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Literature and policy review to inform the development of mandatory building energy benchmarking and disclosure requirements for Part 3 Buildings in Port Moody

Executive Summary

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Disclaimer

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This project was conducted under the mentorship of City of Port Moody staff. The opinions and recommendations in this report and any errors are those of the author and do not necessarily reflect the views of City of Port Moody or the University of British Columbia.

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Glossary

Energy Benchmarking

The process of measuring a building's energy consumption over time and comparing it against similar buildings or established performance standards. Benchmarking enables building owners, municipalities, and policymakers to track progress, identify inefficiencies, and set improvement targets.

Disclosure

The public sharing or reporting of energy and emissions data collected through benchmarking. Disclosure enhances transparency, supports informed decision-making among building stakeholders, and promotes accountability for environmental performance.

Part 3 Buildings

Defined under the British Columbia Building Code (BCBC), Part 3 buildings refer to complex buildings that are more than three stories in height or exceed 600 square meters in building area. These include most commercial, institutional, and multi-unit residential buildings such as offices, shopping centers, apartment complexes, hotels, schools, and some mixed-use buildings.

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GHGi (Greenhouse Gas Emissions Intensity)

The total GHG emissions (in kilograms of CO_2 equivalent) generated per square meter of building floor area, usually expressed as $kgCO_2e/m^2$/year. It reflects the carbon impact of energy used in building operations.

EUI (Energy Use Intensity)

A standardized metric that expresses the total annual energy consumed by a building, divided by its total floor area (in gigajoules per square meter, GJ/m^2). It serves as a key indicator of building energy efficiency. Lower EUI indicates higher energy efficiency. Higher EUI suggests more energy-intensive operations.

Site EUI (Site Energy Use Intensity)

The total amount of energy consumed at the building site, regardless of energy source, based on utility bills (e.g., electricity, natural gas, district energy). It reflects the energy delivered to and used directly at the site.

Source EUI (Source Energy Use Intensity)

Adjusts site energy to account for upstream losses during electricity generation, transmission, and distribution. It offers a more comprehensive picture of the total energy demand by converting all energy forms to equivalent primary energy values.

WUI (Water Use Intensity)

A metric indicating the total volume of water used in a building per unit of floor area (typically in liters per square meter, L/m^2/year). It is used to benchmark and manage water efficiency in building operations.

ESPM (ENERGY STAR Portfolio Manager)

A free, online energy benchmarking tool developed by the U.S. Environmental Protection Agency and adapted by Natural Resources Canada (NRCan). It allows building owners to measure and track energy and water consumption, GHG emissions, and compare performance across similar buildings.

BBBC (Building Benchmark BC)

A voluntary benchmarking and disclosure program led by local governments and administered by the OPEN Green Building Society. It supports municipalities and building owners in collecting, analyzing, and publicly sharing building-level energy and emissions data.

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Introduction

As communities across British Columbia seek to achieve ambitious climate goals, reducing emissions from the built environment has emerged as a priority area. Improving energy performance and transparency in building sector is essential for meeting both municipal and provincial targets. Building energy benchmarking and disclosure helps track, compare, and publicly disclose energy and emissions data (Edalatnia and Das, 2024). The related policy or program has been adopted by numerous jurisdictions across North America and internationally (Shang et al., 2020; Yang et al., 2018). These programs have demonstrated the ability to improve energy efficiency, inform retrofit strategies, reduce greenhouse gas (GHG) emissions, and create greater awareness among building owners, occupants, and policymakers. According to the U.S. Environmental Protection Agency's Benchmarking and Building Performance Standards Policy Toolkit (2021), buildings that consistently benchmarked their performance achieved an average annual energy savings of 2.4%. Benchmarking also enables data-driven decision-making, supports market transformation, and aligns local efforts with broader provincial and federal climate policies (Papadopoulos and Kontokosta, 2019).

Background

Port Moody is a city in British Columbia, Canada, and a member municipality of the Metro Vancouver Regional District. It envelops the east end of Burrard Inlet and is the smallest of the Tri-Cities, bordered by Coquitlam on the east and south and by Burnaby on the west. It is named for Richard Clement Moody, who was the founder and the first Lieutenant-Governor of the Colony of British Columbia.

In July 2020, the City of Port Moody adopted its Climate Action Plan (CAP), a comprehensive strategy aimed at reducing GHG emissions and building resilience against the local impacts of climate change. Since its adoption, the City has taken significant steps toward implementation, including the advancement of 65 actions outlined in the CAP and the development of additional initiatives such as the Climate Ready Homes and Buildings Plan (adopted in September 2022) and the Extreme Weather Resilience Plan. Together, these strategies underscore the City's commitment to a low-carbon and climate-resilient future.

A critical priority in this transition is reducing emissions from the existing building stock, which accounts for approximately 78% of operational emissions from buildings in Port Moody (City of Port Moody, 2022). These emissions stem largely from the use of fossil fuels for space heating and hot water (Natural Resources Canada, 2022), particularly in larger commercial, institutional,

and multifamily residential buildings. As such, the City has identified the mandatory energy benchmarking and disclosure of Part 3 buildings as a foundational action to accelerate decarbonization and improve energy efficiency within the built environment. This initiative, embedded in Action 2.2 of the Climate Ready Homes and Buildings Plan, seeks to track and disclose energy performance at the building level to inform policy, promote retrofit uptake, and enhance public awareness.

To date, Port Moody has engaged voluntarily with the Building Benchmark BC (BBBC) program, publicly disclosing energy and GHG data for municipal buildings and encouraging participation from the private sector. While this represents meaningful progress, participation remains limited, and there are no existing requirements for private building owners to track or report their energy performance. As the City considers a transition toward a mandatory program, there is a need for robust research to inform policy design, ensure feasibility, and align with best practices observed in leading jurisdictions.

Objectives

This Sustainability Scholars research project aims to support the City of Port Moody in developing a scalable and context-sensitive mandatory energy benchmarking and disclosure policy for Part 3 buildings. The project involves a detailed review of Port Moody's policy landscape, a scan of benchmarking programs in peer municipalities across Canada, and a synthesis of academic literature on program design, implementation challenges, and measured outcomes. By combining practical case studies with research-based insights, the report identifies challenges and recommendations for Port Moody to implement energy benchmarking and disclosure for Part 3 buildings.

Detailed objectives are as follows:

- Literature review of current City of Port Moody benchmarking policies, practices, and climate action plan, BC Hydro's Step by Step benchmarking implementation guide, BC Step code for Part 3 buildings, and other relevant documents to understand the City of Port Moody context and requirements.
- Conduct a scan of three to five other municipalities' benchmarking and disclosure efforts (e.g., District of Saanich, City of North Vancouver, City of Vancouver, etc.). Summarizing policy opportunities and lessons learned and their impact on emissions reduction and energy efficiency, while collecting relevant data metrics on uptake.
- Scan literature and online material to understand the impact of similar programs on emissions reductions, energy efficiency, and uptake by building operators, and related

information to identify the benefits and opportunities for implementation for building operators.

Research Approach

This project employed a multi-stage qualitative approach to examine building energy benchmarking policies and formulate implementation recommendations for the City of Port Moody. The method began with a policy review through content analysis, focusing on the regulatory landscape across levels of governance. This included provincial mandates specific to British Columbia, and current policies and strategic documents adopted by the City of Port Moody.

In parallel, a comparative policy review was conducted to identify best practices from other municipalities. This component examined federal programs and tools that support energy benchmarking across Canada, as well as mandatory disclosure policies adopted by provinces and cities, including City of Vancouver, Ontario, the City of Toronto, and the City of Montreal. In addition, voluntary initiatives from municipalities such as the City of Victoria, Burnaby, and District of Saanich were also reviewed. This comparison enabled the identification of common strategies, policy tools, and key lessons learned from both mandatory and voluntary programs.

Complementing the policy review, a literature review was conducted to synthesize academic and technical insights on benchmarking frameworks, implementation challenges, and effectiveness across jurisdictions. This approach allowed for a comprehensive understanding of the current policy environment and scholarly discourse.

The study also identified challenges and gaps in benchmarking implementation, drawn from both the literature and policy reviews. Based on these insights, the final stage involved the development of practical recommendations for Port Moody. These suggestions focus on advancing an energy benchmarking framework that is actionable, aligns with higher-level regulations, and supports the city's broader climate and energy goals.

Summary

The built environment accounts for a significant share of community-scale greenhouse gas (GHG) emissions in Canadian municipalities. Improving energy performance through benchmarking and disclosure programs has emerged as a critical strategy to accelerate emissions reductions, identify retrofit opportunities, and build market awareness. This report investigates the

considerations for implementing a building energy benchmarking and disclosure policy in the City of Port Moody, drawing from best practices across Canada and insights from recent academic publications.

1. Local Performance in Port Moody

The City of Port Moody has made measurable strides in advancing the energy performance of its building stock, particularly in new developments. It has set ambitious targets, including achieving zero-emissions heating and hot water systems in all buildings by 2050 and reducing the carbon intensity of new construction by 40% by 2030.

While a formal, city-wide mandatory benchmarking and disclosure policy for Part 3 buildings has yet to be adopted, the City has taken multiple steps that lay the groundwork for such a program. Its approach is broadly consistent with the BC Hydro Step-by-Step Benchmarking Implementation Guide, incorporating key recommended actions such as stakeholder engagement, utility data collection, ENERGY STAR-based reporting, and continuous performance tracking (Table 1). These efforts are complemented by a progressive building code policy that accelerates adoption of the BC Energy Step Code and Zero Carbon Step Code ahead of provincial timelines (Table 2).

Table 1 Alignment with BC Hydro's Guide

STEPS IN BC HYDRO'S GUIDE	DESCRIPTION IN BC HYDRO'S GUIDE	PORT MOODY POLICY ALIGNMENT
Start and goals	Engage stakeholders and clarify goals.	Aligns with Port Moody's voluntary engagement strategy under BBBC and Action 14 (real estate engagement and public awareness).
Gather data	Collect energy and emissions data.	Supports current data collection by Port Moody (24 buildings reporting by 2024).
Use benchmarking tools	Use ENERGY STAR Portfolio Manager or other tools.	Directly aligns with BBBC, which uses ENERGY STAR metrics; however, only 5 buildings report ENERGY STAR scores, highlighting a gap.
Analyze and report	Compare performance across buildings and time.	Aligned with goals to track metrics like EUI, GHG intensity, and eventually build a public dashboard (Action 2.11).
Take action	Implement improvements and track savings.	Reinforces Port Moody's long-term goals for performance transparency and emissions reduction.

Flexibility	Municipalities can adopt more stringent requirements.	Port Moody confirmed legal authority to mandate benchmarking and disclosure even without provincial leadership (Action 2.2).

Table 2 Alignment with BC step code

TARGET IN BC STEP CODE	SPECIFICATION	PORT MOODY POLICY ALIGNMENT
Energy targets	At least Step 2 by 2023; Step 4 by 2032	Action 1.1 of the Climate Ready Homes and Buildings Plan explicitly targets Step 4 by 2025.
Carbon targets for new Part 3 Buildings	1.5-2.0 $kgCO_2e/m^2$/year for EL-4 (Step 4)	Step 4 EL-4 Zero Carbon Ready for Group C by 2030; Step 3 EL-4 Zero Carbon Ready for Group D and E by 2030 Port Moody plans to impose Low Carbon Energy System requirements if Step Code doesn't include GHGi standards (Action 2.2).

Port Moody's commitment is further underscored by its voluntary participation in BBBC, which uses ENERGY STAR Portfolio Manager metrics to facilitate cross-municipality comparisons and public engagement on building energy performance. Since joining BBBC in 2019, the City of Port Moody has shown steady progress in advancing energy transparency and performance tracking. The number of buildings participating in BBBC increased from just 1 in 2019 to 24 buildings by 2024, reflecting growing institutional engagement. Detailed information is listed as follows with data shown in Figure 1.

- *Growth in participation*: The number of properties disclosing energy performance data increased from just 1 building in 2019 to 24 buildings in 2024, reflecting a growing institutional commitment to transparency and energy efficiency.
- *Property type*: Fire station, Multifamily house, Office, Office-municipal, Other-public Service, Other-recreation, Police Station, Rec Centre, Social/meeting hall. Amony them, except the multifamily house and office, others are all civic buildings (Details are in Table 3).
- *GHGi*: Average emissions dropped significantly from 74.98 kg/m² in 2020 to 33.24 kg/m² in 2023, indicating progress in reducing operational emissions.

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- *Site EUI*: Improved from 495.85 ekWh/m² in 2020 to 338.35 ekWh/m² in 2023, showing gains in building energy efficiency.
- *Source EUI*: Slight reduction from 559.53 ekWh/m² in 2021 to 468.72 ekWh/m² in 2023.
- *ENERGY STAR Scores*: Fluctuated over the years with an average of 60.8 in 2023, down from 87 in 2020.

Table 3 Property types and numbers for each year

PROPERTY TYPE	2019	2020	2021	2022	2023
Multifamily Housing	1	1	1	1	1
College/University			1		
Fire Station			3	3	3
Office			2	2	2
Office - Municipal			1	2	2
Other - Public Service			2	2	2
Other - Recreation			3	2	2
Outdoor Pool			1	1	
Police Station			1	1	1
Rec Centre (with Pool and Ice Rink)			1	1	1
Rec Centre (with Pool)		1	1	1	1
Social/Meeting Hall			5	6	6

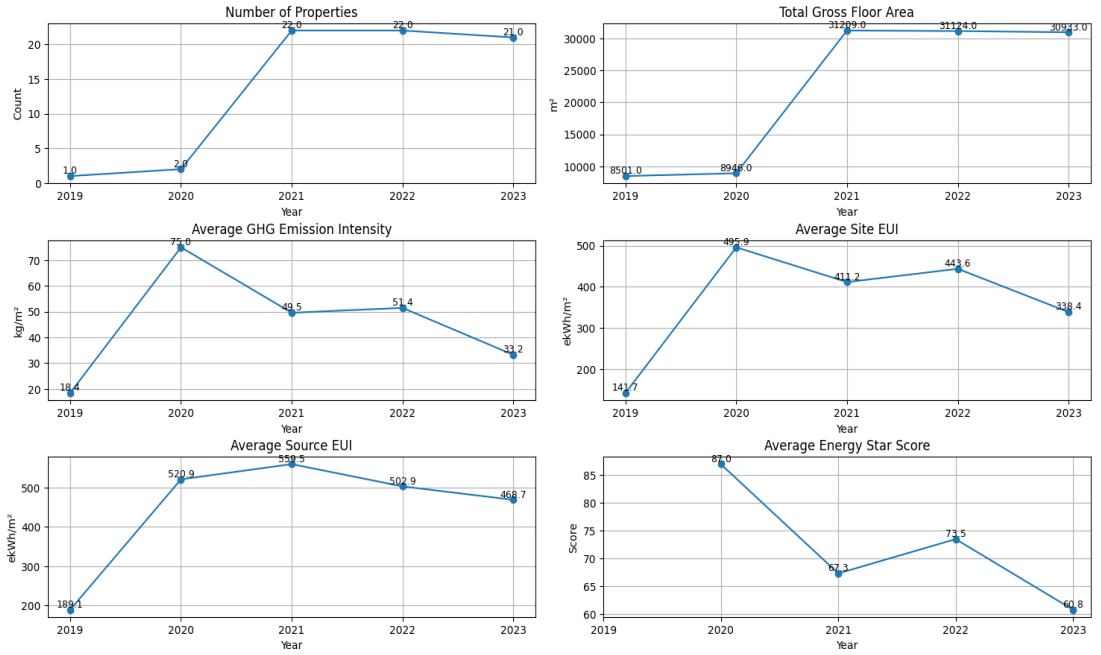

Figure 1 BBBC Performance of properties in the City of Port Moody (2019-2023)

2. Practice from Canadian Jurisdictions

In total, Canada's municipalities are adopting energy benchmarking and disclosure policies through two main pathways:

- Mandatory approaches (e.g., Vancouver, Montréal, Toronto, Ontario) are implemented through regulatory instruments such as building by-laws or provincial regulations. These approaches focus on regulatory enforcement, annual reporting deadlines, and public disclosure, sometimes even applying GHG performance standards and financial penalties (Details in Table 3).
- Voluntary or phased approaches (e.g., Victoria, Saanich, Burnaby, Port Moody) aim to build capacity and data infrastructure before introducing mandates, often via pilot programs like Building Benchmark BC (Details in Table 4).

Table 3 Summary of mandatory municipals

FEATURE / JURISDICTION	ONTARIO (PROVINCE-WIDE)	TORONTO	MONTRÉAL	VANCOUVER
Policy Name	Energy & Water Reporting and Benchmarking (EWRB) Regulation (O. Reg. 506/18)	EWRB + Toronto Green Standard	By-law 21-042 on GHG Emissions Disclosure	Annual Greenhouse Gas & Energy Limits Bylaw No. 13472
Legal Authority	Provincial regulation	Same as Ontario	City by-law	City by-law
Applies to	Existing commercial, multi-unit residential, institutional buildings	Same as Ontario	Existing large commercial, institutional, multi-residential buildings	Existing large commercial, retail, multi-residential, and hotel buildings
Minimum Size Threshold	⩾ 4,645 m²	⩾ 4,645 m² (2024); ⩾ 929m²(2026)	Phase-in: ⩾ 15,000 m² (2022); ⩾ 5,000 m² or 50 dwellings (2023); ⩾ 2,000 m² or 25 dwellings (2024)	Phase-in: commercial buildings⩾ 9,290 m² (2024); commercial building⩾ 4,645 m² ; muti-family building s⩾ 9,290 m² (2025)
Benchmarking Tool	ENERGY STAR Portfolio Manager	Same	Same	Same + City Portal
Reporting Deadline	July 1 annually	July 1 annually to the Province of Ontario; July 2 annually to City of Toronto	June 30 annually	June 1 annually
Who reports	Building owner	Same as Ontario	building owner or operator	building owner

Data reports	Energy & water use, GHG emissions, ENERGY STAR score	Same	Same	Same
Public Disclosure?	Required	Required	Required	Required
Disclosure type	Anonymized via Open Data portal	City dashboard + Ontario portal	Via City website and owner display	Mandatory disclosure via reporting regulations
Enforcement Mechanism	Align with environmental penalties	Currently no fines. May align with Toronto's Municipal Code Chapter 367 in the future	Fines up to $4,000/year per building	Penalties for missed reporting + $350/$tCO_2e$ over GHG limit from 2026
Building Performance Standard	No	In planning (Building emission performance standard)	Emission performance rating	Yes (High performance building standards)
GHG Emission limits	No	No	Not yet	Yes (2026 onward)
Supporting mechanism	Ontario's Guide; NRCan training webinars and resources	Ontario's Guide; City of Toronto webinars	Limited	Webinars, guides, videos, FAQs

These benchmarking policies illustrate a clear trend: cities are moving from transparency-based tools toward performance-based regulation. While Ontario and Toronto focus primarily on reporting and disclosure, Montréal and Vancouver are shifting toward accountability and emissions reduction, aligning with national and provincial net-zero goals. Vancouver's model is currently the most stringent, integrating GHG limits, performance tracking, and financial enforcement, which may become a pilot for other cities.

Table 4 Summary of voluntary municipals

CRITERIA	CITY OF VICTORIA	DISTRICT OF SAANICH	CITY OF BURNABY
Benchmarking program	Draft policy 2.0 (energy & carbon emissions reporting)	Draft policy 2.0 (joint with Victoria)	Building benchmark BC (voluntary)
Mandatory reporting start	Cohort 1: June 1, 2026 (⩾2787 m^2) cohort 2: June 1, 2027 (⩾929 m^2)	Same as Victoria	No mandatory reporting yet; pilot participation only
Public disclosure timeline	2027 (cohort 1) 2028 (cohort 2)	Same as Victoria	Not required
Data platform	Energy star portfolio manager (ESPN)	ESPN	ESPN
Data required	GHGi, EUI, performance ranks		

Reporting method	ESPN data entry or utility aggregation via BC hydro/fortisBC	Same	Similar
Exemptions	Buildings <10,000 sq ft; <5 res. Units; single family house, etc.	Same	Not applicable (no mandatory program)
Zero carbon step code – part 3 buildings	El-4 required from Nov 1, 2024	El-4 required from Nov 1, 2024	El-4 required from July 1, 2024
Energy step code – part 3	Step 2 (May 2023	Step 2 (May 2023)	Step 2 required
Building benchmark BC participation (2024)	145 buildings	114 buildings	123 buildings
Policy status	Draft	Draft	N/A

This voluntary approach reflects a pragmatic, capacity-focused strategy, especially for smaller municipalities or those early in their policy development journey. However, the downside is slower policy impact: without requirements, data collection is uneven, and emissions reductions are not guaranteed.

3. National Context and ENERGY STAR Use

While Canada does not currently have a nationally mandated requirement for energy benchmarking and disclosure across private or municipal buildings, the federal government has adopted a leadership role by implementing such practices within its own operations. Through a suite of strategies and guidelines, including the Greening Government Strategy, the Canada Green Building Strategy, the Model National Framework for Building Energy Benchmarking, Labelling and Disclosure, and continued investment in tools like ENERGY STAR Portfolio Manager, the federal government has established clear expectations for federally owned and leased buildings to measure, track, and in some cases publicly disclose energy and emissions data. These federal initiatives serve as models for municipalities, offering policy guidance, standardized tools, and funding mechanisms to support local efforts.

The ENERGY STAR Portfolio Manager is Canada's national benchmarking tool. As of 2022, over 42,000 buildings had been registered, with a 45% increase in participation that year alone. Municipalities continue to be key drivers of benchmarking adoption. Programs in Toronto, Vancouver, Montréal rely on ENERGY STAR Portfolio Manager as the core platform for regulatory compliance and public disclosure.

4. Challenges in Implementation

Findings from both policy review and literature identify key gaps that limit the effectiveness of benchmarking frameworks:

- Lack of operational targets for existing buildings, except in Vancouver;
- Limited enforcement mechanisms in voluntary programs;
- Data access barriers due to utility integration limitations or privacy issues;
- Low stakeholder readiness, particularly among small property owners;
- Disconnection from retrofit incentives, which limits follow-up actions;
- Underutilization of advanced tools and transparent public communication platforms.

Recommendations and Next Steps

Based on the cross-jurisdictional policy review of energy benchmarking and disclosure initiatives in Canada, several policy-oriented recommendations can be drawn to inform the development of an effective and equitable benchmarking program for the City of Port Moody.

1. Examine the City's building scales and create the covered building list

Knowing the regional building footprint helps identify the existing building stock, including building type, year built, and floor area. This is the foundation for setting the building size threshold for energy benchmarking and disclosure that fits local conditions.

Recommendation: Port Moody should conduct a comprehensive examination of its current building stock to understand the range of building sizes and types. A Covered Buildings List identifying specific buildings that must comply should be developed. This will provide the baseline dataset for policy implementation, owner outreach, and compliance tracking.

Following step by step actions can be adopted:

(1) Define scope and data need

- Confirm the building types to be included (Part 3 buildings).
- Determine the minimum fields to capture: building ID, address, gross floor area, primary use, year built, owner, and data source.

(2) Gather and integrate data from multiple sources

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Table 5 Data sources

DATA SOURCE	DESCRIPTION	NOTE
BC assessment	Roll number, feature area, building type, built year, actual use, et al.	Use as primary area references, confirm definitions
Municipal property tax database	Owner name, mailing address, roll	Cross-check ownership; ensure data is current
Municipal GIS (footprints)	Building footprints and geometry	Validate building areas; calculate areas where missing
Permitting database	New builds, demolition, major renovation, change of use	Keep list current and accurate
Manual calculation	On-site verification or checks	Cross-validation, handle privacy, fill gaps
Current BBBC program lists	Current BBC participants, civic asset inventories	Identify overlaps

(3) Clean and verify data

- Standardize addresses and naming formats (e.g., street types, unit numbers).
- Deduplicate entries using roll number and spatial location.
- Verifying floor area data: prefer BC Assessment numbers, supplement with GIS calculations when needed.

(4) Analyze building scale distribution

- Group buildings into size categories (e.g., <929 m^2, 929–4644 m^2, ⩾4645 m^2).
- Identify how many buildings and how much total floor area fall into each category.
- Test different potential size thresholds (e.g., ⩾929 m^2 , ⩾4645 m^2) and assess coverage impacts.

(5) Create the coved building list

- Apply the agreed threshold to filter the master inventory.
- Remove excluded building types
- Prepare both an internal version (with owner contact information) and a public version (without personal information).

(6) Quality assurance and departmental review

- Double-check the largest and most complex buildings.

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- Circulate the draft list to other departments for review.
- Incorporate corrections

(7) Maintain and update the list

- Assign a lead analyst (primary responsibility) and a GIS supporter (technical support).
- Update annually after BC Assessment data refresh; track changes from permitting data throughout the year.
- Maintain a change log and version control system.

Implementation consideration:

- Take the time to understand the nuances and definitions in each dataset before refining the covered buildings list.
- Assign clear responsibility for list creation and maintenance: intern or analyst for initial compilation, with GIS support.
- Create a simple correction form for owners to flag errors; incorporate verified changes into quarterly/yearly updates.
- Ensure personal information (owner names, mailing addresses) is stored securely and not shared in public-facing versions.

2. Establish a clear and phased implementation timeline

A well-structured implementation timeline is a foundational component of successful energy benchmarking and disclosure policies. Leading jurisdictions such as Toronto, Montréal, and Vancouver have adopted phased rollouts that segment buildings by size and type. This approach provides building owners with adequate time to prepare, build internal capacity, and address data collection or technical challenges before mandatory compliance begins.

Recommendation: Port Moody should adopt a tiered implementation timeline that starts with the largest buildings, where data collection is typically easiest and the potential impact is greatest, and gradually expands to smaller building cohorts. This will give owners sufficient lead time, allow for testing of administrative processes, and enable refinement of support resources before full coverage.

Following step by step actions can be adopted:

(1) Align timeline with policy goals and capacity

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- Decide on the policy launch year (e.g., The year set in Action 7 in "Phase two climate action implementation strategy")
- Ensure the schedule aligns with staff availability, IT readiness, and any parallel sustainability initiatives.

(2) Define phased rollout criteria

- Primary segmentation: gross floor area threshold (start with largest buildings).
- Secondary segmentation (optional): building type (e.g., commercial, institutional, multi-family).
- Adjust thresholds to reflect Port Moody's smaller building stock and ensure a sufficient number of participants in each phase.

(3) Set reporting deadlines and disclosure types

Table 6 Proposed timeline

PHASE	BUILDING SIZE THRESHOLD	DISCLOSURE TYPE	REPORTING DEADLINE
Year 1 (e.g., 2026)	≥9290 m²	Voluntary disclosure	June 1, 2027
Year 2 (e.g., 2027)	≥4,645 m²	Mandatory disclosure	June 1, 2028

Note: These suggested thresholds mirror examples from Toronto, Vancouver, and BC Hydro's benchmarking guide. Port Moody may lower these thresholds or adjust rollout sequencing based on the building inventory from Recommendation 1.

Implementation consideration:

- Engage the largest building owners and facility managers first to ensure familiarity with ENERGY STAR Portfolio Manager and reporting requirements.
- Build in time for staff to review submitted data and request corrections before public disclosure.
- Provide technical assistance or incentives for early adopters during the voluntary phase.
- Monitor participation rates and data quality to inform expansion and adjust thresholds if needed.
- Where possible, match deadlines and requirements to neighboring municipalities (e.g. Vancouver, Burnaby) to reduce administrative burden for owners with properties in multiple cities.

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3. Mandate the use of ENERGY STAR Portfolio Manager

ENERGY STAR Portfolio Manager is Canada's national standard tool for energy and water benchmarking, recognized and used by all major jurisdictions across the country. Its adoption allows for standardized reporting, comparability across regions and building types, and integration with provincial utility data platforms, such as those offered by BC Hydro and FortisBC. Additionally, the tool is compatible with BBBC and can feed into future performance dashboards or open data portals.

Recommendation: Port Moody should require the use of ENERGY STAR Portfolio Manager for all buildings participating in the City's benchmarking program. The City should also provide clear, Port Moody-specific guidance, hands-on training, and technical support to assist building owners and operators in account setup, data entry, and submission.

Following step by step actions can be adopted:

(1) Formalize ESPM as the program standard

- Include ESPM use in the bylaw or program requirements.
- Specify that all benchmarking data must be submitted through ESPM, with a shared report sent to the City's designated account.
- Align required ESPM fields with City reporting needs (e.g., gross floor area, use type, energy and water consumption).

(2) Prepare City-specific onboarding resources (use resources from NRCan as references)

- Develop a Port Moody ESPM Starter Guide with screenshots showing:
    - Creating an ESPM account.
    - Adding a property and entering basic information.
    - Adding and configuring meters (electricity, natural gas, water).
    - Entering monthly consumption data.
- Generating and sharing annual reports with the City.
- Create a Quick Reference Checklist for annual submissions (data period, deadline, required fields).

(3) Deliver owner/operator training

- Host introductory webinars at least 6–9 months before the first reporting deadline (see webinar examples in City of Toronto and City of Vancouver).
- Offer topic-specific sessions, such as:

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    - "Setting Up Your Building in ESPM"
    - "Importing Data from BC Hydro and FortisBC"
    - "Avoiding Common Benchmarking Mistakes"
- Record all sessions and make them available online, along with slide decks and a compiled Q&A.

(4) Provide targeted technical assistance

- Set up a local ESPM Help Desk (phone and email) for troubleshooting account setup, data entry, and report submission.
- Offer one-on-one support sessions for building owners with multiple properties or complex portfolios.
- Partner with BBBC, BC Hydro, and FortisBC to co-host workshops or leverage existing training programs.

(5) Support ongoing compliance

- Send annual reminder emails with submission deadlines, step-by-step instructions, and links to resources.
- Monitor submitted reports for missing or inconsistent data, request corrections before the public disclosure deadline.
- Maintain an updated FAQ based on recurring issues raised by participants.

Implementation consideration:

- Use Port Moody-specific thresholds, deadlines, and contacts in all ESPM resources to reduce confusion with other municipal programs.
- Promote use of BC Hydro and FortisBC automated data upload features to reduce manual entry and errors.
- Consider partnering with nearby municipalities using ESPM to share training costs and staff expertise.
- Provide guidance on protecting owner credentials and ensure data is only shared with authorized City staff.

4. Standardize reporting metrics and encourage disclosure of full performance data

While GHGi and EUI are core metrics in most Canadian benchmarking programs, leading jurisdictions such as Toronto, Vancouver, and Montréal are increasingly emphasizing the

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importance of comprehensive performance disclosure. This includes the regular reporting of ENERGY STAR scores, WUI, and both site and source EUI to enable more accurate benchmarking, enhance transparency, and support data-driven decision-making.

Recommendation: Standardize the required metrics for Port Moody's benchmarking program and encourage the full disclosure of: GHGi, Site and Source EUI, ENERGY STAR Scores, and WUI.

Following step by step actions can be adopted:

(1) Create a data dictionary

Establish program-wide definitions, units, and boundaries for GHGi, Site and Source EUI, ENERGY STAR Scores, and WUI.

- Specify the reporting boundary, period, weather normalization, and required property attributes (e.g. occupancy, hours)

(2) Build ESPM-based reporting templates

- Create a Port Moody ESPM data request with required fields/metrics and a standard shared report.
- Provide a Port Moody Annual Reporting Template

(3) Phase the metric requirement

- Tie minimums to the program timeline (Section 2)

Table 7 Metric requirements

PROGRAM YEAR	REQUIRED AT SUBMISSION	ENCOURAGED/OPTIONAL
Year 1 (Voluntary)	Site EUI, Source EUI, GHGi, ENERGY STAR Score (if eligible)	WUI
Year 2 (First mandatory)	Site EUI, Source EUI, GHGi, ENERGY STAR Score, WUI, monthly energy & water, core attributes	Peak demand, load factor, on-site renewables
Year 3+ (Expansion)	Same as Year 2 + any approved additions	Optional factors (e.g. occupant behavior, building operations)

(4) Validation and correction

- Check the missing or duplicate months, negative/zero values
- Get ESPM certification if necessary
- Allow owners to have 30 days to resolve flags before disclosure

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(5) Define disclosure tiers and publish formats

- Check internal dataset (full data) and public dataset (open data)
- Summarize participation, highlighting top performers

(6) Encourage full disclosure

- Recognition top performer and most improved by property type/size
- Encourage the top performer to apply for ENERGY STAR Canada Award
- Provide priority access to audits or retrofit incentives

Implementation consideration:

- Lock down definitions, units, and boundaries in a public data dictionary, avoiding inconsistency
- Use native ESPM fields wherever possible to minimize custom data handling; only add custom fields when essential.
- Set minimum data expectations by Year 2 of implementation.

5. Define operational targets and compliance mechanisms for existing buildings

Compared to new construction standards (e.g., BC Step Code), most municipalities lack operational emissions targets for existing buildings. Vancouver is a notable exception, introducing GHGi limits for large commercial buildings in 2026 and 2040. Establishing dynamic, localized operational benchmarks would strengthen Port Moody's climate accountability and provide clear market signals beyond disclosure-only frameworks.

Recommendation: The City of Port Moody should define graduated GHGi targets for existing Part 3 buildings, beginning with voluntary disclosure benchmarks and eventually moving toward mandatory performance thresholds by 2030. These performance targets can serve as the basis for a future Building Performance Standard. Suggested initial thresholds could be based on:

- BBBC median GHGi: ~25.55 $kgCO_2e/m^2$/year for 2024
- Port Moody average GHGi (currently exceeding BBBC average): Set interim target to 10–15% below this local average (e.g., ~23 $kgCO_2e/m^2$/year by 2027)
- Sector-specific targets: Use peer comparison within each building type (e.g., office, multifamily, civic) to assign achievable performance bands

Following step by step actions can be adopted:

(1) Establish a local performance baseline

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- Compile at least two full years of GHGi data from: BBBC participants, city-owned buildings and large private Part 3 buildings (⩾929 m^2)
- Segment results by building type and size.
- Calculate: Median and 75th percentile GHGi for each segment and city-wide median and compare to BBBC median.
- Document influencing factors (e.g., fuel mix, operational hours, occupancy).

(2) Set voluntary benchmark bands

- Define three performance bands for each building type:
    - High performance: ⩽ 75th percentile of top quartile (low GHGi).
    - Typical: ±10% of median.
    - Needs improvement: > median + 10–15%.
- Publish these as reference bands in Year 1 of the program (voluntary phase).

(3) Define interim performance targets

- Select achievable interim targets for each building type (e.g., 10–15% below current Port Moody average for that type).
- Apply a 3–4 year lead time (e.g., 2026–2029) before any target is mandatory.

(4) Progress to mandatory thresholds

- By 2030, convert interim targets into mandatory GHGi limits for covered buildings (follow the list in recommendation 1)
- Draft a building emission performance standard
- Set graduated non-compliance fees or require participation in retrofit programs.

Implementation considerations:

- Begin with public buildings or buildings already participated in BBBC.
- Use benchmarking data to calibrate targets over time and build toward a robust compliance pathway.
- Publish sector benchmarks, methodology notes, and update them annually.
- Align with BC Step Code for new builds and provincial/regional decarbonization targets for existing stock.

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6. Support building owners through training and data access tools

Stakeholder capacity and data accessibility are frequently cited barriers to benchmarking participation, especially in smaller municipalities. Evidence from jurisdictions such as Toronto, Vancouver, and Montréal demonstrates that effective benchmarking programs require ongoing education, utility data integration, and transparent communication platforms to facilitate participation, compliance, and market transformation.

Recommendation: Port Moody may implement a multifaceted support system for building owners and operators that includes:

- Showcases Port Moody's own civic building performance as proof of feasibility.
- Provides targeted technical assistance and training to help owners comply.
- Enhances data accessibility and visualization tools to enable peer comparison and engagement.

Following step by step actions can be adopted:

(1) Showcase City leadership through civic building performance

- Publish the results from participating in BBBC highlighting:
  - GHGi reduced from 74.98 $kgCO_2e/m^2$ (2020) to 33.24 $kgCO_2e/m^2$ (2023).
  - Site EUI improved from 495.85 to 338.35 $ekWh/m^2$over the same period.
- Present these results at public events or council updates
- Use these examples to demonstrate achievable operational improvements and build trust with private-sector owners.

(2) Develop plain-language guidance and FAQs

- Create Port Moody specific guide on ESPM (see recommendation 3)
- Publish online, distribute via email to covered building owners, and provide hard copies at in-person events.

(3) Establish local technical support capacity

- Assign a help desk function proving phone and email support for ESPM issues, and office hours for assistance during the first reporting cycle.
- Could be a dedicated municipal staff member, a contracted service, or a partnership with BBBC or City of Vancouver.
- Track and categorize questions to refine training materials over time.

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(4) Deliver training sessions

- Host introductory workshops before each reporting deadline
- Offer specialized webinars for muti-tenant buildings
- Record sessions, publish slides, and compile a Q&A resource library for on-demand access.

(5) Enhance data accessibility and transparency

- Develop an annual public benchmarking summary with anonymized, aggregated results.
- Launch an interactive mapping platform or dashboard showing GHGi, Site EUI, Source EUI, ENERGY STAR score, and WUI, peer comparison by building type and size, and recognition of top performers. (examples: Vancouver's Energize Vancouver and City of Toronto dashboard).

Implementation considerations:

- Align utility data collection with services from BC Hydro and FortisBC, both of which support automated uploads to ESPM.
- Collaborate with BBBC and regional partners to co-develop training material and ensure consistency with provincial tools and standards.
- Use data collected in the first two years to generate performance baselines and inform outreach strategies for underperforming buildings.
- Plan for ongoing resources beyond the first two years to maintain participation and improve data quality.

7. Explore financial and incentive mechanisms to encourage compliance

Voluntary participation and sustained compliance can be significantly improved through well-designed financial incentives and recognition programs. Leading jurisdictions, such as Toronto, Montréal, and Victoria, are increasingly coupling benchmarking requirements with benefits like retrofit grants, public recognition, and policy alignment with building performance standards. These mechanisms help overcome participation barriers, particularly for older or underperforming buildings, and create tangible value for building owners and operators.

Recommendation: Port Moody should explore and pilot targeted incentive mechanisms to encourage early compliance, reward high performers, and support long-term engagement with benchmarking policies.

Following step by step actions can be adopted:

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(1) Launch an early compliance incentive

- Offer small grants or rebates to buildings completing benchmarking and disclosure in the first reporting year.

(2) Reward demonstrable performance improvements

- Provide additional incentives to buildings that achieve >10% reduction in GHGi or EUI relative to their baseline.
- Verify improvements using submitted ESPM data over a minimum of 12 months.
- Consider tiered rewards for higher performance gains (e.g., 10%, 20%, 30%).

(3) Align with existing funding programs

- Cross-reference Port Moody benchmarking participants with eligibility for:
    - CleanBC Commercial and Institutional Retrofit Program.
    - Canada Greener Homes (for applicable mixed-use/multifamily buildings).
    - Utility-led rebate programs (BC Hydro, FortisBC).
- Offer application support to streamline owners' access to external funds.

(4) Create a "Top Performer" recognition program

- Establish annual awards for buildings with lowest GHGi and Highest ENERGY STAR scores
- Recognize winners via certificates, city newsletters or websites
- Integrate the recognition into the public benchmarking dashboard, featuring top 10 list by building type
- Include visual storytelling (photos, project highlights) to inspire replication.

(5) Target feature retrofit support based on benchmarking results

- Use Year 1 and 2 benchmarking data to identify high-potential buildings for energy retrofits
- Prioritize these for municipal or partner-funded retrofit support programs.

Implementation considerations:

- Start with a 12-month pilot linked to the first year of rollout (e.g., 2025–2026).
- Use civic building performance and BBBC data to set realistic eligibility benchmarks.
- Monitor participation, GHG reductions, and owner feedback to evaluate cost-effectiveness and inform program scaling.

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- Collaborate with CleanBC, Canada Greener Homes, BC Hydro, and FortisBC to co-fund or co-brand incentives, reducing the City's direct costs.

8. Adopt continuous policy evaluation and feedback loops

Effective energy benchmarking policies require ongoing adaptation to reflect emerging building technologies, evolving market dynamics, and lessons from implementation. Cities such as New York have demonstrated the importance of longitudinal data tracking, multi-year benchmarking trends, and feedback-driven policy refinement to ensure continuous improvement. Literature consistently highlights the need for iterative learning, especially in smaller jurisdictions where early adjustments can improve long-term program impact.

Recommendation: Port Moody may embed a formal policy evaluation and learning mechanism into its benchmarking program:

- Track progress with clear performance metrics.
- Use annual data to refine targets, thresholds, and incentives.
- Integrate regular stakeholder feedback loops to keep the program responsive and relevant.

Following step by step actions can be adopted:

(1) Define core evaluation metrics

Establish a set of key indicators to track each year, such as:

- Participation rates by building type (office, retail, MURB, civic, etc.).
- Data completeness and quality within ENERGY STAR Portfolio Manager submissions.
- GHGi and EUI reductions over time, disaggregated by building type and benchmarking cohort.
- Compliance rates and documented reasons for non-compliance.
- Effectiveness of outreach/support efforts (e.g., number of help desk interactions, training attendees).

(2) Build a baseline in year 1

- Conduct a baseline assessment during the first reporting year using initial benchmarking data.
- Document average GHGi, EUI, and participation levels for comparison in future years.
- Use this baseline to set realistic short-term improvement targets.

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(3) Conduct annual reviews

- Release annual summary reports highlighting key findings and trends using anonymized data.
- Identify performance gaps and buildings with persistent underperformance to inform targeted outreach or retrofit campaigns.
- Use findings to adjust future disclosure thresholds, metrics, or incentive schemes.

(4) Host annual stakeholder workshops and gather direct owner/operator feedback

- Invite building owners, property managers, utilities, and partner organizations to:
    - Review city-wide benchmarking results.
    - Discuss challenges and successes from the past year.
    - Co-develop refinements for thresholds, metrics, and support programs.
- Include technical presentations, peer-sharing sessions, and Q&A panels.
- Conduct post-submission surveys with building owners/managers to understand data access barriers and support needs.

(5) Coordinate with regional and national programs

- Align Port Moody's metrics with those from Building Benchmark BC, NRCan, and peer municipalities.
- Participate in knowledge exchanges to share lessons learned and adopt best practices from other jurisdictions.
- Contribute anonymized local results to provincial/national datasets to help shape broader policy.

Implementation considerations:

- Allocate municipal staff or consultant support to manage analysis, reporting, and facilitation of feedback activities.
- Begin evaluation with the Year 1 baseline, then maintain consistent annual reporting cycles.
- Balance open reporting with privacy protections to maintain trust with participants.

9. Strengthen regional alignment and leadership coordination

As a member municipality of Metro Vancouver, Port Moody has an opportunity to both benefit from and contribute to regionally coordinated climate action. Metro Vancouver's Climate 2050

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Strategy and Clean Air Plan emphasize the need for coordinated municipal actions, especially in addressing operational emissions from buildings. Currently, energy benchmarking and disclosure policies vary across municipalities, the absence of a regionally mandated benchmarking framework poses challenges for consistency and efficiency.

Recommendation: Port Moody should strengthen collaboration with Metro Vancouver and neighboring municipalities to create consistent, regionally aligned benchmarking and disclosure policies, while contributing local data and expertise to help shape regional frameworks.

Following step by step actions can be adopted:

(1) Adopt shared reporting frameworks and definitions

- Work with Metro Vancouver, BBBC, and peer municipalities to use standardized building archetypes, GHGi thresholds, and EUI definitions.
- Adopt common reporting templates to streamline data entry for owners with multi-jurisdictional properties.

(2) Align metrics and methodologies

- Standardization required metrics across the region
- Coordinate on data collection processes so that utilities, owners, and operators can report consistently.

(3) Participate in regional policy development

- Support Metro Vancouver in exploring a regionally coordinated policy framework for benchmarking and disclosure.
- Contribute local pilot program results (e.g., BBBC participation rates, Port Moody civic building data) to help define realistic regional targets and thresholds.
- Advocate for region-wide support tools, such as shared training materials and joint incentive programs.

(4) Share Port Moody's leadership results

- Use Port Moody's 56% reduction in civic GHGi from 2020–2023 as a case study in regional meetings.
- Provide anonymized benchmarking summaries to Metro Vancouver to support regional baselines and performance tracking.

(5) Pool resources for shared initiatives

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- Explore partnerships with neighboring municipalities to co-fund joint training sessions and workshops, shared communication campaigns and regional program evaluations.

Implementation considerations:

- Continue to use existing BBBC reporting channels for efficiency and consistency.

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