



Briefing Note: Building Energy Benchmarking

December 2020

Purpose

This note aims to update government on the benefits of mandatory building energy benchmarking and explain why local governments would like authority to require owners of certain categories of buildings to benchmark their properties and report out the data. British Columbia local governments have been requesting provincial action on benchmarking since 2014.

Background

Energy benchmarking is the process of collecting and monitoring energy data from a large number of buildings over time so that governments and the private sector can compare the performance of any one participating building against similar properties. Energy benchmarking helps:

- Individual building owners and managers track a property's energy performance from one year to the next and identify potential issues for further investigation. It also allows them to easily see how well their building is performing relative to similar properties.
- Governments and utilities target energy and greenhouse gas reduction policies, programs, and regulations to areas of the building sector where they will have the most impact.
- Governments and utilities to more easily and reliably analyse policy impact.

The Evidence Basis

In a 2017 study, Lawrence Berkley National Laboratories researchers found that mandatory benchmarking programs contributed to a three to eight per cent decrease in building energy-use-intensity levels over a two- to four-year period.¹ Though it's impossible to attribute all of these energy savings to benchmarking, the researchers confirmed a causal relationship.

¹ Lawrence Berkeley National Laboratory. "Evaluation of U.S. Building Energy Benchmarking and Transparency Programs: Attributes, Impacts, and Best Practices." 2017. p. 57. Retrieved from: https://emp.lbl.gov/sites/default/files/lbnl_benchmarking_final_050417_0.pdf

With over ten years of applied experience, the benefits of benchmarking are now well understood. The practice:

- Drives positive changes in owner and occupant energy management via increased transparency and awareness of operational energy use.
- Encourages property owners to make targeted investments to reduce energy use.
- Promotes further efficiency through proper building commissioning and maintenance regimens.
- Creates growth for, and competition toward, better energy performance in the building industry.
- Helps inform municipal, regional, and national-scale energy policy.
- Allows jurisdictions to better substantiate GHG targets, and design more efficient programs.
- Identifies top performers and worst offenders of energy performance within neighborhoods and across building archetypes, allowing programs and service providers to more strategically target improvements.
- Allows prospective tenants to compare the overall costs they may face when choosing to lease a particular building.
- Promotes improved envelopes and mechanical systems, which can increase resilience in the face of climatic shocks and stresses.

Jurisdictional Scan

North American jurisdictions have used mandatory energy benchmarking since at least 2009, when New York City first required it of buildings larger than 50,000 square feet. Today, more than 30 jurisdictions have mandatory building energy benchmarking—30 cities, the states of Washington and California, and the Province of Ontario.

- In 2018, Ontario became the first Canadian jurisdiction to require water and energy reporting for privately owned residential, commercial, industrial, and institutional buildings. Owners of all large buildings in the province must now report their energy and water use annually.
- As of July 2019, Ontario required reporting for buildings with floorspace larger than 100,000 square feet; as of July 2020, the province had planned to step down this minimum to 50,000 square feet.
- Ontario's benchmarking program aligns with its current target to reduce emissions 30 per cent below 2005 levels by 2030.²

² Province of Ontario. 2018. "Ontario's Environment Plan: Preserving and Protecting our Environment for Future Generations." Retrieved from: https://prod-environmental-registry.s3.amazonaws.com/2018-11/EnvironmentPlan_1.pdf

- It is also consistent with a directive in the Pan Canadian Framework on Clean Growth and Climate Change that federal, provincial and territorial governments should work together to require labelling of buildings energy use by as early as 2019.
- In Washington DC, owners of all buildings larger than 50,000 square feet must report their energy and water use for public disclosure. This program is run through the Energy Star Portfolio Manager platform and is part of the Clean and Affordable Energy Act of 2008, which has a target of a 50 per cent reduction in GHGs by 2032 for the District of Columbia.
- The City of Portland requires owners of commercial buildings larger than 20,000 square feet to report on their energy use annually. This program covers around 80 per cent of conditioned commercial space in the city.
- Portland has recorded its progress with detailed annual reports. The reports reveal that compliance has increased every year, from 82 per cent in 2015 to 93 per cent in 2018. Not only does Portland's performance beat out most major American cities, it has successfully reduced its energy use intensity for offices close to five per cent between 2016 and 2018.

British Columbia – Current State

There are currently no mandatory provincial or sub-provincial building energy benchmarking programs in British Columbia. It is also unclear if local governments operating under the Community Charter have the authority to require energy benchmarking within their jurisdiction. The Vancouver Charter enables the City of Vancouver to require benchmarking if it is used to show compliance with a regulation.

- In 2014, the Union of British Columbia Municipalities resolved to ask the provincial government to amend the Vancouver Charter, Local Government Act, and Community Charter to empower local governments to require energy benchmarking and make public non-confidential and non-competitive building energy performance results.
- In 2017, a second successful resolution asked the province to develop a requirement that buildings above a given size threshold benchmark their energy performance and report this information to the province annually, and for this information to be made available to local governments.
- In both instances, the province responded that it understands energy efficiency is key to achieving climate targets, and that it is exploring energy benchmarking policy options.
- The legal authority for local governments to regulate benchmarking without amendments to existing legislation is uncertain. A 2017 report by City of Richmond "...BC Ministry of Energy and Mines staff have noted their belief that local governments may enact benchmarking requirements, given that the Community Charter specifies 'a council may, by law, regulate, prohibit and

impose requirements in relations to...buildings and other structures (Section 8(3)(1)).”³

- This interpretation has not been knowingly confirmed nor rejected by either provincial or local government legal counsel. Until it is explicitly understood by both the province and local governments, it is unlikely that any local government operating under the Community Charter will move ahead with mandatory benchmarking.
- The City of Vancouver is planning to require benchmarking for large retail and commercial buildings starting in 2023 as part of its Climate Emergency Plan that was approved by Vancouver City Council in November 2020.
- The Metro Vancouver Regional District (Metro Vancouver) is currently reviewing whether it has authority under the Provincial Environmental Management Act to require energy benchmarking as a means to show compliance with a building-scale greenhouse gas air pollutants regulation.
- Should Metro Vancouver conclude it has this authority, that jurisdiction may proceed with mandatory benchmarking. Should that occur, to ensure fairness and consistency, the provincial government may wish to enable additional local governments to use the tool.
- Building Benchmark BC is a recent initiative funded by Natural Resources Canada and BC Hydro to provide the reporting framework and encourage voluntary building benchmarking in the province. In its first year it registered over 600 privately owned buildings and includes the participation of nine leading local governments. Its reporting framework can be easily converted to support the broad rollout of mandatory benchmarking by local governments or the provincial government.

Disclosure Concerns

- The Building Owners and Managers Association of British Columbia has historically opposed mandatory energy benchmarking programs, citing concern with public disclosure of benchmarking results.
- However, mandatory benchmarking programs need not include disclosure. They can instead require certain buildings within a jurisdiction to track and then report their energy benchmarking results to the jurisdiction overseeing a mandatory program.
- In many jurisdictions, mandatory benchmarking programs are introduced with only reporting requirements, providing valuable information to both building owners and the jurisdiction receiving the reports. Disclosure of this information could follow, and sometimes does follow, but is not a default design requirement.

³ City of Richmond. February 2017. "Climate Action – Building Energy Benchmarking Policy Advocacy." February 2017. File 10-6125-07-02/2015-Vol01. P6. Retrieved from: https://richmond.ca/_shared/assets/Building_Energy_Benchmarking_CNCL_03271746780.pdf

Cost Concerns

- The largest cost for building owners is the time needed to set up a building's profile in a benchmarking program. To help offset some of this time, utilities, such as BC Hydro, currently cover the cost for some commercial customers to set up a building's initial benchmarking account.
- Once a building is set up, most of the additional inputs for an account are ongoing monthly utility use data for that building. In British Columbia, the downloading of utility data into Energy Star Portfolio Manager has been automated thanks to cooperation between the provincial government and the province's major gas and electric utilities.
- To help address potential government concerns with administration costs, Vancouver's Open Green Building Society has designed a backend benchmarking web-based program called the Grid. The software pulls data from a building's Energy Star Portfolio Manager file and reports it to the level of government administering a benchmarking program. The tool also provides aggregated building data in a format that allows the administrator to carry out careful market analysis and policy analysis. Grid is the software platform used to support the Building Benchmark BC initiative.
- In addition to the two costs discussed above and the existing initiatives being undertaken to address them, other considerations associated with mandatory benchmarking are training and data quality. Other jurisdictions that already require energy benchmarking, have demonstrated that program design can address these costs.

Next Steps

Potential next steps for government include the following actions.

- As per Union of British Columbia Municipalities resolutions in 2014 and 2017, the province could enable local governments to require building benchmarking reporting and disclosure on an opt-in basis.
- The province could further support the adoption of building benchmarking by local governments by developing and funding on an ongoing basis a central platform for data reporting, storage, and disclosure.
- The province could ensure that provincial and utility incentive programs support mandatory municipal benchmarking programs, as these programs will provide support to achieve utility demand side management objectives and its CleanBC targets.