

cleanBC

2020 Climate Change Accountability Report

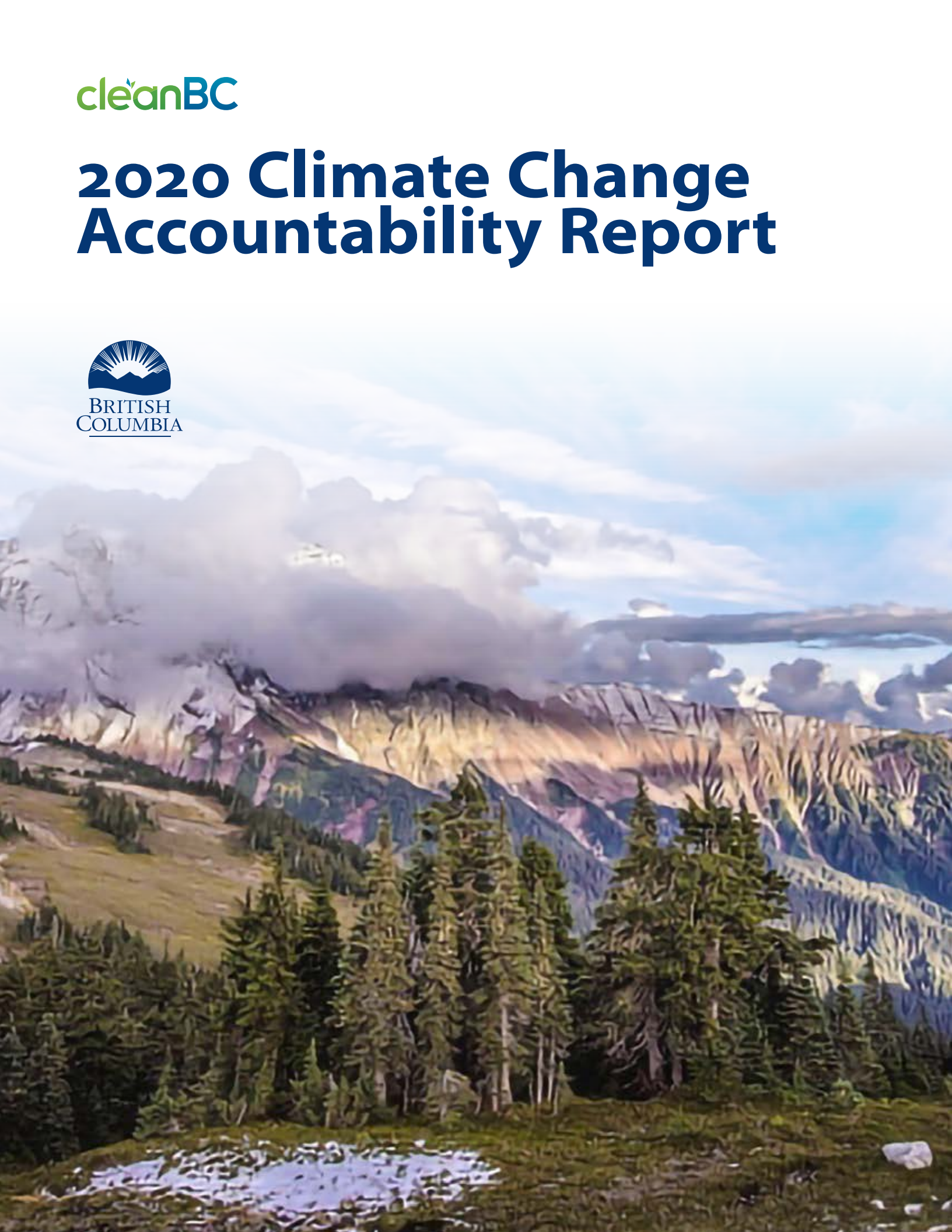


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MESSAGE FROM THE MINISTER



We're working hard to fight climate change and build a stronger, cleaner future for all of us.

When we launched CleanBC at the end of 2018, we knew the challenges and opportunities ahead. Greenhouse gas emissions in British Columbia had been steadily rising and significant new policies and programs were needed to get us back on the path to meeting our targets and building a cleaner economy for everyone.

People in British Columbia care deeply about the environment and making sure we all do our part to build a cleaner, better future for our kids and grandkids. It's something I have heard consistently across all parts of our province, from different groups of people, in communities big and small.

We are seeing the effects of climate change in our daily lives, from increased wildfires and smoke, to more frequent floods and droughts. Our call to action is clear -- we need to keep driving down climate pollution.

And that's exactly what we set out to do with CleanBC. Legislated new targets and dozens of new policies and programs across all sectors of the economy are now underway, many of which are among the strongest in North America. Still more actions will be developed and we will see more results in the months and years ahead.

As part of CleanBC, we also strengthened government's reporting requirements to the public through a new climate accountability law in 2019. This report is the first produced under the new legal requirement we set up, and includes a wide range of detailed information to help track our progress as a province.

Each year, government is required to report on everything from the latest greenhouse gas emissions estimates, projections for emissions in future years, expected outcomes of climate actions and expenditures, and steps taken to manage the risks from climate change.

It's part of our commitment to transparency and accountability. It's critical that we monitor the steps we've taken each year and adjust as needed, taking into account any new information and data that becomes available. We are also listening to the advice of the Climate Solutions Council as we work towards closing the gap to our target, and I want to sincerely thank them for their hard work and dedication over the past year. The Council's greatest strength is its ability to reach consensus and provide advice that represents the diversity of viewpoints in B.C.

This year's climate accountability report shows a change in overall emissions from 2018 – the latest available emissions data – due in part to new methodology from the federal government that reset the 2007 emissions baseline. While the 2018 reporting period predates the launch of CleanBC, it does affect emission projections for future years. It means, based on our current assumptions and forecasts, there is more work to do to achieve our targets than previously anticipated and more actions with stronger results are needed to achieve our goals.

When CleanBC was released in December 2018 we committed to releasing measures to close the gap to our 2030 target within two years. We encountered unexpected challenges, and while we have not met this target date we will redouble our efforts and release a detailed roadmap to the 2030 targets by the

end of next year. Areas for future action that have strong potential to further reduce emissions include transitioning heavy-duty fleets to cleaner fuels, reducing emissions in heavy and light industry, diverting and using waste more efficiently, and making new and existing buildings more energy efficient.

We will also work with the federal government as it releases its plans to meet Canada's greenhouse gas targets to ensure our efforts are coordinated and that we find the most efficient pathways to meet our goals.

The COVID-19 pandemic has shown just how quickly and dramatically things can change and underscores the importance of our government's economic recovery plan that includes significant new CleanBC commitments. These actions and the pandemic more broadly will have important effects on our economy and emissions outcomes for 2020 and beyond.

CleanBC is putting our province on the path to a cleaner, better future. Whether it's ensuring all new vehicles will be zero emission, making new buildings net-zero energy ready, or supporting communities and Indigenous peoples transition to clean technology, we've made significant progress creating new opportunities for people and reducing pollution. Together, we're building a cleaner, more secure future – and that means more jobs and opportunities for everyone in B.C.

George Heyman

Minister of Environment and Climate Change Strategy



1. EXECUTIVE SUMMARY

When we launched our CleanBC plan in December 2018, we laid out a pathway to reduce emissions and create a better future for B.C. While much has been accomplished, there is still more to do.

This 2020 Climate Change Accountability Report summarizes B.C.'s actions and progress towards a stronger, cleaner future. It is the first to be tabled publicly in the legislature as part of our commitment to improve climate change accountability.

We are committed to achieving our targets while making life better, cleaner, and more affordable for British Columbians. While it is too early to determine the sustained impact of CleanBC initiatives on provincial greenhouse gas emissions, it is clear that reaching our targets will require renewed focus and further government action.

Together with a range of partners, we've made good progress implementing the plan and laying the foundation for a cleaner, stronger, low-carbon economy. By rising to the challenge of climate change, we're protecting our communities, expanding B.C.'s economy, and creating opportunities and jobs for people across our province.

Moving ahead during the 2019-2020 fiscal year

Over the last two years, we've worked with many organizations, governments and communities to put our CleanBC plan into action. And this year, working with Indigenous leaders, we've also laid the foundation for renewed action to address climate risks under a new climate preparedness and adaptation strategy.

So far, we've seen several early signs of success. We've had a dramatic increase in the sale of new electric light duty vehicles – B.C.'s zero-emissions vehicle sector contributed more than \$600 million to the provincial economy. We've seen more household heat pump sales thanks to increased CleanBC rebates to boost their uptake. We're working with industry to adopt cleaner operations and reduce emissions through the CleanBC Program for Industry. And we've launched a Plastics Action Plan to reduce single use plastics and consumer waste.

As programs change and develop over time, we will continue to report on our CleanBC activities to make sure we are accountable on our progress to our targets.

Responding to the COVID-19 Pandemic

While this report focuses primarily on actions throughout the 2019-2020 fiscal year, it's important to recognize the impact of the COVID-19 pandemic on government initiatives throughout the remainder of 2020. Our pathway to a cleaner future is even more important as we work to come out of COVID-19 stronger and better prepared.

The Province recently released StrongerBC, B.C.'s Economic Recovery Plan to help people, businesses and communities recover. It builds on the progress we've made under CleanBC with over \$220 million in additional new investments. This will help reduce emissions in transportation, support low-carbon innovation, restore critical watersheds and protect habitat, create jobs, and tackle climate change while preparing for its impacts. This is in addition to the \$1.3 billion committed to CleanBC over four years to help people and businesses use clean energy to get around, heat our homes, and fuel industry.

Our current emissions outlook

While we've made progress in reducing the carbon intensity of our economy, which is down 16% since 2007, B.C.'s strong economy and growing population have placed upward pressure on overall emissions and have contributed to recent increases at the provincial level.

In 2018, our gross greenhouse gas (GHG) emissions were 67.9 million tonnes of carbon dioxide equivalent (Mt CO₂e). This represents an increase of 4.5 Mt CO₂e from 2007 levels, 3% higher than 2017 emissions.

These 2018 numbers, which are the most recent available, certainly reinforce the importance of launching CleanBC and taking strong action to address climate change. CleanBC was launched at the end of 2018, meaning these results do not capture the impact of CleanBC actions, or take into account further actions planned as part of rebuilding from the COVID-19 pandemic.

Our models show that in 2019, B.C.'s emissions are expected to stabilize or slightly increase, before beginning to decrease in 2020 as CleanBC programs begin to take hold and we see the effects of COVID-19. Emissions may level-off in 2021 as B.C.'s economy begins to recover and then continue a downward trajectory in 2022 as more CleanBC policies start to take effect.

Working together for a cleaner, stronger future

Collaboration on CleanBC remains a priority, and government is continuing to engage with industry and business, Indigenous leaders and communities, governments and other organizations, and British Columbians.

Members of the Climate Solutions Council have provided valuable input to help strengthen CleanBC as it has developed over time. The Council's contributions have helped ensure we're focused on policy that improves peoples' lives while reducing emissions and supporting a clean economy.

Through a series of engagements with Indigenous peoples, we have heard that climate change is having serious impacts on their communities, cultures, health and livelihoods, and they are keenly interested in being involved in solutions. We've been working closely with the First Nations Leadership Council and the Indigenous Climate Adaptation Technical Working Group, and sought input from Indigenous governments, organizations and communities to develop a climate preparedness and adaptation strategy that will help us prepare for the impacts of climate change. We're also working together to develop clean energy infrastructure in remote communities, increase economic opportunities, and provide better access through such programs as an Indigenous Community Heat Pump incentive and the Indigenous Community Energy Coach Program.

Together with industry, we are working on strategies to strengthen B.C. as a destination for new investment to meet the growing global demand for low-carbon solutions. Most B.C. industry is, on average, less carbon-intensive than our competitors, in part due to B.C.'s carbon tax, which has encouraged cleaner industrial operations since 2008 when it was put in place. The ideas, initiatives and technologies that reduce our emissions and prepare us for the future can also create economic opportunities. The fiscal year 2019-2020 represents an early yet important period in establishing and building momentum for our plan. And there is more work to do. We are working closely with partners and building new partnerships with youth, local communities and many more organizations to help meet our CleanBC goals. It will take further collaboration to deliver on the next slate of CleanBC policies to continue bending our emissions pathway toward our 2030 target and creating a cleaner future.

CleanBC milestones achieved

- Improved uptake of GoElectric rebates and Better Homes & Better Buildings rebates for cleaner vehicles and buildings.
- Introduced new financing programs to support purchase of heat pumps for household heating.
- Increased personal climate action tax credits, tied to carbon tax revenues.
- Completed a first of its kind climate risk assessment for B.C. and committed to reducing risks from wildfire, flooding, and droughts through the development of a comprehensive climate preparedness and adaptation strategy.
- Through new legislation, mandated escalating sales targets for zero emission light duty vehicles in the province and increased incentives for specialty-use, medium- and heavy-duty vehicles.
- Launched B.C.'s first active transportation strategy, including cost-shared funding for cycling and walking infrastructure and network planning.
- Released world-leading industry emissions benchmarks under the CleanBC Industrial Incentive Program, encouraging cleaner industrial operations by returning a portion of the carbon tax to low emission facilities to incentivize further emissions reductions.

THE CLIMATE CHANGE ACCOUNTABILITY ACT

To help keep CleanBC on track, the Province established a framework for stronger accountability under the *Climate Change Accountability Act*.

The Act requires the Province to annually:

- publish its most recent GHG inventory;
- estimate B.C.'s emissions for the current year and next three years;
- outline expected outcomes of climate action;
- report on expenditures to reduce emissions and manage risks;
- report on actions taken and proposed to reduce emissions and manage risks from climate change;
- report on reducing emissions and managing risks across the provincial public sector; and
- outline advice received from the independent Climate Solutions Council.

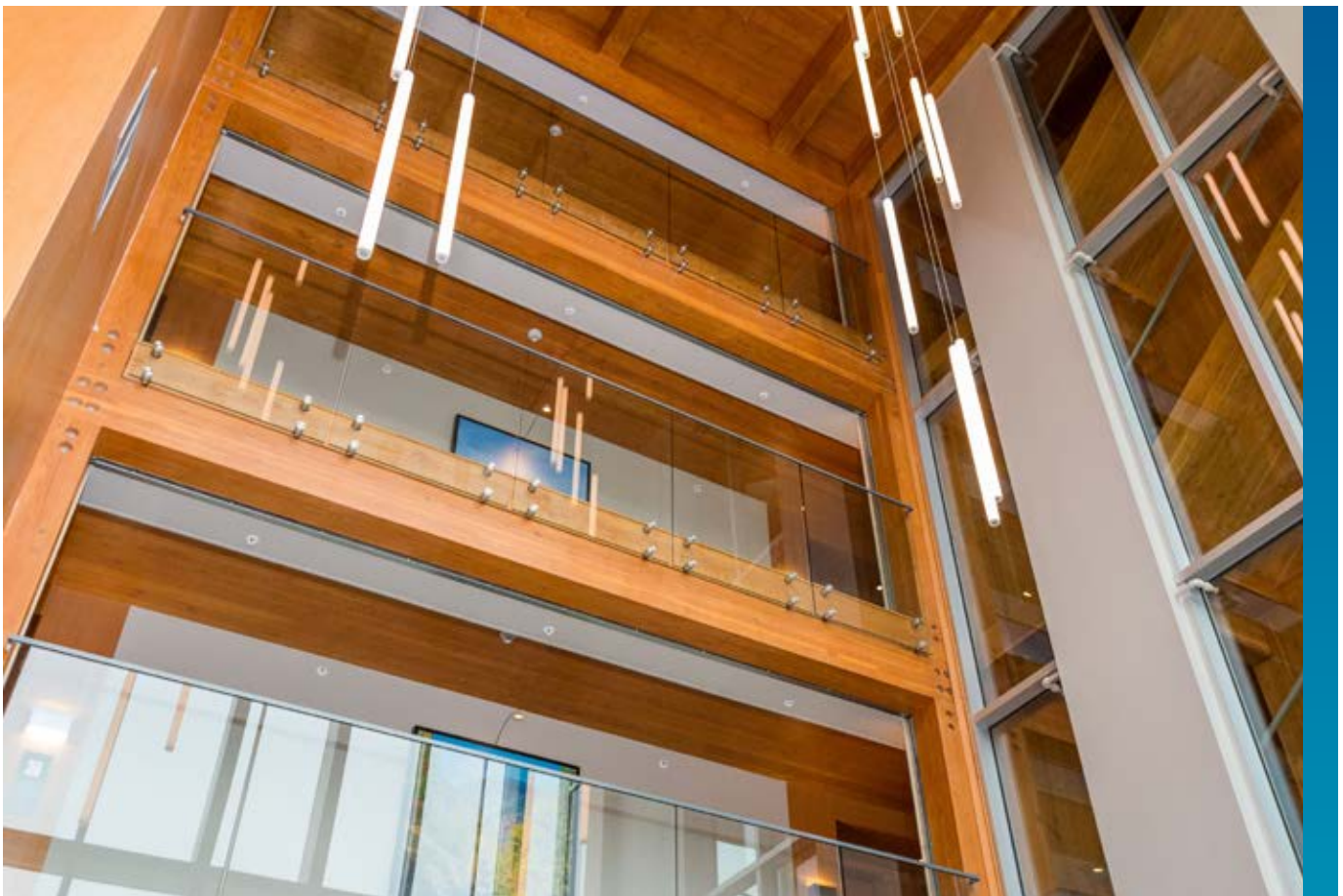
Details to fulfill these commitments are included in this report.

The Act also requires the government to set an interim GHG target by December 31, 2020, and sectoral targets by March 31, 2021.



Programs now underway

- Launched the CleanBC Industry Fund, closing a second call for innovative emissions reduction projects in June 2020.
- Started new clean energy, electric vehicle (EV) charging, housing and other infrastructure projects under the new CleanBC Communities Fund and expanded the BC Indigenous Clean Energy Initiative and other rural clean energy funds.
- Increased the carbon intensity requirement of B.C.'s Low Carbon Fuel Standard to a 20% reduction in average carbon intensity by 2030 from 2010 levels.
- Finalizing the BC Hydro review to ensure affordable electricity supply and support new economic opportunities.
- Expanded composting capacity to turn waste into clean products, for example with biogas and solid composting.
- Launched the CleanBC Plastics Action Plan, which enabled local government to put in place municipal bans and committed to begin the phase-out of single-use plastics province-wide.
- Created innovation funding to develop net-zero energy ready buildings, expanded a promising EV sector (including through the Specialty-Use Vehicle Incentive Program), and built on innovative clean energy technologies.
- Began developing new initiatives including the BC bioenergy strategy and hydrogen strategy.
- In 2020, we announced funding for a new centre for Innovation and Clean Growth under StrongerBC, the Province's economic recovery plan.



2. PROGRESS TO OUR TARGETS

British Columbia has set ambitious greenhouse gas (GHG) reduction targets. We're working towards emission reductions from 2007 levels of 40% by 2030, 60% by 2040, and 80% by 2050.

In December 2018, we launched CleanBC, our climate, clean energy and economic plan. It lays out a series of actions over the next decade to reduce emissions across all sectors of our economy. When released, our plan was estimated to get us three-quarters of the way to our 2030 goal and included a commitment to release details on closing the gap by December 2020.

That commitment remains outstanding, but we will release a detailed roadmap to meet our 2030 targets by the end of next year. We are looking at areas where existing programs can be adjusted or enhanced, and new actions are being developed in areas such as transitioning heavy-duty fleets to cleaner fuels, reducing emissions in heavy and light industry, diverting and using waste more efficiently and making new and existing buildings more energy efficient.

The Province will also continue to assess the effectiveness of our current CleanBC actions over time and will further engage with Indigenous peoples, industry and other partners.

We will also work with the federal government on initiatives from Canada's climate plan that build on our provincial action and increase the impact of CleanBC.

This section provides an update on our progress, including information in five areas:

- a) 2018 emissions performance - most recent data
- b) Near-term outlook
- c) CleanBC projections
- d) Sector-specific emissions summary
- e) Carbon tax revenue and climate-related spending

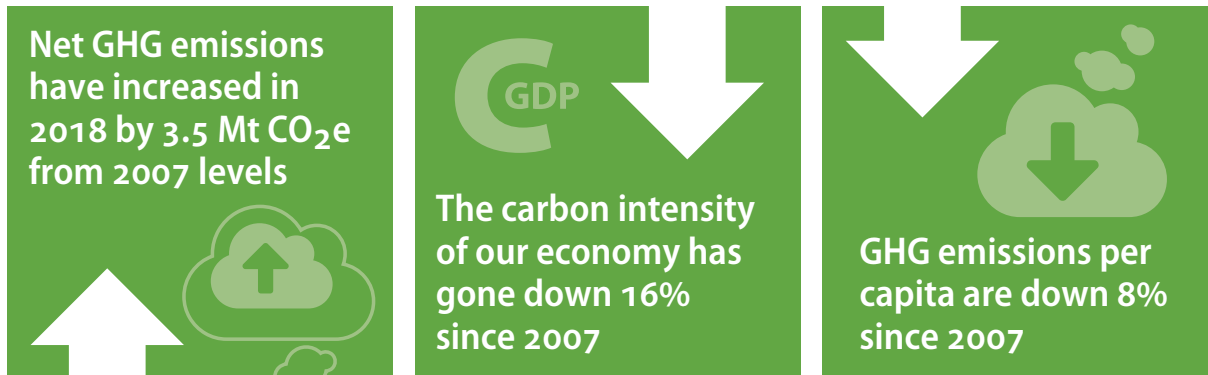
British Columbians can learn more about what we've accomplished over 2019-2020 in this report, and access even more detail online through the [Mitigation table](#) and the [Managing Climate Risk table](#).

2018 emissions performance – most recent data

The Province measures GHG emission performance in three ways – gross and net emissions, emissions per capita, and emissions per Gross Domestic Product (GDP) – also known as the 'carbon intensity' of the economy. Overall, the carbon intensity of B.C.'s economy has decreased 16% since 2007 and GHG emissions per capita have gone down 8% since 2007.

While these are encouraging trends, continued economic and population growth have translated to an increase in overall emissions. Our province-wide net emissions (across all sectors) have increased in 2018 by 3.5 million tonnes carbon dioxide equivalent (Mt CO₂e) from 2007 levels.

The following sections explain these indicators in further detail.



Provincial Greenhouse Gas Emissions Inventory

This report provides data from the 2018 emissions reporting year - the most recent information available due to a 16-24 month lag for data collection by the federal government and reviewed by the B.C. government before the reporting date.¹ B.C.'s annual emissions reporting is based on the most recent national inventory from Environment and Climate Change Canada, and it takes time to collect and verify the data from a wide range of sources.

It is also important to note that the 2018 emissions data does not yet include the impact of new actions from CleanBC, which began implementation in 2019 and continues to roll out.

In 2018, B.C.'s gross GHG emissions were 67.9 million tonnes of carbon dioxide equivalent (Mt CO₂e). This represents an increase of 4.5 Mt CO₂e (7%) from 2007 levels, and 2.2 Mt CO₂e (3%) from 2017 emissions.

Once we include 1.0 Mt CO₂e in [emission reductions from offset projects](#), our net² GHG emissions were 66.9 Mt CO₂e. This represents a net increase of 3.5 Mt (6%) from 2007 levels, our target baseline year.

The increase in emissions in 2018 was largely due to increases in fuel consumed in heavy-duty diesel vehicles, oil and gas extraction, off-road industrial transport, and light-duty gasoline-powered trucks.

Our measurements of the increase in emissions from 2007 and from 2017 were also impacted by technical changes in reporting methodology for the 2018 emissions inventory that affect past years' totals. These include:

- The federal government changed how marine transport emissions are calculated. Using the new method, B.C.'s 2007 baseline is now 1.5 Mt CO₂e lower than it had been reported in the previous emissions inventory. While B.C.'s 2030 target of 40% below 2007 levels remains the same, the change to 2007 baseline emissions levels means that additional emission reductions will be required to reach the same target level.
- In addition, total B.C. gross emissions in 2017 were revised upwards by 1.3 Mt CO₂e, due to new estimates for fuel use in several sectors.

The overall increase in the 2018 emissions reinforces the importance of taking strong action to address climate change through CleanBC.

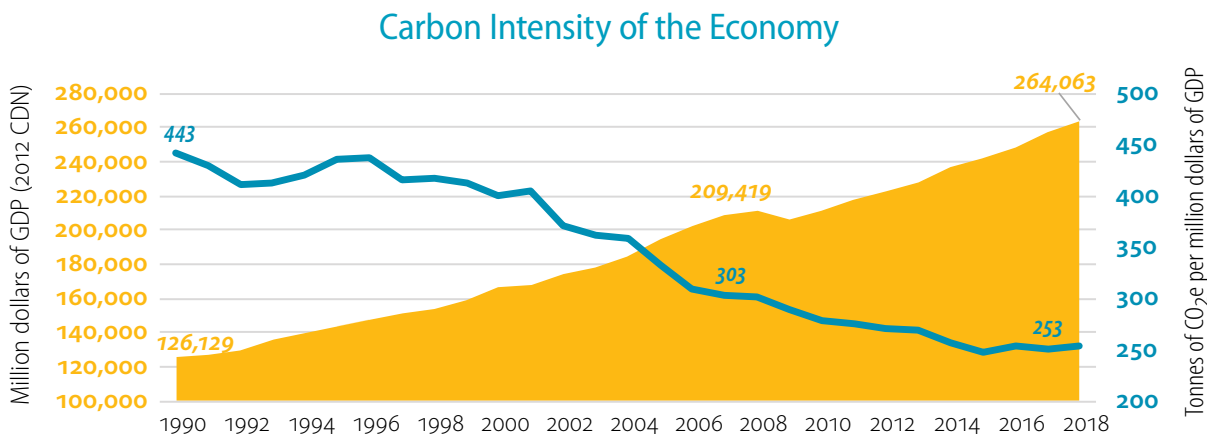
¹ More detail on the 1990-2018 emissions inventory is available on B.C.'s [Provincial Inventory website](#).

² Net emissions are gross GHG emissions (as reported in the B.C. Provincial Inventory) less the offsets from B.C. forest management projects that have been validated under B.C. government regulated offset standards.

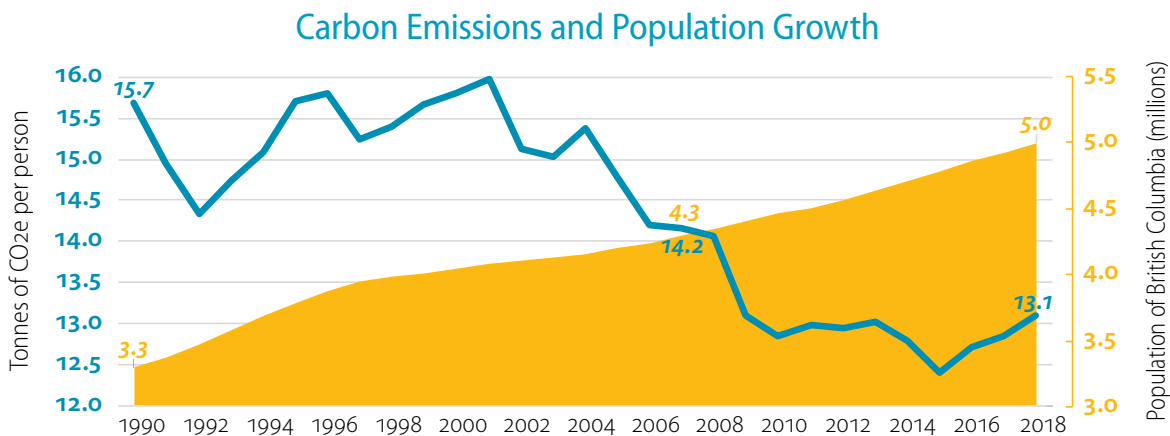
Economic transition (GHG emissions per GDP and per capita)

Another way to consider our emissions is in the context of a growing population and economy. Indicators in this area measure how well B.C. is doing in reducing our emissions intensity, as we make the transition to a cleaner economy with fewer GHG emissions.

Between 2007 and 2018, net GHG emissions grew by 6% while the economy grew by 26%. That means that the GHG intensity of our economy decreased by 16% since 2007.³



GHG emissions per person have also fallen. Between 2007 and 2018, they decreased roughly 8% from 14.2 tonnes of CO₂e to 13.1 tonnes.⁴ This places B.C.'s emissions per capita well below the Canadian average of 20 tonnes per capita, but higher than a number of other jurisdictions (e.g. Ontario, Netherlands and Germany at 12, 11 and 10 tonnes per capita, respectively).



While we've made progress since 2007 in reducing the intensity of emissions – for example in the emissions per person or per unit produced in our economy – B.C.'s growing economy and population

3 Carbon intensity of the economy is measured using net emissions to align with the assessment of B.C.'s progress to targets, whereas GHG emissions per capita uses gross emissions minus afforestation and deforestation to allow for comparison to other jurisdictions.
 4 Note that CO₂e figures exclude land use and land use change emissions to enable comparison with international totals.

are placing upward pressure on emissions and have contributed to recent increases in overall GHG emissions.

As CleanBC policies are implemented, we need to continue to de-couple emissions from growth to lower emissions and transition to a low-carbon economy. Finding new ways to prevent waste, use energy more efficiently, and choose the cleanest possible energy will create more opportunities for building a strong, sustainable economy.

Near-term outlook

Consistent with our commitments under the *Climate Change Accountability Act*, we estimate GHG emissions for the four years following the most recently available GHG emissions data. We've updated our modelling as part of a regular series of improvements to include the most recent B.C. emissions data and real-world trends in areas such as fuel prices, economic data and technological costs.

COVID-19 AND GHG EMISSIONS

Lower emissions from the pandemic are unlikely to be a long-term trend, especially if mitigation efforts are not strengthened. That's why CleanBC is an important part of [B.C.'s Economic Recovery Plan](#) to help people, businesses and communities come out of COVID-19 stronger and better prepared. We have an opportunity to rebuild in a way that takes meaningful action on reconciliation with Indigenous peoples, while reducing emissions and opening opportunities for sustainable jobs and clean economic growth.

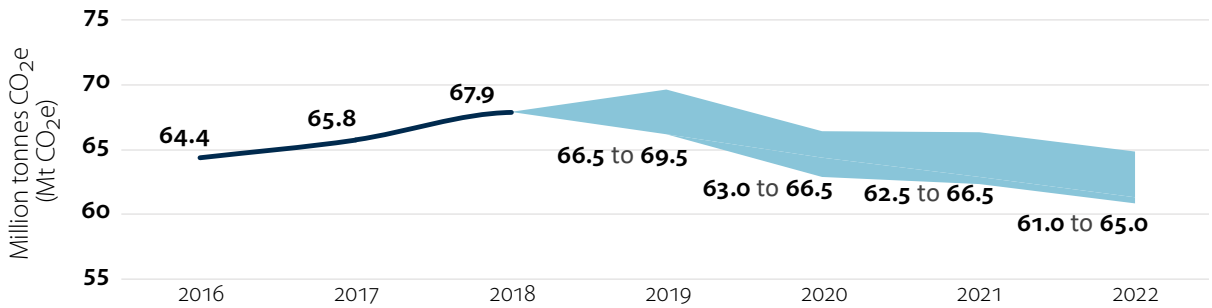
Our recovery plan builds on the progress we've made with over \$220 million in new investments in programs that will help create good new jobs while reducing greenhouse gas emissions, restoring critical watersheds and habitat, and preparing for the impacts of a changing climate. This includes investing more than \$130 million to help people and businesses drive down emissions – and make further progress towards meeting our legislated targets – as well as investing approximately \$90 million to help B.C. prepare for and adapt to a changing climate. Government will work closely with industry, business, Indigenous nations and others to implement this new funding, and identify other opportunities to reduce our carbon intensity.

In addition, several other programs in B.C.'s economic recovery plan have climate and clean growth benefits with \$219 million in new investments. Additional funding includes the Community Resiliency Investment program to reduce wildfire risk while creating over 500 jobs in rural communities, the 'Connecting British Columbia' program to expand high-speed internet services for rural communities (which can reduce travel emissions through virtual jobs, services and education), the B.C. Air Access Program to reduce non-aviation emissions at small rural airports, additional incentives for specialty use vehicles, and the Property Assessed Clean Energy (PACE) program to pilot innovative financing tools for building upgrades.

B.C.'s near-term outlook suggests that emissions may stabilize or slightly increase in 2019, before decreasing in 2020 due in part to the effects of the COVID-19 pandemic. Emissions may level-off in 2021 as B.C.'s economy begins to recover and then continue a downward trajectory in 2022 as more CleanBC policies begin to take effect.

We provide near-term emission estimates as a range to better represent uncertainties – whether from assumptions related to economic activity or updates in modelling methodology. Forecasting has become particularly challenging in 2020 due to the unknown impact of the COVID-19 pandemic, which is still unfolding, and the trajectory that B.C. will take as we recover.

GHG Emissions Forecast from 2019 to 2022



CleanBC projections

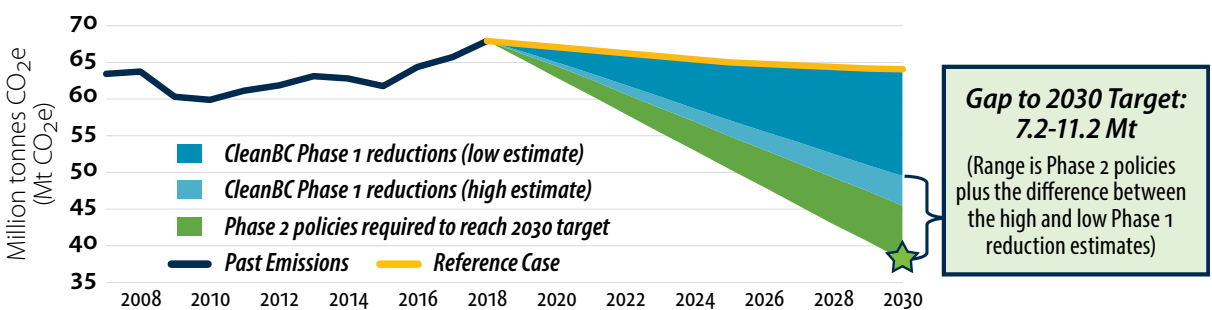
When CleanBC was released in December 2018, we estimated that it would reduce annual emissions by 18.9 Mt CO₂e and get us approximately 75% of the way to our 2030 target.

For the year 2020, we show CleanBC projections in a range to better reflect the inherent uncertainty in modelling the future. This will help account for factors which affect our overall emissions such as higher or lower oil prices, varying levels of industrial growth, or different COVID-19 recovery scenarios.

After updating our model with the most recent data, we now estimate our actions will result in a 2030 emissions total of between 45.2 Mt CO₂e and 49.2 Mt CO₂e.⁵ As a result, based on current modelling, we estimate that our existing CleanBC actions will get us between 56% and 72% towards our 2030 target. Though the new estimates mean we are further from our 2030 target, we are committed to closing the gap and reporting regularly to maintain transparency and accountability. We will release a detailed roadmap to our 2030 target by the end of next year that considers the valuable advice received from the Climate Solutions Council.

This change in expected emissions reductions is due in large part to methodology changes and new information contained in the 2018 provincial emissions inventory that resulted in a lower 2007 baseline emissions level.

Pathway to meeting our climate goals



5 The Province assesses progress towards meeting its 2030 GHG reduction target by modelling CleanBC policies to estimate their impact on future emissions. Information on the model's structure and capabilities as well as the core assumptions and policy design included in the CleanBC modelling analysis is documented in the [2020 Methodology Book](#).

Recent increases to B.C.'s emissions (described earlier in this section) mean we have additional ground to cover to reach our 2030 target relative to last year's estimate. While the expected emissions reductions by 2030 from announced CleanBC policies remain similar, additional measures will now be required to close the gap to target.

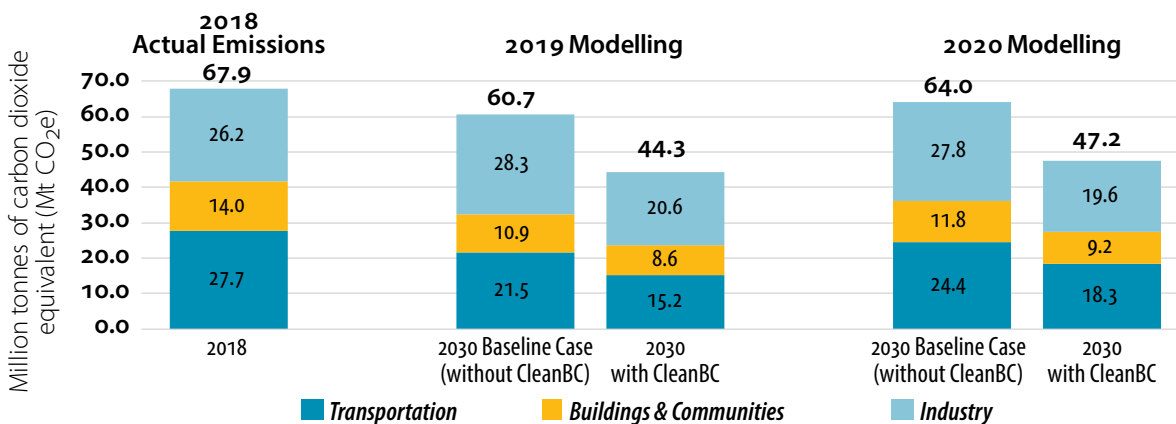
These modelling estimates are likely to change as new policies are announced and further emissions reductions are included.

B.C. remains committed to meeting its reduction targets through CleanBC. The 2018 numbers are a clear reminder that we need to continue increasing energy efficiency and the use of clean energy to reduce emissions as our economy and population grows. They also reinforce the importance of our CleanBC plan and the need to work together to develop and refine new programs to meet our goals.

As required under the *Climate Change Accountability Act*, we are also preparing to set interim and sectoral targets to keep us on track to our climate goals, by December 31, 2020 and March 31, 2021 respectively. These new targets will provide additional checkpoints so we can continue working with all sectors and partners to refine policies, programs and services for a path to success.

It will take further collaboration with our partners to deliver on the next slate of CleanBC policies to continue bending our emissions pathway toward our 2030 target.

Comparison of greenhouse gas modelling



Comparison of modelling done in 2019 vs. 2020. Emission projections are compared under a baseline scenario without CleanBC actions and one where CleanBC actions are included.

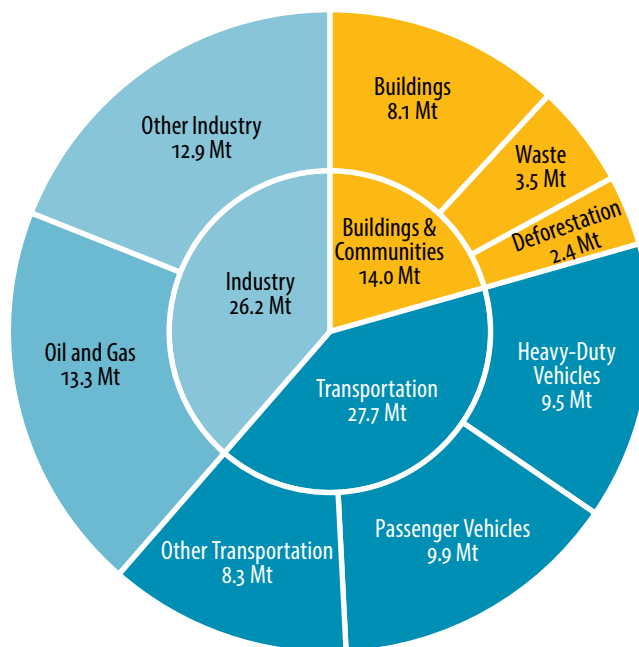
Estimating precisely the Province's progress to its 2030 emission reduction target is challenging because any forecast of the future involves accounting for uncertainty. To better incorporate this uncertainty into emissions projections, the Province now provides a range, rather than a fixed number, for its Progress to 2030 Target forecasts.

Forecasts of the impacts of policy can, and do, change annually based on: 1) B.C.'s most recent historical emission estimates; 2) changes in how provincial emissions are quantified under the national inventory system (e.g. changes in domestic marine quantification in the most recent provincial inventory); 3) updated forecasts about future population growth and industrial development; 4) updates on how B.C.'s climate programs are being implemented and their results; and 5) the latest information on how technology (e.g. direct air capture) or emission reductions from offset projects can affect B.C.'s emission path.

Sector-specific emissions summary

We've grouped provincial GHG emissions into three key sectors based on the 2018 emissions inventory, with a further breakdown into specific sub sectors.

B.C.'s Gross Emissions by Sector in 2018



- B.C.'s gross emissions in 2018 were 67.9 Mt CO₂e. Net emissions were 66.9 Mt CO₂e after accounting for 1.0 Mt of GHG reductions achieved through offset projects that improve the storage of carbon dioxide in B.C.'s forests.
- Because we do not allocate these additional GHG reductions from offsets across different emissions sectors, just to the provincial total, we will refer to gross GHG emissions when discussing sectors in this document.

Changes in Emissions by Sector 2007-2018

HIGHER		LOWER	
Heavy duty vehicles	+ 27% (+2.0 Mt)	Waste	-19% (-0.8 Mt)
Passenger vehicles	+ 17% (+1.4 Mt)	Residential buildings	-8% (-0.4 Mt)
Oil and gas	+ 8% (+1.0 Mt)	Other Industry (excludes oil and gas)	-4% (-0.5 Mt)

Transportation

2018 emissions total: 27.7 Mt CO₂e (41% of total)
Emissions change from 2007: + 23%
Emissions change from 2017: + 6%

B.C.'s transportation emissions increased in 2018, largely due to increases from heavy-duty diesel vehicles, off-road industrial transport, and light-duty gasoline-powered trucks.

Emissions from the transportation of goods and use of heavy-duty trucks present a long-standing challenge, particularly in a province with widely dispersed industry and services sectors amid a growing population, and transportation corridors to our ports that are a primary gateway between North American and Asian markets. Light-duty passenger vehicles make up another third of B.C.'s transportation emissions with other modes such as rail, off-road, domestic marine, and domestic aviation comprising the remaining third.

As we implement our CleanBC programs, we are working with our partners to better understand behavioural and technological changes behind recent trends and address gaps in reducing emissions through actions such as transitioning heavy-duty fleets to cleaner fuels. The increase in emissions since 2007 underlines the importance of building on our CleanBC programs like clean fleet incentives and cleaner fuel standards to meet our 2030 target. Several recent indicators from 2019 such as the increasing percentage of electric vehicles sold and decreasing carbon intensity of ethanol suggest this sector is starting to trend in the right direction. Expanding the use of electricity and hydrogen also holds promise. Chapter 3 provides updates on new CleanBC programs that will help reduce emissions further.



Industry

2018 emissions total: 26.2 Mt CO₂e (39% of total)
Emissions change from 2007: +2%
Emissions change from 2017: +4%

Overall industry emissions rose in 2018 from the previous year, due to emission increases from sectors including natural gas and mining. The oil and natural gas sector contributes approximately half of the industry sector emissions, with the remaining half coming from mining, construction, manufacturing, and other industries such as mineral and metal production.

Indicators show industry is making progress in reducing their emissions intensity even as our economy has grown. Industries such as forestry, energy and mining are well-established, important sectors that sustain jobs across the province, and they are working continuously to make their operations cleaner. For example, overall emissions from large industrial facilities has decreased 1.8% between 2012 and 2018, and reported methane emissions from upstream oil and gas have decreased 11% between 2014 and 2019.

There is still work to do, and the overall increase in emissions since 2007 makes current and future actions under CleanBC all the more important. Chapter 3 provides updates on our work with industry to reduce emissions and create economic opportunities, including investments in electrification and the CleanBC Program for Industry, which directs a portion of the carbon taxes paid by industry to support efforts that reduce emissions at industrial operations across B.C.



Buildings and communities

2018 emissions total: 14.0 Mt CO₂e (21% of total)
Emissions change from 2007: -8%
Emissions change from 2017: -2%

Overall emissions in this sector decreased in 2018, particularly due to declines in residential building emissions and waste. On average, the emissions intensity of our buildings has decreased since 2007, which means we're using less energy per square metre of floorspace. However, building emissions can vary year to year with changes in weather and this can impact the amount of energy used to heat our buildings.

Lower emissions from waste is driven by the landfill gas capture regulation, as well as the increase in organics diversion, food waste prevention and [Extended Producer Responsibility](#) programs.

Efforts to reduce waste and turn it into a resource will become increasingly important as B.C.'s population continues to grow.

CleanBC set out a path to reduce emissions in this sector by making new buildings more energy efficient, providing incentives to retrofit existing buildings, and helping communities switch to cleaner fuels. We've also recently invested in expanding compost facilities across B.C. See Chapter 3 for updates on indicators and CleanBC programs.

Carbon tax revenue and climate-related spending

B.C.'s carbon tax has increased from \$30 per tonne of CO₂e emissions in 2017 to \$35 per tonne in 2018 and to \$40 per tonne in 2019. The carbon tax was to increase to \$45 per tonne in 2020 and \$50 per tonne in 2021. In response to COVID-19, B.C.'s carbon tax remains at \$40 per tonne until 2021, when it will increase to \$45 per tonne and then increase to \$50 per tonne in 2022.

The table below outlines the Province's total carbon tax revenues and the incremental carbon tax revenues resulting from the recent rate increases. Revenues account for the carbon tax remaining at \$40 per tonne as a COVID-19 relief measure. Government is expected to collect \$414 million in incremental carbon tax revenue due to rate increases that began after 2017/18 when government collected \$1.255 billion in carbon tax revenues.

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

\$ MILLIONS	ACTUAL 2018/19	ACTUAL 2019/20	Q1 FORECAST 2020/21
Carbon tax rate, \$ per tonne	\$35	\$40	\$40
Total carbon tax revenue	1,465	1,682	1,560
Annual revenue growth	210	217	(122)
Revenue growth due to base (i.e. changes in consumption)	1	12	(122)
Revenue growth due to rate increases	209	205	-
Revenue growth due to rate increases – Cumulative Totals	209	414	-

Note: The carbon tax did not increase in 2020/21, therefore revenues associated with a cumulative rate increase are nil.

The second table below outlines the expenditures for carbon tax rebates and measures to reduce greenhouse gas emissions and address climate change risks in each fiscal year. Spending on climate-related initiatives includes CleanBC operating and capital spending since its inception in *Budget 2019*, which includes funding for cleaner transportation, energy efficient buildings, Indigenous and remote communities, the CleanBC Program for Industry, and other programming under development.

Other operating spending outside of CleanBC in the table below includes the First Nations Clean Energy Business Fund and the Forest Carbon Initiative. It also includes spending related to adapting to climate change events such as increased flooding and forest fires and funding to the Forest Enhancement Society. Other operating spending does not include provincial funding commitments under the CleanBC Communities Fund, which is part of the Investing in Canada Infrastructure Program Green Infrastructure stream, or the Organics Infrastructure Program, which is part of the Low Carbon Economy Leadership Fund, as expenditures for these two programs are made as projects progress. Capital spending includes the expansion of Vancouver's Broadway Subway and other major projects.

Government spent a total of \$803 million on climate related initiatives in 2019/20 and is expected to spend up to \$1.341 billion in 2020/21 based on investments announced in previous provincial budgets and StrongerBC (September 2020).

Spending on Climate Related Initiatives by Fiscal Year

\$ millions	Actual 2019/20	Forecast 2020/21 and StrongerBC
Climate action tax credit ¹	252	302
CleanBC – operating and capital	185	235
StrongerBC	-	225
Other operating spending	246	233
Transit projects and other capital ²	120	345
Total clean spending	803	1,341

Note: 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.

¹ The climate action tax credit amount for 2020/21 does not incorporate the one-time enhancement the B.C. government provided as part B.C.'s COVID-19 Action Plan.

² Transit project budgets may change on an annual basis as funding is reprofiled.

While the table above illustrates the spending of a specific fiscal year across a variety of climate-related programming, *Budget 2020* confirmed government's commitment of nearly \$1.3 billion over four years since 2019/20 in cumulative spending on CleanBC initiatives. Of the \$1.341 billion for 2020/21 listed in the table above, \$235 million is associated with CleanBC initiatives. The incremental spending above 2017/18 spending levels – the year before carbon tax increases began – amount to \$344 million in 2019/20 and \$888 million in 2020/21.

For additional information on programs and investments, please see the [Supporting Materials](#). Over the next year, government ministries will work together to explore how even greater detail on spending can be reported in this report.

The results of CleanBC programs can be found in Chapter 3.

3. GETTING RESULTS WITH CLEANBC

In 2019, we began implementing our CleanBC plan. Since then, we've made early progress across a range of areas, from transportation to industry to homes and buildings, and laid the groundwork for CleanBC actions over the long term.

Our incentive programs such as Go Electric and Better Homes and Better Buildings were some of the early CleanBC actions that were able to be implemented quickly and have achieved a significant uptake in the transportation and building sectors.

Several flagship programs and policies – like the CleanBC Program for Industry, the CleanBC Communities Fund, and the *Zero Emissions Vehicle Act* – are now in place and will lead to significant emissions reductions in the future while creating clean economic opportunities.

Medium-term CleanBC programs being implemented in collaboration with industry and other partners are complex and won't take effect until 2021 or later, such as increases to the Low Carbon Fuel Standard and bringing upstream natural gas electrification projects online. We are constantly calibrating and adapting these programs to ensure they are on track and we expect to see them yield increasing results in the coming years.

In addition, earlier this summer we announced actions to prevent plastic waste from polluting our communities, shorelines and landfills, following significant public engagement on the CleanBC Plastics Action Plan.

Our work also includes developing strategies for future innovations including the B.C. bioenergy strategy, hydrogen strategy, and job readiness plan for the economy of the future.

In this chapter, we highlight actions taken in 2019 and 2020 across CleanBC's five key sectors. We are also tracking indicators in each sector to monitor progress. The impact of more recent climate action on emissions is expected to be reflected in the coming years.

For complete details on CleanBC programs, please see the [Mitigation Table](#), which outlines the actions we've taken as part of CleanBC commitments in the previous fiscal year (April 1, 2019 – March 31, 2020), as well as our proposed actions in this fiscal year (April 1, 2020 – March 31, 2021).

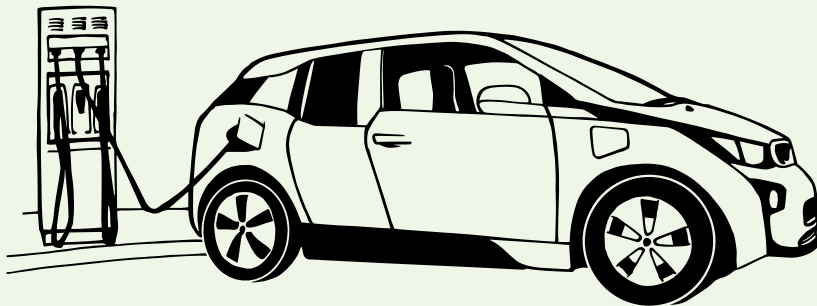


Cleaner transportation

CleanBC Goal: making electric cars more affordable, shifting to renewable fuels, and investing in charging and hydrogen refuelling stations, active transportation and public transit.

Estimated Results: Current actions are estimated to reduce emissions by 6.0 Mt CO₂e GHGs by 2030.

Highlights on Clean Vehicles: B.C., together with a range of partners, has made good progress in setting a path for lower emissions, particularly for passenger vehicles.



CLEAN VEHICLE INDICATORS

- 8.6% of new light-duty vehicle sales in B.C. are ZEVs (less than 1% in 2011).
- 36,468 EV registrations (97 in 2011).
- In 2019, B.C.'s zero-emission vehicle sector contributed more than \$600 million to the provincial GDP (from \$373 million in 2015).
- That translates into more than 6,000 full-time equivalent jobs, an increase of 56% in just three years (up from 3,850).
- Combined with indirect and induced economic impacts, the B.C. EV sector now supports over 10,400 full-time equivalent jobs and contributes \$1.1 billion to B.C.'s GDP.

- In 2019, electric light-duty vehicle sales more than doubled compared to the previous year to over 17,000, making up nearly 9% of all light-duty vehicles sold in B.C. This brings us close to our 2025 target of 10% ZEV sales for new vehicles five years early.

- To help expand availability of ZEVs, B.C. also completed regulations that mandate 100% of new light-duty vehicles sold to be ZEVs by 2040. ZEV compliance requirements start for the model year 2020.

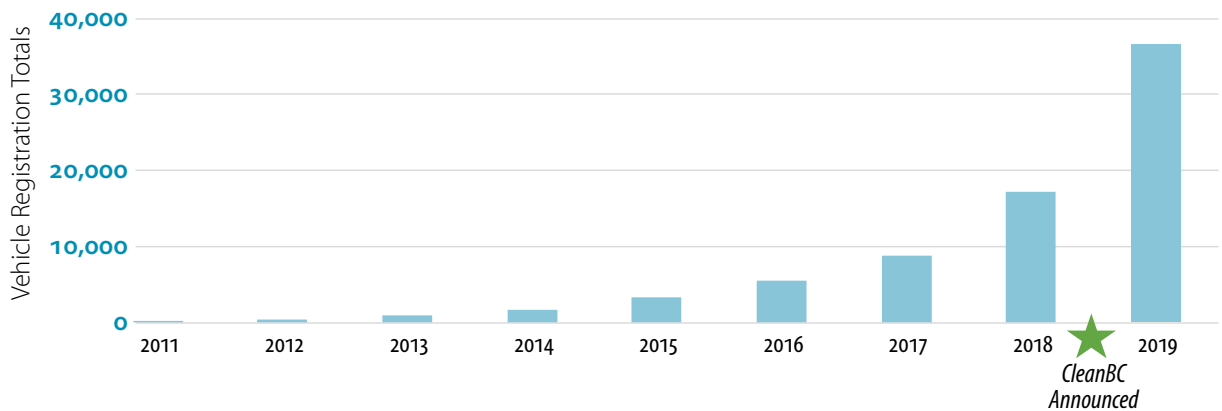
- Supported by the CleanBC Public Charger and Hydrogen Fuelling Programs, there are currently more than 2,000 public Level 2 charging stations, 190 public fast charging sites,⁶ and three public hydrogen fuelling stations. Since 2018, the

number of fast charging sites across B.C. has increased by 55%. Another 1,900 charging stations were installed in homes and workplaces with the Go Electric Charger Rebates. Work is underway to continue expanding these networks.

- To help reduce emissions from heavier vehicles, B.C. launched a Go Electric Commercial Vehicle Pilot Program. The government increased funding for its Go Electric Specialty-Use Vehicle Incentive in *Budget 2020*, which is available for eligible medium- and heavy-duty transport trucks, delivery vans, electric cargo bicycles, passenger buses, and low-speed utility trucks.
- Together with the BC Trucking Association, the Heavy-Duty Vehicle Efficiency Program completed its first year, exceeded training goals and providing over \$1 million for equipment.

⁶ Number of charging sites is current as of June 2020 and include Tesla, with data provided by PlugShare.

Light-Duty Zero Emissions Vehicle Registration Totals in B.C. (2011-2019)



LOOK MOM – NO EMISSIONS!

Starting in 2021, many B.C. students will be catching an e-bus to go to school. In early 2020, the CleanBC Go Electric School Bus Program offered participating school districts an opportunity to leverage funding to replace aging diesel school buses. Fuel efficient driving techniques and more efficient bus route design has already contributed to a significant drop in fuel consumption – up to 30%.

“Electric school buses are the natural next step to continue on the path towards zero GHGs for the future of the children we serve,” said Robyn Stephenson, Manager of Transportation Services at School District #22. Recognizing the cost-saving and environmental benefits, the district will be integrating two electric buses into service next year.

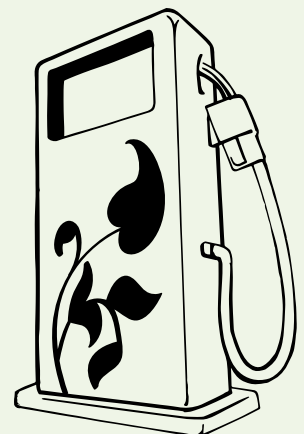
The inaugural uptake for the program exceeded expectations, with 13 school districts ordering a total of 18 electric school buses; 17 of which received program funding.

Highlights on Cleaner Fuels: While we have seen significant gains in new electric vehicles sales, the majority of our cars and trucks are still powered by internal combustion engines, making the [Low Carbon Fuel Standard](#) (LCFS) a critical part of CleanBC as it reduces emissions from gasoline and diesel use.

- This year, we increased the LCFS to a 20% reduction in average carbon intensity of fuel by 2030 compared to 2010 levels, updating the previous requirement of 10% reduction by 2020 – a first in Canada. The new higher standard comes into effect in 2020, with the requirement to decrease the carbon intensity of fuels ramping up about 1.1% annually from 2019 when the target was 8%.

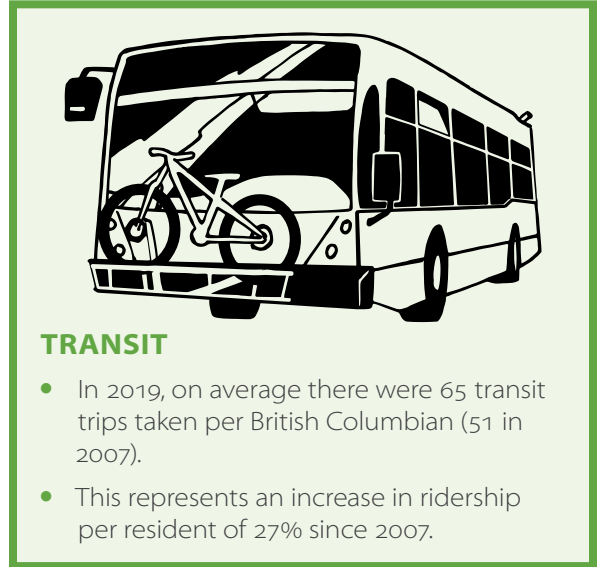
CLEAN FUELS INDICATORS

- 6.7% renewable content in transportation fuels in 2018 (4.2% in 2010).
- 601 million litres of biofuel consumed in 2018 (326 million litres in 2010).



Highlights on Transit and Active Transportation: In 2019-2020, B.C. continued investing in transit while laying the groundwork for significant improvements in cycling and walking infrastructure.

- In June 2019, the Province launched its first active transportation strategy, [Move. Commute. Connect.](#) In June 2020, the government announced that it will cost share 23 infrastructure projects and 21 active transportation network plans under its B.C. Active Transportation Infrastructure Grants Program. Indigenous and local governments located across the province will receive nearly \$9 million in 2020-2021.
- Since 2019, BC Transit put into service 64 new compressed natural gas buses. As part of its Low Carbon Fleet Program, BC Transit will start buying only electric heavy-duty buses in 2023, with a target of creating a fully electric fleet in all vehicle classifications by 2040.
- Since 2019, TransLink put into service 47 new compressed natural gas buses, along with 47 diesel hybrid-electric buses and four battery-electric buses. Further, in 2018, TransLink formally adopted organizational goals to achieve an 80% reduction in GHG emissions from operations by 2050, and to use 100% renewable energy in all operations by 2050.
- In March 2020, a new B.C.-built cable ferry was put into operation on Arrow Lakes. Shore and vessel engineering are now underway to [fully electrify](#) this operation in 2021.
- In June 2020, BC Ferries launched its Island Discovery vessel on the route between Powell River and Texada Island. The vessel is the first of a series of hybrid-electric ships designed for future fully electric operation.



Improve where we live and work

CleanBC Goal: Helping British Columbians conserve energy and making homes healthier and more comfortable, while reducing emissions.

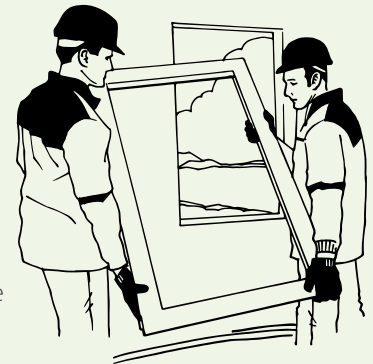
Estimated Results: Current actions are estimated to reduce emissions by 1.5 Mt CO₂e by 2030.

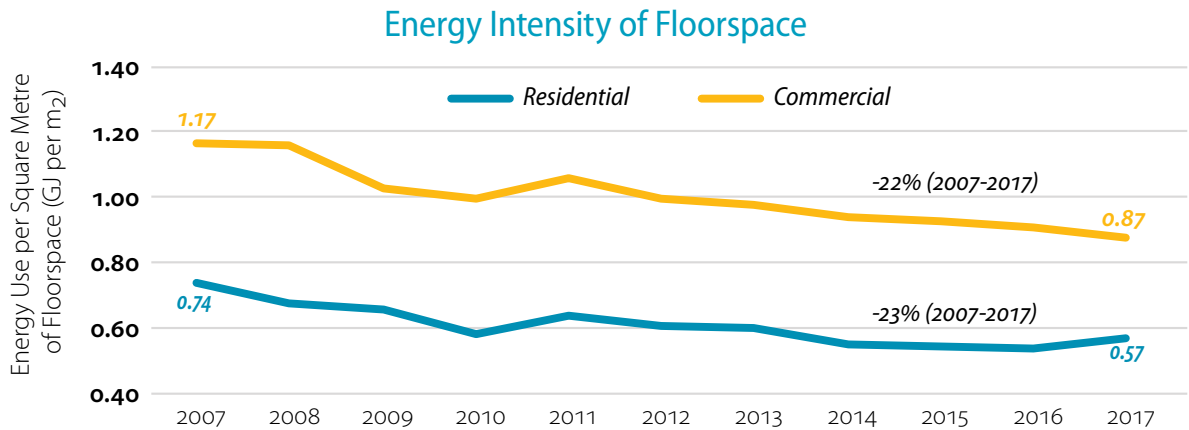
Highlights on Better Buildings: CleanBC tackles emissions in buildings by [increasing building energy code requirements and energy efficiency standards](#). B.C. will improve the BC Building Code in phases leading up to “net-zero energy ready” for new buildings by 2032 and increasing energy-efficiency in existing buildings through the development of a retrofit code by 2024.

- Since CleanBC, progress in this area has focused on the BC Energy Step Code (ESC), which sets out a series of efficiency requirements beyond the base BC Building Code. Currently, 39 local authorities reference the BC Energy Step Code in bylaws related to new construction and buildings.
- A Vancouver Economic Commission [study](#) projects a \$3.3 billion market opportunity resulting from six categories of products and equipment for new building construction to meet the energy requirements of Metro Vancouver between 2019–2032.
- In July 2019, 11 building projects were selected as winners in a juried competition to support the design and construction of energy-efficient buildings as part of the [Net-Zero Energy Ready Challenge](#).
- The Province also supported an initiative called the [Reframed Lab](#) for retrofit demonstration projects on up to five multi-unit residential buildings. The goal is to demonstrate solutions that integrate seismic and fire safety, energy efficiency and climate-adaptation upgrades, while dramatically reducing carbon pollution.
- In 2018, government committed \$1.1 billion over 10 years to a capital renewal fund for social housing, and \$400 million of the fund has been earmarked for energy efficiency measures. To date, government has spent just under \$220 million on capital renewal projects and \$149 million of that has been spent on energy efficiency upgrades.

BETTER BUILDINGS

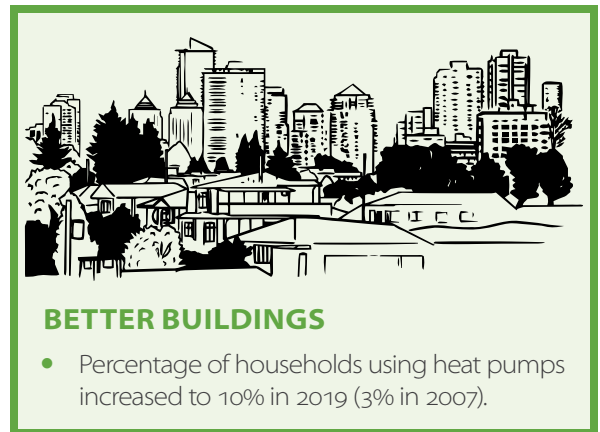
- Since 2007, residential energy use has decreased by 7%, even as the amount of floor space increased by 21%.
- In commercial buildings, energy use has decreased by 16% while floor space increased by 10%.



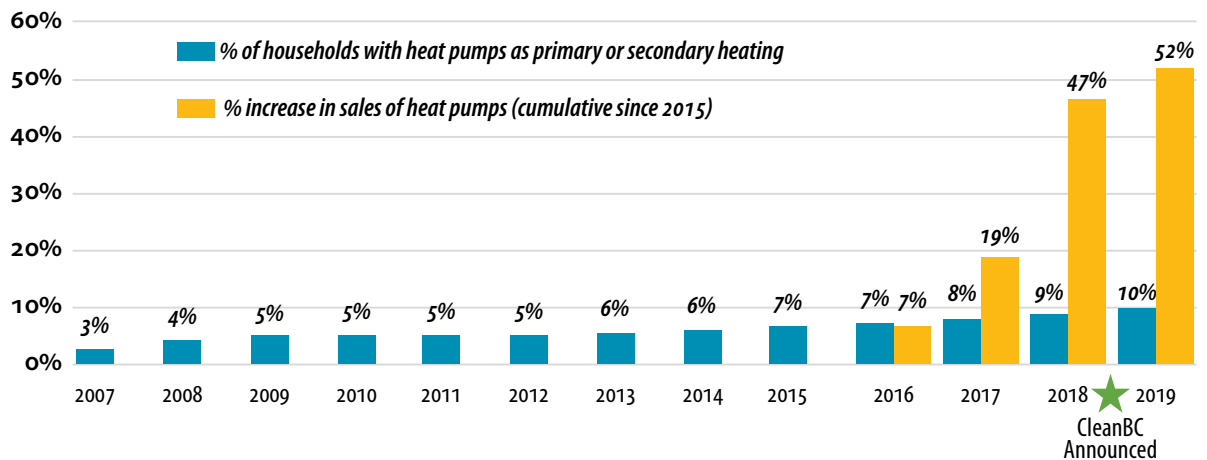


Highlights on Supports for Better Buildings: To help British Columbians save energy and switch to clean electricity, the Province created the [CleanBC Better Homes](#) and [CleanBC Better Buildings](#) programs. These two programs offer a suite of incentives including rebates for heat pumps, envelope upgrades and new windows. These programs are important steps to continue reducing emissions in our current buildings, which have long life spans.

- After the Better Homes program redesign to better meet user needs, 2019 saw a significant increase in the use of the program, including over 6,600 home energy rebates (an average of 554 per month) and over 7,700 energy coach enquiries in 2019-2020.
- Although heat pump installations are increasing, the rate of increase has slowed recently. To help boost these numbers, B.C. has continued to adapt its incentive offers and promotions based on feedback and market condition. For instance, the CleanBC Indigenous Heat Pump Incentive provides rebates for fuel-switching heat pump installation projects in residential and community buildings, with rebates covering up to 80% of costs. These rebates can be used to top up other grants or incentive funding to cover up to 100% of eligible heat pump system costs. In addition, we launched the [CleanBC Better Homes Low Interest Financing Program](#) to provide loans with interest rates as low as 0% for switching from a fossil fuel system to a heat pump.
- StrongerBC committed \$2 million to develop a Property Assessed Clean Energy (PACE) pilot program to spur energy-efficiency upgrades for residential and commercial buildings. PACE will provide financing that allows homeowners to take out loans for efficiency upgrades and pay them back over time through annual property taxes. Energy savings can often pay for the cost of the upgrades.
- Forty-five CleanBC Better Buildings capital incentive projects have been approved for businesses and public sector organizations during fiscal year 2019-2020. These projects will install heat pumps, heat recovery chillers and high-efficiency gas equipment.



Heat Pump Systems and Sales



UNBC LAB IS LEADING THE WAY IN INDUSTRIAL PASSIVE HOUSE DESIGN

The University of Northern British Columbia (UNBC) set a North American record in 2018 with the opening of their ultra energy-efficient and air-tight Wood Innovation Research Lab (WIRL). The Lab, built to the Passive House standard, is expected to emit only one percent of the greenhouse gas emissions of a conventional building. In addition, UNBC is seeking to supply WIRL with renewable natural gas to further reduce its carbon footprint.

Located in downtown Prince George, and home to UNBC's Master of Engineering in Integrated Wood Design program, WIRL is a single-storey mass timber structure composed of glue-laminated timber columns and beams on a concrete raft slab foundation. By using wood as a primary construction material, WIRL contains less embodied energy compared to a traditional steel building.

The WIRL is the first industrial building in North America to earn the rigorous Passive House standard – surpassing the airtightness requirement by nearly a factor of 10. Using up to 90% less energy for heating and cooling, and up to 70% less energy overall, it is a pivotal engineering and architectural success for northern British Columbia.

Highlights on Support for Communities: In the past year, B.C. launched three new programs that build on a set of important opportunities for communities to reduce emissions and invest in clean economy jobs.

- CleanBC Communities Fund (CCF): In 2019, B.C. launched the [CleanBC Communities Fund](#) (CCF) as part of [Investing in Canada Infrastructure Program's Green Infrastructure](#) stream. Canada and the B.C. government invested \$46.5 million in 11 projects, with an additional \$16.5 million committed towards projects awaiting final approval. We are investing up to another \$47 million after a second round was opened to applications in August 2020. The [projects](#) help create economic opportunities by lowering emissions in community infrastructure, for example, through energy-efficiency building upgrades, clean energy and clean transportation projects.
- In 2020, together with New Relationship Trust and Western Economic Diversification Canada through the [B.C. Indigenous Clean Energy Initiative](#), the Province is supporting several First Nations projects, including funding for a wind generation project for the Sauteau First Nation (Treaty 8) in Chetwynd, as well as a feasibility and engineering study for a Fort Nelson First Nation geothermal energy generation plant.
- In 2020, government announced projects under the \$16.5 million [Renewable Energy for Remote Communities](#) (RERC) program, working with four First Nations communities to transition to clean energy. This builds on a number of other programs, including the [Community Energy Leadership Program](#) and the [First Nations Clean Energy Business Fund](#).

SUSTAINABLE AND AFFORDABLE COMMUNITY HOUSING IN KANAKA BAR TRADITIONAL TERRITORY

The Kanaka Bar Indian Band, also known as T'eqt'aqtn'mux or "the crossing place people," are showing that you do not have to compromise sustainability for affordable community housing.

A new housing development, aptly named "The Crossing Place" supports the Band's vision of affordable housing combined with energy self-sufficiency and being a zero-emissions community. With supporting funding from the [CleanBC Communities Fund](#), the Crossing Place will use a hybrid of solar panels, small wind turbines and micro-hydro to maximize the use of clean electric space and water heating.

The four-acre development sits on Lower Kanaka lands, with an adjacent six acres dedicated solely to food production, processing, and storage. Once completed, the development will have up to 40 units, a community amenities space, as well as a resilient source of clean energy and food security available for community members and Kanaka Bar residents regardless of age and background.

"Affordable, inclusive, sustainable and resilient housing has been a Kanaka priority for many years," said Chief of the Kanaka Bar Indian Band, Patrick Michell. "The Crossing Place will ensure the comfort and well-being of our community and regional residents, all while respecting the environment," he added.

Reduce waste

CleanBC Goal: Helping reduce waste going to landfills and turning it into a resource.

Estimated Results: Current actions are estimated to reduce emissions by 0.8 Mt CO₂e by 2030.

Highlights on waste: Waste is another important climate issue. When disposed in the garbage and buried in a landfill, organic waste generates methane, a potent GHG. In addition, when waste materials are removed from the economy, it requires more mining, drilling or manufacturing to replace them.

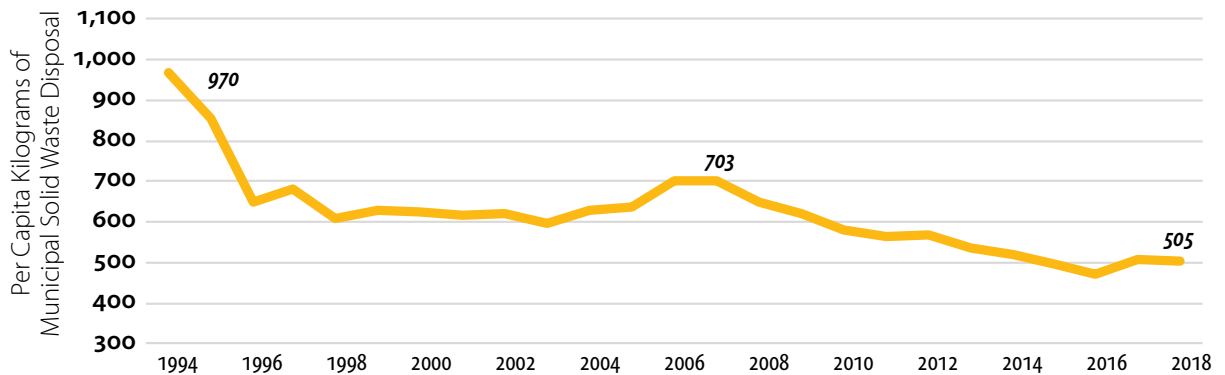
- Thirteen new projects were announced this year under the [Organics Infrastructure Program](#). In total, the projects, supported by this cost-shared funding program, are expected to expand capacity at compost facilities by up to 110,000 tonnes of organic waste per year.
- Through the release of the [CleanBC Plastics Action Plan](#) consultation paper in 2019, the Province sought feedback from the public and, in September 2020, announced actions to reduce and use less plastic. The Province approved plastic bans in five local governments and is expanding beverage container recycling and provincial regulation of single-use plastic items. The Province is also considering an expansion of Extended Producer Responsibility, so producers have even more incentive to create better-designed products that can be disposed of responsibly.

REDUCING WASTE INDICATORS

- From 2007 to 2018, the amount of waste disposed of in landfills in B.C. has decreased per capita by 28%.
- In 2018, 67% of B.C.'s population lived in regions that have organic waste restrictions (3.3% in 2007).



Municipal Solid Waste Disposal



REUSE OF ORGANIC MATERIALS BRINGS BENEFITS TO B.C. COMMUNITIES

Two B.C. communities have seen the benefits of diverting their organic waste from landfills and are undergoing major upgrades of their facilities to help them further their goals. The expansions in the District of Summerland and the Northern Rockies Regional Municipality will allow for further reductions of greenhouse gas emissions, local job creation, as well as creation of quality soil and compost that will go back into local food production.

Summerland is growing their organics infrastructure with a new processing site that will increase their capacity, upgrade operations and environmental technology and produce Class A compost streams for use in future food production and landscape applications. Once completed, they expect to reduce their GHG emissions by 24,500 tCO₂e.

The Northern Rockies has recruited the help of worms to help them process their organics with a new aerobic vermicomposting facility in Fort Nelson. This project uses red wiggler worms that work with fungi, bacteria and other invertebrates to transform organic matter into “castings,” which can be used in municipal landscaping or residential gardening.

Both projects have received funding through the [Organics Infrastructure Program](#). Under this program, Canada and B.C. have invested \$20 million to expand our capacity to process organics and turn it into a resource.

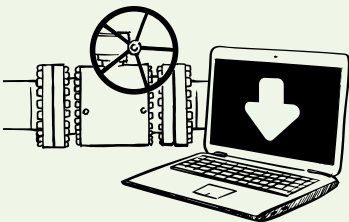
Cleaner industry

CleanBC Goal: Making B.C. industries the cleanest in the world to support good jobs, use cleaner energy, and promote energy efficiency.

Estimated Results: Current actions are estimated to reduce emissions by 7.5 Mt CO₂e by 2030.

Highlights on Cleaner Industry: B.C. industries have been investing to reduce carbon pollution. Although this has helped to slow the rise in emissions since 2007, overall emissions increased in 2018. Since the release of CleanBC, we’ve worked together with industry through new programs, regulations and the Low Carbon Industrial Strategy, to achieve greater efficiencies, reduce total emissions and build clean economic opportunities.

- In 2019, B.C. launched the [CleanBC Program for Industry](#) to support cleaner, more competitive operations by partnering with industry. The program is expected to lower emissions by 2.5 Mt CO₂e per year by 2030.
 - In June 2020, the program’s [CleanBC Industry Fund](#) closed its second call for innovative projects to reduce emissions. In its first year, the fund committed approximately \$12.5 million across 14 projects over a three-year period, while encouraging another \$46 million of investment from industry and other funding.



INDUSTRY INDICATORS

- Since 2012,⁷ total reported emissions from large B.C. facilities that emit more than 10,000 tonnes of CO₂e per year have decreased by 1.8% to 18.9 Mt CO₂e (19.3 Mt in 2012).

⁷ A reference year of 2012 is used for this class of emitters because industrial GHG emission reporting methods were finalized that year.

- In 2019, B.C. launched the first phase of the [CleanBC Industrial Incentive Program](#). The program encourages cleaner industrial operations by reducing carbon tax costs for facilities that operate near world-leading emissions benchmarks, which were released in 2020. The first phase of the program was a transition year (2019), in which facilities were eligible to receive 75% of the carbon tax paid over \$30 per tonne CO₂e.
- As part of B.C.'s response to the pandemic, government temporarily redesigned the CleanBC Industrial Incentive Program to support the early release of a portion of funds, and provided a higher portion of CleanBC Industry Fund investments upfront to help get projects off the ground.

CLEAN ENERGY IMPROVES OPERATIONS AT B.C. MINE

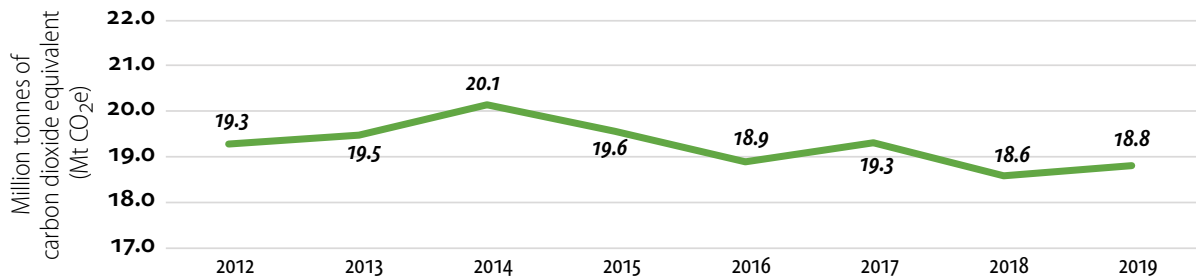
A mine in Princeton B.C. is showing that clean industry is the way of the future with their new high-powered electric trolley system for large mine-haul trucks. The Copper Mountain pilot project will help prove the effectiveness of trolley technology in British Columbia for wider use. The project also plays an important role in B.C.'s move to a low-carbon economy by replacing diesel used by the haul trucks to transport mine material to a surface processing facility with clean electricity. This will significantly reduce greenhouse gas emissions.

"We produce high-quality minerals, while minimizing our impact on the environment. With the success of this trolley project, we will see a reduction in greenhouse gas emissions by 30% to 50%," said Gil Clausen, president and CEO of Copper Mountain Mining Corporation.

Through the CleanBC Industry Fund, \$2 million is being put toward the installation of the trolley system and supporting upgrades to four of the company's trucks to be compatible with an overhead trolley system that is planned to be installed on a new laneway on a steep section of the mine-haul road. This is expected to reduce local air pollutants and 55,000 tonnes of CO₂e which is equal to taking 20,000 cars off the roads for a year.



GHG Emissions from Large Industrial Facilities in B.C.



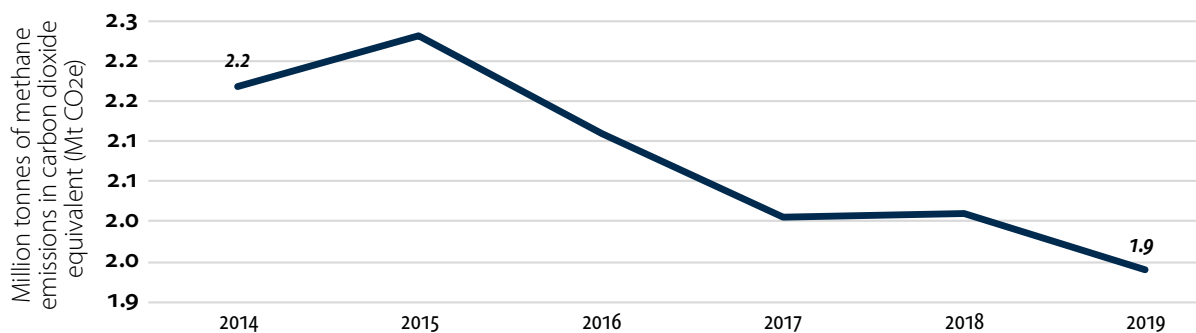
Graph is populated with data collected under the Greenhouse Gas Industrial Reporting and Control Act (GGIRCA), which uses 2019 information. Reporting methods have been in place since 2012.

- On January 1, 2020, new provincial methane regulations came into effect, which will reduce methane emissions from upstream oil and gas operations by 45% by 2025. The regulations are estimated to result in cumulative reductions of up to 10.9 Mt CO₂e over a 10-year period. B.C. worked with the federal government to reach an equivalency agreement on methane emission reductions to ensure our regulations and oversight remain in force for the B.C. natural gas sector. B.C. has also established the multi-stakeholder BC Oil and Gas Methane Emissions Research Collaborative, which is carrying out research on leading technology and evolving best practices to inform a review of the regulations by 2022.

INDUSTRY INDICATORS

- Since 2014,⁸ reported fugitive and vented methane emissions (in CO₂e) in the upstream oil and gas sector have decreased 11% to 1.9 Mt, while natural gas production has been increasing. This means that the emissions intensity of natural gas production is decreasing.

Fugitive and vented methane emissions reported from the upstream oil and gas sector



Graph is populated with data collected under the Greenhouse Gas Industrial Reporting and Control Act (GGIRCA), which uses 2019 information. 2014 is used as the reference year for B.C.'s methane reduction regulations.

- B.C. has also established MOUs with partners like the [Business Council of British Columbia](#) (BCBC) and the federal government to help reduce emissions and take advantage of the growing demand for lower-carbon products and solutions. For example, under the Low Carbon Industrial Strategy with BCBC, initial results show that B.C. products can have a carbon intensity advantage over certain competing jurisdictions.

⁸ 2014 is the reference year for the Province's methane reductions regulation.

Highlights on Electrification and Lower Natural Gas Emissions:

- In May 2019, BC Hydro started on the second phase of the Peace Region Electricity Supply project, with construction on two power lines between the future Site C Substation near Fort St. John and the existing Groundbirch Substation, east of Chetwynd. This builds on the already completed [Dawson Creek-Chetwynd Area Transmission Line](#), which has doubled BC Hydro's transmission capacity and increased reliability in the south Peace region, serving residential and commercial customers, as well as industrial customers such as natural gas producers, wood product mills, and small mining operations.
- In March 2020, the Province released the [Interim Report](#) from Phase 2 of a comprehensive review of BC Hydro. BC Hydro Phase 2 Review considered optional rates to keep electricity costs affordable, policies and programs to encourage electrification using B.C.'s clean electricity and support for economic development. Release of the results of the review is expected in 2021.
- As part of its [30BY30 Target](#), FortisBC established its Clean Growth Innovation Fund in partnership with government and industry. Over a period of four years, the fund will direct \$4.9 million per year to support clean innovation projects, to help reduce its emissions by 30% overall by 2030.
- As part of the 2019/2020 [CleanBC Industry Fund](#) investments, Veresen Midstream Limited Partnership will install electric vapour recovery equipment at their Steeprock Gas Plant near Dawson Creek that will capture methane and repurpose it into its feedstock, thereby reducing flaring of methane gas and helping to reduce emissions by 26.5 Kt CO₂e through to 2030.
- The CleanBC Industrial Incentive Program benchmarks are reviewed and revised every five years. At the next review starting in 2023, government intends to consider how benchmarks can support the electrification of industry. This includes examining electrified benchmarks for upstream oil and gas facilities that have the ability to connect to the BC Hydro grid. This could provide an important incentive for industry to electrify operations.

Highlights on Technological Innovation:

- In June 2020, B.C.-based Carbon Engineering Ltd. broke ground on its new [Innovation Centre in Squamish](#). Thanks to past support from the [Innovative Clean Energy \(ICE\) Fund](#), the company is investing in B.C. so it can develop solutions to address global challenges. Carbon Engineering is also partnering with new investors to develop a Direct Air Capture and sequestration facility in Texas
- Two key reports released in 2020 – from the [Emerging Economic Task Force](#) and [B.C.'s Innovation Commissioner](#) – include recommendations that build on the opportunity to leverage B.C.'s green economy through CleanBC.

INDUSTRY INDICATORS

- Cleantech companies in British Columbia are estimated to have generated \$2 billion in domestic revenue and employed more than 9,700 people in the province in 2018. The companies also exported a total of nearly \$1.2 billion in goods and services.
- The 2020 Global Cleantech Top 100 list includes 12 Canadian companies, four of which are from B.C.
- In 2019, the number of clean tech companies in the province grew to 293.

- The [Food Security Task Force findings and recommendations report](#) released in 2020 includes recommendations to establish B.C. as an agri-food leader, by developing an agricultural technology incubator-accelerator and establishing an agritech institute.

Highlights on Forest Carbon Management:

- In June 2019, government appointed a parliamentary secretary to lead the increased use of [mass timber](#) to help drive economic growth and reduce our carbon footprint. Mass timber, a new generation of engineered wood products made for large-scale building construction, is a cost-effective low-carbon building solution, and B.C. companies are expanding operations to meet demand.
- Working with the Forest Enhancement Society of B.C. under the [Forest Carbon Initiative](#), B.C. has diverted more than three million cubic metres of post-harvest residual fibre from slash burning, resulting in an immediate reduction of greenhouse gases. These projects, many of which are being conducted in partnership with First Nations, reduce emissions and create jobs, supporting a strong, sustainable and innovative economy in forestry dependent communities across B.C.

Helping people get the skills they need

CleanBC Goal: Expand training opportunities over the coming years to ensure we have the workforce needed in our low-carbon economy.

Highlights on training: B.C. is identifying opportunities to help people with new opportunities in a cleaner economy.

- Government is currently developing a CleanBC Job Readiness Plan that will outline potential training and job opportunities expected to arise over the next several years and beyond from implementation of CleanBC.
- In the EV sector, together with partners, we're helping people prepare for more electric vehicles, charging stations, batteries and supplies, while creating good jobs and attracting business opportunities. In 2019, 12 automotive technicians completed the pilot EV maintenance course at the British Columbia Institute of Technology (BCIT), and 34 electricians have completed charging infrastructure installation training through the Electric Joint Training Committee.
- B.C.'s housing and construction industry provides valuable training on the BC Energy Step Code. The Province's Building and Safety Standards Branch supports this work through the Energy Step Code Council in partnership with more than 30 organizations engaged in training.
- BCIT created the [Zero Energy Buildings \(ZEB\) Learning Centre](#) to support the construction industry with transitioning to the BC Energy Step Code and City of Vancouver Zero Emissions Building bylaws. BCIT provides a full suite of training, including [courses](#) at the [High Performance Building Lab](#), [courses on the road](#) with their lab-in-a-box kit, and courses online as BCIT adapts to COVID-19.

4. PREPARING FOR A CHANGING CLIMATE

B.C. is already experiencing the effects of climate change, and in the years ahead, these changes are expected to intensify. They will affect our ecosystems and watersheds, our infrastructure and economy, and our services and communities. Being prepared can help us reduce negative consequences. Our ideas and solutions to prepare us for the future can also help create new opportunities.

Climate risks in B.C.

Climate change is already impacting people, industries and communities differently around the province. Coastal areas are receiving more intense and frequent rain events, droughts are affecting growing seasons and changes in stream flows are disrupting fishing and lake levels. With improved understanding of these risks, we can better prepare for the changes ahead.

In 2019, the Province conducted the [Preliminary Strategic Climate Risk Assessment for B.C.](#), to look at 15 potential climate risk events. The assessment evaluated climate-related risks by determining the likelihood of each event, along with the health, social, economic and environmental consequences. It is the first report of its kind in Canada that examines provincial-scale climate risks.

Some of the key findings from the risk assessment were that:

- The greatest risks to B.C. are severe wildfires, seasonal water shortages, heat waves, ocean acidification, glacier loss, and long-term water shortages.
- Other risks that have the potential to result in significant consequences include severe river flooding and severe coastal storm surge, although these events are less likely to occur.
- Nearly all risk event scenarios (except moderate flooding and extreme precipitation and landslide) would have major province-wide consequences in at least one category (e.g. health, social, economic, environmental), with the majority of risk events having significant economic consequences.

RISK EVENT		RISK
	Severe wildfire season	High
	Seasonal water shortage	High
	Heat wave	High
	Ocean acidification	High
	Glacier mass loss	High
	Long-term water shortage	High
	Reduction in ecosystem connectivity	Medium
	Saltwater intrusion	Medium
	Loss of forest resources	Medium
	Increase in invasive species (knotweed)	Medium
	Moderate flooding	Medium
	Severe riverine flooding	Medium
	Severe coastal storm surge	Medium
	Extreme precipitation and landslide	Medium
	Increased incidence of vector-borne illness (Lyme disease)	Low

Figure 2 Modelled Risk Events

- High risk events include both discrete events (such as wildfires, water shortage, and heat waves) as well as slower-onset, gradual climate changes (such as ocean acidification and glacier mass loss).
- Risk events with the highest overall consequences do not necessarily rank highest in overall risk, as they tend to have relatively low likelihood.

Figure 2 illustrates the overall risk ratings for the 15 scenarios included in the risk assessment.

This province-wide assessment was a critical step in understanding climate risks in B.C. We are now working to improve our forecasting and analysis, including representing risks at regional levels in B.C. (particularly as they relate to diverse populations) and exploring ways to uphold Indigenous values in our climate risk assessments. At the same time, we're expanding our capacity to assess risks, learn from Indigenous ways of knowing, and respond to the impacts of climate change. We will continue to provide a province-wide determination of risk every five years, as required by the *Climate Change Accountability Act*.

Preparing for climate risks

The Province is developing a climate preparedness and adaptation strategy. It will lay the foundation for new and necessary climate adaptation actions taken by the Province. It will also provide a clear vision and measurable actions to help increase efforts and accountability.

During the fiscal year 2019 - 2020, significant investments were made to better prepare the province for climate-related risks. Highlights include:

- **Community Preparedness:** As of 2019/20, the Province has invested \$69.5 million in the Community Emergency Preparedness Fund (CEPF), which supports local governments and Indigenous communities to reduce their wildfire and flood risk and effectively respond to emergencies.
- **Wildfire:** As part of a \$60 million commitment, the Community Resiliency Investment Program provided approximately \$13 million to help local governments and First Nations reduce wildfire threats around their communities. Funding was also provided to the Forest Enhancement Society of B.C. for wildfire risk reduction, among other efforts.
- **Flood:** The Province provided funding through the Community Emergency Preparedness Fund and the National Disaster Mitigation Program toward 62 flood risk reduction projects totaling \$32.6 million.
- **Drought:** We established a government-to-government partnership in February 2020 with the Cowichan Tribes to ensure long-term water sustainability for the Koksilah watershed and developed a water sustainability plan for the area.
- **Agriculture:** B.C. invested \$2.34 million in the Environmental Farm Plan (EFP) Program and Beneficial Management Practices (BMP) Program to support the completion of 348 EFPs and the implementation of 323 BMP projects that contribute to GHG emissions reductions, carbon sequestration and climate adaptation. [The Food Security Task Force findings and recommendations report](#) released in 2020 includes recommendations for using technology and innovation to continue strengthening our agriculture sector while adapting to climate change.
- **Forestry:** B.C. is developing a Climate Change Informed Species Selection tool to rank tree species for suitability to future climate and related economics costs and benefits.

For a full list of accomplishments and planned activities see [Managing Climate Risk Table](#).

While not part of the fiscal year covered by this report, the Province also committed approximately \$90 million from the COVID-19 economic recovery plan to help put people back to work and prepare B.C. for climate change. Investments will go towards wetlands and ecosystem conservation, wildfire risk reduction, more resilient highway infrastructure and better agricultural practices.

A NEW CLIMATE PREPAREDNESS AND ADAPTATION STRATEGY

B.C. is developing a new climate preparedness and adaptation strategy. It builds on a strong foundation of actions already underway to manage climate risks.

A key priority in strategy development is to get input from a wide range of groups and people from across the province.

To start, it is being developed in partnership with Indigenous peoples. The Province established the Indigenous Climate Adaptation Technical (ICAT) Working Group and is working closely with them and the B.C. First Nations Leadership Council Technical Working Group on Climate Change on the strategy.

B.C. also completed a three-month public engagement in November 2019 and received over 3,000 submissions. Some of the top climate impacts reported were wildfire and smoke, water availability, and more extreme weather events. These climate impacts affected people's physical and mental health, damaged their property, and limited activities and livelihoods. See our report [Climate Ready B.C.: Preparing Together](#) for more on their feedback.

We also met with communities and Indigenous peoples through 10 regional engagement sessions and more recently held virtual workshops with a wide range of partners and communities.

Public sector organizations preparing for future impacts

Public sector organizations (PSOs) are increasing efforts to assess and address climate risks to their infrastructure and service delivery and have taken a variety of actions to manage these risks to buildings and service delivery. Examples range from school districts reducing landscaping near buildings to reduce forest fire risk, to post-secondary institutions considering climate models in future building design. BC Housing is leading the [Mobilizing Building Adaptation and Resilience](#) (MBAR) project, which assesses and provides solutions for the risks related to climate change and its impacts on the construction industry. Vancouver Coastal Health, Fraser Health and Vancouver Island Health, as well as a number of municipal, academic, industry and other partners are engaged with the MBAR project.

BC Housing, BC Hydro, West Vancouver School District, Capilano University, and the University of Victoria are examples of public sector organizations at different stages of developing either a climate adaptation or risk management plan for their organization. Over half of public post-secondary institutions and Crown agencies report considering climate change risks within their existing organizational risk management process. Many PSOs, including 67% of health authorities, completed a climate change vulnerability risk assessment in 2019 for buildings in their portfolio and their ability to deliver their services.

In the coming year the province will create new reporting requirements under the *Climate Change Accountability Act* that will require PSOs to report on their actions to manage climate change risks each year.

FUTURE-PROOFING B.C. HOMES TO CLIMATE CHANGE

BC Housing is leading a multi-stakeholder project to increase the resilience of our homes in the face of a changing climate. The Mobilizing Building Adaptation and Resilience (MBAR) project provides homeowners and construction industry professionals across British Columbia with new tools and resources for design, construction, renovation and training for increasing the climate resilience of our buildings.

MBAR develops new knowledge through pilot projects in a wide range of building types, from single family homes to apartments and healthcare campuses. The project looks at ways to adapt design and construction so owners and residents can remain comfortable and safe in the face of extreme weather such as hotter summers and heavy rainfall. Improving building resilience also helps communities and homeowners to recover more quickly after shocks such as earthquakes or floods.

Resources currently available include guides on overheating design, how to do energy modelling using future climate models, and how to identify hazards. Resources are free to download from the BC Housing Research Centre Library at <https://www.bchousing.org/research-centre/library>



5. WORKING TOGETHER

CleanBC is designed to benefit all British Columbians. It reflects the ideas and advice we heard throughout 2018 when we engaged with British Columbians to create our plan.

We continue to work directly with people on issues like plastics, active transportation, training and jobs and preparing for a changing climate. And we're working together with industry, Indigenous leaders and communities, local governments, environmental and academic partners and others, to move towards a cleaner future driven by a sustainable economy. This chapter highlights our engagements since 2019.

Inter-governmental collaboration

Indigenous Peoples

During the 2019-2020 fiscal year, we've been working closely with Indigenous peoples to build stronger partnerships and act on shared goals. For example, we are working together to develop clean energy infrastructure in remote communities and increase economic opportunities. We are also building community resilience, while developing a provincial climate preparedness and adaptation strategy.

Examples of policy changes that have been made as a result of Indigenous engagement through 2019-20 include:

- Launching of the Indigenous Community Heat Pump Incentive and the Indigenous Community Energy Coach Program;
- Bringing provincial and non-provincial funding bodies together to streamline and improve coordination of funding applications; and,
- Providing increased rebates for Indigenous communities interested in installing home and workplace chargers, buying electric fleet vehicles and providing public electric vehicle charging infrastructure.

Throughout this work, we are helping to align and advance Indigenous communities' clean economic development initiatives and goals that support the goals of CleanBC. This includes bioenergy development, climate preparedness and adaptation, community power projects and charging infrastructure. CleanBC supports Indigenous peoples and Indigenous climate leadership in the transition to a low-carbon B.C. economy.⁹

Details on our engagement with Indigenous peoples during the fiscal year 2019-2020 can be found in the [Table Outlining Engagement with Indigenous Peoples](#). Perspectives from participants in our regional engagements in 2019 are included in a ["What We Heard"](#) report.

⁹ A summary of funding and resources available to Indigenous Nations to support energy planning, energy efficiency, and clean energy projects in B.C. is available [here](#).

Local government

Local governments across the province are taking action to address climate change and better prepare for the future. In 2019, the Province and Union of B.C. Municipalities (UBCM) established the UBCM Special Committee on Climate Action to generate new ideas, explore opportunities and barriers to local government action, and identify avenues for further partnerships. This builds on the many shared programs and structures already underway - such as the Green Communities Committee (GCC), which is a joint provincial-UBCM committee established under the B.C. Climate Action Charter to support local government climate action and to meet their Charter commitments, specifically carbon neutral local government. The Province also collaborates with local government on the BC Energy Step Code, and through shared transit planning and funding.

Since 2019, we've engaged with municipal leaders on numerous topics, including interactive workshops on CleanBC, the upcoming climate preparedness and adaptation strategy, community energy and emissions data, and the active transportation strategy.

Federal government

CleanBC is a part of Canada's approach to the Pan-Canadian Framework (PCF) and Canada's contribution internationally to global emission reduction goals.

B.C.'s carbon price – currently \$40 per tonne of CO₂e – is exceeding the federal carbon pricing system, and we have aligned provincial and federal regulations to reduce methane emissions in the upstream production of natural gas.

We also work together through shared funding arrangements, such as for clean energy projects under the [CleanBC Communities Fund \(CCF\)](#) and the federal Green Infrastructure Stream of the Investing in Canada Infrastructure Program. In addition, B.C.'s Forest Carbon Initiative and Organics Infrastructure Program are jointly funded through the federal [Low Carbon Economy Fund](#).

The Province has also combined incentives with federal funding to support CleanBC programs. For example, combined provincial and federal rebates for new ZEVs have significantly helped increase ZEV sales in B.C.

In August 2019, the governments of B.C. and Canada signed a new MOU to affirm their joint commitment to power B.C.'s natural gas sectors with clean electricity. This approach will reduce emissions and position Canada as among the world's leading suppliers of cleaner natural gas. It will also support projects that create new jobs and opportunities in rural and Indigenous communities across the province.

Climate Solutions Council

In early 2020, the Province appointed a new advisory committee that is established by law to help provide independent advice to government. This new committee – the [Climate Solutions Council](#) – advises the Province on a number of interrelated and important issues, including work to reach our emission reduction and climate adaptation goals, opportunities for sustainable economic development and job creation, business competitiveness, and impacts on individuals from actions to address climate change. The Climate Solutions Council continues the work of the previous Climate Solutions and Clean Growth Advisory Council, that completed its two-year term at the end of 2019.

The Climate Solutions Council represents a wide range of interests and expertise from Indigenous communities, local governments, environmental organizations, academia, unions, rural and remote communities, youth, and the business community. The Council is also required by law to include at least 50% female members. You can find a complete list of the Council's members [here](#).

Given the unprecedented nature of the COVID-19 pandemic and its impacts on all aspects of life of British Columbians, the Climate Solutions Council delivered four letters of advice to government in 2020 regarding economic stimulus and recovery measures. The advice from the Council centered on using CleanBC to support progress on equity and affordability, service delivery and a sustainable economy. This government sincerely appreciates and values this advice, and looks forward to continuing to work with the Council in 2021 and beyond. The four letters and the Council's 2020 Annual Summary Report are available online at the [Climate Solutions Council website](#).

Engaging with British Columbians and other partners

Throughout fiscal year 2019-2020, the Province engaged with British Columbians across all regions of the province on a variety of initiatives directly related to CleanBC, such as the CleanBC Plastics Action Plan, and [Climate Ready BC: Preparing Together](#), an online public engagement to help develop a new climate preparedness and adaptation strategy. Government also conducted industry engagement on a [CleanBC Job Readiness](#) plan that supports new skills training in emerging jobs and professions for the clean economy.

The Province worked with many partners to implement CleanBC programs, such as B.C.'s ZEV regulations, the Heavy-Duty Vehicle Efficiency program, the CleanBC Program for Industry, changes to efficiency standards and building codes, and several innovation and communities funds. There was also significant engagement with industry and environmental non-government organizations through the development of the Industrial Incentive Program, the Industry Fund and the establishment of the emissions benchmarks and thresholds. Industry also provided input into the amendments of the *Climate Change Accountability Act*.

Youth and young leaders from across B.C. were also included in discussions relating to CleanBC. In addition to one-on-one meetings with several youth groups, the Province partnered with the Pacific Institute for Climate Solutions to convene youth and young leaders interested in climate change, learn about their perspectives and work, and further identify how they can get involved with CleanBC. The Province was also invited to present at a CleanBC workshop at the Métis Nation B.C.'s Annual Métis Youth Forum. The workshop encouraged Métis youth to consider how B.C.'s climate is changing and what actions can be taken to prepare for these changes.

A summary of engagement can be found in the [Table Outlining Engagement with British Columbians](#).



6. PUBLIC SECTOR CLIMATE LEADERSHIP

10th Anniversary of Carbon Neutral Government (CNG)

Ten years ago, B.C. was the first jurisdiction in North America to make the bold pledge to become carbon neutral.

This means that each year since 2010, B.C. has achieved a net impact of zero greenhouse gas emissions across all 128 provincial public sector organizations (PSOs). This is also saving energy costs, promoting low-carbon technologies, and helping others across the province build a cleaner future.

B.C. remains the only carbon neutral government at the federal, provincial or state level in North America.

Emissions performance – 2019 reporting year

For the 2019 reporting year, PSO emissions were 762,168 tonnes CO₂e, approximately 52,600 tonnes CO₂e or 6.5% lower than in 2010. The public sector reported 651,543 tonnes of offsettable emissions for 2019. The Carbon Neutral Government program funds emission reductions from offset projects in nearly every region and sector of the province. Our investments in these projects to reduce emissions continue to support clean technologies and economic opportunities across British Columbia. Public sector organizations are committed to continuing to reduce emissions where possible in addition to purchasing offsets. For more information on British Columbia's carbon offset portfolio, visit www2.gov.bc.ca/gov/content/environment/climate-change/public-sector/offset-portfolio

2019 Total Public Sector Emissions (tonnes CO₂e)¹⁰

	EMISSIONS	OFFSETS	BIO-CO ₂ E EMISSIONS ¹¹
BC PUBLIC SECTOR TOTAL	762,168	651,543	31,128
Provincial Government	63,038	62,301	737
Crown Corporations	157,007	91,345	6,047
Health Authorities	225,365	223,886	1,216
School Districts	174,328	153,413	1,317
Universities & Colleges	142,430	120,598	21,811

¹⁰ Total PSO emissions data includes biogenic emissions (i.e. emissions from combustion of biogenic fuels) and offset exempt emissions (i.e. emissions from public transit and school buses owned or leased by the PSO). Offsets purchases are not required for biogenic and offset exempt emissions. For further information, please see the [Carbon Neutral Government Scope Summary](#).

¹¹ Bio-CO₂ emissions are produced from the combustion of biogenic fuels (e.g. wood waste for heating, renewable vehicle fuels), and are also offset exempt.

2019 Total Public Sector Emissions by Source (tonnes CO₂e)

	EMISSIONS	BIO-CO ₂ EMISSIONS	TOTAL
Direct Fuel Combustion	494,234	22,507	516,741
Purchased Energy	59,496	-	59,496
Mobile Energy Use	154,677	8,559	163,236
Office Paper	16,330	-	16,330
Travel	6,258	62	6,320
Fugitive Emissions	45	-	45
TOTAL	731,040	31,128	762,168

Further details and information to support the above tables, including details for emissions normalized for weather conditions, are available here: <https://www2.gov.bc.ca/gov/content/environment/climate-change/public-sector/cnar>

Benefits of public sector leadership

Public sector organizations [report yearly](#) on their actions and results from reducing emissions. They do this by increasing energy efficiencies and the use of cleaner energy.

For every 1% improvement in energy efficiency, the British Columbia public sector saves over \$4 million in annual fuel costs-savings that can be reinvested into public services such as health care and education. Moreover, the public sector serves as an excellent venue to showcase to other sectors that innovative building solutions save energy and money.

B.C. provided \$50 million in funding to the provincial public sector through the Carbon Neutral Capital Program, to reduce emissions and create additional savings from energy efficiencies. PSOs received funding for projects that installed high efficiency boilers, upgraded facilities and added solar panels.

In 2019, the [CleanBC Government Buildings Program](#) set out a series of actions through 2023 and beyond to make offices, correction centres, courthouses, warehouses and other provincially-owned buildings more efficient and resilient to climate change. Since then, key actions include:

- 16 building retrofits including upgrades to lighting, building controls, and HVAC systems;
- 97 new EV charging stations in government buildings;
- 10 projects that upgrade energy efficiency in buildings with flexible spaces;
- Climate risk assessments of three buildings; and
- Studies for clean energy opportunities in remote areas, electrification, and renewables.

This year, B.C.'s school districts will receive 18 new electric school buses, which are expected to reduce emissions by approximately 270 tonnes per year. More green fleets are expected as PSOs take advantage of charging rebates, corporate supply purchasing agreements and analysis tools.

Looking ahead, B.C.'s public sector committed to further achievements under CleanBC.

- Starting in 2020, government committed to 10% of light-duty fleet purchases being electric vehicles where feasible.
- Based on 2010 levels, by 2030:
 - Emissions from public sector fleet vehicles will decrease by 40%.
 - Emissions from public sector building operations will decrease by 50%.
- Across B.C., all new buildings will be net-zero energy ready by 2032.
- Government has developed an evaluation framework through Treasury Board to ensure that public sector building projects maximize greenhouse gas reduction and energy efficiency outcomes in a cost-effective manner.

INNOVATION HEATS UP B.C. HOSPITALS

The BC Children's Hospital and BC Women's Hospital campus is achieving significant advances in energy efficiency through waste heat recovery. Two retrofit projects are using the naturally-occurring thermal energy available in their buildings to heat themselves. When completed, the projects are expected to reduce carbon emissions at the campus by more than 1,000 tCO₂e, which represents close to a 10% reduction for the entire hospital campus and is equivalent to removing more than 350 passenger vehicles from the road indefinitely.

The Provincial Health Services Authority (PHSA) is applying a unique technology called Thermal Gradient Header, which allowed PHSA to integrate standard heating, ventilation and air conditioning equipment into a new design in a way that facilitates reuse of thermal energy that would otherwise be wasted. When completed, the two projects will result in over \$500,000 in incentive funding from FortisBC, which will be used to support more energy conservation and carbon reduction projects at the campus.

10 YEARS OF CARBON NEUTRAL GOVERNMENT IN B.C. 2010 - 2019

Carbon neutrality is about the public sector taking responsibility for operational GHG emissions and helping to set standards, encourage new technologies and build momentum. It's a commitment made by all provincial universities and colleges, schools and hospitals, and Crown corporations and government offices.

To help achieve carbon neutrality in the public sector, the 2019 amendments to the *Climate Change Accountability Act* allow government to specify targets and requirements for public sector buildings, fleet vehicles and fuels to support achieving CleanBC leadership targets.

In 2010, when the legislated requirement for carbon neutral government took effect, it took a joint commitment from professionals from all sectors to increase efficiencies, switch to clean energy, and prevent or reuse waste. PSOs report out each year on these achievements.

Our policy requiring new facilities to achieve LEED Gold certification or equivalent helped build needed accredited professionals. The current Carbon Neutral Capital Program builds on this work. Since its inception, it has distributed \$132.5 million to finance emission reduction projects in public sector buildings.

The efforts of the PSOs have not gone unnoticed. In 2018, Carbon Neutral Government Program won a UN Momentum for Change Award. The UN award showcases some of the most practical and replicable examples of what people across the globe are doing to address climate change.

Appendix 1: CLEANBC INITIATIVES BY SECTOR¹²

INITIATIVE	DESCRIPTION	GHG MT IN 2030
<i>Cleaner transportation</i>		
Bring down the price of clean vehicles	<p>Within 20 years, every new car will be a zero-emission vehicle</p> <ul style="list-style-type: none"> Mandate 100% of new cars to be zero-emission vehicles (ZEVs) by 2040; 30% ZEV by 2030 and 10% ZEV by 2025 	0.6
	<p>Help people to afford cleaner cars and save money on gas bills with EV incentives</p> <ul style="list-style-type: none"> Continue to provide rebates for light-duty vehicles Expand incentives for clean buses and heavy-duty vehicles 	0.4
	<p>Make it easier to charge an electric car or fuel a hydrogen car</p> <ul style="list-style-type: none"> Expand the charging network with home, work and public fast-charging stations and additional hydrogen fueling stations Enable private investment in charging and hydrogen fueling infrastructure to get more stations faster 	
Speed up the switch to cleaner fuels	<p>Phase in more renewable fuels for the gas we use</p> <ul style="list-style-type: none"> Make our fuel cleaner by increasing the carbon intensity requirement of the Low Carbon Fuel Standard to a 20% reduction in average carbon intensity by 2030 Increase the supply of cleaner fuels by ramping up new production in B.C. of 650 million litres of renewable gasoline and diesel by 2030 	4.2
	<p>Make vehicles run cleaner by increasing tailpipe emissions standards for vehicles sold after 2025</p>	0.9
Get to work on getting rid of gridlock	<p>Help people get around with a long-term strategy to increase active transportation and look at better commuting solutions.</p>	
Subtotal¹³		6.0
<i>Improve where we live and work</i>		
Better Buildings	<p>Make every building more efficient</p> <ul style="list-style-type: none"> Improve the BC Building Code in phases leading up to “net-zero energy ready” by 2032 Adopt the model National Energy Code for existing buildings by 2024 Increase efficiency standards for heating equipment and windows Encourage the development of innovative and cost-effective low-carbon building solutions 	0.4
Support for Better Buildings	<p>Focused investments in public housing to use less energy at home</p> <ul style="list-style-type: none"> \$1.1 B for Capital Renewal fund for public housing to improve living conditions, energy efficiency, and reduce emissions Incentives to make heat pumps affordable and make homes more comfortable through building envelope upgrades Retrofits for public buildings so they use less energy Improve building energy information available to buyers and renters 	
	<p>Make residential natural gas consumption cleaner by putting in place a minimum requirement of 15% to come from renewable gas</p>	1.1
Support for Communities	<p>Help remote communities reduce their dependence on diesel</p> <p>Support public infrastructure efficiency upgrades and fuel switching to biofuels with the CleanBC Communities Fund</p>	
Subtotal		1.5

¹² The forecasted emission reductions for the individual policies listed in Appendix 1 are subject to uncertainty and the specific reduction level should be seen as an approximation. Reduction estimates are produced based on a set of assumptions that may be affected by factors such as oil prices, level of industrial growth, and the COVID-19 recovery pathway.

¹³ While policies presented in this table have been grouped together under sectoral headings, emission reduction estimates represent the difference between reference case and policy case emissions across the entire economy. Subtotals, therefore, represent the net effect of reduction policies, including effects in other sectors.

INITIATIVE	DESCRIPTION	GHG MT IN 2030
<i>Cleaner industry</i>		
Ramp up the CleanBC Program for Industry	Direct a portion of B.C.'s carbon tax paid by industry into incentives for cleaner operations.	2.5
Improve air quality by cutting air pollution	Clean up air pollution in the Lower Mainland with a pilot project to test options to switch 1,700 freight trucks to natural gas and low or zero-carbon fuel by 2030 Make heavy-duty vehicles more efficient with fuel efficiency improvements, education on best driving practices	
Reduce emissions of methane	Reduce methane emissions from upstream oil and gas operations by 45%	1.5
Industrial electrification	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 interconnectivity to existing lines	1.8
Carbon Capture and Storage	Ensure a regulatory framework for safe and effective underground CO ₂ storage and direct air capture	0.2
Cleaner fuels for industry	Make industrial natural gas consumption cleaner with a minimum 15% to come from renewable gas	1.5
Subtotal		7.5
<i>Reduce waste</i>		
Reduce waste and turn it into a clean resource	Help communities to achieve 95% organic waste diversion for municipal waste -- including systems in place to capture 75% of landfill gas. Waste less and make better use of it across all sectors of our economy, like forestry, agriculture, and residential areas, including renewing the B.C. Bioenergy Strategy and building out the bioenergy and biofuels cluster	0.8
Subtotal		0.8
<i>Helping people get the skills they need</i>		
Make sure British Columbians can lead the clean transition	Develop programs like Energy Step Code training and certification, and Certified Retrofit Professional accreditation Expand job training for electric and other zero-emission vehicles	
<i>Measuring Our Progress</i>		
Establish credible targets and a strategy to meet them	Roll-out associated programs and enabling legislation for CleanBC	
Stay accountable	Coordinate implementation and reporting for CleanBC as outlined in the <i>Climate Change Accountability Act</i>	
<i>Putting a Price on Pollution</i>		
Carbon pricing	Increase the carbon tax to encourage lower emission alternatives, with rebates for low and middle income British Columbians and support for clean investments	1.0
Subtotal		1.0
2020 CleanBC Total Reductions¹⁴		16.8

¹⁴ Policy line items represent individual reduction potential estimates. Subtotals and totals are derived from combined modelling and may be lower than the sum of policies because of policy interactions (two policies contribute to the same reduction).





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BRITISH
COLUMBIA

GAS