

To:	Warden Milne and Members of Grey County Council
Committee Date:	June 13, 2024
Subject / Report No:	CAOR-CW-14-24
Title:	Energy Conservation and Demand Management Plan
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Reviewed by:	Randy Scherzer
Lower Tier(s) Affected:	
Status:	

Recommendation

1. That the **Energy Conservation and Demand Management Plan be endorsed by Council and shared with the government of Ontario as per Ontario Regulation 507/18; and**
2. That **staff be directed to undertake a needs assessment regarding energy data management systems including obtaining quotes for solutions that meet the functionality and integration needs for the County with the findings of the assessment being brought back in a staff report for Council’s consideration.**

Executive Summary

Ontario Regulation 507/18 requires that municipalities create an Energy Conservation and Demand Management (ECDM) Plan every 5 years. This plan reviews the energy performance of Grey County’s buildings between 2018-2023 and forecasts energy performance from 2024-2028. Grey County is taking action to reduce our corporate energy and emissions based on the actions and targets established in the County’s Climate Action Plan – Going Green in Grey. This includes prioritizing resources for net-zero measures in new builds since it is more efficient to add them during the construction versus needing to retrofit afterwards. Grey County is also prioritizing energy analysis, recommissioning, and retrofit planning in existing buildings that have high energy consumption and where we have a high degree of control.

During the process of updating the ECDM plan, the need for energy data management software/solutions has been highlighted. Investing in energy management software for data collection, storage, verification, and analysis, would increase efficiency, reduce errors, and provide staff the information they need to make good decisions and recommendations. It is recommended that staff undertake a needs assessment regarding energy data management systems and solutions, including an assessment on costs, and to bring back a staff report for Council’s consideration.

Background and Discussion

The County of Grey is required under Ontario Regulation 507/18 to develop an Energy Conservation and Demand Management (ECDM) Plan. The regulation was established to provide guidance to municipalities to better understand energy usage and develop conservation plans for energy consumption savings and act as leaders in conservation.

Initiated in 2013, the Act requires municipalities to calculate and report on their energy consumption and greenhouse gas emissions annually and post the information publicly. Municipalities are tasked with developing and implementing a five-year energy conservation plan, which must be endorsed by Council. The following plan reports on actions taken between 2019-2023, energy performance of Grey County’s buildings between 2018-2023, and outlines plans for 2024-2028, adhering to all the requirements in the ECDM Plan which include:

- A report detailing the actual results achieved during the specified period, offering insights into the effectiveness of implemented measures.
- A comprehensive description of both current and proposed measures aimed at conserving and reducing energy consumption while effectively managing energy demands.
- A revised forecast of the anticipated outcomes resulting from the implementation of current and proposed measures is included, ensuring transparency and accountability in energy management practices.

Aligning ECDM with Climate Change Action Plan

The previous ECDM plan was created in 2019 – before the climate action plan “Going Green in Grey” was adopted by Council in 2022. This update to the ECDM plan aligns with the corporate actions and targets outlined in “Going Green in Grey” including energy efficient new buildings, net-zero retrofits, renewable energy, developing a climate lens, and fostering a culture of conservation.

More buildings lead to more energy consumption

Within Grey County’s building portfolio, housing and long-term care buildings are the biggest consumers of energy (84%), costs (80%), and GHGs (86%) as these buildings have 24/7 residential occupancy, and they represent the majority and the largest of the buildings owned by the County. A like-for-like comparison of the 38 buildings included in the 2018 baseline (shown in the blue columns in Table 1) shows modest decreases in electricity, natural gas, and GHG emissions 2018-2023. Costs increased despite these reductions, due to increase in the price of electricity and natural gas over this period. The data shows a moderate increase in these metrics when considering the entire building portfolio, which added 9 new buildings during this time period (shown in the red columns in Table 1).

Table 1: Changes in building energy 2018-2023.

	2018 Baseline	2023 Subtotal	Change from 2018 baseline	2023 Total	Change from 2018 baseline	Change from 2023 subtotal
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Number of buildings	38	38	0%	47	9	9
Total area (sq. ft.)	908,086	908,086	0%	1,058,167	+16.53%	+16.53%
Electricity (kWh)	9,685,662	9,261,441	-4.38%	10,126,353	+4.55%	+8.93%
Natural Gas (m3)	1,319,810	1,301,664	-1.37%	1,356,671	+2.79%	+4.17%
Energy Intensity (kWh/sq. ft.)	26	25	-2.6%	23	-11.5%	-8%
GHG Emissions (tCO2e)	2,781	2,725	-2.01%	2,854	+2.62%	+4.64%
Costs (\$)	1,780,896	2,382,949	+33.81%	2,604,136	+46.23%	+12.42%

Current actions will have impact in the future

Grey County is taking action to reduce our corporate energy and emissions based on the actions and targets set out in Going Green in Grey. Grey County is prioritizing resources for net-zero measures in new builds since it is more efficient to add them during construction versus needing to retrofit afterwards. All of Grey County’s new buildings will be net-zero or net-zero ready by 2025 including Rockwood Terrace long term care home, the Durham EMS station, and the proposed community housing development in Dundalk.

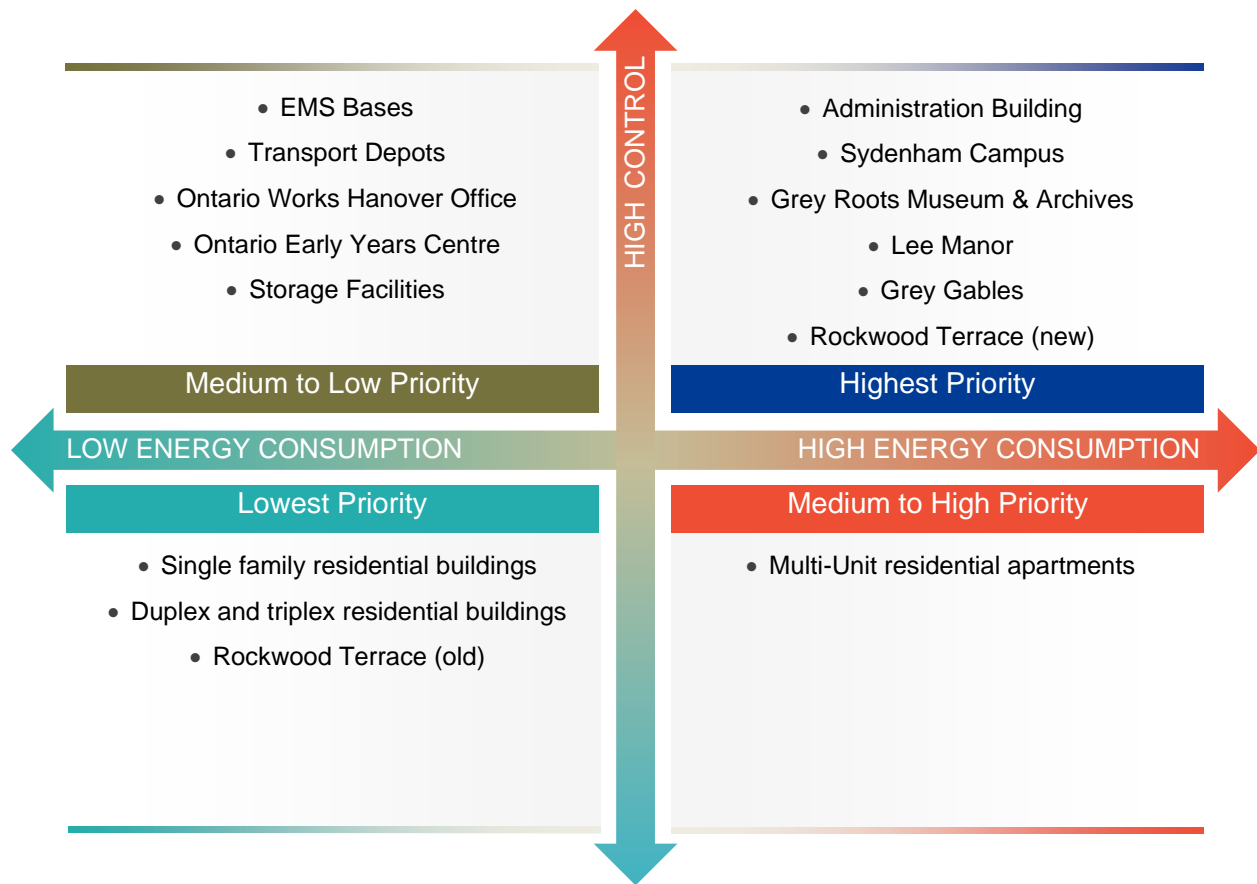


Figure 1: Prioritization of Grey County’s building portfolio.

As shown in Figure 1, staff are prioritizing energy analysis, recommissioning, and retrofit planning in buildings that have high energy consumption and where we have a high degree of control. Staff are also taking steps to better understand our buildings and the pathway to net-zero including energy audits in social housing buildings (Parkway and The Pines), a net-zero assessment at Sydenham Campus, and an Energy Treasure Hunt at the Administration building. The recommendations from the assessments and audits will be used to help inform proposed capital upgrades to be performed in the future. Across all buildings, Grey County has received \$43,528.69 in incentives for energy conservation projects undertaken up to May 31st, 2024.

Good data is needed for good decisions

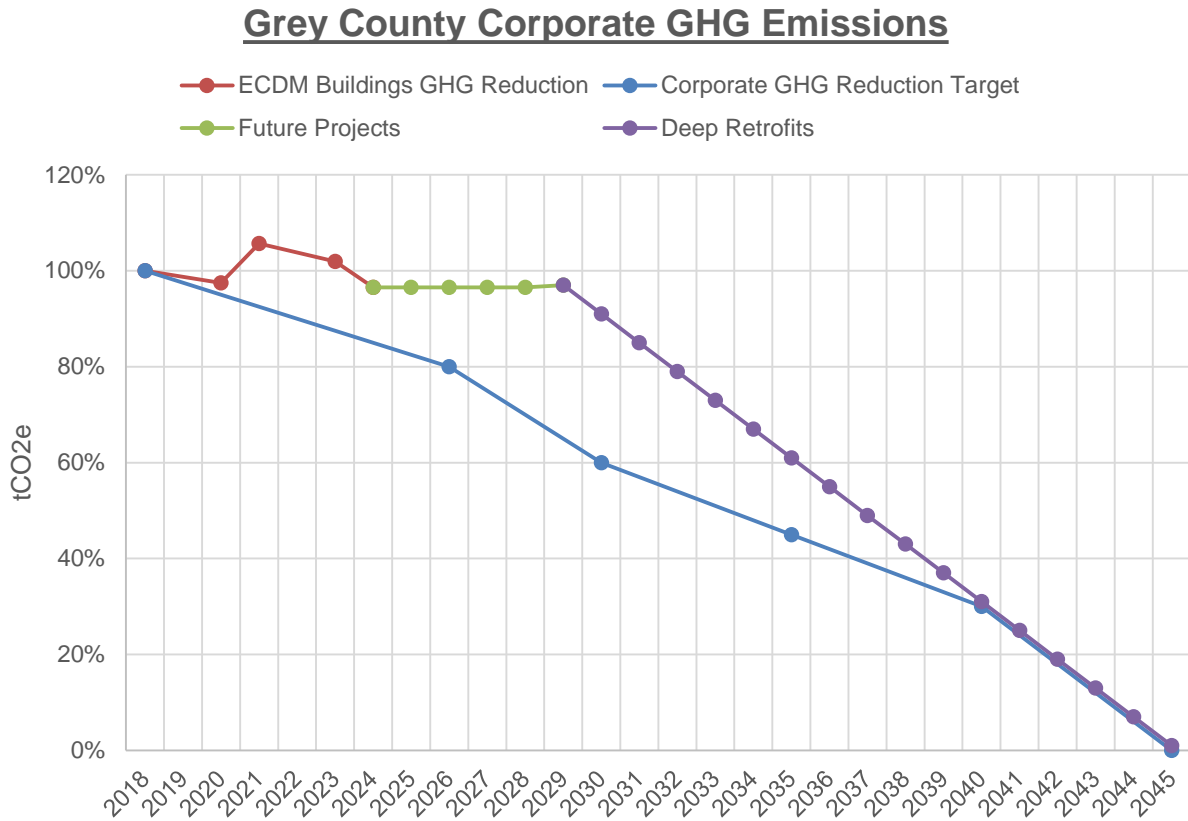
Hiring the Climate Change Data Coordinator has added significant capacity to be able to analyse County building energy data. This work has brought to light gaps in the current energy data management system, particularly manual entry of utility bills. Based on the gaps identified through the work on the ECDM Plan update, it has highlighted a need for energy data management software. By investing in this software, Grey County would eliminate the need for manual entry of utility bills (442 per month). This not only saves staff time for the initial work, but also eliminates the need to identify and correct the errors that inevitably occur. Energy data management software can also be used to analyze the data directly and can integrate with other

tools such as Great Plains (accounting software) and RETScreen (energy performance analysis). It is recommended that staff undertake a needs assessment regarding energy data management systems and solutions, including an assessment on costs, and to bring back a staff report for Council’s consideration.

With access to good data and analysis tools, staff can make relatively simple adjustments to building operations that will have big impact on costs and GHG savings. Good data also provides insight into which buildings and systems present the best opportunities for cost and GHG reductions. Investing in energy management software for data collection, storage, verification, and analysis, would increase efficiency, reduce errors, and provide staff the information they need to make good decisions and recommendations.

Aligning to meet GHG Emission Targets

The modelled impact of the business-as-usual scenario leads to a reduction in GHG emissions of approximately 3% by 2028.



Grey County is in a good position to undertake further GHG reductions within County buildings over the next 5 years. Through further data, information and analysis, Staff have a better overall understanding about the buildings and their energy use profiles. Grey County is drawing on expertise, such as IESO’s Strategic Energy Management program, as well as funding opportunities, such as FCM’s Green Municipal Fund to advance projects. There will be further opportunities through easy wins and ‘low-hanging fruit’ to continue to reduce GHG’s. If Grey County undertakes significant carbon reductions between 2024-2028, it is possible to bend the

curve back on track to align with the energy and GHG reduction targets set out in Going Green in Grey.

To stay on track to meet the targets contained in “Going Green in Grey”, staff recommends the following 2028 targets.

Performance indicator	2028 Target	Reference
% of new buildings built to net-zero ready standard	100%	Action 1: Energy Efficient New Buildings.
% of buildings modeled and analyzed in RETScreen	100%	
% of buildings with energy audit less than 5 years old	100%	
% of buildings with a modeled net-zero pathway	100%	
% GHG emissions reductions in buildings from 2018 baseline	30%	On track for 40% reduction by 2030.
% of net-zero retrofit projects completed	35%	On track for Action 2: Retrofit all existing Grey-owned facilities by 2045.
% of new buildings that have solar or are solar ready	100%	
% of number of buildings that have rooftop or ground solar PV	12.5% 6 of 47 in ECDM	On track for 17% of existing buildings with solar by 2030.
Energy produced by solar PV on County buildings	1.25MW	On track for 1.78MW target in 2030.

Working together for success

Although this work is being led by the climate team, all departments and staff have a role to play in using a climate lens and developing a culture of conservation. Building-based energy teams will bring together staff with a diversity of knowledge, skills and expertise to make decisions and recommendations about operation, commissioning and capital improvements. Senior Management, Climate Action, Finance, Purchasing, Communications, IT, Long-Term Care, Transportation Services, Paramedic Services, and Housing departments all have a critical role to play in advancing climate action in Grey County. Staff capacity for energy management can be enhanced through training and development opportunities and by working together to share best practices and success stories. More information about staff roles is available in the Roles and Responsibilities section of ECDM plan.

IESO's Strategic Energy Management Program

The Save on Energy – Strategic Energy Management (SEM) Program is providing Grey County with assistance in implementing energy management practices at County facilities and with adopting continuous energy improvement systems. Grey County will create an in-house Energy Team, with existing staff resources, that will help improve the energy performance of the County's operations. The Energy Team's job is to implement SEM Milestones and Energy Efficiency Measures (EEMs), which are actions that will lead to reduced electricity consumption and energy cost savings at various County facilities. The Energy Team will be guided through the SEM Program for two years to assist Grey County in operationalizing energy management processes.

Grey County will receive support and training opportunities through SEM Support Services, including cohort activities and coaching support. These services, and any other supports or resources offered by IESO, are designed to assist Grey County with succeeding in implementing energy management best practices and EEMs within our facilities.

Legislated Requirements

The County of Grey is required under Ontario Regulation 507/18 to develop an Energy Conservation and Demand Management (ECDM) Plan and therefore the updated ECDM Plan addresses the legislative requirements.

Financial and Resource Implications

Staff will undertake a needs assessment (climate, finance, IT) and obtain quotes for energy data management solutions that meet the functionality and integration needs of all departments. Following the needs assessment, staff will bring back a staff report regarding the estimated costs for the solution and recommendations on how this could be funded. Energy data management software is typically sold on an annual subscription model, with the cost determined by the number of utility bills and the services required.

Further investments in sustainable design, retrofits and renewable energy may be required to meet the corporate emissions reduction targets outlined in "Going Green in Grey." These potential investments will be considered through future budget processes.

Relevant Consultation

- Internal (list) – Senior Management Team
 - AODA Compliance (describe)
 - Contribution to Climate Change Action Plan Targets (describe)

The ECDM is key to meeting the corporate climate goals outlined in Going Green in Grey, specifically:

- Action 1: Energy Efficient New Buildings
- Action 2: Retrofit all existing Grey-owned facilities by 2045

- Action 4: 1.78 MW of solar installations, or equivalent energy technology, are installed by 2030 to power Grey-owned buildings
- Action 11: Develop a Municipal Climate Lens
- Action 13: Culture of Conservation

External (list)

Appendices and Attachments

Attachment 1 - Energy Conservation and Demand Management Plan 2024-2028