



**STAFF REPORT  
MUNICIPALITY OF WAWA**

**Maury O'Neill, CAO-Clerk**

<b>Prepared By: Maury O'Neill</b>	<b>Report No.: CAO 2024-08</b>
<b>Agenda Date: June 4, 2024</b>	<b>File No. D02</b>

**2024-2029 WAWA ENERGY CONSERVATION AND  
DEMAND MANAGEMENT PLAN**

**Staff Recommendation**

**THAT** Council receive Report No. CAO 2024-08 dated June 4, 2024, and the attached 2024-2029 Energy Conservation and Demand Management Plan for review and adoption at the June 18, 2024, Council Meeting.

**Purpose/Summary**

The purpose of this report is to update Council on the requirements of the Electricity Act with respect to greenhouse gas emissions and provincial energy consumption reporting. The Municipality's existing Energy Conservation and Demand Management Plan (CDM) requires renewal and must be updated by July 1, 2024 for a five-year period.

**Background**

In February 2023, the Provincial Government introduced Ontario Regulation 25/23 (O.Reg. 25/23) under the Ontario Electricity Act. This regulation requires municipalities to report on their energy consumption and greenhouse gas (GHG) emissions annually. This also mandates that municipalities develop and update an Energy Conservation and Demand Management (CDM) Plan every five years. The intent of this regulation is to help the broader public sector (BPS) organizations better understand and report their energy consumption, help benchmark energy use, encourage energy conservation and demand management activities within their organizations and make this information public.

In order to comply with O.Reg. 25/23 the Municipality is required to submit annual energy consumption and GHG emissions for each calendar year for facilities that the Municipality owns or leases. The Wawa CDM Plan is required to be adopted by Council by July 1, 2024 and the attached updated Plan builds on the Municipality's 2019-2024 Plan and past accomplishments. Energy costs are among one of the largest operating expenses for the Municipality and benchmarking and conservation planning will help staff to:

- better manage energy use and costs
- identify energy-saving and cost-saving opportunities
- reduce greenhouse gas (GHG) emissions
- provide a benchmark to assist in setting goals
- measure improvements over time.

## **Municipality of Wawa Energy - Declaration of Commitment**

The draft 2024-2029 Wawa CDM Plan is attached and sets out the goals and objectives of the Municipality of Wawa regarding its energy use. The Plan indicates that Council and staff are committed to reducing its energy consumption and associated greenhouse gas emissions and associated environmental impact.

## **Wawa 2024-2029 CDM Plan Goals and Objectives**

As contained in the draft CDM Plan, the Municipality's goal is to reduce levels of GHG emissions 10% from 2024 levels by 2029. It indicates that staff is committed to creating new partnerships and achieving the following goals by 2029:

- Demonstrate energy conservation leadership.
- Collaborate to meet goals with partners.
- Monitor, evaluate, and measure corporate energy use.
- Continue to improve the efficiency of the organizational fleet.
- Enhance staff understanding of energy and water conservation practices.
- Implement building envelope upgrades and energy efficiency retrofits on priority facilities.
- Work towards integrating this plan with other municipal plans and practices.

## **Wawa CDM Plan Recommendations**

- ✚ Council adopt the Five-Year Energy Conservation and Demand Management Plan for the Period of July 1, 2024 to June 30, 2029 (on June 18, 2024).
- ✚ Senior Management revise the Plan as required based on analysis, energy assessments and energy consumption trends.
- ✚ Staff investigate and implement energy efficient measures whenever possible.

## **Conclusion**

The attached draft CDM Plan contains several planned strategies to take place by 2029 to meet the goals and objectives of reducing energy costs and GHG emissions. The draft Plan is presented to Council, and the public for comment so a final Wawa CDM Plan may be adopted by Council at its Regular Meeting June 18, 2024. Comments to the CAO should be submitted by Friday, June 14<sup>th</sup>.

Submitted By:

Maury O'Neill  
CAO-Treasurer

*Attached: Draft 2024-2029 Wawa Energy Conservation & Demand Management Plan*



# Five-Year Energy Conservation and Demand Management Plan

For the Period of July 1, 2024 to June 30, 2029



Municipality of Wawa  
June 4, 2024

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## **Introduction – Wawa Five-Year Energy Conservation and Demand Management Plan 2024-2029**

The following document has been prepared by the Municipality of Wawa to achieve compliance with the Ontario Ministry of Energy regulations requiring an updated 2024 Energy Conservation and Demand Management (CDM) plan. As per Ontario Regulation 25/23, CDM plan updates are required to be completed by July 1, 2024.

Ontario Regulation 25/23 - In February of 2023, the Provincial Government introduced Ontario Regulation 25/23 (O.Reg. 25/23) under the Electricity Act, 1998. This regulation requires municipalities to report on their energy consumption and greenhouse gas (GHG) emissions annually. This also mandates that public agencies develop, and update every five (5) years, an Energy Conservation and Demand Management (CDM) Plan. The intent of this regulation is to help the broader public sector (BPS) organizations better understand and report their energy consumption, help benchmark, encourage energy conservation and demand management activities within their organizations, and then ultimately make this information available to its public.

In order to comply with O.Reg. 25/23 the Municipality is required to submit annual energy consumption and GHG emissions for each calendar year for facilities that the Municipality owns or leases, that are:

- a) The building or facility is heated or cooled, and the public agency is issued the invoices and is responsible for making the payments for the building or facility's energy consumption; or
- b) The operation is related to the treatment of water or sewage, whether the building or facility is heated or cooled, and the public agency is issued the invoices and is responsible for making the payments for the building or facility's energy consumption.

Wawa's updated CDM plan builds on the municipality's previous conservation and demand management efforts as outlined in past plans and continues to build on accomplishments over the last five years.

A copy of the Wawa Five-Year CDM Plan 2024-2029 is available at [www.wawa.cc](http://www.wawa.cc).



Energy costs are among one of the largest operating expenses for the Municipality. Energy benchmarking and conservation planning through a CDM plan will help to:

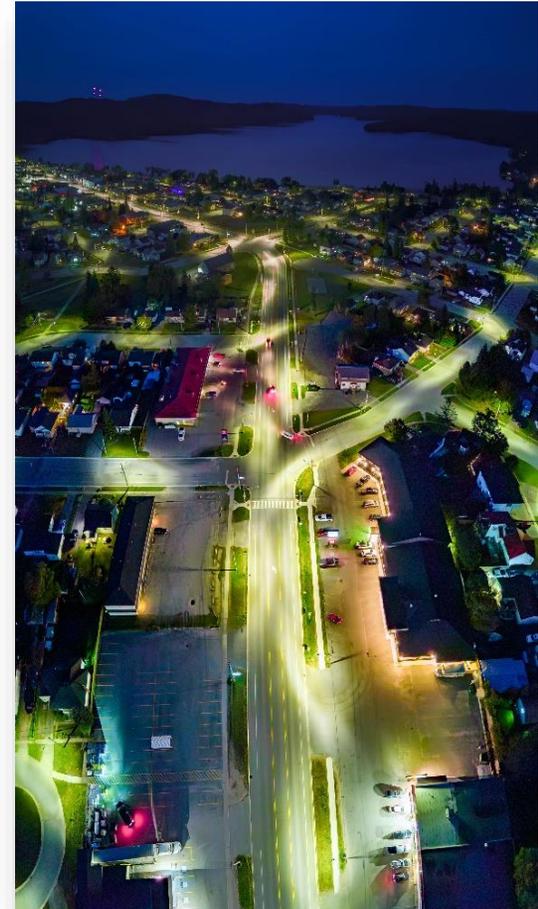
- better manage energy use and costs
- identify energy-saving and cost-saving opportunities
- reduce greenhouse gas (GHG) emissions
- evaluate results by comparing with others
- provide a benchmark to assist in setting goals
- measure improvements over time.

### Climate Change in Wawa

Climate change is a universal problem affecting all communities, including rural and remote areas like Wawa. A global increase in annual temperatures will result in increased damage to community infrastructure and further the economic burden to municipalities over time. The Wawa ECDM commits to lowering municipal energy GHGs through conservation and innovative energy efficiency upgrades to facilities. Increased education and awareness activities are at the forefront of future change and adaption.

### Benchmarking Performance

Annual energy reporting is required under regulation and will assist to aid in understanding how energy is used in municipal buildings, identify potential energy conservation opportunities and track progress on energy conservation efforts. This Plan includes the Municipality's most recent annual energy report and annual energy consumption information.



**New Street Lights, Mission Road, Wawa, ON**

## Wawa Municipal Building Energy Consumption

For the purpose of the Wawa Energy Conservation Demand Management (ECDM) plan, energy consumption data from 2019 to 2023 for electricity (kWh), fuel oil (litres) and propane (litres) was collected and analyzed for Municipal Buildings. The sources of data were Municipal records and spreadsheets relating to all fuel consumption types from 2019 to 2023. To view a comprehensive overview of all fuel consumption metrics by building with correlating greenhouse gas (GHG) emissions, please see Appendix B.

Wawa had a population of 2,705 as identified by the 2021 Census. Population decline has made it difficult to maintain the level of service that was developed for a higher population; however, the Municipality strives to provide quality and cost-effective services and programs for its ratepayers and visitors. The following lists all Municipal Buildings, Year Built and square footage per building.

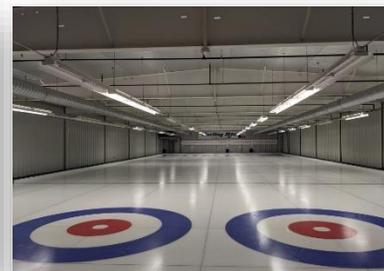
**Table 1: Municipal Buildings**

BUILDING NAME	YEAR OF CONSTRUCTION	SIZE (FT2)
Municipal Office and Library	1978	13043
3 Maple Street	1985	11504
Beach Washrooms	2022	400
Beach House and Shelter	1997	1264
Fire Hall	1970	7402
Municipal Garage	1960	5000
Fuel Center Depot	1985	N/A
Memorial Arena Complex	1996	59006
Arena Storage	1996	400
Recycling Building	2000	48
Wawa Goose Monument	2018	N/A
Equipment Depot / Municipal Garage	1960	5200
Flammable Storage	1985	100
Water Depot Storage	1985	200
Water Department Storage - Lighting	1985	100

Cemetery Storage	1999	288
Airport Terminal Building	1980	2190
Airport Storage Garage	1980	2400
Airport Fuel Center	2004	N/A
Airport Fuel Center - Avgas H100	2021	N/A
Airport Electrical Building	1980	80
Offices and Apartment - 96 Broadway	1965	6692
Airport Building (former animal control)	1990	285
Sewage Lagoons and Building	1988	1500
Water Treatment Plant	2007	9912
Low Level Pump House	1960	1120
Water Tower	1989	N/A
Water Booster Station	1989	128
Decommissioned - Booster Station	1986	216
Water Pump House Storage	1960	520
Comfort Station	2005	72
Marina Picnic Shelter	1990	3200
Tourist Information Center	2004	3360
Marina Fish Cleaning Hut	1990	192
Picnic Shelter – Scenic High Falls	2005	1000
Playground Equipment (various)	2019-2024	N/A



**Tourist Information Centre**



**MMCC Curling Rink**

## Municipal Building Consumption Analytics

The following section of this report will outline consumption metrics from 2021-2023 where available for all municipal fuel sources including: electricity, fuel oil and propane.

### Electricity *(solar not included)*

Municipal Building kWh for 2019 to 2023		
Year	Total (kWh)	Costs
<b>2019</b>	3,481,937	\$ 576,939.65
<b>2020</b>	2,954,726	\$ 558,321.82
<b>2021</b>	2,984,410	\$ 470,408.25
<b>2022</b>	3,294,400	\$ 586,684.81
<b>2023</b>	3,009,429	\$ 610,468.83

### Fuel Oil

Municipal Building Fuel Oil Consumption for 2019 to 2023	
YEAR	TOTAL
<b>2019</b>	33,861.00
<b>2020</b>	28,878.00
<b>2021</b>	23,420.30
<b>2022</b>	33,380.80
<b>2023</b>	6,909.90

### Propane

Propane is the third fuel that the Municipality uses for heating purposes. The average annual increase of Municipal propane consumption between 2019 and 2023 was only 1%, however, in 2018 the Municipality saw a 69% decrease from 2015, most likely due to milder winters.

Municipal Building Propane (L) Consumption from 2019 to 2023	
YEAR	TOTAL
<b>2019</b>	45,580.70
<b>2020</b>	42,550.90
<b>2021</b>	44,228.50
<b>2022</b>	44,148.80
<b>2023</b>	86,678.02

By reviewing the data collected, the Municipality noted that during the national pandemic (2020-2021) the consumption for electricity, fuel and propane were greatly reduced, resulting in lower cost overall. The Municipality also notes that building electricity consumption has seen an overall reduction between 2019 – 2023, yet costs have increased substantially. In 2023, the Municipality converted multiple buildings from fuel oil to propane, which explains the drastic reduction of fuel oil consumption in 2023 and large increase of propane use in 2023.

## Weather

Comparing annual energy consumption patterns in Wawa requires a true understanding of external factors, especially weather. Building heating and cooling are very sensitive to changes in weather, which can often explain year-to-year fluctuations of energy use by Wawa residents and businesses.

“Wawa has a humid continental climate that is significantly moderated by Lake Superior. Winters are cold and snowy with heavy snowfalls averaging over 319 centimetres (126 inches) due to lake effect snow from Lake Superior and cold air from the northwest passes over the warmer lake. Summers are cool and mild due to cool, dry air masses from the northwest and the cooling of warm air from the south as it passes Lake Superior. As a result, temperatures above 30 °C (86.0 °F) are rare. August is the warmest month with a high of 20.8 °C (69.4 °F) and a low of 9.8 °C (49.6 °F), showing a slight seasonal lag. The average annual precipitation is 970 millimetres (38 in), which is relatively evenly distributed throughout the year.”<sup>1</sup>

Reviewing heating degree days (*days with an average temperature less than 18°C*) and cooling degree days (*days with an average temperature greater than 18°C*) can help explain energy demand trends. If outdoor temperatures remained at a constant 18°C, it is estimated that no energy would be needed to maintain indoor temperatures. As temperatures move from this level, heating and cooling energy use is increased.



**Figure 6: Aerial view of Wawa, ON**

<sup>1</sup> ["Wawa Airport"](http://climate.weather.gc.ca/climate_normals/results_1981_2010_e.html?stnID=4099&autofwd=1). Canadian Climate Normals 1981-2010. Environment Canada. Retrieved from: [http://climate.weather.gc.ca/climate\\_normals/results\\_1981\\_2010\\_e.html?stnID=4099&autofwd=1](http://climate.weather.gc.ca/climate_normals/results_1981_2010_e.html?stnID=4099&autofwd=1)

## **Municipality of Wawa Energy Commitment**

### **Declaration of Commitment**

The Municipality of Wawa is committed to reducing its energy consumption and associated greenhouse gas emissions and environmental impact. The Municipality has been involved in a variety of energy conservation initiatives, such as the bulk purchasing of its electricity through the Association of Municipalities of Ontario (AMO) -Local Area Services (LAS) and will continue to implement more initiatives to reduce energy consumption.

### **Past Projects**

#### **LED Streetlight Conversion**

The Municipality of Wawa changed its high-pressure sodium streetlights with high efficiency LED street lights which resulted in: a) Reduced energy consumption by over 25%, b) Lowered the annual maintenance budget, c) Improved the quality of light offered to residents and d) Lowered lighting impacts Affecting residents.

#### **Rooftop Solar Installations**

Six municipal microFIT solar panel projects were installed on municipal building rooftops. Federal Gas Tax funding was used to help leverage the cost of installation and the projects have had a positive effect on offsetting costs and reducing the Municipal carbon footprint. The solar panels provided both a financial and environmental benefit to the community. The project will divert an estimated 1,356 tonnes of greenhouse gas emissions (GHGs) over the next 20-25 years and create over \$1 million in revenues for the Municipality. The following figure details the five solar projects, kWh production, expected revenues and estimated diverted greenhouse gas emissions (GHGs).



**Table 2: Wawa Municipal Solar Projects 2023**

Solar Panel Location	Electricity Production (kWh)	Annual Revenues (\$)	GHGs Diverted over 25 years (tonnes)
<b>1. 3 Maple</b>	8,400.00	\$6,679.88	224
<b>2. Magpie Public Works Garage</b>	9,122.00	\$7,261.25	237
<b>3. Wawa Marina Pavilion</b>	3,762.70	\$2,957.05	221
<b>4. Wawa Water Treatment Plant</b>	7,663.50	\$6,089.35	237
<b>5. Community Centre</b>	9,989.20	\$7,953.96	227
<b>6. Airport Solar Panels</b>	8,181.00	\$6,503.05	210
<b>TOTAL</b>	<b>47,118.40</b>	<b>\$37,444.54</b>	<b>1,356</b>

**Table 2: Wawa Municipal Solar Projects 2019 - 2023**

Year	Energy Production (kWh)	Total Revenue (\$)
<b>2019</b>	47,255.00	\$37,435.80
<b>2020</b>	53,811.00	\$42,770.59
<b>2021</b>	65,619.50	\$52,247.92
<b>2022</b>	48,425.50	\$38,492.18
<b>2023</b>	47,118.40	\$37,444.54



**Water Treatment Plant Wawa, ON**

## **Wawa Energy Conservation and Demand Management Plan Vision**

The Municipality of Wawa is committed to a proactive approach to responsible energy conservation and demand management to minimize the impacts of rising energy cost. It is aware of the importance of reducing its carbon footprint and to ensure financial responsibility and accountability to taxpayers.

## **Wawa Energy Conservation and Demand Management Plan Goals and Objectives**

The Municipality's goal is to position the organization with an energy management strategy that aligns with the provincial target to reduce levels of GHG emissions 10% from 2024 levels by 2029. The Municipality will strive to continuously reduce energy consumption and manage demand to reduce energy costs and contribute to an efficient transition of the energy system. Staff is committed to creating new partnerships and working with other organizations to better manage energy use across the community.

The Municipality of Wawa's energy goals include:

- Demonstrate energy conservation leadership within our sector.
- Ensure collaboration with our community partners and communicate our energy conservation progress.
- Use this plan to help our organization effectively monitor, evaluate, and measure corporate energy use.
- Review and update Green Fleet Strategy to continue to improve the efficiency of the organizational fleet (where appropriate to our operations).

The Municipality of Wawa's energy objectives include:

- Enhance overall staff understanding of energy and water conservation.
- Implement building envelope upgrades and energy efficiency retrofits on priority facilities.
- Work towards integrating this plan with other municipal plans and practices.

## **Past Targets, Improvements and Action Completed**

The Municipality of Wawa makes it a priority in their annual operating and capital budgeting procedures to maximize its efforts in reducing energy costs and improvements undertaken in the past include the following;

## Energy Conservation and Demand Management Priorities Completed 2015-2019

- Issued Request for Proposal (RFP) for water meter rate study as part of the next steps with billing municipal residents based on water consumption. **Completed**
- Completed Wawa off-street light LED Conversion project. **Completed**
- Replaced the dehumidifier in the Michipicoten Memorial Community Centre (MMCC) Arena to encourage better efficiency and environmental conditions on the ice rink. **Completed**
- Replaced sewage lagoons aeration system **Completed**
- Hired Energy Planner at the Economic Development Corporation of Wawa (EDC) through funding from the Ontario Trillium Foundation (OTF) to implement key priorities identified in the Wawa Energy Plan including;
  - ✚ **ENERGY: Completed**
    - Established Youth Ambassador Team to educate residents about sustainability and energy
    - Enhanced community engagement by expanding Wawa Green Days (weeklong event promoting sustainability initiatives such as a community clean-up in Wawa)
    - Designed and implemented an energy audit program using a heat gun
    - Developed a volunteer proofing program to install weather proofing and plastic on windows for senior and low-income residents.
  - ✚ **WASTE: Completed**
    - Increased education and awareness of waste reduction, reducing and reuse opportunities.
  - ✚ **WATER: Completed**
    - Mobilized people to reduce water consumption by holding a series of workshops educating the community about water use.
    - Investigated feasibility of bioswales at storm flow outflows on Wawa Lake, the town's sole source of drinking water.
    - Partnered with Algoma Power Inc. to promote the saveONenergy pilot which promoted the purchase of energy efficient devices including low-flush showerheads and toilets.
    - Design and implement a rain barrel incentive program to promote the collection of waste water.

- Purchased new ice re-surfacer for the Michipicoten Memorial Community Centre (MMCC) Arena with better operational efficiency and battery life. **Completed**
- Completed maintenance on plate chiller at the Michipicoten Memorial Community Centre (MMCC) Arena. **Completed**
- Install humidistats for both humidifiers to improve arena energy efficiency in the arena. **Completed**
- Constructed bioswales at some Wawa Lake storm water outflows **Completed**

### **Energy Conservation and Demand Management Priorities Completed 2019–2024**

- ✚ Installed LED lighting on all buildings. **Completed**
- ✚ Bill based on water meter readings and water used and educate residents on reducing water use. **Completed**
- ✚ Replaced Michipicoten Memorial Community Centre (MMCC) Arena lights with LED Lighting as part of continuous efforts for energy efficiency. **Completed**
- ✚ Landfill expansion to be completed with new areas and programs for recycling waste products. **Completed**
- ✚ Held annual Hazardous Waste Collection Day. **Completed**
- ✚ Replaced HVAC System at Michipicoten Memorial Community Centre. **In progress**
- ✚ New fire apparatus purchased. **Completed**
- ✚ New plow truck/sander purchased. **Completed**
- ✚ Installed LED lighting at Airport/Runway. **Completed**
- ✚ Airport Furnace replaced. **Completed**



**Municipal Airport Building, Wawa, ON**

## Municipality of Wawa CDM Objectives and Targets - 2024 to 2029



The following objectives and targets are for the period 2024 to 2029, a five-year period;

- ✓ The Municipality will consider a variety of energy conservation and efficiency practices including:
  - Undertaking energy conservation and energy efficiency initiatives in all municipal facilities and equipment. Replacing fossil fuel with electricity in new buildings as a heat source.
- ✓ The Municipality will use electricity during non-peak hours whenever possible.
  - Purchase and charge electric vehicles and equipment when feasible.
- The Municipality will update municipal buildings and infrastructure with energy saving material such as:
  - Building envelope upgrades including increasing insulation values and install building automation systems and upgrades where feasible.
  - Review procurement policies requesting information on the energy efficiency of products.
  - Implementing an education program for staff to help advance energy conservation initiatives.
- The Municipality will identify opportunities to apply for provincial and other programming to support targets including;
  - FCM available programs for demand management, energy efficiency, and conservation.
  - Save On Energy incentive and energy management training programs delivered by the Independent Electricity System Operator.
  - Industrial Conservation Initiative delivered by the Independent Electricity System Operator.
  - Ontario Net Metering program offered by Algoma Power Inc.
  - Federal initiatives available from Natural Resources Canada (NRCan).
  - Trillium Foundation and all other programs available.

## Municipality of Wawa CDM Objectives and Targets - 2024 to 2029

- The Municipality will identify ways to conserve vehicle fuel and purchase electric or hybrid vehicles and small equipment when possible and;
  - Purchase hybrid trucks for replacement 4 x 4s (2029).
  - Install electric charging station at Public Works (2029).
  - Purchase small equipment using battery power (e.g. grass cutting equipment).
- The Municipality will upgrade buildings including the Wawa Community Centre and;
  - Complete installation of a new HVAC system at MMCC (2024 – 2025).
  - Replace compressors at MMCC (2027).
  - Update and replace inefficient lighting at MMCC and change to LED (2028).
  - Renovate and install new insulation and replace HVAC at Town Hall (2027-2028).
  - Upgrade Wawa Fire Hall and switch to propane or electric heating (2028-2029).
- The Municipality will make updates to improve systems at the Water Treatment Plant including;
  - Improvement to infrastructure to the municipal drinking water system will replace the intake pipeline and pumping station and will also provide flushing capability to the existing Michipicoten River Village treated water transmission main. (2024-2025)
  - An Electrical Power Quality Study will be completed (2025).
  - A new Active Harmonic Filter to maintain clean energy in the plant as harmonics caused by large power use can cause more sensitive equipment to not behave the way they should/ causes ghost power issues will be replaced (2025).

- New surge protection devices (SPD) for Motor Control Center are out of date and newer versions offering better protection will be purchased (2024).
  - Corroded switches will be replaced (2024).
  - Generator room actuators will be replaced (2024).
  - LED lighting upgrades to the plant will be made (2025-2029).
  - The chemical room motorized dampers and gas monitoring equipment will be replaced (2024).
  - Camlock docking station to load test the generator will be added (2025-2026).
  - The obsolete MCC #3 will be replaced (2026).
  - The fuel oil storage tanks will be replaced (2027).
  - The HVAC unit and its condenser replaced (2028-2029).
- Other
    - Annual hazardous waste collection day will be held in September each year (annually).
    - Investigate ways to reduce, reuse and recycle materials at landfill. (2027)
    - Implement organizational changes such as establish procurement requirements for the energy efficiency of products. (2025)
    - Implement a training and education program for staff to help advance energy conservation initiatives. (2025)



## **Conclusion and Recommendations**

The Municipality of Wawa is committed to environmental sustainability. With many successful accomplishments to date and a focus on the future, the Municipality plans to continue improving efforts towards energy conservation and demand management, while pursuing GHG emission reduction initiatives.

- The Municipality of Wawa plans to continue to invest in technologies aimed to reduce electricity expenditures and greenhouse gas emissions through opportunities such as green building design, alternate energy production, energy management and sustainable operations.
- The Five-Year Energy Conservation and Demand Management Plan 2024-2029 aligns with the Wawa Strategic Plan as it targets a reduction in energy consumption throughout municipal operations.
- The Municipality will continue to engage external partners and agencies within the community and surrounding region to find solutions to reducing energy impacts and costs.

## **Recommendations**

- Council adopt the Five-Year Energy Conservation and Demand Management Plan for the Period of July 1, 2024 to June 30, 2029.
- Senior Management revise the Plan as required based on analysis, energy assessments and energy consumption trends.
- Staff investigate and implement energy efficient measures whenever possible.

## Appendix A: Provincial CDM Regulatory Requirements

Subsection 25.35.2(3) of the *Electricity Act, 1998* and section 5 of [O. Reg 25/23](#) sets out the requirements for the CDM and future plan updates, which includes the following information:

- A summary of your organization's annual energy consumption and GHG emissions for each of your organization's operations prescribed under the Regulation.
- A description and a forecast of the expected results of current and proposed activities and measures to conserve the energy consumed by your organization's prescribed operations and to otherwise reduce the amount of energy consumed by your organization, including by employing such energy conservation and demand management methods as may be prescribed by Regulation.
- A summary of the progress and achievements in energy conservation and other reductions since the previous plan.
- A description of the results of previous activities and measures to conserve the energy consumed by your organization's prescribed operations and to otherwise reduce the amount of energy consumed by your organization, including by employing such energy conservation and demand management methods as may be prescribed by the Regulation.
- A forecast of the expected results of the current and proposed measures.
- Cost and saving estimates for your organization's current and proposed activities and measures.
- The estimated length of time the public agency's current and proposed activities and measures referred to in paragraph 2 of subsection 25.35.2(3) of the *Electricity Act, 1998* will be in place.
- A description of any proposed changes to be made to assist your organization in reaching any targets it has established or forecasts it has made.
- The actual results of your organization's previous energy conservation efforts and activities.
- A description of any renewable energy generation facility operated by your organization and the amount of energy produced on an annual basis by the facility.
- Confirmation that the energy conservation and demand management plan has been approved by the public agency's senior management.
- Posting on-line.

## Appendix B – Wawa Municipal Energy (Electricity and Propane) Consumption and Greenhouse Gas Emissions 2022-2023

### 2022 - 2023 Electricity Consumption and Greenhouse Gas Emissions

Energy Type	Unit of Measure	kGHG Coefficient
Electricity	kWh	0.076012
Fuel Oil	Litre	2.735156
Propane	Litre	1.540984

Location	2022 Energy Consumption Annual kWh	2022 kGHGs	2023 Energy Consumption Annual kWh	2023 kGHGs
Municipal Office (40 Broadway Ave.)	444,844	33813	336,710	25594
Magpie Garage & 42 Montreal Ave.	101,429	7710	83,375	6338
Airport Terminal & Animal Pound	42,512	3231	46,642	3545
Sewage Treatment Plant	232,294	17657	203,048	15434
96 Broadway Ave.	94,611	7192	82,698	6286
Community Centre	963,165	73212	946,906	71976
Street Lights	126,430	9610	126,430	9610
MRV & PWD Waterworks	58,874	4475	54,755	4162
Landfill	7,731	588	7,948	604
Marina	23,992	1824	3,210	244
Tourist Information Centre	43,891	3336	17,846	1357
Water Treatment Plant	1,039,325	79001	1,017,211	77320
3 Maple Street	94,164	7158	73,571	5592

## 2022 - 2023 Propane Consumption and Greenhouse Gas Emissions

Energy Type	Unit of Measure	kGHG Coefficient
Electricity	kWh	0.076012
Fuel Oil	Litre	2.735156
Propane	Litre	1.540984

Location	2022 Annual Propane (Litres)	2022 kGHGs	2023 Annual Propane (Litres)	2023 kGHGs
Magpie Garage & 42 Montreal Ave.	12,817	19751	23,918	36857
Airport Terminal & Animal Pound	0	0	20,630	31790
96 Broadway Ave.	1,004	1547	983	1515
Community Centre	20,220	31159	30,601	47156
3 Maple Street	11,112	17123	11,529	17766

## Appendix C: Wawa Municipal Solar Panel Analysis

### SYSTEM INFORMATION

Total System Size: **12.74 kW DC | 9.87 kW AC**  
 Estimated Annual Production: **13874 kWh**  
 PV Panel Description: **52x Heliene HEE 215M (245W Class)**

### INVESTMENT RETURN ANALYSIS

Forecast Solar Production (kWh): **13874**  
 Forecasted OPA Contract Revenue: **\$11,126**  
 (Annual)

### ENVIRONMENTAL IMPACT ANALYSIS

This installation will reduce Green House Gas emissions by **237 tons of CO2** over 25 years (compared the coal based electricity production)

Equivalent CO2 Reductions  
 Small Car: **1,285,424 Km**  
 Medium Car: **689,455 Km**  
 Air Miles: **781,856 Km**  
 SUV: **483,057 Km**



### Monthly Energy Report (August 2015)

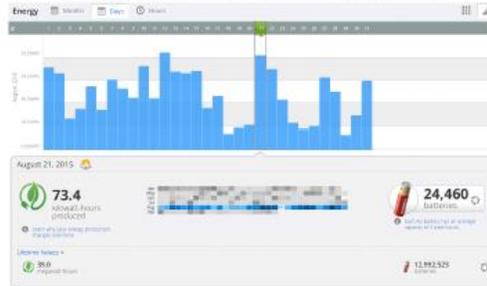
Date	Peak Power	Energy Produced
2015-08-01 - 2015-08-07	3.04 kW	27.00 kWh
2015-08-08 - 2015-08-14	3.03 kW	28.00 kWh
2015-08-15 - 2015-08-21	3.04 kW	29.00 kWh
2015-08-22 - 2015-08-28	3.04 kW	30.00 kWh
2015-08-29 - 2015-08-31	3.04 kW	12.74 kWh
<b>Report 2015 Total</b>		<b>138.00 kWh</b>
<b>Previous Month Total</b>		<b>1.00 kWh</b>
<b>Total to Date</b>		<b>6.16 kWh</b>

Your Carbon Offset for this month: **1.075 tCO2e**

Energy Produced per Month (2014)



Energy Produced per Day (Aug. 2015)



Energy Produced per Hour (Sept. 5, 2015)



# Water Treatment Plant Solar Panel Installation

**Wawa**  
Real algoma.

**NITGC**  
NORTHERN INFORMATION TECHNOLOGY AND GEOMATICS CO-OPERATIVE

### SYSTEM INFORMATION

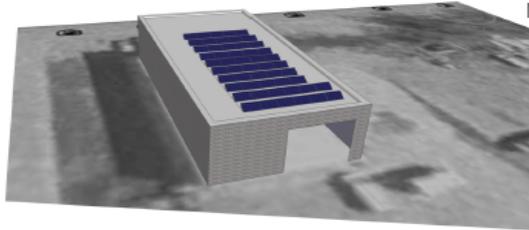
Total System Size: **12.74 kW DC | 9.87 kW AC**  
 Estimated Annual Production: **13874 kWh**  
 PV Panel Description: **52x Heliene HEE 215M (245W Class)**

### INVESTMENT RETURN ANALYSIS

Forecast Solar Production (kWh): **13874**  
 Forecasted OPA Contract Revenue: **\$11,126**  
 (Annual)

### ENVIRONMENTAL IMPACT ANALYSIS

This installation will reduce Green House Gas emissions by 237 tons of CO2 over 25 years (compared the coal based electricity production)



#### Equivalent CO2 Reductions

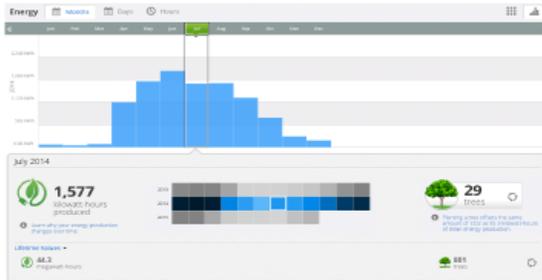
Small Car: **1,285,424 Km**  
 Medium Car: **689,455 Km**  
 Air Miles: **781,856 Km**  
 SUV: **483,057 Km**

### Monthly Energy Report (July 2015)

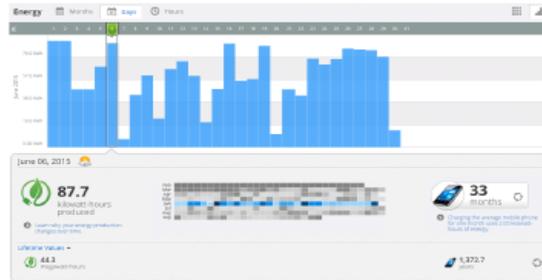
Month	Peak Power	Energy Produced
07/01/2015 - 07/07/2015	8.86 kW	232 kWh
07/08/2015 - 07/14/2015	8.26 kW	267 kWh
07/15/2015 - 07/21/2015	8.26 kW	402 kWh
07/22/2015 - 07/28/2015	8.86 kW	322 kWh
07/29/2015 - 07/30/2015	8.26 kW	112 kWh
<b>July 2015 Total</b>		<b>1,335 kWh</b>
<b>Previous Month Total</b>		<b>1,131 kWh</b>
<b>Year to Date:</b>		<b>1,335 kWh</b>

Your Carbon Offset for this month: 1.23 tons  
 You have offset the equivalent of 28 trees.

Energy Produced per Month (2014)



Energy Produced per Day (June 2015)



Energy Produced per Hour (Sept. 4, 2015)



**Infrastructure Services Garage  
 Solar Panel Installation**



### SYSTEM INFORMATION

Total System Size: **11.50 kW DC | 9.315 kW AC**  
 Estimated Annual Production: **13291 kWh**  
 PV Panel Description: **46x Canadian Solar CS6P 250**

### INVESTMENT RETURN ANALYSIS

Forecast Solar Production (kWh): **13291**  
 Forecasted OPA Contract Revenue: **\$10,659**  
 (Annual)

### ENVIRONMENTAL IMPACT ANALYSIS

This installation will reduce Green House Gas emissions by 227 tons of CO2 over 25 years (compared the coal based electricity production)



#### Equivalent CO2 Reductions

Small Car: **1,231,186 Km**  
 Medium Car: **660,354 Km**  
 Air Miles: **748,866 Km**  
 SUV: **462,675 Km**

### Monthly Energy Report (June 2015)

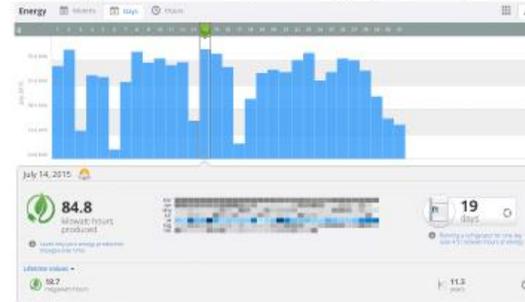
Month	Peak Power	Energy Produced
2015-06-01 - 2015-06-30	81.0 kW	432 kWh
2015-05-01 - 2015-05-31	71.0 kW	324 kWh
2015-04-01 - 2015-04-30	61.0 kW	288 kWh
2015-03-01 - 2015-03-31	51.0 kW	216 kWh
2015-02-01 - 2015-02-28	41.0 kW	162 kWh
2015-01-01 - 2015-01-31	31.0 kW	126 kWh
<b>Previous Month Total</b>	<b>1.71 MW</b>	
<b>Year to Date</b>	<b>4.64 MW</b>	

Your Carbon Offset for this month: 1.21 tons  
 (Carbon Footprint Offset: 22.7 tons)

Energy Produced per Month (2014)



Energy Produced per Day (July 2015)



Energy Produced per Hour (Sept. 12, 2015)



# Community Centre Solar Panel Installation



\*NB: No data available for the NITGC or Marina Solar Installations due to no internet connectivity.