



Benchmarking 101

Intro to Emissions-Neutral
Buildings Series:
Deep Retrofits



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What is benchmarking?

Benchmarking is an approach to tracking and recording a building's energy and water use to uncover opportunities for improving efficiency, conserving resources, and reducing greenhouse gas (GHG) emissions. This best practice enables building owners to compare their building's current performance with its historical data or with similar buildings, whether within their own portfolio or from external sources. Benchmarking equips building owners with valuable insights, helping them make informed decisions to optimize energy, water, and GHG management. It is the critical first stage in a building utility management strategy.

Steps of benchmarking:

1 Collect utility data

Begin by gathering complete utility data for all energy and water meters at your building. This may simply involve collecting your utility bills. For buildings with multiple meters, you may need to request aggregated data from your utility provider. Some providers may charge for this service, especially in multi-meter or multi-tenant buildings. If utility accounts are under tenant names, you may need their authorization to access the data.

2 Input utility data into a benchmarking tool

Next, enter the utility data into a benchmarking tool such as [ENERGY STAR® Portfolio Manager®](#) (ESPM). ESPM is a free, secure online tool administered by Natural Resources Canada that helps track and assess a building's energy and water use. Many Canadian municipalities with established building energy and emissions reporting bylaws ask building owners to submit their utility data through ESPM. For help getting started with ESPM, see the Portfolio Manager® Quick Start Guide [here](#).

3 Track and evaluate performance

After you input your utility data, ESPM calculates various key performance indicators that are useful for evaluating your building's performance. These indicators include your building's:

- [annual energy use intensity or EUI](#) (energy usage/sqm),
- [annual GHG intensity](#) (GHG/sqm),
- [annual water use intensity](#) (water usage/sqm),
- [ENERGY STAR score](#), and
- national comparison for similar buildings ([national median site EUI](#))

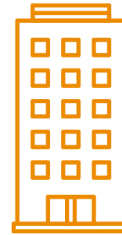
Benefits of benchmarking:

Compare performance: Benchmarking allows you to compare your building's energy performance with its performance in previous years and with similar buildings in Canada. For example, consider the two multi-unit residential buildings (MURBs) shown below, each with a different energy consumption, gross floor area, and energy use intensity (EUI).



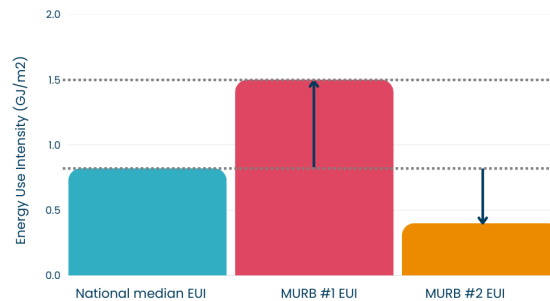
Multi-Unit Residential Building 1 (MURB #1)

Annual energy consumption: 1500 GJ
Gross Floor Area: 1000 sq.m
Annual Energy Use Intensity (EUI): 1.5 GJ



Multi-Unit Residential Building 2 (MURB #2)

Annual energy consumption: 2000 GJ
Gross Floor Area: 5000 sq.m
Annual Energy Use Intensity (EUI): 0.4 GJ



In this example, the smaller building uses less energy overall, but has a higher EUI. Understanding your building's EUI can help you compare its performance with buildings of similar age, function, and size.

Identify opportunities for improvement: Benchmarking enables portfolio managers to identify buildings whose energy and water use intensities are higher than average or are increasing rapidly. These buildings often present the greatest opportunities for efficiency improvements.

Establish a performance baseline: By starting to benchmark before implementing building upgrades, you can establish your building's baseline building performance and measure the effectiveness of energy efficiency, water efficiency, and GHG reduction initiatives. Over time, this helps manage utility usage more effectively, which can lead to financial savings, reduced environmental impact, and improved market positioning.

Learn more:

You can find more information and training resources on benchmarking and ESPM at [this link](#).