

2023 Climate Change Accountability Report







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Message from the Minister



British Columbians are in a defining period of change. The COVID-19 pandemic gave us an opportunity to reexamine how we address and adapt to climate change.

The impacts of our changing climate continue to threaten our health, our environment and our economy. Dramatic fluctuations in weather patterns, severe drought and wildfires are no longer random events but regular occurrences, challenging governments at all levels to quickly adapt to our changing world conditions. Against this new backdrop this summer's wildfire season — the worst in our province's history – delivered a devastating blow to communities across the province.

This new and rapidly changing reality drives us to focus on solutions that will drive down emissions and build stronger, more resilient communities grounded in new, low-carbon economic opportunities. It is why we released a more robust climate plan in 2021 – the CleanBC Roadmap to 2030 – which is designed to be flexible and adaptable, allowing us to focus on areas and technologies that are showing rapid progress such as zero-emission vehicles and heat pumps. The plan also helps us focus supports on earlier-stage solutions and actions to speed their development and affordability.

A changing climate can also create further inequities in society, disproportionately impacting families and people with low and middle incomes. That is why we continue to tackle one of the most pressing issues people are facing today – affordability. This year, we increased the climate action tax credit to ensure B.C.'s clean transition remains affordable for people. We also continue to provide rebates for electric vehicles and e-bikes that help us reduce greenhouse gas pollution and improve livability for people and our neighbourhoods. And the Province continues to offer rebates on home heat pumps, providing significant cost savings and reductions in greenhouse gas emissions for households in the province. Household affordability will continue to be a key focus for our government, especially for those who need it most.

This year's annual climate report shows continued progress in key areas. British Columbians continue to lead the way in the uptake of zero-emission vehicles in North America, with recent amendments to legislation requiring automakers to meet an escalating annual amount of new light-duty zero-emission vehicle sales and leases, reaching 26% of light-duty vehicle sales by 2026, 90% by 2030 and 100% by 2035, five years ahead of the original target. This signal helps ensure vehicle manufacturers send supply to our province, while our income-tested rebate system supports people who need the help to make the purchase. We're also making it easier to charge these vehicles by installing fast charging infrastructure around the province and providing rebates to install chargers at homes and workplaces.

We know we are stronger when we work together which is why the actions we take to fight climate change require an integrated approach with First Nations and local governments, so we can all be ready for both the challenges and new possibilities our changing climate may bring. This past year we launched the ClimateReadyBC platform, a disaster and climate risk reduction tool for public and community use. Using a data driven approach we are supporting the integration of climate science into disaster risk reduction and climate adaptation activities which will enhance climate change information, tools and guidance for those involved in risk assessment and risk-reduction efforts. Every community in our province

has signed on to the BC Climate Action Charter, which demonstrates our collective commitment to climate action and determination to work together.

In this fourth Climate Change Accountability Report we share our progress and look to see where we need to make improvements or accelerate actions to meet our goals. We will continue to work closely with all partners: local governments, the federal government, First Nations, industry, civil society, and the independent Climate Solutions Council to meet our climate action targets.

These challenges are an opportunity for us all to work together to adapt and grow our economy to make it ready for the growing demand for low carbon commodities and solutions. Together, we can create adaptive and resilient communities, build a circular economy that cuts down on waste, and reduce the emissions we know are fueling a changing climate.

Together we are creating a brighter and more secure future for ourselves, our children, and generations to come.

Hon. George Heyman,
Minister of Environment and Climate Change Strategy





1 EXECUTIVE SUMMARY

The 2023 Climate Change Accountability Report is the fourth official report since the requirement was brought in under the *Climate Change Accountability Act*. The report focuses on B.C.'s progress on climate actions across a range of policies, programs and legislation implemented during the 2022/23 year (April 1, 2022, to March 31, 2023) with more recent information from 2023, where available. This report is a critical part of B.C.'s commitment to public sector accountability and transparency on climate change.

B.C.'s gross greenhouse gas (GHG) emissions for 2021 were down 3% from 2007 (the year B.C. uses to baseline its targets) and down 6% from 2018 when the CleanBC plan was launched, while B.C.'s net emissions were down 4% from 2007 and 5% from 2018. As expected, emissions began to return to pre-pandemic levels in 2021 as people and businesses returned to normal pre-pandemic routines (commuting, air travel, etc.) – resulting in a 1% increase in gross emissions and a 2% increase in net emissions compared to 2020. B.C. has also experienced significant population growth in this period – over 20% growth from 2007 to 2021. In 2021, B.C.'s per capita emissions were down 21% from 2007 and down 9% from 2018, and up 1% from 2020. An important consideration when viewing these results is that this emissions reporting period (to December 2021) covers the start-up phase of CleanBC, which was launched in December 2018. Many policies and programs, including those in the 2021 *CleanBC Roadmap to 2030* (Roadmap), are expected to reduce emissions in the coming years as they scale up.

The near-term emissions outlook suggests that with all Roadmap policies fully implemented, emissions can remain below 2007 and 2018 levels and, after an increase following a continued return to pre-COVID-19 levels of economic activity and routines in 2022, emissions can continue to trend downward.

Based on the longer-term emissions modelling, if all CleanBC policies and programs planned today are fully implemented, B.C. could achieve 96% of the 2030 target. Modelled emissions can fluctuate annually with updates to the model and regular changes in the federal National Inventory Report and the Provincial Inventory. Government is continuing to deliver the commitments in the Roadmap and is looking at ways to recalibrate actions based on experiences with programs and policies to close this gap.

Meeting our targets and achieving our Roadmap commitments can only be realized if we continue to work closely with all partners: local governments, the federal government, industry, civil society, and the independent Climate Solutions Council. And in accordance with our commitments in the [Declaration on the Rights of Indigenous Peoples Act Action Plan](#), we continue our collaboration with Indigenous Peoples to implement CleanBC and the [Climate Preparedness and Adaptation Strategy](#).

The Province continues to make progress on climate action. Highlights include:

To help people with costs:

- To help people with costs, especially for families and people with low and middle incomes, the Province increased the [climate action tax credit](#). This credit is now up to \$893.50 for a family of four and up to \$447 for a single person.
- Providing [e-bike rebates](#) that are income-based to make clean mobility more affordable and accessible.
- Continuing to provide [BC bus passes](#) to low income seniors and people receiving disability assistance. And continuing to provide [free public transit for children 12 and under](#).
- Providing 9,693 [Go Electric Passenger Vehicle rebates](#) in 2022 and increasing the maximum amount from \$3,000 to \$4,000. B.C. continued its high uptake of zero-emission vehicles (ZEVs) in 2022, which accounted for 18% of all new light-duty vehicle sales. The program is income-tested and there are caps on vehicle values to make the switch more affordable and accessible for families and people.
- Making it easier to charge ZEVs. By the end of 2022, there were 3,872 public charging stations in the province (24% increase from 2021) and about 70% of the core fast-charging sites were completed for B.C.'s Electric Highway to ensure geographic charger coverage throughout B.C. The [Go Electric EV Charger Rebates](#) funded charging stations for 2,318 homes, 547 multi-unit residential buildings, and 249 workplaces.
- Providing 13,045 residential retrofit rebates in 2022/23, including 6,018 incentives for heat pumps – 84% more than in 2021/22 – through the [CleanBC Better Homes and Better Buildings](#) programs. The Better Homes program introduced a heat pump funding top-up for northern residents and expanded funding for income-qualified participants to save energy and make homes more comfortable.

Preparedness and adaptation:

- Helping communities, professionals, and others identify and manage disaster and climate risks by launching the [ClimateReadyBC](#) platform.
- Developing and implementing climate action plans for natural resource regions and business areas to incorporate the latest climate science, data and Indigenous information into operational decision-making and development initiatives.
- Expanding necessary climate modelling and professional education services by supporting the Pacific Climate Impacts Consortium to meet the growing needs of Indigenous communities and organizations, local governments, academia, businesses, and industry.

Community infrastructure and projects:

- Supporting many local governments and modern treaty nations with over \$24 million in 2022/23 to develop climate action plans or strategies through the [Local Government Climate Action Program](#).
- Investing in 59 infrastructure projects around B.C. for renewable energy, clean transportation, and building efficiency through the federal-provincial [CleanBC Communities Fund](#).
- Supporting the improved collection and processing of residential organic waste, diverting by 2030 about 472,000 tonnes of organic waste from landfills through the [CleanBC Organics Infrastructure and Collection Program](#) (28 projects) and 669,000 tonnes of waste through the joint federal-provincial [Organics Infrastructure Program](#) (17 projects).
- Removing 471 tonnes of debris in 2022 through the [Clean Coast, Clean Waters Initiative Fund](#), bringing the total tonnes of debris removed by the program to over 1,500.
- Supporting 23 innovative projects as of 2022 that reuse and increase the use of post-consumer recycled plastic through the [CleanBC Plastics Action Fund](#).

Forests and agriculture:

- Launching a wood fibre utilization funding program for increasing the use of residual fibre and minimizing emissions from open burning, in partnership with the Forest Enhancement Society of BC.
- Funding the planting of over eight million trees in 2022/23 to enhance forest management and store more carbon through the 2 Billion Trees Program.
- Completing the [B.C. Sustainable Agriculture Strategic Framework](#) with key recommendations to promote innovation and regenerative practices in B.C.'s food system.

Industry:

- Establishing a new [Clean Energy and Major Projects Office](#) to fast-track investment in clean energy and technology.
- Enhancing carbon pricing for industry by designing a made-in-B.C. [output-based pricing system](#) (B.C. OBPS) for large industrial emitters (taking effect in 2024).
- Creating a New Energy Action Framework that will put in place a regulatory emissions cap by early 2024 for the oil and gas sector to ensure it meets its 2030 sectoral target of 33-38% reduction and require all proposed Liquefied Natural Gas (LNG) facilities to be net zero by 2030.
- Creating a BC Hydro task force to accelerate the electrification of B.C.'s economy by powering more homes, businesses and industries with renewable electricity.
- Developing a climate-aligned energy framework for B.C. with an overall goal of maximizing our province's production of clean energy for use at home and for export.
- Supporting 41 new projects in 2022 through the [CleanBC Industry Fund](#) that are expected to reduce emissions by more than 2.5 MtCO₂e over a 10-year period.
- Strengthening support for renewable fuels by increasing the carbon intensity reduction requirement from 20% to 30% by 2030 (relative to 2010 levels).

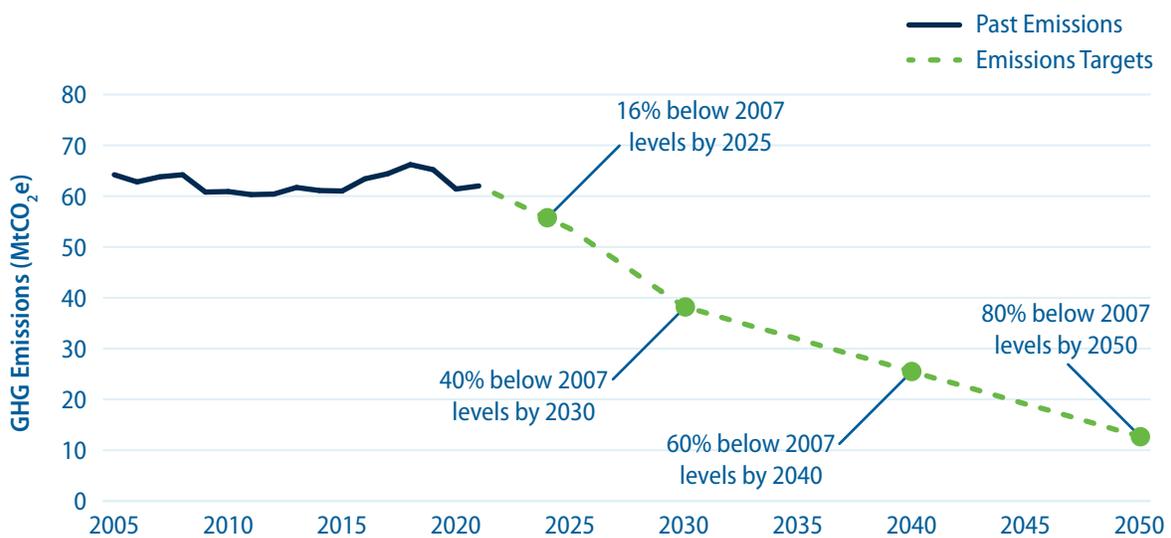


2 PROGRESS TO OUR TARGETS

In 2018, the Province launched CleanBC, a plan to reduce emissions, build a cleaner economy and ensure British Columbians benefit from the economic opportunities from the global clean energy transition. Building on this plan, the Roadmap to 2030 was released in 2021 to accelerate climate action in B.C. and set out a strengthened plan to meet the Province’s legislated climate targets. B.C. released its Climate Preparedness and Adaptation Strategy in 2022, outlining actions to build community resilience and ensure people are well prepared for the impacts of a changing climate.

B.C.’s legislated province-wide GHG targets are to reduce emissions by 40% in 2030, 60% by 2040, and 80% by 2050 - all below 2007 levels. Additionally, B.C. has set an interim provincial reduction target of 16% by 2025, as well as sectoral targets for 2030 to reduce emissions below 2007 levels by 27-32% from transportation, 33-38% from oil and gas, 38-43% from industry, and 59-64% from buildings and communities.

B.C.’s Greenhouse Gas Targets



2. Progress to our Targets

The Roadmap was designed to speed up the adoption of and grow markets for technologies and approaches we know are ready for deployment, such as ZEVs and heat pumps, while supporting sectors and technologies that are earlier in their transition to using less polluting energy. The policy commitments in the Roadmap were developed based on the most recent emissions projections and best available knowledge of technologies and measures to reduce GHG emissions.

To ensure transparency and help us keep on track towards meeting our targets, this section provides key updates on our progress including:

- B.C.'s latest-available emissions for 2021.
- B.C.'s emissions estimates for 2022-2024, 2025 and 2030.
- Climate action-related revenues and spending.

B.C.'S 2021 EMISSIONS

B.C.'s GHG emissions inventory is largely based on the federal National Inventory Report. The data are released annually but with a delay of 16-24 months for the federal government's data collection, verification, and review processes. Data releases sometimes contain changes in methodology and/or data improvements. Any changes are applied not only to the latest year, but also to all prior years as applicable. In the most recent National Inventory Report, which provides estimates up to 2021, there were changes that affected several prior years including B.C.'s legislated targets baseline year, 2007. B.C. reports both gross (total) emissions as well as net emissions, which include carbon sequestered by B.C.-based forest management carbon offsets.

According to this year's updated data, B.C.'s gross emissions for 2021 were 62.0 million tonnes of carbon dioxide equivalent (MtCO₂e). That's down 3% (-1.8 MtCO₂e) from 2007 and down 6% (-4.2 MtCO₂e) from the start of CleanBC in 2018. Since 2020, emissions are up 1% (+0.6 MtCO₂e) – a rebound in emissions from 2020 was expected as people and businesses returned to more normal, pre-pandemic activities after COVID-19 public-health restrictions were lifted.

B.C.'s net GHG emissions were 60.9 MtCO₂e. Emissions were down 4% (-2.8 MtCO₂e) from 2007, down 5% (-3.3 MtCO₂e) since 2018, and up 2% (+1.3 MtCO₂e) from 2020.¹

Greenhouse gas emissions are affected by many factors, including economic and population growth and government policy. Many commitments from the original CleanBC were newly underway in 2021, with the full impacts of emissions reductions expected as they scale up. Key CleanBC and Roadmap policies aiming to reduce emissions (Appendix 1) across all sectors will continue to be implemented in the coming years as described in our implementation plan (Appendix 2).

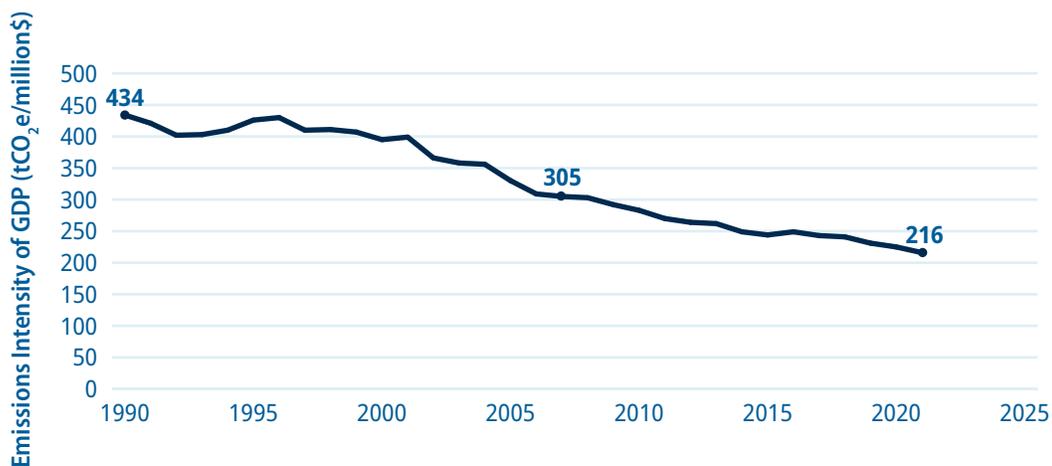
¹ Net emissions are gross GHG emissions (as reported in the Provincial Inventory) less the carbon offsets from B.C. forest management projects that have been verified under B.C. government regulated offset standards. These offsets totaled 1.1 MtCO₂e in 2021.

Economic and population growth

B.C. aims to reduce GHG emissions while building a cleaner economy with new jobs and new economic opportunities. For instance, more energy efficient buildings have allowed B.C. to keep emissions steady in the residential and commercial sector while still adding floorspace for homes and workplaces in the province. That's why it can be helpful to examine intensity indicators that put our current GHG emissions in the context of our growing economy and population.

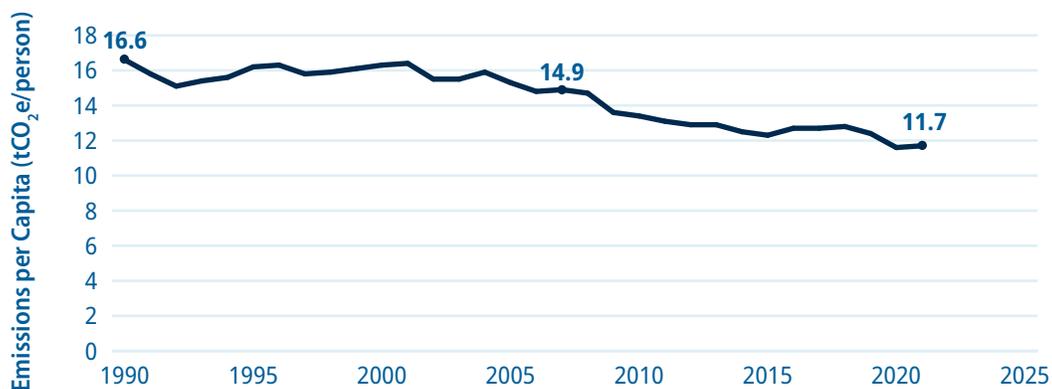
Between 2007 and 2021, B.C.'s net GHG emissions declined by 4% while GDP² grew by 35%. That means the net GHG intensity of the economy has fallen by 29%.

Net GHG Intensity of B.C.'s Economy



From 2007 to 2021, B.C. experienced significant population growth – over 20%. Net GHG emissions per person have also declined by roughly 21% between 2007 and 2021 – from 14.9 tonnes to 11.7 tonnes of CO₂e.

Net GHG Emissions Per Capita



² As measured in chained 2012 CAD. See: <https://www2.gov.bc.ca/gov/content/data/statistics/economy/bc-economic-accounts-gdp>

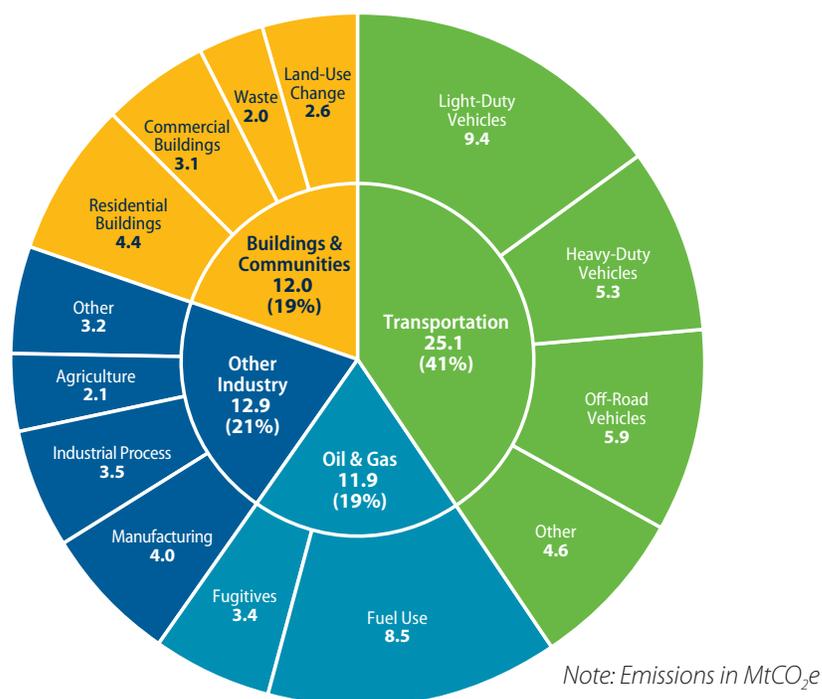
Sector-specific emissions

The transportation sector continued to account for the largest share (41%) of B.C.'s emissions in 2021, and emissions were 8% higher in 2021 than in 2007. Over this period, emissions decreased in light-duty vehicles (-3%), but increased in heavy-duty vehicles³ (+8%) and domestic marine and domestic aviation (+11%). Increased emissions from the transportation sector can partially be attributed to B.C.'s increasing population. Between 2007 and 2021, B.C.'s population increased by over 20%. Transportation emissions increased 5% from 2020 to 2021, led by heavy-duty vehicles (+7%), light-duty vehicles (+4%) and increases in emissions from domestic marine and domestic aviation (+9%).

Emissions in the industrial sector (excluding oil and gas) were down 8% compared to 2007 and up 2% from 2020. Emissions from the oil and gas sector were down 13% from 2007 and down 8% from 2020, which can be attributed to declining carbon intensity in natural gas production. Carbon intensity of natural gas production has declined as a result of reductions in methane emissions and electrification, supported by investments through the CleanBC Industry Fund and a robust regulatory framework that continues to reduce methane emissions in the sector.

Emissions in the buildings and communities sector^{4,5} were almost unchanged from 2020 and were down 6% compared to 2007 levels, driven by lower emissions from waste (-25%).

B.C.'s 2021 Gross GHG Emissions by Sector – 62.0 MtCO₂e



³ Emissions for light-duty vehicles and heavy-duty vehicles include diesel and gasoline vehicles.

⁴ Land-use change emissions are included in the buildings and communities sector because 85% of their total is from forest land converted to 'settlement' (infrastructure, municipal development, resource extraction activities, or recreation), from the decay of wood from converted forest land, or from burning firewood. Only 15% is from conversion to cropland.

⁵ The buildings and communities sector includes residential, commercial, and institutional buildings, as well as waste, and land-use change (i.e., deforestation).

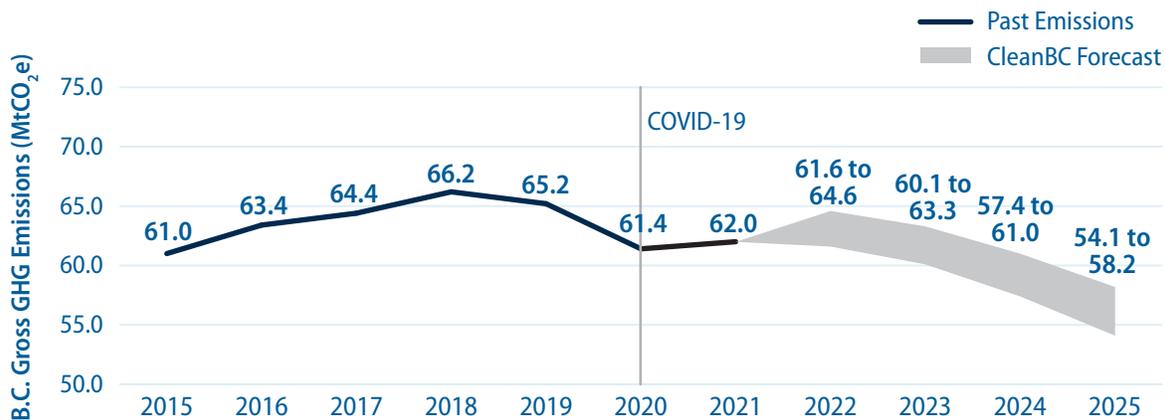
B.C.'S EMISSIONS ESTIMATES

In accordance with the *Climate Change Accountability Act*, B.C. estimates GHG emissions for the years ahead using the best available data and real-world trends in fuel prices, economic growth, and technological costs.

Near-term outlook to 2025

B.C.'s near-term outlook estimates emissions for the four years following 2021, up to and including 2025. The outlook suggests that emissions can remain below 2007 and 2018 levels and continue to trend downward. This is expected despite a likely emissions increase in 2022 following a continued return to pre-COVID-19 levels of economic activity and routines like road transportation and air travel, after which further emissions reductions are expected as CleanBC policies begin to take hold. Many CleanBC policies were newly underway in 2021. As both the number and impact of policies continue to grow once remaining commitments in the Roadmap are implemented, emissions are projected to follow a downward trajectory towards 2025.

GHG Emissions Forecast from 2022 to 2025



CleanBC projections to 2025 and 2030

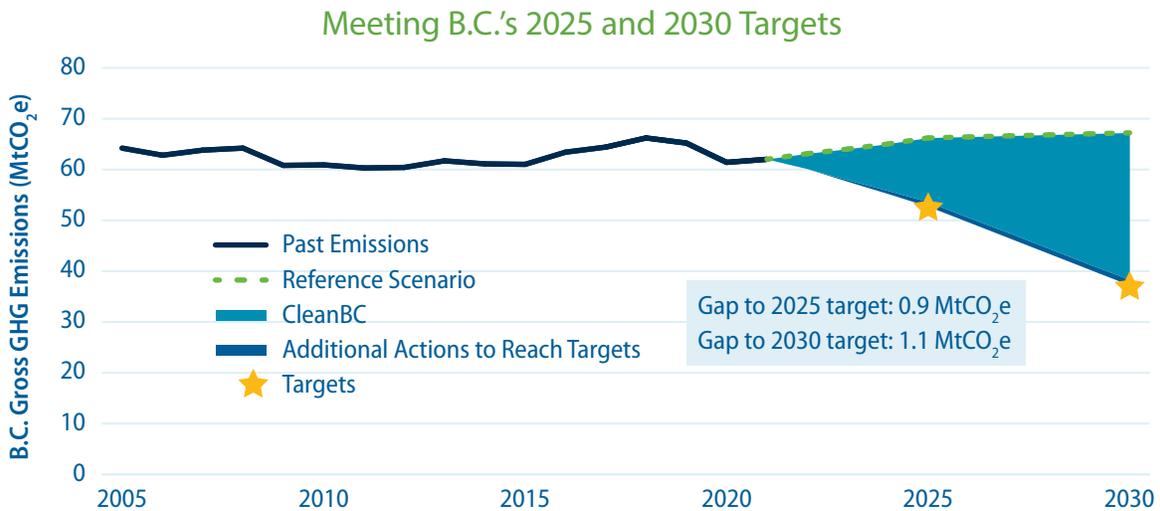
Each year, we update our model with the most recent data and revise our estimates. Appendix 1 includes modelled emissions reductions projected to 2030 by the pathways described in the Roadmap. If all CleanBC policies and programs are fully implemented, B.C. could achieve 96% of the 2030 GHG reduction target, leaving a gap to the target of 1.1 MtCO₂e in 2030.⁶ And for the 2025 target, the model suggests that with timely implementation of Roadmap policies, B.C. could achieve 91% of the 2025 target (gap of 0.9 MtCO₂e).

⁶ Policy implementation assumptions for these projections will be described further in the forthcoming release of the CleanBC Methodology Report.

2. Progress to our Targets

Differences in the estimates between this 2023 report and the 2022 report are primarily due to changes in the National Inventory Report, the Provincial Inventory and other data updates made for the modelling. The commitments in the Roadmap have not changed.⁷ Additional (or more stringent) actions may be needed for B.C. to achieve its 2030 targets. Interim targets e.g., 2025 give us time to assess our progress and recalibrate our programs as needed to maintain the focus on reducing emissions over time in order to meet our 2030, 2040 and 2050 targets. Government will closely monitor emissions trends and adjust its climate action measures accordingly.

The 2025 and 2030 targets represent a significant emissions reduction, as compared to the reference scenario – a scenario in which CleanBC was not implemented.



Many of the actions in the Roadmap (e.g., the strengthened *Zero-Emission Vehicles Act*, highest efficiency equipment standards) are expected to lead to continued declines in emissions after 2030, as well as to provide momentum for future provincial actions to meet the longer-term targets. Projections to 2040 and 2050 are inherently more uncertain and will depend on factors such as post-2030 government policy, economic and population growth and technology development. Future versions of the annual accountability report will incorporate longer-term projections or scenarios.

The table on the next page provides an update on our projected emissions reductions toward our sectoral targets for 2030. The same modelling indicates that full implementation of the Roadmap can lead to achieving the sectoral targets established in the transportation, industry, and oil and gas sectors.

⁷ Model projections in the CleanBC Roadmap to 2030, released in 2021, estimated our commitments achieving 100% of the 2030 target. In the 2022 CleanBC Climate Change Accountability Report, model projections estimated our commitments achieving 97% of the 2030 target. Annual modelling revisions include updates to input data and parameters, model structure in some years, and policy design changes for Roadmap programs for which final design decisions have been made. Policies with designs still under development maintain their original design assumptions from when the Roadmap was developed in 2021. The use of simplified policy designs can lead to modelling results showing impacts on other outcomes, GDP for example, that we do not expect to see materialize for the final policy once implemented. One of the main purposes of the policy design process is to hear from partners and stakeholders and to avoid negative outcomes for other values such as affordability, economic growth, competitiveness, equity etc.

Progress to Sectoral Targets

Sector	2030 target relative to 2007 ⁸	2030 projection (MtCO ₂ e) ⁹	2021 emissions change relative to 2007
Transportation	-27% to -32%	-30%	+8%
Buildings and Communities	-59% to -64%	-36%	-6%
Oil and Gas	-33% to -38%	-29%	-13%
Other Industry	-38% to -43%	-43%	-8%

The model projections suggest that the buildings and communities sector could achieve up to 62% of the emission reductions required to reach the 2030 sectoral target, mostly due to reduced emissions from waste and landfills. While emissions from buildings are forecast to modestly decline by 2030, these emissions are projected to decline more significantly after key buildings policies take effect in the early 2030s. Land-use change emissions, which are included in this sector, are not expected to decline significantly under the Roadmap.

These estimates were developed using modelling scenarios that assume the full and timely implementation of the emissions reduction commitments listed in Appendix 1. A number of risks may impact actual emissions reductions by 2030 and make it more difficult to achieve our targets. Some of these risks include:

- Reduced policy stringency and/or delayed timing of policy implementation compared to what was committed to in the Roadmap and what is currently being assumed in modelling.
- New large industrial projects with significant emissions not accounted for in Roadmap model projections and without planned measures to manage those emissions.
- External factors being less conducive to the shift away from fossil fuels than anticipated in Roadmap modelling (e.g., lower prices for gasoline or higher prices for electric vehicles).

There are many events outside of B.C.'s control that will impact the implementation of the Roadmap, reinforcing the importance of having a flexible and adaptive approach and a legislated accountability mechanism to track and report progress.

If several of these risks materialize together, B.C.'s projected progress to the 2030 target could be significantly impacted.

⁸ Sectoral targets are presented as ranges to avoid false modelling precision and to allow for flexibility in data uncertainty. It also allows some flexibility where emissions reductions prove easier or more challenging than anticipated in certain areas, helping to avoid constant resetting of targets.

⁹ 2030 projections for the sectoral targets do not include certain post-modelling adjustments because of uncertainty in how they should be attributed to Oil and Gas and Other Industry. Reductions from out-of-province RNG have been split between Buildings and Communities and Other Industry. The Oil and Gas sector is modelled to achieve the low end of the 2030 sectoral target, but a small portion of the emissions reductions are achieved via the adoption of biofuels for use in mobile equipment at oil and gas facilities. These emissions reductions are counted under the transportation sector as per the sectoral targets emissions accounting methodology.

Uncertainty in modelling

Modelling is used to examine the possible outcomes of CleanBC policies. Models are useful tools that can help us understand which factors are most important when designing emissions reduction policies.

While models can be technical and sophisticated, they cannot fully account for all the factors that will shape the future. These factors range from long-term energy and commodity prices, global economic conditions including shocks like a pandemic and conflict, the emergence of new technologies and industries, global and local climate/weather including extreme events, the size of B.C.'s future population, the evolving climate policies in other jurisdictions, etc. Modelling must input current data and use it to make assumptions about how these and numerous other influences on emissions and the economy will change over time. As a result, uncertainty in medium- and long-term forecasting is normal, particularly in cases like CleanBC where the goals include long-term, economy-wide transitions.

Modelling results can best be thought of as a policy development tool rather than as a predictor of the future. Model results can provide useful insights, but they represent one possible interpretation of the future based on a set of inputs. The modelling scenarios for this report used assumptions related to CleanBC policy implementation, economic and population growth, natural resource development, and more.

Modelling assumptions are updated regularly as new data becomes available and as decisions related to specific CleanBC policies are made. As a result, the modelled results will change over time. B.C. strives to improve our modelling assessments and our handling of these uncertainties, adjusting approaches as necessary, and continuing to report updated information and analyses publicly.



CLIMATE-RELATED SPENDING

B.C. first put a price on carbon pollution in 2008. Gradually increasing since then, and required to be aligned with the federal benchmark since 2019, this price on carbon pollution has shifted the behaviour of consumers, businesses and industry. Maintaining a price on carbon pollution in B.C. remains one of the most effective and economically-efficient ways to reduce GHG emissions. And having stable and predictable price growth enables consumers, businesses and industry to have more confidence to make long-term low-carbon decisions.

The table below outlines the Province's total carbon tax revenues and revenue growth for 2021/22 to 2023/24. Government collected \$2,161 million in carbon tax revenue in 2022/23 and expects to collect \$2,700 million in 2023/24. Aligning with federal carbon pricing requirements, starting April 1, 2023, B.C.'s carbon tax rate is increasing annually by \$15 per tonne until it reaches \$170 per tonne in 2030. An output-based pricing system for large industrial operations will be brought into effect April 1, 2024. (see the Industry section for more information about the new system).

To help people with costs, government has expanded the climate action tax credit. More British Columbians are now eligible to receive the tax credit, and the amounts paid have increased. These enhancements were effective July 1, 2023. The credit is now up to \$893.50 for a family of four and up to \$447 for a single person. It is anticipated that 80% of households will receive a full or partial credit by 2030.

Carbon Tax Revenues, Illustrating Tax Increase Impacts, by Fiscal Year

\$ millions	Actual 2021/22	Actual 2022/23	Forecast 2023/24
Carbon tax rate, \$ per tonne	\$45	\$50	\$65
Total carbon tax revenue	2,011	2,161	2,700
Annual revenue growth:	328	150	539
a) Revenue growth due to base (i.e., changes to consumption)	92	(59)	(104)
b) Revenue growth due to rate increases	236	209	643
Revenue growth due to rate increases – Cumulative Totals*	650	859	1,502

* Cumulative total of incremental carbon tax above \$30/tonne since increases started in 2018.

The Climate Investments table on the next page outlines expenditures for carbon tax rebates and other climate actions. Climate-related spending includes CleanBC operating and capital spending by sector (e.g., transportation, buildings, industry), Climate Preparedness and Adaptation Strategy spending, and government programs. Other climate spending includes all other operating investments such as the BC Indigenous Clean Energy Initiative; CleanBC Plastics Action Fund; Community Energy Diesel Reduction Program; and the Indigenous Food Security and Sovereignty Grant.

Government spent an estimated total of \$2.3 billion on climate-related initiatives in 2022/23. Based on investments announced in Budget 2023 and previous budgets, government spending on climate-related initiatives is expected to total about \$2.8 billion in 2023/24.

Climate Investments

Climate Action Initiatives	Actuals 2022/23	Forecast 2023/24
OPERATING INVESTMENTS (\$ MILLIONS)		
Climate Action Tax Credit	363.00	747.00
Climate Preparedness and Adaptation	438.48	134.96
Cleaner Industry	233.75	208.97
Transit Projects	142.77	147.59
Cleaner Buildings and Communities	97.24	108.51
Cleaner Transportation	116.70	90.87
Other Tax Measures	54.93	89.00
Cleaner Government and Public Sector	13.16	13.38
Other Climate Spending	379.67	70.10
TOTAL	1,839.70	1,610.38
CAPITAL INVESTMENTS (\$ MILLIONS)		
Transit Projects	377.00	1,105.00
Cleaner Government and Public Sector	55.60	81.72
Cleaner Transportation	18.88	13.00
TOTAL	451.48	1,199.72
GRAND TOTAL	2,291.18	2,810.10

Notes:

- Amounts in each year are not cumulative and totals may not add due to rounding. Amounts are not audited. The list may not capture all climate-related spending by government and this presentation may expand in subsequent reports.
- Other tax measures include PST Exemption on used ZEVs, e-bikes and heat pumps, among others. Some exemptions (e.g., PST) are largely point-of-sale exemptions – they can only be estimated unlike expenditures provided through other taxes.





3 GETTING RESULTS

This chapter offers an overview of B.C.'s climate actions that were completed during the previous fiscal year (April 1, 2022, to March 31, 2023, noted as 2022/23), as well as actions underway or planned for the current fiscal year (April 1, 2023, to March 31, 2024, noted as 2023/24). These include actions taken to manage climate risks and adapt to a changing climate (climate adaptation), as well as those taken to reduce GHG emissions (climate mitigation).

More detailed information on all current CleanBC programs and actions for climate mitigation and adaptation are provided in the [Supporting Material](#) of this report and on the [CleanBC website](#). Appendix 3 includes key indicators with the most current data used to monitor progress.

CLIMATE PREPAREDNESS AND ADAPTATION

B.C. has been actively developing and implementing climate adaptation actions across government and released the [Climate Preparedness and Adaptation Strategy](#) (CPAS) in 2022. Since then, over \$500 million in provincial funding has supported new investments to address the impacts of climate change in communities throughout the province.

As B.C. continues to prepare for climate change, CPAS is laying the foundation to further reconciliation, safeguard ecosystems, make B.C.'s economy more resilient and ensure public health and safety. Government's actions are made in collaboration with Indigenous Peoples and are guided by experiences and learnings from recent climatic events.

The Ministry of Environment and Climate Change Strategy and the Ministry of Emergency Management and Climate Readiness are working together to undertake a provincial Disaster and Climate Risk and Resilience Assessment (DCRRA) to be completed in 2024/25. The assessment is being developed in collaboration with First Nations and will build on the [Preliminary Strategic Climate Risk Assessment for BC](#) published in 2019. The provincial-scale assessment will be followed by regional-scale assessments to be completed in 2025/26. The ministries will use the results of the provincial-scale DCRRA to inform a subsequent Disaster and Climate Risk Reduction Strategy.

Actions in the Climate Preparedness and Adaptation Strategy are divided into four key pathways:



Highlights on preparedness and adaptation

Foundations for success: Partnerships, knowledge and decision-making

- Developing the framework for the DCRRA, which will allow the province to better understand and prepare for disaster and climate-related risks in B.C.
- Completing the Marine Climate Change Assessment for the South Coast of B.C., a report that contains projected climate change impacts and recommendations for adaption strategies for the region.
- Launching [ClimateReadyBC](#), a one-stop online platform to guide First Nations, local governments, private and public sector organizations and the wider public on disaster and climate risk strategies and supports. This platform will integrate with the First Nations Emergency Services Society’s work on their Lightship data and mapping platform.
- Providing funding to B.C. academic institutions to conduct research about climate change in protected areas through the [BC Parks’ Living Lab for Climate Change and Conservation Program](#).
- Expanding necessary climate modelling and professional education services by supporting the Pacific Climate Impacts Consortium to meet the growing needs of Indigenous communities and organizations, local governments, academia, businesses, and industry.
- Developing a Climate Adaptation Policy Framework to streamline climate strategies and priorities, advance climate adaptation and mitigation literacy, integrate climate change adaptation into strategic and operational decision-making, and consider climate risks and data in forest ecosystems management.
- Developing and implementing climate action plans for natural resource regions and business areas to incorporate the latest climate science, data and Indigenous knowledge and information into operational decision-making and development initiatives.

- Expanding operational flood and drought forecasting and communication services provided by the River Forecast Centre, and continuing storm surge risk management through [StormSurgeBC](#).
- Embedding climate change and environmental health as priorities in the [Province's Guiding Framework for Population and Public Health](#).
- Developing partnerships between ministries to produce guidance for incorporating climate change considerations into strategic land-use plans with Indigenous governments.
- Expanding the Provincial Hydroclimate Monitoring Programs to support local, regional and provincial water management and response to drought and flood, including multiple long-term stations for climate, snow and water-quality monitoring.

Building safe and healthy communities

- Enhancing the resiliency of local governments, First Nations and communities in responding to emergencies through the Community Emergency Preparedness Fund.
- Launching a new warning system to support people in B.C. during significant heat events – the BC Extreme Heat Alert Response System – and using it to monitor anomalous heat events in 2023.
- Developing B.C.'s Flood Strategy in collaboration with local, federal and First Nations governments, with an intentions paper and engagement activities in 2022 and 2023. The strategy aims to strengthen flood resilience through holistic, integrated flood hazard management that accounts for economic, social and environmental values.
- Developing floodplain mapping standards for B.C. as part of the new Provincial Floodplain Mapping Program.
- Enhancing the Province's capacity to prepare for and adapt to the health impacts of climate change through several activities, such as creating a new Climate Resilience Unit to lead strategic policy and initiatives on health system climate resilience.
- Engaging with Indigenous Peoples on food sovereignty and food security in a changing climate, and launching the new Indigenous Food Security and Sovereignty Grant through the New Relationship Trust.



Supporting resilient species and ecosystems

- Investing \$100 million in healthy watersheds through the Watershed Security Fund and co-developing a Watershed Security Strategy with the B.C.-First Nations Water Table to help ensure safe and clean water to B.C. communities.
- Using ClimateBC software and innovative predictive modelling techniques to identify potential and current high-risk invasive species in B.C.
- Revitalizing wild salmon populations through additional investments in the British Columbia Salmon Restoration and Innovation Fund, the Pacific Salmon Foundation, and First Nations Fisheries Council.
- Completing the Ocean Acidification and Hypoxia Action Plan that details adaptation and mitigation strategies to support the fisheries and aquaculture sectors, and funding initial, high-priority actions through the Climate Ready BC Seafood Initiative.
- Establishing the Future Forest Ecosystem Centre to help ecosystem managers account for climate risks by translating ecological knowledge into data, tools and guidance.

Investing in a climate-ready economy and infrastructure

- Improving the reliability of B.C.'s highways through the Climate Adaptation Program, including testing and refining the culvert risk management tool.
- Building climate-resilient roads using a new hydrology model designed for bridges and culverts in the southern Interior, and investigating increased climate-change vulnerability and slope-instability hazards due to legacy resource roads.
- Creating a more resilient and sustainable tourism sector through investments in the Destination Development Fund and launch of the B.C. Tourism Climate Resiliency Initiative.
- Fostering farmers' resilience through the launch of the Extreme Weather Preparedness for Agriculture Program, and a Food Security Emergency Planning and Preparedness Fund to help local government and industry associations prepare for climate-related disasters.
- Improving water management and supply for crops and livestock through investments in the new Agricultural Water Infrastructure Program.
- Launching the new B.C. Centre for Agritech Innovation to strengthen food security and develop more sustainable food systems.

Measuring progress

The Province is developing adaptation and resilience indicators for B.C.'s climate adaptation initiatives and programs, in collaboration with partners. The Province's early work has been informed by advice from the Climate Solutions Council and other external partners. Over the past year, the Province has undertaken research into local and international practices on adaptation monitoring and evaluation. Along with indicators for specific adaptation initiatives and programs, the Province is also exploring sectoral and province-wide indicators. And B.C. is collaborating with other provinces and territories as well as Canada on measuring climate adaptation and resilience, including guidance to inform monitoring. This work is critical given the wide-ranging, complex and interconnected impacts that climate change is having on B.C.

CLEANBC ROADMAP TO 2030

The Roadmap is government's plan to reduce GHG emissions and transition to a cleaner economy. The Roadmap:

- Uses a sectoral approach to organize climate actions, called pathways
- Is designed to reduce emissions and transition pathways to become less carbon intensive over time
- Makes commitments based on the availability, accessibility, and affordability of clean solutions in each pathway
- Sets a series of goals, commitments, and expected results for each pathway
- Is meant to be flexible and adaptable, recalibrating pathways where necessary and building on success areas

LOW CARBON ENERGY

CleanBC Roadmap goals: Replace fossil fuels with clean energy, including more clean electricity, renewable natural gas, low-carbon (zero or near-zero carbon) hydrogen, and liquid biofuels.

Estimated results: Current and planned actions are estimated to reduce emissions by 13.6 MtCO₂e by 2030.

Highlights on cleaner fuels

The Province committed to increasing the stringency of one of its most effective measures to reduce GHG emissions in the Roadmap: B.C.'s [Low Carbon Fuel Standard](#) (LCFS). Effective January 2023, the LCFS was amended by increasing the carbon intensity reduction requirement from 20% to 30% by 2030 (relative to 2010 levels) and raising the non-compliance penalty from \$200 to \$600 per tonne. In 2022, B.C.'s supply of low-carbon renewable gasoline and diesel grew 14% from 2021 to over 1 billion litres.

In October 2022, the government announced legislative changes to support B.C.'s hydrogen sector, creating a one-stop single-window regulator for low-carbon hydrogen development to attract more emissions-reducing projects.

Highlights on clean energy

The Province continues to support Indigenous communities with the development of clean energy projects through the [BC Indigenous Clean Energy Initiative](#). The initiative has funded more than 100 projects since 2016, with an additional \$140 million announced in 2023 to further support small-scale, Indigenous-led projects.

B.C. has about 44 remote communities, most of which are off-grid and rely on diesel fuel for electricity generation and heating. To develop clean energy and improve energy efficiency in these communities, the [Community Energy Diesel Reduction \(CEDR\) Program](#) was launched in 2022, and 12 First Nations communities throughout B.C. received funding in 2022/23.

To help coastal communities transition away from diesel power, the [Innovative Clean Energy \(ICE\) Fund](#) is supporting the Pacific Regional Institute for Marine Energy Discovery at the University of Victoria to conduct research, demonstration and testing of energy systems powered by renewable energy such as tidal, wind, solar and low-carbon hydrogen. The ICE Fund also supported several other projects in 2022/23, including Foresight Canada's acceleration of cleantech development and adoption, and the Centre for Ocean Applied Sustainable Technologies' initiative to connect B.C.'s clean technologies with B.C.'s ocean-based industries and activities.

Several innovative decarbonization projects are also underway, supported in part through joint investments by the provincial and federal governments and BC Hydro, including: the transition of Vancouver's Creative Energy district steam plant from gas to electricity, the first-in-Canada electrification of mine haul trucks and water pumps at Princeton's Copper Mountain Mine, and the complete electrification of equipment at a new underground mine - the Cariboo Gold Project.



In another boost to the supply of low carbon fuels, Canada's first stand-alone renewable diesel refinery, the Tidewater facility in Prince George, has been completed with support from the Province's LCFS Part 3 Program. Using feedstocks such as canola, tallow, used cooking oil and tall oil, the facility is expected to produce more than 3,000 barrels of low carbon fuel a day – about 170 million litres a year – as well as renewable hydrogen.

tidewatermidstream.com/our-operations

TRANSPORTATION

CleanBC Roadmap goals: Make electric vehicles more affordable, shift to renewable fuels, introduce progressively more stringent vehicle and fuel standards, invest in charging and hydrogen refuelling stations, and take an efficiency-first approach, prioritizing lowest-cost modes through compact communities, active transportation and transit.

Estimated results: Current and planned actions are estimated to reduce emissions by 7.5 MtCO₂e by 2030.

Highlights on ZEVs and charging networks in B.C.

High uptake of light-duty ZEVs continues in B.C. with steady progress towards B.C.'s 2026 target. About 30,000 new ZEVs were registered in 2022, representing 18% of all new light-duty vehicle sales in the province and the highest rate in Canada. To make the switch to electric vehicles (EVs) more affordable and accessible, in 2022 the Province provided 9,693 [Go Electric Passenger Vehicle Rebates](#), increased the maximum amount of rebates from \$3,000 to \$4,000, and introduced an income-tested program to ensure that rebates go to those who need them most.

To accelerate the switch to ZEVs, following public consultations, amendments to the *Zero-Emission Vehicles Act* and Regulation were introduced in 2023 to increase B.C.'s light-duty ZEV targets to 26% by 2026, 90% by 2030 and 100% by 2035. These amendments will help increase access and choice for ZEV buyers.

Investments in B.C.'s public charging network to support ZEV adoption are continuing through the [Go Electric Public Charger Program](#). In 2022, the number of public charging stations in B.C. grew by 24% to a total of 3,018 Level 2 charging stations and 854 fast-charging stations. And working towards a Roadmap commitment to complete B.C.'s Electric Highway charging network by 2024, approximately 70% of the core fast-charging sites were completed by the end of 2022.

The Province is also making it easier to drive ZEVs in B.C. by investing in chargers for homes and workplaces. The [Go Electric EV Charger Rebate Program](#) funded the installation of EV charging stations for 2,318 homes, 547 multi-unit residential buildings and 249 workplaces. And with the integration of funding from the Government of Canada's Zero Emission Vehicle Infrastructure Program, rebates were increased to \$5,000 per station. In May 2023, B.C. made changes to the *Strata Property Act* to make it easier for strata corporations and owners to install EV charging infrastructure in their properties.

The [Go Electric Training Program](#) continues to prepare B.C.'s workforce for the transition to ZEVs. By the end of 2022, 317 students have taken EV Maintenance Training Program courses, and more than 300 electricians have completed the EV Infrastructure Training Program.

Highlights on commercial transportation

Encouraging the use of commercial ZEVs, the [Go Electric Commercial Vehicle Pilots \(CVP\)](#) program supported 20 diverse projects in 2022/23, including fuel-cell electric terminal trucks, plug-in hybrid locomotives, and battery-electric marine vessels, forklifts, outboard motors and ice-resurfacing machines.

To further accelerate the commercialization of B.C. ZEV technologies, the [Commercial Vehicle Innovation Challenge](#) is helping innovators and entrepreneurs design and build new clean technologies for commercial vehicles, including medium- and heavy-duty vehicles and rail, aviation and marine vehicles.

B.C.'s hydrogen fuelling network continues to expand through support from the [Go Electric Hydrogen Program](#), with five stations currently in operation and six under construction.



Highlights on public transit and active transportation

Since 2020, a total of 72 battery-electric school buses have been delivered through the [Go Electric School Bus Program](#), a partnership between the B.C. government and the Association of School Transportation Services of B.C. Of 81 buses ordered in 2022 by school districts, 18 were electric. Additionally, 11 school districts are adding 21 electric buses in 2023/24.

BC Transit has committed to replacing its diesel buses through the Low Carbon Fleet Program, targeting a fully electric fleet by 2040. In the summer of 2023, BC Transit received 10 built-to-order battery-electric buses, and joint provincial and federal funding – including \$159 million from the B.C. government – will go toward 115 more buses and 134 charging points.

TransLink is working with Metro Vancouver to reduce light-duty vehicle GHG emissions in the region, aiming to run on 100% renewable energy by 2050. TransLink has a good foundation of low-carbon transit to build on: a substantially electrified SkyTrain, an electric trolley bus fleet and a compressed natural gas bus fleet that will be using 100% renewable fuel by 2024.

B.C.'s Budget 2023 committed new funding of \$100 million over three years for building active transportation networks. This targeted investment for infrastructure will increase sustainable mode share.

In 2022/23, the [Active Transportation Infrastructure Grants Program](#) funded 59 projects and 15 network plans, which support infrastructure accessibility for all ages and abilities and the shift to more active modes of transportation. The program has also undergone continuous improvements to increase access and support for Indigenous, and small rural community applicants. Active transportation initiatives include TransLink's TravelSmart4Kids to inspire children to use active and sustainable modes of transportation, and Kid Commute: A Walking School Bus Initiative with the Society for Children and Youth of BC, TransLink and others, which encourages groups of children and caregivers to walk or bike to school.



Photo credit: Jill Paterson

BUILDINGS

CleanBC Roadmap goals: Make new and existing buildings super-efficient, resilient and supplied by clean electricity or renewable fuels. Support the transition to low-carbon buildings through enhanced energy efficiency and fuel-switching programs, energy information tools and new building codes and standards.

Estimated results: Current and planned actions are estimated to reduce emissions by 0.6 MtCO₂e by 2030.

Highlights on energy efficiency measures

Switching to heat pumps for space heating and cooling has become an efficient and cost-effective way to reduce GHG emissions from buildings, while saving energy and making homes more comfortable. Adoption of heat pumps continues to rise in B.C., with 12% of households using heat pumps for primary and secondary heating in 2023 – an increase of over 70% since 2021.

In government buildings around the province, investments are being made in heat pumps, chillers, building automation, boilers, and other heating and cooling systems to support energy efficiency, save money, reduce emissions, and ensure resilience in the face of climate change. These investments are supported by rigorous energy management and building system optimization, which yields further energy and cost savings, as well as emissions reduction.

Making clean energy for homes more affordable and buildings more energy efficient, the [CleanBC Better Homes](#) and [Better Buildings](#) programs provided 13,045 residential retrofit rebates in 2022/23, with 6,018 incentives for heat pumps – 84% more than the previous year. As of March 2023, about 48,000 residential retrofit rebates, including about 11,000 for heat pumps, had been provided since the program's launch in 2018. The Better Homes program has also enhanced affordability and accessibility with a heat pump top-up for northern residents, expanded funding for income-qualified participants, and a growing network of qualified home performance contractors.

Highlights on cleaner-buildings policies

Marking a significant milestone in B.C.'s transition towards zero-carbon and energy-efficient new buildings, a new [Zero Carbon Step Code](#) introduced additional criteria that local governments can use to incentivize or require even cleaner new builds as of May 1, 2023. By the same date, amendments to the [BC Building Code](#) now require 20% better energy efficiency for most new buildings.

To help ensure that all space and water heating equipment sold in B.C. after 2030 meet the highest efficiency standards, amendments are also underway to the [Energy Efficiency Standards Regulation](#). Public consultation, followed by regulatory amendments, will help the supply chain and building owners be prepared for the 2030 standards.



The **Realizing Resilient Buildings in BC** study, conducted by BC Housing with support from the Province, identified barriers to increasing the climate-resilience of new and existing buildings. From this study, a toolkit was developed to help local governments and others enable more resilient buildings.

COMMUNITIES

CleanBC Roadmap goals: Support local climate action to reduce emissions, create new opportunities in the clean economy, and prepare communities for future climate impacts.

Estimated results: Current and planned actions are estimated to reduce emissions by 0.4 MtCO₂e by 2030.

Highlights on cleaner communities

Communities play an essential role in meeting our climate targets. Every community in the province has signed on to the BC Climate Action Charter, which demonstrates municipal commitment to climate action.

The [Local Government Climate Action Program](#) was launched in May 2022 to support local governments and Modern Treaty Nations in their climate action. In 2022/23, over \$24 million was distributed to the 189 local governments and 8 Modern Treaty Nations. About half had developed climate action plans or strategies and almost one-third more were planning to do so. The majority of community measures were in transportation, buildings, community-wide projects, and risk and vulnerability assessments.

Providing further support for local climate action, the [CleanBC Communities Fund](#) – a partnership with the federal government – invests in community infrastructure projects to generate and manage renewable energy, provide clean transportation and increase the energy efficiency of buildings. A total of \$249 million has been allocated for 59 projects as of October 2023, including retrofits for community facilities and recreation centres, clean energy infrastructure, and EV charging networks.

To highlight how creating more complete communities can support many community goals (including climate action) the [Complete Communities Guide and Program](#) were launched in April 2023. The Program's first intake provided 34 local governments and Modern Treaty Nations with funding to assess their community's strengths, opportunities and challenges.



Penelakut Solar Resilience Initiative

The Penelakut on-reserve community centre, which includes a gymnasium and an elementary school, was upgraded with solar photovoltaic panels (53.6 kW) and backup batteries (27 kWh). The project provides clean energy as well as back-up power for the building's use as an emergency gathering place.



Highlights on reducing waste

Developing a circular economy and reducing waste are key elements of the Roadmap. Supported by the [CleanBC Plastics Action Plan](#), B.C. continues to invest in innovative projects that reduce plastic waste through reuse and increased use of post-consumer recycled plastic through processing and manufacturing. To date, the [CleanBC Plastics Action Fund](#) has supported 23 projects.

The [Clean Coast, Clean Waters Initiative](#) clears marine debris and derelict vessels while creating more than 1,700 well-paying jobs. To date, the Initiative has removed more than 1,500 tonnes of marine debris, 64% of which has been recycled or up-cycled into products such as pellets that can be used to create new plastic materials.

The CleanBC [Organics Infrastructure and Collection Program](#) is supporting 28 projects, including 19 for residential organic waste collection and nine for organics processing facilities, seven of which are led by Indigenous communities. The Program is expected to divert about 472,000 tonnes of organic waste from landfills by 2030.

Through joint federal and provincial funding in the [Organics Infrastructure Program](#), 17 additional projects for organic waste processing are underway, with three led by Indigenous communities. By 2030, the funded projects are expected to divert a further 669,000 tonnes of organic waste from landfills.



INDUSTRY, INCLUDING OIL AND GAS

CleanBC Roadmap goals: Encourage more industrial facilities to connect to clean electricity, use more low-carbon fuels such as hydrogen, explore how best to capture and safely store or use carbon, and reduce industrial methane emissions.

Estimated results: Current and planned actions are estimated to reduce emissions by 11.1 MtCO₂e by 2030.

Announced in March 2023, the Province's [New Energy Action Framework](#) aims to ensure that oil and gas projects fit within B.C.'s climate commitments and creates new opportunities in clean energy and technology. Under this new framework, B.C. will:

- Require all proposed LNG facilities in or entering the environmental assessment process to pass an emissions test with a credible plan to be net zero by 2030.
- Put in place a regulatory emissions cap for the oil and gas industry to meet B.C.'s 2030 emissions target for the sector (33 to 38% reduction in GHG emissions relative to 2007 levels).
- Establish a Clean Energy and Major Projects Office to fast-track investment in clean energy and technology.
- Create a BC Hydro task force to accelerate the electrification of B.C.'s economy by powering more homes, businesses and industries with renewable electricity.

In November 2022, B.C. passed the *Energy Statutes Amendment Act*, which added the regulation of hydrogen production and associated activities to the BC Energy Regulator's responsibilities. The amendments provide industry with a single-window regulator for permitting and more clarity on the primary regulator for potential hydrogen-production facilities.



Highlights on cleaner industry

Fulfilling a key Roadmap commitment to enhance B.C.'s existing carbon pricing for industry, the Province has designed a new made-in-B.C. [Output-Based Pricing System](#) (B.C. OBPS) for large industrial emitters. This new system will enable industry to reduce their emissions while staying competitive, and ensures that B.C.'s carbon pricing regime meets federal stringency requirements. The transition to this new approach is underway and the B.C. OBPS will take effect on April 1, 2024.

The [CleanBC Industry Fund](#) (CIF) continues to support projects that reduce GHG emissions from large industrial operations. In 2022, CIF supported 41 new projects, including 17 emission performance, six innovation accelerator and 18 feasibility study projects. The 2022 emissions performance projects are expected to reduce emissions by about 2.5 MtCO₂e over a 10-year period. For example, Crew Energy is replacing natural gas driven compressors and generators with electric compressors and connecting the Wilder facility to the B.C. electricity grid in the Northeast; Copper Mountain Mine is replacing diesel mining shovels, drills and other equipment with electric equipment in the Thompson-Okanagan; and Nanaimo Forest Products is demonstrating blending of hydrogen produced by electrolysis into its lime kiln.

The Province is developing a regulatory framework to reduce methane emissions from the oil and gas sector by 75% by 2030 (below 2014 levels) and move towards the near elimination of all industrial methane emissions by 2035. The BC Energy Regulator launched consultation on the regulatory measures in early 2023 with environmental non-governmental organizations, industry organizations, First Nations and the public; regulatory measures will be in place by 2024. This framework also builds on the commitment to reduce methane emissions in the oil and gas sector by 45% by 2025. This year, B.C. fulfilled the commitment by reducing methane emissions by over 50%.

B.C. is also making strides to improve the measurement and monitoring of methane emissions. In partnership with the United Nations Environment Program and Carleton University, the Province initiated focused methane measurement campaigns for the oil and gas sector in 2022. These campaigns aim to support emissions detection, regulatory compliance, inventory development and maintenance, and policy development work for meeting the methane emissions reduction targets for 2030 and 2035. The campaigns have identified sources of methane emissions (e.g., unlit flares and controlled tanks) that will be considered in the proposed regulatory framework.

Highlights on carbon capture, utilization and storage

In 2022, amendments to the *Petroleum and Natural Gas Act* clarified government's authority to use underground storage space and to regulate the safe and effective storage of carbon dioxide from any source, which is critical for having carbon capture and storage projects in B.C.

In January 2023, government released the [Northeast BC Geological Carbon Capture and Storage Atlas](#) in partnership with GeoscienceBC and the B.C. Centre for Innovation and Clean Energy. The Atlas provides detailed information about geological carbon storage capacity in Northeast B.C.

The CleanBC Industry Fund is supporting a carbon-utilization hub in the cement sector, which uses captured carbon to create value-added products. The Fund is also supporting Teck Metals to investigate carbon utilization and storage opportunities at its Trail smelter facility.

BIOECONOMY – FORESTRY AND AGRICULTURE

CleanBC Roadmap goals: Support producers to increase GHG-efficient practices and explore measures to enhance carbon sequestration. Produce bioproducts at scale and provide high-quality jobs in the bioproducts sector.

Estimated results: Current and planned actions are estimated to reduce emissions by 0.3 MtCO₂e by 2030.

Highlights on bioproducts and forest-based solutions

The Province continues to work on eliminating the burning of slash piles (the residues from forest harvesting) and making better use of residual fibre. In 2022/23, the Forest Enhancement Society of BC, in partnership with the Province, launched a [Fibre Utilization Funding Program](#) that will invest in projects focused on increasing the use of residual fibre by non-lumber-producing facilities, use of fibre from fire- and insect-damaged stands, and minimizing emissions associated with open burning.

Indigenous partners are supported to commercialize and scale up the production of innovative forest-based products through the [Indigenous Bioproducts Accelerator Program](#) – an expansion of the Indigenous Forest Bioeconomy Program. Current projects include a collaboration between a First Nation and university researchers to develop biodegradable packaging material (biofoam), and conversion of wood waste and low-value wood products into high-value alternatives such as fencing, siding and other finishing products.

Enhancing forest management and recognizing that healthier trees live longer and store more carbon, B.C. is investing in reforestation, fertilization, tree improvement and road rehabilitation. B.C. and Canada entered into a two-year agreement to plant 37 million trees through the 2 Billion Trees Program. Approximately 8 million trees were planted in 2022/23, and the rest will be planted in 2023/24. The Forest Investment Program, which is partially funded through the 2 Billion Trees Program partnership, is planning to support a total of 40-45 million new trees in the coming years.



Highlights on innovation in agriculture

The [Beneficial Management Practices Program](#) is helping farmers reduce the costs of electrification, biogas production, manure and nutrient management, and carbon sequestration. In 2022/23, the program funded 524 projects. Other government programs have directly resulted in the establishment of more than 1,616 acres of cover crops, and the restoration or protection of 31 kilometres of shoreline in B.C. farming areas.

The Canada-BC Agri-Innovation Program is funding diverse projects that accelerate agricultural innovation while making the sector more sustainable and resilient. These include a low-emission dairy barn that will prevent methane release into the atmosphere and allow farmers to control the barn environment and keep cattle safe during extreme weather, an electric mini-tractor that expedites planting and harvest, and research into the use of biochar to store carbon while improving soil's resilience to drought.

In 2023, the [Minister's Advisory Group on Regenerative Agriculture and Agritech](#) delivered a final report to government that includes recommendations to promote innovation, technology adoption and regenerative practices in B.C.'s food system.

The [B.C. Centre for Agritech Innovation](#) was launched to accelerate research and development of new agritechnologies, while fostering collaborations between academia, farmers and technology companies. The Centre is currently supporting several projects that enhance traditional agricultural productivity and food security, such as Lucent BioSciences' new fertilizer that improves yield and soil health while sequestering carbon.



PUBLIC SECTOR LEADERSHIP

The Province is making progress towards its Roadmap commitments on public sector leadership. Through setting ambitious targets, testing novel approaches and implementing innovative policies, the B.C. public sector continues to play a leadership role in climate action. The Province has committed to reducing emissions from buildings and fleets by 50% and 40% below 2010 levels, respectively. Key Roadmap commitments on public sector leadership include factoring climate considerations into government decision-making, achieving 100% light-duty ZEV acquisitions by 2027, developing a comprehensive strategy to transform the existing buildings portfolio to a low-carbon and resiliency standard, and moving to zero-carbon new buildings by 2027.

A key component of the public sector leadership strategy is the [Carbon Neutral Government Program](#). Each year since 2010, the Province has achieved carbon neutral operations across public sector organizations (PSOs) that include health authorities, school districts, universities, colleges, Crown corporations and government offices.

Highlights from the public sector

In 2022, B.C. PSOs generated 768,908 tonnes of GHG emissions – an increase of 4% from 2021, but a decrease of almost 9% from the 2010 baseline year. Building emissions from PSOs have seen an 11% reduction since 2010, whereas the public sector's fleet emissions have remained largely unchanged. 2022 saw a significant uptick in ZEV adoption with the acquisition of over 170 such vehicles, bringing the public sector's fleet total to more than 500 ZEVs.

Through the Carbon Neutral Capital Program, the Province funded projects at post-secondary institutions, school districts and health authorities that save energy and reduce emissions, such as heat recovery ventilation, district energy systems, solar hot water and photovoltaic systems, lighting upgrades, zero-emission fleets and EV charging stations. For example, in 2022/23, the Program provided funding to the Clearwater Renewable Energy Project at Dr. Helmcken Memorial Hospital. The new geo-exchange heat pump system, controls, and building infrastructure are expected to decrease the hospital's emissions by 65% (174 tonnes CO₂e per year) while saving over \$80,000 per year in energy costs.





4 WORKING TOGETHER

Partnerships play a key role in achieving emissions reductions and climate resiliency while also building a clean economy. The Province is focused on strengthening existing relationships with Indigenous leaders and communities, various levels of government, business and industry, and on establishing new collaborations within the province, throughout Canada and around the world.

FORGING SHARED PATHS WITH INDIGENOUS PEOPLES

The Province is working together with First Nations as we develop legislation, policy and programs. The Province also works closely with Indigenous organizations such as the First Nations Leadership Council (FNLC) and the First Nations Energy and Mining Council on the [Indigenous Clean Energy Opportunities](#) program to foster Indigenous participation in the clean energy sector, as well as to align the Province's clean energy policy and legislation with the United Nations Declaration on the Rights of Indigenous Peoples.

In collaboration with the FNLC Technical Working Group on Climate Change and the Indigenous Climate Adaptation Working Group, draft measures and indicators were developed to measure progress on the implementation of Action 2.12 of the Declaration Act Action Plan:

Collaboratively develop and implement CleanBC and the Climate Preparedness and Adaptation Strategy to support resilient communities and clean economic opportunities for Indigenous Peoples that benefit our shared climate and advance reconciliation.

In spring 2022, the [BC First Nations Climate Strategy and Action Plan](#) was released. Government is working with the FNLC Technical Working Group on Climate Change to identify and update priority areas of alignment and cooperation between the BC First Nations Climate Strategy and Action Plan, CleanBC and the Climate Preparedness and Adaptation Strategy.

4. Working Together

The Province has also provided funding to support the Indigenous Climate Resilience Capacity-building Pilot Project. The Pilot has three areas of focus including: enhancing staff capacity (through hiring regional coordinators), training and skills development, and development of a peer-mentoring network to support First Nations in learning from one another to advance climate action. Two organizations have partnered to deliver the Pilot including First Nations Emergency Services Society and Coastal First Nations – Great Bear Initiative.

As part of broad ongoing efforts to support Indigenous climate resilience, the Province of B.C. hosted a second Indigenous Climate Resilience Forum in March 2023, following the first one hosted in 2022. The Forum is one of many ways the Province is connecting with Indigenous Peoples throughout B.C. to listen, learn, and collaborate on climate preparation and adaptation. A third Forum is planned for February 2024.

During 2023, the Ministry of Environment and Climate Change Strategy has been engaging with Indigenous Peoples on industrial climate policies and the Province's net-zero targets. Reducing GHGs and advancing clean technologies to transition to a net-zero future is a shared priority between First Nations and the Province, consistent with the Province's Roadmap and the BC First Nations Climate Strategy and Action Plan. The Province has also engaged with First Nations during 2023 on development of the Forest Carbon Offset Protocol 2.0. During 2023, the Province is also seeking Indigenous perspectives on a Carbon Capture, Use and Sequestration Protocol. All of these initiatives will help to advance our shared emissions reduction goals and move towards a net-zero future.

The Province also continues to closely partner with local governments and Modern Treaty Nations through the [Local Government Climate Action Program](#). From January to March of 2023, the Province held nine hybrid workshops with local governments from around B.C. and an online workshop for Modern Treaty Nations; feedback from these sessions led to improvements for the program's second year.

Many other initiatives across government are also advancing climate mitigation and adaptation in partnership with Indigenous Peoples.

BENEFITING FROM INDEPENDENT EXPERT ADVICE

The independent Climate Solutions Council is a key provincial partner, providing valuable advice to government on how to best achieve its climate goals. In 2022/23, the Climate Solutions Council wrote three letters of advice (Appendix 4) to government on carbon pricing, adaptation and net-zero new industry, and produced its annual report. The Council's letters of advice, along with input from other partners, are helping to inform government's implementation of the Roadmap and the Climate Preparedness and Adaptation Strategy. Climate Solutions Council advice (letters and annual reports) is available on its [website](#).

ENGAGING WITH INTERESTED PARTIES

Between the summer of 2022 and the spring of 2023, the Province engaged with interested parties on proposed amendments to the ZEV Act and Regulation and commercial ZEV requirements, and consulted on the Clean Transportation Action Plan (CTAP). Parties included Indigenous groups, local governments, transit agencies and associations, vehicle manufacturers, environmental non-governmental organizations, industry and academia. The engagement involved a variety of activities and sessions, including meetings, webinars and a CTAP workshop at the annual convention of the Union of BC Municipalities.

In the spring of 2022, the Province held virtual engagement sessions on carbon pricing policies and programs with representatives from First Nations, equity-seeking groups, and industry. Their feedback informed decisions around meeting the minimum carbon price path set out by the federal government, the development of the B.C. Output-Based Pricing System and increases to the [climate action tax credit](#).

In December 2022, the Province hosted its annual Public Sector Climate Leadership Symposium. More than 200 participants from B.C.'s public sector organizations – including health authorities, post-secondary institutions, school districts and Crown corporations – took part in nine virtual sessions on topics such as the [CleanBC Go Electric Fleets Program](#), the [Existing Buildings Renewal Strategy](#) and the Climate Resilience Framework.

The formal engagement work that is undertaken by the Province, and the feedback that is gained through these sessions, is instrumental in helping develop climate policy, programs and processes. Additionally, the Province works closely with interested parties outside of formal engagements to ensure climate policy avoids unintended consequences and considers a wide diversity of perspectives and needs.

GOVERNMENT COLLABORATION

B.C. continues to work closely with the Government of Canada and provincial and territorial governments to support climate mitigation and adaptation efforts through the Canadian Council of Ministers of the Environment. B.C. also works closely with the Government of Canada to advance shared high-ambition climate priorities. The Province continues to leverage federal funding for low-carbon, resilient communities through the [Investing in Canada Infrastructure Program](#), and the [Low Carbon Economy Leadership Fund](#).

In June 2023, the Canada-British Columbia Regional Energy and Resource Table released a [Framework for Collaboration on the Path to Net-Zero](#) (Collaboration Framework) through which the provincial and federal governments and the FNLC will work together to build a net-zero economy. B.C. was the first of the provinces and territories to release a Collaboration Framework with Canada. The framework identifies strategic areas of opportunity, including electrification, clean fuels/hydrogen, and critical minerals that can further build B.C.'s competitive advantage in the global transition to a clean economy.

Additionally, the Province continues to partner with western U.S. states through the [Pacific Coast Collaborative](#). In 2022, B.C., Washington, Oregon and California signed a renewed statement of cooperation focused on accelerating the transition to a low-carbon economy, investing in climate infrastructure and protecting communities from climate effects.

B.C.'s climate leadership was recognized and highlighted around the world through attendance at international climate forums, including the United Nations Climate Change Conference of Parties and Climate Week New York. B.C. continues to foster partnerships through membership in international climate groups, including the Pacific Coast Collaborative, Under2 Coalition, Transport Decarbonisation Alliance, Ocean Acidification Alliance, Carbon Pricing of the Americas, and International Zero-Emission Vehicle Alliance. Through these groups, the Province can take part in information-sharing and champion climate action beyond B.C.'s borders

Appendix 1: CleanBC Roadmap to 2030 Greenhouse Gas Reductions by Pathway

Modelled GHG Reductions (MtCO₂e) in 2030 are relative to a reference scenario. The reference scenario forecasts provincial emissions in the absence of any CleanBC or Roadmap climate policies. This differs from the approach used in the Roadmap, which calculated GHG reductions relative to CleanBC Phase 1.

GHG Reductions in 2030 (MtCO ₂ e)		
Reduction of GHGs for Economy-Wide Initiatives		
Increase the price of carbon pollution	Meet the federal benchmark carbon price of \$170/t by 2030	-4.7
Reduction of GHGs for Low Carbon Energy Initiatives		
Enhance the Low Carbon Fuel Standard	Require a 30% reduction in carbon intensity of fuels by 2030	-13.6
	Expand to include marine and aviation fuel	
	Double production capacity for made-in-B.C. renewable fuels to 1.3bn litres	
Reduce emissions from natural gas	New GHG cap for natural gas utilities with a variety of compliance options	
Increase benefits of electrification	Implement a 100% Clean Electricity Delivery Standard by 2030	
	Align with B.C. Hydro's electrification plan	
	Provide clean electricity to planned natural gas production in the Peace Region	
	Increase access to clean electricity for large operations with new transmission lines and connectivity to existing lines	
Reduction of GHGs for Transportation Initiatives		
Accelerate EV adoption	By 2030, ZEVs will account for 90% of all new light-duty vehicle sales in the province	-7.5
	New ZEV targets for medium- and heavy-duty vehicles to be developed in alignment with California	
	Continue to provide purchase rebates for light-duty vehicles, and expand incentives for clean bus and heavy-duty vehicle purchases	
	Expand the charging network with home, work and public fast-charging stations and additional hydrogen fuelling stations	
Other transportation actions	Reduce distances travelled by light-duty vehicles by 25% relative to 2020	
	Encourage increase in mode shift to walking, cycling and transit to 30% by 2030	
	Reduce the energy intensity of goods movement by 10% relative to 2020	
	Increase tailpipe emissions standards for light-, medium- and heavy-duty vehicles sold after 2025	

Reduction of GHGs for Buildings & Communities Initiatives

New carbon pollution standard in BC Building Code	Carbon pollution standards introduced for new buildings in 2024, with zero-carbon new construction by 2030	-1.0
Highest efficiency standards	After 2030, all new space and water heating equipment sold and installed in B.C. will be at least 100% efficient (i.e., electric resistance heating, heat pumps, and hybrid electric heat pump-gas systems)	
Reduce waste and turn it into a clean resource	Help communities to achieve 95% organic waste diversion for municipal waste	

Reduction of GHGs for Industry Initiatives

Industrial carbon pricing	Introduce an Output-Based Pricing System that follows the federal carbon price path and ensures a price incentive for industrial emitters to reduce their GHG emissions through a performance-based system	-11.1
Enhance CleanBC Program for Industry	Enhance industry program to reduce GHGs and support a strong economy	
Reduce methane emissions	Introduce regulations to reduce methane emissions from the upstream oil and gas sector by 75% by 2030 (relative to 2014) and to nearly eliminate methane emissions in oil and gas, mining, industrial wood waste and other sectors by 2035	
Make new industrial operations 'net-zero ready'	New large industrial development to submit plans to achieve net-zero emissions by 2050 and show how they align with interim 2030 and 2040 targets	
Reduce oil and gas sector emissions	Implement programs and policies so that oil and gas emissions are reduced in line with sectoral targets (reduction of 33-38% below 2007 levels by 2030)	

Reduction of GHGs for Other Measures

Other	Other measures include reducing agricultural and deforestation emissions, adopting the federal halocarbon regulations, and benefiting from funding announced in the federal emissions reduction plan	-1.9
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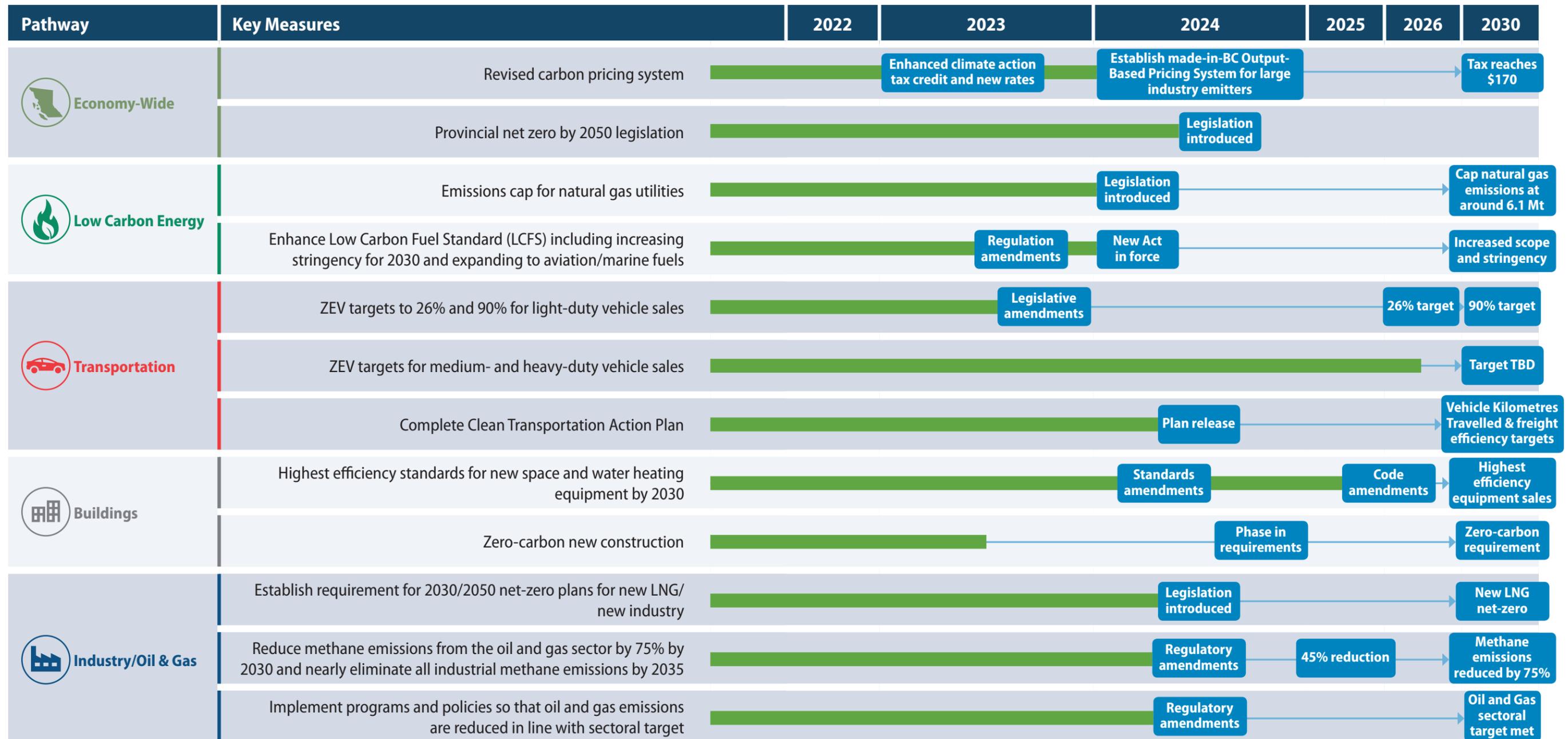
TOTAL GHG MTCO₂E REDUCED IN 2030*

-27.9

The legislated target for 2030 is 38.3 MtCO₂e (or a reduction of 28.9 MtCO₂e from the 2030 reference case). Modelling demonstrates that B.C.'s climate plan achieves 96% of the 2030 target, leaving a gap to target of 1.1 MtCO₂e.

**Note: Individual pathway reductions do not add up to the total because of interaction effects between policies that target the same emissions. Policy overlap may increase the likelihood that emissions reductions will occur but may also increase policy compliance costs. Policies may also span multiple sectors, beyond where they are categorized in this appendix. For example, the emissions-reduction estimate for the GHG cap for natural gas utilities (categorized under low carbon energy) includes reductions in both industry and buildings.*

Appendix 2: CleanBC Roadmap to 2030 Implementation Plan



Timing for introduction of legislation and regulatory amendments is anticipated and subject to Cabinet decision and legislative timetable.



Appendix 3: List of B.C. Indicators

Category	Indicator	Measure	Period ¹	Historical ²	Previous ³	Current ⁴	% Change from Historical	% Change from Previous Year
Economic Transition⁵	Net GHG intensity of the economy	tCO ₂ e/\$million GDP (chained 2012 CAD)	2007-2021	305.0	225.0	216.0	-29.2%	-4.0%
	Net GHG emissions per person	tCO ₂ e/British Columbian	2007-2021	14.9	11.6	11.7	-21.5%	+0.8%
	Net provincial GHG emissions	Million tCO ₂ e	2007-2021	63.7	59.7	60.9	-4.3%	+2.2%
Transportation	Renewable fuel content in transportation fuels	Percent renewable content in transportation fuels	2010-2022	3.9	10.5	10.8	+176.9%	+2.9%
	Proportion of light-duty electric vehicle sales	Percentage of ZEVs as a proportion of light-duty vehicle sales	2011-2022	0	13	18	+1810.0%	+39.2%
	Electric vehicle registrations	Light-duty ZEVs registered in BC	2011-2022	97	79,587	109,873	+1131.7%	+38.1%
	B.C.'s Electric Highway completion	Number of fast charging sites along core 'Electric Highway' network	2018-2022	71	101	119	+67.6%	+17.8%
	Public charging stations - fast chargers	Percentage of 2040 public fast charging requirements complete	2016-2022	1.0	10.5	11.3	+1030.0%	+7.6%
	Public charging stations - all levels	Number of public EV charging stations in the Province	2016-2022	781	3,119	3,872	+395.8%	+24.1%
	Renewable fuel supplied in B.C.	Million litres	2007-2022	326.4	900.9	1,024.7	+213.9%	+13.8%
	Annual public transit ridership ⁶	Total passenger trips, millions	2020-2022	27.0	38.2	49.2	+82.2%	+28.8%
Buildings	Residential heat pumps	Percentage of households with heat pumps as a primary or secondary heating	2007-2023	3.0	7.0	12.0	+300.0%	+71.4%
	Better Buildings fuel-switching projects	Lifetime million gigajoules of natural gas expected to be displaced from approved CleanBC fuel-switching projects	2019-2023	2.2	2.7	4.9	+122.7%	+81.5%
	Clean electricity adoption	Percentage of households that use clean electricity as primary heating	2010-2020	36.0	Not available	41.0	+13.9%	Not available

Category	Indicator	Measure	Period ¹	Historical ²	Previous ³	Current ⁴	% Change from Historical	% Change from Previous Year
	Energy intensity of residential buildings	Gigajoules of energy use per square-metre of floorspace for residential buildings	2007-2020	0.7	0.5	0.5	-28.6%	0.0%
	Energy intensity of commercial buildings	Gigajoules of energy use per square-metre of floorspace for commercial buildings	2007-2020	1.3	1.1	1.2	-7.7%	+9.1%
	Energy intensity of affordable housing	Gigajoules of energy use per square-metre of floorspace for affordable housing	2010-2022	0.8	0.8	0.7	-12.5%	-12.5%
Communities	Communities that have developed climate action plans	Number of communities participating in LGCAP that have developed climate action plans	2021-2022	89	89	97	+8.9%	+8.9%
	Communities that are undertaking or have completed a risk assessment	Number of communities participating in LGCAP that have completed a risk assessment or Hazard Risk Vulnerability Assessment	2021-2022	62	62	79	+27.4%	+27.4%
Waste	Municipal solid waste disposal	Kilograms of waste disposed per British Columbian	2007-2021	703.0	499.0	506.0	-28.0%	+1.4%
	Population covered by organic waste restrictions	Percentage of population covered by an organic waste restriction	2007-2021	3.0	74.1	75.9	+2430.0%	+2.4%
	Landfill gas capture	Percentage of landfill methane flared, used, or oxidized	2007-2021	25.0	39.9	45.0	+80.0%	+11.3%
Industry	Emissions from industry	Million tCO ₂ e from large industrial reporters in BC	2012-2022	19.3	17.9	18.4	-4.7%	+2.8%
	Industry investment to reduce GHGs ⁷	Millions committed by industry to emission reduction projects through the CleanBC Industry Fund	2019-2022	39.0	91.3	157.9	+304.9%	+72.9%
	Reported fugitive and vented methane emissions from oil and gas	Million tCO ₂ e of methane emissions	2014-2021	1.9	1.0	0.9	-52.6%	-18.2%

Category	Indicator	Measure	Period ¹	Historical ²	Previous ³	Current ⁴	% Change from Historical	% Change from Previous Year
Public Sector	Emissions from B.C. Public Sector	Kilotonnes of CO ₂ e reported by the BC Public Sector	2010-2022	846.0	737.0	768.9	-9.1%	+4.3%
	Emissions from public sector buildings ⁸	Kilotonnes of CO ₂ e reported by the BC Public Sector	2010-2022	663.1	567.3	593.2	-10.5%	+4.6%
	Emissions from public sector fleets ⁹	Kilotonnes of CO ₂ e from public sector fleets	2010-2022	154.5	153.3	158.7	+2.7%	+3.5%

¹⁻⁴ Period: Historical year to current year; Historical: the first year indicator data was collected/made available; Current: the most recent year indicator data was collected/made available; Previous: the year before the current year.

⁵ Data source: B.C. Provincial Inventory. The Provincial Inventory is largely based on the federal National Inventory Report, released annually. The most recent National Inventory Report included changes in methodology and data improvements that affected several prior years. Data from the historical and previous year have been updated to reflect these changes, and will not match the data reported in previous accountability reports.

⁶ Data source: BC Transit internal tracking data; total passenger trips, including taxi.

⁷ Industry investment calculation was updated this year to include all streams of the CIF program for the sake of completeness. In previous years, investments were calculated based on only Emissions Performance and Innovation Accelerator funding streams.

⁸ Not weather normalized.

⁹ The methodology to calculate fleet emissions was updated in 2022, reflecting the improved emissions performance of newer vehicles. Reported emissions from public sector fleets in 2021 have been updated as a result. For more information see the [Methodology for Quantifying Greenhouse Gas Emissions for Public Sector Organizations](#).

Appendix 4: Climate Solutions Council Letters to Government (2022/23)

- Council advice on B.C.'s carbon tax review 44
- Council advice on Net-Zero New Industry 47
- Council advice on the implementation of B.C.'s CPAS 50



B.C. Climate Solutions Council

The Honourable George Heyman

Minister, Environment and Climate Change

October 12, 2022

Carbon pricing has been a centrepiece of British Columbia's climate plan since the province pioneered its carbon tax in 2008. Carbon pricing is one of a handful of policies expected to deliver significant reductions in B.C.'s 2030 Roadmap and plays a critical role in amplifying other policies. The Climate Solutions Council is strongly supportive of carbon pricing, and of steadily increasing the carbon price to reach at least \$170/tonne in 2030.

The federal review of carbon pricing across Canada requires B.C. to demonstrate that its carbon tax regime meets the post-2022 federal benchmark under the Greenhouse Gas Pollution Pricing Act. In addition, the increasing carbon price and shifts in carbon pricing approaches in other provinces prompt consideration of some aspects of B.C.'s carbon pricing approach for both individuals and business. The Council offers the following advice, in each case highlighting a guiding principle.

1. Transparency

Transparency is critical to British Columbians' understanding of the costs and benefits of carbon pricing and to maintaining their trust in a policy central to B.C.'s climate plans. However, British Columbians are not well informed about the purpose and impacts of the carbon tax.

Misinformation about, and misunderstanding of, carbon pricing is rife across Canada and beyond. There is risk of even greater misunderstanding in the wake of unrelated fuel price increases and with cross-provincial differences in carbon pricing.

We urge the province to undertake annual reporting of how much carbon tax revenue is being collected from different categories of taxpayers (e.g., households, small and medium enterprises, industry), **variation among households** (e.g., based on income quintiles and urban vs. rural location), **and how carbon tax revenues are being used**, including how much is returned to each category of taxpayer and in what form (including the original, lasting tax cuts).

As the federal government moves to quarterly dividend payments in provinces without their own carbon pricing schemes for households (Alberta, Saskatchewan, Manitoba, and Ontario), British Columbians may wonder why they are not receiving rebates of similar magnitude. In addition to the annual report recommended above, we encourage the province **to be proactive in explaining how B.C.'s carbon pricing scheme differs from that of other provinces'**, including that British Columbian households typically pay much lower carbon taxes compared to households in provinces with more emissions-intensive economies.

2. Fairness

The impact of a rising carbon price can have a differential effect on households and small businesses depending on their location, income level, availability of lower-emission products and activities, and other factors. **It is critical to ensure regional fairness, in addition to other dimensions of fairness**, such as income, as highlighted by the previous Climate Solutions Council. Any differential rebates of carbon taxes should be based on actual, rather than perceived, costs of the tax.

3. Supporting Low-Carbon Choices

Households will also benefit from **clearer advice on means of calculating how they can reduce their carbon tax bills** (e.g., via energy and fuel efficiency, fuel-switching for home heating, or purchase of electric vehicles and bicycles). This will be especially important when households purchase long lasting equipment since they currently lack clarity with respect to the longer-term impacts on fuel prices of carbon pricing and other policies in the CleanBC Road Map.

4. Predictability

We applaud the government's commitment to maintaining the carbon price signal and schedule of increases despite pressures to reduce the rate during the current period of fuel price and general inflation. There are other means to address inflationary pressures and sustaining the incentives to reduce greenhouse gases is vital, and, in the long-term, will contribute to B.C.'s energy security and affordability.

5. Competitiveness

If the system is well designed, "output-based" carbon pricing can be a valid mechanism to mitigate the risk of emissions leakage and ensure competitiveness of industry in British Columbia. British Columbia must **adjust its carbon pricing scheme for large industrial sources to ensure compliance with the federal output-based benchmark as a minimum**.

Consistent with the principle of transparency, however, evidence should be made public to justify the need for and level of carbon tax payment baselines (or rebate benchmarks) for carbon-intensive and emissions-intensive industries.

Revision to B.C.'s carbon pricing policy also needs to align with the anticipated federal cap on oil and gas emissions, which will decline to net zero by 2050. Revisions to industrial carbon pricing must also align with the CleanBC Roadmap commitment to ensure oil and gas and other industries meet their sector emission targets by 2030. Revisions to benchmarks and measures to protect competitiveness should also take into account increasingly stringent policies of global competitors expected under the Paris Agreement.

6. Long-term Vision

The CleanBC Roadmap is an important step on a longer-term path to net-zero carbon. Our climate policies need to look not only to the 2030 targets but beyond to ensure that all sectors reduce their emissions to significantly advance not only B.C.'s, but also the global transition to net zero consistent with the Paris Agreement to hold global warming to well below 2 degrees Celsius. As one part of our transition, carbon tax revenues from industry remaining after supporting trade-exposed, emission-intensive sectors should be deployed to accelerate the substitution of low-GHG emitting industries in place of high-emitting sectors.

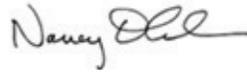
2022 is a critical year for developing and implementing revised and updated policies outlined in the CleanBC Roadmap to ensure B.C. meets its 2030 climate target and is on track to meet those in 2040 and 2050. With that in mind, we look forward to providing your government with further advice later this year.

Thank-you for your time and we would be happy to work with the Climate Action Secretariat on the above advice to ensure it can be integrated into the Carbon Pricing Review.

Regards,



Colleen Giroux-Schmidt
Vice President, Corporate Relations
Innergex Renewable Energy
Co-Chair, B.C. Climate Solutions Council



Nancy Olewiler
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Simon Fraser University
Co-Chair, B.C. Climate Solutions Council

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David Black, President, MoveUP
Toni Boot, Mayor, District of Summerland
Ian Bruce, Deputy Executive Director, David Suzuki Foundation
Kathryn Harrison, Professor, Political Science, University of British Columbia
Mark Jaccard, Professor, School of Resource and Environmental Management, Simon Fraser University
Eden Luymes, Masters student, University of British Columbia
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Skye McConnell, Manager of Policy and Advocacy, Shell Canada
Patrick Michell, Community Leader
Kurt Niquidet, Vice President, Council of Forest Industries
DJ Pohl, President, Fraser Valley Labour Council
Arjun Singh, Councillor, City of Kamloops
Merran Smith, Executive Director, Clean Energy Canada
Karen Tam Wu, Climate Policy Advisor
Jill Tipping, President & Chief Executive Officer, BC Tech Association
Tamara Vrooman, President & Chief Executive Officer, Vancouver Airport Authority

B.C. Climate Solutions Council

To: Minister of Environment and Climate Change Strategy, Honourable George Heyman

cc: Minister of Energy, Mines and Low Carbon Innovation, Honourable Josie Osborne; Deputy Minister, Kevin Jardine; Assistant Deputy Minister, Jeremy Hewitt

March 6, 2023

Dear Minister Heyman,

Re: Net zero new industry

The CleanBC Roadmap commits to a requirement for all large new industrial facilities to have plans to show how their emissions will align with B.C.'s 2030 and 2040 targets, and to achieve net zero by 2050. Given that industrial emissions made up over 40% of the province's emissions in 2019, and some industrial sectors are forecast to grow, ensuring that new facilities fit within BC's emissions targets will be critical to the success of the CleanBC climate plan.

That goal presents two distinct issues. First, what level of ambition should be expected from new facilities being planned and built with the knowledge of more stringent provincial emissions targets, ultimately including net zero. Second, how will B.C. deliver compensating reductions from existing emitters to guarantee that new facilities fit within B.C.'s emissions targets, rather than adding to emissions. Lacking the second part, the Net-Zero New Industry strategy presented to the Climate Solutions Council in late 2022 does not ensure that large new facilities align with B.C.'s 2030 and 2040 targets.

We are mindful of historical experience that more stringent new source standards had an unintended consequence of incentivizing continued operation of older, more emissions-intensive facilities. That is likely to be less problematic in a context where there are binding commitments to update standards, but nonetheless this is an issue that should guide provincial policies for existing facilities as well. Policies and regulations should be developed to ensure existing facilities are not inadvertently operating longer at high carbon intensity as a result of net-zero policies for new facilities.

Key areas of concern and recommendations:

We have five main concerns with recommended actions that require further consideration to ensure that this policy achieves the intended goals and that B.C. stays on track to meet our climate targets in 2030, 2040, and 2050.

1. Unlike older industrial facilities, new industrial facilities are being planned with the knowledge that operations must transition to net zero, in most cases during the expected life of the facility. They also may be able to take advantage of new and emerging technologies that were not available when older facilities were built. We thus encourage the government to consult with individual sectors to assess the feasibility of new facilities in that sector reaching net zero as soon as possible.
2. Government must take additional actions to ensure that new facilities fit within B.C.'s targets. The Council's 2022 annual report stressed the challenge of meeting B.C.'s 2030 target because of delays and gaps in policy development and potential for new projects approved yet not accounted for in the Roadmap to

significantly increase emissions. The resulting challenge we now face underscores the importance going forward of anticipating and accounting for new industrial facilities in setting targets for existing emitters.

New facilities that are not net zero will add additional emissions. Operators of those facilities do not have the authority to ensure compensating reductions from other facilities or sectors. We thus do not understand what is meant by the expectation for large new industrial facilities to align their operations with B.C.'s 2030 and 2040 targets, as stated in the Roadmap. It is the provincial government's responsibility to adopt additional policies as needed to deliver compensating emissions reductions.

There are multiple ways this goal could be achieved, including implementation of sectoral flexible regulations, incentives for low-emissions technologies, setting more specific targets for incumbent facilities, or seeking deeper cuts from non-industrial sectors. Without policies to deliver compensating reductions, however, new GHG-emitting facilities *will not* fit within existing targets and B.C. will fail to meet its emissions targets.

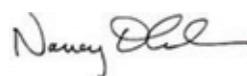
3. Enabling the transition to net zero demands planning for sufficient generation and transmission capacity to support electrification as needed in industry operations, as anticipated by the Minister of Energy, Mines and Low-Carbon Innovation's mandate to create a "climate-aligned energy framework for B.C." In addition, ensuring that new facilities can transition to net zero will require development of complementary policies, such as facilitating the use of negative emissions technologies and offsets (bearing in mind the Council's previous [advice](#) on the latter – see the Council's 2020 annual report, appendix 2).
4. We seek greater clarity on how the government proposes to include both upstream and downstream emissions in B.C. as part of the net zero facilities commitment. In some cases, those emissions could be greater than direct emissions from the project itself. Understanding the magnitude, distribution, and opportunities to control these emissions is important.
5. The CleanBC Roadmap acknowledges that government will need to strengthen policies to ensure that B.C. fills gaps and meets its emissions targets. If existing facilities do not have to meet the more stringent policies, achieving climate targets will be compromised, and it creates an unlevel playing field between existing and new facilities, affecting competitiveness. All project approvals must acknowledge B.C.'s climate goals and specify that as policies become more stringent, compliance will be required. Government thus needs to avoid locking in policy at the time of a project's approval. For example, B.C. has not exempted existing emitters from the escalating carbon tax as announced in the 2023 budget.

We understand it is the government's intention to bring forward legislation in 2023 and welcome the opportunity to comment further.

Regards,



Colleen Giroux-Schmidt
Vice President, Corporate Relations Innergex
Renewable Energy
Co-Chair, B.C. Climate Solutions Council



Nancy Olewiler
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Merran Smith, Chief Innovation Officer, Clean Energy Canada

Karen Tam Wu, Climate Policy Advisor

Jill Tipping, President & Chief Executive Officer, BC Tech Association

Tamara Vrooman, President & Chief Executive Officer, Vancouver Airport Authority

To: Minister of Environment and Climate Change Strategy, Honourable George Heyman

cc: Minister of Emergency Management and Climate Resilience, Honourable Bowinn Ma;
Deputy Minister, Kevin Jardine; Assistant Deputy Minister, Jeremy Hewitt

March 27, 2023

Dear Minister Heyman,

Re: Advice on 2023 Implementation of the BC Climate Preparedness Strategy

The Council is encouraged by the government's increased focus on adaptation as reflected in mandate letters, Budget 2023, and formation of the new ministry of Emergency Management and Climate Readiness, but more needs to be done. The paradigm needs to shift from disaster relief after the climate-related damages occur to a whole-of-government approach that increases the resilience of families, companies, and communities with actions and investments that reduce the likelihood of damage. Investment in climate resilience is more cost effective than disaster relief.

Looking to 2023 and beyond, the Council offers the following as priority areas for accelerated action in line with the government's mandate letters and budget commitments.

- a) Accelerate the implementation of actions in CPAS 2022-2025 with attributed budgets, funding, and timelines that are **commensurate with BC's climate risks** to be publicly communicated in the next Climate Change Accountability Report.
- b) Develop an explicit, measurable, and ambitious series of **climate adaptation targets** that are cross-sector, take a whole-of-government approach, and that align with Indigenous values, worldviews, and priorities.
- c) Continue to enhance **the Disaster and Climate Risk and Resilience Assessment process** with clear and regular communication with communities of the risks identified, prioritization of funding, planned investments, and policy development. Incorporate local and Indigenous knowledge in the assessment process to enhance understanding of climate risks, how they are distributed in communities, and ways of increasing resilience.
- d) Align mandates, policies, regulations, and budgets at all levels of government (including with the National Adaptation Strategy) and relevant agencies to leverage their full insights, authorities, and capacities to **advance resilience for B.C.'s most salient hazards, risks, and vulnerabilities.**

The Council believes that targets are an effective tool in the delivery of smarter, swifter, and more comprehensive actions to support climate adaptation and resilience. Targets help in communicating actions and progress with the public. It is recognized though that targets, and their ongoing monitoring and evaluation, are challenging aspects of adaptation planning. As the Canadian Climate Institute has highlighted, targets help ensure that monitoring and evaluation of climate adaptation does not simply become a 'progress reporting' exercise on policy commitments, but rather a material and dynamic evaluation of the province's exposure and progress toward reducing climate-related hazards, risks, and vulnerabilities. We offer for consideration a set of principles and best practices to support the development explicit, measurable, and ambitious series of climate adaptation targets.

Principles for Setting Adaptation Targets

Effective targets must be well-thought out, aligned to budgets and resources, work cross-ministerially, and have a clear connection to the desired end-state of outcomes, not just outputs. For example, the percentage of communities with flood-plain mapping completed is an output. An outcome is the percentage of communities that have had flood risk reduced (and by what extent).

- Scenario planning is a useful tool in setting targets. It should be empirically grounded in climate impact projections scaled appropriately to B.C. and its regions. Scenarios need to encompass the expected range of climate impacts from worst to best cases and estimates of their likelihood.
- Align with and support the British Columbia Declaration on the Rights of Indigenous Peoples (BC DRIPA) incorporating “two-eyed seeing” to integrate different ways of knowing.
- Incorporate environmental, social, and governance (ESG) considerations along with the economic/financial assessments.
- Include systems-level, e.g., BC’s provincial and local government fiscal capacity to prepare for and respond to climate-related extreme events as well as community-and/or individual-level considerations (e.g., site-level resilience and adaptability to hazards).
- Direct and inform work across the whole of government with responsibilities integrated into Mandate Letters and Ministerial and agency-level service plans.
- Align with and support the National Adaptation Strategy.

Principles for Monitoring, Evaluation and Data Collection

The current monitoring and evaluation framework for CPAS breaks down the four key pathways into objectives, outcomes, indicators, targets, and metrics. Data collection relevant to adaptation is nascent in many respects and we encourage government to work with local governments and many businesses to leverage opportunities created by their growing capacity. Linkages with national data initiatives such as 440 Megatonnes and the Climate Atlas can link BC’s work with the rest of Canada. The province’s own recent work on ESG-related reporting may also be instructive.

Through their best practices research, the Canadian Climate Institute has recommended utilizing the following four building blocks in an integrated way for any effective adaptation monitoring and evaluation (M&E) system:

1. Context – clearly state the mandate, purpose, and scope of the M&E undertaken.
2. Content – clearly state the substance of what is being assessed.
3. Operationalization – create effective systems to collect and disseminate data within, across, and outside of government.
4. Communication – create audience-specific, well-timed, ongoing diffusion of climate adaptation to inform better decisions across the public and private sectors.

The Council suggests the **following principles for monitoring, measuring, and collecting data**:

- Measurement, evaluation, and data collection should be inherently collaborative and integrative. It should include *cross-government* coordination as well as structured, effective, and ongoing collaboration with First Nations, local governments (e.g., amalgamating local governments’ Hazard, Risk, and Vulnerability assessments), and businesses (e.g., financial climate risk disclosures).
- Measurement should strike a balance between short and long-term perspectives – for example, flood control-related infrastructure could include metrics related to annual infrastructure investment.

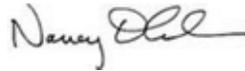
- Measurement and evaluation should take a whole-of-government approach and be integrated cross-ministerially (e.g., via an annual cross-government ‘stock take’ of adaptation metrics), with a particular emphasis on integration into budgetary considerations and Treasury Board submissions.
- Data-sharing and communication should be readily accessible and provide an avenue for data contributions from the public, local governments, and businesses with clear identification of the sources.

Conclusion

The Climate Solutions Council is supportive of British Columbia’s adaptation strategy that strives to increase the resilience of the people, plants, and animals inhabiting the province and the natural systems that support life and wellbeing today and into the future. The work ahead will not be easy; it involves difficult decisions and significantly larger investments than those made to date. As we rebuild and heal in light of the climate disasters of the past two years, we believe that all sectors of society in this province are ready to take on this generational challenge. The Council looks forward to supporting you and the government on as we move forward on this vital work.



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