



PORT COLBORNE

Subject: Energy Consumption and Greenhouse Gas Emissions Report (2019)

To: Council

From: Public Works Department

Report Number: 2021-180

Meeting Date: June 28, 2021

Recommendation:

That Public Works Department Report 2021-180 be received for information.

Purpose:

The purpose of this report is to inform Council of the 2019 Energy Consumption and Greenhouse Gas Emissions Report in accordance with Ontario Regulation (O. Reg) 507/18 (Broader Public Sector: Energy Reporting and Conservation and Demand Management Plans) under the *Electricity Act, 1998*. The City is required to submit the Report to the Ministry of Energy, Northern Development and Mines (the Ministry) by July 1, 2021 for the 2019 reporting year.

Background:

Under the *Electricity Act, 1998* all Ontario municipalities are required to comply with O. Reg 507/18 (Broader Public Sector: Energy Reporting and Conservation and Demand Management Plans). As part of this regulation, the City of Port Colborne is required to track and report annual energy consumption and greenhouse gas (GHG) emissions from all heated and/or cooled City operated facilities. Energy reporting and conservation planning is an important tool in setting benchmarks and evaluating results over time. The regulation assists in enabling a province wide reduction in energy.

In order to fulfill the requirement of annual energy reporting, a database of annual electricity and natural gas consumption for all heated and/or cooled City operated facilities has been created. These records are organized and stored using the Energy Planning Tool (EPT), a web-based program developed and provided by Local Authority

Services (LAS). The City began using this tool to record monthly electricity and natural gas consumption, starting with 2011 data. The City submitted the first annual report in 2013, reporting on energy consumption from two years prior. The City must submit annual reports to the Ministry by July 1st of each year, reporting on data from two years prior to the current calendar year. After submission, City staff must make the reports available for public viewing in both printed form and on the City's official website.

The 2021 annual report, included in Appendix A, reports on 2019 energy consumption and GHG emissions. It was prepared and submitted to the Ministry on June 1, 2021.

Discussion:

Analyzing energy consumption data from the City's annual reports allows for the monitoring and identification of trends. Using this data, the City's largest energy consuming facilities can be identified, which then allows for a targeted approach to energy conservation. For example, City staff have conducted in-depth energy audits on the City's primary energy consuming facilities, including Port Colborne's City Hall, Fire Hall, Library, Roselawn Centre, Museum, Marina and Vale Health & Wellness Centre. These energy audits have allowed for the identification of appropriate energy conservation initiatives. Attainable energy conservation goals and objectives have been set through the collection of information from these reports, as outlined under the City's official Energy Conservation and Demand Management Plan (ECDM), endorsed by Council in June of 2019.

The 2019 Energy Consumption and Greenhouse Gas Emissions Report (Appendix A), outlines the total annual electricity and natural gas consumption from all heated and/or cooled City operated facilities during the associated year. It is important to note that the City's inventory of facilities required to be reported on has changed since the first report in 2011. The most significant changes have been the closure of the Teeder Kennedy Youth Arena, Centennial Swimming Pool, Public Works building, Parks Depot and the West Side Arena, and the opening of the Vale Health & Wellness Centre and the Engineering and Operations Centre.

Accounting for these facility changes, the City's total annual energy consumption for 2019 reached a sum of 10,735,906.71 (equivalent kilowatt-hours per year), which is less than 5% increase from the 2018 total. The total annual GHG emissions saw a 5% increase compared to 2018, totaling 1,150,563.26. Based on historical data from the Government of Canada website, 2019 experienced significantly cooler weather (with 311 cooling degree days and 3,516 heating degree days in 2019 compared to 540 cooling degree days and 3,322 heating degree days in 2018) in 2018. The year 2019 resulted in a 5% increase in natural gas consumption; however, it also accounted for a 3% increase in electricity consumption for cooling purposes. One of the main differences to note in the 2019 data is the addition of the Marine Supply store in the report. Previous reports excluded this account from Sugarloaf Marina's energy total;

however, staff decided to include this account for the 2019 report, based on recommendations from the most recent energy audit. Weather is another impact on the changes in energy consumption. Changes in GHG emissions are due to the change in energy consumption and depend on the factor in the formula the Province uses to calculate GHG emissions. Environment Canada's National Inventory determines the factor used each year, and thus affects the City's reportable GHG emissions.

Beyond sole consideration of facility consumption, an important indicator of energy use and efficiency is energy intensity – the measure of a building's consumption relative to its total operational area. Figure 1, below, depicts the energy intensity of all Port Colborne facilities during the 2018 and 2019 report periods. The Vale Health & Wellness Centre (VHWC), Engineering and Operations Centre (EOC), Roselawn Centre, Sugarloaf Marina, and the Fire Hall have the highest energy intensities. Most notably, although the VHWC is the City's most significant energy consumer, its energy intensity reveals that it is considerably more energy efficient than the City facilities it replaced (Teeder Kennedy Youth Arena, Centennial Swimming Pool, and West Side Arena). In the 2011 report, these three facilities together accounted for 56% of total energy consumption. Although the VHWC continues to account for a similar percentage of the City's total annual energy consumption, relative to its predecessors the facility is almost five times more energy efficient, largely a reflection of its LEED Gold certification and high operating standards. Similarly, the newest City facility, the Engineering and Operations Centre (EOC), has a lower energy intensity than the facilities it replaced, and in fact is larger and houses more staff than the older facilities combined.

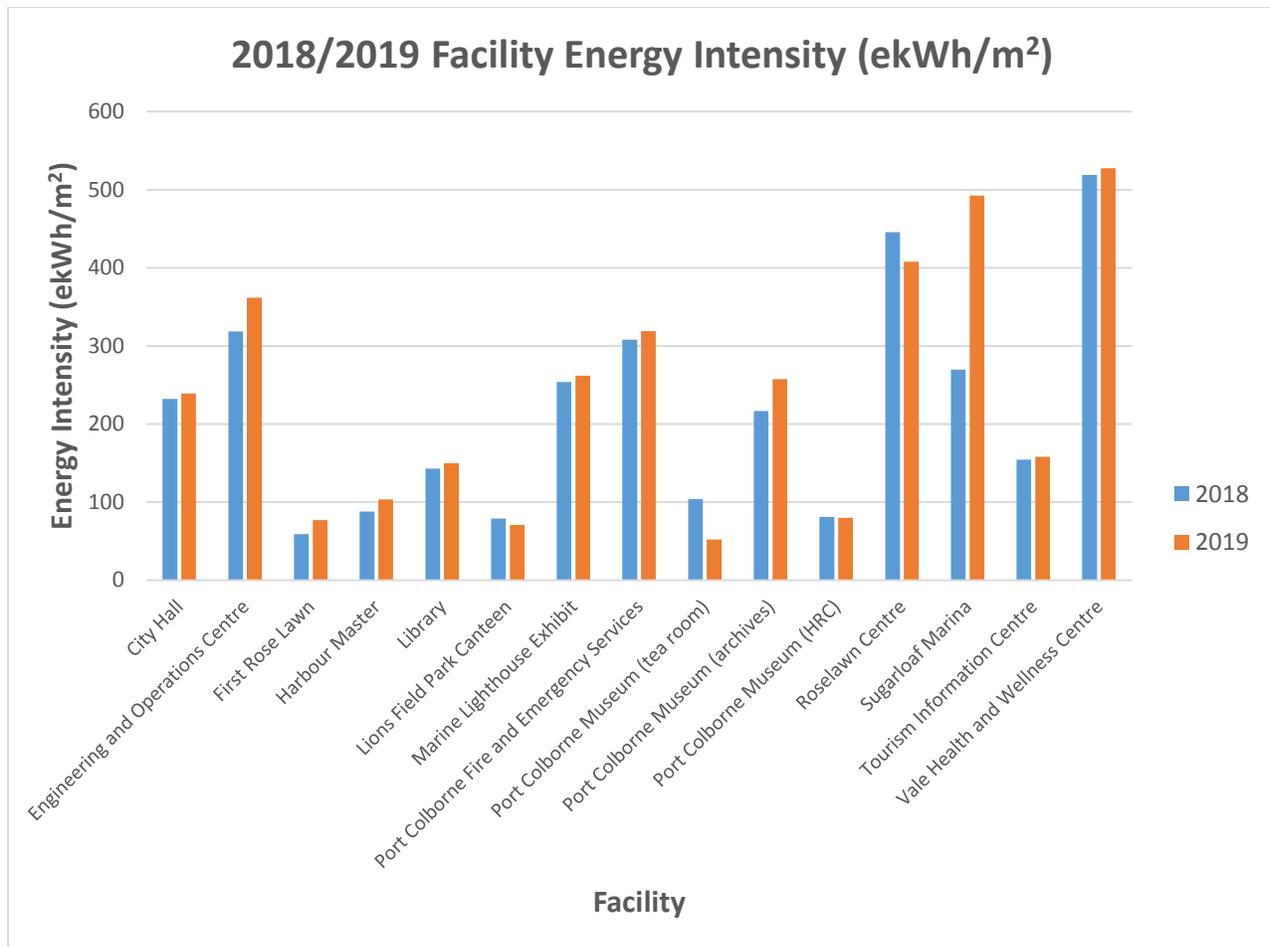


Figure 1: Comparison of yearly energy intensity of City facilities - 2018 vs 2019.

It is anticipated that future reports should show reductions in energy intensity, paralleled by an increase in efficiency, as a result of both the current and future implementation of conservation practices and energy efficiency upgrades as staff work towards the quantitative energy management goals in the 2019 ECDM Plan. Under the ECDM Plan, the City has committed to reducing energy intensity at City Facilities to make them more efficient. To meet this commitment, City staff will carry out energy conservation programs and initiatives when financially and practically possible, including:

- conducting energy auditing and undertake energy awareness campaigns;
- working with the City's Energy Solutions Advisor to seek natural gas savings at major facilities;
- completing building envelope improvements (weather-stripping, caulking, insulation, window replacement);
- completing building energy retrofits and upgrades (i.e. lighting, HVAC, computer upgrades); and
- reduce the number of computer servers where possible, and program auto shut-off so that computers are not left on overnight.

As part of the 2021 budget, Council approved the Environmental Climate Coordinator position and it is anticipated that this position will oversee the completion of these projects and continue to set targets within the ECDM Plan.

Financial Implications:

There are no financial implications.

Conclusion:

The City submitted its finalized 2019 Annual Energy Consumption and Greenhouse Gas Emissions Report to the Ministry on June 1, 2021. The report will be available to the public in printed form and uploaded to the City's official website. The submission is an important part of the City's commitment to track energy consumption and facilitates informed decision making in alignment with City's second official Energy Conservation and Demand Management Plan. Staff will continue to investigate and develop energy conservation initiatives and opportunities throughout City facilities in order to meet outlined goals and objectives as set under requirement of O. Reg 507/18.

Appendices:

- a. 2019 – GHG Emissions Report

Respectfully submitted,

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Report Approval:

All reports reviewed and approved by the Department Director and also the City Treasurer when relevant. Final approval is by the Chief Administrative Officer.