



To: Public Works and Transportation Committee **Date:** January 16, 2020
From: Peter Russell **File:** 10-6125-07-02/2020-
 Director, Sustainability and District Energy Vol 01
Re: **City of Richmond Participation in the BC Building Energy Benchmarking Pilot Program**

Staff Recommendation

1. That Council endorse the City’s participation in a voluntary regional building energy benchmarking program, as outlined in the report titled “City of Richmond Participation in the BC Building Energy Benchmarking Pilot Program” from the Director, Sustainability and District Energy, dated January 16, 2020, and;
2. That staff be directed to report back to Council at the conclusion of the pilot program in 2021, on options to establish an energy benchmarking initiative and supportive policies in Richmond, as outlined in the report titled “City of Richmond Participation in the BC Building Energy Benchmarking Pilot Program” from the Director, Sustainability and District Energy, dated January 16, 2020.

Peter Russell
 Director, Sustainability and District Energy
 (604-276-4130)

Att. 2

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Communications	<input checked="" type="checkbox"/>	
Economic Development	<input checked="" type="checkbox"/>	
Policy Planning	<input checked="" type="checkbox"/>	
Building Approvals	<input checked="" type="checkbox"/>	
SENIOR STAFF REPORT REVIEW	INITIALS:	APPROVED BY CAO

Staff Report

Origin

At the Regular Council meeting on March 27, 2017, City Council resolved that:

“(1) A resolution be forwarded to the Union of BC Municipalities calling for the province to establish requirements for energy benchmarking of large buildings;”

“(2) A letter be sent to the Chair of Metro Vancouver’s Climate Action Committee calling on Metro Vancouver to lead the development of a regional benchmarking program;”

“(3) The Chief Administrative Officer and the General Manager, Engineering and Public Works be authorized to execute funding and partnership agreements with the Real Estate Foundation of BC and BC Hydro to develop benchmarking policy analysis and automatic data exchange capabilities, and that amendments to the 5 Year Financial Plan (2017-2021) Bylaw be brought forward for up to \$155,000 in expenditures, subject to successful grant applications up to \$140,000 to be covered by grant funding and a \$15,000 City contribution from the Carbon Tax Provision;” and

“(4) Staff be directed to report back to Council options to establish building energy benchmarking policy for larger buildings in Richmond as a pilot measure.”

This report provides an update on items (1), (2), (3), and (4) in the above resolution.

This report supports Council’s Strategic Plan 2018-2022 Strategy #2 A Sustainable and Environmentally Conscious City:

Environmentally conscious decision-making that demonstrates leadership in implementing innovative, sustainable practices and supports the City’s unique biodiversity and island ecology.

2.1 Continued leadership in addressing climate change and promoting circular economic principles.

Analysis

Energy Benchmarking Overview

Energy benchmarking is the process of regularly tracking energy use in buildings, and comparing energy consumption against historic patterns and future targets. It is considered a core energy management best practice where building owners and managers can use energy benchmarking to understand their buildings’ relative performance against a similar class of buildings. Benchmarking makes it easier to identify opportunities to reduce energy consumption and related costs, as well as assist in evaluating the impact of capital investments and operating decisions. Benchmarking improves energy management and greenhouse gas reductions for existing buildings, and will be identified as a program action in Richmond’s updated Community Energy and Emissions Plan 2020-2050.

The most common platform for energy benchmarking is the free, online tool called ENERGY STAR Portfolio Manager (Portfolio Manager), developed by the US Environmental Protection Agency. Natural Resources Canada began hosting the Canadian version of Portfolio Manager in 2013. Over 9,000 buildings in Canada to date voluntarily benchmark their energy performance, including 20% of commercial floor space in Canada.

The City's Experience with Energy Benchmarking

The public sector in Canada is a strong supporter of benchmarking and the City currently uses Portfolio Manager, and other software tools to measure and assess annual energy performance of 45 buildings.

Buildings accounted for approximately 40% of Richmond's annual greenhouse gas (GHG) emissions, and approximately 60% of overall energy consumption in 2017. In 2014, Council adopted the Community Energy and Emissions Plan (CEEP), which includes Strategy #3 "Improve the Performance of the Existing Building Stock." The 2015 CEEP Update identified mandatory energy benchmarking as a key initiative.

The City also initiated a voluntary program for larger buildings owned and managed by the private sector, called the Richmond Building Energy Challenge. Established in 2014, this friendly competition that reduced energy use and GHG emissions yielded successful results, with overall 12% reduction in overall energy use compared with the baseline year, and 16% reduction in GHG emissions in participating buildings. Seventy five buildings across 12 organizations participated, representing over 5.5 million square feet of property. This pilot program showed the value of benchmarking with respect to improving energy management.

Based upon the positive results of the Richmond Energy Challenge, staff have collaborated with other local government and utility partners since 2016 to explore development of a comprehensive energy benchmarking system in British Columbia.

In support of this, staff proceeded with the following Council-approved actions that were undertaken in 2017-2018, with results summarized below.

UBCM Resolution

(1) A resolution be forwarded to the Union of BC Municipalities calling for the province to establish requirements for energy benchmarking of large buildings;

Council approved the recommendation that a resolution be forwarded to the Lower Mainland Local Government Association of the Union of BC Municipalities calling for the Province to establish requirements for energy benchmarking of large commercial and multi-unit residential buildings (50,000 ft² or greater in total floor area). The rationale for the resolution was that a uniform, provincial requirement would be most impactful in terms of the amount of floor space covered. It would also be simpler to administer than multiple local government requirements.

A copy of the UBCM resolution is included in Attachment 1. This resolution was subsequently endorsed at the 2017 UBCM convention [Resolution B62, 2017 - Passed].

Letter sent to Metro Vancouver Regional District

(2) A letter be sent to the Chair of Metro Vancouver's Climate Action Committee calling on Metro Vancouver to lead the development of a regional benchmarking program;

Council also approved the recommendation that a letter be sent to the Chair of Metro Vancouver's Climate Action Committee calling on Metro Vancouver to lead the development of a regional benchmarking program, in the event that the Province did not establish a benchmarking policy in a timely manner. The rationale was that regional governments are an appropriate entity to manage benchmarking programs and/or establish benchmarking requirements. Metro Vancouver Regional District staff continue to be active supporters of the development and implementation of a regional pilot benchmarking program.

Staff intend to further request that Metro Vancouver take on this role as part of providing consultation input on Metro Vancouver's Climate 2050 Strategy.

BC Hydro Automatic Data Exchange

(3) The Chief Administrative Officer and the General Manager, Engineering and Public Works be authorized to execute funding and partnership agreements with the Real Estate Foundation of BC and BC Hydro to develop benchmarking policy analysis and automatic data exchange capabilities, and that amendments to the 5 Year Financial Plan (2017-2021) Bylaw be brought forward for up to \$155,000 in expenditures, subject to successful grant applications up to \$140,000 to be covered by grant funding and a \$15,000 City contribution from the Carbon Tax Provision.

The City received \$140,000 in funding from Real Estate Foundation of BC and BC Hydro to partially fund development and implementation of an automated data collection tool, enabling BC Hydro to easily sum all electricity accounts within a building, and upload these totals into the ENERGY STAR Portfolio Manager software. The development of this tool was a critical step forward to help facilitate building energy benchmarking in BC. Since 2017, building managers have been able to quickly obtain aggregated electricity consumption data (FortisBC already has this capability) while ensuring data for individual accounts remains confidential. BC municipalities are now well-positioned to implement Building Energy Benchmarking, reporting and disclosure requirements similar to other leading jurisdictions in North America.

BC Energy Benchmarking Pilot Program (2020-2021)

(4) Staff be directed to report back to Council options to establish building energy benchmarking policy for larger buildings in Richmond as a pilot measure.

Further collaborative action to establish a regional energy benchmarking initiative in Metro Vancouver began in 2018, leading to the Building Benchmark BC pilot program that is being launched in 2020. Details on these actions are covered below.

The BC Benchmarking Pilot Program (Building Benchmark BC) has been developed by the OPEN Green Building Society (OPEN) with funding from Natural Resources Canada and BC Hydro, and in partnership with Province, Metro Vancouver Regional District. Staff from Richmond, Vancouver, Burnaby, Surrey and UBC were consulted on the development of the program. The program's primary objective is to promote reductions in building energy use and emissions across BC, by supporting voluntary energy benchmarking and disclosure. Successful implementation of this pilot program would create a compliance tool pathway for future regulation that could be streamlined region-wide or province-wide. Staff view programs that encourage participation in building energy benchmarking are most effective when conducted at a regional or provincial scale.

The program development phase for this project began in 2018 and continued through 2019, with regularly scheduled calls convened by OPEN on behalf of senior government, municipal and utility partners. A key milestone was achieved in 2019, with a successful grant funding submission to Natural Resources Canada, providing the majority of funding for this \$400,000+ initiative. Provincial and local government partners are contributing in-kind staff time to help coordinate local implementation.

The goal of the program is to recruit 2,000 buildings by March 21, 2020 interested in voluntarily participating in Building Benchmark BC (See Attachment 2: Building Benchmark BC – Project Backgrounder). Given the City of Richmond's leadership on energy benchmarking to date, staff believe that there will be significant local participation in Building Benchmark BC during the program period (from now to Spring 2021). With Council approval, staff will work with OPEN and partners to raise awareness and recruit interested multi-residential and commercial buildings in Richmond over 50,000 ft² in floor area to participate.

Staff will report back to Council in 2021 on the outcomes of the Building Benchmark BC pilot, and propose further actions at that time.

Financial Impact

The 2020 operating budget has resources available to support communications and local outreach to building owners and property managers during the pilot period (to March 2021).

Conclusion

Energy benchmarking is the process of tracking and recording a building's energy performance annually and over time. It is based on the fundamental principle that building energy consumption must be measured and monitored before it can be managed effectively. Performance data can help building owners and managers to identify opportunities for operational efficiency improvements and potential energy retrofits of building components and/or systems.

OPEN Green Building Society has convened provincial, utility and regional local government stakeholders as program partners in a significant pilot energy benchmarking initiative in Metro Vancouver, to be publicly launched in January 2020. With Council endorsement for the City of Richmond's participation in the building recruitment phase of this initiative, staff will proceed to

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work with program partners in doing so. Staff will also update Council at the conclusion of the pilot program in 2021 regarding options to establish a long-term regional energy benchmarking initiative in Metro Vancouver and supportive policies in Richmond.



Norm Connolly
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- Att. 1: 2017 UBCM Resolution by Lower Mainland Local Government Association
- 2: Building Benchmark BC – Project Backgrounder

Attachment 1: 2017 UBCM Resolution by Lower Mainland Local Government Association

Resolution as passed by UBCM:

Resolution as passed by UBCM:

B62

**Provincial Action on Building Energy Benchmarking
City of Richmond**

Whereas as described in the Canada Green Building Council's "Energy Benchmarking, Reporting & Disclosure in Canada: A Guide to a Common Framework," mandatory energy benchmarking and reporting is a low cost, market-based means to enable buildings to reduce energy costs and GHG emissions;

And whereas the Province of BC is a signatory to both the Pan-Canadian Framework on Climate Change and Clean Growth, and the Pacific Coast Climate Leadership Plan, both of which commit the Province to implement benchmarking requirements for larger buildings;

And whereas a provincially administered benchmarking requirement similar to that adopted by the Province of Ontario would be most impactful and administratively simple;

And whereas climate change threatens BC communities, and action in the built environment is necessary to mitigate climate change and realize economic opportunity;

Therefore be it resolved that the Province be requested to develop a requirement that buildings above a size threshold benchmark their energy performance and report this information to the province annually, and that the resulting data be available to local governments to inform their climate policy and programs.

Endorsed by the Lower Mainland Local Government Association

UBCM Resolutions Committee recommendation: Endorse.

Backgrounder: Building Energy Benchmarking What is it, and why does it matter?

- Building energy benchmarking describes a process under which building owners and managers use ENERGY STAR® Portfolio Manager, a software platform maintained by Natural Resources Canada, to measure, report, and disclose their greenhouse emissions.
- In British Columbia, the fossil fuels that are burned in buildings—to provide their occupants with heat and hot water—contribute about 11 percent of the province’s overall greenhouse gas emissions.
- Benchmarking is a critical tool to address climate change. It helps property owners understand how their buildings perform both over time and when compared with similar buildings located elsewhere, and it equips governments with fine-scale data to help them develop more effective and targeted retrofit incentive programs.
- Canadian companies already voluntarily benchmark the energy and emissions of more than 9,000 buildings nationwide.
- Studies by the U.S. Environmental Protection Agency, Urban Land Institute, and the Massachusetts Institute of Technology conclude that benchmarked buildings can capture energy savings of between 7 and 14 percent within four years.
- In 2009, New York City (NYC) passed a bylaw that required owners of buildings larger than 50,000 square feet to measure, report, and disclose the energy consumption of the properties they manage. The city expanded the requirement in 2016.
- NYC data revealed that the city’s multi-family and office towers consume 87 percent of all energy used in buildings, with offices consuming the greater share of the two. The performance data and building information gathered from benchmarking allowed the city to develop effective incentive programs to support office building owners in reducing those emissions.
- Similar programs are in place in Boston, Seattle, Denver, and other cities. In Canada, the City of Edmonton has been benchmarking since 2016, and the Province of Ontario has a regulation for benchmarking large buildings.
- Though participation in **Building Benchmark B.C.** is currently voluntary, many climate and energy experts agree that, to meet greenhouse-gas targets, jurisdictions will begin introducing new regulations targeting existing buildings.