Emissions Reduction Requirements for Existing Large Buildings (LBER)

*Phase 1 Engagement Summary (*August 2021 to February 2022*)*

About Metro Vancouver

Metro Vancouver is a federation of 21 municipalities, one electoral area, and one treaty First Nation that collaboratively plans for and delivers regional-scale services. Its core services are drinking water, wastewater treatment, and solid waste management. Metro Vancouver also regulates air quality, plans for urban growth, manages a regional parks system, and provides affordable housing. The regional district is governed by a Board of Directors of elected officials from each local authority.

Metro Vancouver embraces collaboration which contributes to a livable and resilient region, and a healthy natural environment for current and future generations. The responses, feedback, and perspectives received through this process will be carefully considered in potentially developing a regulation.

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1. Background and Context

Metro Vancouver is developing an approach to significantly reduce greenhouse gas (GHG) emissions from large buildings. Large buildings are those over 25,000 ft2 (2,322 m2) and include residential, commercial, office, and institutional buildings across the region.

Buildings are the second highest source of GHG emissions, contributing approximately 25% of the total GHG emissions in the region. Proven technologies are widely available to change the way we heat space and water in buildings and reduce or eliminate GHG emissions.

Metro Vancouver's Climate 2050 Buildings Roadmap, developed with partners through the region, sets a goal for all homes and buildings to be zero emissions and resilient by 2050. In the interim, the target is to reduce GHG emissions from buildings by 35% below 2010 levels by 2030. Reducing emissions from large buildings will make a significant contribution to achieving this target. The timeline for this project is illustrated below.
Executive Summary

Table 1.0: Project Timeline

Action adopted in Metro Vancouver's Clean Air Plan	Initial engagement on approach: "Listen and Learn"	Future engagement to further develop a regulatory approach	Implementation through 2030
2021	May to November, 2022	Fall 2023 through 2024	Mid 2020s through 2030.

2. Executive Summary

The goal of this early phase of engagement was to "listen and learn" from those likely to comment on a potential regulation, be impacted by a regulation, or have a role in implementation. The input will help shape Metro Vancouver's approach. The project team heard directly from audiences representing a variety of sectors and both regulators and building owners/managers/representatives. Through inputs from roundtables, the online feedback form, and sector meetings, staff heard that the proposed approach being developed by Metro Vancouver is heading in the right direction. Much of the input could be grouped in the categories below:

- Implementation: Some participants felt that strong communication with member jurisdictions will support compliance and some expressed that many regulators in this space may introduce complications for building owners and managers.
- Financial and affordability implications: Some participants expressed desire for increasing current incentives and exploring upgrade supports for building owners and managers with fewer resources.

- Jurisdictional alignment: Participants encouraged Metro Vancouver to continue to seek alignment with provincial and municipal policies and initiatives to meet the longer-term goal of achieving zero emissions buildings.

Overall, takeaways were that Metro Vancouver ought to balance a regional approach with specific considerations to reflect member jurisdictions' needs and building portfolios. Within the category of large buildings, there are differences in building design, heating technologies, and management, and understanding these differences will mitigate anticipated challenges. Finally, participants suggested to think ahead to electricity supply and demand, particularly when it comes to shifting from gas to electric heating sources.

3. About the Engagement Program

To support this work, Metro Vancouver initiated engagement and outreach to hear from those who were likely to be interested in, or impacted by the approach to reducing GHG emissions from large buildings. Engagement activities were planned and designed in alignment with the International Association of Public Participation (IAP2) Spectrum of Engagement, which assists in defining the role of the public and sector specific audiences in an engagement process. In this phase of engagement, held between May and November 2022, Metro Vancouver sought to engage all audiences to:

- Provide information
- Request feedback
- Have in-depth conversations

These engagement goals and associated activities are captured in Table 2.0, along with the corresponding level of engagement. Activities are described in more detail in Table 2.0, below.

Table 2.0: Engagement goals and activities

Goal	IAP2 Spectrum	Description	Activities
Provide information	Inform	Inform audiences about the initiative and opportunities to provide input	• Project website • Social media • Discussion paper • Video • Introductory webinar • Correspondence to database
Request feedback	Consult	Create and promote opportunities to provide feedback	• Online feedback form • Correspondence to database • Project team email climate2050@metrovancouver.org

Have in-depth conversation	Involve	Have in-depth conversations with priority audiences	• Roundtable discussions • 1:1 meetings with priority audiences (phone, zoom, in person)

4. Engagement Promotion

Project Website
A project website was established as the central place for information and updates about the initiative. In addition to an overview of the project, the website included links to a discussion paper, companion video, feedback form, and contact information for the project team. Links to additional resources were also available, such as the Climate 2050 Buildings Roadmap and Clean Air Plan, which underpin the large emissions reduction initiative. Over the course of the engagement, the website had 850 page views from 439 visitors.

Social Media
Metro Vancouver's social media channels were used to communicate about the large buildings reduction initiative and promote opportunities to provide feedback. Table 3.0 captures social media activity and engagement.

Table 3.0: Social media activity

Channel	People Reached	Engagements (likes, shares, comments)	Click throughs (to feedback form)
LinkedIn	4,725	64	79
Twitter	3,771	71	21
Facebook	20,258	127	2,832
Total	**28,754**	**262**	**2,932**

Discussion Paper and Video
To support audiences to engage, Metro Vancouver published a Discussion Paper '*Potential Approaches for Managing Greenhouse Gas Emissions from Large Buildings in Metro Vancouver*' along with a companion video. The paper and video were published online on the project website and shared with pa through Metro Vancouver's database of over 340 subscribers interested in the large buildings emissions reduction initiative. The discussion paper and video outlined the context for the initiative, program scope, and the key considerations that would be explored in the development of the approach.

5. Engagement Participation

Webinar
In July 2022, the project team hosted an introductory webinar where attendees could learn more about the initiative. The webinar introduced the topic, provided rationale and benefits for developing the

approach for large buildings, and outlined the scope of the project. There was also an opportunity for attendees to ask questions of the project team. Thirty-nine individuals attended the webinar. A recording of the webinar was also made available on the project website after the session.

Online Feedback Form
A feedback form was available online to gather comments and input from interested and impacted parties. The online feedback form included 13 questions across four topic areas:

1. Guiding principles
2. Program approach
3. Coordination and alignment
4. Design elements

Respondents were also asked to identify their role in the building sector (e.g.; owner, manager, tenant, landlord) and the type of building(s) they represent (e.g.; strata, commercial). The feedback form was open until November 30, 2022. Eighty feedback forms were received.

Project Email
A dedicated project email was used for questions and correspondence with the project team (climate2050@metrovancouver.org). The project team received six queries/comments about the initiative through the project email, not including logistical queries about engagement events.

Roundtable Discussions
Six key sector groups were identified and invited to participate in a roundtable session through October and November 2022. The roundtables aimed to seek input from sector specific audiences in a smaller setting, to help inform and shape Metro Vancouver's approach. Sector audiences included:

- Building Owners, Managers, and Developers
- HVAC and Plumbing Manufacturers, Suppliers, Trades, and Mechanical Contractors
- Public Institutions, School Districts, and Municipal Facility Managers, Municipal Facility Operators
- Health Facility Managers
- Building Engineers, Architects and Consultants
- Non-Governmental Organizations, Not-for-Profit Organizations, and Academics with focus on building sector policy development

A general session was also held for anyone interested or who wasn't able to attend one of the above six sessions. Additionally, at the request of the Building Owners and Managers Association (BOMA), Metro Vancouver worked with representatives of BOMA to host two separate sessions for its members.

The sessions were promoted through email to Metro Vancouver's list of subscribed organizations, as well as through the project website. Participants were asked to register to attend one of seven sessions, and received reminder emails as the session date approached.

The sessions followed a consistent format, which began with a presentation from Metro Vancouver about the Large Buildings Emissions Reduction initiative, followed by a Q&A for any clarifying questions, and up to three guided discussions with prompting questions. Participants were encouraged to ask questions or provide input verbally, through the chat function on Zoom, and also on Miro, a virtual

whiteboard platform that allows participants to create and post virtual sticky notes on a board that is shared on screen with everyone in the session.

To close each session, participants were invited to visit the project website and complete the feedback form. Table 4.0 summarized participation in the roundtables.

Table 4.0: Summary of roundtable participation

Date (2022)	Audience group	Organizations represented
October 26	Group 1 – Building Owners, Managers and Developers	BOMA BC Fortis BC QuadReal Property Group Urban Development Institute (UDI) Warrington PCI Management
November 2	Group 2 – HVAC and Plumbing Manufacturers, Suppliers, Trades, and Mechanical Contractors	Allan Forest Sales Building 2 Electrification (B2E) BC Hydro BC Ministry of Energy, Mines and Low Carbon Innovation CIPH DNV FortisBC Green Matters Technologies HRAI (Heating, Refrigeration and Air Conditioning Institute of Canada) Olympic International Trane
November 3	BOMA Focus Group #1	Austeville Properties LTD Bentall Green Oak Blackwood Partners BOSA Brightly Cadillac Fairview Concert Properties ESC Automation Hunter McLeod Peterson Third Space Warrington PCI Management
November 9	Group 3 – Public Institutions, School	The Coastal Village

	Districts, and Municipal Facility Managers, Municipal Facility Operators	City of Vancouver FortisBC Township of Langley BC Hydro City of Port Moody Vancouver School Board North Vancouver School District City of New Westminster Vancouver Coastal Health West Vancouver Schools Unbuilders Deconstruction
November 10	Group 4 – Health Facility Managers	Vancouver Coastal Health Provincial Health Services Authority Fraser Health Authority
November 16	Group 5 – Building Engineers, Architects, and Consultants	AME Group BC Hydro Building Safety and Standards Branch (BSSB) FRESCo Prism Engineering
November 17	BOMA Focus Group #2	Austeville Properties LTD Bentall Green Oak Blackwood Partners BOSA Brightly Cadillac Fairview Concert Properties ESC Automation Hunter McLeod Peterson Third Space Warrington PCI
November 18	Group 6 – NGO/NPO/Academics with focus on building sector policy development	Aboriginal Housing Management Association BC Non-Profit Housing Association C40 Cities Engineers and Geoscientists BC Vancity Vancouver Economic Commission

November 24	Group 7 – Other interested parties	BC Hydro Cadillac Fairview Vancity Vancouver Coastal Health

The roundtables attracted a variety of sectors and, consequently, a diversity of perspectives were shared during the sessions. There was a good level of participation via verbal responses, Zoom chat, and Miro Boards.

There was more discussion for Topics 1 and 2 (Program Scope and Design Elements and Equity) and less discussion for Topic 3 (Coordination) due to time constraints (noting that many of the points around coordination were covered in the first two discussions). In some roundtables, familiarity between participants allowed for shortening the presentation and moving quickly into in-depth discussion, particularly about reporting and compliance considerations.

Insights on program implementation quickly emerged due to participants' knowledge and experience of buildings' performance and operations. In terms of perspectives, it was helpful for the project team to hear from both energy regulators and building owners/managers/representatives.

Participants responded positively to the information presented; most indicated they were overall on-board with Metro Vancouver's proposed approach and contributed valuable ideas to the three discussion areas. No obvious points of disagreement among participants were noted; comments tended to build on one another, generating productive discussion and building shared understanding.

Participants appreciated the process of how information was shared and many posed follow-up questions raised about technical considerations, like building performance modeling and analysis.

Meetings and Events

The project team also met with certain individuals or organizations having expertise or experience in buildings and/or emissions reduction, and also attended related industry events. Table 5.0 lists those meetings and events.

Table 5.0: Meetings and events

Date (2022)	Organization	Type
May 12	Mechanical Contractors Association of BC	Meeting
May 31 - June 1	Mechanical Contractors Association of BC Business Conference	Conference
July 15	Regional Planning Advisory Committee	Meeting
July 20	QuadReal Property Group	Meeting

July 21	Regional Engineers Advisory Committee Climate Protection Sub-Committee (REAC - CPS)	Meeting
November 17	Technical Safety BC	Meeting

Participation rates

Overall, there was strong interest in the initiative and representation from the priority audiences Metro Vancouver hoped to engage. Table 6.0 summarizes the participation and response for each of the engagement activities.

Table 6.0: Participation

Activity	Date	Participation/response
Website	June to November 2022	850 page views and 439 visits
Social media	June to November 2022	262 likes/shares/comments
Webinar	July 19, 2022	39 attendees
Feedback form	June to November 2022	80 forms received
Email	June to November 2022	6 queries/comments received
Roundtables	October to November 2022	38 organizations participated
1:1 meetings	May to November 2022	6 meetings or events

6. What We Heard

Key Engagement Findings: Overall

Engagement brought together a diverse group of participants from various sectors and provided a platform for the sharing of a variety of perspectives. Participants generally responded positively to the information presented, and while there was overall support for Metro Vancouver's proposed approach, some participants offered meaningful concerns or objections for staff consideration. While the roundtable discussions focused mainly on the program scope, design elements and equity and less on coordination, there were no major points of disagreement among participants. The roundtables and feedback form also provided insights on program implementation and the importance of hearing perspectives from both energy regulators and building owners/managers. Participants posed follow-up questions about technical considerations, like building performance modeling and analysis.

This section is divided into four parts; one for each discussion topic, general questions on the initiative and proposed approach, and other themes or new topics that emerged from the feedback received.

General Impressions about the Initiative and Proposed Approach

Participants indicated they appreciated the opportunity for discussion. There was general recognition of Metro Vancouver's leadership in the area of GHG emissions reductions, although some participants questioned Metro Vancouver's authority to take action in this sector. Some participants indicated that this initiative was an opportunity to become a model for other jurisdictions within and outside of Canada. Participants shared the following suggestions to inform the proposed approach:

- Clear and simple messaging and reporting requirements are essential to facilitating accurate data collection, reporting, and compliance with the new regulation.
- There is a need to balance a regional approach for Metro Vancouver with sub-regional, and provincial, considerations to reflect member jurisdictions' needs and building portfolios.
- Within the category of large buildings, there are important differences in building design, heating technologies, and management. Deepening our understanding of these differences will inform an approach that meets the needs of all building owners and managers, and mitigate anticipated challenges.
- It is important to think ahead to supply and demand, particularly when it comes to shifting from gas to electric. For example, regulators will need information about the approximate electrification demand compared to what hydroelectric providers can actually supply.

Initial themes and subthemes are identified in Table 7.0, below, along with sample comments heard through the engagement. This feedback can help inform Metro Vancouver's proposed approach to setting emissions reduction targets and providing leadership to regulators on associated measures and supports for compliance.

Table 7.0: Overall themes

Themes	Subthemes	Sample comments
Implementation: processes, timelines, communications	Interest in the timeframe for taking the proposed regulation to the Metro Vancouver Regional District (MVRD) Board	*"...need a flexible approach in developing recommendations and regulatory approach. Enable people to continue to seek incentives. Suggest a "soft" approach to begin with – make it an easier entry, remove the heavy burden of data reporting requirements at the beginning."* (Roundtable #6)
	Many regulators in this space which can introduce complication or uncertainty for building owners/managers	
	Communicating with member jurisdictions early and often will support high compliance rates	
	Suggestion to build out a plan for compliance, including possible penalties for non-compliance	
Reporting	Streamlining reporting requirements to avoid duplication (and increase compliance)	*"Clarity and simplicity is key. If owners/tenants are confused due to multiple different target dates and/or GHG emission thresholds, they are far less likely to comply."* (Roundtable #1) *"...alignment on access to building performance data and reporting requirements with BC utility providers."* (Roundtable #2)
	Striving for "one-click" approach (with strong integration with utility data transfer) to make it easy for building owners/managers to comply	
	Using best practices from other jurisdictions (e.g., City of Seattle)	

	Distinguishing between audiences for reporting (e.g., building owners vs. tenants)	
	Suggestion to build in verification support to ensure that the targeted emission reduction is achieved	
Coordination and alignment	Aligning with other jurisdictions; e.g., City of Vancouver's bylaw, approach to engagement, and timelines; looking at how other jurisdictions are doing energy benchmarking	*"Whatever regulations are put in place, it seems important to align with regulations and reporting processes in place at the municipal and provincial level."* (Roundtable #5)
	Understanding municipal, regional and provincial authority when it comes to setting and regulating emissions limits	
	Coordinating with energy providers (e.g., BC Hydro, Fortis BC, district energy providers)	
	Mitigating potential overlap/duplication for emissions reduction targets (e.g., with City of Vancouver bylaw for buildings >100,000sqft)	
	Recognition that Metro Vancouver can be a leader in setting targets, in addition to following the lead of jurisdictions who are further ahead with setting bylaws (e.g., City of Vancouver)	

Impact on occupants and different large building types	Applicability to different building types within the large buildings portfolio; need to build in considerations for different building occupancy types and ownership models	*"[Need to consider] impact on building construction, operations, and maintenance trades (e.g., gas fitters, HVAC, electrical)."* (Roundtable #2) *"Some of the large buildings such as laboratory style buildings, have unique process loads…Some of these will have significant natural gas use, so may be hard to decarbonize."* (Roundtable #3) *"Where are the lines drawn with electrification where natural gas and utilities cry foul? How do we implement it in a way that covers the ability to provide energy and for fuel switching?"* *"Key equity issues are affordability, access to housing ("renoviction") and access to cooling."*
	Recognizing varying resources and supports needed (e.g., for small, non-residential building property owners and managers)	
	Accommodating a range of heating technologies (for space and water), particularly in older buildings where energy upgrades may be very costly Recognizing buildings with unique process loads and associated challenges with reducing emissions	
	Suggestion to source LandCor for building assessment data (to see breakdown of buildings by asset and occupancy class) to better understand considerations for different building types	
Cost considerations / incentives	Exploring supports for building owners/managers with fewer resources to upgrade to meet new standards	*"Some emission reductions will require significant capital expenditure. Is there any capacity/support forthcoming for strata who may lack some of the financial acumen and/or technical knowledge to meet these requirements? Also small entities like coops*
	Types of incentives available (e.g., from CleanBC, EnerCan) and potential need for more incentive to bridge the gap in costs to replace old heating equipment	

	Identify use cases that are cost-prohibitive and look for innovative solutions for both technologies or approaches. This could inform working with manufacturers on solutions.	*and other non-market housing providers?"* (Roundtable #1) *"For small building owners, it will be a huge challenge, requiring a lot of expertise. [Need to] build incentives into all stages of the process, not just equipment upgrades. Provide affordable support for all types of building owners in this category."* (BOMA Focus Group #2)
Engagement	Appreciation for early engagement with audience groups and support for further engagement with industry to inform proposed approach	*"Determining the suitable reduction approach can be a challenging engineering exercise... need more industry guidance and direction on retrofit approaches.*" (BOMA Focus Group #1)
	Interest in receiving more information as the proposed approach is developed	
	Questions about continued coordination with other levels of government to align regulations and reporting requirements when possible	

Key Engagement Findings: By Discussion Topic

Engagement focused on three key discussion areas:

1. Program scope
2. Design elements and equity
3. Coordination and alignment

A summary of feedback for these three discussion topics is provided in this section. The summaries include participant input from roundtable discussions, the online feedback form, and meetings or events between Metro Vancouver staff and participants.

1. Program Scope

Guiding Principles and Approach

There was general agreement with the guiding principles shared by the project team. It was suggested there is an opportunity to think beyond GHG emission limits and incentives for certain building types and heating sources could be considered. As the data in Figure 1.0 demonstrates, there was very strong agreement with Metro Vancouver's approach to setting emissions reductions targets with nearly 75 per cent of survey respondents indicating they either agree or strongly agree.

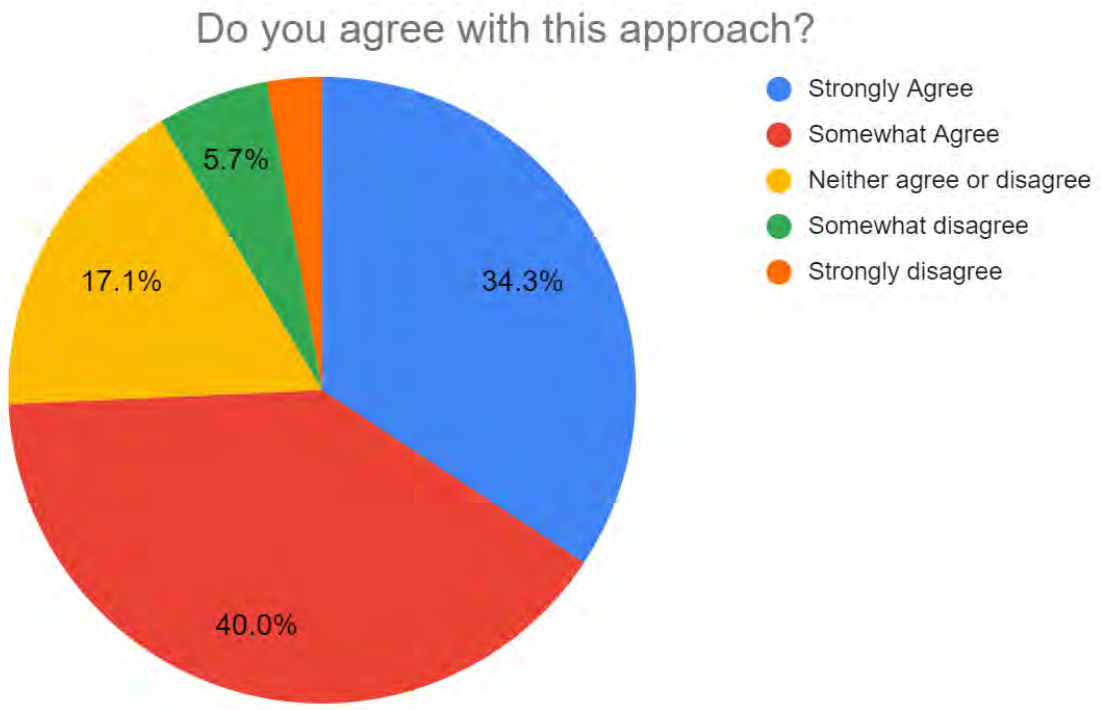

Figure 1.0

Participants are generally supportive of the approach because laying out 2020-2050 limits will allow owners to plan proactively and implement carbon reduction measures best suited to their building systems and vintage.

However, participants also expressed how important it is to continue to collaborate with other utility providers (Fortis BC and BC Hydro) to ensure the system works and there is accountability (e.g. set reduction targets every five years).

Those who disagreed expressed a desire for a stronger approach (e.g. faster implementation or stronger compliance) or didn't agree with the definitions or thresholds presented.

- e.g. "*These targets are not nearly aggressive enough to have a meaningful impact on climate change.*"
- e.g. *"I don't agree with the implied definition of zero-emission buildings; threshold for building size should be lower."*

Organizations and Sectors That May Face Challenges
Participants largely confirmed the project team's initial assessment of organizations and sectors that may struggle to comply with the new emissions limits, and suggested additional challenges for the project team to consider. These results are summarized in Table 8.0, below.

Table 8.0: Organizations/sectors that will face challenges

Sector	Challenges to consider
Buildings where tenants' utility accounts are metered.	Property manager may not be able to get utility data for the whole building.
Manufacturing or heat-intensive industrial properties with high process loads/ventilation rates (e.g. food producers, server farms, kilns)	Nature of business may prevent them from following the approach.
Purpose-built rentals	Require approval from Residential Tenancy Branch to increase rent in order to do upgrades.
Other institutional buildings (e.g. health authorities)	Older buildings, hospitals, manufacturing, and restaurants will have challenges.
Buildings requiring major equipment upgrades	Training to come into compliance with new guidelines.
Strata councils	Unwillingness to make investments.
Multi-unit residential	Multi-unit dwellings may find the annual reporting costs too high when they will already need to pay for the transition from gas to electric heat and hot water.
Smaller Class B/C offices	Have fewer support mechanisms and investors are less willing to invest in decarbonization.
Social (non-market) housing sector	Smaller building owners, public housing, and

	other sectors with limited resources will need financial support to implement retrofits needed to comply with limits. Incentive-based strategies are needed to avoid pricing them out of the market.
Non-profit sector	Benchmarking will add an administrative burden.
Commercial/retail sector	Agricultural and food-related businesses will have a tough time.

Building Types That Could Face Challenges

Participants helped in identifying the types of buildings that may have difficulty achieving the new emissions targets. Table 9.0 summarizes these findings.

Table 9.0: Building types and potential challenges

Building type	**Challenges to consider**
Owners with properties across jurisdictional lines.	Confusion if Metro Vancouver's policies don't align with City of Vancouver guidelines and timelines.
Stratas and other multi-level residential buildings.	Fewer resources to afford costs and administration; there may be more resistance in older buildings because the cost will be greater.
School districts.	n/a
Buildings with high temperature hot water heating systems and/or poor building envelopes.	Costly to reduce emissions
Strip malls.	HVAC systems are owned and operated by tenants.
Industrial buildings.	High costs for electrical upgrades.
Privately owned buildings (e.g., single family or business)	Smaller building owners and others with limited resources may face challenges meeting targets. E.g.; inability to calculate GHG emissions. An operating subsidy could provide financial support to implement needed retrofits.
Buildings in certain municipalities (e.g., Langley).	BC Hydro has capacity issues in some regions, making the switch to electric heating and hot

	water a challenge.
Older buildings, including heritage designated buildings	Many older buildings have poor energy efficiency or may require financial support to upgrade. It is possible that the cost of upgrading heritage buildings may exceed the cost of a new building.
Buildings running on different energy systems (e.g., District Energy, gas)	n/a

Additional feedback included that buildings should aim for zero carbon emissions and include options for carbon capture, such as living roofs, particularly in large cities or urban environments such as Metro Vancouver. With this approach, Metro Vancouver could become a global leader in sustainable building design for the next century. It was also mentioned that electricity in British Columbia has a significant embodied energy and greenhouse gas footprint, and is not considered zero emission due to the construction and operations of dams and other infrastructure.

In relation to specific building types, many participants noted considerations for **stratas and other multi-level residential buildings.** For example, one suggestion was to provide strata/multi-level residential building managers with change out options to support reducing information needs, effectively diverting resources towards action (rather than "thinking costs"). A further suggestion is to consider how foreign ownership or management of strata buildings, may make it challenging to track building emissions.

2. Design Elements and Equity

Through the engagement, Metro Vancouver explored the design elements being developed as part of the approach, and related equity considerations. Participants were presented with five design elements currently being explored (Setting and Phasing in GHG Limits, Reporting Requirements, Exemptions and Flexibility, Cost and Support, Compliance Pathways). Feedback for each element is summarized below.

Setting and phasing in GHG limits
Participants indicated timelines for phasing in GHG limits should take the lifespan of existing equipment into account. Without this consideration, there is a punitive cost on the owner to replace equipment that is otherwise still functional.

Participants also suggested embodied emissions and construction materials be considered when measuring and setting targets for GHG emissions reductions. This would help inform the buildings approvals process and align it with regional targets (e.g.; whether approving concrete buildings as new builds is desirable from an embodied emissions perspective).

Reporting requirements
There was considerable discussion about the reporting aspect of the approach. Input was provided around mechanisms for data collection and reporting platforms, as well as considerations and challenges that might be

faced with reporting requirements. Participants noted that consistent standards for reporting and monitoring will be important, noting building owners find that different engineers may produce different GHG emissions results.

With respect to collecting emissions data, participants noted there is a lack of granular data from utility bills and/or Energy Star Portfolio Manager (ESPM), and that information on KW (kilowatt) demand and KVA (kilovolt-amperes) power factor is needed to understand the capacity of a building's electrical service to support electrification. Additionally, participants noted Metro Vancouver will need to work with BC Hydro and Fortis BC to receive aggregate data on tenant- metered and paid utilities.

With respect to reporting, participants noted there are existing reporting systems and platforms in place that could be leveraged, such as Energy Star Portfolio Manager and building automation systems (BAS), which can include energy metering, trend-logging, and fault detection. Additionally, those building owners and managers who already have these systems in place will be better equipped to meet reporting requirements, while those who do not will need support. In buildings where tenants are metered separately, participants said there needs to be a clear reporting mechanism that makes it the responsibility of tenants to report their energy use. This may require updating metering systems in certain multi-tenant buildings.

Participants also shared some of the challenges in implementing reporting requirements, with the main challenges being a lack of capacity and resources for many building owners and managers, and familiarity and consistency in both data collection and reporting systems. These challenges were often coupled with solutions to streamline the data collection and reporting process, avoid duplication, and incorporate incentives for building owners and managers to report regularly. Additional detail about potential reporting challenges and solutions is included in Table 10.0, below.

Table 10.0: Challenges associated with reporting requirements

Challenge	**Details**
Alignment among reporting approaches for regional and municipal programs.	Includes dates, frequency, requirements, etc.
Data and reporting process requirements for smaller building owners and managers with fewer resources.	Includes for Class B/C non-residential buildings. Tenants don't have an obligation to report emissions - this could be remedied with legislation for tenant utility reporting.
Different reporting processes for building owners and tenants.	Concerns about reporting with single-tenant buildings, e.g., industrial single-tenant buildings where the tenants' names are associated with all utility accounts. There is currently no obligation for tenants to report and voluntary reporting is not a viable, long-term solution. Suggestion to legislate tenant utility reporting as this will provide consistent data.

Familiarity/user-friendliness of the reporting platform.	Requests to confirm that the platform will likely be Energy Star Portfolio Manager (ESPM). ESPM is a larger hurdle for smaller building owners because of the expertise needed to fully utilize the platform
Addressing overlap with current reporting systems (e.g., ESPM, BOMA, LEED v4.1).	Potential inconsistency with other jurisdictions was also noted.
High costs and time demands there is a lack of dedicated reporting resources for certain building types.	Specifically, lack of dedicated personnel to shoulder additional reporting burden on the Property Manager side. High costs to validate ESPM findings are a concern.
Lack of incentives for building owners/managers to report.	Incentives would help address obstacles to reporting, namely the perception that it will be yet another task for facility managers who may already be overworked.

Exemptions and flexibility

Participants agreed flexibility in the approach will be important in order to achieve equity and fairness, considering the circumstances and capabilities of different building types and organizations.

Few suggestions were heard regarding potential exemptions. Some participants indicated that buildings connected to district energy systems should not be exempt from electrification.

Cost and support

Participants were supportive of offering financial and technical support, particularly to those with fewer resources. Stratas, co-ops, non-market housing providers, and owners/managers of multi-family and rental buildings were most often noted as needing planning and financial support, as well as training on data collection and reporting processes. Some participants suggested Metro Vancouver build in incentives not only into equipment upgrades or replacements, but into all stages of the process, as well as a retrofit accelerator to provide access to financing for energy retrofits.

Compliance pathways

Feedback about how to reduce emissions from buildings focused on available technologies, learning from other jurisdictions, and incentives to encourage emissions reduction. Participants said it would be helpful for building owners and managers to understand what upgrades are required from a systems perspective, and indicated there should be an incentive for owners who use third-party fault detection software monitoring because it can find changes in energy consumption. Some inquired if the approach will include a mix of incentives and penalties.

There was interest in looking to other jurisdictions, including the US, for solutions to help prioritize where innovative solutions are needed (for both technologies and approaches). For example, New York City and state governments worked with industry manufacturers to develop a window-mounted heat pump for certain building types, including older and less energy-efficient buildings.

Participants tended to agree that cost is the biggest challenge to making changes to buildings to reduce emissions across building types and tenures. This challenge may apply differently to different owners/managers; for example, for commercial tenants, there is a perception that increased costs will lead to increased rents; for building owners looking at the possibility of renovations or retrofits, understanding the long-term cost considerations to inform their decisions of where to invest is important.

Fees, rate structure with existing utility providers, and infrastructure challenges (including for buildings shifting from gas to electric heating sources) were also heard during engagement.

Additional detail about potential challenges in reducing building emissions is included in Table 11.0, below.

Table 11.0: Challenges associated with reducing building emissions

Challenge	Details
Increased costs all around combined with materials and labour shortage.	Includes: electrical upgrades, product costs, and engineering costs, as well as increased maintenance and costs for high-efficient equipment. Additional concerns about lack of materials and labour (qualified building equipment installers).
BC Hydro connection fees and rate structure.	Questions about whether the codes and code enforcement will be the same across the region.
Infrastructure challenges in certain buildings.	The most commonly stated challenge was in switching from gas to electric energy sources.
Building upgrades can be costly and complex.	Space for equipment and electrical capacity for fuel-switching are major concerns. This applies to building redevelopment and major retrofits.
Navigating uncertainty about future energy costs.	With predicted changes to future energy costs, it is difficult to create a predictable environment for building owners and managers to plan for future upgrades. Changes will impact different building types differently, which may create an environment of uncertainty.
Affordable support for many types of large building owners based on building size, type, and ownership.	This includes: non-market housing providers, some institutional buildings, buildings connected to district energy, and industrial/manufacturing buildings. Suggestion that training for property

	managers and management companies would be valuable.
The buildings with the most support mechanisms and budget are the ones that are already doing well and have low GHG emissions.	Conversely, the worst performers (highest GHG emissions) are the buildings with less sophisticated managers/owners and will have a harder time planning for upgrades.
Homeowners will experience increases in their energy bills and many will face challenges in paying for upgrades to comply.	Those who afford to make these upgrades may be forced to sell, move, or rent to avoid paying higher utility bills.
Incentives for building landlords, along with concerns that costs will be downloaded onto tenants	One challenge mentioned was the ability of landlords to get above the guideline increases from the Residential Tenancy Branch (RTB). Concerns about rental/housing affordability
Costs of equipment replacement (including shift to electrification).	Need to acknowledge significant lead time needed for building owners (e.g., replacement cycle may be 20 years). If owners know what's coming, financial planning can reduce the burden of upgrading. Information on equipment replacement options reduces the research burden on building owners. This helps to reduce time considering replacement options and increases time spent replacing equipment
Desire to move towards net-zero.	Broader conversations with Metro Vancouver will support moving toward net-zero; this includes exploring efficiency components beyond electrification, and better understanding the mechanisms of fuel-switching to achieve efficiency.

Finally, in addition to the five design elements presented, participants were also asked to identify any other elements that should be considered in the approach. Results are summarized in Table 12.0, below.

Table 12.0: Additional design elements

Design element	**Details**

Structure/parameters for the proposed approach.	Clear dates and a roadmap to get there would be valuable.
Predictability.	Other provincial or municipal requirements could emerge and then conflict with those of Metro Vancouver, creating a confusing policy environment and impacting future compliance.
Specific allowances.	Defining allowability of alternative fuels.
Economic contributions (e.g., re-skilling).	Potential support for re-skilling trades workers.
Alignment with BCBC 2022 Code (GHG limits for new buildings).	Suggestion to explore opportunities for alignment.
Guidance on replacing building envelopes.	Building owners should not miss opportunities to dramatically improve efficiency.
Verification support.	This is needed to ensure the targeted GHG reduction is achieved.
Reporting requirements	Providing a user-friendly portal or process to report data.
• Including carbon-capture and energy-return options in the design elements is desirable.	

7. Coordination and Alignment

In acknowledgment of other initiatives in development to reduce GHG emissions in the Metro Vancouver region, such as the Province's Zero Carbon Pollution Standard and the City of Vancouver's GHG reduction bylaw, engagement sought to develop Metro Vancouver's understanding of other similar initiatives and identify areas for coordination and alignment.

Participants agreed alignment with municipal, provincial, and federal regulations will help streamline equipment efficiency regulations; and that nesting reporting requirements (for example, under the City of Vancouver's bylaw) and coordinating target dates and emissions thresholds will improve compliance for building owners and managers. Participants expressed some concern that future requirements may emerge from the Province or other municipalities that conflict with Metro Vancouver's approach, but, identified several current opportunities for coordination and alignment:

Municipal

In addition to the City of Vancouver's GHG reduction bylaw, participants noted the City's Zero-Emissions Building Plan for all new construction, and highlighted differences between the City's 2026/2040 goals and Metro Vancouver's 2030/2050 goals as areas for alignment. Participants also expressed a desire for coordination with municipal permitting and licensing offices across Metro Vancouver.

Provincial
Several provincial initiatives were noted where it will be important for Metro Vancouver's approach to align, including the Zero Carbon Pollution Standard for New Buildings, CleanBC Roadmap to 2030, the 2022 BC Building Code, and the Clean Government Reporting Tool (CGRT). Participants also noted provincial equipment efficiency standards that are in development, which will set 100 per cent efficiency requirements for new equipment, and the pending GHGI code for new construction.

Participants suggested provincial legislation could be developed to create a Property Assessed Clean Energy (PACE) program to finance capital updates for large buildings, and that Metro Vancouver could use the Canada Green Building Council's Zero Carbon Building Design and Operation standard when developing its approach.

Industry
Industry initiatives such as B2E's Industry Capacity and Technical Subcommittees and new or evolving disclosure and reporting platforms, such as Benchmark BC were noted. (NOTE: B2E, or Building to Electrification Coalition, is a BC-based member-driven coalition, and Metro Vancouver was a founding partner of Benchmark BC).

Participants also expressed desire for coordination and alignment with BC utility providers on access to building performance data and reporting requirements to reduce duplication of reporting.

8. Other Discussion Topics

In addition to feedback about the Program Scope, Design Elements and Equity, and Coordination and Alignment, participants raised new topics for consideration as Metro Vancouver develops its proposed approach. These included:

Bolder moves
There is some interest in going further with the proposed approach to build in more aggressive plans and targets to reduce GHG emissions. For example, Metro Vancouver could develop a program for "energy coaches" to onboard and support large building owners through the process, and encourage trades training schools to provide necessary training to contractors to address the skilled labour shortage.

Incentive programs
Participants advocated for incentive programs from utilities to mitigate the financial pressure on building owners and managers, and suggested Metro Vancouver could further incentivize energy retrofits by providing low-interest or no interest loans to existing buildings (and negotiating with provincial and federal governments to access this funding).

Navigating uncertainty

Participants said there is a need to acknowledge “unknowns” about future energy costs and sources, such as shifting to electrification in the large buildings sector, and questioned whether there is sufficient electrical capacity to meet the demand from electrified buildings.

Expanding focus on new buildings
Relating to program scope, some participants identified a need to focus on building retrofits in addition to new building performance, given that about 80 per cent of buildings in existence in 2050 will have already been built.

Skilled labour supply
Participants noted concerns about the current and future lack of skilled tradespeople to support upgrades needed to meet more stringent emissions requirements, and questioned how Metro Vancouver and industry will continue to manage or “upskill” trades workers to meet new requirements. Relatedly, a lack of available parts and equipment, coupled with a lack of qualified contractors is slowing down building inspections by Safety Officers.

Additionally, new technology is generating a need for new or updated training for Electric Vehicle (EV) Charging, Hydrogen, and Solar Photovoltaic, which could have implications on integrating energy retrofits into new or redeveloped large buildings in the region.

9. How Feedback Will Be Used

Feedback gathered through this engagement process has been reviewed and considered, along with ongoing technical work, to help staff develop proposed requirements for emission reductions on existing large buildings, in the form of an intentions paper. This regulatory proposal will be presented to the Board for consideration. It will accompanied by the engagement approach for this next phase of engagement.