



CORPORATE FACILITIES MEMORANDUM

Page: 1
File: E11
Pending #:

TO: MAYOR A. NUTALL AND MEMBERS OF COUNCIL

FROM: A. MCMULLIN, MANAGER OF ENERGY MANAGEMENT, EXT. 5097

NOTED: R. PEWS, P. ENG., DIRECTOR OF CORPORATE FACILITIES

D. MCALPINE, GENERAL MANAGER OF COMMUNITY AND CORPORATE SERVICES

M. PROWSE, CHIEF ADMINISTRATIVE OFFICER

RE: ENERGY MANAGEMENT GRANT AWARD UPDATE AND YEAR-END REPORTING

DATE: JUNE 14, 2023

The purpose of this Memorandum is to provide an update to members of Council on recently awarded grants, valued at nearly \$325,000, from Natural Resources Canada (NRCAN) and the Federation of Canadian Municipalities (FCM), and to provide an overview of the performance of the Energy Management Branch (EMB) during the 2022 fiscal year.

Grant Update:

Green Municipal Fund – Community Building Retrofit Grant

Staff applied to the 'Community Buildings Retrofit – GHG Reduction Pathway Feasibility Studies' GMF funding pathway. This funding stream covers up to 80% of the project costs to a maximum of \$200,000. Staff have successfully applied for the maximum amount, offsetting 80% of the total project cost of \$250,000. This lucrative grant stream has allowed the City to leverage \$50,000 to complete \$250,000 worth of technical engineering analysis, which will serve as the planning basis to achieve net zero GHG emission for The Corporation.

Net Zero GHG Emission Audit Background

The EMB is undertaking facility net zero GHG emission audits for ten buildings. These audits, which differ from traditional energy audits, outline a pathway to achieve net zero operational GHG emissions for a facility. These analyses focus on existing and future building operations and consider the planned capital and infrastructure renewal requirements. The audits identify low carbon capital renewal solutions compared to the business-as-usual scenario while outlining the investment requirements, energy savings and cost avoidance values, and the timing and delivery of projects to achieve net zero GHG building operations.

These audits are serving as a basis to develop a corporate net zero GHG emissions strategy that was requested as a result of Council's Declaration of a Climate Emergency. This work targets building GHG emissions within the corporate emissions portfolio. The net zero GHG audits will be finalized by the summer of 2023 and a complete overall corporate strategy is planned for Council's consideration in Q1 of 2024.

Natural Resources Canada – Zero Emission Vehicle Awareness Initiative

The Zero Emission Vehicle Awareness Initiative (ZEVAI) supports projects that aim to increase awareness, knowledge, and public confidence in zero-emission vehicles (ZEV) and public charging and refueling infrastructure. The ZEVAI helps fund outreach, education, and capacity-building activities, ultimately enabling greater adoption of ZEVs by Canadians in all regions of the country.



CORPORATE FACILITIES MEMORANDUM

Page: 2
File: E11
Pending #:

The EMB has successfully applied for this grant, in the amount of \$125,000. This will support the launch of an overarching program, Electrify Barrie, that includes a series of activities, including:

- Engaging individuals and raising awareness of electric vehicles (EV) and electric vehicle supply equipment (EVSE) across all sectors and communities within Barrie
- Conducting surveys and gap analysis to understand potential barriers to EV ownership and utilization
- Conducting a spatial mapping and baseline assessment of the current state of EVSE availability
- Undertaking in-person events in the City, namely the deployment of a mobile education and awareness trailer located at the waterfront

The Electrify Barrie initiative aligns with several actions identified, within the Transportation 'Big Move' in the community's Inspiring Climate Action in Barrie climate plan.

Energy Management Branch Update:

Energy Management Mandate

The EMB mandate focuses on corporate and community energy conservation and greenhouse gas mitigation action.

Traditional energy management activity reduces utility consumption and associated costs for all City owned and operated infrastructure. Utility costs are comprised of electricity, natural gas, propane, and water that are used to service our facilities, water and wastewater infrastructure, parks, street lighting, and traffic signals.

Greenhouse gas mitigation action for both the community and corporation involves a variety of activities; developing strategic plans, design and implementing programs, monitoring and tracking of data, engaging the public, and building community awareness around this matter.

Cost Savings & Impacts

The 2022 operating year represented a return to more regular operations of City infrastructure compared to 2020 and 2021 when COVID restrictions were in place, impacting many facilities and services. The following summarizes the energy, utility budget, and other economic impacts realized in 2022 from both EMB action:

- A favourable utility budget variance of \$571,176 (6%)
- An annual utility cost avoidance of \$219,043
- Obtained \$123,062 in energy conservation measure incentive revenue

Annual utility costs increased from pandemic levels, but are trending below 2019 figures, the last full year not impacted by the pandemic. Table 1 summarizes the annual utility expense for the City from 2014 – 2022.

Table 1: 2014 - 2022 Utilities Cost Summary			
Year	Actual Cost	Difference from previous year (%)	Difference from previous year (\$)
2014	\$ 9,760,442		
2015	\$ 9,844,380	0.9%	\$ 83,938
2016	\$ 10,030,166	1.9%	\$ 185,786
2017	\$ 9,238,589	-7.9%	\$ (791,577)
2018	\$ 8,977,351	-2.8%	\$ (261,238)
2019	\$ 8,620,747	-4.0%	\$ (356,604)
2020	\$ 7,847,289	-9.0%	\$ (773,458)
2021	\$ 7,852,429	0.1%	\$ 5,140
2022	\$ 8,524,408	8.6%	\$ 671,980



CORPORATE FACILITIES MEMORANDUM

Page: 3
File: E11
Pending #:

Capital Program Investment Summary and Impact

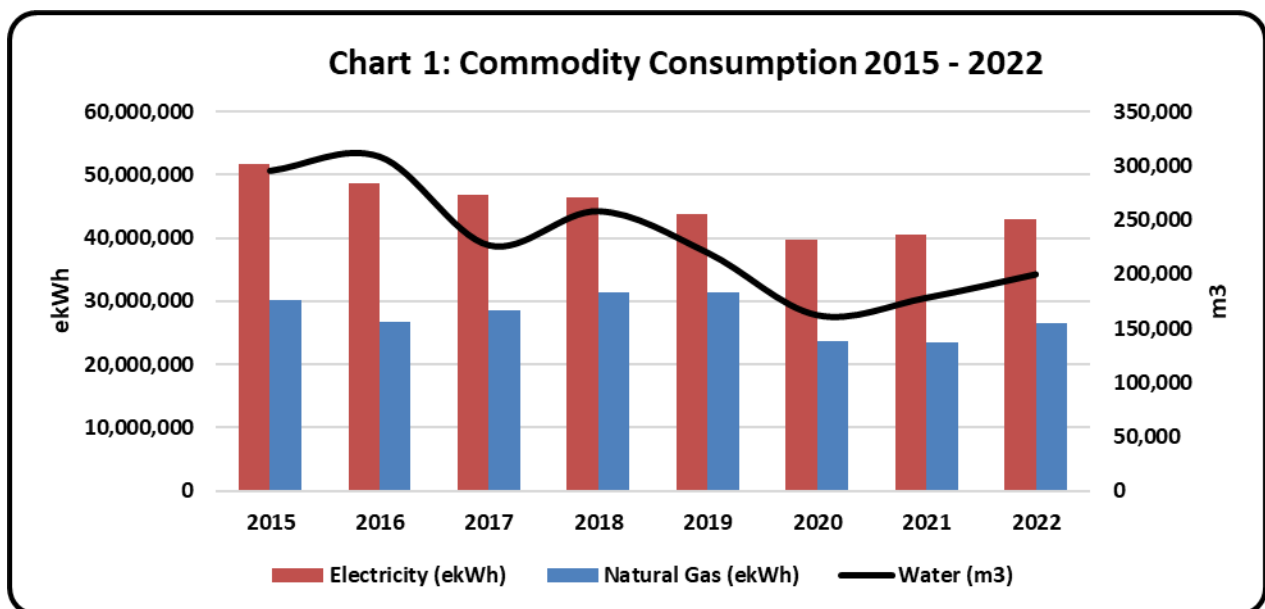
In 2022, the EMB invested a modest \$13,037 in capital funding to implement conservation initiatives achieving a minimum rate of return of 10% over the lifetime of the asset. These activities focused on lighting retrofits and submetering activities. Table 2 provides a summary of the projects completed and the associated energy savings, cost avoidance and estimated incentives.

Table 2: 2022 Energy Management Capital Program Investment Summary							
Project	Facility	Energy Management Investment	Energy Savings (ekWh)	Water Savings (m3)	Cost Avoidance (\$)	Estimated Incentive (\$)	Simple Payback (Years)
Submetering	Various	\$ 11,839	-	263	\$ 1,184	\$ -	10.0
Lighting Retrofit	Various	\$ 1,198	5,083		\$ 1,212	\$ 915	0.2
Total:		\$ 13,037	5,083		\$ 2,395	\$ 915	5.1

Utility Consumption Summary – 2022

In 2022 City operations realized an increase in energy usage compared to the previous year, but still 7% lower than in 2019 (last full operational year not impacted by COVID).

Chart 1 summarizes the consumption trend for these commodities since 2015.



Key Performance Indicators (KPI)

The EM Branch utilizes four key performance indicators to measure the efficiency for City operations. Two of these track the energy efficiency associated with water and wastewater operations, whereby the total energy consumed is compared to the volume of water produced or wastewater that is processed. For all other building operations, a KPI that measures the energy consumed for all facilities compared to the total combined facility footprint (in square footage) provides a benchmark for evaluation. Finally, an economic KPI, cost avoidance, is used to measure the annual value associated with energy conservation. Cost avoidance refers to any action that avoids having to incur costs in the future. They represent potential costs that are averted through specific pre-emptive actions. For energy management purposes, reducing utility consumption means not having to pay for that energy in the future. However, actual costs can still increase because of inflation impact. Table 3 summarizes the EM branch KPI results for 2022.



CORPORATE FACILITIES MEMORANDUM

Page: 4
File: E11
Pending #:

Table 3: Energy Management Key Performance Indicators

Key Performance Indicator	2019 Actual	2020 Actual	2021 Actual	2022 Plan	2022 Actual
Facility Energy Consumption per Square Foot (ekWh/ft ²)	29.9	22.7	23.7	27.5	26.9
Cost Avoidance (Annual)	\$390,337	\$1,181,021	\$1,131,908	\$453,685	\$219,043
Wastewater Energy Consumption per Megalitre (ekWh/mL)	396	396	391	381	402
Water Energy Consumption per Megalitre (ekWh/mL)	1,177	1,024	1,119	1,026	985

2022 Highlights:

The following items highlight the successes achieved within the EMB program in 2022.

Community Energy and Greenhouse Gas Emission Reduction Plan

With funding support of from the Ministry of Energy, Northern Development and Mines, the EM Branch completed the plan, titled 'Inspiring Climate Action in Barrie' which was endorsed by Council in March 2022. The plan establishes emission reduction targets for the community and identifies actions and strategies to achieve these reductions. The plan was developed and supported by several community partners and stakeholders and moving forward, the EM Branch will be initiating the implementation phase of the plan.

Electric Vehicle Charge Station Partnership

The City partnered with Alectra and other municipalities to successfully apply for the Zero Emission Vehicle Infrastructure Program (ZEVIP) administered through NRCAN to facilitate the deployment of electric vehicle charging infrastructure throughout Canada.

Through this partnership, EV charge stations have been installed at the following Recreation Centres:

- 171 Mapleton Ave. - Peggy Hill Team Community Centre (2 charge stations)
- 80 Livingstone St. E - East Bayfield Community Centre (2 charge stations)
- 190 Bayview Dr. - Allandale Recreation Centre (2 charge stations)
- 555 Bayview Dr. – Sadlon Arena (4 charge stations)

As part of the Alectra operating agreement and ZEVIP grant, the City has not incurred any capital costs to install the charge stations, and all future operational costs, including electricity, are covered by Alectra.

This partnership with Alectra provides an enhanced service for residents and visitors, and promotes environmental stewardship through the reduction of greenhouse gas emissions while requiring no significant capital and operational investment by the City.

The EV stations became operational early in 2022.

Grant Awards

As previously noted the EMB successfully applied for grants to support sustainable initiatives valuing nearly \$325,000.



CORPORATE FACILITIES MEMORANDUM

Page: 5
File: E11
Pending #:

Moving Forward

Energy Management staff are focusing on the following activities in 2023:

- Initiate the implementation of the community energy and greenhouse gas emission reduction plan focusing on the deep energy retrofit program, green development standards, and electric vehicle adoption.
- Development a corporate net zero emissions strategy
- Implementation of energy conservation capital projects
- 2024 utility budgeting and capital plan development

Should you have any questions about the activities of the branch or the contents of this memo please do not hesitate to contact me at extension 5097.