ontario's next competitive electricity procurement focused on new clean resources including wind, solar, hydroelectric, batteries and biogas.

The Energy Efficiency action aligns with the Township's Goal Four. Electricity procurement of new clean resources may align with Goal Five. Supporting the province's procurement of clean resources may also contribute to the Township's own emissions reductions in the context of the federal act which is covered in the following section. For details on the Township's energy and emissions management approach, see Section 4, Conservation and Demand Management Plan.

Net Zero Pathways Accountability Act

This purpose of this Act that was passed by federal government is to require the setting of national targets for the reduction of greenhouse gas emissions based on the best scientific information available and to promote transparency, accountability and immediate and ambitious action in relation to achieving those targets, in support of achieving net-zero emissions in Canada by 2050 and Canada's international commitments in respect of mitigating climate change. Under this Act, the national greenhouse gas emissions target for 2050 is net-zero emissions². Although, O. Reg. 25/23 does not require a plan for emission reductions, it does require the reporting of GHG emissions and a description of any renewable energy generation facility operated a public agency and the amount of annual energy produced. To date there has been declarations of climate emergencies by 650 municipalities³.

¹ <https://www.ontario.ca/page/powering-ontarios-growth#section-1>

² <https://laws-lois.justice.gc.ca/eng/acts/c-19.3/fulltext.html>

³ <https://raog.ca/climate-emergency-declarations-canada/#:~:text=January%2018%2C%202022-,650%20Municipalities%20have%20Declared%20a%20Climate%20Emergency%20in%20Canada,the%20rest%20of%20the%20world.>

2.2 Completed Initiatives

The Township has completed the following CDM initiatives at their facilities to manage their energy consumption. Some major projects and highlights:

Lighting

- Retrofitted incandescent lighting with LED equivalent lighting at Pilkington Public Works Office in 2020
- Replaced garage lighting and facility T12 fluorescent lamps with LED fixtures at Elora West Public Works Garage
- Retrofitted exterior lighting with LED at the Civic Centre in 2020
- Upgraded dimmable halogen pot lights with dimmable LED in the Theatre on the Grand
- Replaced T12 fluorescent lamps with LED fixtures in the Fergus East Public Works Garage
- Upgraded interior linear fluorescent fixtures to LED in the Fergus 1 Well House
- Replaced compact fluorescent lights (CFLs) with LEDs in the Victoria Park Senior Centre

HVAC, Plumbing and Building Envelope

- Replaced existing hot water heaters with new high efficiency condensing units in the Elora Community Centre
- Replaced dehumidifiers in the Fergus Sportsplex that served Pad (rink) B in 2021
- Existing office area has installed 3 ductless split HVAC units and replaced single pane windows with double pane and sealed air leaks in 2022 and 2023 respectively in the Queen Street Shop

Refrigeration

- Installed variable speed drives in both brine pumps at Elora and in the Pad B brine pump at Fergus Sportsplex

Other completed initiatives include appliance upgrade in Elora Fire Hall to Energy Star certified fridge and freezer and existing gas-fired power washer replaced with a new electric unit in Fergus East Public Works Garage.

2.2.1 2019 and 2023 Energy Use

The following table states the electricity and natural gas use figures in 2019 and 2023 for the facilities required under O. Reg. 25/23; for more details on reporting requirements and a full list of Centre Wellington's facilities that are required to be reported, see Appendix B - Compliance with O. Reg 25/23 and Appendix C - Required Facilities for Reporting respectively. 2019 is the base year and years 2020 to 2023 are the performance years with 2023 being the most recent. These figures are not adjusted (unnormalized) for weather effects on energy use. In order to normalize these figures monthly energy data is required for **both the base year and the performance year.** It's recommended that monthly energy data continue to be entered for each year going forward in order to compare normalized baseline and performance years in subsequent CDM plans.

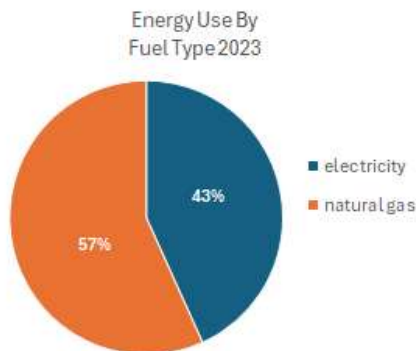
Comparing the baseline year of 2019 to the performance year of 2023 in the charts below, there has been an increase in electricity use and a decrease in natural gas use with a corresponding decrease in GHG emissions.

2019 Energy Use		2023 Energy Use		Percent Change		Percent Change
Electricity (kWh)	Gas (m ³)	Electricity (kWh)	Gas (m ³)	Electricity (kWh)	Gas (m ³)	Electricity and Gas
7,347,174	1,129,221	7,505,296	926,273	2.2%	-18.0%	-10.3%

GHG Emissions (tonnes CO _{2e})		Percent Change in GHG Emissions
2019	2023	
2,404	2,071	-13.9%

2.2.2 Breakdown of Energy Use by Type

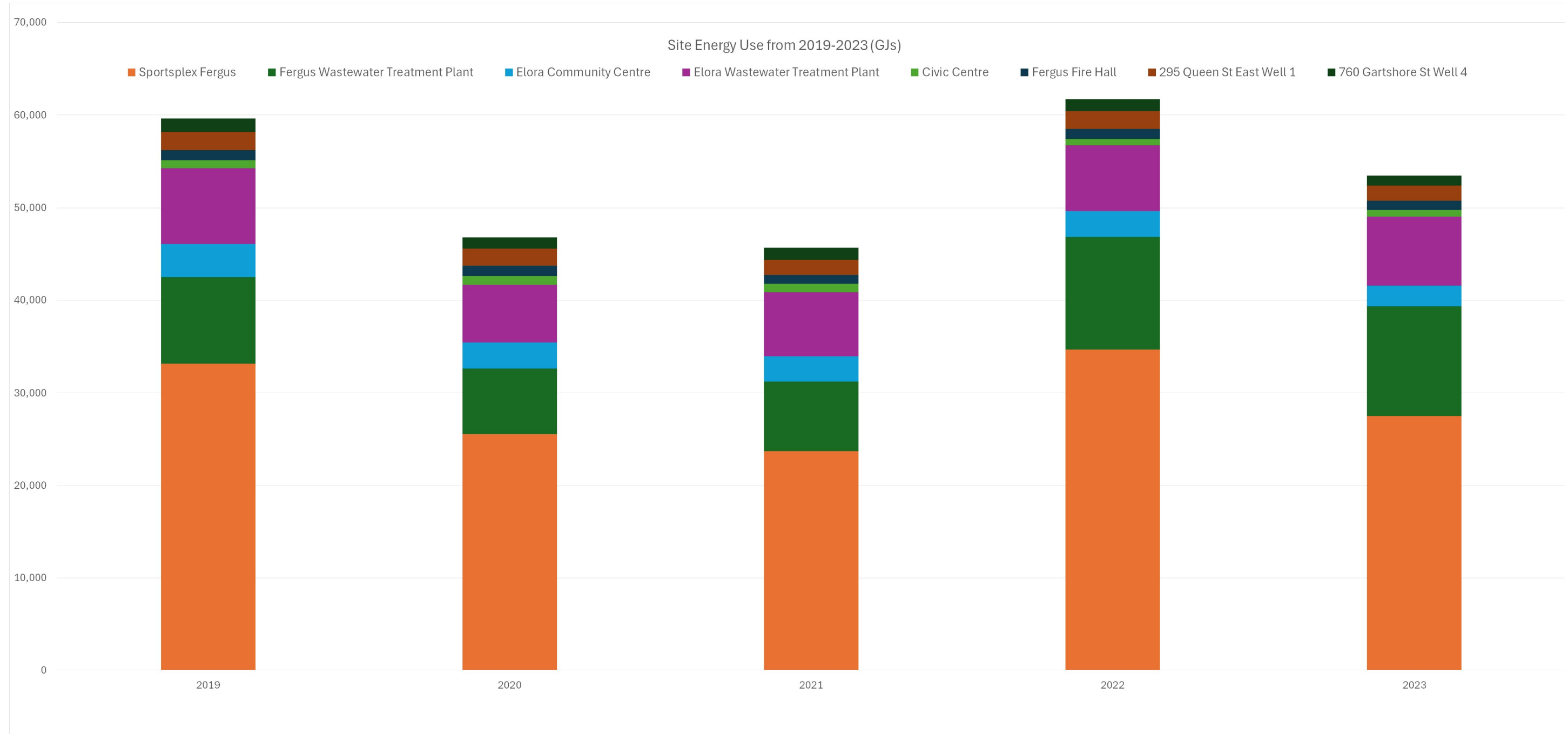
A pie graph of the consumption for all facilities is shown below and the figures are a percentage of the number of Joules for each fuel type divided by the total of number Joules⁴. As indicated in the previous section, electricity use in 2023 was 7,505,296 kWh and natural gas use was 926,273 m³. It was noted that propane consumption was 11 m³ (298 GJ) and 12 m³ (294 GJ) in 2019 and 2023 respectively; in 2023 this was 0.48% of energy use and due to its small contribution is not shown on the charts.



⁴ A joule is defined as watt-second. A watt is the amount of energy that an electrical device (such as a light) is burning per second that it's running, thus a 10W (LED) bulb is burns 10 Joules energy every second.

2.3 Benchmarking Facility Energy Use

As referenced in Section 2.2.1, facilities reported as per O. Reg. 25/23 are included and the largest energy consumers are graphed below to historically benchmark their annual energy use from 2019-2023. The Fergus Sportsplex, Wastewater Treatment Plants, and Elora Community Centre are the largest energy consumers. It was noted that the wastewater treatment plants are undergoing efficiency upgrades described in Appendix A – CDM Plan Initiatives that will contribute to energy reductions.



In addition to historical benchmarking, the facilities can also be benchmarked by dividing their annual energy use by their building area. This ratio is called an energy use intensity (EUIs). The Fergus Sportsplex, and Elora Community Centre--which both have ice rinks--have EUIs of 1.81 GJ/m² and 0.69 GJ/m² respectively. According to Statistics Canada Survey of Commercial and Institutional Energy Use, 2019, the average EUI of an ice rink is 1.15 GJ/m². When compared to the average the Sportsplex is 57% higher than this average. It's recommended that this facility be studied further for energy conservation actions.

Benchmarks for wastewater treatment plants are not available from Statistics Canada and are not based on building area; for these benchmarks, Natural Resources Canada references Portfolio Manager and they source benchmarks from the American Water Works Association (AWWA) that are based on flow per cubic metre⁵. The flows for Centre Wellington wastewater treatment plants will be required to calculate the benchmarks for these plants in order to compare benchmarks with the AWWA benchmark. It's recommended that these plants be benchmarked and the energy conservation actions shown in Appendix A - CDM Plan Initiatives be completed because they are among the top energy consumers and emitters.

2.4 Renewable Energy

Centre Wellington does not currently have any renewable energy generation facilities including solar or ground source energy. There is new funding for solar PV, a type of renewable energy that is described in Section 3.2.

3 Resources

3.1 Team

Energy Leader:

For the ECDMP, Centre Wellington formed an Energy Conservation Team consisting of representatives from different departments throughout the municipality. This was to ensure collaboration across the Township's departments. Members of the team include:

- Kasey Beirnes, Manager of Buildings and Properties
- Michael Mullen, Special Projects and Customer Service Supervisor
- Martin Tamlyn, Climate Change Coordinator

The need for staff resources becomes more significant as energy reductions become more challenging to achieve. Though overall (unnormalized) energy use has decreased due to a reduction in gas use, electricity consumption has increased and will continue to increase with the growth of the Township. It suggested that an energy champion lead projects that could provide deeper reductions. The projects could be funded from third party programs. There has been a recent addition of a Climate Change Coordinator to the Town's staff.

⁵ The AWWA benchmark is 0.8 GJ/m³ as per <https://natural-resources.canada.ca/sites/www.nrcan.gc.ca/files/energy/pdf/Canadian%20National%20Median%20Tables-EN-Aug2018-7.pdf>

3.2 Funding

One example of a third-party program that could be leveraged to fund further energy reductions is the Green Municipal Fund. This fund is a program overseen by the Federation of Canadian Municipalities. It has a number of funding streams including a Community Buildings Retrofit stream that funds studies as well as capitals projects to reduce emissions which could also include energy reductions.

Another example of funding is the Save ON Energy program by the IESO and per their 2025 funding announcement:

“The IESO, through the Save on Energy brand, will continue to lead the way in energy-efficiency programming in North America through a **\$10.9 billion, 12-year funding commitment** from the Ontario government. This will provide continued and expanded opportunities for residential and business electricity consumers across the province to manage their electricity use and electricity costs, and to directly contribute to a reliable, affordable and sustainable electricity system. The enduring funding commitment will be closely managed by the IESO in four three-year increments with a mid-point review at year six.

The scope and scale of these programs will support economic growth in communities across the province, with a strategic focus on reducing demand on the grid and broadening the types of incentives to meet changing customer needs. ‘This longer-term approach enables the IESO to optimize the full value of energy efficiency that will:

- Provide Ontario homes and businesses with continuing opportunities to manage their electricity costs.
- Empower Ontarians to take actions that will collectively make a difference and help us achieve a sustainable energy future.
- Reduce future electricity system costs by decreasing the amount of new supply and transmission lines needed to meet growing demand for electricity.
- Offer greater certainty to the marketplace that energy-efficiency programs will be available for the longer term.
- Enable greater consumer engagement on a regional level and allow programs to help address local distribution system needs through the involvement of local distribution companies (LDCs).
- Provide sector partners, including LDCs, Enbridge Gas, delivery partners and trade allies, increased opportunities to collaborate with the IESO and to partner on the promotion of programs and innovative offerings for both residents and businesses.’”

The Retrofit Program would be the most applicable to Centre Wellington and there are new incentives for solar PV.⁶

⁶ <https://www.saveonenergy.ca/For-Business-and-Industry/Programs-and-incentives/Retrofit-Program/Retrofit-Program-Update#HVAC>

Distributed Energy Resources - Solar PV System*

Microgeneration Solar PV System (\leq 10 kW-DC)	\$1,000/kW-DC
Small to Medium Generation Solar PV System ($>$ 10 kW-AC up to 1 MW-AC)**	\$860/kW-AC

* Please contact your LDC regarding ability to connect the DER measure to the electricity grid.

** Small to medium generation solar PV systems greater than 1 MW-AC are eligible, however, the incentive will be capped at 1 MW-AC.

The Retrofit Program also provides incentive funds for HVAC controls including demand control ventilation, VFDs for rooftop units and heat pumps.⁷ **Planned initiatives for rooftop units and heat pumps are stated in Appendix A - CDM Plan Initiatives.**

4 Conservation and Demand Management (CDM) Plan

4.1 Projects, Programs and Policies

A number of initiatives that have been planned for the Town and are described in Appendix A – CDM Plan Initiatives. Some initiatives are project-based 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

Regarding electricity procurement by the province (as referenced in Section 2), and also the Township's desire to "Develop proactive climate change strategies" in its Strategic Plan, a recommended strategy and action would be the reduction of facility emissions which could be achieved by investments in renewable energy and specifically solar PV. Solar PV will also reduce the Township's increased electricity use while recovering costs and there is new funding being offered by Save ON Energy as mentioned above.

4.2 Targets, and Funding Applications

Building on the energy reduction of 10.3% (as referenced in Section 2.2 and from gas reductions), it's recommended that a further reduction of 2% be targeted in the next four years. It's also recommended to fund this target in concert with a net or near zero emissions reduction target using third party funding mentioned in Section 3.2. **The larger energy users which include the Fergus Sportsplex and Elora Community Centre are suggested starting points to help achieve this reduction target.**

⁷ <https://www.saveonenergy.ca/For-Business-and-Industry/Programs-and-incentives/Retrofit-Program/Retrofit-Program-Update#HVAC>

Appendix A – CDM Plan Initiatives

No.	Proposed Initiatives	Facilities	Detailed Description	Annual Savings	Planned Completion Year
1	Investigate funding for a net zero emissions study for one or more facilities	Fergus Sportsplex Elora Community Centre	Complete a study to determine costs and benefits to achieve net zero emissions as well as energy cost recovery	Energy cost recovery could be up to \$245,000 per year for Sportsplex and up to \$10,000 for the Community Centre ⁸	2025-2029
2	Investigate advanced controls for rooftop units	Fergus Sportsplex Elora Community Centre	Investigate advanced rooftop unit controls that could include economizers, demand control ventilation and supply fan variable frequency drives	Average electricity savings of 35% and average gas savings of 5%. ⁹	2025-2029
3	Investigate the feasibility of a utility data management system	Various	A utility data management system automates data storage, tracking, monitoring and analysis of utility billing	This is an organizational and behavioural initiative that could result in savings from billing as well as an automated tool for measurement and verification	2025-2029
4	Upgrade HVAC	Pilkington Public Works Office	Upgrade outdoor condenser unit with new high efficiency condenser unit (serving ground floor)	Typically, electricity savings are up to 20% of annual consumption	2025-2029

⁸To calculate approximate savings, an estimate of .45/m³ of for natural gas costs and the 2023 gas usage was used.

⁹ 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>

No.	Proposed Initiatives	Facilities	Detailed Description	Annual Savings	Planned Completion Year
5	Upgrade Service Hot Water		Replace existing hot water heaters with new high efficiency condensing unit	Based on existing heaters, being 75-80% efficient. Typically, gas savings are between 15-20% of annual consumption	2025-2029
6	Upgrade Power Washer	Elora West Public Works Garage	Replace existing gas-fired power washer with new electric high efficiency unit	Fuel switching will lead to a reduction in emissions.	2025-2029
7	Install Lighting Controls	Clyde Street Sewage Pumping Station	Install occupancy sensors for interior lights	Occupancy sensors could save up to 35% in electricity use using sensors in an open office ¹⁰ and savings would be comparable for pumping station environment as its also open	2025-2029
8	Upgrade Exterior Lighting		Replace exterior lighting with LED lighting	Based on replacement of existing fluorescent technology, estimated minimum savings 40% of lighting electricity demand and consumption	2025-2029
9	Setback Heating Temperature and Centralize Control		Limit heat output of heaters (maintain 5°C maximum) and install centralized room heating control	A drop of 1°C (2°F) over an eight-hour period can save about 2% on heating energy consumption ¹¹	2025-2029
10	Upgrade Exterior Lighting	Elora Community Centre	Replace all exterior flood lights for baseball fields with 500 W LED flood lights	Upgrading fluorescent or HID lighting to LED technology could reduce approximately 40-60% of lighting electricity demand and consumption	2025-2026

¹⁰ <https://publications-cnrc.canada.ca/eng/view/accepted/?id=b23dfd7d-3280-4740-b2fa-c57cd48806e9>

¹¹ <https://natural-resources.canada.ca/energy-efficiency/homes/make-your-home-more-energy-efficient/keeping-the-heat/section-9-operating-your-house-thermostats-water-heaters-furnaces-and-other-heatingco/15645>

No.	Proposed Initiatives	Facilities	Detailed Description	Annual Savings	Planned Completion Year
11	Install Lighting Controls	Well E3	Install occupancy sensors for interior lights	Occupancy sensors could save up to 35% using sensors in an open office environment ¹² and savings would be comparable for a well environment as its also open	2025-2029
12	Upgrade Exterior Lighting		Replace exterior lighting with LED lighting	Upgrading fluorescent or HID lighting to LED technology could reduce approximately 40-60% of lighting electricity demand and consumption	2025-2029
13	Setback Heating Temperature and Centralize Control		Limit heat output of heaters (maintain 5°C maximum) and install centralized room heating control	A drop of 1°C (2°F) over an eight-hour period can save about 2% on heating energy consumption ¹³	2025-2029
14	Upgrade Lighting	Bridge Street Water Tower	Retrofit interior incandescent light to LED	Upgrading incandescent to LED technology typically reduces approximately 70-90% of lighting electricity demand and consumption	2025-29
15	Install Lighting Controls		Install occupancy sensors for interior lights	Occupancy sensors could save up to 35% using sensors in an open office environment and savings would be comparable for water tower environment as its also open	2025-2029

¹² <https://publications-cnrc.canada.ca/eng/view/accepted/?id=b23dfd7d-3280-4740-b2fa-c57cd48806e9>

¹³ <https://natural-resources.canada.ca/energy-efficiency/homes/make-your-home-more-energy-efficient/keeping-the-heat/section-9-operating-your-house-thermostats-water-heaters-furnaces-and-other-heatingco/15645>

No.	Proposed Initiatives	Facilities	Detailed Description	Annual Savings	Planned Completion Year
16	Setback Heating Temperature and Centralize Control		Limit heat output of heaters (maintain 5°C maximum) and install centralized room heating control	A drop of 1°C (2°F) over an eight-hour period can save about 2% on heating energy consumption ¹⁴	2025-2029
17	Install Lighting Controls	Water Booster Pumping Station	Occupancy sensors for interior lights	Occupancy sensors could save up to 35% using sensors in an open office environment and savings would be comparable for pumping station environment as its also open	2025-2029
18	Upgrade Exterior Lighting		Replace exterior lighting with LED lighting	Upgrading fluorescent or HID lighting to LED technology could reduce approximately 40-60% of lighting electricity demand and consumption	2025-2029
19	Setback Heating Temperature and Centralize Control		Limit heat output of heaters (maintain 5°C maximum) and install centralized room heating control	A drop of 1°C (2°F) over an eight-hour period can save about 2% on heating energy consumption ¹⁵	2025-2029
20	Install Lighting Controls	Fergus Sportsplex	Install occupancy sensors in intermittent use areas that could include change rooms, board rooms, community halls, offices, mech rooms, storage, etc.	Occupancy sensors could save up to 35% using sensors in an open office environment and savings would be comparable for these rooms	2025-2029

¹⁴ <https://natural-resources.canada.ca/energy-efficiency/homes/make-your-home-more-energy-efficient/keeping-the-heat/section-9-operating-your-house-thermostats-water-heaters-furnaces-and-other-heatingco/15645>

¹⁵ <https://natural-resources.canada.ca/energy-efficiency/homes/make-your-home-more-energy-efficient/keeping-the-heat/section-9-operating-your-house-thermostats-water-heaters-furnaces-and-other-heatingco/15645>

No.	Proposed Initiatives	Facilities	Detailed Description	Annual Savings	Planned Completion Year
21	Upgrade Service Hot Water	Fergus Sportsplex	Replace existing hot water heaters with new high efficiency condensing unit	Typically, gas savings are between 15-20% of annual consumption based on existing heaters, being 75-80% efficient	2025-2029
22	Install Pump Controls		Add variable frequency drives and associated controls to all pumps (exceeding 5 HP) to reduce pump speed during part load operation	Typically, variable speed drive could reduce at least 20% of electricity demand and consumption	2025-2029
23	Upgrade Pump Motors		Upgrade all pump motors to premium efficiency and it's recommended that the replacement be done when pump controls are installed, and when motors are closer to near end of life	Depending on pump horsepower, the upgrade could reduce at least 6% of electricity demand and consumption	2025-2029
24	Upgrade Service Hot Water	Theatre on the Grand	Replace existing hot water heater with new high efficiency condensing unit	Typically, gas savings are between 15-20% of annual consumption based on existing heaters, being 75-80% efficient	2024
25	Upgrade Exterior Lighting	Fergus East Public Works Garage	Replace all exterior spot lights with LED lights	Based on replacement of existing fluorescent technology, estimated minimum savings 40% of lighting electricity demand and consumption	2025-2029

No.	Proposed Initiatives	Facilities	Detailed Description	Annual Savings	Planned Completion Year
26	Upgrade Lighting	Fergus East Public Works Garage	Sand Dome Lighting	Upgrading fluorescent to LED technology could reduce approximately 40-60% of lighting electricity demand and consumption	2025-2029
			Replace lighting with LED lighting	Occupancy sensors could save up to 35% in electricity use using sensors in an open office ¹⁶ and savings would be comparable for pumping station environment as its also open	2025-2029
27	Upgrade Heaters		Upgrade to high efficiency gas tube heaters for garage area	Typically, there is up to a 30% increase in radiant and fuel efficiency over standard tube and reflector systems	2025-2029
			Use programmable thermostats for office furnace and program a temperatures reset for overnight	Programmable or smart thermostats can save nearly 8% of energy costs ¹⁷	2025-2029
28	Install Programmable Thermostat				
29	Upgrade AC Units		Replace through-wall AC units with new mini split systems	The current energy performance of AC units is estimated to be at least 50% better than minimum energy performance regulations for AC units in 2010	2025-2029
30	Install Lighting Controls	Fergus 1 Well House	Occupancy sensors for interior lights	Occupancy sensors could save up to 35% using sensors in an open office environment and savings would be comparable for the well	2025-2029

¹⁶ <https://publications-cnrc.canada.ca/eng/view/accepted/?id=b23dfd7d-3280-4740-b2fa-c57cd48806e9>

¹⁷ <https://natural-resources.canada.ca/energy-efficiency/spotlight-energy-efficiency/2020/10/20/your-thermostat-smart-enough/23076>

No.	Proposed Initiatives	Facilities	Detailed Description	Annual Savings	Planned Completion Year
31	Setback Heating Temperature and Centralize Control	Fergus 1 Well House	Limit heat output of heaters (maintain 5°C maximum) and install centralized room heating control	A drop of 1°C (2°F) over an eight-hour period can save about 2% on heating energy consumption ¹⁸	2025-2029
32	Install Lighting Controls	Queen Street Shops	Occupancy sensors for the garage and office areas	Occupancy sensors could save up to 35% using sensors in an open office environment	2025-2029
33	Upgrade Exterior Lighting		Replace exterior lighting with LED lighting	Upgrading fluorescent or HID lighting to LED technology could reduce approximately 40-60% of lighting electricity demand and consumption	2025-2029
34	Install Programmable Thermostats		Use programmable thermostats for electric heaters in garage area and program temperature reset for overnight and during no occupancy time periods	Programmable or smart thermostats can save nearly 8% of energy costs ¹⁹	2025-2029
35	Upgrade Service Hot Water		Replace existing hot water heaters with new propane high efficiency condensing unit	Typically, gas savings are between 15-20% of annual consumption based on existing heaters, being 75-80% efficient	2025-2029

¹⁸ <https://natural-resources.canada.ca/energy-efficiency/homes/make-your-home-more-energy-efficient/keeping-the-heat/section-9-operating-your-house-thermostats-water-heaters-furnaces-and-other-heatingco/15645>

¹⁹ <https://natural-resources.canada.ca/energy-efficiency/spotlight-energy-efficiency/2020/10/20/your-thermostat-smart-enough/23076>

No.	Proposed Initiatives	Facilities	Detailed Description	Annual Savings	Planned Completion Year
36	Upgrade Radiant Heating System	Fergus Fire Hall	Upgrade to high efficiency gas tube heaters	Typically, there is up to a 30% increase in radiant and fuel efficiency over standard tube and reflector systems	2025-2029
37	Upgrade Service Hot Water	Fergus Fire Hall	Replace existing hot water heaters with new high efficiency condensing unit	Typically, gas savings are between 15-20% of annual consumption based on existing heaters, being 75-80% efficient	2024
38	Upgrade Lighting	F5 Well Station	Retrofit interior T12 fluorescent and incandescent lights retrofit to LED Fixtures	Upgrading fluorescent and incandescent to LED technology approximately reduces up to 90% of lighting electricity demand and consumption	2025-2029
39	Install Lighting Controls	F5 Well Station	Install Occupancy sensors for interior lights	Occupancy sensors could save up to 35% using sensors in an open office environment and savings would be comparable for the well	2025-2029
40	Setback Heating Temperature and Centralize Control	F5 Well Station	Limit heat output of heaters (maintain 5°C maximum) and install centralized room heating control	A drop of 1°C (2°F) over an eight-hour period can save about 2% on heating energy consumption ²⁰	2025-2029
41	Install Lighting Controls	Victoria Park Senior Centre	Install occupancy sensors to control room lighting	Occupancy sensors could save up to 35% using sensors in an open office environment and would be comparable to these rooms	2025-2029

²⁰ <https://natural-resources.canada.ca/energy-efficiency/homes/make-your-home-more-energy-efficient/keeping-the-heat/section-9-operating-your-house-thermostats-water-heaters-furnaces-and-other-heatingco/15645>

No.	Proposed Initiatives	Facilities	Detailed Description	Annual Savings	Planned Completion Year
42	Install Programmable Thermostat		Replace existing thermostats with programmable and implement nighttime temperature setback	Programmable or smart thermostats can save nearly 8% of energy costs ²¹	2025-2029
43	Investigate Upgrade Options for Furnace/AC Units		Assess replacement options for existing furnace/AC units and options include high efficiency furnace/AC units and air source heat pumps	Typically, gas savings for condensing furnaces are between 15-20% of annual consumption based on existing furnaces, being 75-80% efficient The current energy performance of AC units is estimated to be at least 50% better than minimum energy performance regulations for AC units in 2010 Savings from air source heat pumps typically range between \$50-\$150 per year based on a federal study ²²	2 out of 5 to be in 2025
44	Upgrade Service Hot Water		Replace existing hot water heater with new high efficiency condensing unit	Typically, gas savings are between 15-20% of annual consumption based on existing heaters, being 75-80% efficient	Recently completed in 2024
45	Upgrade Lighting	Scotland St. Tower (Well House)	Replace interior T12 fluorescent and incandescent lights retrofit to LED Fixtures	Upgrading fluorescent and incandescent to LED technology approximately reduces up to 90% of lighting electricity demand and consumption	2025-2029

²¹ <https://natural-resources.canada.ca/energy-efficiency/spotlight-energy-efficiency/2020/10/20/your-thermostat-smart-enough/23076>

²² <https://emrlibrary.gov.yk.ca/ebooks/cold-climate-air-source-heat-pumps-2022.pdf>

No.	Proposed Initiatives	Facilities	Detailed Description	Annual Savings	Planned Completion Year
46	Install Lighting Controls		Install occupancy sensors for interior lights	Occupancy sensors could save up to 35% using sensors in an open office environment and savings would be comparable for the well	2025-2029
47	Setback Heating Temperature and Centralize Control		Limit heat output of heaters (maintain 5°C maximum) and install centralized room heating control	A drop of 1°C (2°F) over an eight-hour period can save about 2% on heating energy consumption ²³	2025-2029
48	Install Lighting Controls	F4 Well Station	Occupancy sensors for interior lights	Occupancy sensors could save up to 35% using sensors in an open office environment and savings would be comparable for the well	2025-2029
49	Upgrade Lighting		Replace exterior lighting with LED lighting	Based on replacement of existing fluorescent technology, estimated minimum savings 40% of lighting electricity demand and consumption	2025-2029
50	Setback Heating Temperature and Centralize Control		Limit heat output of heaters (maintain 5°C maximum). Install centralized room heating control	A drop of 1°C (2°F) over an eight-hour period can save about 2% on heating energy consumption ²⁴	2025-2029
51	Upgrade Lighting	Generator Building	Replace interior T12 fluorescent lights with LED fixtures	Approximately 40-60% savings of lighting electricity demand and consumption	2022

²³ <https://natural-resources.canada.ca/energy-efficiency/homes/make-your-home-more-energy-efficient/keeping-the-heat/section-9-operating-your-house-thermostats-water-heaters-furnaces-and-other-heatingco/15645>

²⁴ <https://natural-resources.canada.ca/energy-efficiency/homes/make-your-home-more-energy-efficient/keeping-the-heat/section-9-operating-your-house-thermostats-water-heaters-furnaces-and-other-heatingco/15645>

No.	Proposed Initiatives	Facilities	Detailed Description	Annual Savings	Planned Completion Year
52	Install Lighting Controls		Install occupancy sensors for interior light	Occupancy sensors could save up to 35% using sensors in an open office environment and savings would be comparable for the well	2025-2029
53	Upgrade Exterior Lighting		Replace exterior lighting with LED lighting	Based on replacement of existing fluorescent technology, estimated minimum savings 40% of lighting electricity demand and consumption	2025-2029
54	Setback Heating Temperature and Centralize Control		Limit heat output of heaters (maintain 5°C maximum) and install centralized room heating control	A drop of 1°C (2°F) over an eight-hour period can save about 2% on heating energy consumption ²⁵	2025-2029
55	Install Lighting Controls	Gartshore Street Water Tower	Install occupancy sensors for interior lights	Occupancy sensors could save up to 35% in electricity use using sensors in an open office ²⁶ and savings would be comparable for water tower as its also open	2025-2029
56	Upgrade Exterior Lighting	Gartshore Street Water Tower	Replace exterior lighting with LED lighting	Based on replacement of existing fluorescent technology, estimated minimum savings 40% of lighting electricity demand and consumption	2025-2029

²⁵ <https://natural-resources.canada.ca/energy-efficiency/homes/make-your-home-more-energy-efficient/keeping-the-heat/section-9-operating-your-house-thermostats-water-heaters-furnaces-and-other-heatingco/15645>

²⁶ <https://publications-cnrc.canada.ca/eng/view/accepted/?id=b23dfd7d-3280-4740-b2fa-c57cd48806e9>

No.	Proposed Initiatives	Facilities	Detailed Description	Annual Savings	Planned Completion Year
57	Setback Heating Temperature and Centralize Control		Limit heat output of heaters (maintain 5°C maximum) and install centralized room heating control	A drop of 1°C (2°F) over an eight-hour period can save about 2% on heating energy consumption ²⁷	2025-2029
58	Install Lighting Controls	Fergus Wastewater Treatment Plant	Install occupancy sensors for interior lights	TBD by Master Plan	
59	Upgrade Blowers		Replace 2 centrifugal blowers with high efficiency turbo blowers	TBD by Master Plan	
60	Investigate Fouling		Investigate diffuser fouling and perform required maintenance	TBD by Master Plan	
61	Add Second Fuel		Upgrade boiler to dual fuel system	TBD by Master Plan	

²⁷ <https://natural-resources.canada.ca/energy-efficiency/homes/make-your-home-more-energy-efficient/keeping-the-heat/section-9-operating-your-house-thermostats-water-heaters-furnaces-and-other-heatingco/15645>

APPENDIX B - COMPLIANCE WITH O. Reg 25/23

In 2019, the Township published an Energy Conservation and Demand Management Plan based on and in compliance with Ontario Regulation 507/18 – *Energy Conservation and Demand Management Plans* (O. Reg. 507/18). The regulation also required municipalities and other public sector groups to report annually on energy use and greenhouse gas (GHG) emissions for buildings and facilities in which the agency conducts its operations, that are heated or cooled or are related to the treatment or pumping of water or sewage. See table (which is an excerpt from the regulation) on the following page for details of the required facilities to be reported.

O. Reg. 507/18 has since been revoked and replaced with O. Reg. 25/23. The major amendments to 507/18 that are included in the current regulation are:²⁸

1. **Reporting and Tracking:** Moving reporting from a custom-made platform to ENERGY STAR Portfolio Manager.
2. **Reporting Period:** Reporting of 2021 data in 2023, 2022 and 2023 in 2024 and one year (2024) of data in 2025.
3. **Prescriptive Elements:** Updates to the title of form and removal of specific units of measurement to allow BPS organizations to use units they want to report as long it is an industry standard.

The Township complies with O. Reg. 25/23 as senior management (Council) has adopted the CDM Plan and the Plan has been placed on the Township website and a hard copy is available at the office.

²⁸ <https://ero.ontario.ca/notice/019-6168>

<i>Item</i>	<i>Type of public agency</i>	<i>Operation</i>
1.	<i>Municipality</i>	<ol style="list-style-type: none"> 1. <i>Administrative offices and related facilities, including municipal council chambers.</i> 2. <i>Public libraries.</i> 3. <i>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.</i> 4. <i>Ambulance stations and associated offices and facilities.</i> 5. <i>Fire stations and associated offices and facilities.</i> 6. <i>Police stations and associated offices and facilities.</i> 7. <i>Storage facilities where equipment or vehicles are maintained, repaired or stored.</i> 8. <i>Buildings or facilities related to the treatment of water or sewage.</i> 9. <i>Parking garages.</i>
2.	<i>Municipal service board</i>	<ol style="list-style-type: none"> 1. <i>Buildings or facilities related to the treatment of water or sewage.</i>
3.	<i>Post-secondary educational institution</i>	<ol style="list-style-type: none"> 1. <i>Administrative offices and related facilities.</i> 2. <i>Classrooms and related facilities.</i> 3. <i>Laboratories.</i> 4. <i>Student residences that have more than three storeys or a building area of more than 600 square metres.</i> 5. <i>Student recreational facilities and athletic facilities.</i> 6. <i>Libraries.</i> 7. <i>Parking garages.</i>
4.	<i>School board</i>	<ol style="list-style-type: none"> 1. <i>Schools.</i> 2. <i>Administrative offices and related facilities.</i> 3. <i>Parking garages.</i>
5.	<i>Public hospital</i>	<ol style="list-style-type: none"> 1. <i>Facilities used for hospital purposes.</i> 2. <i>Administrative offices and related facilities.</i>

APPENDIX C - REQUIRED FACILITIES FOR REPORTING

Property Name	Address 1	Postal Code	Property GFA - Self-Reported (ft ²)	Weekly Operating Hours	Site Energy Use (kBtu)	Site EUI (kBtu/ft ²)	GHG Emissions (Tons CO ₂ e)
Sportsplex Fergus	550 Belsyde Avenue	N0B 1S0	163,305	126.0	26,052,838	160	1,125
Fergus Wastewater Treatment Plant	350 Queen Street West	N0B 1S0	44,665	168.0	11,257,611	252	415
Elora Community Centre	60 David Street West,	N0B 1S0	34,211	126.0	2,086,356	61	58
Elora Wastewater Treatment Plant	6510 Wellington Road 7	N0B 1S0	22,734	168.0	7,089,695	312	182
Civic Centre	1 MacDonald Square,	N0B 1S0	12,000	42	677,576	57	17
100 Park Rd Elora West PW Garage	110 Park Road	N0B 1S0	11,562	40	434,000	38	17
Fergus Fire Hall	250 Queen Street West,	N0B 1S0	8,152	60	959,948	118	34
295 Queen St East Well 1	295 Queen Street East	N0B 1S0	7,772	168.0	1,532,358	197	16
Fergus East Public Works Garage	600 Glengarry Crescent	N0B 1S0	6,743	40	755,570	112	36
Theatre On The Grand Performing Arts	244 St. Andrew Street West	N0B 1S0	6,350	12	746,027	118	32

Victoria Park Seniors Center	150 Albert Street West, Fergus	N0B 1S0	5,875	70	687,666	117	23
Pilkington Public Works Garage	7444 Wellington Road 21	N0B 1S0	5,502	40	317,057	58	14
Elora Fire Hall	72 Wellington Road 7	N0B 1S0	5,450	20	372,912	68	14
8460 Wellington Rd 19 West Garafraxa PW Garage	8460 Wellington Road 19	N0B 1J0	5,102	168	59,700	12	1
Belwood Hall	37 Queen Street	N0B 1J0	3,630	20	227,970	63	12
Belwood Community Hall	37 Queen Street	N0B 1J0	3,630	20.0	60,375	17	1
Pilkington Public Works Office	7444 Wellington Road 21,	N0B 1S0	3,032	40	106,187	35	3
8460 Wellington Rd 19 West Garafraxa PW Garage	8460 Wellington Road 19	N0B 1J0	2,271	40	38,832	17	0
760 Gartshore St Well 4	760 Gartshore Street	N0B 1S0	2,131	168.0	1,028,892	483	11
Eco Dev Tourist And OPP	10 Mill Street East	N0B 1S0	2,000	40	106,749	53	3
6538 Beatty Ln N Well 7	6538 Beatty Line North	N0B 1S0	1,561	168.0	716,042	459	8
Elora Pumping Station	40 High Street	N0B 1S0	1,496	168.0	383,775	257	4
54 First Line Well 3	54 First Line	N0B 1S0	1,130	168.0	705,928	625	7

Sportsplex Food School Building - House	570 Belsyde Avenue	N0B 1S0	753	40	130,545	173	7
Sportsplex Food School Building - P&R Shed	550 Belsyde Avenue	N0B 1S0	753	38.0	20,440	27	0
995 Gartshore St Well 6	995 Gartshore Street	N0B 1S0	733	168.0	575,279	785	6
7397 Wellington Rd 21 Well 4	7397 Wellington Rd 21	N0B 1S0	689	168.0	277,549	403	3
900 Scotland St Well 5	900 Scotland Street	N0B 1S0	667	168.0	478,833	718	5
19 Stafford St Sewage Pumping Station	19 Stafford Street	N0B 1S0	657	168.0	153,492	234	2
460 Wellington Rd 18 Booster Pumping Station	460 Wellington Road 18	N1M 2W3	549	168.0	80,332	146	1
945 Gartshore St Water Tower	945 Gartshore Street	N0B 1S0	517	168.0	251,690	487	3
13 Aqua St Well 1	13 Aqua Street	N0B 1S0	514	168.0	605,588	1,178	6
490 St Andrew St E Sewage Pumping Station	490 St Andrew Street East	N0B 1S0	463	168.0	90,527	196	1
449 St Andrew St E Well 2	449 St Andrew Street East	N0B 1S0	388	1.0	0	0	0
319 Daniel Cres Water Tower	319 Daniel Crescent	N0B 1S0	312	168.0	64,134	206	1
125 Bridge St Water tower	125 Bridge Street	N0B 1S0	269	168.0	212,320	789	2

861 Tower St S Sewage Pumping Station	861 Tower Street South	N0B 1S0	75	168.0	124,719	1,663	1
535 Union St W Sewage Pumping Station	535 Union Street West	N0B 1S0	0	168.0	6,384	Not Available	0
60 David St W Sewage Pumping Station	60 David Street West	N0B 1S0	0	168.0	41,501	Not Available	0