COUNTY OF Brant Simply Grand

Energy Conservation and Demand Management Plan

Executive Summary

Ontario Regulation 25/23, under *the Electricity Act*, requires public agencies to report annual energy consumption and greenhouse gas (GHG) emissions and develop Energy Conservation and Demand Management Plans (ECDMP) every five years. The five-year plans outline data related to energy consumption and GHG emissions, report on the success of conservation projects, and present new objectives and measures for the future. As mandated, the ECDMP exclusively focuses on the energy use and GHG emissions generated from County owned and operated facilities (full list in appendix 1).

Throughout the previous reporting period (2019-2024), the County implemented measures to enhance energy efficiency and reduce GHG emissions at facilities. Notably the County:

- Retrofitted lighting at two major recreation facilities to LED fixtures to reduce energy consumption and enhance sustainability.
- Updated mechanical systems at two wastewater treatment plants to energy efficient alternatives.
- Added solar net metering project at the TF Warren Group Cainsville Community Centre to generate clean renewable energy and offset energy costs.
- Enhanced the building envelope at the Burford Administration Office to decrease energy use for heating and cooling and extend the useful life of the building.
- Designed the County's first carbon operational net-zero facility, the Wilkins Family Community Centre.
- Generated over 3.3 million kWh of clean, renewable energy through solar projects.

The updated ECDMP builds upon these successes, and presents new objectives, measures, and projects to guide the County forward through 2024-2029.

To support a comprehensive response to climate change, the County is also working with residents, community partners, and staff to develop a Climate Action Plan (CAP). This plan will align and build upon the ECDMP by presenting a roadmap to reduce community emissions, enhance environmental sustainability, and provide recommendations to mitigate and adapt to the impacts of climate change. These two plans will work together to support a County-wide approach to climate action.

The plan enclosed has been approved by senior management at the County of Brant.

Table of Contents

Introduction

Ontario Regulation 25/23 under *the Electricity Act* requires municipalities to report annual energy consumption and greenhouse gas (GHG) emissions from facilities they own and operate. In addition to annual reporting, the County must maintain and update an Energy Conservation and Demand Management Plan (ECDMP) every five years. The ECDMP provides an overview of energy use and GHG emissions from County of Brant (County) facilities, summarizes the results of conservation measures taken, and presents future objectives and actions to reduce energy use and emissions.

The first version of the plan was developed and approved by the County of Brant Council in 2014. The current plan builds on the most recent version completed in 2021 for the 2021-2024 period and prepares the County for future success.

Energy Conservation and Demand Management Plan Contents

As per provincial requirements, the ECDMP reports on energy use and emissions data, progress to date, and future actions. The plan is divided into the following sections:

- Progress update from 2021-2024 ECDMP
- Objectives for Energy Conservation and GHG Emission Reduction and Specific Projects for the 2024-2029 Plan Horizon
- Building on the ECDMP

These sections include required information outlined in Ontario Regulation 25/23.

Scope and Horizon of the Plan

The ECDMP focuses on energy use and emissions from specific County buildings. The table below identifies what types of facilities are considered in and out of scope for the purposes of this plan (see appendix 1 for full list).

"In" Scope	"Out" of Scope
County administrative facilities	County owned facilities that are operated by 3rd parties through formal agreements
County operated community centres and arenas	County owned facilities that are rented to 3rd parties through leases or other tenancy agreements
Facilities to support operational activities, including works yards, cemetery operations buildings, and storage buildings	Facilities owned and operated by independently managed corporate subsidiaries of the County

"In" Scope	"Out" of Scope
County operated water and wastewater treatment facilities	Social housing projects under joint ownership with the City of Brantford
	Facilities that are owned by the County but managed by joint boards (ex. John Noble Home)

This plan will guide the County from July 1, 2024, to the next reporting deadline on July 1, 2029. Throughout this period, staff will use this plan as a roadmap, report on implementation, and adjust as needed.

Alignment with Future Climate Action Plan

The County recognizes the importance of promoting energy conservation and environmental sustainability. On November 26, 2019, the County of Brant Council declared a climate emergency and identified that the County is to adopt a carbon reduction strategy to lead the County reasonably and effectively to becoming net carbon neutral by 2050. The County is committed to a community-wide mobilization effort to mitigate the impacts and adapt to climate change.

While the ECDMP focuses exclusively on energy use and emissions that the County directly controls, staff are also working with residents and community partners to craft a broader Climate Action Plan (CAP). This action plan will align with the ECDMP, to develop a comprehensive and cohesive approach to address the impacts of climate change and promote environmental sustainability at the corporate and community level. The County has already made considerable strides towards achieving the goal of becoming net carbon neutral through investing in renewable energy projects, focusing on tree planting and other offsetting measures, and retrofitting buildings to optimize energy performance; this new plan will build on these successes and provide a cohesive roadmap to advance the County's climate goals.

The table below highlights how the two plans will work together to advance the energy conservation, climate mitigation, and adaptation throughout the County.

Plan	Energy Conservation and Demand Management Plan (ECDMP)	Climate Action Plan (CAP)
Focus	Measures to reduce energy use and GHG emissions from County owned and operated facilities, with select areas outside of the required reporting but important to GHG emissions (such as fleet.)	Measures to promote climate adaptation, mitigation, resiliency, and environmental sustainability at a corporate and community level.

Plan	Energy Conservation and Demand Management Plan (ECDMP)	Climate Action Plan (CAP)
Horizon	2024-2029	2025-2034

Progress Update from 2021-2024 Energy Conservation and Demand Management Plan

The 2021-2024 Plan outlined objectives and conservation techniques to be accomplished during the three-year period ending in June 2024. An overview of the objectives is provided below:

1. **Optimize energy performance** – *Important successes and ongoing implementation.*
   The County completed projects to optimize energy performance of facilities. Notably, lighting at the Brant Sports Complex and Syl Apps Community Centre were retrofitted to energy efficient LED fixtures. The building envelope at the Burford Administration Office was also improved to promote energy conservation and efficiency. The County will continue to explore ways to boost energy performance at current and future facilities.
2. **Fleet consumption** – *Important successes and ongoing implementation.*

   The County of Brant is implementing a technology-based solution to accurately assess fleet energy consumption and emission levels. The installation of tracking devices is anticipated to be complete by the end of 2024. This data will help the County pinpoint inefficiencies and explore improvements for the future.

   Idle timers were also added to the tandem truck fleet. This upgrade will reduce fuel consumption and GHG emissions.

   Adopting a hybrid work model has also reduced employee vehicle use commuting to and from the office. Although the impacts are difficult to quantify, this innovative approach reduces employee vehicle use and has positive impacts on emissions and air quality.

3. **Building and materials reuse** – *Important successes and ongoing implementation.*

   The County has taken steps to extend the life cycle of existing building stock, conserve resources, reduce waste and limit environmental impacts of new buildings as they relate to materials manufacturing and transport. Specifically, retrofitting the existing Burford Administration Office extended the building life

cycle and ensured the space will work for years to come. Throughout this project, staff also focused on reusing building materials when suitable.

4. **Storage and collection of recyclables** – *Ongoing implementation.*

   Staff are continually exploring ways to facilitate the reduction of waste generated by building occupants that is hauled to and disposed of in landfills. One innovative solution involves recycling asphalt from road reconstruction projects into gravel. This practice will extend the lives of County gravel pits.

5. **Standard of development for construction** – *New approach pursued.*

   When constructing new facilities, like the Cowan Community Health Hub, the County adopted a sustainability lens to evaluate ways to conserve energy and support low carbon operations. Creating a rigid design standard for new buildings does not allow staff to account for building characteristics, cost savings, and individual property details. A more fluid sustainability lens ensures staff can respond to unique circumstances while prioritizing conservation and low-carbon design.

Overall, the County has made considerable strides to meet the objectives outlined in the 2021-2024 ECDMP and will continue to advance implementation of ongoing elements.

Reporting Changes in Energy Usage and Greenhouse Gas Emissions

As part of the Ontario Regulation 25/23 under *the Electricity Act*, public agencies are required to report their annual energy use and GHG emissions. For the purposes of the ECDMP, the reporting year of 2013 is used as the baseline for consumption reporting and for assessment of GHG emissions. GHG emissions are calculated using the approved methodology outlined by the Ontario Ministry of Energy and Electrification. The tables below provide an annual comparison of energy use and GHG emissions from County owned and operated facilities. A full list of facilities and their associated energy use and emissions is included in appendix 2.

Overall Reportable Energy Consumption

Energy Type	2013	2019	2023	Percentage Change (2013-2023)
Electricity	9,201,322 kWh	9,876,139 kWh	11,000,318 kWh	20% increase
Natural Gas	627,097 m^3	579,418 m^3	634,206 m^3	1% increase
Propane	60,474 L	64,520 L	69,786 L	15% increase
Furnace Oil	10,039 L	10,315 L	4,045 L	60% decrease

Overall Reportable Greenhouse Gas Emissions

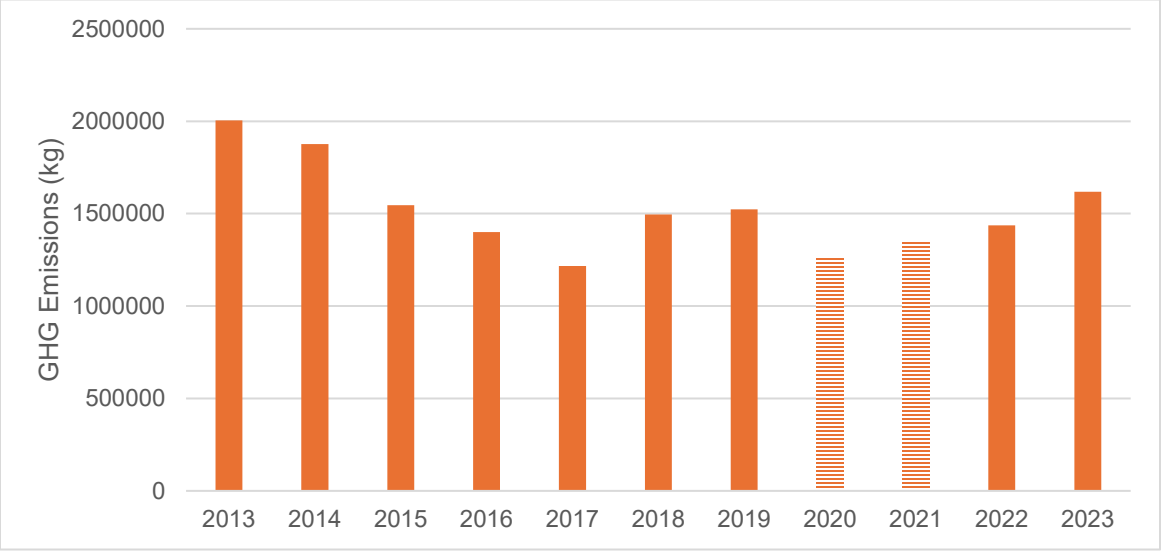
Energy Type	2013	2019	2023	Percentage Change (2013-2023)
Electricity	698,363kg	300,955kg	300,351kg	57% decrease
Natural Gas	1,185,606kg	1,095,463kg	1,199,047kg	11% increase
Propane	93,190kg	99,424kg	107,539kg	15% increase
Furnace Oil	28,214kg	27,458kg	11,063kg	61% decrease
Total	**2,005,375kg**	**1,523,301kg**	**1,618,000kg**	**19% decrease**

Analyzing the Data

Since 2013, GHG emissions from County owned and operated facilities have steadily declined as shown in the chart below. The impacts of the pandemic and facility closures are reflected in the emissions levels from 2020 and 2021.

As the County continues to respond to the growing population and adds new facilities, it is promising that GHG emissions remain steady from 2019 levels. Moving forward, the County will continue to monitor energy usage and GHG emissions data to identify measures to advance efficiencies and reductions. While the emissions have decreased by 19 percent from 2013 levels, considerable investment and innovation will be required to meet the County's goal of becoming net carbon neutral by 2050.

GHG Emissions, 2013-2023

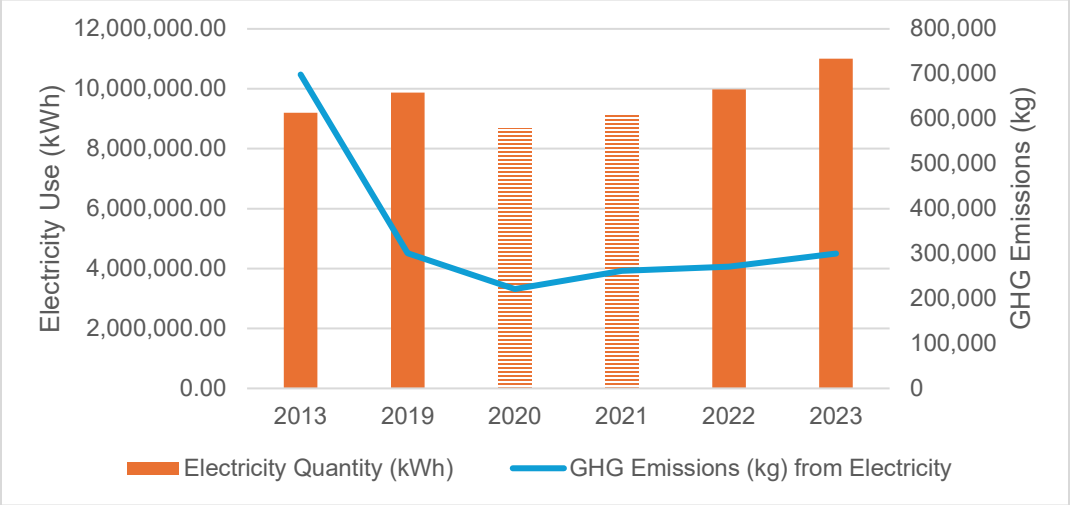


In addition to this overall trend, other important takeaways from the data are presented below.

1. **Despite rising electricity consumption, GHG emissions continue to decline from this energy source.** Electricity consumption increased from 2013 to 2023 due to several factors. Specifically, the County added two significant facilities: a new OPP station and the Cowan Community Health Hub, which together consumed 867,460 kWh of electricity in 2023.[1] Additionally, ongoing trends such as population growth and the County's shift to degasification heighten electricity use.

   Despite the increase in electricity consumption, data indicates a significant decrease in GHG emissions from this source. The reduction can largely be attributed to provincial efforts to develop a low-carbon grid. Such grids generate 90 percent or more of their electricity from low-carbon sources, specifically renewables or nuclear energy. Research shows that in these types of grids, space and water heating are end uses that produce the most GHG emissions at municipal facilities.[2] With a cleaner electricity mix, shifting from using fossil fuels to electricity can greatly reduce GHG emissions.

   Electricity Use (kWh) and GHG Emissions from Electricity (kg), 2013-2023

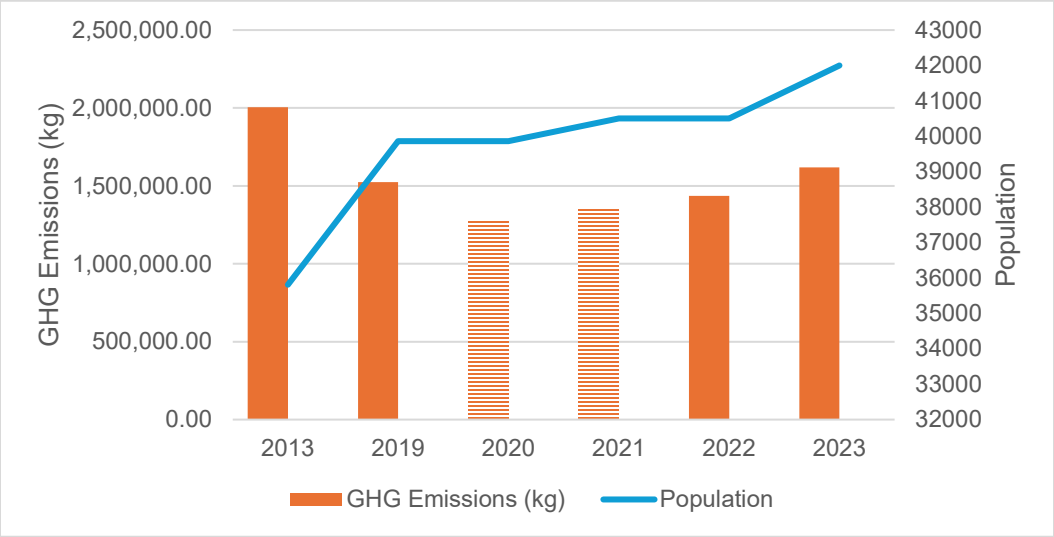


2. **Between 2019-2023, GHG emissions levels have remained relatively constant.** Despite a growing population and record high facility use post COVID-19, data shows that emission levels have remained relatively constant. While this highlights that significant actions are required to advance the County's goal of

[1] A solar net metering project was added at the Cowan Community Health Hub to offset electricity use.
[2] *Green Municipal Fund Roadmap.* Federation of Canadian Municipalities.

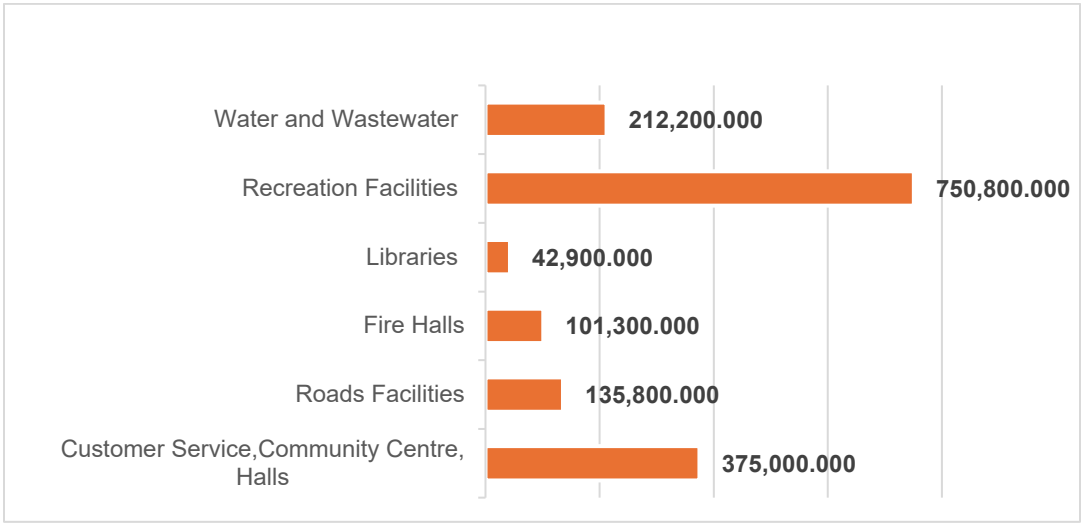
becoming net carbon neutral by 2050, this trend also shows the success of the County's efforts to date. Actions such as investing in new energy efficient alternatives and building envelope improvements, have conserved energy and prevented spikes in GHG emissions that would be expected if no action was taken.

GHG Emissions and Population, 2013-2023



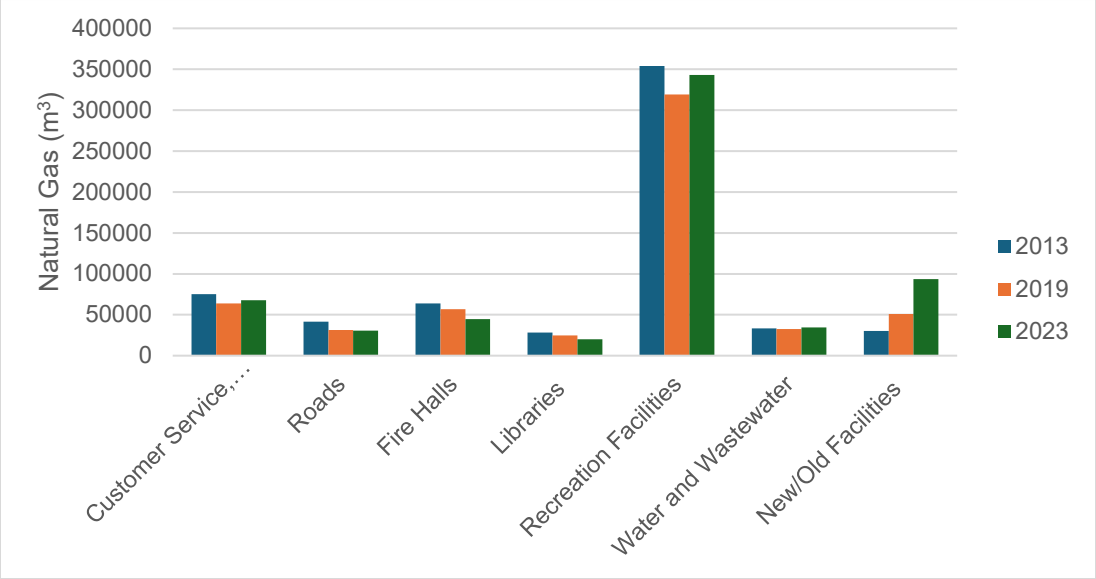
3. **Recreation facilities are the largest energy consumers and contributors to the County's GHG emissions.** Focusing on ways to promote energy conservation and reduce reliance on fossil fuels at these facilities will have a significant impact on reducing the County's GHG emission levels. Efforts could include LED lighting retrofits, building envelope improvements, adding renewable energy sources, and electrifying natural gas-powered systems.

GHG Emissions by Facility Type, 2023



4. **Natural gas, propane, and furnace oil continue to be used at County facilities.** Between 2013 and 2023, natural gas use at County facilities rose by 1 percent. This increase is primarily due to the completion of new facilities, namely the TF Warren Group Cainsville Community Centre and the new OPP station (as shown in the chart below).[3] Together, these two facilities consumed 69,775 m^3 of natural gas in 2023.

   Natural Gas (m^3) by Facility Type, 2013-2023



   This chart also highlights that recreation facilities are the largest users of natural gas. Exploring innovative opportunities to reduce natural gas consumption at recreation facilities, such as replacing gas powered heating systems with electric heat pumps, investing in de-aerators, and introducing electric ice surfacers, could be explored.

   The County has made considerable strides to reduce the use of furnace oil at facilities. Over the past ten years, data shows a 61 percent decline in use, from 10315L to 4045L. Staff will continue to explore opportunities to phase out this energy source and explore more efficient alternatives.

Review of Specific Projects

The 2021-2024 Plan outlined several specific projects as listed below:

[3] A net metering solar project was added at the new TF Warren Group Community Centre to offset energy use.

County Facility	Energy Efficiency Project	Annual Energy Savings (kWh)	Annual Cost Savings ($)	Est. Constr. Cost ($)	Incentives / Grants ($)	Net Cost ($)	Simple Payback (years)
Gaukel Memorial Community Centre[4]	Replace existing light fixtures with new LED fixtures.	87,505	13,126	53,665	11,645	42,020	3.2
Syl Apps Community Centre	Replace existing light fixtures with new LED fixtures.	20,693	3,104	19,626	2,938	16,688	5.4
Paris Wastewater Treatment Plant	Replace primary aeration blower with an energy efficient turbo blower.	360,000	47,000	411,000	36,000	375,000	8
St. George Wastewater Treatment Plant	Retrofit primary aeration blowers with an energy efficient hybrid screw blower.	233,000	29,000	162,000	22,300	139,700	4.8

The table below presents information on the specific projects, their status, and the projected annual impact. The County will continue to evaluate how these projects impact energy consumption and emission levels.

County Facility	Projects Completed	Projected Annual Energy Savings from Completed Projects
Gaukel Memorial Community Centre	Not complete. Deferred to 2025-2026.	N/A
Syl Apps Community Centre	Replaced existing light fixtures with new LED fixtures throughout.	20,693 kWh
Paris Water Pollution Control Plant	Replaced primary aeration blower with an energy efficient turbo blower.	454,708 kWh
St. George Water Pollution Control Plant	Retrofitted primary aeration blowers with an energy efficient hybrid screw blower.	90,890 kWh
Total	Complete: 3 In Progress: 0 Deferred: 1	566,291 kWh

[4] Previously known as the South Dumfries Community Centre.

Beyond projects listed in the 2021-2024 plan, the County completed additional energy conservation projects including:

- Lighting Retrofit at Brant Sports Complex – Existing lighting was retrofitted with new LED fixtures throughout. This project is anticipated to save 327,600 kWh of energy annually.
- Building Envelope Enhancements at Burford Administration Office – The exterior building envelope was enhanced through updated windows, roof improvements, enhanced insulation, and recladding. These efforts will reduce the energy consumption associated with heating and cooling the facility and extend the buildings useful life.
- Roof Updates at Community Centres – Portions of the flat roofs at Gaukel Memorial Community Centre, Burford Community Centre, and Scotland Community Centre were replaced. These necessary repairs improve insulation and optimize energy efficiency.
- New Garage Doors at Roads Buildings – Select garage doors at the South Dumfries and Paris Roads Buildings were replaced with energy efficient alternatives to enhance building insulation, reduce heat loss, and conserve energy. This change will greatly reduce propane use and associated GHG emissions from these facilities.

Renewable Energy Projects

The County of Brant has become a municipal leader in generating clean, renewable energy through its commitment to solar projects and partnership with Brant Municipal Enterprises (BME). Specifically, the County has invested in two separate categories of solar projects to support renewable energy generation: Feed-in-Tariff (FIT) and net metering.

FIT Projects

While the *Green Energy Act* and the FIT program were in place, the County developed 15 microFIT, and 6 smallFIT solar projects at facilities located in the County of Brant, and 1 located at the Onedia Business Park on the Six Nations of the Grand River Reserve. These projects combine to produce over 3.3 million kWh of solar power annually. With the County consuming roughly 11 million kWh of electricity each year at facilities, the energy produced through solar projects offsets roughly 31 percent of electricity used. Energy generated through these projects directly feeds into the electricity grid to support a cleaner electricity mix and helps the County advance its goal of becoming net carbon neutral by 2050.

Through FIT projects, the County sells electricity generated to the grid. At the end of 2023, the total revenue generated from FIT installations reached over $4.5 million. Facilities like the Brant Sports Complex and BGI Retail are notable contributors.

Overview of FIT Projects and Energy Generation

Project Type	Number of Projects	Total Capacity	Estimated Energy Produced Annually (kWh)[5]	Estimated Total Energy Produced Since Deployment (kWh)
SmallFIT (County Facilities)	4	840kW	1,142,607	9,244,096
SmallFIT (County Partnerships)	3	1500kW	2,040,371	15,851,490
MicroFIT (County Facilities)	15	158kW	214,919	2,510,981
Total	**21**	**2498kW**	**3,397,898 kWh**	**27,606,568 kWh**

Net Metering Projects

With the provincial FIT program no longer accepting new applications, the County has started investing in net metering solar projects at County facilities. In contrast to FIT projects where electricity generated is directly sold to the grid, net metering allows the County to use energy generated onsite and send surplus electricity to the grid for a bill credit. Through net metering projects, the County can directly consume the renewable energy produced at facilities and immediately generate cost savings.

Across the two net metering projects installed in 2022 and 2024, the County has generated 113,402 kWh of energy. Each year, it is estimated that the two projects will produce 204,037 kWh of electricity. The County will continue to track the impacts of these installations and explore future opportunities for net metering projects.

[5] Data sourced from the solar tracking software. In previous reports, this information was estimated based on the total capacity of each project.

Overview of Net Metering Projects

Project Location	Project Size	Estimated Energy Produced Annually (kWh)	Estimated Total Energy Produced Since Deployment (kWh)
Cowan Community Health Hub	50kW	68,012	97,759
TF Warren Group Cainsville Community Centre	100kW	136,025	15,643[6]
Total	**150kW**	**204,037**	**113,402**

Overall, solar projects contribute to a low carbon grid and offset the energy consumed at County facilities. These renewable energy projects play a key role in helping the County become net carbon neutral by 2050.

Objectives for Energy Conservation and GHG Emission Reduction and Specific Projects for the 2024-2029 Plan Horizon

Objectives

Looking ahead, the County of Brant is committed to reducing energy consumption and GHG emissions. The objectives and targets for the 2024-2029 Plan are outlined below.

Objective 1
Reduce GHG emission levels from facilities. By the end of 2028, decrease GHG emissions from County owned and operated facilities by 25% from the 2013 baseline levels. To meet this target, the County will employ a number of measures and projects as outlined below.
Objective 2
Advance electrification efforts. In low carbon electricity grids, like Ontario, electrification provides a cleaner alternative to traditional fossil fuel-powered systems. By the end of 2028, reduce the consumption of natural gas and propane from 2013 levels and continue to lower the use of furnace oil from the 2023 level at facilities.

[6] This project was installed in March 2024 and the estimated annual energy produced is forecasted based on performance to date.

Objective 3
Leverage technology to optimize energy performance. Technology-based solutions can help the County improve collection, monitoring, and analysis of energy and emissions data. Access to accurate, real-time data will inform effective decision making about future conservation tactics.
Objective 4
Design energy efficient and sustainable facilities. Throughout 2024-2029, adopt a climate change lens when designing all new facilities. Renovations and new constructions are an ideal time to capitalize on improving the energy efficiency of buildings. Rather than adopting a rigid environmental standard, County staff can evaluate the costs and benefits of sustainable options and implement economical solutions.
Objective 5
Focus on fleet. The County's fleet is anticipated to be a sizable contributor to corporate GHG emissions. Over the next five years, implement tracking devices across County fleet to better understand fuel consumption and energy use. Data collected will help evaluate opportunities for reducing GHG emissions and progressing towards becoming net carbon neutral.

Technical and Organizational Measures

To help achieve listed objectives, the County will implement technical, organizational, and behavioural measures and deliver specific projects (listed below). It is understood that the lists are incomplete, and that additional projects or measures will be added as facility audits are undertaken and the CAP is developed.

Measure	Description
Heating, Ventilation and Air Conditioning (HVAC) control upgrades.	The County's portfolio of buildings use a variety of heating systems, mostly controlled using programmable thermostats and mechanical/electrical time clocks. Conversion of these systems to direct digital control systems supported by occupancy sensors, can improve both energy efficiency of the HVAC systems and building comfort.
Building envelope improvements.	Most of the buildings in the County's portfolio are over 25 years old, with some exceeding 50 years. Many of these buildings have original building envelope features including windows, doors, insulation, and cladding. These features often result in inefficient building operation, higher energy use for heating and cooling, and in turn heightened GHG emissions. Capital improvements, ranging from window and door replacement to enhanced insulation, can all help to conserve energy and reduce GHG emissions.

Measure	Description
New building design.	New construction is an ideal time to achieve energy efficiency during design and build. Potential new facilities projected for 2024-2029 include: – New Fire Station – New Paramedic Station – Wilkin Family Community Centre – New Community Centre in Glen Morris – The Bawcutt Centre – Brant Sports Complex Addition – St. George Wastewater Treatment Plant Expansion – Paris Wastewater Treatment Plant Expansion Staff will explore ways to optimize energy conservation, reduce GHG emissions from building operations, and advance low carbon and net-zero ready construction. Depending on the building specifications, budget, and grant opportunities, staff will work to construct new buildings to meet certain environmental standards.
Identify inefficiencies at facilities and optimize energy performance.	Design the building envelope, HVAC, lighting, and other systems to maximize energy performance. Explore implementing an energy management software to track energy consumption across facilities in real time. Access to this data would help inform effective decision-making and retrofits. Partner with BME to perform building audits and heat loss analyses using thermal camera technology. This will help identify areas of improvement for buildings with significant heat loss.
Explore opportunities to enhance energy efficiency at wastewater treatment facilities.	As the County looks to decommission and replace existing wastewater treatment plants over the next 5-8 years, this is an opportune time to investigate ways to reduce energy consumption and GHG emissions from these facilities. Opportunities could involve adding renewable energy projects onsite, designing energy conscious buildings, procuring energy efficient mechanical systems, and exploring the viability of new technologies (such as implementing co-generators fed by biogas that is created during the water treatment process). In 2023, data loggers were added to wastewater facilities to track energy consumption and performance of equipment. Moving forward, the loggers will allow the County to evaluate energy usage across monitored equipment to help effectively manage assets, identify opportunities for greater energy efficiency, and proactively respond to malfunctions. This new tracking technology also ensures the County has required data to apply for financial incentives from IESO for qualifying equipment upgrades and to enroll in a demand response program.

Measure	Description
Tracking devices for fleet and exploring electrification.	Adding tracking devices to County fleet will provide energy use and emission data and allow the County to optimize fleet assets, reduce fuel consumption, and increase efficiencies. The County of Brant has gradually adopted EV and hybrid vehicles to replace traditional gas/diesel powered vehicles. Currently the County's complement includes eight hybrid vehicles and two EVs. Recognizing the considerable capital cost, environmental impacts associated with electrification (carbon intensity of electrification, mining and disposal practices associated with battery materials, etc.) and technical limitations of these models, staff will holistically evaluate the suitability of EV and hybrid options when adding and replacing fleet.
Evaluating options for renewable energy generation.	Creating renewable energy can offset the energy use and GHG emissions generated at County facilities. Staff will partner with BME to evaluate the prospect of adding renewable energy projects to facilities. When a geotechnical study is being completed at a property, staff will also be encouraged to obtain a geothermal analysis of the land. As the viability of geothermal technology is dependent on geological conditions, this new practice will help the County identify suitable sites to integrate this technology in the future.
Advance degasification.	Shifting away from fossil fuels (such as natural gas, propane, and furnace oil) and towards electrification is a crucial step in reducing GHG emissions from facilities. Prioritizing the electrification of systems that consume significant amounts of energy, such as space and water heating systems, will have the most impactful effect on reducing emissions.

Behavioural Measures

To complement the measures listed above, the County will also promote energy conservation through behavioural initiatives. A list of measures to consider are included below.

Measure	Description
Create educational opportunities for employees.	This could involve sharing tips for conserving energy, encouraging carpooling, and guidance about adopting a sustainability lens in their respective areas of work.

Measure	Description
Develop climate action working group.	A climate action working group, comprised of staff from across the County, would be helpful to oversee the implementation of energy conservation measures and creation of future plans. This group could meet periodically to assess the County's movement on the objectives, measures, and projects outlined in the ECDMP and CAP and collaboratively plan (share funding opportunities, prioritize actions, inform on best practices, collaborate on shared initiatives, etc.). This group would help to ensure the County is taking a unified approach to climate action.

The technical, organizational, and behavioural measures listed above will be funded using one or a mix of the following options:

1. Through existing capital budgets
2. Through new capital projects identified in future capital budgets
3. Through financing plans whereby capital is raised through debt or from reserves and repaid by the future savings that accrue from the project (representing the difference between existing budgets and actual costs)
4. Through grants and incentives from Provincial or Federal programs aimed at conserving energy and promoting environmental sustainability

These projects will create efficiencies resulting in operating cost savings. Specific project funding will be determined through business cases presented during the annual budget process.

Specific Projects at Facilities for Energy Conservation and GHG Emission Reduction

In addition to measures listed above and the new building proposed, the County is planning to complete the following projects throughout the 2024-2029 horizon.

County Facility	Energy Efficiency Project	Annual Energy Savings (kWh)	Annual Cost Savings ($)	Est. Constr. Cost ($)	Incentives / Grants ($)	Net Cost ($)	Simple Payback (years)
Burford Community Centre	Low-E thermal insulation ceiling, high-efficiency air circulation systems, LED light retrofit.	TBD	10,000	110,000	0	110,000	10-11 years

County Facility	Energy Efficiency Project	Annual Energy Savings (kWh)	Annual Cost Savings ($)	Est. Constr. Cost ($)	Incentives / Grants ($)	Net Cost ($)	Simple Payback (years)
Wilkin Family Community Centre	Adding 36KWDC net metering solar system and solar-powered off-grid parking lot lighting.	45,000	14,000	140,000	8,000	132,000	9-10 years
Gaukel Memorial Community Centre	LED lighting retrofit and building envelope improvements.	92,600	15,000	110,000	10,000	100,000	6-7 years
Oakland Community Centre	Installing high efficiency heating system and updating HVAC units.	TBD	TBD	50,000	TBD	50,000	TBD

This is not an exhaustive list of all conservation projects that will be completed over the plan horizon. When appropriate and feasible, staff will perform building audits to assess the energy performance of existing building and pursue additional projects to reduce energy usage and GHG emissions as budgets and grant opportunities permit.

Building on the ECDMP

Future Renewable Energy Priorities

Generating renewable energy is an important way that the County of Brant can offset GHG emissions and advance their carbon reduction goals. Staff from the County will be leveraging the expertise of the BME to explore the prospect of adding new renewable energy projects throughout the community.

- Geothermal – Integrating geothermal into public facilities can significantly reduce heating and cooling costs. When performing geotechnical studies of properties, staff are encouraged to explore the prospect of adding geothermal. Some properties will be better suited for these systems, and it is important for the County to identify the ideal locations to maximize investment.
- Wind – Small-scale wind turbines can provide a consistent energy source. The County will continue to investigate where this technology may work well to

generate clean energy. To accompany this, staff will explore offering wind energy education programs to promote community acceptance.

- Solar – As listed above, the County has successfully constructed many solar installations. Opportunities to add solar panels on buildings and outdoor spaces (shade structures and parks, covers for parking lots, etc.) will be investigated. The County will focus on net metering projects to directly reduce energy costs, offset energy consumption, and support the goal of becoming net carbon neutral by 2050.

The County, through its association with BME, is in an ideal position to investigate solutions that can be tailored to meet local conditions. Whether it is geothermal technology, renewable energy generation with battery storage capabilities, or partnering with other municipalities or the private sector to develop solutions, staff at the County and BME will continue to investigate the viability of emerging technologies to mitigate the GHGs through renewable sources.

Exploring a Holistic Approach to Measuring Corporate GHG Emissions

Corporate emissions are generated from sources beyond County owned and operated facilities that are reported on as part of the ECDMP. Other key sources include fleet and equipment, solid waste, and outdoor lighting. Moving forward, the County will examine ways to better track energy consumption and emissions data from these sources and explore innovative ways to reduce them. Recommendations will be considered and included in the broader CAP being developed by staff. Some examples of measures that could be explored include:

- Evaluating the viability of replacing gasoline-powered landscape equipment (such as lawnmowers, trimmers, leaf blowers, and rototillers) with electric alternatives. A study from the Environmental Protection Agency identifies that gasoline-powered landscape equipment contributes to 24-45% of all nonroad gasoline emissions in the U.S. Emissions research further reveals that using the top selling commercial leaf blower for one hour generates pollution comparable to a 1,760 km drive in a 2016 Toyota Camry.
- Converting natural gasoline-powered ice re-surfacers to electric models once the technology advances and meets the needs of operations staff.
- Continuing to add solar powered lighting to parks and trails to reduce use of electricity and enhance community safety and well-being.
- Retrofitting outdoor lighting at sports fields and courts to LED alternatives.
- Exploring adaptive street lighting controls that use smart technology to adjust light levels in real-time. This switch could reduce energy use while preserving public safety by ensuring roadways are well-lit when needed. The system also helps to minimize light pollution and contribute to a safer, more sustainable urban

environment. Certain controls can also collect data on air quality and pollution levels which would help the County evaluate air quality across different areas and determine actions for the future.

Beyond efforts to conserve energy and reduce emissions, the County has invested in actions to offset GHG emissions, including tree planting and protection efforts, a residential tree giveaway program, and the expansion of renewable energy generation. Moving forward, the County will continue to work on enhancing data collection to identify how offsetting actions contribute to the County's broader goal of becoming net carbon neutral by 2050.

Appendix 1: List of Facilities in Scope

For more information on Ontario Regulation 25/23 and the parameters for facilities included in scope for the ECDMP, visit the Government of Ontario website.

Customer Service, Community Centres, Halls

Airport Community Centre
Burford Administration Office
Cowan Community Health Hub
Community Services Office – Decommissioned July 1, 2022.
Glen Morris Hall
Harley Hall
Oakland Community Centre
Oakland Customer Service Office
Onondaga Community Centre
Paris Customer Service Office
Records Storage Building
Scotland Community Centre
TF Warren Group Community Centre

Paramedic Services Stations

Base Station - Henry St
Station - Francis St
Station - Alexander Ave
Station – Henry St.

Libraries

Burford Library
Glen Morris Library
Oakland-Scotland Library
Paris Library
St. George Library

Wastewater Pumping Facilities

MacPherson Dr Sewage Pumping Station
Paris Links Rd Sewage Pumping Station
Grandville Sewage Pumping Station
Willow Street Sewage Pumping Station
Grand River St N Sewage Pumping Station
Brant 403 Business Park Sewage Pumping Station

Wastewater Treatment Facilities
Paris Water Pollution Control Plant
St. George Water Pollution Control Plant
Cainsville Lagoons
Airport Sewage Treatment Plant

Water Pumping Facilities
Mt. Pleasant Water - Well/reservoir/pump Station
Airport Water - Well/reservoir/pump Station
Paris Water - Gilbert Wells and Pump Station
Paris Water - Parkhill Booster Pump Station
Paris Water - Sharpe Reservoir and Pump Station

Water Treatment Facilities
St. George Water Treatment
Paris Water - Telfer Wells
Paris Water - Storage Building

Fire Stations
Paris Fire Administration Building
Paris Fire Storage/Training Building
Airport Fire Hall
Burford Fire Hall
Cainsville Fire Hall
Mt. Pleasant Fire Hall
Onondaga Fire Hall
Scotland Fire Hall
St. George Fire Hall

Recreation Facilities
Burford Community Centre
Brant Sports Complex
Gaukel Memorial Community Centre
Syl Apps Community Centre

Police Stations
Brant County OPP Detachment – Bethel Road

Road Facilities
Mt. Pleasant Roads Building
Mt. Vernon Roads Building
Mt. Vernon Roads - Shed

Paris Roads Building
Onondaga Roads
South Dumfries Roads Building

Appendix 2: Total Energy Usage and GHG Emissions (2013-2023)

Facility	Address	Annual Flow (ML)	Electricity Quantity (kWh)	Natural Gas Quantity (Cubic Meter)	Fuel Oil 1 & 2 Quantity (Litre)	Propane Quantity (Litre)	GHG Emissions (Kg)	Annual Flow (ML)	Electricity Quantity (kWh)	Natural Gas Quantity (Cubic Meter)	Fuel Oil 1 & 2 Quantity (Litre)	Propane Quantity (Litre)	GHG Emissions (Kg)
		2023 DATA						2013 DATA					
CUSTOMER SERVICE, COMMUNITY CENTRES, HALLS													
Airport Community Centre	3 Airport Rd		4,744.50	2,360.38			4,600.00	-	6,966.82	3,140.12			6,466.36
Ambulance Station	303 Henry St		35,459.90	8,311.00			16,600.00	-	32,869.65	10,909.56			23,124.39
Ambulance Station	37 Alexander Ave		19,706.50				600.00	-	12,698.55	-			965.24
Ambulance Station	135 Francis St		28,881.60	3,434.50			7,200.00	-	36,339.02	5,197.97			12,589.62
Burford Administration Office	26 Park Ave		212,404.50	29,191.90			60,600.00	-	250,560.00	24,947.60			66,212.17
Glen Morris Hall	17 Dunbar St		9,747.00			3,767.00	6,200.00	-	10,405.63		2,265.70		6,988.00
Harley Hall	141 Harley Rd		4,393.60		2,400.30		6,500.00	-	6,487.10		4,783.00		13,575.35
Oakland Community Centre	3 King St N		4,841.40	3,214.30			6,200.00	-	6,416.55	6,598.50			12,963.04
Oakland Customer Service Office	3 King St N		4,841.40	3,214.30			6,200.00	-	6,416.55	6,598.50			12,963.04
Onondaga Community Centre	42 Brantford St		5,683.60			4,009.20	6,400.00	-	11,789.42			4,644.00	8,052.47
Onondaga Customer Service	734 Hwy #54					9,094.80	14,300.00	-	11,945.94			8,474.00	13,966.33
Paris Customer Service Office	66 Grand River St N		106,117.20	14,632.20			30,400.00	-	83,218.80	13,696.40			32,220.42
Records Storage Building	92 King St		8,956.80	3,335.14			6,500.00	-	17,493.55	4,155.05			9,185.37
			445,778.00	**67,693.73**	**2,400.30**	**16,871.00**	**172,300.00**	**-**	**493,607.58**	**75,243.70**	**7,048.70**	**13,118.00**	**219,271.79**
ROADS													
Mt. Pleasant Roads Building	281 Pleasant Ridge Rd		39,651.00			23,571.60	38,100.00	-	27,152.05		2,234.70	21,924.00	41,960.67
Mt. Vernon Roads - Shed	1249 Colborne St W		1,173.60		1,644.30		4,400.00	-	10,866.86		1,032.00		3,648.69
Mt. Vernon Roads Building	1249 Colborne St W		58,487.10	5,883.49			12,700.00	-	77,377.20	7,451.73			19,970.04
Paris Roads Building	60 Consolidated Dr		29,718.80	24,562.44			46,800.00	-	49,019.92	34,235.87			68,453.37
Onondaga Roads	734 Hwy #54 (Garage)		1,605.70			5,471.70	8,600.00	-	9,054.93			5,084.40	8,523.26
South Dumfries Roads Building	525 Scenic Dr		22,678.60			15,662.40	25,200.00	-	30,590.90			12,722.00	21,929.67
			153,314.80	**30,445.93**	**1,644.30**	**44,705.70**	**135,800.00**	**-**	**204,061.86**	**41,687.61**	**3,266.70**	**39,730.40**	**164,485.71**
FIRE HALLS													
Airport Fire Hall	5 Airport Rd		9,088.80	3,705.71			7,200.00	-	5,282.41	6,570.43			12,823.77
Burford Fire Hall	13 Potter Dr		19,232.50	6,458.15			12,600.00	-	18,586.00	12,837.75			25,684.15
Cainsville Fire Hall	12 Garnet Rd		14,370.60	2,908.18			5,800.00	-	5,322.98	5,254.10			10,338.15
Mt. Pleasant Fire Hall	709 Mount Pleasant Rd		34,304.40	7,564.49			15,100.00	-	33,382.55	9,440.75			20,386.41
Onondaga Fire	734 Hwy #54 (Garage)		1,070.50			8,209.50	12,900.00	-	6,036.62			7,626.50	12,211.17
Paris Fire Admin Building	3 Curtis Ave		61,777.00	18,128.46			35,700.00	-	55,630.08	15,099.93			32,776.88
Scotland Fire Hall	43 Simcoe St		416.60	687.44			1,300.00	-	6,867.56	6,089.57			12,035.11
St. George Fire Hall	72 Main St N		21,683.00	5,392.08			10,700.00	-	23,501.56	8,610.00			17,021.21
			161,943.40	**44,844.51**	**-**	**8,209.50**	**101,300.00**	**-**	**154,609.76**	**63,902.52**	**-**	**7,626.50**	**143,276.86**
LIBRARIES													
Burford Library	24 Park Ave		44,252.60	5,217.54			11,000.00	-	53,760.18	7,342.27			17,967.92
Glen Morris Library	474 East River Rd		8,062.40				200.00	-	8,845.75				672.38
Oakland-Scotland Library	281 Oakland Rd		23,136.10	1,659.52			3,800.00	-	30,190.15	1,698.17			5,505.41
Paris Library	12 William St		92,868.20	9,264.29			19,900.00	-	87,840.00	11,616.84			28,640.01
St. George Library	78 Main St N		27,646.50	3,869.52			8,000.00	-	37,984.51	7,767.70			17,573.09
			195,965.80	**20,010.86**	**-**	**-**	**42,900.00**	**-**	**218,620.59**	**28,424.98**	**-**	**-**	**70,358.82**

RECREATION FACILITIES												
Brant Sports Complex	944 Powerline Rd	2,320,620.20	201,958.73			443,100.00	-	1,870,469.00	202,687.25			525,380.33
Burford CC	14 Potter Dr	756,086.30	42,795.63			101,300.00	-	691,349.00	50,440.70			147,915.37
South Dumfries CC (Gaukel Memorial)	7 Gaukel Dr	566,207.70	26,213.90			64,900.00	-	528,960.00	26,746.42			90,774.81
Syl Apps CC	51 William St	221,701.20	72,269.48			141,500.00	-	177,000.00	74,287.18			153,903.47
		3,864,615.40	**343,237.73**			**750,800.00**	**-**	**3,267,778.00**	**354,161.54**	**-**	**-**	**917,973.97**
WATER & WASTEWATER												
Cainsville Lagoons	30 Shaver St	70,434.50				2,000.00	79.600	17,063.37				1,297.02
Paris Links Rd Sewage Pumping Station	57 Paris Links Rd	17,868.80	128.89			700.00	70.000	37,730.31	412.58			3,647.99
Grand River St N Sewage Pumping Station	269 Grand River St N	35,609.80	77.87			1,100.00	200.000	19,749.85	141.50			1,768.74
Grandville Sewage Pumping Station	45 Cobblestone Dr	36,524.70				1,000.00	51.000	47,959.44				3,645.49
Airport Water - well/reservoir/pump stati	9 Airport Rd	85,183.00				2,400.00	78.410	89,220.00				6,781.79
Bethel Water Treatment Plant	97 Bethel Rd	162,174.30	9,116.59			21,600.00	16.650	115,680.00	10,590.10			28,814.99
MacPherson Dr Sewage Pumping Station	22 MacPherson Dr	13,717.40	582.71			1,500.00	135.000	9,201.65	830.78			2,270.12
Mt. Pleasant Water Treatment	328 Ellis Ave	267,816.60				7,500.00	205.070	187,500.00				14,252.25
Paris Sewage Treatment	120 Race St	2,329,126.80				65,200.00	1,360.400	1,881,837.00	-			143,042.19
Paris Water - Gilbert wells & pump station	319 Grand River St N	946,622.90	24,626.89			72,600.00	1,591.870	1,009,567.00	21,426.19			117,248.13
Paris Water - Parkhill Booster Pump Statio	1 Willow St	26,412.70				700.00	216.830	104,500.46				7,943.29
Paris Water - Sharpe Reservoir & Pump St	11 Chapel St	177,558.40				5,000.00	267.640	255,483.00				19,419.77
Paris Water - storage building	57 Schuyler St	7,868.10				200.00	-	6,097.02				463.45
Paris Water - Telfer wells	166 West River Rd	173,537.90				4,900.00	99.840	87,200.00				6,628.25
St. George Waste Water Treatment Plant	43 Victor Blvd	370,537.80				10,400.00	239.900	431,695.00				32,814.00
St. George Water treatment	20 Church Ave	150,577.90				4,200.00	340.190	174,647.84				13,275.33
Willow Street Sewage Pumping Station	4 Willow St	301,036.50				8,400.00	630.000	155,433.00				11,814.77
		5,172,608.10	**34,532.96**	**-**	**-**	**209,400.00**	**5,582.400**	**4,630,564.94**	**33,401.14**	**-**	**-**	**415,127.59**
TOTALS		**9,994,225.50**	**540,765.71**	**4,044.60**	**69,786.20**	**1,412,500.00**	**5,582.400**	**8,969,242.73**	**596,821.48**	**10,315.40**	**60,474.90**	**1,930,494.73**
NEW / OLD (NO COMPARISONS WITH 2013)												
Airport Sewage Treatment System	38 Greens Rd	89,040.00				2,500.00						
Brant 403 Business Park Sewage Pumping	99 Bethel Rd	12,359.70				300.00						
Scotland Community Centre	85 Simcoe Street	11,131.10	23,665.55			44,600.00						
Ambulance Station	355 Henry St	26,101.90				700.00						
Cowan Community Health Hub	25 Curtis Ave N	456,198.40				12,800.00						
Cainsville Community Centre	15 Ewart Ave		41,337.51			79,800.00						
OPP Station	67 Bethel Road	411,261.90	28,437.33			64,800.00						
Paris Fire storage/training building	58 Wellington St						-	1,137.24				86.44
Community Services Office	15 Curtis Ave						-	23,822.31	2,157.96			5,890.68
Former OPP Station	28 Mechanic St						-	178,401.20	20,644.12			52,590.95
Airport Clarigester	36 Greens Rd						9.900	16,998.00				1,292.05
Bethel Community Centre	157 Bethel Road							2,576.33				195.83
St. George Memorial hall	34 Main St S							9,144.32	7,473.54			14,824.75
TOTAL		**1,006,093.00**	**93,440.38**	**-**	**-**	**205,500.00**	9.90	232,079.40	30,275.61	-	-	74,880.71
OVERALL TOTAL		**11,000,318.50**	**634,206.10**	**4,044.60**	**69,786.20**	**1,618,000.00**	**5,592.300**	**9,201,322.13**	**627,097.09**	**10,315.40**	**60,474.90**	**2,005,375.45**