

Energy Reporting for Commercial Buildings

EXECUTIVE SUMMARY

This report provides information on a potential energy reporting mechanism for commercial buildings, as requested through Notice of Motion NM2017-35 (Attachment 1).

Energy reporting for large buildings is a key enabling activity for the reduction of energy use, energy costs, and greenhouse gas emissions in the building sector. Commercial buildings spend approximately \$420 Million per year on energy, and contributed 39 per cent of Calgary's community-wide greenhouse gas emissions in 2017.

Cataloguing of information and benchmarking of building performance for comparison has been shown to motivate building owners to pursue energy efficiency upgrades. Industry supports a voluntary energy benchmarking program for commercial buildings as long as the program is delivered throughout the community at the same time, and the program applies to both new and existing buildings equally.

This report provides an overview of options explored to implement energy reporting in commercial buildings. The recommended option is a three-year pilot, with no financial incentives provided, and with voluntary participation.

ADMINISTRATION RECOMMENDATION:

That the Standing Policy Committee on Utilities and Corporate Services receive this report for information.

RECOMMENDATION OF THE SPC ON UTILITIES AND CORPORATE SERVICES, DATED 2018 JUNE 13:

That Council receive Report UCS2018-0314 for information.

PREVIOUS COUNCIL DIRECTION / POLICY

An amended Notice of Motion (NM2017-35) was carried on 2017 September 11, directing Administration, in consultation with stakeholders, to develop an energy reporting mechanism for commercial buildings, and return with a scoping report on energy efficiency to Council through the Standing Policy Committee on Utilities and Corporate Services, no later than Q2 2018.

Energy reporting for buildings relates to Council priorities laid out in "Action Plan 2015-2018". The priorities include strategic actions under "A Healthy and Green City":

- **H2:** Encourage a broader range of innovative and clean energy technologies
- **H6:** Continue to build public awareness and understanding of our shared responsibility to conserve and protect the environment
- **H10:** Lead by example and manage regulatory risks to protect public health and the environment

These Council priorities remain consistent in the 2019-2022 plan under One Calgary. An added focus for "A Healthy and Green City" in 2019-2022 is to address climate change in a way that levers incentives that focus on the economic benefits of addressing climate change.

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BACKGROUND

Energy consumption in commercial, industrial, and institutional buildings in Calgary is valued at approximately \$420 Million annually. The non-residential buildings sector also represents the largest contributor (39 per cent) to Calgary's greenhouse gas emissions.

Action on decreasing emissions from the buildings sector is being driven from the federal government through the "Pan-Canadian Framework on Clean Growth and Climate Change" published in 2017. The Pan-Canadian Framework indicates that "Federal, provincial, and territorial governments will work together with the aim of requiring labelling of building energy use by as early as 2019".

The City can play a key role to support and advise building owners and managers on energy use and cost reduction opportunities. Energy reporting has been identified by the building industry as an effective program to support energy efficiency.

INVESTIGATION: ALTERNATIVES AND ANALYSIS

A barrier to improving energy efficiency in buildings is the lack of information on energy performance. A starting point to address this barrier is energy benchmarking, which means comparing the energy performance of a building against similar buildings.

The de-facto standard software used in North America for large building energy benchmarking is Energy Star® Portfolio Manager. This free software was developed by the US Environmental Protection Agency, and has been revised for the Canadian context and made available for free through Natural Resources Canada.

Portfolio Manager is a secure online tool that allows building owners to input their building's local climate, space use, occupancy and other data for comparison to similar buildings. Building owners find value in using Portfolio Manager for a variety of reasons, including:

- Tracking energy usage year-over-year to highlight anomalies
- Comparing building performance against similar buildings outside the organization
- Prioritizing the list of energy efficiency projects across all buildings
- Verifying results of energy efficiency projects

Portfolio Manager is already successfully being used in Calgary, Edmonton, Toronto, Vancouver and other cities across North America. Natural Resources Canada confirmed that significant numbers of industrial, commercial, and institutional buildings in Calgary over 20,000 square feet already use Portfolio Manager as a benchmarking tool. Based on floor area, the number of large buildings in Calgary reporting their energy use to Portfolio Manager include:

- 225 buildings (of a total of 2,008) between 20,000 square feet and 50,000 square feet
- 200 buildings (of a total of 889) between 50,000 square feet and 100,000 square feet
- 425 buildings (of a total of 685) above 100,000 square feet

This voluntary action by 23 per cent of buildings in Calgary over 20,000 square feet indicates there is interest from the building industry in energy benchmarking programs. The Building Owners & Managers Association (BOMA) indicated that buildings that report energy use see an average of 15 per cent energy reduction over the next three years of reporting.

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Program Design Options

Option 1: Basic Option

The City of Calgary could be involved in commercial building energy benchmarking by providing a link to Natural Resources Canada's Portfolio Manager on Calgary's municipal website. This option would not likely raise awareness significantly.

Option 2: Voluntary Energy Benchmarking – no financial incentives

A step above the basic option would be to develop a voluntary program that actively engages the building owner and operator community. This would include: hosting workshops to demonstrate how to use the Portfolio Manager software, helping owners if they run into problems, and publishing an annual summary report. The City of Calgary would lead by example by benchmarking municipally owned buildings.

Option 3: Voluntary Energy Benchmarking – financial incentives

The City of Calgary could offer financial incentives to attract participants to the program. The City of Edmonton, for example, offers 25 grants of \$5,000 each year towards energy audits in their voluntary program called the "Large Building Energy Reporting and Disclosure Program". Edmonton's program is run by an external company, and a project manager from the City of Edmonton oversees the program.

Option 4: Mandatory Energy Benchmarking

A mandatory energy benchmarking program designed and run by The City would require the highest level of involvement. The program could be linked to existing municipal bylaws, such as adding a rider to the Building Maintenance Bylaw (Bylaw Number 33M2016) to compel owners of commercial buildings to have an account on Portfolio Manager and submit their utility data with their next facility inspection report. A mandatory municipal program would require a database to track compliance, and a system to enforce compliance, increasing resourcing costs.

Recommended Option

Option 2, Voluntary Energy Benchmarking without financial incentives, is preferred. This approach is built on highlighting potential energy cost savings and environmental benefits rather than being compliance driven. Option 2 could be piloted through a three-year voluntary program targeting progressively smaller buildings each year. The next steps for the program after the initial three-year voluntary phase would be assessed at the conclusion of the third year.

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Stakeholder Engagement, Research and Communication

This report was developed in consultation with stakeholders active at both the local and national levels. Interviews were conducted with other municipalities across Canada (Edmonton, Vancouver, Saskatoon, Toronto), federal government agencies (Natural Resources Canada), and key local stakeholders including building owners and operators (BOMA, the Calgary Board of Education, Strategic Group, First Capital, Mount Royal University, SAIT, the University of Calgary), the building development industry (BILD Calgary Region, Scott Builders, Remington Development Corp.), the Association of Energy Engineers Calgary Chapter, and local utilities (ENMAX, ATCO). The responses from stakeholders tended toward several common themes:

There was support for an energy benchmarking program for commercial buildings in Calgary that would be applied uniformly across the city without geographic staging. Key outcomes of this engagement include:

- The building industry supported the idea of phasing-in a voluntary energy benchmarking program over a number of years based on floor area. Large buildings (100,000+ square feet) would be engaged first, and smaller buildings (50,000 square feet, and then 20,000 square feet) would be engaged in subsequent years.
- If energy reporting is to be a mandatory requirement, then industry advised that the program should be accompanied by financial incentives.
- There was a desire to work collaboratively with The City on program design.

Strategic Alignment

Addressing climate change is a Council priority in the 2019-2022 One Calgary plan. Energy benchmarking for commercial buildings is a key action that The City can take to engage the buildings industry in reducing energy use, operational costs, and greenhouse gas emissions. By implementing a program, The City would help to prepare industry for mandatory energy reporting requirements, which are likely to be imposed by the federal government between 2019 and 2026.

Energy benchmarking is an action included in Calgary's "Climate Resilience Strategy and Action Plans" (UCS2018-0688) and supports the economic diversification goals in the Green Buildings sector, as described in Calgary Economic Development's recent report entitled "Green Energy Economy" (2016).

Social, Environmental, Economic (External)

Statistics collected by BOMA indicate that when building management reports energy use into a benchmarking program, they achieve energy and cost savings in subsequent years by pursuing

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continuous improvement in energy efficiency. Reducing energy use also reduces environmental impact through decreasing greenhouse gas emissions.

Financial Capacity

Current and Future Operating Budget:

The City of Calgary does not have an energy benchmarking program or operating budget. This work, if approved, would be included in Calgary's Climate Resilience Program in the 2019-2022 budget cycle.

Current and Future Capital Budget:

There will be no impact to current or future capital budget.

Risk Assessment

Cities that focus on energy efficient buildings may be more attractive places to set up offices for innovative companies. There is also a reputational risk if The City is not seen to be taking action on reducing community-wide greenhouse gas emissions, or failing to help the buildings industry prepare for upcoming mandatory energy reporting requirements arising from higher levels of government.

REASON(S) FOR RECOMMENDATION(S):

This report is intended to provide information on a potential energy reporting mechanism for commercial buildings, as requested through Notice of Motion NM2017-35.

ATTACHMENT(S)

1. Attachment 1 – ENERGY REPORTING FOR COMMERCIAL BUILDINGS COUNCIL NM2017-35