

Clean Air Plan

2021

Summary

DRAFT



Clean Air Plan

The *Clean Air Plan* is Metro Vancouver's air quality and greenhouse gas management plan. It supports this vision: Metro Vancouver is a carbon neutral region where residents experience healthy, clean and clear air.

Strategies and actions in the *Clean Air Plan* will reduce air contaminant emissions and impacts, including greenhouse gases, over the next 10 years (to 2030), and in doing so support the 30-year commitment to a carbon neutral region by 2050. This management

plan also helps improve air quality for the region, to protect human health and the environment.

The *Clean Air Plan* focuses on actions that Metro Vancouver has the authority to implement, and also identifies actions for implementation by others. The *Clean Air Plan* is developed with input from across the region.



The Need For Action

Air quality impacts from health-harming air contaminants have significant health costs, and they cause the most harm for our youngest and oldest residents and those with underlying health conditions.

Climate change is being accelerated by greenhouse gas emissions, and while it is less evident than daily air quality, climate change is already impacting our health and our environment. Climate change impacts will become even more evident in coming years.

Metro Vancouver, together with its member jurisdictions, has been taking action on air quality and climate change for more than 20 years. **But governments, businesses and residents need to do more to reduce our contributions to climate change and improve our regional air quality,** both of which will protect human health and the environment.

Equity

Metro Vancouver's air quality and greenhouse gas emissions program has historically focused on the sources with the largest impacts across the region as a whole. However, we recognize that climate change and poor air quality impact some neighbourhoods, households and individuals more than others. The strategies and actions in this *Clean Air Plan* can clarify where inequities in air quality exist in the region and consider how equity can be better integrated into our work.

2030 Regional Targets for Clean Air

1. Reduce regional greenhouse gas emissions by 45% from 2010 levels.
2. Ambient air quality in the region meets or is better than health-based ambient air quality objectives and standards set by Metro Vancouver, BC Government and Government of Canada.
3. Increase the amount of time that visual air quality is classified as excellent.

A Focus For Action

The *Clean Air Plan* contains 132 actions and the vast majority, about 90%, address emissions from transportation, buildings and industry, the three largest sources in this region, as indicated by emissions estimates.





Transportation

Transportation will help shape our low-carbon future by prioritizing zero-emission vehicles, managing the demand for roads, and making improvements that increase system resilience.

The transportation system serves and shapes our region's communities and economy. Roads, rail lines, shipping lanes, flight paths, transit networks, and bike paths link us with our destinations, but burning fuels to travel these routes can worsen air quality and contribute to climate change. As the region grows and changes, we need a transportation system that will keep us connected and goods moving while also reducing emissions.

Our Challenge

Transportation generates about half of regional emissions. Of these, passenger vehicles are the primary contributors of greenhouse gases and volatile organic compounds, while marine vessels, medium- and heavy-duty vehicles, and rail locomotives are largely responsible for harmful emissions from diesel use, such as fine particulate matter.

Long-Term Goals

1. All personal travel within the region is made by active transportation or using zero-emission technologies powered by clean, renewable energy.
2. All medium and heavy-duty vehicles and rail locomotives operating within the region use zero-emission technologies powered by clean, renewable energy.
3. All aircraft and marine vessels operating in the region use low-emission and zero-carbon technologies powered by clean, renewable energy.

Clean, Renewable Energy

Achieving our 2030 air quality and greenhouse gas targets will require a region-wide transition from fossil fuels to clean, renewable energy. This is low- or zero-emission energy that is replenished over days or years. In British Columbia, electricity is produced primarily from hydro power, a clean, renewable source of energy that produces significantly less emissions than fossil fuels. Other renewable fuels will also be needed, particularly for sectors that are more costly or complicated to electrify.

Strategies for Clean Air

Strategies to reduce emissions of transportation-related air contaminants will align with best practices around the world. They include cleaner fuels and engines, more compact and complete communities, shifting to lower-emission modes of transportation (e.g., cycling, walking, transit, high-speed rail), and electrification.

The accelerated transition to zero-emission passenger and commercial vehicles will be supported by sales targets, improved emission standards, more renewable fuels and a charging and refueling strategy. Personal transportation choices that reduce driving will be supported by increased funding for transit and active transportation, improved parking policies, and the introduction of mobility pricing. Long-term clean fuel strategies and better engine technologies will reduce rail, marine and aviation emissions.

Potential Impacts of Transportation Strategies in 2030

- Reduce annual greenhouse gases by up to **1.4 million tonnes**
- Reduce annual health-harming air contaminants by up to **4,000 tonnes**



Buildings

Buildings will help shape our low-carbon future by using clean and renewable energy, becoming highly energy efficient, and supporting human health through design and location.

Buildings provide spaces for shelter, comfort, productivity and recreation—this is where we spend most of our time. Yet, heating and cooling our homes, businesses, schools, hospitals, and every other building in the region emit greenhouse gases and health-harming air contaminants. Constructing new buildings and upgrading existing ones provide the opportunity to improve human and environmental health. Buildings can last a long time—50 years or more—so how we design, build and retrofit them in the next ten years will determine their emissions for decades.

Our Challenge

The nearly 500,000 buildings in the region generate 25% of regional greenhouse gas emissions, primarily from natural gas heating. Buildings also generate more than 35% of regional fine particulate matter emissions, primarily from wood burning in homes. Emissions are higher from buildings with less insulation and older windows or equipment.

Long-Term Goal

1. All buildings are zero emissions from heating and cooling.

Better Buildings

Improving building energy efficiency and heating buildings mostly with electricity are the most effective ways to reduce emissions from buildings. Better-insulated and sealed buildings are also more comfortable, healthier, quieter, and protect better against wildfire smoke and heat waves.

Strategies for Clean Air

Strategies for new and existing buildings, large and small, to reduce emissions include emission requirements and standards, as well as building codes that prioritize electrification. More households will benefit from retrofit incentives and education programs that enable building owners to reduce emissions and energy use. Residential wood burning rules and incentives will reduce health impacts from fine particulate matter.

Emission reductions will be further supported by district energy systems, which provide heating and cooling to a network of residential and commercial buildings more efficiently, and generally with lower emissions, than individual building heating and cooling systems. Setting embodied emissions requirements in the building code and for new public buildings will help accelerate the transition to lower embodied emissions in buildings.

Potential Impacts of Building Strategies in 2030

- Reduce annual greenhouse gases by up to **850,000** tonnes
- Reduce annual health-harming air contaminants by up to **600** tonnes



Industry

Industry will help shape our low-carbon future by reducing emissions with better technology, using clean and renewable energy, and setting high standards for products and their manufacturing processes.

The region's diverse industrial facilities and businesses contribute to our local economy, providing jobs to residents and products to supply chains and consumers. Producing cement, refined petroleum, forest products, metal and buildings generates greenhouse gases and other emissions. Industrial activity in the region can reduce its contribution to poor air quality and climate change.

Our Challenge

Regional industrial operations generate 25% of greenhouse gases, 40% of diesel particulate matter (from non-road engines), and 65% of volatile organic compounds. These emissions come from burning fuel, chemical and other manufacturing processes, product off-gassing, wind-blown particulate matter, and fugitive leaks from process equipment and piping. Some industrial and business activities create odorous air contaminants.

Long-Term Goals

1. The industrial sector is carbon neutral.
2. All industrial operations minimize air contaminant emissions using lowest achievable emission technologies.

Strategies for Clean Air

Strategies to reduce emissions from industrial facilities include integrating greenhouse gas requirements into Metro Vancouver's permits and regulations, increasing the supply of cleaner fuels, and strengthening emission requirements. More stringent emission requirements for new and existing non-road engines, along with incentives, will help reduce diesel particulate matter, and senior governments should support development and commercialization of zero-emission non-road engines, which would reduce air contaminant emissions over the long term.

Technical support and guidance will help businesses adopt cleaner operating practices. Developing regional guidance on buying low-carbon products will help reduce the embodied greenhouse gas emissions of goods and services.

Potential Impacts of Industry Strategies in 2030

- Reduce annual greenhouse gases by up to **800,000** tonnes
- Reduce annual health-harming air contaminants by **2,400** tonnes



Agriculture

Agriculture will help shape our low-carbon future by using clean and renewable energy, farming with regenerative practices, and protecting land for carbon capture and local food production.

Agriculture contributes to the regional economy and provides fresh, healthy food for local use and exports. Protecting agricultural land enables food security and provides other benefits called ecosystem services, which include helping to manage floods, capturing carbon, and providing habitat for wildlife.

Our Challenge

Agricultural activities generate 4% of regional greenhouse gas emissions, primarily from heaters and boilers in greenhouses, agricultural equipment, and livestock. Some agricultural activities cause emissions of ammonia, fine particulate matter and volatile organic compounds, which impact regional air quality, visual air quality, and human health. The main sources of these emissions are poultry and cattle manure, ammonia fertilizers, fuel combustion, open-air burning, wind erosion of soils, and fugitive dust.

Long-Term Goals

1. The agricultural sector is carbon neutral and maximizes carbon sequestration.
2. The agricultural sector minimizes air contaminant emissions, continues using best available management practices and technologies, and is powered by clean, renewable energy.

Strategies for Clean Air

Strategies to reduce emissions from agricultural equipment and greenhouses include improved energy efficiency and a shift to clean, renewable energy. Increasing the production of renewable natural gas through anaerobic digestion of agricultural and other waste will help to displace natural gas from fossil fuels in sectors where zero-emission solutions are more challenging. Air quality impacts from burning vegetative waste will be reduced through alternative practices.

Potential Impacts of Agriculture Strategies in 2030

- Reduce annual greenhouse gases by up to **150,000** tonnes
- Reduce annual health-harming air contaminants by up to **50** tonnes

Potential Impacts of the Clean Air Plan

Each strategy in the *Clean Air Plan* contains specific actions, and these actions have been modelled to estimate their impact on regional emissions. Early modelling suggests that emissions in the Metro Vancouver region can be significantly reduced over the next 30 years (to 2050).

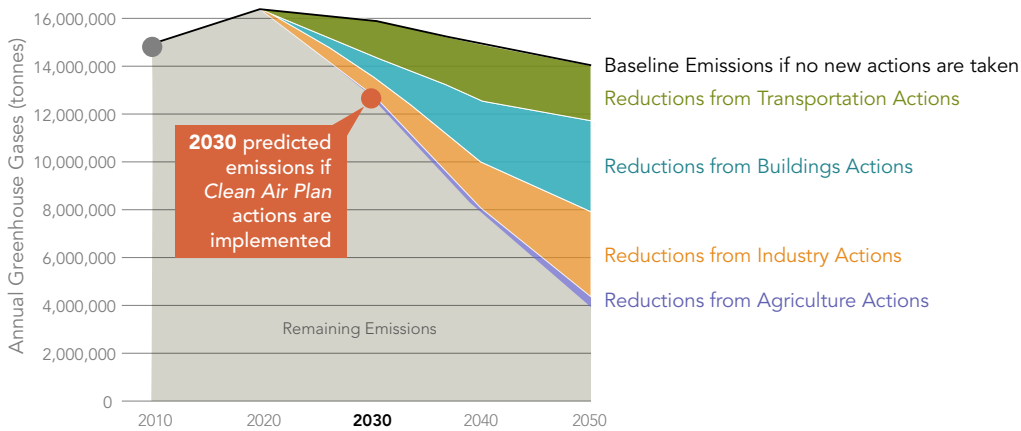
This initial modelling of the *Clean Air Plan* indicates that if all the strategies and their actions were implemented, regional greenhouse gas emissions could be reduced by approximately 2 million tonnes by 2030, or 15% below the 2010 regional total. This 15% reduction would represent enormous progress on regional climate emissions. While significant, this reduction does not achieve the 2030 target to reduce regional greenhouse gas emissions by 45% from 2010 levels.

It is critical to start implementing these actions to achieve these emission reductions. Implementation will happen over the next 10 years, and some actions are already underway. We will continue to take action while also continuing to plan, which requires a focus on coordination and collaboration.

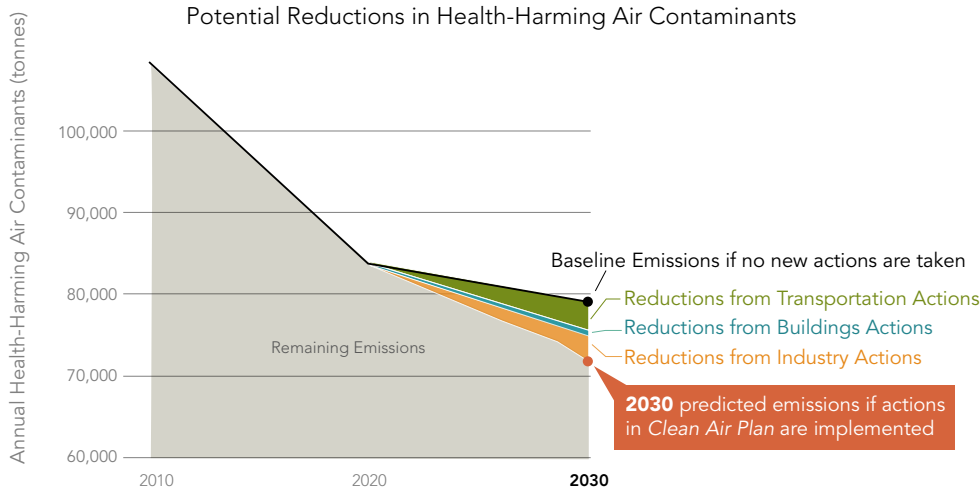
Metro Vancouver will continue to work with residents, businesses and governments to accelerate these actions even further. Additional climate actions to help transition the region to carbon neutrality will be identified in the *Climate 2050 Roadmaps*.

The *Clean Air Plan* is also expected to lead to significant improvements in regional air quality and public health.

Potential Reductions in Greenhouse Gases



Potential Reductions in Health-Harming Air Contaminants





Feedback and Engagement

Metro Vancouver invites feedback from diverse viewpoints to help shape the *Clean Air Plan*. For more information, and to access feedback options, visit metrovancover.org and search "*Clean Air Plan*". You can also email the project team at CleanAirPlan@metrovancover.org or telephone 604-432-6200.

To ensure your comments are considered, **please respond by June 15, 2021**. Thank you for taking the time to provide your valuable feedback.

