



Subject: Update on Energy Conservation Measures at Town facilities
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Department: Planning and Development Services
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In accordance with the Procedure By-law, any Member of Council may request that this Information Report be placed on an upcoming General Committee or Council meeting agenda for discussion.

Executive Summary

The purpose of this report is to present Council with an update on the status of the energy conservation measures (ECM) motion adopted by Council on June 12th, 2018.

- Funds for ECMs at Town facilities have been requested as part of the 2020 Budget process.
- A tracking system has been developed to monitor progress of projects impacting energy consumption and greenhouse gas emissions at Town facilities.
- Energy management software has been purchased for the purpose of identifying, assessing and optimizing the energy efficiency of projects; as well as monitoring facility performance and identifying energy savings/ production opportunities.

Background

The following energy conservation measures were requested to be investigated and reported back on from the June 12th 2018 Council Meeting:

- A plan to diminish the use of lights in Town buildings and facilities during the night hours;
- Raise the temperature setting in Town buildings by one degree in the summer months, and lower the temperature by one degree in the winter months;

- Decrease kitchen and bathroom hot water temperature settings;
- Mitigate the summer sun effect from the Town Hall Atrium and main floor south-facing front windows; and
- Install automatic room timers on a five-minute empty room shut-off.

Corporate Energy Management Plan (CEMP)

The 5 year CEMP was approved by Council in June 2019. The Plan has identified a list of ECMs at Town facilities, including all the suggested projects from the June 12th 2018 Council Meeting.

Analysis

Funds for ECMs at Town facilities have been requested as part of the 2020 Budget process.

A 2020 Budget request has been made in the value of \$50,000 for a variety of ECMs. They include a review of the programming and equipment scheduling (start/ stop optimization) through the Building Automation Systems (BAS), installation of occupancy sensors and room timers; as well as low flow/ sensor activated washroom fixtures.

As part of the ongoing energy conservation retrofit program, motion sensors have been installed in many of the facility meeting and program spaces, as well as the majority of Town facilities are equipped with energy saving LED lighting. This is an ongoing project and occupancy sensors and room timers will be installed as areas are renovated.

In addition to the capital funds for ECMs, a Building Condition Assessment (BAC) and Energy Audit program is being planned for 2020. The scope of the work will include an energy audit which will assist in project identification, prioritization, and maintain infrastructure costs while reducing associated energy costs.

Town staff are investigating the hot/cold effect at the Access Aurora entrance at Town Hall and in the Finance Department. The source of temperature changes is from the east-facing accessibility door, which does not have a vestibule, unlike the south-facing accessibility door. Vestibules are a common energy code solution to reducing energy loss from air infiltration while improving occupancy comfort. The Ontario Building Code has been requiring a vestibule rather than having a single door for commercial buildings for some years. In addition to the east-facing entrance door causing air infiltration, the

floor thermostat is located beside the east-facing door, over triggering the HVAC system and over heating/cooling the Finance Department office space as a result. Town staff will be working with the Accessibility Advisor, Facilities staff and Access Aurora staff on possible solutions to improve the comfort level of all staff impacted by this.

The Town Hall's third floor skylight is creating an unwanted summertime solar heat gain and wintertime heat loss. Because outdated commercial skylights are simpler in design and lack proper insulation, they often contribute to unnecessary heat gain in summer and heat loss in winter. As a result, the HVAC system needs to run for longer hours to maintain the indoor temperature. Town staff are investigating possible solutions to minimize heat gain in summer and heat loss in winter. Based on the results of that investigation, a 2021 budget request will look into supporting that initiative.

Building Automation Systems (BAS) Review

The 2020 Budget has planned to review the programming and scheduling of the BAS at the Aurora Community Centre, the Library, Stronach Aurora Recreation Complex (SARC), Town Hall, Senior Centre and the Aurora Family Leisure Complex (AFLC).

A BAS is the centralized control of a building's heating, ventilation and air conditioning, lighting and other systems. The objectives of a BAS review are to improve occupant comfort, efficient operation of building systems, reduction in energy consumption and operating costs, and improved life cycle of utilities. Through this review process, the lighting operating schedule during day and night hours will be optimized, as well as building set air temperatures during occupied and unoccupied hours.

A tracking system has been developed to monitor progress of projects impacting energy consumption and greenhouse gas emissions at Town facilities

A tracking system has been developed to identify and track the implementation of ECMs at Town facilities. A list of ECMs were identified in the 5 year Corporate Energy Management Plan (CEMP), approved by Council and posted online in June 2019. These projects and those listed under the June 18th 2018 Council Motion, have been included in the ECM tracking sheet and will be used to track projects that have been completed, support budgeting/ planning purposes for upcoming projects, and to keep an inventory of completed projects. The tracking system will also be used to support the energy management software that is being implemented. These ECMs will be recorded in the software, so that energy and greenhouse gas emission reduction as well as cost savings can be tracked, optimized and reported on. ECMs that are being tracked are:

- LED lighting (interior and exterior)

- Temperature set points (air and hot water)
- Occupancy sensors/ room timers
- Operating hours
- Low flow/ sensor washroom fixtures

Energy management software has been purchased for the purpose of identifying, assessing and optimizing of energy efficiency projects; as well as monitoring facility performance and identifying energy savings/ production opportunities

An energy management software, RETScreen Expert, was procured in the September 2019. The software allows for the identification, assessment and optimization of the technical and financial viability of projects impacting energy consumption; as well as the actual energy performance of facilities and savings opportunities. RETScreen is managed by the CanmetENERGY Varennes Research Centre of Natural Resources Canada, a department of the Government of Canada.

The intention is to use the software for managing Town energy and water consumption going forward. Currently, historic energy data is being collected from utilities for uploading onto the new system. Once this operation is completed, it is expected that the software will be up and running by end of 2019. Advisory Committee Review

Advisory Committee Review

Not Applicable.

Legal Considerations

Not Applicable.

Financial Implications

Incremental funding requirements totaling \$50,000 have been included in the draft 2020 operating budget in support of multiple energy conservation measures (ECMs) within the Town of Aurora. The commencement of these ECMs are dependent upon Council's approval of the proposed draft 2020 operating budget.

Communications Considerations

Not Applicable.

Link to Strategic Plan

This report supports the *Corporate Energy Management Plan (CEMP)* through its success in reducing energy consumption and greenhouse gas emissions from Town facilities.

Alternative(s) to the Recommendation

Not Applicable.

Conclusions

This report presents an update on the status of the ECMs requested for investigation at the June 12th 2018 Council Meeting. A plan for implementation has been developed and the expected completion is in 2020, pending the 2020 Budget approval.

Attachments

Not Applicable.

Previous Reports

Not Applicable.

Pre-submission Review

Agenda Management Team review on October 3, 2019

Departmental Approval



**David Waters, MCIP, RPP, PLE
Director
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Approved for Agenda



**Doug Nadorozny
Chief Administrative Officer**