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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

METRO VANCOUVER REGIONAL DISTRICT
CLIMATE ACTION COMMITTEE

MEETING

Thursday, November 7, 2024
9:00 am
28th Floor Committee Room, 4515 Central Boulevard, Burnaby, British Columbia
Webstream available at https://www.metrovancouver.org

A G E N D A[1]

A. ADOPTION OF THE AGENDA

1. November 7, 2024 Meeting Agenda
That the Climate Action Committee adopt the agenda for its meeting scheduled for November 7, 2024 as circulated.

B. ADOPTION OF THE MINUTES

1. October 3, 2024 Meeting Minutes *pg. 3*
That the Climate Action Committee adopt the minutes of its meeting held October 3, 2024 as circulated.

C. DELEGATIONS

D. INVITED PRESENTATIONS

E. REPORTS FROM COMMITTEE OR CHIEF ADMINISTRATIVE OFFICER

1. Proposed Updates to Metro Vancouver's Ambient Air Quality Objectives *pg. 9*
That the MVRD Board endorse updates to Metro Vancouver's ambient air quality objectives for nitrogen dioxide, ground-level ozone, and sulphur dioxide, as outlined in the report dated October 23, 2024, titled "Proposed Updates to Metro Vancouver's Ambient Air Quality Objectives".

2. Air Quality Advisories During the Summer of 2024 *pg. 22*
That the MVRD Board receive for information the report dated October 16, 2024, titled "Air Quality Advisories During the Summer of 2024".

[1] *Note: Recommendation is shown under each item, where applicable.*

3. Climate 2050 Progress Report 2023/2024 *pg. 27*
That the MVRD Board receive for information the report dated October 24, 2024, titled "Climate 2050 Progress Report 2023/2024".

4. Climate 2050 Engagement and Public Education: 2024 Highlights *pg. 73*
That the Climate Action Committee receive for information the report dated October 15, 2024, titled "Climate 2050 Engagement and Public Education: 2024 Highlights".

5. BC Hydro's 2024 Call for Power *pg. 82*
That the MVRD Board receive for information the report dated October 22, 2024, titled "BC Hydro's 2024 Call for Power".

6. Manager's Report *pg. 91*
That the Climate Action Committee receive for information the report dated October 23, 2024, titled "Manager's Report".

F. INFORMATION ITEMS

G. OTHER BUSINESS

H. RESOLUTION TO CLOSE MEETING

I. ADJOURNMENT
That the Climate Action Committee adjourn its meeting of November 7, 2024.

Membership:

Dominato, Lisa (C) – Vancouver	Carr, Adriane – Vancouver	McNulty, Bill – Richmond
Johnstone, Patrick (VC) – New Westminster	Gu, Alison – Burnaby	Pope, Catherine – North Vancouver District
Baillie, Tim – Langley Township	Lahti, Meghan – Port Moody	Ross, Jamie – Belcarra
Berry, Ken – Lions Bay	Marsden, Dennis – Coquitlam	Ruimy, Dan – Maple Ridge
Bose, Mike – Surrey	McCutcheon, Jen – Electoral Area A	Wallace, Rosemary – Langley City

METRO VANCOUVER REGIONAL DISTRICT
CLIMATE ACTION COMMITTEE

Minutes of the Regular Meeting of the Metro Vancouver Regional District (MVRD) Climate Action Committee held at 9:01 am on Thursday, October 3, 2024 in the 28th Floor Committee Room, 4515 Central Boulevard, Burnaby, British Columbia.

MEMBERS PRESENT:
Chair, Director Lisa Dominato, Vancouver
Vice Chair, Director Patrick Johnstone, New Westminster
Councillor Tim Baillie, Langley Township* (arrived at 11:38 am)
Director Ken Berry, Lions Bay*
Councillor Mike Bose, Surrey
Director Adriane Carr, Vancouver
Councillor Alison Gu, Burnaby* (departed at 9:43 am)
Director Meghan Lahti, Port Moody (departed at 10:48 am)
Councillor Dennis Marsden, Coquitlam
Director Jen McCutcheon, Electoral Area A
Director Bill McNulty, Richmond
Councillor Catherine Pope, North Vancouver District (arrived at 9:03 am)
Director Jamie Ross, Belcarra
Director Dan Ruimy, Maple Ridge*
Councillor Rosemary Wallace, Langley City*

*denotes electronic meeting participation as authorized by the *Procedure Bylaw*

STAFF PRESENT:
Jerry W. Dobrovolny, Chief Administrative Officer
Conor Reynolds, Director, Air Quality and Climate Action Services
Catherine Grosson, Legislative Services Coordinator, Board and Information Services
Derek Jennejohn, Lead Senior Engineer, Air Quality and Climate Action Services
Sonu Kailley, Director, Financial Planning, Financial Services
John Lindner, Air Quality Planner, Air Quality and Climate Acton Services
Sara Muir, Air Quality Planner, Air Quality and Climate Action Services
Marcin Pachcinski, Division Manager, Electoral Area and Implementation Services
Julie Saxton, Program Manager, Enforcement and Regulation Air Quality, Environmental Regulation and Enforcement
Jay Soper, Communications Specialist, External Relations

A. ADOPTION OF THE AGENDA

1. October 3, 2024 Meeting Agenda

It was MOVED and SECONDED
That the Climate Action Committee adopt the agenda for its meeting scheduled for October 3, 2024 as circulated.

CARRIED

B. ADOPTION OF THE MINUTES

1. September 5, 2024 Meeting Minutes

It was MOVED and SECONDED
That the Climate Action Committee adopt the minutes of its meeting held September 5, 2024 as circulated.

CARRIED

C. DELEGATIONS

No items presented.

D. INVITED PRESENTATIONS

No items presented.

E. REPORTS FROM COMMITTEE OR CHIEF ADMINISTRATIVE OFFICER

1. 2025 – 2029 Financial Plan Overview

Report dated September 23, 2024 from Jerry Dobrovolny, Commissioner/Chief Administrative Officer, and Harji Varn, General Manager, Financial Services/Chief Financial Officer, introducing a high-level overview of the Metro Vancouver 2025-2029 budget.

9:03 am Councillor Pope arrived at the meeting.

Jerry W. Dobrovolny, Commissioner/Chief Administrative Officer, and Sonu Kailley, Director, Financial Planning, Financial Services, provided members with a presentation titled "2025 – 2029 Financial Plan Overview," which outlined the 2025-2029 budget cycle timeline, its major cost drivers, and the overall household impact.

9:43 am Councillor Gu departed the meeting.

2. 2025 - 2029 Financial Plan – Air Quality and Climate Action

Report dated September 26, 2024 from Conor Reynolds, Director, Air Quality and Climate Action Services, presenting the 2025-2029 Financial Plan for Air Quality and Climate Action for consideration by the Committee.

Conor Reynolds, and Julie Saxton, Program Manager, Enforcement and Regulation Air Quality, Environmental Regulation and Enforcement, provided members with a presentation titled "2025-2029 Financial Plan: Metro Vancouver Regional District – Air Quality and Climate Action," which outlined Metro Vancouver's Air Quality and Climate Action function, including a breakdown of the 2025 operating budget, and capital funding and expenditures.

It was MOVED and SECONDED

That the Climate Action Committee endorse the 2025-2029 Financial Plan for Air Quality and Climate Action as presented in the report dated September 26, 2024, titled "2025 - 2029 Financial Plan – Air Quality and Climate Action", and forward it to the Metro Vancouver Board Budget Workshop on October 16, 2024 for consideration.

It was MOVED and SECONDED

That the forgoing motion be amended by adding the following clause:

"Further that the Climate Action Committee recommend having the Board participate in a facilitated workshop in Q1 2025 on Metro Vancouver's Climate 2050 strategy in order to inform future policy work and the 2026 budget."

CARRIED

The committee requested separation of the motion into two parts as follows.

It was MOVED and SECONDED

That the Climate Action Committee endorse the 2025-2029 Financial Plan for Air Quality and Climate Action as presented in the report dated September 26, 2024, titled "2025 - 2029 Financial Plan – Air Quality and Climate Action", and forward it to the Metro Vancouver Board Budget Workshop on October 16, 2024 for consideration.

CARRIED

It was MOVED and SECONDED

That the Climate Action Committee recommend having the Board participate in a facilitated workshop in Q1 2025 on Metro Vancouver's Climate 2050 strategy in order to inform future policy work and the 2026 budget.

CARRIED

10:48 am Director Lahti departed the meeting.

3. Addressing Air Contaminant Emissions from Medium and Heavy Trucks

Report dated September 6, 2024 from John Lindner, Air Quality Planner, Air Quality and Climate Acton Services, and Sara Muir, Air Quality Planner, Air Quality and Climate Action Services, providing an update to the Climate Action Committee about approaches to reducing emissions from medium and heavy trucks in the Metro Vancouver region, in particular health-harming air contaminants.

John Lindner and Sara Muir provided members with a presentation titled "Medium and Heavy Truck Emissions: Current Actions and Future Opportunities to Reduce Emissions," which identified opportunities to accelerate emission reductions, and described a collaborative project with the BC Government, TransLink, and the Port of Vancouver to evaluate potential future policies, with a focus on how to minimize tampering with emission controls. Staff confirmed that a short briefing covering the topics of renewable diesel and hydrogen as potential alternative fuel sources will be circulated to the Climate Action Committee for information in the future.

It was MOVED and SECONDED

That the Climate Action Committee receive for information the report dated September 6, 2024, titled "Addressing Air Contaminant Emissions from Medium and Heavy Trucks".

CARRIED

4. Public Education about Residential Indoor Wood Burning Requirements

Report dated September 6, 2024 from Julie Saxton, Program Manager, Environmental Regulation & Enforcement, and Jay Soper, Communications Specialist, External Relations, providing information to the Climate Action Committee and MVRD Board about the *Metro Vancouver Regional District Residential Indoor Wood Burning Emission Regulation Bylaw No. 1303, 2020* (Bylaw 1303), and how it will be promoted via a public education campaign.

Julie Saxton and Jay Soper provided members with a presentation titled "Residential Indoor Wood Burning Bylaw 1303: 2024 Public Education Campaign Update," which outlined Metro Vancouver's campaign and promotional strategy to increase public awareness about the bylaw.

It was MOVED and SECONDED

That the MVRD Board receive for information the report titled "Public Education about Residential Indoor Wood Burning Requirements", dated September 6, 2024.

CARRIED

5. Tilbury Marine Jetty and Tilbury Phase 2 LNG Expansion Projects - Update

Report dated September 18, 2024 from Derek Jennejohn, Lead Senior Engineer, Air Quality and Climate Action Services, and Marcin Pachcinski, Division Manager, Electoral Area and Implementation Services, providing the Climate Action Committee and MVRD Board with an update regarding the Tilbury Marine Jetty and Tilbury Phase 2 LNG Expansion Projects.

Derek Jennejohn and Marcin Pachcinski provided members with a presentation titled "Tilbury Marine Jetty and Phase 2 LNG Expansion: Project Updates".

11:38 am Councillor Baillie arrived at the meeting.

It was MOVED and SECONDED

That the MVRD Board receive for information the report dated September 18, 2024, titled "Tilbury Marine Jetty and Tilbury Phase 2 LNG Expansion Projects – Update".

CARRIED

6. Manager's Report

Report dated August 28, 2024, from Conor Reynolds, Director, Air Quality and Climate Action Services, providing an update on the Climate Action Committee Work Plan, and relevant programs and initiatives.

It was MOVED and SECONDED

That the Climate Action Committee receive for information the report dated September 24, 2024, titled "Manager's Report".

CARRIED

F. INFORMATION ITEMS

No items presented.

G. OTHER BUSINESS

No items presented.

H. RESOLUTION TO CLOSE MEETING

No items presented.

I. ADJOURNMENT

It was MOVED and SECONDED
That the Climate Action Committee adjourn its meeting of October 3, 2024

CARRIED
(Time: 11:47 am)

Catherine Grosson,
Legislative Services Coordinator

Lisa Dominato,
Chair

71033395

To: Climate Action Committee

From: John Lindner, Air Quality Planner, Air Quality and Climate Action Services
Derek Jennejohn, Lead Senior Engineer, Air Quality and Climate Action Services

Date: October 23, 2024 Meeting Date: November 7, 2024

Subject: **Proposed Updates to Metro Vancouver's Ambient Air Quality Objectives**

RECOMMENDATION

That the MVRD Board endorse updates to Metro Vancouver's ambient air quality objectives for nitrogen dioxide, ground-level ozone, and sulphur dioxide, as outlined in the report dated October 23, 2024, titled "Proposed Updates to Metro Vancouver's Ambient Air Quality Objectives".

EXECUTIVE SUMMARY

Health research shows that degraded air quality harms people and the environment. Metro Vancouver uses ambient air quality objectives to help manage air quality in the region. The Canadian Ambient Air Quality Standards (CAAQS) are national objectives adopted by the Canadian Council of Ministers of the Environment (CCME) that are used by air quality agencies across Canada to protect human health and the environment. The CCME is increasing the stringency of the CAAQS for ground-level ozone, nitrogen dioxide, and sulphur dioxide in 2025.

Consistent with past MVRD Board direction and practice, Metro Vancouver staff are seeking the Board's endorsement to update four regional ambient air quality objectives to align with the national objectives. This alignment will ensure continuous improvement in regional air quality, maintaining Metro Vancouver's leadership in North America for air quality management. Staff notified interest holders of the intended update by email in early October. To achieve the updated objectives, Metro Vancouver would continue to work with member jurisdictions and other partners to implement actions in the Board-adopted *Clean Air Plan* that reduce emissions of air contaminants that degrade regional air quality. If the proposed updates are not endorsed, the regional air quality management framework would be inconsistent with national objectives and the principles of the *Clean Air Plan*, which could cause confusion for interest holders.

PURPOSE

This report seeks MVRD Board endorsement of updates to Metro Vancouver's ambient air quality objectives for nitrogen dioxide, ground-level ozone, and sulphur dioxide, to ensure alignment with updated national objectives.

BACKGROUND

For more than 50 years, Metro Vancouver has provided the service of air pollution control and air quality management in the region, as outlined in the BC *Environmental Management Act*. In accordance with that role, the Board-adopted *Clean Air Plan* includes an action to continue to "develop and update ambient air quality objectives, establishing acceptable thresholds for concentration of air contaminants". The plan's 2030 regional target – "ambient air quality meets or

is better than the ambient air quality objectives that are regularly updated by Metro Vancouver" – aims to minimize harm to human health and the environment.

The MVRD Board endorsed updates to regional ambient air quality objectives in November 2017 and November 2019, including for ground-level ozone (ozone), nitrogen dioxide (NO_2), and sulphur dioxide (SO_2). Consistent with the principle of continuous improvement, the federal government has again updated the national objectives for these three air contaminants. These updated objectives come into effect in 2025. As a result, Metro Vancouver's regional objectives for these air contaminants need to be updated to ensure continued alignment.

IMPACTS OF AIR CONTAMINANTS ON HEALTH

Exposure to certain air contaminants is linked to increased heart and breathing problems, more frequent hospitalization and premature death, even at the relatively low levels experienced by residents in the region. Health Canada estimates that air pollution from human sources and wildfires contributes to 1,900 premature deaths per year in British Columbia (Reference 1). Fine particulate matter, ozone, and NO_2 have the most impact on public health, followed by SO_2, volatile organic compounds, and carbon monoxide. Children, the elderly, and people with underlying health conditions are most at risk from these air contaminants. These air contaminants also harm the environment (e.g., ozone can damage food crops and other plants).

Regional Trends for Ground-level Ozone, Nitrogen Dioxide, and Sulphur Dioxide

Today, people in the region generally experience good air quality, due to efforts by Metro Vancouver and others in recent decades. Regional levels of SO_2 are expected to remain well below objectives in the future, due to the widespread use of low-sulphur fuels. The ongoing retirement of older, dirtier engines and equipment is expected to lead to further reductions in NO_2 levels over time in the region. Ozone levels are generally better now than in previous decades. However, due to a warming climate, the region is expected to experience hotter summers, which will likely lead to higher ozone levels. Governments and others need to maintain existing policies and explore additional policies to further reduce levels of ozone, NO_2, and SO_2 in the region. Attachment 1 provides more information on the sources of and trends for ozone, NO_2, and SO_2 in the region.

AMBIENT AIR QUALITY OBJECTIVES

Like many other jurisdictions, Metro Vancouver uses ambient air quality objectives as thresholds to support the regional provision of air quality management in the following ways:

- Supporting development of requirements in emission regulations adopted by the Metro Vancouver Board;
- Providing input to air quality permitting decisions made by the District Director;
- Issuing air quality advisories;
- Guiding regional air quality planning; and
- Reporting on current air quality and historical trends.

The Canadian Ambient Air Quality Standards (CAAQS) are national objectives adopted by the Canadian Council of Ministers of the Environment (CCME) to protect human health and the environment. The CCME is increasing the stringency of the CAAQS for ozone, NO_2, and SO_2 in 2025.

As a result, staff propose to update Metro Vancouver's air quality objectives to align with the updated national objectives. Table 1 summarizes the proposed changes to four of Metro Vancouver's objectives.

As shown in the table, ambient air quality objectives are described using three components:

- Averaging period: the time period over which an objective applies;
- Numerical value: the threshold concentration that a calculated value is compared against to determine if an objective is achieved or exceeded; and
- Statistical form: the calculation method used to convert ambient concentrations into the single calculated number for a particular averaging period.

Table 1 – Proposed Updates to Regional Ambient Air Quality Objectives.

Air contaminant	Averaging period	Numerical value (ppb*)		Statistical form
		Current	Proposed	
Ground-level ozone	8-hour	62	**60**	3-year average of annual 4th highest daily maximum 8-hour average concentration
Nitrogen dioxide	1-hour	60	**42**	3-year average of annual 98th percentile of the daily maximum 1-hour average concentration
	Annual	17	**12**	Annual average
Sulphur dioxide	Annual	5	**4**	Annual average

*ppb denotes "parts per billion", a standard measure of ambient concentration for air contaminants.

At this time, staff propose keeping the existing regional 1-hour objective for SO_2 of 70 ppb because it currently provides better public health projection than the equivalent 2025 CAAQS. Staff also propose keeping the existing regional 1-hour objective for ozone of 82 ppb, since it is an effective trigger for issuing air quality advisories and there is no equivalent 1-hour CAAQS for ozone.

Metro Vancouver's air quality objectives are designed to be at least as stringent as provincial and national objectives to guide best practice in air quality management. Alignment with the updated national objectives will ensure continuous improvement in regional air quality and maintain Metro Vancouver's leadership in North America for air quality management. If the proposed updates are not endorsed, the updated CAAQS would still come into effect at a national level in 2025, and the regional air quality management framework would be inconsistent with national objectives and the principles of the *Clean Air Plan*, which could cause confusion for interest holders in the region.

Informing Interest Holders of Intention to Update Ambient Air Quality Objectives

On October 3, 2024, Metro Vancouver staff informed interest holders by email of Metro Vancouver's intention to update the regional air quality objectives to align with national ones. At the time of writing, Metro Vancouver had not received any replies to the email. Interest holders included member jurisdictions, health authorities, businesses that operate under Metro Vancouver

air quality permits or regulations, and people (including members of the public) on a Metro Vancouver mailing list about ambient air quality objectives.

Impact of Updated Regional Ambient Air Quality Objectives

If endorsed, the updated objectives will help drive continuous improvement in regional air quality, providing additional protection for public health. To achieve the updated objectives, Metro Vancouver would continue to work with partners, including member jurisdictions and the Government of BC, to implement actions in the *Clean Air Plan* that reduce emissions of air contaminants such as those described in this report. Metro Vancouver will consider and apply the new objectives in its various functions, including regulatory development, permit decisions, air quality advisories, and air quality planning/reporting. Staff will report back to the Committee and Board as needed, on any proposed regulatory amendments or other changes to its functions based on the updated objectives. Attachment 1 includes more information about how the updates would impact how Metro Vancouver uses ambient air quality objectives.

ALTERNATIVES

1. That the MVRD Board endorse updates to Metro Vancouver's ambient air quality objectives for nitrogen dioxide, ground-level ozone, and sulphur dioxide, as outlined in the report dated October 23, 2024, titled "Proposed Updates to Metro Vancouver's Ambient Air Quality Objectives".
2. That the MVRD Board receive for information the report dated October 23, 2024, titled "Proposed Updates to Metro Vancouver's Ambient Air Quality Objectives".

FINANCIAL IMPLICATIONS

Resources required for ongoing review, development, and implementation of regional ambient air quality objectives are accommodated within existing program budgets. By managing air quality and controlling air contaminant emissions, Metro Vancouver, together with its partners, delivers significant financial benefits to the region by protecting human health and the environment.

CONCLUSION

National ambient air quality objectives are becoming more stringent in 2025. Metro Vancouver staff recommend Alternative 1, to align regional air quality objectives with national objectives, to ensure continuous improvement in regional air quality management. Updated air quality objectives will continue to be considered and applied in regulatory development, permitting decisions, air quality advisories, and air quality reporting. Staff notified relevant interest holders of the intended updates in early October 2024.

ATTACHMENTS

1. "Ground-Level Ozone, Nitrogen Dioxide, and Sulphur Dioxide: Regional Impacts, Sources, Trends, and Implications of Aligning Regional Objectives with National Objectives", dated October 23, 2024.
2. Presentation re: "Proposed Updates to Regional Air Quality Objectives", dated November 7, 2024.

REFERENCE

1. Health Canada 2021 report: Health Impacts of Air Pollution in Canada

68615589

Ground-Level Ozone, Nitrogen Dioxide, and Sulphur Dioxide: Regional Impacts, Sources, Trends, and Implications of Aligning Regional Objectives with National Objectives
October 23, 2024

Metro Vancouver establishes ambient air quality objectives to protect public health and the environment, including for ground-level ozone (ozone), nitrogen dioxide (NO_2), and sulphur dioxide (SO_2). Metro Vancouver periodically updates its objectives to align with provincial and national objectives. This attachment provides information on the health impacts and regional sources for ozone, NO_2, and SO_2 (see Table 1 below), as well as regional trends and the implications of updating the regional objectives to align with upcoming changes to national objectives.

Table 1 – Health Impacts and Major Regional Sources of Ground-Level Ozone, Nitrogen Dioxide, and Sulphur Dioxide

Air Contaminant	Health Impacts	Major Regional Sources
Ground-level ozone	At ground-level, ozone causes respiratory problems and contributes to early death, even at low ambient levels. Scientific evidence indicates that there is no known safe level for ozone. In addition, ozone contributes to climate change. Ground-level ozone forms when nitrogen oxides (NO_X) and volatile organic compounds (VOC) react in the air during hot, sunny weather. In the upper atmosphere, ozone is beneficial and blocks out most of the sun's harmful ultraviolet rays.	The major human-caused sources of VOC are chemical products such as paints and household products, passenger vehicles, non-road engines and equipment, and fuel distribution facilities. The major sources of NO_X are noted below, under nitrogen dioxide.
Nitrogen dioxide (NO_2)	NO_2 causes respiratory problems and contributes to early death at ambient concentrations commonly found in Canada. Health research indicates that there is no known safe ambient level for NO_2. NO_2 is one of a group of gases known as NO_X that are produced when fuels are burned at high temperatures. NO_X also contributes to the formation of ground-level ozone and fine particulate matter ($PM_{2.5}$), the two air contaminants with the greatest health impacts in the region.	Marine vessels, passenger vehicles, non-road engines and equipment, industrial facilities, buildings.
Sulphur Dioxide (SO_2)	SO_2 causes respiratory effects and contributes to early death at ambient levels commonly found in Canada. SO_2 is one of a group of gases known as sulphur oxides (SO_X) that are emitted when fuels containing sulphur are burned. SO_X can also react with other air contaminants to form $PM_{2.5}$.	Petroleum refining, marine vessels, cement production, aircraft.

Regional Trends for Ground-level Ozone, Nitrogen Dioxide, and Sulphur Dioxide

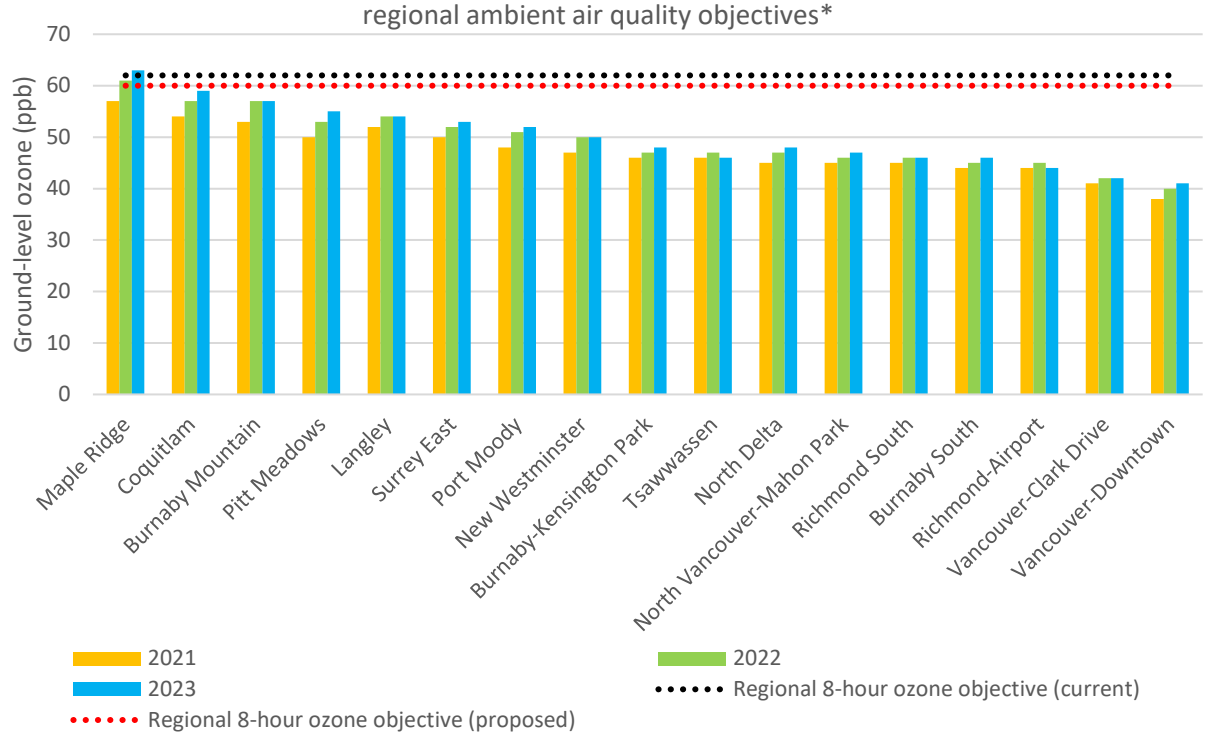
Ground-Level Ozone: Measured ozone levels are generally better now than in previous decades. However, due to a warming climate, it is expected that the region will experience hotter summers and more smoke from wildfires, which will likely lead to higher ozone levels. Implementing policies to further reduce emissions of NO_X and VOC could help reduce ozone levels, according to research included in the Board-adopted *Regional Ground-Level Ozone Strategy*.

Nitrogen Dioxide: Measured NO_2 levels have declined at Metro Vancouver air quality monitoring stations since the mid-1990s, mostly due to the retirement of older, dirtier engines and equipment. However, levels of NO_2 have not really declined in the region since 2019. As such, governments need to continue to adopt policies that encourage the adoption of cleaner and zero-emission engines and heating equipment, which would further reduce NO_2 levels in the region.

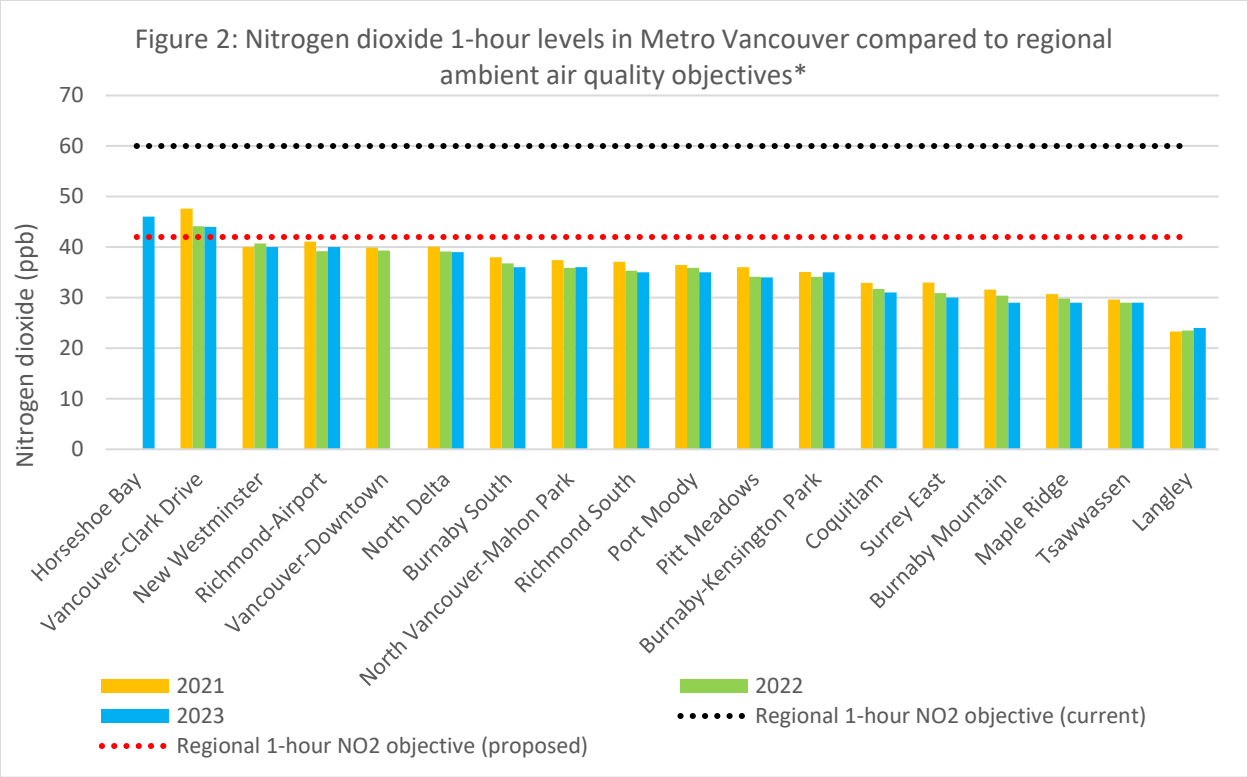
Sulphur Dioxide: Measured SO_2 levels have declined significantly at Metro Vancouver air quality monitoring stations in the last twelve years. In particular, SO_2 levels dropped by approximately 65% between 2012 and 2016 after federal regulations required marine vessels to use fuels with a maximum sulphur content of 0.1%, instead of the previous maximum of 3.5%.

Figures 1 to 4 show the levels of ozone, NO_2, and SO_2 in the region for the three most recent reporting years – 2021, 2022 and 2023 – compared against the current and proposed updated objectives. Figures 2, 3 and 4 include a few data gaps for several monitoring stations, because there was insufficient data to calculate the levels in those years.

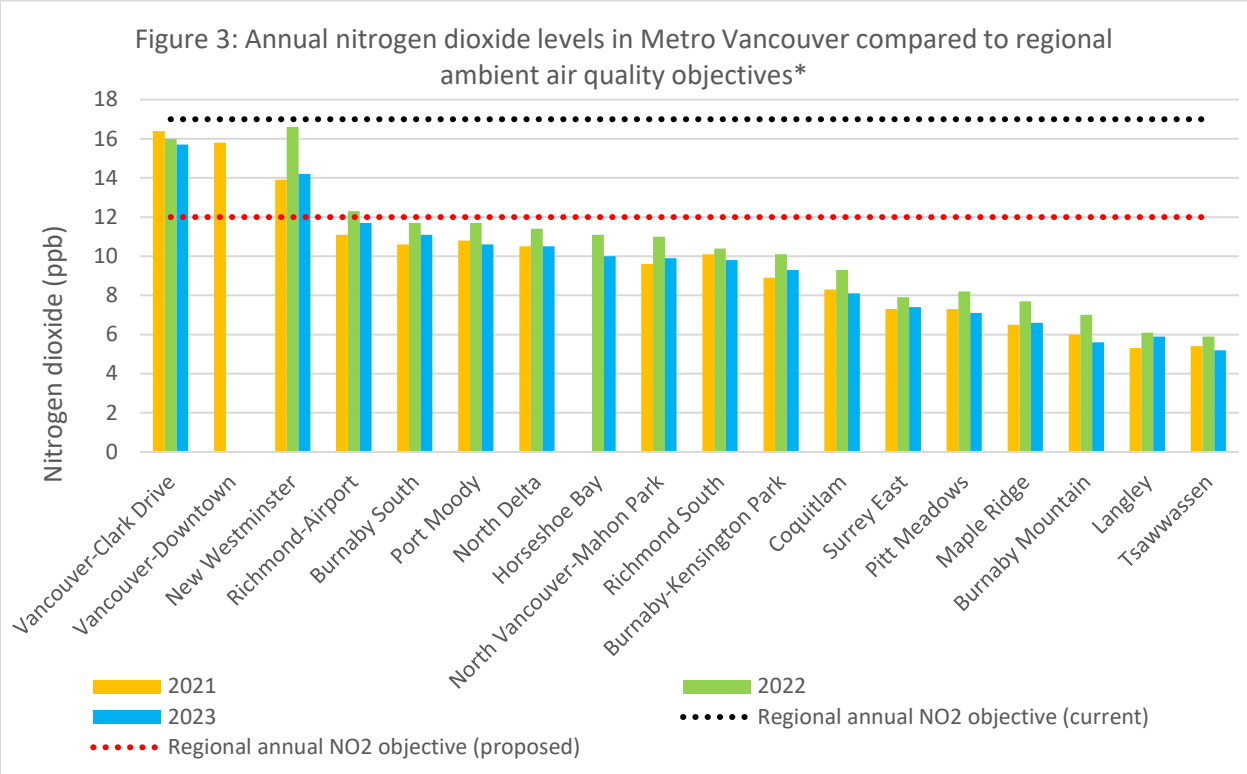
Figure 1: Ground-level ozone 8-hour levels in Metro Vancouver compared to regional ambient air quality objectives*



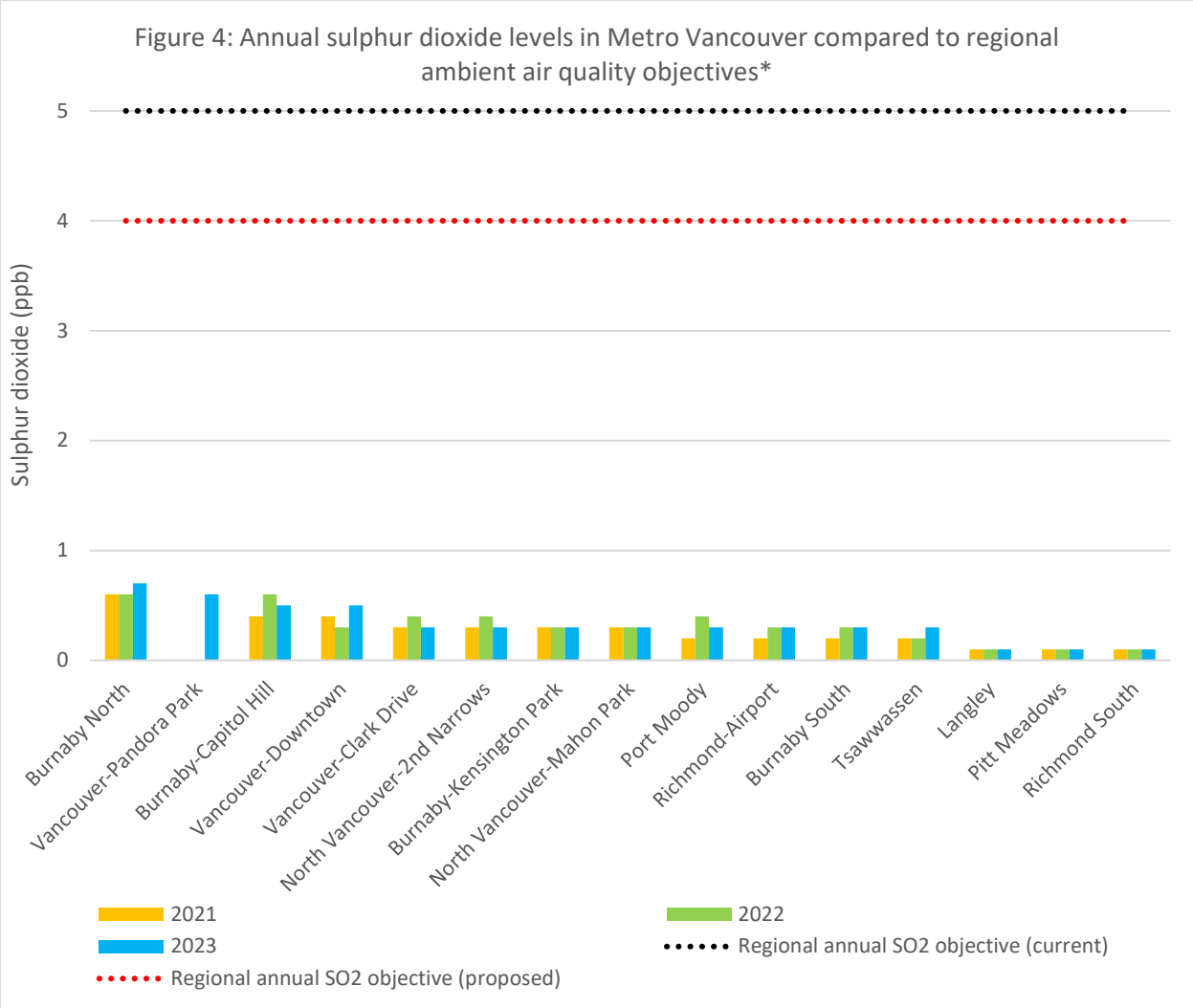
* Levels for each reporting year were calculated using the statistical form for Metro Vancouver's 8-hour ozone objective: 3-year average of the annual 4th highest daily maximum 8-hour average concentration.



* Levels for each reporting year were calculated using the statistical form for Metro Vancouver's 1-hour NO_2 objective: 3-year average of annual 98th percentile of the daily maximum 1-hour average concentration.



* Levels shown for each reporting year were calculated using an annual average, the statistical form for Metro Vancouver's annual NO_2 objective.



* Levels shown for each reporting year were calculated using an annual average, the statistical form for Metro Vancouver's annual SO_2 objective.

Table 2 shows the number of stations that exceed the current and proposed objectives for ozone, NO_2, and SO_2. The numbers shown are from the same reporting years of 2021, 2022 and 2023.

Table 2 – Exceedances of Objectives for Ground-level Ozone, Nitrogen Dioxide and Sulphur Dioxide, for the Three Reporting Years of 2021, 2022 and 2023

Air contaminant	Averaging period	Air quality monitoring stations exceeding:					
		Current objective			Proposed objective		
		2021	2022	2023	2021	2022	2023
Ground-level ozone	8-hour	0	0	1	0	1	1
Nitrogen dioxide	1-hour	0	0	0	1	1	2
	Annual	0	0	0	3	3	2
Sulphur dioxide	Annual	0	0	0	0	0	0

Implications of Updating Regional Ambient Air Quality Objectives to Align with 2025 Canadian Ambient Air Quality Standards

Regulatory development: In a future report to the Climate Action Committee, staff will propose amendments to the *Boilers and Process Heaters Emission Regulation Bylaw No. 1087, 2008* (*Bylaw 1087*), including more stringent NO_X emission limits for boilers and process heaters, to contribute to the region achieving the updated objectives. In the future, staff will evaluate whether the requirements in other Metro Vancouver regulations are sufficiently protective of human health.

Input to making air quality management permitting decisions: The decision-making process for air quality permits would not change if the proposed updates are endorsed by the Board. The updated objectives would be considered when determining requirements that are advisable for the protection of human health and the environment for new permits or permit amendments. Aligning with national objectives simplifies the regulatory context for large facilities, helps regional industries remain competitive inter-provincially while encouraging continuous improvement and emission reductions.

Issuing air quality advisories: The regional air quality objectives inform the thresholds used in Metro Vancouver's air quality advisory program. An updated 8-hour ozone objective would likely result in more frequent ozone advisories, covering larger geographic areas (particularly during heat waves).

Guiding regional air quality planning efforts: The *Regional Ground-Level Ozone Strategy* is being updated to account for recent trends in NO_X and VOC emissions (the air contaminants that react to form ozone), as well as new research, including the proposed updates to the regional air quality objectives and their supporting evidence, and the increasing incidence of heat waves and wildfires that can lead to elevated ozone levels.

Air quality reporting: No changes are expected to reporting of current air quality or historical trends.

Central Surrey

Proposed Updates to Regional Air Quality Objectives

John Lindner
Air Quality Planner, Air Quality and Climate Action Services

Derek Jennejohn
Lead Senior Engineer, Air Quality and Climate Action Services

Climate Action Committee - November 7, 2024
71235029

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HEALTH IMPACTS OF AIR CONTAMINANTS

- Exposure to ground-level ozone, nitrogen dioxide, sulphur dioxide and other air contaminants is linked to heart and breathing problems, increased hospitalization, and early death
- Air contaminants contribute to 1,900 early deaths in BC every year
- At risk populations include: children, the elderly, and people with underlying health conditions

PROPOSED CHANGES TO OBJECTIVES

Air contaminant	Averaging period	Numerical value (ppb)	
		Current	Proposed
Ground-level ozone	8-hour	62	**60**
Nitrogen dioxide	Annual	17	**12**
	1-hour	60	**42**
Sulphur dioxide	Annual	5	**4**

INFORMING INTEREST HOLDERS

Staff informed interest holders of intended changes:

- Member jurisdictions
- Health authorities
- Businesses operating under Metro Vancouver air quality permits or regulations

New Brighton Park, Vancouver

IMPACTS OF UPDATING REGIONAL OBJECTIVES

- Metro Vancouver will continue to use objectives as **thresholds** to manage regional air quality:
  - Support development of emission regulations
  - Provide input to air quality permitting decisions
  - Issue air quality advisories
  - Guide regional air quality planning
  - Report on current air quality and trends
- Staff will continue to work with partners on *Clean Air Plan* actions to achieve objectives and protect human health

Questions?

To: Climate Action Committee

From: Geoff Doerksen, Air Quality Planner, Air Quality and Climate Action Services
Ken Reid, Superintendent Environmental Sampling and Monitoring, Air Quality and Climate Action Services

Date: October 16, 2024 Meeting Date: November 7, 2024

Subject: **Air Quality Advisories During the Summer of 2024**

RECOMMENDATION

That the MVRD Board receive for information the report dated October 16, 2024, titled "Air Quality Advisories During the Summer of 2024".

EXECUTIVE SUMMARY

Another active wildfire season was experienced in BC in 2024, with more than twice the 10-year average area burned. Wildfire smoke covered much of the province for long periods, while the Lower Fraser Valley was largely unaffected, mainly due to its coastal location and prevailing winds. Elevated levels of ground-level ozone (smog) were experienced in the region for only a few days during the summer of 2024.

Metro Vancouver issued the only advisory of 2024 on July 8, a three-day smog advisory for eastern parts of Metro Vancouver and the Fraser Valley, due to a combination of emission sources in the region and hot, sunny weather. Metro Vancouver issues air quality advisories and bulletins for the Lower Fraser Valley airshed, including Metro Vancouver and the Fraser Valley Regional District, to help protect residents' health during periods of degraded air quality.

PURPOSE

To provide the Climate Action Committee and the MVRD Board with information about air quality advisories issued by Metro Vancouver during the summer of 2024, historical trends, and implications for future air quality.

BACKGROUND

Metro Vancouver's air quality advisory program began in 1993 and is operated through Metro Vancouver's authority to manage air quality in the Metro Vancouver region, and through a shared service agreement for the Fraser Valley Regional District (FVRD). The Climate Action Committee 2024 Work Plan includes an item to provide a report on the 2024 air quality advisory season.

METRO VANCOUVER ADVISORY PROGRAM IN 2024

Metro Vancouver operates one of the most comprehensive air quality advisory programs in Canada. Air quality advisories are issued by Metro Vancouver for the entire Lower Fraser Valley airshed, including Metro Vancouver and the FVRD, when air quality is degraded or expected to degrade. The program is delivered in collaboration with Environment and Climate Change Canada (ECCC), the BC

Ministry of Environment and Climate Change Strategy (BC ENV), FVRD, Vancouver Coastal Health, Fraser Health Authority, First Nations Health Authority, and the BC Centre for Disease Control (BC CDC).

Data from Metro Vancouver's network of air quality monitoring stations is available in real time on Metro Vancouver's Air Map (Reference 1) and informs the air quality advisory program. Contaminants of primary concern for Metro Vancouver's air quality advisory program are those with greatest potential to reach levels in the region that may be harmful to human health: smog (ground-level ozone produced by a chemical reaction between nitrogen oxides and volatile organic compounds on hot and sunny days) and fine particulate matter (from sources including wildfire smoke, residential wood smoke, vehicle exhaust, industrial processes, and chemical reactions). These contaminants are measured against Metro Vancouver's ambient air quality objectives, which are thresholds for acceptable air quality (refer to the report titled "Proposed Updates to Metro Vancouver's Ambient Air Quality Objectives" in this agenda package).

Air quality bulletins are also used to inform the public of air quality conditions. Bulletins are issued when air quality degrades in localized areas, whereas air quality advisories are issued for regional conditions. Historically, air quality bulletins have been issued due to the buildup of air contaminants associated with residential wood burning in the fall or winter, and more recently they have been used during emergency incidents such as large structural fires that produce significant smoke.

SUMMER 2024 ADVISORIES AND BULLETINS

One air quality advisory was issued during the summer of 2024, for a total of three days. On July 8, a three-day smog advisory was issued for eastern parts of Metro Vancouver and the Fraser Valley. Elevated smog was caused by local emissions in combination with hot and sunny weather.

Metro Vancouver maintains a subscription list of media outlets, key stakeholders, and members of the public who have subscribed to receive information about air quality advisories. Table 1 shows the number of advisory subscribers, air quality advisory emails sent, media interviews conducted, and social media posts issued to support the air quality advisory program in the summer of 2024.

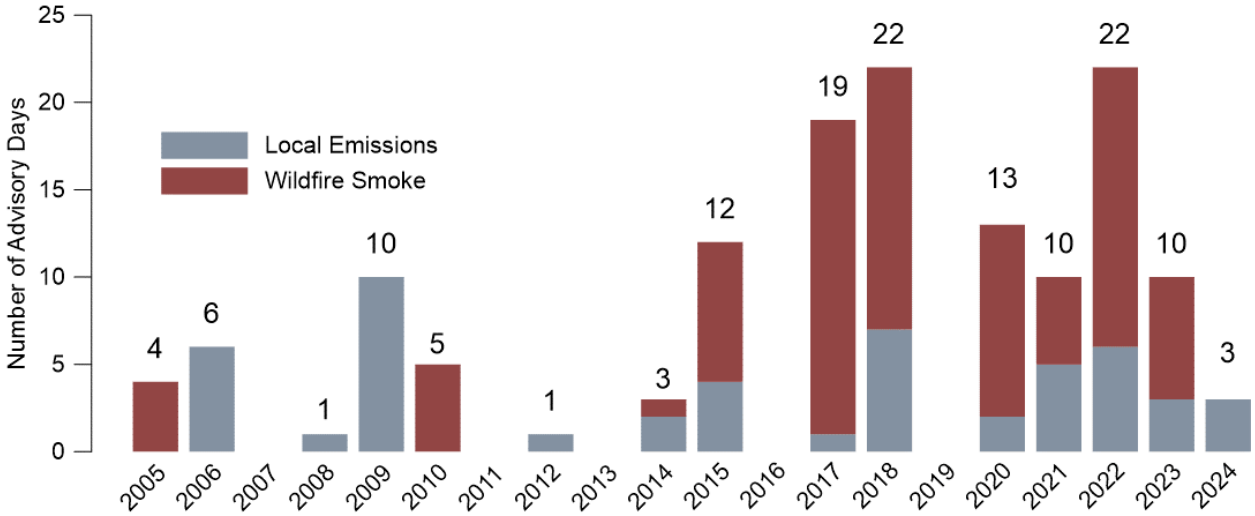
Table 1: Air quality advisory outreach statistics for summer 2024

Air quality status updates	25
Air quality status update subscribers	1,287
Air quality status update emails sent	32,175
Media advisory subscribers	242
Public advisory subscribers	4,751
Advisory media releases issued	4
Advisory emails sent	19,972
Media interviews conducted by advisory team	3
Social media posts	69

In the last twenty years, the number of days on which air quality advisories were in place has ranged from zero to twenty-two days annually. Figure 1 shows the historical trend of the number of days the Lower Fraser Valley was under an advisory. The legend indicates the reason for the

advisory being issued, whether is due to wildfire smoke or local emissions (ground-level ozone or secondary fine particulate matter). Metro Vancouver has a performance indicator that aims for zero advisory days due to local emissions (sources located within the airshed). In the last 5 years there have been on average 3.8 days with such advisories each year. Actions to reduce local emissions that contribute to smog are outlined in the *Regional Ground-Level Ozone Strategy* which is currently undergoing an update.

Figure 1: Number of days of air quality advisories in the Lower Fraser Valley



Note: Trigger levels for advisories have changed over the years; care must be taken when interpreting advisory trends.

An air quality bulletin was issued on June 20, 2024 in response to smoke from a fire that engulfed an unused wooden train trestle spanning the Fraser River between Richmond and Vancouver. The bulletin was ended the following day when air quality improved.

2024 WILDFIRE SEASON

Leading into wildfire season, the BC Wildfire Service reported that conditions included deep and persistent drought through the northeast and central Interior, extremely low snowpacks, and numerous holdover fires from the previous year. Low snowpacks can limit drought recovery heading into the summer. Holdover wildfires, which smolder under snow or the ground during the winter, are common in BC and can resurface in the spring when vegetation dries out.

While northern BC experienced warmer and dryer than normal conditions in the spring, major fire activity was delayed due to cool and showery conditions in June. In July, a prolonged heat spell dried out forests and fuels, with fire activity and intensity steadily increasing through the month. Severe drought continued in many parts of BC, including the northeast, where the majority of wildfires were concentrated. Nearly 75% of area burned in BC occurred in the northeast in the Prince George Regional Fire Centre.

Meanwhile, southwest BC received more rainfall than normal throughout the summer, mitigating drought conditions and fire activity. Less than 1% of area burned in BC occurred in southwest BC,

the Coastal Regional Fire Centre. As of the end of September, over 1,074,100 hectares have burned in 2024, more than twice the 10-year average.

In 2024, no air quality advisories were issued in Metro Vancouver or the Fraser Valley due to wildfire smoke. There were a few days with hazy conditions but air quality remained better than air quality advisory thresholds at all monitoring stations.

IMPLICATIONS FOR FUTURE AIR QUALITY

Research on BC wildfire seasons indicates that human-induced climate change contributes greatly to the extreme warm temperatures, high wildfire risk, and large burned areas (Reference 2). Climate projections indicate the region will experience hotter, drier summers and warmer, wetter winters. A warming climate is expected to increase the frequency, severity and duration of wildfires and associated smoke impacts, while also increasing in-region smog formation through the intensity and duration of summer heat waves.

Public awareness of air quality and health has also grown with smog and wildfire smoke impacts. Metro Vancouver continues to work with local health authorities, BC Centre for Disease Control, Health Canada, BC ENV, FVRD and experts from outside BC to develop communication resources for residents on smog and wildfire smoke health impacts and how they can protect themselves. Metro Vancouver is also exploring opportunities to collaborate with member jurisdictions and other partners on programs and policies to help protect residents from the impacts of extreme heat and smoke.

Metro Vancouver's *Climate 2050* strategy has identified actions to help residents adapt to climate-related impacts on regional air quality, such as accelerating the use of electric heat pumps to cool homes during extreme heat events while also reducing greenhouse gas emissions. The *Clean Air Plan* outlines strategies for continuous improvement in regional air quality, as well as actions to: provide better protection against wildfire smoke (such as public clean air spaces), develop resources to help residents and businesses manage indoor air quality, and provide high quality information to the public during air quality advisories.

ALTERNATIVES

This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS

Staff time for the air quality advisory program is included in annual operating budgets, including overtime for evening and weekend work. Increased resource levels may be needed as wildfire activity continues to increase in the future and have been considered in long term financial planning.

CONCLUSION

Metro Vancouver staff work closely with health authorities and other partners to continuously improve the air quality advisory program to protect public health. Northeast BC experienced an active wildfire season in 2024, while our region was spared the impacts of wildfire smoke. Local emissions combined with hot and sunny weather in July resulted in a smog advisory for three days.

As Metro Vancouver experiences increasing climate impacts it is essential that we continue to accelerate actions to reduce greenhouse gas emissions, adapt to a changing climate, and improve regional air quality.

REFERENCES

1. Metro Vancouver Air Map
2. Attribution of the Influence of Human-Induced Climate Change on an Extreme Fire Season, National Institutes of Health, dated January 7, 2019

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To: Climate Action Committee

From: Johann Zerbe, Senior Policy and Planning Analyst, Air Quality and Climate Action Services
Jason Emmert, Program Manager Regional Climate Action Policy, Air Quality and Climate Action Services

Date: October 24, 2024 Meeting Date: November 7, 2024

Subject: **Climate 2050 Progress Report 2023/2024**

RECOMMENDATION

That the MVRD Board receive for information the report dated October 24, 2024, titled "Climate 2050 Progress Report 2023/2024".

EXECUTIVE SUMMARY

The Climate 2050 Progress Report 2023/2024 provides a status update on progress towards *Climate 2050* and its roadmap actions. Between 2010 and 2022, Metro Vancouver's population increased by 22 percent, and regional GHG emissions increased by 9 percent, reaching 17.2 million tonnes per year of CO_2e in 2022. This increase was driven by growth in emissions from buildings, industrial facilities, and non-road engines (including construction and other equipment). For example, emissions from construction, manufacturing, and other commercial equipment (e.g., backhoes, generators, and forklifts) was responsible for about half of the growth in total regional emissions.

At the same time, effective climate policies and solutions are starting to have positive impacts. For example, since 2010, GHG emissions per person dropped 10% from 6.7 tonnes to 6.0 tonnes annually, and emissions in some sectors such as on-road transportation have reduced. Clean energy technologies are becoming more available and affordable, such as heat pumps, solar panels, electric vehicles, and batteries for energy storage. For example, in 2023, electric vehicles made up 27% of new vehicle sales in the region and more residential heat pumps than natural gas furnaces were imported into BC. Local governments are building protected and connected walking and cycling networks, and micro-mobility (including e-bikes and e-scooters) is growing in popularity, collectively displacing motor vehicle trips.

Total regional emissions are expected to be reduced in future years, provided that *Climate 2050* and policies from other orders of government continue to be supported, resourced, and implemented, alongside continued development and roll-out of clean technology. Expanded and accelerated climate action in the region is needed to achieve GHG reduction and resilience to climate impacts, to align with global efforts needed to avoid the worst impacts of climate change.

PURPOSE

To inform the Climate Action Committee and MVRD Board about work completed in 2023 and 2024 year-to-date in implementing *Climate 2050,* and to summarize the major trends and achievements in climate action in the Metro Vancouver region.

BACKGROUND

The Climate 2050 Progress Report 2023/2024 meets Metro Vancouver's commitment to report publicly on progress towards the *Climate 2050* goals. This report is intended to inform elected officials, residents, partners, and stakeholders on *Climate 2050* implementation, highlighting both regional and corporate progress. The report complements other climate communications in Metro Vancouver's Climate 2050 Engagement and Public Education Strategy, as well as the Local Government Climate Action Program (LGCAP) survey (Reference 1), which is a requirement for receiving provincial funding under the program.

INSIDE THE CLIMATE 2050 PROGRESS REPORT

This year's Climate 2050 Progress Report includes an updated summary of regional GHG emissions. The report covers:

- Implementation status of *Climate 2050* actions in Board-endorsed Roadmaps;
- Examples of work by Metro Vancouver's partners to support regional climate action;
- Highlights of key Metro Vancouver projects supporting both corporate and regional emissions reduction and climate resilience;
- Updated GHG emissions data by sector for 2019-2022, and discussion of emissions trends since 2010 (baseline year); and
- Corporate and regional key performance indicators, where data is available.

A detailed report on Metro Vancouver's regional emissions inventory will be shared with the Climate Action Committee and Board at a future meeting.

PROGRESS TOWARDS CLIMATE GOALS AND TARGETS

GHG emissions are starting to decrease in some sectors in our region, but total emissions are still rising. Increased and more coordinated efforts are needed at all orders of government, in collaboration with partners including public sector organizations, businesses, non-profits, and residents in our region.

We are seeing some positive trends and leading indicators that show progress and potential for reducing regional GHG emissions, including:

- Per capita GHG emissions have dropped by 10% since 2010.
- Clean energy technologies such as heat pumps, solar panels, electric vehicles, and batteries for energy storage are becoming more available and affordable. For example, in 2023:
    - electric vehicles made up 27% of new vehicle sales in the region; and
    - more residential heat pumps than natural gas furnaces were imported into BC.
- Local governments are building protected and connected walking and cycling networks, and micro-mobility (including e-bikes and e-scooters) is growing in popularity, collectively displacing motor vehicle trips.

However, challenges continue to impede climate action in our region, resulting in overall emissions continuing to rise. These challenges include:

- Predominance of concerns about affordability, housing, and other socioeconomic factors;
- The challenge of scaling up and right-sizing infrastructure to supply clean energy;

- The need for significant and sustainable funding for public transit in the Metro Vancouver region;
- Continued growth and lock-in of some fossil fuel technologies; and
- The ongoing spread of misinformation about climate solutions, which requires evolving approaches to communication and engagement in order to maintain public support for climate policies.

REGIONAL EMISSIONS CONTINUE TO RISE

The Climate 2050 Progress Report 2023/2024 includes a summary of the recently updated regional GHG emissions inventory, and provides a breakdown of these emissions by sector. Between 2010 and 2022, Metro Vancouver's population increased by 22 percent, and regional GHG emissions increased by 9 percent, reaching 17.2 million tonnes per year of CO_2e in 2022. This increase was driven by growth in emissions from buildings, industrial facilities, and non-road engines (including construction and other equipment). GHG emissions from on-road transportation and solid waste reduced over this period. During this period, GHG emissions per person dropped slightly, from 6.7 tonnes to 6 tonnes per year.

Total regional GHG emissions are expected to be reduced in future years, provided that *Climate 2050* and policies from of other orders of government continue to be supported, resourced, and implemented, alongside continued development and roll-out of clean technology. Expanded and accelerated climate action in the region is needed to achieve GHG reductions and resilience to climate impacts to align with global efforts needed to avoid the worst impacts of climate change

METRO VANCOUVER'S CORPORATE CLIMATE LEADERSHIP

Metro Vancouver is taking action to reduce its own emissions from operations and services, in the following ways:

- production and provision of renewable energy to the region;
- transitioning the corporate fleet to zero emissions vehicles;
- switching to lower-carbon fuel sources in our operations and contracted services, including renewable natural gas and renewable diesel; and
- undertaking deep retrofits of buildings owned by Metro Vancouver Housing that improve energy efficiency, reduce costs to tenants, and protect residents from extreme heat.

Staff are developing a new Corporate Climate & Energy Management System, which aims to accelerate actions to mitigate and adapt to climate change while increasing process efficiency to achieve 2030 and 2050 corporate targets that align with the regional *Climate 2050* targets.

The Climate 2050 Progress Report 2023/2024 includes highlights of corporate climate actions, and GHG emissions reporting for some Metro Vancouver service areas. Corporate GHG emissions, energy trends, and corporate climate action projects are reported in more detail in the technical report "Managing Metro Vancouver's Corporate Energy and Emissions" (Reference 2), posted on Metro Vancouver's website.

CLIMATE 2050 ROADMAP ACTION STATUS

Each *Climate 2050* Roadmap includes a timeline for implementation. The Climate 2050 Progress Report 2023/2024 provides an update (as of June 2024) of actions from the six Roadmaps endorsed by the Board to date, denoting whether they are complete, in-progress, not started (i.e., delayed), planned for future years, or not proceeding.

Climate 2050 Action Status as of June 2024:

- Complete: 10
- In-progress: 124
- Not started (i.e., planned start is delayed): 16
- Planned for Future (i.e., expected to start in 2024 or later): 102
- Not Proceeding: 1

The action marked as "not proceeding" reflects the Board's direction to staff to not proceed with engagement on a potential approach to benchmark and / or limit emissions from existing large buildings.

METRO VANCOUVER CLIMATE ACTION HIGHLIGHTS

The Climate 2050 Progress Report 2024/2024 highlights a number of projects that address multiple actions in the *Climate 2050* Roadmaps, including Big Moves, which have the potential to significantly reduce regional emissions and/or improve resilience to climate impacts. These include:

- **BC Retrofit Accelerator:** In 2024, the Zero Emissions Innovation Centre launched the BC Retrofit Accelerator (BCRA). This "one-stop" resource hub helps building owners in the region plan and carry out building upgrades that reduce energy use and costs, protect occupants from extreme heat, and reduce GHG emissions. The BCRA offers coaching and advisory services including technical expertise, access to financing and grants, and other services. Metro Vancouver was instrumental in establishing the BCRA by providing seed funding through the Sustainability Innovation Fund that helped ZEIC leverage to raise more than $14 million.

- **Advocating for Fair Energy Rates and Accelerating Climate Action:** In 2023, Metro Vancouver collaborated with other local governments as an intervener in three British Columbia Utilities Commission (BCUC) proceedings. The focus was on advocating for fair energy rates and strategic long-term planning, and ensuring alignment with climate targets and regional priorities. The BCUC decisions were generally aligned with the positions of the local government interveners.

- **Charging Ahead: Transitioning to a Zero-Emission Fleet:** MetroFleet, Metro Vancouver's corporate on-road vehicle fleet, will transition over 300 fleet vehicles to EVs over the next six years. In 2023, Metro Vancouver added 25 new EVs to its light-duty fleet and added over 20 new EV chargers for corporate, staff, and public use.

ALTERNATIVES

This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS

The resources to develop and communicate the Climate 2050 Progress Report are approved within current program budgets. Implementing *Climate 2050* to meet the targets with the urgency demanded by the climate crisis is likely to require additional investments, while also conferring long-term economic benefits for residents and businesses, necessitating innovative approaches and partnerships. Through collaboration with its partners, Metro Vancouver is able to leverage significant financial resources to drive climate action and deliver cost-effective value to the residents of the region. As specific proposals are developed, their costs, benefits, and partnerships will be clarified and Board approval will be sought as per current financial practices.

CONCLUSION

The Climate 2050 Progress Report 2023/2024 provides an overview of *Climate 2050* Roadmap development and implementation in 2023 and 2024 year-to-date, including updates on key actions and projects that support progress towards the *Climate 2050* objective of a carbon neutral, resilient region. The Climate 2050 Progress Report 2023/2024 shows that while we are beginning to see positive trends towards our climate goals, significant challenges remain to achieving them. Expanded and accelerated action on the part of Metro Vancouver, in collaboration with other orders of government and partners is needed to meet targets for 2030 and 2050. Staff will continue to seek direction from the Climate Action Committee and the Board to advance projects and initiatives supporting Big Moves and other key Roadmap actions.

ATTACHMENTS

1. Metro Vancouver Climate 2050 Progress Report 2023/2024, dated October 2024.
2. Presentation re: “Metro Vancouver Climate 2050 Progress Report 2023/2024”, dated November 7, 2024.

REFERENCES

1. Metro Vancouver 2024 Local Government Climate Action Program (LGCAP) Submission, dated July 30, 2024
2. Metro Vancouver Annual Corporate Energy and Greenhouse Gas Emissions Management Report 2019 to 2023, dated October 2024

63975763

Climate 2050
PROGRESS REPORT

2023/2024

Indigenous Territorial Acknowledgement

Metro Vancouver acknowledges that the region's residents live, work, and learn on the shared territories of many Indigenous peoples, including 10 local First Nations: q̓i̓c̓əy̓ (Katzie), q̓ʷɑ:ńƛ̓əń (Kwantlen), kʷikʷəƛ̓əm (Kwikwetlem), máthxwi (Matsqui), xʷməθkʷəy̓əm (Musqueam), qiqéyt (Qayqayt), Semiahmoo, Sḵwx̱wú7mesh Úxwumixw (Squamish), scəẃaθən məsteyəxʷ (Tsawwassen) and səlilwətaɬ (Tsleil-Waututh).

Metro Vancouver respects the diverse and distinct histories, languages, and cultures of First Nations, Métis, and Inuit, which collectively enrich our lives and the region.

About Metro Vancouver

Metro Vancouver is a diverse organization that plans for and delivers regional utility services, including drinking water, sewers and wastewater treatment, and solid waste management. It also regulates air quality, plans for urban growth, manages a regional parks system, provides affordable housing, and serves as a regional federation. The organization is a federation of 21 municipalities, one electoral area, and one treaty First Nation located in the region of the same name. The organization is governed by a Board of Directors of elected officials from each member jurisdiction.

4515 Central Boulevard, Burnaby, BC, V5H 0C6
metrovancouver.org
October 2024

Contents

About *Climate 2050*

Climate change is driven by excess greenhouse gases (GHGs) from human activities and is affecting residents in our region today. Warming of the atmosphere, oceans, and land is leading to more frequent and severe weather events, and widespread disturbances and damage to natural and human systems. In the future, our region can expect even hotter, drier summers, warmer, wetter winters, and more extreme weather (see Metro Vancouver's Climate Projections Report). Scientists emphasize we can still stop the worst effects of climate change if we work together to dramatically reduce our emissions over the next few years and coming decades.

Climate 2050 is the strategy adopted by Metro Vancouver in 2018 that commits to:

- Achieve a carbon-neutral region by 2050
- Ensure the region's infrastructure, ecosystems, and communities are resilient to the impacts of climate change
- Reduce greenhouse gas (GHG) emissions by 45% from 2010 levels by 2030

Carbon Neutral Region

A carbon neutral region is achieved when the annual GHG emissions are equal to the amount of carbon removed from the atmosphere and stored annually by the natural ecosystems (e.g. forests and wetlands).

In our region, these ecosystems remove about 1 million tonnes of carbon from the atmosphere every year. Currently, regional GHG emissions are around 17 million tonnes per year. This means that we must reduce these emissions as much as possible, while ecosystems can help to offset a very small amount of remaining emissions to get to net zero.

In this context "Net Zero" can be used interchangeably with carbon neutral. According the International Panel on Climate Change (IPCC) the world must achieve "net zero" emissions by 2050 to avoid catastrophic climate change.

Progress Toward Climate Goals and Targets

We are beginning to see emissions decrease in key sectors in our region, but total emissions are still rising. Increased and more coordinated efforts will be needed at all levels of government, in collaboration with partner organizations including public sector organizations, businesses, non-profits, and residents in our region.

Positive Trends on Reducing Emissions

- Clean energy technologies are becoming more available and affordable, such as heat pumps, solar panels, electric vehicles, and batteries.
- In 2023, electric vehicles made up 27% of new vehicle sales in the region.
- In 2022 and 2023, more residential heat pumps than natural gas furnaces were imported into BC.
- Governments are investing in connected walking and active transportation networks, and use of micro-mobility (including e-bikes and e-scooters) is growing in popularity.

Regional Emissions are Rising

In 2022, the Metro Vancouver region's total annual regional GHG emissions were 17.2 million tonnes CO2e (carbon dioxide equivalent), up 9% from 2010 (15.8 million tonnes CO2e). These increases were driven by growth in emissions from industrial facilities, non-road engines (including construction and other equipment), and buildings. GHG emissions from on-road transportation and solid waste decreased during this period.

Per Capita Emissions are Decreasing

Metro Vancouver's population grew by 22% during this period, with GHG emissions per person decreasing from 6.7 tonnes to 6 tonnes.

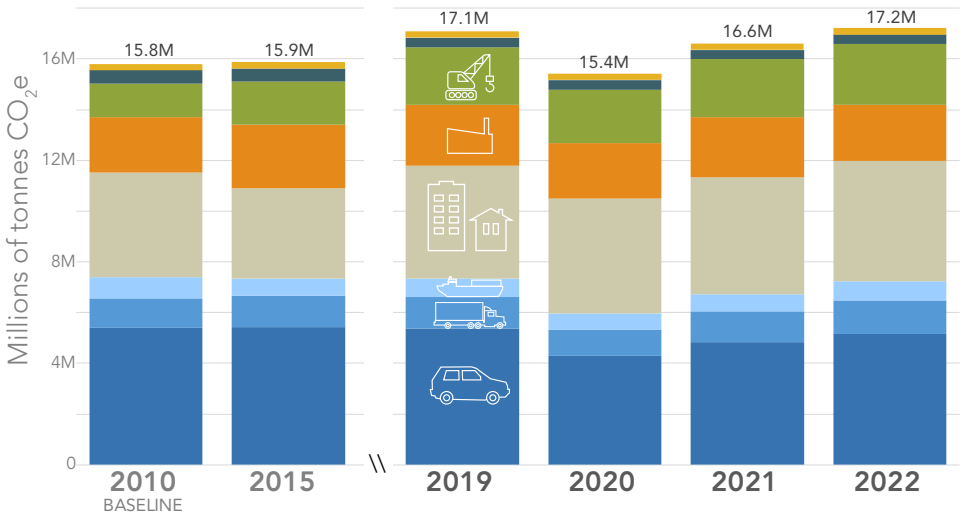
Total regional emissions are expected to decrease in future years, as actions in the Climate 2050 roadmaps, and policies from other orders of government are implemented and as technology and market shifts continue to take effect.

Challenges to Climate Action

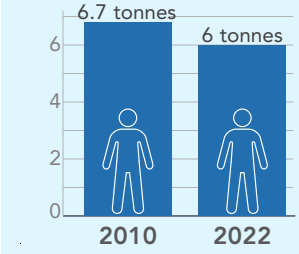
Conversely, challenges to climate action include:

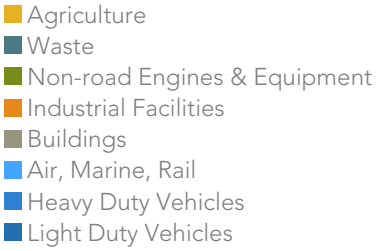
- Compounding societal crises and challenges
- The challenge of scaling up the infrastructure needed to supply clean energy
- Continued growth and lock-in of fossil fuel technology
- Securing sustainable funding for transit
- Maintaining public support for climate action with spread of misinformation

METRO VANCOUVER REGION-WIDE GREENHOUSE GAS EMISSIONS BY SECTOR 2010 – 2022



PER CAPITA EMISSIONS





Implementing Climate 2050

This *Climate 2050* Progress Report includes updates on work in 2023 and 2024 (to the end of June) to implement the actions in each *Climate 2050* roadmap. For *Climate 2050* roadmaps that are still under development, this report includes updates about relevant actions and projects that are underway or completed.

This report provides an update on which actions are complete, in-progress, not started, planned for future years, or not proceeding.

See Appendix 1 (page 28) for a list of Climate 2050 actions that were complete or in-progress as of June 2024, and see the Climate 2050 roadmaps for a full list of actions in board-endorsed roadmaps.

Climate 2050 Action Implementation (from Board-endorsed roadmaps, as of June 2024)

	BIG MOVES	TOTAL ACTIONS
Complete	7	10
In Progress	31	124
Not Started	3	16
Planned for Future Years	14	102
Not Proceeding[1]	1	1

The icons below indicate the types of actions you will find throughout this report:

BIG Move	Actions that have the most potential to significantly reduce emissions or enhance resilience and adaptation to climate impacts
GHG	Actions that reduce greenhouse gas (GHG) emissions
	Actions that support adaptation and resilience to climate impacts
Corporate LEADERSHIP	Actions by Metro Vancouver in its corporate operations that demonstrate leadership and support regional action

THE CHALLENGE

4.7 million tonnes CO_2e
from burning natural gas for heating and hot water in buildings

28%
of regional GHG emissions are from burning natural gas for heating and hot water in buildings

PERFORMANCE

15% **increase** in buildings emissions in the region since 2010 (2022)

2,885
new residential heat pumps installed in region through the CleanBC Better Homes Program (2023) replacing natural gas systems, compared to **1,957 in 2022**

10 Metro Vancouver municipalities and local First Nations adopting the **Zero Carbon Step Code**

17% **decrease** in **GHG emissions** from Metro Vancouver Housing buildings since 2010

Buildings

Creating climate-ready buildings that protect human health, save lives, and stand strong against extreme weather.

GHG emissions from buildings in Metro Vancouver have increased by 15% since 2010. Energy-efficient and zero-emissions buildings have lower annual energy costs, better resilience to extreme heat events, and healthier air quality. Without strong policies, emissions from buildings will continue to rise and building owners will miss opportunities to reduce energy costs and improve resilience.

Accelerating Zero Emissions New Construction

New homes with all-electric heating can be just as affordable to build, and cheaper to operate, compared to gas-heated buildings[2]. As of the time of this report's publication, ten municipalities and First Nations in the Metro Vancouver region have adopted the BC Zero Carbon Step Code for new construction[3], ensuring that new homes and buildings have lower emissions, ahead of BC-wide requirements that will come into effect in 2030.

Reducing Emissions from Existing Buildings

The Government of BC's CleanBC Better Homes and Better Buildings programs provide rebates and incentives for building owners to implement zero-emissions retrofits. In 2024, the Government of BC and BC Hydro announced the Multi-Unit Residential Building Retrofit Program, which extends substantial rebates for equipment upgrades in these buildings, providing rebates for building owners to implement advanced technologies that significantly reduce energy consumption. Member jurisdictions are also working to ensure building owners have the resources and supports to incorporate emissions reduction and cooling into the renovations plans for their buildings:

- The City of Vancouver has launched Energize Vancouver to support owners and managers of commercial buildings to meet new requirements for emissions reporting and future emissions limits. In 2023, the Rental Apartment Retrofit Accelerator (RARA) was launched, which provides grant funding to owners of market rental buildings to undertake critical energy retrofit upgrades, reducing emissions and improving climate resilience of these buildings.
- The City of Richmond is exploring its own reporting and benchmarking policies for large buildings.

Metro Vancouver Project Highlights

BC Retrofit Accelerator

The Zero Emissions Innovation Centre (ZEIC) used seed funding from Metro Vancouver's Sustainability Innovation Fund to raise more than $14 million to establish a buildings "Retrofit Accelerator".

This is a "one-stop" resource hub for building owners in the region to help plan and carry out building upgrades that reduce emissions. The accelerator will offer coaching and advisory services including technical expertise, access to financing and grants, and other services.

Green Upgrades: Transforming Metro Vancouver Housing

Corporate LEADERSHIP

Metro Vancouver Housing Corporation is upgrading buildings across the region to significantly reduce their emissions and energy costs, including at Somerset Gardens and Minato West, where retrofits were initiated in 2023. These projects include major improvements to insulation and windows, replacing inefficient heating systems and switching them from gas to electric alternatives, and providing efficient cooling with heat pumps that protect residents from extreme heat events.

This work is supported by the Reframed Initiative, a collaboration between Metro Vancouver Housing, the Pembina Institute, the BC Non-Profit Housing Association, BC Housing, and the City of Vancouver.

THE CHALLENGE

6.5 million tonnes CO_2e
total annual regional GHG emissions from on-road vehicles (2022), making up 38% of regional GHG emissions

38%

23 billion km
annual total vehicle distance traveled in region (up 25% from 2010)

PERFORMANCE

4% **decrease** in light duty vehicle emissions from 2010-2022

13% **increase** in heavy-duty vehicle emissions from 2010-2022

27% of **new passenger vehicles** sold in region were electric (2023)[3]

EV **6%** of **passenger vehicles** in region are EVs (2023)[4]

28% decrease in **GHG emissions** from MV Fleet vehicles from 2016 baseline year

Transportation

Cutting emissions while improving how we move people and goods across the region.

Transportation is the largest source of GHG emissions in the region. Emissions from cars, light trucks, and SUVs have decreased by 4% since 2010, while emissions from heavy-duty vehicles such as freight trucks have increased by 13%. However, zero-emissions vehicles are becoming more affordable and available, opening up greater opportunity to reduce these emissions.

Accelerating the Shift to Electric Vehicles

In 2023, EVs comprised over 27% of new vehicles sold in the region. This rising demand is driven in part by effective policies such as provincial and federal zero-emissions vehicle sales mandates[4].

The BC government has revised the Strata Property Act to make it easier for apartment owners to install EV charging stations. At the same time, additional efforts are needed to ensure the EV charger network is rapidly expanded.

Investing in Public and Active Transportation

While the rise in EVs is promising, we must also prioritize walking, cycling, and transit. These modes cut GHG emissions, improve health, ease traffic, and create more livable neighbourhoods. TransLink, with funding from the federal and BC governments, is building two major SkyTrain expansion projects; the Broadway Subway Line and the Surrey-Langley SkyTrain extension.

Member jurisdictions are also building infrastructure to make walking and cycling safer, and piloting or expanding programs for bike-share, e-bikes, and e-scooters. Together, these investments can reduce vehicle trips and associated congestion and improve health. In addition to investments in infrastructure such as protected bike lanes and sidewalks, programs like the City of Coquitlam's Shared Micromobility Pilot, and the North Shore E-bike share program, are providing residents with low-carbon, affordable, and convenient travel options. Upon launching in June 2023, the BC E-Bike Rebate Program was fully subscribed within a few hours, demonstrating the demand for e-bikes and other forms of electric micro-mobility.

Metro Vancouver Project Highlights

Electric Vehicle Charging Analysis and Guidance

In partnership with BC Hydro and TransLink, in 2023 Metro Vancouver completed Keeping it Current: Guidance for Collaborative Deployment of EV Charging in Metro Vancouver, a resource to guide and align deployment of public and multifamily residential building EV charging in the region. The analysis found a need for:

- Rapid and widespread expansion of the EV charging network
- 2,200 to 2,900 public direct current fast charging (DCFC) ports and 32,000 to 47,000 public Level 2 ports needed by 2035 to keep pace with the expected rapid uptake of EVs

The report also provides recommendations for local governments and others to accelerate deployment of these chargers.

Zero Emission Hauling: Leading the Way to Clean Heavy-Duty Transportation

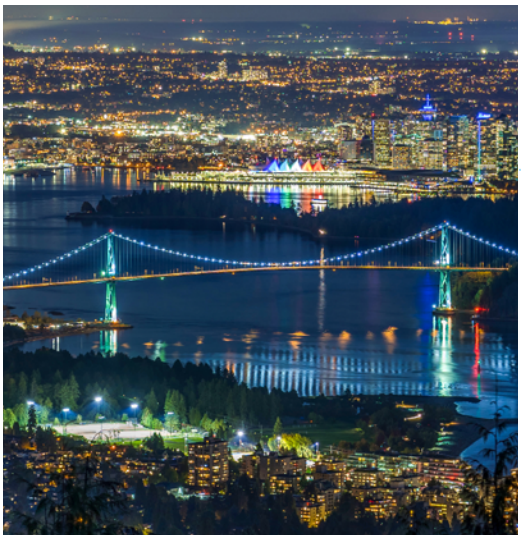
Corporate LEADERSHIP

In 2023, Metro Vancouver worked with member jurisdictions and hauling companies to assess the business case for using zero-emission vehicles (ZEVs) for transporting solid waste, drinking water treatment residuals, biosolids, and curbside waste collection. Metro Vancouver uses hauling contractors to transport waste within the region, as well as over long-distances (for example, biosolids are recovered from advanced wastewater treatment and used for soil remediation at agricultural and industrial sites in the interior of BC). Metro Vancouver also engaged with hauling contractors as part of a ZEV pilot project to use battery electric and hydrogen fuel cell trucks to reduce emissions from hauling services.

Charging Ahead: Transitioning to a Zero-Emission Fleet

Corporate LEADERSHIP

Metro Vancouver's Green Fleet Plan will support a goal of transitioning Metro Vancouver's corporate on-road vehicle fleet to zero-emissions vehicles by 2050. As part of the strategy, Metro Vancouver will transition over 300 fleet vehicles to EVs over the next six years. In 2023, Metro Vancouver added 25 new EVs to its light-duty fleet and added over 20 new EV chargers for corporate, staff, and public use.



THE CHALLENGE

75%

of **energy used in the region comes from burning fossil fuels** (including fossil natural gas, gasoline, diesel, and coal), accounting for 90% of all regional GHG emissions

PERFORMANCE

384,930 GJ

of electricity generated at Waste-to-Energy Facility in 2023, enough to power **more than 14,000 homes** for a year

403,673 GJ

of **biogas produced by Metro Vancouver** for use in its operations in 2023

$ 900,000

revenue from Renewable Natural Gas sold to FortisBC, **reducing** emissions in the region **by over 2,100 tonnes**

Energy

Powering our region sustainably with clean, renewable energy.

Increasing Clean Energy Supply

The Metro Vancouver region is in the midst of transitioning to clean, renewable energy sources. Electricity use in Metro Vancouver and BC is expected to grow by 15% by 2030. In 2024, BC Hydro issued a call for power to acquire 3,000 gigawatt hours per year of new electricity throughout the province, enough to power 270,000 homes. The call for power received strong response with proposals received for over three times more energy than was targeted, with 90% of proposals being wind or solar projects.

Supporting the Region's Energy Transition

Metro Vancouver is harnessing wasted energy from our region's sewage and solid waste systems to power communities, and creating renewable fuels for use in industry and transportation.

Influencing Energy Planning

Local governments are working together to advocate to the Province of BC and the BC Utilities Commission for fair and affordable energy rates and strategic long-term energy planning aligned with provincial and regional climate goals. Communities in the region are increasingly requiring new buildings to be energy-efficient and low-emissions, through setting requirements such as those in the Zero Carbon Step Code.

Metro Vancouver Project Highlights

Advocating for Fair Energy Rates and Accelerating Climate Action

In 2023, Metro Vancouver collaborated with other local governments as an intervener in three British Columbia Utilities Commission (BCUC) proceedings. The focus was on advocating for fair energy rates and strategic long-term planning, and ensuring alignment with regional priorities.

The interveners aimed to ensure that rigorous standards be met for renewable gases in BC's energy plan:

- They must be verifiably zero-emission
- They must be safely deployed affordable, consistently available
- They must be utilized in the most efficient and effective ways possible

Metro Vancouver as a Clean, Renewable Energy Provider

Corporate LEADERSHIP

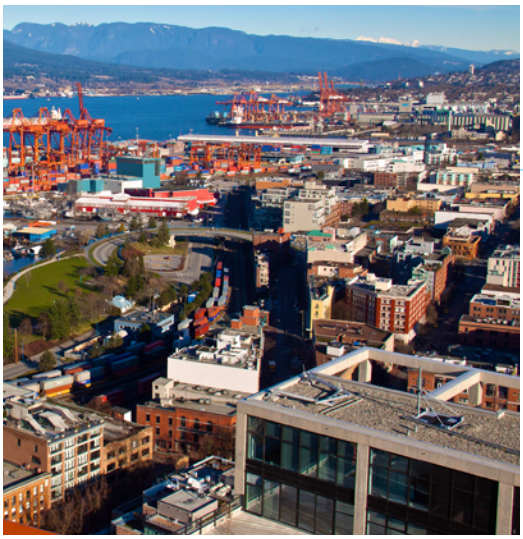
Metro Vancouver's Waste-to-Energy Facility already provides renewable electricity to the region, but also generates steam through its regular operations that is not currently being put to use. Metro Vancouver is developing a district energy system which will use this excess heat to supply space and hot water heating for to up to 50,000 homes in Vancouver, Burnaby, and potentially New Westminster, and has the potential to reduce emissions by up to 70,000 tonnes. Construction of Phase 1 is expected to take place from 2025 to 2027.

Turning Wastewater into Renewable Natural Gas

Corporate LEADERSHIP

Metro Vancouver is turning wastewater into renewable natural gas at its wastewater treatment plants, helping to displace fossil fuels and reducing greenhouse gas emissions in the region.

At facilities like Annacis Island and Iona Wastewater Treatment Plants, biogas is used to generate heat and electricity. At Lulu Island Wastewater Treatment Plant, biogas fulfills all the plant's heating needs while excess gas is sold to FortisBC. Metro Vancouver is also exploring using biogas at other facilities like Northwest Langley and Iona Island. An additional pilot project aims to enhance biogas production by optimizing bacteria in treatment plant digesters.



THE CHALLENGE

2.2 million tonnes CO_2e
total regional emissions from **large industrial facilities** in 2022[6], making up 13% of regional GHG emissions

13%

2.4 million tonnes CO_2e
total regional emissions from **non-road equipment** in 2022, making up 14% of regional GHG emissions

14%

PERFORMANCE

1% **increase** in GHG emissions from **large industrial facilities** from 2010-2022

84% **increase** in GHG emissions from **non- road equipment** from 2010-2022

Industry & Business

Driving economic growth and prosperity through a thriving local clean energy economy.

The majority of industrial sector emissions in the region come from just 23 large industrial facilities such as cement and petroleum manufacturing facilities, and have remained stable since 2010. Emissions from gas and diesel-powered equipment, such as construction and manufacturing, have nearly doubled since 2010, corresponding to rapid urban development in the region, and now make up 14% of total regional emissions[5].

Clean Industry Policy

The Province of BC has introduced new emissions requirements for large GHG emitters through the Output-Based Pricing System (OBPS), which prices industrial emissions using a performance-based approach and ensures industry competitiveness.

The CleanBC Clean Industry Fund is supporting industrial emissions reduction projects in the region, including supporting a project in 2023 at Richmond's Lafarge Cement Plant to upgrade the facility to use alternative fuels in order to reduce the need for fossil fuels.

The BC Low Carbon Fuel Standard continues to require fuel producers to reduce their emissions and innovate to produce renewable fuels.

Clean Technology Leadership

British Columbia is home to 492 companies focused on products and services that reduce environmental impacts such as GHG emissions—more than 70% of these companies are headquartered in Metro Vancouver[6]. Investments, programs, and policies at all levels of government are supporting industry and business in the region to develop and commercialize these innovative solutions.

Metro Vancouver Project Highlights

Assessment of Carbon Capture Technology in the Metro Vancouver Region

Carbon capture, utilization, and storage (CCUS) systems remove CO_2 industrial process emissions and either use or store the CO_2, preventing its release into the atmosphere. With support from the Government of BC and the UBC Clean Energy Research Center, Metro Vancouver launched a project in 2021 to evaluate carbon capture technology for stacks or chimneys at large industrial facilities, such as those from:

- Cement manufacturing
- Petroleum refining and chemical production
- Food and wood products manufacturing
- Metro Vancouver's Waste-to-Energy Facility

The initial assessment concluded that deploying carbon capture, CO_2 transportation, and local CO_2 storage in an integrated network is technically feasible for the major industrial facilities, but will require significant investment, long-term planning, and extensive engagement with industry and the community.

Reducing Emissions from Small Gas-Powered Equipment

Small gas-powered landscaping equipment in the region, like leaf blowers and lawn mowers produce the same amount of health-harming emissions as 750,000 light-duty vehicles, (half of all cars, trucks and SUVs in the region).

Discussions with industry associations, equipment manufacturers, member jurisdictions, and the provincial government indicate there is growing interest in transitioning to zero-emissions equipment. Metro Vancouver is engaging on developing a strategy to accelerate the transition to zero emissions equipment.

Lights, Camera, Climate Action! Supporting Clean Energy Use in Film Production

Portable diesel generators are used extensively in BC's film industry and as a result of this reliance on fossil fuels, film production in Metro Vancouver has higher emissions from fuel consumption compared to other regions. In 2023, Metro Vancouver completed Lights, Camera, Climate Action, a report on clean power alternatives for the film industry, which identified a number of solutions to reduce emissions from film production, including programs to support use of mobile battery power or electrical tie-ins at filming locations.

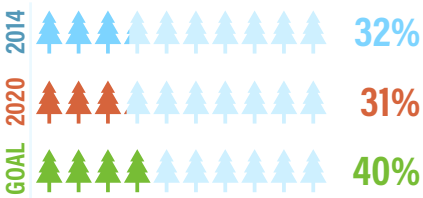
Since 2022, Metro Vancouver has offered a discount on clean energy-powered portable generators used by film crews. Metro Vancouver is now pursuing a pilot to install upgraded electrical connections at a regional park location to enable zero emissions film production.

THE CHALLENGE

31% proportion of Urban Containment Boundary with **tree canopy cover** (2020)

54% proportion of the Urban Containment Boundary **covered by impervious surface** (2020)

PERFORMANCE



1% loss of tree canopy cover in Urban Containment Boundary between 2014-2020 (down from 32%).
Metro Vancouver target = 40%

4% **increase** in proportion of the Urban Containment Boundary covered by impervious surface between 2014-2020 (up from 50%)

32 restoration projects across 17 regional parks
completed in 2023

Nature & Ecosystems

Protecting and leveraging green spaces to enhance climate resilience and biodiversity.

Metro Vancouver member jurisdictions and local First Nations are leaders in protecting, restoring, and enhancing ecosystems, which help to sequester and store carbon, and bolster the region's resilience to climate change impacts such as extreme heat and flooding.

Restoring Ecosystems

- In 2023, Tsleil-Waututh Nation completed a project to restore coastal eelgrass ecosystems in Burrard Inlet.
- The Living Dyke project is being implemented through a partnership between the City of Surrey, City of Delta, and Semiahmoo First Nation.
- Member jurisdictions such as Vancouver and New Westminster are using nature-based solutions such as rain gardens and bio-retention ponds to soak up increased rainfall and filter out pollutants before they enter natural waterways.

Expanding Connectivity of Ecosystems

Metro Vancouver is also working with partners to implement region-wide initiatives to support nature and ecosystems. These include the Regional Green Infrastructure Network and the Regional Greenway Network (RGN), a network of connected recreational paths for cycling and walking. Between 2020 and 2023, the total Regional Greenway Network length grew by 13 km, and approximately 39 km of its segments were completed and are now operational.

Metro Vancouver Project Highlights

Develop a Regional Green Infrastructure Network

To support the implementation of *Metro 2050*, Metro Vancouver is collaborating with member jurisdictions, local First Nations, and other agencies to plan a regional green infrastructure network. This project seeks to protect, enhance, restore, and connect a network of habitat patches and corridors that support the movement of wildlife across the landscape, while maximizing resilience, biodiversity, and human health benefits. Key work streams for this project include First Nations engagement, collaborative network mapping, research and design, and the development of *Metro 2050* guidelines to support network implementation.

Restoring Regional Parks for Future Generations

Corporate LEADERSHIP

In 2023, Metro Vancouver completed 32 restoration projects across 17 regional parks, significantly enhancing natural habitats and promoting biodiversity. These projects included:

- Tree planting at Pacific Spirit and Lynn Headwaters regional parks
- Riparian area enhancement at Derby Reach Regional Park
- Seedling removal from a wildfire site at Burns Bog Ecological Conservancy Area to maintain bog ecosystem properties

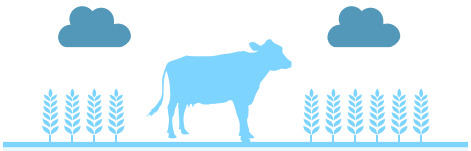
In total, 10,734 native trees and plants were planted, revitalizing green spaces and supporting local ecosystems. These restoration efforts beautify parks and prevent soil erosion and soak up rainfall, which makes the parks and the areas around them more climate-resilient. Investing in nature and ecosystems ensures that these natural habitats and our communities thrive for generations to come.

Restoring Burns Bog: Conservation of a Carbon Sink

Over the past 20 years, Metro Vancouver, in partnership with the City of Delta, has been restoring the Burns Bog, which is a significant carbon "sink" for the region, meaning that the carbon it removes from the atmosphere accumulates over time. To promote carbon sequestration and support healthy bog function, Metro Vancouver and Delta are working to raise the water table by blocking drainage ditches, constructing peat berms, removing trees and seedlings, and monitoring water levels and quality. Since 2008, these restoration efforts have prevented over 120,000 tonnes of GHG emissions, mostly methane, a highly potent GHG.

As of 2024, Metro Vancouver and the UBC Micrometeorology group are working together to analyze potential climate change impacts, such as warmer, drier summers and wetter winters, on Burns Bog, and to develop new ecological restoration strategies to maintain the health of the bog.

THE CHALLENGE



0.2 million tonnes CO_2e

total regional emissions from the **agricultural sector** in 2022[7]

PERFORMANCE

11% **increase** total **agricultural** emissions from 2010-2022

Agriculture

Protecting farmland to ensure a local, resilient food supply.

Metro Vancouver's agricultural sector plays a crucial role in reducing greenhouse gas emissions and providing ecosystem services that make the region more resilient to climate change[7]. Because agriculture is highly sensitive to weather and climate, it is particularly impacted by climate change. To achieve our target of a net-zero and resilient agricultural sector, farmers in the region are using regenerative agricultural practices to help rebuild healthy soil, reduce emissions, and make farmland more resilient to climate change.

Planning for Climate-Resilient Agriculture

Metro Vancouver and member jurisdictions are collaborating with the agricultural sector to identify opportunities to shift away from fossil fuels, build up soil health, promote local food, and embrace new technologies and nature-based solutions. These include:

- Delta recently completed an Agricultural Plan
- Pitt Meadows has begun implementing its newly adopted Agricultural Viability Strategy by initiating an agricultural irrigation and drainage water assessment and feasibility study
- Richmond continues to support the transition toward a circular food system through implementation of its Circular City Strategy.

Metro Vancouver Project Highlights

Regional Food System Strategy Update Project

Corporate LEADERSHIP

Metro Vancouver plays a key role in protecting agricultural lands and supporting a sustainable, resilient food system. The Regional Food System Strategy (RFSS), completed in 2011, aims to transition the region's food system into a fully resilient, circular model. While many actions remain relevant, the 2011 RFSS is in the process of being updated to address climate change, food security, Indigenous food sovereignty, and a circular food system.

Payment for Ecosystem Services Program on Agricultural Land

BIG Move | Corporate LEADERSHIP

Ecosystem services are benefits humans derive from natural ecosystems, including providing materials like food and water, regulating process such as climate and air quality, supporting processes like nutrient cycling, and cultural benefits such as recreation and spiritual values.

Metro Vancouver is researching existing ecosystem payment and funding programs in BC, and is now exploring a potential payment program for ecosystem services on the region's agricultural lands.

Preliminary research reviewed existing ecosystem payment and funding programs in the province. Metro Vancouver is now engaged in a multi-year work plan to explore the parameters of a potential payment for an ecosystem services program.

Agricultural Industry Efforts Showcase

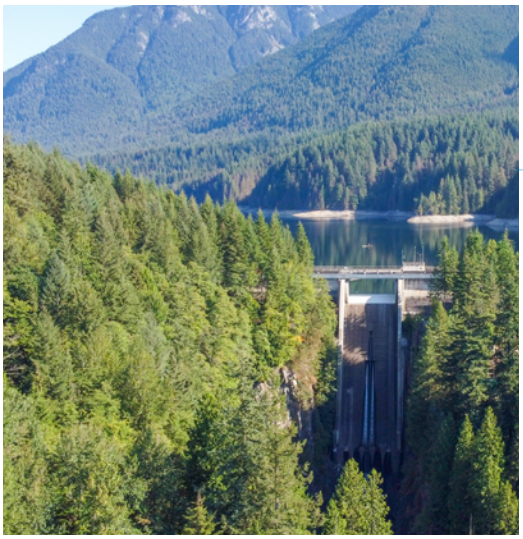
Many stakeholders and participants in the agriculture sector are engaged in direct action that helps to reduce GHG emissions from agriculture, increase resilience, and ensure new and future generations of farmers incorporate sustainable practices.

Agricultural Climate Solutions – BC Living Lab

This research project focuses on climate change mitigation practices that benefit the environment and meet farmers' needs. Priorities include increasing soil carbon, reducing GHG emissions, understanding social and economic implications, and sharing research findings. BC's Living Lab supports perennial row crops, dairy, field vegetables, and forage and cattle.

Greenhouse Growers

A joint project by the BC Greenhouse Growers' Association, United Flower Growers, and the BC Landscape Nursery Association explored technological options for reducing GHG emissions in the BC greenhouse industry.



Water & Wastewater Infrastructure

Building climate resilience in our water systems to ensure high quality drinking water and low-carbon, resilient wastewater services for all residents.

Metro Vancouver provides high quality drinking water and manages wastewater for the region's 2.8 million residents. These systems also help to protect watershed health, conserve water resources, generate low-carbon energy at wastewater facilities, and are designed and upgraded to improve resilience to climate change.

Protecting the Region's Drinking Water

Using the region's drinking water efficiently will become increasingly important as climate change makes our summers hotter and drier. Several member jurisdictions are pursuing residential water metering as a step towards conserving drinking water for when it is needed most.

Creating Climate-Ready Stormwater Systems

Increased rainfall and sea level rise is putting more pressure on stormwater systems. To adapt, Metro Vancouver's member jurisdictions are upgrading these systems.

Member jurisdictions are using nature-based solutions such as raingardens that retain runoff and allow it to drain into the ground while removing contaminants, protecting the health of fish-bearing streams.
For example, raingardens are part of New Westminster's West End Combined Sewer Separation Program, and Vancouver's Hastings-Sunrise Sewer Renewal Project.

Burnaby, New Westminster, and Vancouver are diverting rainfall runoff from sanitary sewers in separate pipe networks to reduce the burden on Metro Vancouver's wastewater treatment facilities and prevent sewage from being released into marine areas.

THE CHALLENGE

8,594 tonnes CO_2e
total **corporate energy-related** GHG emissions from **Liquid Waste Services** in 2023

1,946 tonnes CO_2e
Total **corporate energy-related** GHG emissions from **Water Services** in 2023

PERFORMANCE

13%
increase in total **corporate energy-related** GHG emissions from **Liquid Waste Services** from 2014 corporate baseline (up from 7,591 tonnes CO_2e)

28%
decrease in in total **corporate energy-related** GHG emissions from **Water Services** from 2014 corporate baseline (down from 2,698 tonnes CO_2e)

403,673 GJ
of **biogas produced by Metro Vancouver** for use in its operations in 2023

900,000
revenue from Renewable Natural Gas sold to FortisBC, **reducing** emissions in the region **by over 2,100 tonnes**

Metro Vancouver Project Highlights

Wastewater Heat Recovery Powers Sustainable Communities

There is enough excess heat in Metro Vancouver's wastewater systems to heat about 700 high-rise buildings. Metro Vancouver is partnering with member jurisdictions, First Nations, and utilities to extract this heat from warm wastewater in sewers to provide renewable, low-carbon heat to residents and businesses. Using energy centres next to large sewers with special heat exchangers, heated hot water is then distributed in a pipe network to nearby buildings for space heating and hot water. Progress over the past year includes:

- Construction is underway to recover waste heat from Metro Vancouver's Jervis Forcemain sewer to heat the Seńákw development in Vancouver
- In Richmond, Metro Vancouver is collaborating with Lulu Island Energy Company on a project to recover heat for use by residents and businesses in the Richmond City Centre area
- Metro Vancouver is funding a project with the City of New Westminster to recover heat for the Royal Columbian Hospital and the Sapperton District
- The new North Shore Wastewater Treatment Plant, currently under construction, will recover 5 megawatts (MWs) of heat and sell it to Lonsdale Energy Corporation, owned by the City of North Vancouver
- In Surrey, a sewer heat recovery system will provide heat for residents and businesses in the Surrey City Centre area

Turning Wastewater into Renewable Natural Gas

Corporate LEADERSHIP

Metro Vancouver's wastewater treatment plants produce biogas as part of their treatment processes. Biogas is a valuable resource that can be used instead of conventional natural gas, reducing greenhouse gas emissions. Biogas is currently used at our wastewater treatment plants in a range of ways:

- At the Lulu Island Wastewater Treatment plant, the biogas is used to generate all plant heating needs. An RNG facility was installed at the Lulu Island Wastewater Treatment Plant in 2021 to clean up excess biogas and sell the resulting renewable natural gas (RNG) to FortisBC. In 2023, the facility produced nearly 43,000 GJ of RNG, reducing GHG emissions in the region by over 2,100 tonnes, and generating nearly $900,000 in revenue for Metro Vancouver. Plans are underway to expand the facility to make additional gas available.
- At the Annacis Island and Iona Island Wastewater Treatment Plants, the biogas is used to produce both heat and electricity ("co-generation") that is used at the plants. The new North Shore Wastewater Treatment Plant will do this as well.
- Metro Vancouver is assessing how best to use the biogas at its other facilities, including the upgraded Northwest Langley and Iona Island Wastewater Treatment Plants.

Providing High Quality Drinking Water in a Changing Climate

In 2023, Metro Vancouver evaluated ways to save water for both residential and industrial users, such as plumbing fixture replacements, water audits, and using non-drinkable water where possible. Further research is being conducted to estimate how changes in agricultural water demand will impact the region's water supply.

Waste

Shaping a low-carbon future through waste prevention and the promotion of a circular economy.

Approximately 3 million tonnes of solid waste is generated in the Metro Vancouver region each year, contributing to 2% of the region's greenhouse gas emissions. Regional solid waste emissions have been reduced by almost half since 2010, largely as a result of provincial requirements for landfills to capture and manage 75% of landfill gases.

Reducing Waste to Reduce Emissions

To further reduce GHG emissions, Metro Vancouver and its members are focused on eliminating waste, and recycling as much remaining waste as possible[8]. Metro Vancouver is supporting member jurisdictions to expand organics diversion programs to include multi-unit residential buildings and commercial/institutional sectors. Each year, municipal programs collect approximately 400,000 of the 600,000 tonnes of organic material, reducing waste, cutting about 160,000 tonnes of GHG emissions, and creating valuable products such as compost and biogas. Local governments and other partners are also implementing construction and demolition waste reduction requirements.

THE CHALLENGE

0.4 million tonnes CO_2e
total regional emissions from **solid waste** (2022)

11,788 tonnes CO_2e
total **corporate energy-related** GHG emissions from **Solid Waste Services** in 2023

PERFORMANCE

65% **Recycling rate for regional solid waste** (2022)

2.4 million tonnes
of material recycled in the region (2022)

29% **decrease** in total regional emissions from solid waste from 2010 -2022

8% **increase** regional solid waste recycled since 2011[8]

384,930 GJ
of electricity generated at Waste-to-Energy Facility in 2023, enough to power **more than 14,000 homes** for a year

56%
increase in total **corporate energy-related** GHG emissions from Solid Waste Services from 2014 baseline[9] (up from 7,570 tonnes CO_2e)

Metro Vancouver Project Highlights

Regional Initiatives to Support Waste Reduction and a Circular Economy

Metro Vancouver is leading a number of initiatives to reduce waste from food, construction, and single-use items, by finding ways to reduce, reuse and recycle these materials.

- Metro Vancouver and member jurisdictions advocated for provincial-level regulations to reduce confusion for residents and to increase efficiency for business in reducing single use items. In June 2023, the Government of BC announced the new Single Use and Plastic Waste Prevention Regulation. As a result of collaboration across all levels of government, Metro Vancouver is seeing a downward trend of plastic single-use items such as shopping bags, which are banned under the regulation.
- Metro Vancouver hired FoodMesh to develop a regional food recovery network. In the first two years of the contract—September 2021 to August 2023—the program diverted 7,200 tonnes of food that would otherwise have been wasted, providing the equivalent of over 13 million meals for people, 600 tonnes of food to animals, and avoiding about 20,000 tonnes of GHG emissions.
- Metro Vancouver is hosting Reuse Days at its recycling and waste centres, and supporting member jurisdictions to host repair café events, which offer residents a way to play an active part in a circular economy. In 2023, seven co-funded repair cafés were held in the region serving 442 residents and successfully repairing 301 items.

Waste-to-Energy District Energy System

Metro Vancouver's Waste-to-Energy Facility manages approximately a quarter of the region's solid waste, turning waste into energy to create electricity for communities in the region, and recovering around 5,000 tonnes of metals annually to keep materials in use. Metro Vancouver is also developing a district energy system that will use excess heat from the Waste-to-Energy Facility to supply heat and hot water for up to 50,000 homes in Vancouver, Burnaby, and potentially New Westminster. This project has the potential to reduce GHG emissions by up to 70,000 tonnes.

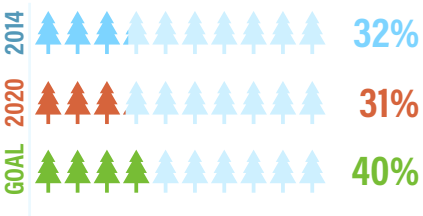
As of 2024, Metro Vancouver has initiated procurement on the construction of the first phase of this project, which is expected to take place from 2025 to 2027. Phase 1 includes construction of an energy centre adjacent to the Waste-to-Energy Facility and installing an approximately 6-kilometre-long hot water piping system to the River District community in Vancouver. The second phase of this project will extend the pipe network to the Metrotown and Edmonds areas where the City of Burnaby is developing a district energy utility.

THE CHALLENGE

3 **AIR QUALITY ADVISORY DAYS** in the Metro Vancouver and Fraser Valley Airshed from sources within the airshed (2023)

PERFORMANCE

3 Air Quality Advisory Days in the Metro Vancouver and Fraser Valley Airshed in 2023 from sources located within the airshed, compared to 5-year average of **4 days** (2018-2022)



1% loss of tree canopy cover in Urban Containment Boundary between 2014-2020 (down from 32%).
Metro Vancouver target = 40%

Human Health & Well-Being

Safeguarding health and well-being as we adapt to the changing climate.

Metro Vancouver is collaborating with governments, First Nations, health authorities, and other partners to identify and respond to climate risks and vulnerabilities and support communities to maintain and protect human health in the face of climate change.

Protecting Quality of Life

Local governments in the region are supporting the shift to public and active transportation, improving air quality and providing human health benefits. TransLink, with funding from the federal and BC governments, is investing in major public transportation projects to better connect our region. Investments from member jurisdictions in active transportation infrastructure and programs such as the BC E-Bike Rebate are supporting residents to shift to using active transportation.

Recognizing the importance of natural ecosystems to human health and well-being, Metro Vancouver and our partners are working to expand natural areas, improve access to them, and plant more trees, which provide wildlife habitat, cooling, and reduce urban flood impacts.

Protecting People in Extreme Heat Events

Metro Vancouver's partners are responding to near-term climate risks by supporting the addition of equipment to provide cooling and safe air quality in buildings. In 2024, the BC Government expanded the Free Portable Air Conditioner program, which is expected to provide more than 28,000 free air conditioners to low-income and vulnerable residents across the province.

Metro Vancouver Project Highlights

Protecting Human Health by Enhancing Tree Canopy Cover

Tree canopy cover plays a vital role in reducing outdoor and indoor temperatures during extreme heat events. It also provides further benefits including improving air quality and reducing flood risks.

Tree canopy cover declined between 2014–2020 from 32% to 31% within the Urban Containment Boundary (UCB), largely as a result of new urban development. Metro Vancouver has a goal to achieve a regional target of 40% tree canopy cover within the UCB.

Our efforts to enhance urban greenery focus on equitable distribution across communities. Actions include:

- Expanding tree canopy on Metro Vancouver-owned lands
- Measuring and reporting on regional canopy cover trends
- Advocating to the federal and BC governments to provide funding for tree planting in urban areas

Neighborhood Level Air Quality Monitoring

The Hyperlocal Air Quality Monitoring Project uses many small sensors to improve air quality data collected by Metro Vancouver. By placing many sensors in a single neighbourhood, we can see how air quality changes over short distances. This helps us identify neighbourhood-level air quality impacts from emissions sources such as road and rail traffic, industrial facilities, and wildfire smoke.

In 2023, Metro Vancouver identified a pilot site for the project. This project will help Metro Vancouver to better understand how air quality affects local health, and assess the effectiveness of our emissions reduction programs to ensure communities in Metro Vancouver have access to clean air.

THE CHALLENGE

31% proportion of Urban Containment Boundary with **tree canopy cover** (2020)

54% proportion of the Urban Containment Boundary **covered by impervious surface** (2020)

PERFORMANCE

99%

of the region's dwelling unit growth within the **Urban Containment Boundary** (2016 to 2021)

41%

of the region's dwelling unit growth in **Urban Centres** (2016-2021)

Land Use & Urban Form

Planning healthy and complete communities resilient to climate impacts.

Supported by *Metro 2050*, Metro Vancouver's Regional Growth Strategy, member jurisdictions are including climate change goals in official community plans, and implementing policies to reduce emissions. Examples include zoning changes to improve densification in rapid transit corridors, removal of minimum parking requirements in new developments, and policies and programs to increase resiliency of the urban environment.

Complete, Compact Communities are a Climate Solution

Focusing density in transit-oriented areas can accelerate the development of complete communities that encourage low-carbon mobility options like walking, rolling, and transit. In 2023, the Province of BC introduced new legislation designed to increase housing supply with increased density in transit-oriented areas and by allowing multi-plex housing in neighborhoods previously restricted to single-detached homes. Metro Vancouver and its member jurisdictions are analyzing the impact of provincial legislation on municipal and regional housing, and climate goals and targets.

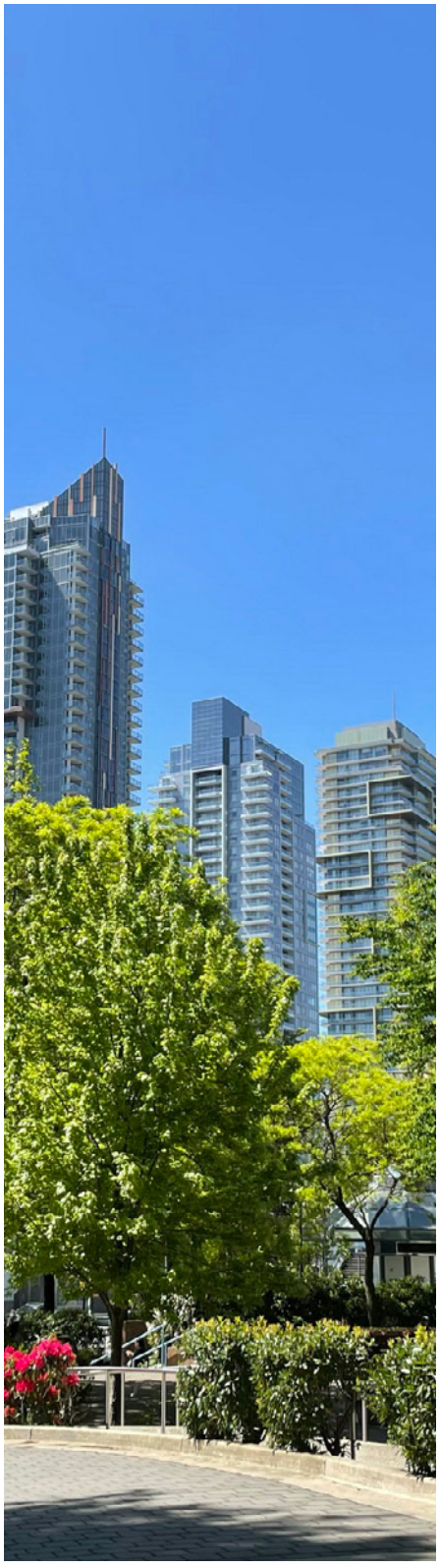
Metro Vancouver Project Highlights

Regional Multi-Hazard Mapping Project

In 2023, Metro Vancouver completed the Regional Multi-Hazard Mapping Project, which includes regional-scale single-hazard maps, data quality rating maps, and multi-hazard maps for four hazard types: coastal flooding, riverine flooding, earthquake, and wildfire. Understanding the region's hazardous areas is critical to making informed land use decisions. The results will allow Metro Vancouver and member jurisdictions to consider and integrate regional-scale hazard information for several hazard types into planning analysis, projects, and models.

Regional Parking Strategy – Update

Metro Vancouver is collaborating with TransLink and member jurisdictions to jointly develop a regional parking strategy to right-size the supply of parking and improve efficiency in land use. All of these objectives have greenhouse gas benefits, from the construction stage (using less concrete for underground parking) through to enabling residents to use active transportation, transit, and other alternative modes instead of personal vehicles. The strategy will provide guidance to inform municipal parking bylaws and on-street parking management. The Regional Parking Strategy is identified as an action in the Transportation Roadmap.



APPENDIX 1 — Climate 2050 Action Implementation 2023/2024

Buildings

2023/2024 IMPLEMENTATION: 4 COMPLETE, 27 IN PROGRESS, 2 NOT STARTED, 4 PLANNED FOR FUTURE YEARS , 1 NOT PROCEEDING

IN-PROGRESS & COMPLETE ACTIONS	STATUS
New Buildings are Highly Efficient and Electric	Complete
Building Electrification Mandate for BC Hydro	Complete
Building Decarbonization Coalition	Complete
Regional Working Group to Reduce Embodied Emissions in Buildings	Complete
GHG Requirements for Existing Large Buildings	Not proceeding
High Performance Heating and Cooling Equipment Import and Sale Standards	In progress
GHG Performance Requirements for Existing Houses and Townhomes	In progress
Require Greenhouse Gas Reductions During Renovations	In progress
Energy Labels for Homes and Buildings	In progress
Manage Indoor Air Quality in Building Codes	In progress
Significantly Reduce Refrigerant Leaks in Building Equipment	In progress
Expand Low Carbon Upgrade Incentives	In progress
Online Decision Support Tools for Low Carbon Upgrades in Buildings	In progress
New Financing Tools for Low Carbon Upgrades	In progress
Energy Advisor Services for Homes and Large Buildings	In progress
Make Electricity Upgrades Faster and Cheaper	In progress
Increase Public Awareness of the Benefits of Zero Emissions and Resilient Buildings	In progress
Training and Education in Zero Emissions and Resilient Buildings	In progress

Corporate LEADERSHIP	Share Lessons from Transitioning Metro Vancouver Corporate Buildings to Zero Emissions	In progress
Corporate LEADERSHIP GHG	Test New Zero Emission Building Technologies	In progress
Corporate LEADERSHIP GHG	Low Carbon District Energy Policies	In progress
GHG	Use Building Materials with Low Embodied Emissions	In progress
Corporate LEADERSHIP GHG	Strengthen Metro Vancouver's Corporate Sustainable Design Requirements	In progress
	Broaden Applications of Non-Potable Water Use in Buildings	In progress
	Support Capacity Building of Non-Potable Water Use Applications on Building Sites	In progress
GHG	Incorporate Embodied Emissions into the BC Building Code	In progress
	Require Cooling Measures in New Buildings and Major Retrofits	In progress
	Expand the Network of Public Buildings that can serve as Cool, Clean Air Centres	In progress
	Understand Climate Risk and Resilience for Public Buildings Across the Region	In progress
	Integrate Resiliency into Low Carbon Upgrade Solutions	In progress
	Provide Education on Retrofit Options that can Increase Resilience to Heatwaves and Wildfires	In progress
	Update Climate Projections to Future-Proof Buildings	In progress

Transportation

2023/2024 IMPLEMENTATION: 2 COMPLETE, 24 IN PROGRESS, 11 NOT STARTED, 15 PLANNED FOR FUTURE YEARS

	IN-PROGRESS & COMPLETE ACTIONS	STATUS
BIG Move GHG	Accelerate Sales Targets for New Electric Passenger Vehicles	Complete
GHG	Regional Electric Vehicle Charging Strategy	Complete
GHG	Electric Vehicle Outreach Programs	In progress
BIG Move GHG	Enhance and Improve Regional Transit	In progress
Corporate LEADERSHIP GHG	Support Low Emissions Commuting by Staff	In progress
BIG Move GHG	Use Pricing to Reduce Driving and Emissions	In progress
GHG	Expand Active Transportation Networks	In progress

	More Stable Infrastructure Funding for Regional Active Transportation Networks	In progress
	More Stable Funding for Regional Transit	In progress
	Regional Parking Strategy to Reduce Driving	In progress
	Support Residents and Businesses in Active Transportation	In progress
	Communicate the Benefits of Walking, Cycling and Public Transit	In progress
BIG Move	Develop Regional Emission Requirements for Passenger Vehicles	In progress
BIG Move	Make Electric Vehicles More Affordable	In progress
	Make New Passenger Vehicles Cleaner	In progress
	Expand Electric Vehicle Charging in Buildings	In progress
Corporate LEADERSHIP	Transition the Corporate Fleet to Zero Emissions	In progress
BIG Move	Regulate Existing Medium and Heavy Trucks	In progress
	Reduce Refuse Trucks Emissions	In progress
	Support Innovation in Zero Emission Technology for Medium and Heavy Trucks	In progress
BIG Move	Require Zero Emission Sales Targets for New Medium and Heavy Trucks	In progress
	Long-term Emissions Strategy for Medium and Heavy Trucks	In progress
	Regulate Fuel Economy and Emissions for Medium and Heavy Trucks	In progress
	Support Emission Reduction Actions at Vancouver Fraser Port Authority	In progress
	Support Innovation in Low and Zero Emission Marine and Rail Technologies	In progress
	Identify Regional Climate Hazards, Risks, and Vulnerabilities Impacting Transportation Networks	In progress

Energy

2023/2024 IMPLEMENTATION: 0 COMPLETE, 23 IN PROGRESS, 0 NOT STARTED, 13 PLANNED FOR FUTURE YEARS

	IN-PROGRESS & COMPLETE ACTIONS	STATUS
BIG Move, GHG, Climate	Align British Columbia's Energy Objectives with Strong Climate Action	In progress
BIG Move, GHG	Strong Climate Mandate for Energy Utilities	In progress
GHG, Climate	Revise Utility Regulation to Align with Strong Climate Action	In progress
GHG	Long-term Planning Scenarios for the Transition to 100% Clean, Renewable Energy	In progress
GHG	Regional Climate Action in Energy Utility Regulatory Processes	In progress
GHG	Implement Tracking, Verification, and Reporting Requirements for Renewable Natural Gas Supply	In progress
Corporate LEADERSHIP, GHG	Transition Corporate Energy Use to 100% Clean, Renewable Energy	In progress
BIG Move, GHG	Electrification Rates	In progress
BIG Move, GHG, Climate	Time-of-Use Rates, Demand Response Programs, & EV Peak Reduction Programs	In progress
GHG, Climate	Modernizing the Electrical Grid	In progress
GHG	Regional Grid Constraints	In progress
GHG	High Performance Heating and Cooling Equipment Import and Sale Standards	In progress
BIG Move, GHG	More Stringent Low Carbon Fuel Standards	In progress
BIG Move, GHG	Implement Renewable Gas Content Requirements	In progress
GHG	Regional Hydrogen Hub	In progress
GHG	Regional Sources of Liquid Biofuels	In progress
Corporate LEADERSHIP, GHG, Climate	Metro Vancouver as a Regional Clean, Renewable Energy Provider	In progress
Corporate LEADERSHIP, GHG	Innovative Research on Optimizing Energy Recovery from Waste Streams	In progress
BIG Move, GHG	Account for the Full Climate Impact of Fossil Fuel Production and Export Projects	In progress
GHG	Eliminate Subsidies and Public Financing for Fossil Fuels	In progress
	Just Transition Plan for Workers and Communities Engaged in the Fossil Fuel Industry	In progress
BIG Move, Climate	Comprehensive Climate Risk and Vulnerability Assessment	In progress
BIG Move, Climate	Pilot Innovative Renewable Energy + Storage Systems to Improve Resiliency	In progress

Industry & Business

2023/2024 IMPLEMENTATION: 2 COMPLETE, 14 IN PROGRESS, 2 NOT STARTED, 9 PLANNED FOR FUTURE YEARS

	IN-PROGRESS & COMPLETE ACTIONS	STATUS
BIG Move	More Stringent Greenhouse Gas Requirements for Large Industrial Emitters	Complete
BIG Move	Tighten Emissions Regulation for Non-Road Diesel Engines	Complete
BIG Move	Integrate Greenhouse Gases into Emission Regulations and Permits	In progress
	Industrial Emission Reduction Incentives	In progress
	Develop Sector-Specific Regulations	In progress
	Carbon Tariffs	In progress
	Phase out High Global Warming Refrigerants	In progress
	Emission Standards for New Non-Road Equipment	In progress
	Funding for Cleaner Non-Road Equipment	In progress
	Identify Infrastructure Needs for Zero Emission Non-Road Equipment	In progress
	Encourage Cleaner Non-Road Equipment through Municipal Approvals	In progress
	Awareness Program on Zero Emission Non-Road Equipment	In progress
Corporate LEADERSHIP	Transition Metro Vancouver's Corporate Non-Road Fleet to Zero Emissions	In progress
	Carbon Capture in Metro Vancouver Region	In progress
Corporate LEADERSHIP	Low Carbon Metro Vancouver Corporate Procurement	In progress
	Assess Regional Climate Risks and Vulnerability to Support Business Decision-making	In progress

Nature & Ecosystems

2023/2024 IMPLEMENTATION: 0 COMPLETE, 27 IN PROGRESS, 0 NOT STARTED, 4 PLANNED FOR FUTURE YEARS

	IN-PROGRESS & COMPLETE ACTIONS	STATUS
BIG Move, GHG, Nature	Protect an Additional 10% of the Region for Nature	In progress
Corporate LEADERSHIP, GHG, Nature	Protect, Restore, and Enhance Natural Areas at the Regional Scale	In progress
GHG, Nature	Protect, Restore, and Enhance Nature at the Local Scale	In progress
	Prioritize the Conservation of Ecosystem Health and Biodiversity in BC Forest Management	In progress
GHG, Nature	Support Ecosystem Protection, Enhancement, and Restoration	In progress
GHG, Nature	Reverse the Loss of the Region's Ecosystems	In progress
Corporate LEADERSHIP, Nature	Manage invasive species	In progress
BIG Move, Nature	Develop a Regional Green Infrastructure Network	In progress
GHG, Nature	Green Urban Areas	In progress
Corporate LEADERSHIP, Nature	Green the Regional Greenways Network	In progress
Nature	Minimize Ecosystem Fragmentation	In progress
Nature	Develop Data and Resources to Support Ecosystem Connectivity	In progress
BIG Move, Nature	Incorporate Natural Assets into Asset Management and Financial Planning	In progress
Corporate LEADERSHIP, BIG Move	Integrate Ecosystems and their Services into the Design of Major Infrastructure	In progress
Nature	Consider Ecosystems and their Services in Major Development Decisions	In progress
Nature	Support Natural Asset Management at the Local Level	In progress
BIG Move, Nature	Achieve 40% Tree Canopy Cover Within the Region's Urban Areas	In progress
GHG, Nature	Provide Data and Resources to Support Urban Forest Management	In progress

	Improve Local Regulations and Management Practices	In progress
	Convene Partners on Urban Forestry Issues	In progress
	Consider Equity and Human Health in Urban Forestry Planning	In progress
BIG Move	Explore Innovative Funding and Incentive Programs	In progress
	Include Nature-Based Solutions in Climate Action Plans	In progress
	Support the Implementation of Nature-based Solutions	In progress
	Manage Forests in the Context of a Changing Climate	In progress
	Advance Nature-Based Solutions to Address Flood Hazards	In progress
	Partner with Others to Address Climate Change Issues in Coastal and Marine Ecosystems	In progress

Agriculture

2023/2024 Implementation: 2 Complete, 8 in Progress, 0 Not Started, 58 Planned for Future Years

	IN-PROGRESS & COMPLETE ACTIONS	STATUS
BIG Move	Reduce Emissions from Greenhouses	Complete
BIG Move	Increase Capacity to integrate climate change into business operations	Complete
	Determine appropriate agricultural-focused uses on land with limited potential for soil-based agriculture	In progress
	Review how regional policy can recognize and support Indigenous Food Sovereignty	In progress
	Encourage and Prioritize Local Agriculture	In progress
	Determine how Agriculture can Benefit from Restoration and Protection of Ecosystems	In progress
	Estimate financial value of ecosystem service on agricultural lands	In progress
	Explore and build a long-term funding mechanism to support payment for ecosystem services	In progress
	Align with the Regional Green Infrastructure Project	In progress
	Undertake a review of the Regional Food System Strategy	In progress

Endnotes

1 In January 2024, the Metro Vancouver Board directed staff to not proceed with engagement on a potential regulatory approach that proposed to establish GHG emission limits and GHG reporting requirements for existing large buildings. The board expressed concerns about whether Metro Vancouver was the appropriate jurisdiction to effectively implement regulations for large buildings and about affordability as it related to potential program fees.

2. BC Housing Case Study: Does High Performance Construction Cost More?; Metro Vancouver Analysis

3 As of time of publishing. Total includes Burnaby, City of North Vancouver, District of North Vancouver, District of West Vancouver, New Westminster, Port Moody, Richmond, Township of Langley, Vancouver, Tsleil-Waututh Nation.

4 S&P Global Mobility Canadian Automotive Insights. Figure uses average of quarterly EV sales data for 2023 for Metro Vancouver CMA.

5 Includes industrial emissions from facilities in Metro Vancouver region of more than 10,000 tonnes CO_2e.

6 Cleantech Sector in British Columbia- December 2023 (britishcolumbia.ca)

7 Total for agriculture does not include GHG emissions from greenhouses, which are included in Buildings sector emissions.

8 Metro Vancouver ISWRMP 2022 Biennial Report (metrovancouver.org)

9 Total energy-related GHG emissions for Solid Waste Services in 2023 was 11,788 tonnes CO_2e, up 56% from 2014. These increases in energy use and GHG emissions are driven by increased fossil natural gas use at the Waste-to-Energy Facility starting in 2018, which are the result of regulatory changes requiring larger natural gas burners. Other factors contributing to the increase include higher contracted fuel use for road and rail hauling of solid waste to remote landfills.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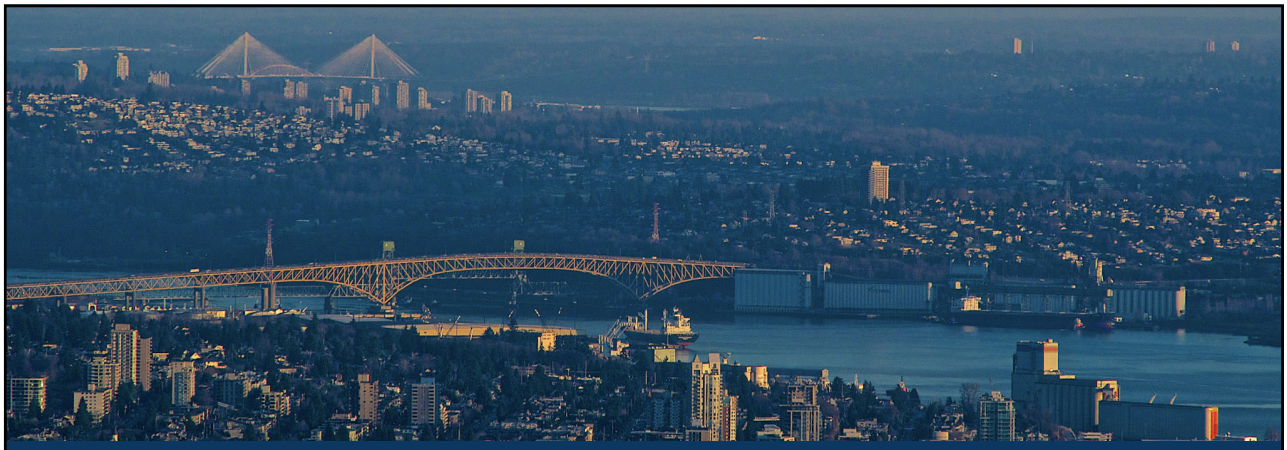
SERVICES AND SOLUTIONS FOR A LIVABLE REGION



Climate 2050 Progress Report - 2023/24

Johann Zerbe
Senior Policy & Planning Analyst
Air Quality and Climate Action Services

Jason Emmert
Program Manager, Regional Climate Action Policy
Air Quality and Climate Action Services

Climate Action Committee - November 7, 2024
71242518

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INSIDE THE CLIMATE 2050 PROGRESS REPORT

- Status update for Climate 2050 actions from six Board-endorsed roadmaps:
  - Agriculture
  - Buildings
  - Energy
  - Industry and Business
  - Nature and Ecosystems
  - Transportation
- Highlights of climate action work by Metro Vancouver and partners
- Updated GHG emissions data for 2019-2022
- Corporate and regional key performance indicators

PROGRESS TOWARDS CLIMATE GOALS AND TARGETS

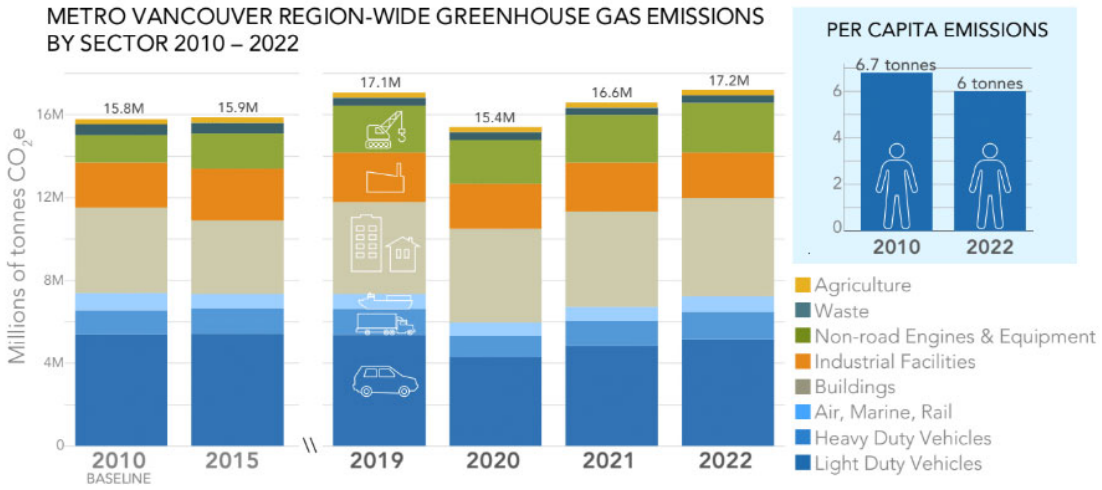
Positive trends and opportunities:

- Per capita GHG emissions have decreased by 10% since 2010
- Electric vehicles make up 27% of new vehicle sales
- More residential heat pumps than natural gas furnaces imported into BC
- Expansion of connected active transportation networks, and use of micro-mobility is growing in popularity.

Challenges:

- Predominance of concerns about affordability, housing, and other societal factors
- The challenge of scaling up and right-sizing infrastructure to supply clean energy
- Continued growth and lock-in of certain fossil fuel technologies
- Securing sustainable funding for public transit
- Communicating about climate solutions in context of misinformation

REGIONAL EMISSIONS ARE RISING



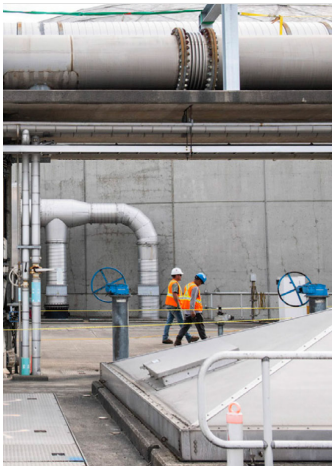
CLIMATE 2050 ACTION IMPLEMENTATION

Progress at a Glance for Board-Endorsed Roadmaps

	BIG MOVES	TOTAL ACTIONS
Complete	7	10
In Progress	31	124
Not Started	3	16
Planned for Future Years	14	102
Not Proceeding	1	1

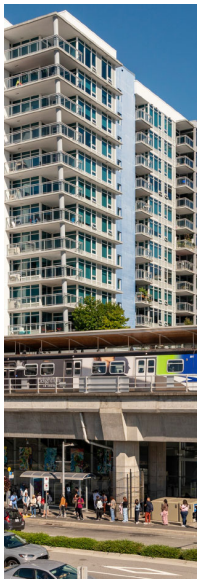
METRO VANCOUVER PROJECT HIGHLIGHTS

- **BC Retrofit Accelerator –** supported establishment of the "one stop" resource hub for building owners
- **Advocating for Fair Energy Rates and Accelerating Clean Energy Policy –** collaboration with other local government interveners in BCUC proceedings to ensure energy utilities are supporting climate goals and targets
- **Transitioning to a Zero-Emission Fleet –** transitioning over 300 fleet vehicles to EVs over the next six years
- **Supplying Renewable Energy to the region** – recover heat from waste systems to heat more than 50,000 homes and reduce more than 70,000 tonnes of emissions



MEMBER JURISDICTIONS: SUCCESS STORIES

- **Zero emissions buildings policies:** 10 municipalities and local First Nations have adopted the Zero Carbon Step Code; municipalities are supporting emissions reporting through programs such as *Energize Vancouver*
- **Nature-based climate solutions** are being implemented across the region, including projects such as the Living Dyke (Surrey, Delta, Semiahmoo)
- **Active Transportation infrastructure investments** and programs across the region, including Coquitlam's Shared Micromobility Pilot, and North Shore E-bike share program



ADVANCING CLIMATE ACTION TOGETHER

- We are beginning to see the positive impacts of climate policy in the region
- Expanded and accelerated climate action in the region is needed in collaboration with partners
- Staff will continue to seek direction from the CAC and Board in implementing *Big Moves* and other key Climate 2050 actions

Thank you! Questions?

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9

To: Climate Action Committee

From: Lucy Duso, Division Manager Collaboration and Engagement, External Relations
Sandy Young, Senior Engagement Specialist, External Relations

Date: October 15, 2024 Meeting Date: November 7, 2024

Subject: **Climate 2050 Engagement and Public Education: 2024 Highlights**

RECOMMENDATION

That the Climate Action Committee receive for information the report dated October 15, 2024, titled "Climate 2050 Engagement and Public Education: 2024 Highlights".

EXECUTIVE SUMMARY

Metro Vancouver is advancing priorities in the Climate 2050 Engagement and Public Education Strategy to deliver engagement, enhance collaboration, and broaden public support for climate action, in support of *Climate 2050*. In 2024, staff estimate over 1,000 in-person interactions at community events and public dialogues, and reaching over 130,000 online during the spring promotion of the Climate Action Dialogues. Priorities initiated this year include a new climate engagement community of practice, two more installments in the public dialogue series, and Climate Literacy promotion in the community. Staff continue with planning engagement to develop the remaining *Climate 2050* Roadmaps. Public attitudes research completed this fall on climate and affordability will help to inform how staff communicate and engage on climate policies and programs. The focus for staff in 2025 will be to grow the momentum of newly initiated activities in the strategy.

PURPOSE

The purpose of this report is to highlight for the Climate Action Committee the work completed in 2024 to deliver on the priorities in the Climate 2050 Engagement and Public Education Strategy for 2023 to 2025.

BACKGROUND

Staff introduced the Climate 2050 Engagement and Public Education Strategy (Reference 1) to the Climate Action Committee through a March 9, 2023, report titled "Climate 2050 Engagement and Public Education Strategy". A report to the Climate Action Committee on February 8, 2024, titled "Climate 2050 Engagement and Public Education Priorities", summarized the priority areas and detailed the progress made under each area in 2023. This report highlights advancements made in 2024 to deliver on priorities in the Climate 2050 Engagement and Public Education Strategy.

ENGAGEMENT AND PUBLIC EDUCATION PRIORITIES TO SUPPORT CLIMATE 2050

The Climate 2050 Engagement and Public Education Strategy details an approach for robust engagement, alignment with other organizations, and strengthened public support for climate action. Engagement and public education priorities in the strategy are described in three spheres:

- engagement on the development of the remaining Climate 2050 Roadmaps;

- engagement to implement distinct climate actions; and
- outreach and education to broaden public support for climate action.

Priorities in the strategy are grounded in engagement and public education best practices, innovative delivery methods, social science research, and Metro Vancouver's role as a convener. Staff are closing out year two of the three-year strategy and in 2025 will focus on building the momentum and reach of priorities initiated this year.

Engagement to Develop the Remaining *Climate 2050* Roadmaps

Metro Vancouver continues to create and implement issue-specific engagement programs to develop the remaining Climate 2050 Roadmaps: human health and well-being, land use and urban form, water and wastewater, and waste management. As with earlier Roadmap development, engagement emphasizes the need to involve those likely to be interested or impacted, or have a role in implementation, through a range of engagement opportunities. In addition, staff have unpacked the six Board-endorsed Climate 2050 Roadmaps on the Metro Vancouver website for accessibility, using visual cues and plain language.

Outreach and Education to Broaden Support for Climate Action

This third sphere of the strategy presented many opportunities in 2024 for staff to advance priorities to build broad public support for climate action. Highlights include:

Communities of practice: The Municipal Climate Engagement Community of Practice convened member jurisdiction staff every other month to discuss emerging trends and best practices for climate engagement. In 2024, discussion focused on climate engagement with youth and in schools, including the sharing of successful youth engagement activities. Climate misinformation was also a topic of discussion, with academic researchers helping the Community of Practice members to better understand how this impacts local government.

In June, Metro Vancouver launched the Climate Engagement Hub Community of Practice to convene professionals with shared goals to improve how to engage and educate broad audiences on the climate opportunities in this region. Over a dozen members have joined, including non-profits, community groups, post-secondary institutions, First Nations, and regional authorities. The group has been meeting monthly in 2024 to form connections and build momentum. To date, meetings have focused on understanding the challenges faced by engagement practitioners working to advance climate action, and mapping the climate engagement and education assets and expertise of the membership.

Public dialogues: Metro Vancouver launched the Climate Action Dialogues in 2023 to highlight key areas of *Climate 2050*. The fourth installment, in November 2024, will explore the outcomes for health and well-being when we take action on climate. Panelists will discuss extreme weather and public health, and the role of proactive climate action — like urban green spaces, better building designs, and robust emergency systems — in lowering these risks. These fall dialogues will be delivered in Surrey, Vancouver, and as a webinar.

The spring 2024 dialogue on transportation explored ways to provide convenient, less stressful, and cost-effective transportation options that can reduce emissions, improve air quality, manage congestion, and promote health through active transportation. Social promotions for the spring delivery reached over 130,000 residents, which contributed to over 650 registrations. Participants heard from experts, engage in interactive Q&A sessions, and networked, while Uytae Lee, Founder of popular video series, *About Here*, guest-moderated the session.

Climate literacy: Metro Vancouver is promoting the Climate Literacy learning program to residents and organizations to help increase public knowledge and build support for local climate action. A fall promotion ran for six weeks across social media, e-newsletters, video, and by direct outreach to organizations. The next round of promotions is planned for the spring. Staff joined Metro Vancouver's Youth and Education Advisory Panel in September to discuss ideas to enhance the tool and how to generate interest with youth and in schools. Two organizations requested to use the content in staff training programs. Staff are planning to add another learning module with a focus on energy and continue to refresh existing modules so that the content remains current and locally relevant.

Community outreach: Metro Vancouver staff brought *Climate 2050* education to five different community events across the region this summer, including University Neighbourhoods Association Neighbours Day, Fridays on Front in New Westminster, and World Rivers Day in Burnaby. Booth visitors experienced the Climate Literacy learning program, a regional greenhouse gas emissions matching game, and a reducing building emissions display. Staff engaged directly with over 600 people about climate action in their community. Staff continue to observe that many could not identify buildings and cars as top greenhouse gas emitters; however, booth visitors were keen to gain climate knowledge and learn about Metro Vancouver's climate work.

Metro Vancouver joined the Fraser Valley Regional District (FVRD) at the Agassiz Fall Fair in September to showcase Metro Vancouver's newly relocated air quality monitoring station in Agassiz's Centennial Park. Visitors to the station had a unique opportunity to look inside to see how it works and learn how Metro Vancouver and FVRD work together to monitor and manage outdoor air quality across the region and the Lower Fraser Valley airshed, including increased climate-related degraded air quality due to wildfire smoke and extreme heat. Staff are working to install educational signage on air quality monitoring stations in a high-traffic public spaces and will continue to explore ways to use existing resources to share climate action messages.

Priorities included in the engagement and education strategy that were not highlighted above will be considered by staff for delivery beginning in 2025, or as part of a future *Climate 2050* engagement and public education strategy.

COMMUNICATING ON CLIMATE

Metro Vancouver staff are researching public perceptions behind climate and affordability, and examining how to most effectively communicate the value of taking climate action.

Climate communications framework: Metro Vancouver staff are currently developing a communications framework for *Climate 2050*. This involves studying emerging research and best

practices around climate communications to create clear and consistent messaging to support engagement activities and broaden support for climate action. Staff will update the Committee on the developed framework.

Public attitudes research on climate and affordability: Metro Vancouver is working to better understand residents' perceptions of climate and affordability. Staff contracted a market research firm to surveyed nearly 1,500 Metro Vancouver residents over a three-week period. Focus groups further explored the survey results and were involved in message testing. The research is aimed to help staff better understand how residents feel about climate action given heightened concerns about affordability. An early insight indicates, for example, that almost two-thirds of residents surveyed believe climate change has impacted the cost of living. The findings will help to inform what type of messaging will resonate with audiences for the purpose of engagement on climate plans, policies, and programs. Staff will provide an update on the results at a future time.

ALTERNATIVES

This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS

Delivery of the strategy is resourced through existing budgets in External Relations and specific project funding within the AQCAS budget allocated to engagement. Funding for innovative components requiring additional contract support or technologies was secured through the Sustainability Innovation Fund.

CONCLUSION

Metro Vancouver is in its second year of delivering on the Climate 2050 Engagement and Public Education Strategy. Highlights in 2024 for building public support and education for local climate action include two rounds of public dialogues (a total of six sessions), a new climate engagement community of practice, and stronger connections in the community to promote climate messages and literacy. In 2024, staff have continued planning for engagement on the remaining Climate 2050 Roadmaps. Metro Vancouver's climate engagement and public education approach uses engagement best practices, collaboration, innovative delivery methods, communications research, and Metro Vancouver's role as a convener. Staff will continue to advance priorities in the strategy through 2025 to deliver robust engagement and build the public support for a carbon-neutral and resilient region by 2050.

ATTACHMENT

1. Presentation re: "Climate 2050 Engagement and Public Education: 2024 Highlights", dated November 7, 2024

REFERENCES

1. Metro Vancouver's Climate 2050 Engagement and Public Education Strategy

71004280

Climate Action Dialogues, May 2024

Climate 2050 Engagement and Public Education: 2024 Highlights

Lucy Duso
Division Manager, Collaboration & Engagement, External Relations

Sandy Young
Senior Engagement Specialist, Collaboration & Engagement, External Relations

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Climate Action Committee, November 7, 2024
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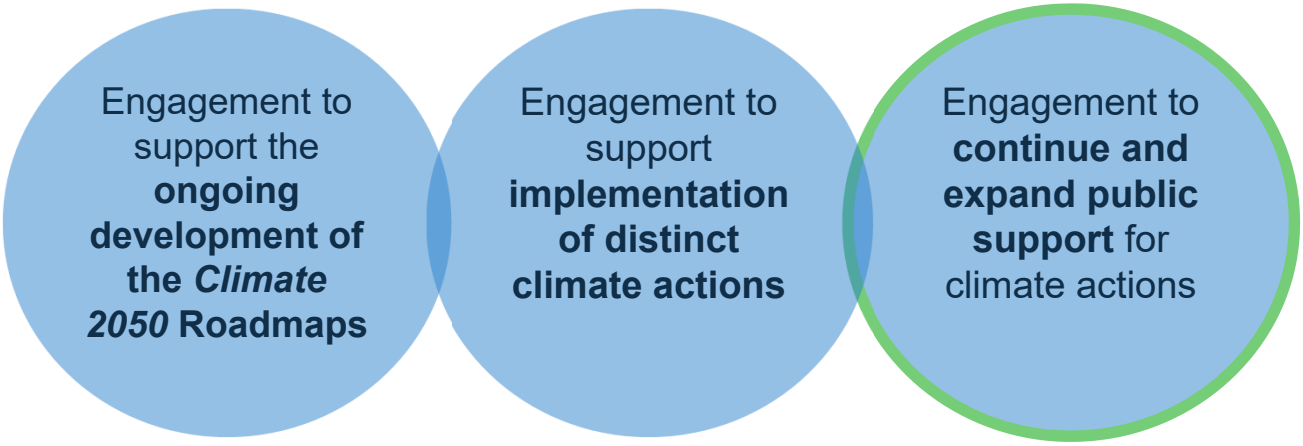
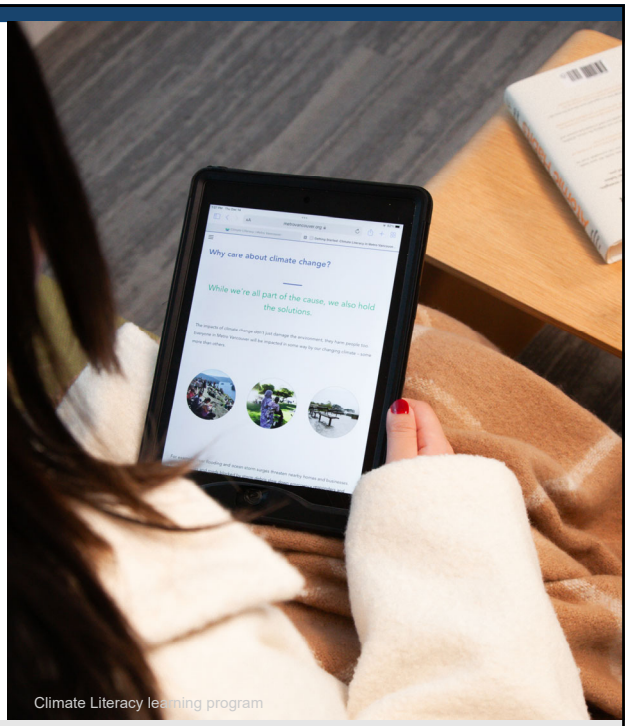
ENGAGEMENT SPHERES



BUILDING SUPPORT FOR CLIMATE ACTION

- Communities of Practice
- Community Outreach
- Climate Literacy
- Climate Action Dialogues



Climate Literacy learning program

UNA Neighbours Day


Relocated air quality monitoring station, Agassiz

Community Outreach

Fridays on Front, New Westminster

World Rivers Day, Burnaby


Vancouver Climate Day
Climate Literacy
World Rivers Day, Burnaby
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Vancouver dialogue, May 2024
Webinar, May 2024
Climate Action Dialogues
Surrey dialogue, May 2024
Surrey dialogue, May 2024
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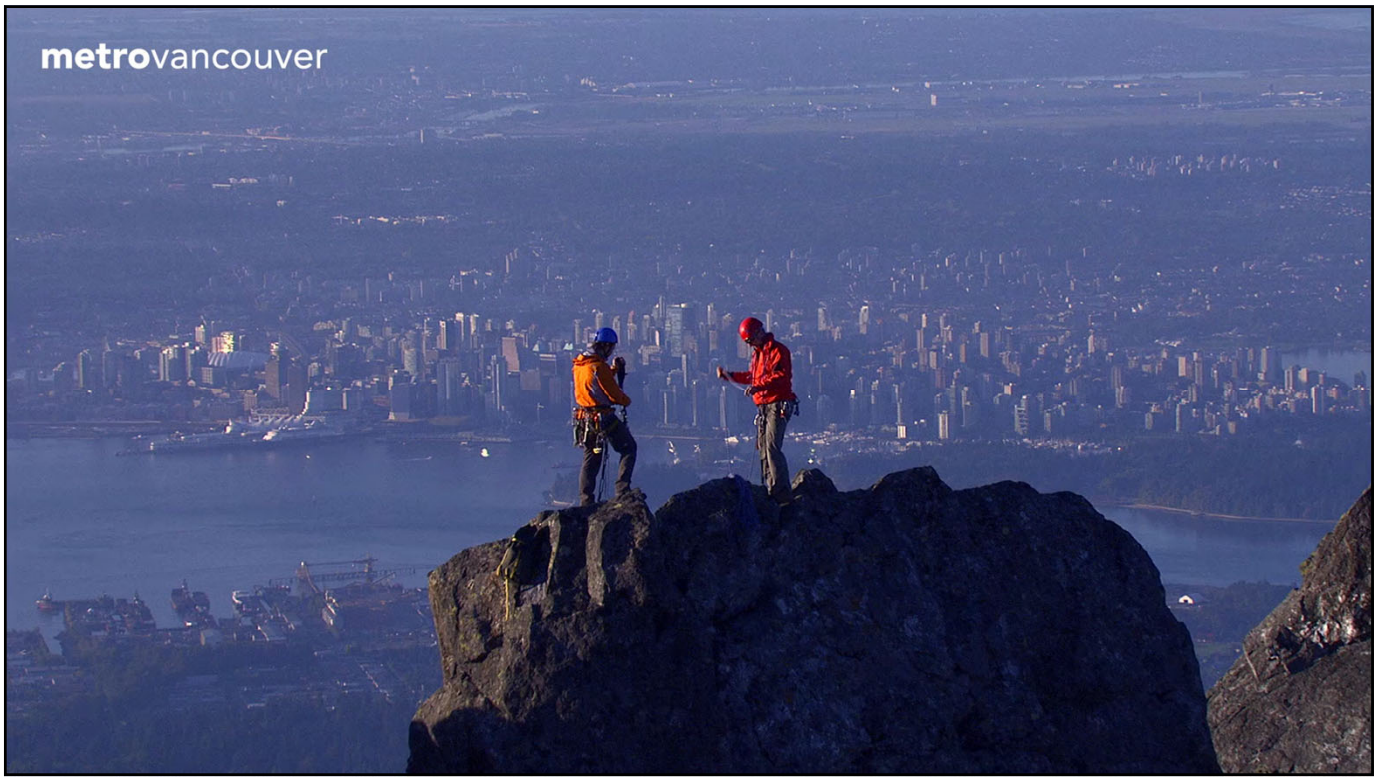
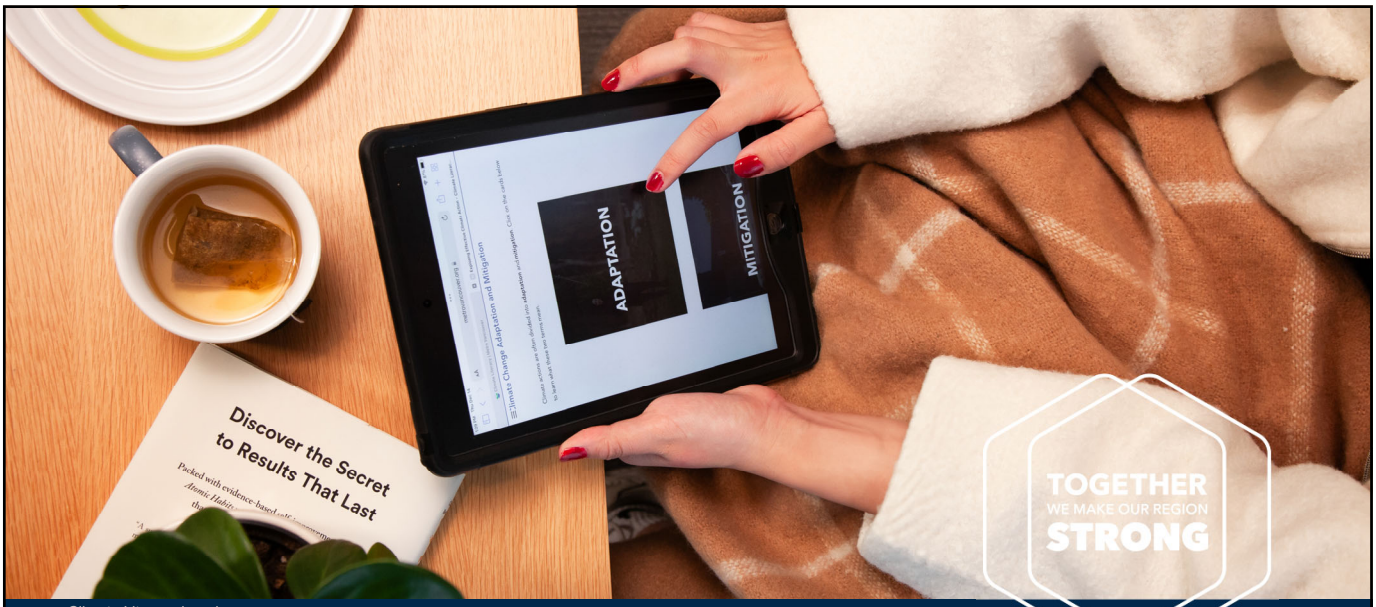


ADVANCING PRIORITIES IN 2025

- Advance newly initiated priorities
- Continue role of convener
- Apply research-based communications
- Plan future engagement and public education approach



Climate Literacy learning program

Thank You

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9

To: Climate Action Committee

From: Margaryta Pustova, Senior Policy and Planning Analyst, Air Quality and Climate Action Services
Sara Muir, Air Quality Planner, Air Quality and Climate Action Services

Date: October 22, 2024 Meeting Date: November 7, 2024

Subject: **BC Hydro's 2024 Call for Power**

RECOMMENDATION

That the MVRD Board receive for information the report dated October 22, 2024, titled "BC Hydro's 2024 Call for Power".

EXECUTIVE SUMMARY

In April 2024, BC Hydro launched a competitive Call for Power to acquire approximately 3,000 GWh/y of clean electricity from independent power producers, adding 5% to the current supply. This supply is needed to support growing electricity demand driven by population growth, technology change, and GHG reduction efforts. The call yielded proposals totaling over 9,000 GWh/y, three times the target. The substantial interest from proponents signals opportunities to further expand and diversify the province's energy supply and enhance grid resilience.

The 2024 Call for Power aligns with BC Hydro's long-term plans and commitments to enhance energy efficiency, streamline connections, and introduce optional rates. These initiatives are essential to promote affordability, housing development, job creation, and climate action. BC Hydro projects new clean-energy projects from this call to generate $2.3–3.6 billion in private investment, create 800–1,500 jobs annually, and benefit Indigenous communities. The call is one component of energy management planning, systems and investments needed to support an efficient and affordable energy transition in BC and Metro Vancouver.

PURPOSE

To inform the Climate Action Committee and MVRD Board about the outcomes of BC Hydro's 2024 Call for Power, how it fits in the context of meeting increasing demand for electricity, and how it aligns with Metro Vancouver's approved plans for air quality and climate action.

BACKGROUND

The 2024 Call for Power (References 1 and 2) is part of BC Hydro's *2021 Integrated Resource Plan* to ensure sufficient electricity supply to meet growing demand (Reference 3). After two decades of relatively stable demand, BC Hydro anticipates that demand for electricity will increase by 15 per cent or more by 2030, and continue to increase significantly through the coming decades. The projected increase in demand is driven by factors including population growth, industrial development, and housing construction, combined with more homes, businesses and industries switching from fossil fuels to clean electricity for heating and cooling. Electricity will therefore play an increasingly important role in the province's energy supply and efficient and cost-effective

deployment and delivery of new supply is critical to support Metro Vancouver's board-adopted *Clean Air Plan* and Climate 2050 Roadmaps for Buildings, Transportation, Industry & Business, and Energy.

BC HYDRO'S 2024 CALL FOR POWER

To advance its plans to acquire new clean and renewable power, in April 2024 BC Hydro launched a competitive Call for Power for approximately 3,000 gigawatt hours per year (GWh/y) of clean electricity, which will add 5% to current supply by 2028 (Reference 2). (For comparison, the Site C dam, which is expected to be fully operational in 2025, will add about 5,100 GWh/y or 8% to the current supply.) The call yielded proposals for over 9,000 GWh/y from independent power producers, which is three times more energy than originally targeted.

Of the 21 valid proposals received, the majority were wind projects (70%), followed by solar (20%), and biomass and hydro (10%), and represent almost every region in the province. The successful proponents will be announced by December 2024. These projects have the potential to diversify BC Hydro's clean energy mix, currently consisting of 91% hydroelectric generation. BC Hydro projects that new clean-energy projects from this call will generate $2.3–3.6 billion in private investment, create 800–1,500 jobs annually, and significantly benefit Indigenous communities.

The 2024 call for power on its own will not be sufficient to ensure a robust and resilient electricity supply for BC in the context of rapid change. Other factors include proactive and responsive long-term planning, additional calls for power to further diversify the energy mix and managing an interconnected grid through electricity imports and exports.

2024 Call for Power Supports BC Hydro's Long-Term Plans

BC Hydro's *2021 Integrated Resource Plan* (IRP) outlines actions to meet growing electricity demand over the next 20 years (Reference 3), including:

- Expanding demand-side management by investing in energy efficiency and peak demand strategies that enhance customer energy savings;
- Offering optional rates, such as the new voluntary time-of-use rate, to optimize system capacity, including for home charging of electric vehicles;
- Renewing electricity purchase agreements with existing clean or renewable independent power producers on a cost-effective basis;
- Upgrading transmission and distribution infrastructure to increase system capacity; and,
- Integrating utility-scale batteries for energy storage.

The IRP was updated in 2023 in response to updated load growth and supply projections that indicated an earlier-than-anticipated need for future energy resources. Among other actions to address these changes and meet the Government of BC's legislated GHG emissions targets, BC Hydro stated its plan to acquire approximately 3,000 GWh of new clean or renewable energy in this update, which subsequently took the form of the 2024 Call for Power.

Additionally, earlier this year BC Hydro released a 10-Year Capital Plan committing $36 billion for community and regional infrastructure across the province between 2025 and 2034. Planned

investments include replacing and upgrading existing infrastructure and streamlining new customer connections in high growth communities.

Past and Future Calls for Power

BC Hydro has acquired power from independent power producers since the 1980s to supplement its electricity supply. A Standing Offer Program provided long-term purchase agreements from 2008 to 2018 for small energy projects at a fixed price. In addition to this program, BC Hydro has awarded several calls, including:

- 2003 – 2006: Green Power Generation Call and Open Call for Power;
- 2008: Clean Power Call, which was expected to effectively address a forecasted 2,300 GWh/y gap by 2017;
- 2009 – 2011: Bioenergy Phase 1 and 2 calls.

Although these earlier procurement efforts were successful, they faced criticism for generating surplus power at above-market prices. In 2023, the BC Government stated an intention to issue smaller, more frequent competitive calls aligned with demand and discourage power generation during periods of low demand and market prices, such as the spring freshet.

BC Hydro has committed to issue calls for power every two years. The exact volume (energy and/or capacity) of future calls and the timing of acquisitions will continue to be determined through BC Hydro's long-term planning, under the oversight of the British Columbia Utilities Commission (BCUC), which can be impacted by market conditions and local and provincial government policies.

An Interconnected and Greening Grid Supports Reliability

BC Hydro also balances supply and demand by trading power through its subsidiary, Powerex, via interconnections with the grids in Alberta and 14 western US states. Powerex imports energy from clean and renewable sources, which represent the majority of recent imports, as well as from the wholesale market, consisting of a mix including fossil fuel energy. The GHG intensity of electricity used by BC customers varies because of this trade, but overall remains low since over 98% of BC Hydro's power is renewable. Additionally, BC's energy exports help reduce emissions in fossil-fuel-dependent regions like Alberta, while other jurisdictions such as California, Washington, Idaho, Nevada and Oregon are expanding their renewable energy capacity.

Under the Clean Energy Act, BC Hydro must maintain electricity self-sufficiency based on historical average stream flows (i.e., typical water conditions). However, BC's real-time hydropower output fluctuates with weather patterns, resulting in surplus (net exports) during wet weather years and deficits (net imports) during dry ones. Over the past 15 years, BC was a net importer in seven years and a net exporter in eight. From 2019 to 2023, BC Hydro exported slightly more than it imported, but recent droughts increased imports. In 2023/24 BC imported 14,200 GWh (24% of domestic needs), but in 2021/22 BC Hydro generated a significant surplus.

BC's participation in regional electricity markets ensures stable supply, cost-efficiency, and reliable service by importing low-cost power and exporting surplus during peak demand, making temporary net imports part of prudent energy management. This helps to keep rates lower for BC customers and generates revenue; in the past five years Powerex generated $2.5 billion in trade income.

Alignment with Metro Vancouver's Initiatives

BC Hydro's 2024 Call for Power, together with its *Integrated Resource Plan*, 10-Year Capital Plan, and import and export regime, collectively support meeting growing electricity demand and GHG emissions reduction efforts. BC Hydro's plans align with and support Metro Vancouver's *Clean Air Plan*, and Climate 2050 Roadmaps for Buildings, Transportation, Industry & Business, and Energy, which outline strategies and actions for electrifying buildings and vehicles, as well as adopting zero-emissions technologies for other transportation modes and industrial activities, including transitioning to electricity where feasible.

Furthermore, Metro Vancouver is undertaking actions that can help reduce the burden on the electrical grid associated with electrification, including:

- **Supporting policies, programs, and incentives that advance efficient use of electricity resources.** Several actions in the Climate 2050 Buildings, Energy, and Industry & Business Roadmaps support improvements to energy efficiency through advocacy to the federal and provincial governments. Furthermore, Metro Vancouver supported the development of the BC Retrofit Accelerator program, which will drive energy efficiency improvements along with decarbonization in buildings in the region.
- **Leveraging waste to produce renewable energy**. Metro Vancouver generates heat, renewable natural gas, and electricity from its solid and liquid waste systems, which is helping to diversify renewable energy sources in the region. Metro Vancouver is also exploring opportunities to support expanded use of thermal energy networks through partnerships with member jurisdictions and utilities.
- **Participating as an intervener in the BCUC proceedings for BC Hydro's application for "2024 Rate Design" and "Distribution Extension Policy".** In September 2024, the MVRD Board directed staff to participate as an intervener in the BCUC proceedings for these BC Hydro applications, which aim to improve fairness of rates, enable more timely and cost-effective connections for new and upgraded service, reduce barriers to electrifications, and introduce rates for individual and community systems generating their own electricity.

ALTERNATIVES

This is an information report, no alternatives are presented.

FINANCIAL IMPLICATIONS

There are no financial implications associated with this report.

CONCLUSION

In April 2024, BC Hydro launched a competitive Call for Power to acquire approximately 3,000 gigawatt hours per year (GWh/y) of clean electricity from independent power producers, which would add 5% to the current supply. The call yielded proposals for over 9,000 GWh/y, three times the target. The proposed projects have the potential to diversify BC Hydro's clean energy mix and enhance grid resilience. They are also expected to attract between $2.3 billion and $3.6 billion in private capital investment and create between 800 to 1,500 jobs annually across the province. The strong response to the call signals the potential for expanded and more diverse renewable energy supply within BC, supporting the transition to cleaner energy and enhanced resilience. The call is

one component of long-term energy planning, electricity imports and exports, and infrastructure investments needed to support an efficient and affordable energy transition in BC and Metro Vancouver, and aligns with Metro Vancouver's *Clean Air Plan*, and Climate 2050 Roadmaps for Buildings, Transportation, Energy, and Industry & Business.

ATTACHMENTS

1. Presentation re: "BC Hydro's 2024 Call for Power", dated November 7, 2024

REFERENCES

1. Press Release by the Ministry of Energy, Mines, and Low Carbon Innovation - BC Hydro receives strong response to call for clean electricity to power economy, dated September 18, 2024
2. 2024 Call for Power - BC Hydro
3. *BC Hydro and Power Authority 2021 Integrated Resource Plan*, 2023 Update

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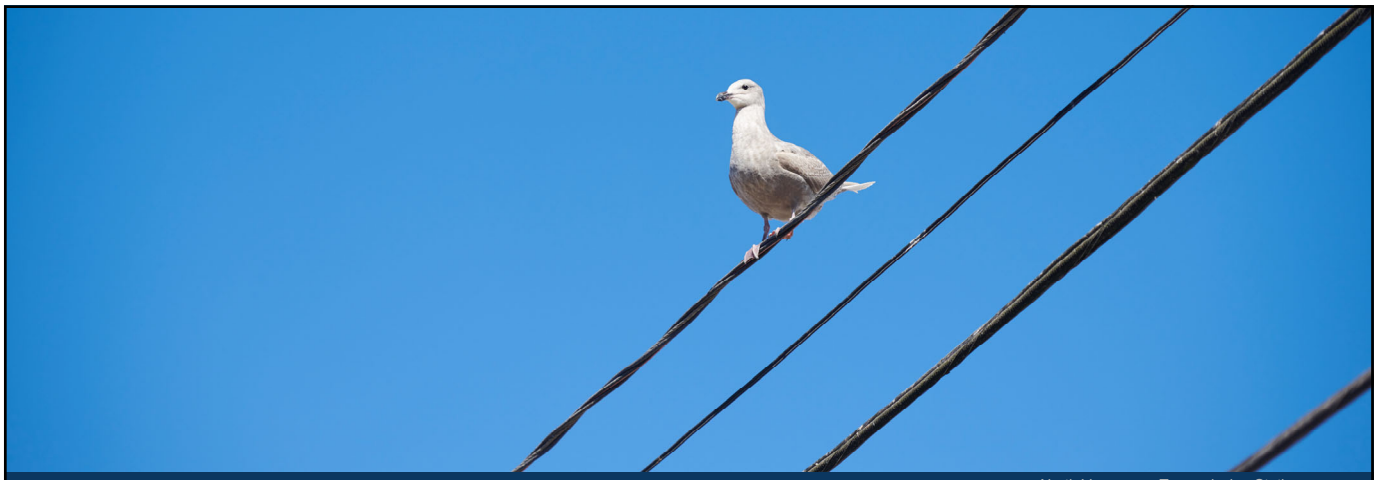

North Vancouver Transmission Station

BC Hydro's 2024 Call for Power

SUPPORTING CLIMATE 2050 ACTIONS

Jason Emmert
Program Manager, Regional Climate Action Policy,
Air Quality and Climate Action Services

Sara Muir
Air Quality Planner, Air Quality and Climate Action Services

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Climate Action Committee - November 7, 2024
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BC HYDRO'S CALL FOR POWER

Meeting BC's Clean Energy Needs

- April 2024 BC Hydro launches "Call for Power" to acquire 3,000 GWh/y of clean electricity
- Add 5% to current supply to meet growing demand
- Aligns with long-term plan to improve energy efficiency, streamline electrical connections, and offer optional rates

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PRIOR CALLS FOR POWER

History and Lessons Learned

- BC Hydro has been acquiring power from independent power producer since 1980s
- While successful, earlier procurement efforts faced criticism for generating surplus power at above-market prices
- Learning from earlier experience, BC Government intends to issue smaller, more frequent competitive Calls aligned with electricity demand

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RESPONSE TO CALL FOR POWER

Results and Projected Impact

- Call to Power yielded over 9,000 GWh/y—three times projected target
- Majority are wind (70%), followed by solar (20%), then biomass and hydro (10%) to supplement and diversify the grid
- Generate $2.3 to $3.6 billion in private investment and 800 to 1500 jobs annually

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INTERCONNECTED GRID

Ensuring a Clean, Reliable Power Supply

- BC Hydro trades power through its subsidiary, Powerex, with Alberta and 14 US States
- Power trading ensures stable supply, cost-efficiency, and reliable service
- Over the past 15 years, BC was a net exporter in eight years
- In the past 5 years, Powerex generated $2.5 billion in trade income

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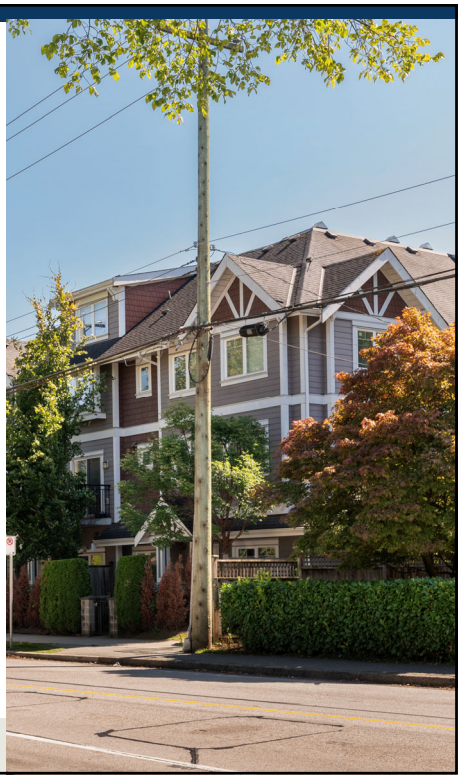
EXPANDED ELECTRICITY SUPPLY

Supporting Climate 2050

Expands and diversifies BC's clean energy supply which support *Climate 2050* actions by:

- Making more clean electricity available to electrify transportation, buildings, and industry and reduce emissions
- Enhancing grid resilience to climate impacts such as drought



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Looking South from the North Shore towards Vancouver

Thank you

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To: Climate Action Committee

From: Conor Reynolds, Director, Air Quality and Climate Action Services

Date: October 23, 2024 Meeting Date: November 7, 2024

Subject: **Manager's Report**

RECOMMENDATION
That the Climate Action Committee receive for information the report dated October 23, 2024, titled "Manager's Report".

CLIMATE ACTION COMMITTEE 2024 WORK PLAN
Attachment 1 sets out the Committee's Work Plan for 2024. The status of work plan priorities is indicated as pending, in progress, or complete. The work plan is updated, as needed, to include new priorities that arise, items requested by the Committee, and changes to the schedule.

Climate Action Dialogues: Human Health and Wellbeing – Nov 21, 26, and 28, 2024
Metro Vancouver's Climate Action Dialogues return this November with a focus on Human Health and Wellbeing, and they will explore the outcomes for health and wellbeing when action is taken on climate. Panelists will discuss extreme weather and public health, and the role of proactive climate action – like urban green spaces, better building designs, and robust emergency systems – in lowering these risks. This is the fourth installment of a regional dialogues series that highlights key areas of the region's climate strategy, *Climate 2050*.

Dialogues will take place November 21 in Surrey, November 26 in Vancouver, and November 28 in an online webinar. The sessions will be moderated by a new guest moderator, Leanne Sawatzky, the Executive Director for Renewable Cities at SFU's Morris J. Wosk Centre for Dialogue.

Speakers include:
- Chris McLeod, Director, Partnership for Work, Health and Safety, University of British Columbia
- Laurie Bates-Frymel, Senior Planner, Regional Planning and Housing Services, Metro Vancouver
- Melissa Lem, MD, CCFP, FCFP, President, Canadian Association of Physicians for the Environment
- Michelle Hoar, Program Director, Hey Neighbour Collective
- Sarah Henderson, Scientific Director at both Environmental Health Services, BC Centre for Disease and National Collaborating Centre for Environmental Health

Climate Action Committee members are welcome to register online or connect with our staff through the Climate 2050 email: climate2050@metrovancouver.org.

Update on Engagement about Reducing Emissions from Small Gas-Powered Equipment
Following Board direction in May 2024, staff began engagement in July 2024 on the development of a regional strategy to accelerate the transition from small gas-powered equipment to emission-free

alternatives. Staff are engaging equipment users, other governments including First Nations, member jurisdictions, health agencies, and manufacturers and vendors, to listen to perspectives, interests, and ideas for an effective transition with realistic timelines. Engagement activities include a survey for landscapers and other professional users, available on Metro Vancouver's website (Reference 1), as well as public polling and over 20 dialogue sessions and presentations to hear from municipal staff, residents on municipal advisory committees, and landscaping industry representatives, including a session during the Grow West Coast Conference on September 27, 2024. To encourage participation, Metro Vancouver is promoting engagement opportunities through project database emails, social media, and networks of landscaping associations and horticulture academic programs. Staff will provide a summary of the engagement at a future meeting.

ATTACHMENT

1. Climate Action Committee 2024 Work Plan, dated October 10, 2024

REFERENCES

1. Metro Vancouver: Reducing Emissions from Small Gas-Powered Equipment: Small Gas-Powered Equipment Transition Survey

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Climate Action Committee 2024 Work Plan
Attachment Date: October 10, 2024

Priorities

1st Quarter	**Status**
Climate Action Committee meeting schedule and work plan	Complete
Climate 2050 priority implementation actions for 2024 to 2026	Complete
Next phase of engagement on large buildings GHG emission regulation	Complete
Climate 2050 engagement and public education priorities	Complete
Draft Climate 2050 Land Use and Urban Form Roadmap	In Progress
Metro 2050 climate policy enhancement project	Complete
2nd Quarter	**Status**
Draft Climate 2050 Human Health and Well Being Roadmap	In Progress
Overview of air quality advisory program and preparedness for 2024 season	Complete
Update on heavy-duty vehicle emission reduction approaches	Complete
Initiate engagement on emission regulation for small non-road engines	Complete
Update on Driving Down Emissions project	In Progress
Appointment of Assistant District Director and Enforcement Officers	Complete
Regional multi-hazard mapping project update	Complete
Agricultural Land Use Inventory	Pending
Update on Metro Vancouver Retrofit Accelerator	Complete
Update on outreach for Residential Indoor Wood Burning Bylaw	Complete
Outcome of BC Utilities Commission proceedings	Complete
3rd Quarter	**Status**
Climate 2050 Annual Progress Report	In Progress
Update to Regional Ground Level Ozone Strategy	Pending
Annual Air Quality Report	Complete
Update to internal carbon price policy	Pending
Amendments to boilers and process heaters emission regulation	Pending
4th Quarter	**Status**
Draft Climate 2050 Water and Wastewater Infrastructure Roadmap	In Progress
Draft Climate 2050 Waste Roadmap	In Progress
Regional air quality objectives	In Progress
Update on Corporate Energy and GHG management	In Progress
Metro Vancouver workplace and public electric vehicle charging strategy	Pending
Report on 2024 air quality advisory season	In Progress
Update on ecosystem services on agricultural lands	Pending
Ecological Health Framework progress report	Pending
Update on regulatory review for reducing emissions from industrial sources	Pending
Annual budget and five-year financial plan	Complete