

# CLIMATE ACTION IN B.C.

2018 Progress to Targets



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# B.C.'S COMMITMENT TO A SUSTAINABLE FUTURE

In 2007, B.C. made a strong commitment to a sustainable future, and required in law an 80 per cent reduction in greenhouse gas (GHG) emissions by 2050.

Since then, we've been tracking our GHG emissions and setting targets for reductions. Measuring our progress towards these targets helps ensure we stay on track by adjusting and refining our approaches over time.

Recognizing the impacts of our growing economy and population, in May 2018, the Province updated targets for GHG emissions. Using 2007 as the baseline, we are now committed to emissions reductions of:

- ▶ 40% by 2030
- ▶ 60% by 2040
- ▶ 80% by 2050

These new targets reflect the fact that early progress to meet our targets had stalled in recent years. In order to stay on track, we have developed an ambitious set of actions in our new plan, *CleanBC*, which will get us 75 per cent of the way to our 2030 target.

This report outlines our progress towards B.C.'s reduction targets, based on our emission trends and leading action from 2007 to 2016. The analysis for this report also formed part of the assessment used to guide our 2018 *CleanBC* plan.

# PROGRESS TO TARGETS

## Province-Wide Emissions

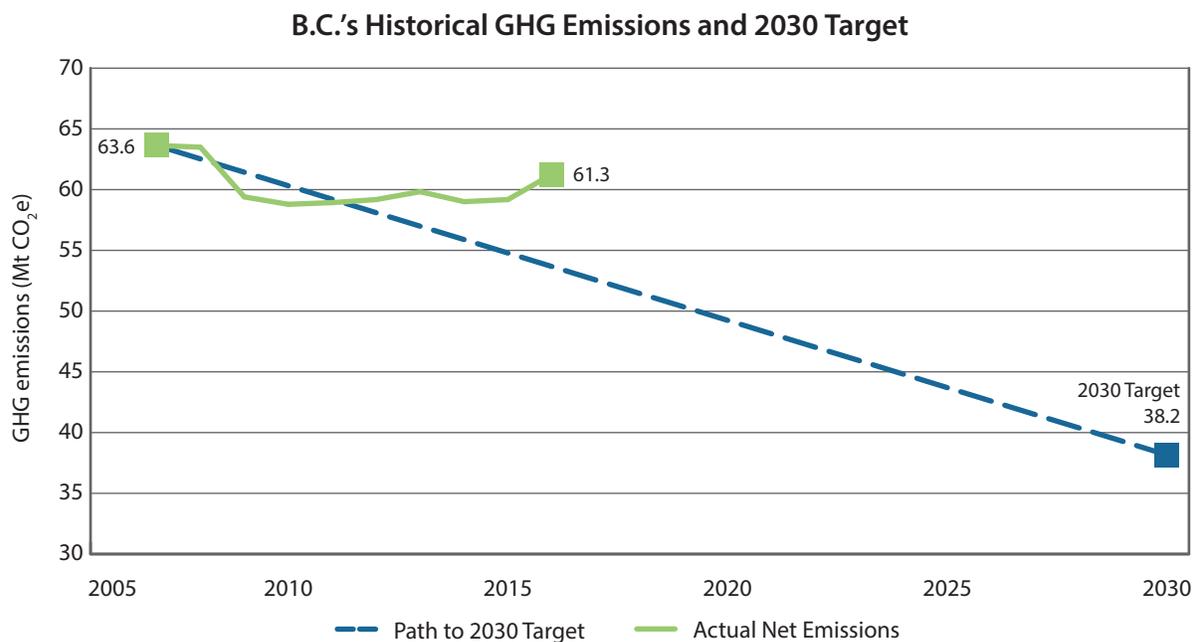
Understanding emission trends can help to inform our pathways to our 2030, 2040, and ultimately 2050 reductions targets. Because it takes two years to gather the necessary data, our 2018 Progress to Targets report includes emissions data up to 2016.

B.C.'s overall emissions trend since 2007 represents a mix of good and bad news. On the positive side, B.C.'s total net GHG emissions for 2016 were down by 3.7 per cent.

In 2016, B.C.'s net emissions were 61.3 million tonnes (Mt). This includes 1.0 Mt of GHG reductions achieved through projects that improve the storage of carbon dioxide in B.C.'s forests (see Appendix).

Over the same period, our GDP grew by 19 per cent.<sup>1</sup> This demonstrates a decoupling of emissions from economic growth, showing that we can both address climate change and build a strong economy.

While B.C.'s overall emissions have decreased since 2007, our annual emissions have begun to increase after an initial period of decline, effectively undoing the reductions made from 2007 to 2010. These rises have occurred in several sectors, driven by economic and population growth as well as a slowdown of emission reduction measures since 2011.



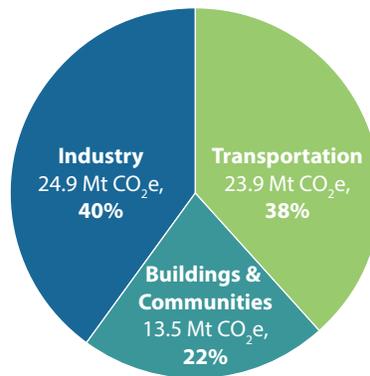
<sup>1</sup> 2012 chained dollars

## Understanding Sectoral Trends

Looking at total emissions alone masks several underlying trends occurring across different sectors. Understanding these trends is important to help inform the paths we can take to reach our targets.

For ease of understanding, GHG emissions can be grouped into three sectors: 1) transportation, 2) industry and 3) buildings and communities.

**B.C.'s Gross GHG Emissions by Sector in 2016**

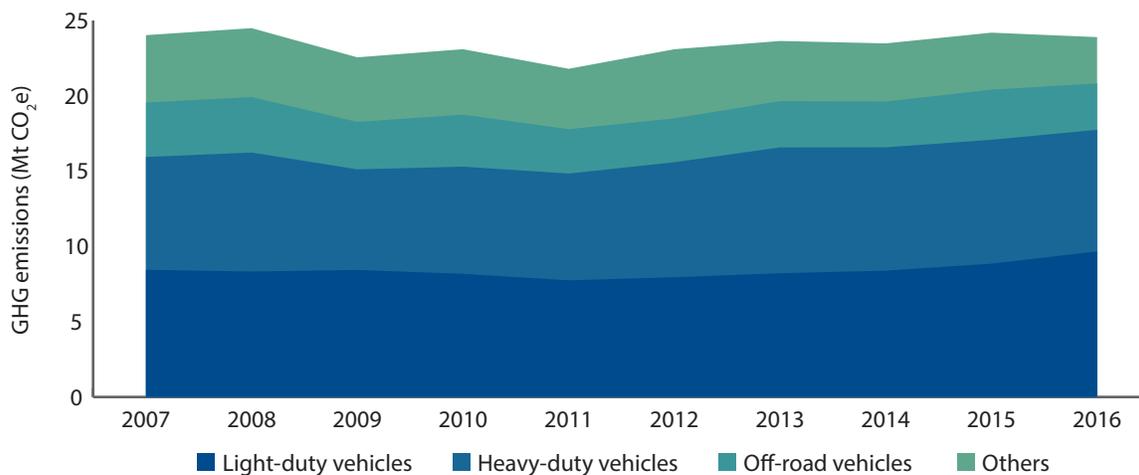


B.C.'s gross emissions in 2016 were 62.3 million carbon dioxide equivalent tonnes (Mt CO<sub>2</sub>e). Net emissions were 61.3 Mt CO<sub>2</sub>e after accounting for 1.0 Mt of GHG reductions achieved through projects that improve the storage of carbon dioxide in B.C.'s forests (see Appendix for more on emissions accounting).

## Transportation

As a province with a growing population as well as resource and service sectors that are geographically dispersed, transportation is an important part of our daily life and integral to B.C.'s economy. We can trace about 38 per cent of our carbon pollution to these sources.

**B.C. Transportation Emissions (2007-2016)**



► **2016 emissions total:** 23.9 Mt (38% of B.C.'s total)

► **Emissions change from 2007:** ↓ -1%

While overall transportation emissions remained relatively steady, emissions from both passenger vehicles and large transport trucks went up.

Key actions B.C. has taken to address emissions from passenger and medium/heavy-duty vehicles include the Clean Energy Vehicle (CEV) incentive program for the purchase of CEVs, charging/hydrogen fueling infrastructure, public outreach and education, and CEV fleet adoptions. Together with federal and local governments, we've also made considerable investments in transit, for example, expanding rapid transit service between Coquitlam and Vancouver.

The use of low carbon fuels has also helped to reduce emissions across the transportation sector. B.C.'s low carbon fuel standard requires fuel suppliers to progressively lower the carbon intensity of fuels. Carbon intensity is measured on a lifecycle basis, taking into account all emissions including those from production, processing, transportation and end use.

Nevertheless, the number of passenger vehicles continues to be closely tied to population growth and, without a faster adoption of cleaner vehicles or significant changes in the way people travel, these emissions have continued to increase. Similarly, the transportation of goods and use of heavy duty vehicles are integral to economic activity – and as our economy grows, emissions in this sector have continued their measured but steady growth.

Getting to our 2030, 2040 and 2050 targets will require ongoing improvements in fuel efficiency, lower carbon intensity fuels, and ultimately faster advancement towards lower emission vehicles across the entire sector. This is an economic opportunity for B.C. to expand its clean transportation and fuels sectors.

Our *CleanBC* strategy is now accelerating our move to lower carbon transportation – including increasing requirements for lower carbon fuels, expanding incentives for clean passenger and heavy duty vehicles, introducing a Zero-Emission Vehicle standard to make cleaner vehicles more accessible, and establishing an active transportation strategy for 2019.

### Trends in Transportation (2007-2016)

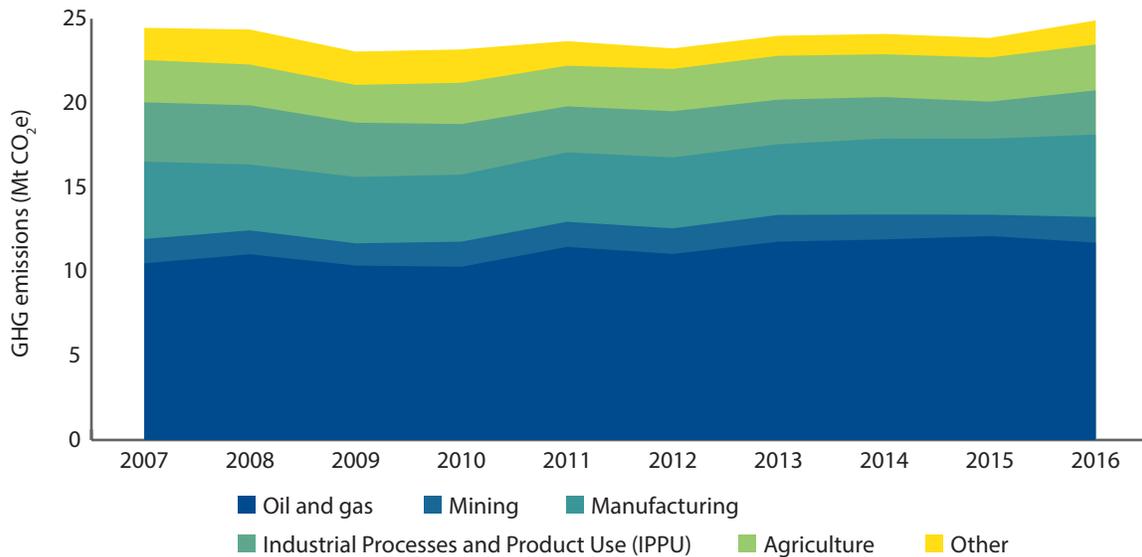
- ▶ Passenger vehicle (light duty transport) – up by 14.6% (1.2 Mt)
- ▶ Large truck (heavy duty transport) – up by 7.7% (0.6 Mt)
- ▶ Off road transportation – down by 14.5% (0.5 Mt)



## Industry

B.C.'s industries create thousands of good jobs and our clean electricity provides industry with a low-cost, clean energy source. At the same time, industry also uses a significant amount of fossil energy. As a result, industry contributes about 40 per cent of provincial emissions.

**B.C. Industry Emissions (2007-2016)**



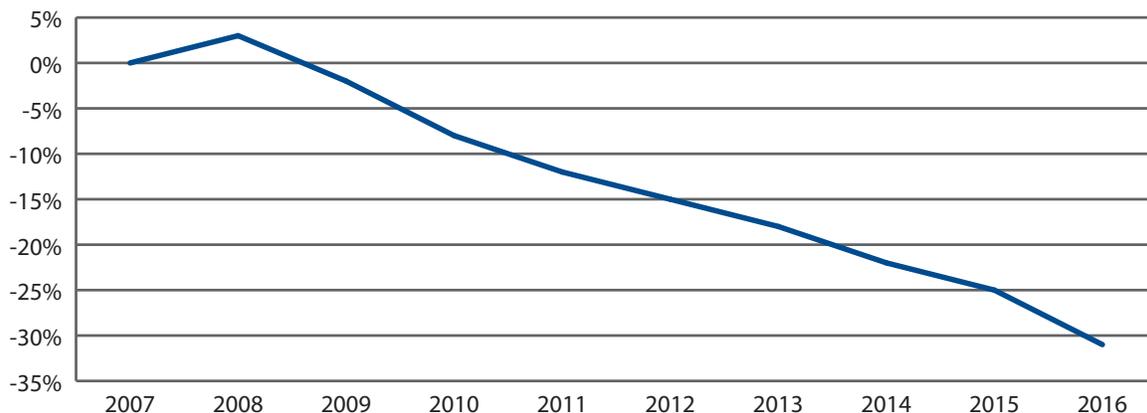
▶ **2016 emissions total:** 24.9 Mt (40% of B.C.'s total)

▶ **Emissions change from 2007:** +2%

Overall emissions rose by 2 per cent from these sources, while B.C.'s economy grew by 19 per cent during the same period. The largest increase in industrial emissions was in the oil and gas sector, while process emissions from metal and mineral production declined.

B.C.'s industrial sector has been working to reduce its carbon footprint and are among the cleanest in the world. This has been driven by past actions such as using clean electricity to power facilities and equipment, reducing methane venting in natural gas production, and using wood waste as biomass for heating and power.

**Decline in Natural Gas Production Intensity (GHGs per unit of Natural Gas produced)**



In addition to B.C.'s broad-based carbon tax, the Province has launched many initiatives to encourage cleaner industrial production including the Clean Infrastructure Royalty Credit Program, the Innovative Clean Energy Fund, cement industry incentives, an offsets program and expanding BC Hydro transmission.

Meeting our 2030 goal will mean improving energy efficiency further, using tools such as waste heat recovery and methane management. Continuing electrification of industry is also critical to meeting our climate commitments.

*CleanBC* outlines a low-carbon industrial strategy, including the *CleanBC* program for industry, which builds on our competitive advantages and encourages emitters to find innovative solutions to reduce their emissions.

**Trends in Industry (2007-2016)**

- ▶ Oil and gas – up 11.7% (1.2 Mt)
- ▶ Metal and mineral process emissions – down 22.3% (0.6 Mt)
- ▶ Manufacturing – up 5.5% (0.2 Mt)

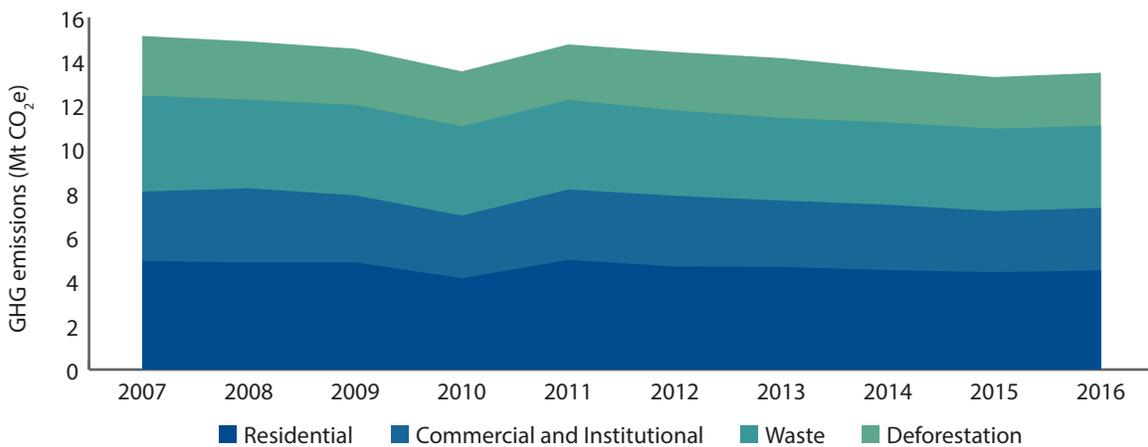
**Buildings and Communities**

Our homes, schools, workplaces and other buildings play an important role in emissions reductions. This sector, which includes emissions from buildings and waste, accounts for 22 per cent of B.C.'s emissions.

Between 2007-2016, GHG emissions from both residential and commercial buildings went down. Overall emissions in this sector dropped by 11 per cent.

Tightening efficiency standards for gas heating has been key to emission reductions to date. We have also increased the energy efficiency requirements in the BC Building Code, and continue to offer incentives to help fund a range of energy efficiency upgrades. This sector has the potential to continue improving heating/cooling efficiency and increase the use of clean electricity and renewable energy.

**B.C. Buildings and Communities Emissions (2007-2016)**



▶ **2016 emissions total:** 13.5 Mt (22% of B.C.'s total)

▶ **Emissions change from 2007:** ↓ -11%

In 2017, B.C. committed to taking incremental steps to further increase energy efficiency requirements in the BC Building Code and make buildings net-zero energy ready by 2032. This means buildings will be designed to be so efficient that they could meet all or most of their own energy consumption requirements with onsite renewable energy technologies. The BC Energy Step Code supports these efforts and provides an option for local governments to advance this work voluntarily.

Our *CleanBC* plan sets a clear path for further improvements to building codes and energy efficiency standards, which will guide our transition to more energy efficient, higher performing buildings. It includes expanded incentives that will help households and businesses save money while reducing their emissions. It accelerates the development of low-carbon buildings by providing new funding to develop and demonstrate innovative building solutions. In addition, a new CleanBC Communities Fund will help local governments and Indigenous communities develop energy efficiency and clean energy projects throughout the province.

Waste is another important climate issue as organic wastes generate methane, a powerful greenhouse gas. In B.C., organic wastes make up 40 per cent of municipal landfills. Thanks to increased diversion of organics from other waste streams, community waste emissions are down by more than 13 per cent since 2007. Emissions are also being reduced by converting methane from landfills and the organic waste stream into renewable natural gas, which can be used for heating or as a transportation fuel.

Our *CleanBC* plan includes targeted measures to both reduce the amount of organic waste we produce and make better use of it. Preventing waste in the first place remains the key to emission reductions.

### Trends in Buildings & Communities (2007-2016)

- ▶ Residential buildings – down 11.1% (0.5 Mt)
- ▶ Commercial buildings – down 6.5% (0.2 Mt)
- ▶ Waste – down 14.3% (0.6 Mt)



# GOING FORWARD

B.C. has several longstanding climate policies that have delivered emissions reductions and will support progress on future efforts. These include:

- ▶ **Carbon Tax:** currently at \$35 per tonne of carbon dioxide equivalent emissions, gradually increasing to \$50 per tonne by 2021
- ▶ **Clean Energy Act:** requires at least 93 per cent of electricity to be generated from clean or renewable resources (BC Hydro currently exceeds this requirement at 98 per cent clean electricity generation)
- ▶ **Climate Action Charter:** commits the 98 per cent of local governments who have signed the charter to taking action on climate change
- ▶ **Carbon Neutral Government Regulation:** requires all provincial public sector organizations in B.C. to be carbon neutral
- ▶ **Renewable and Low Carbon Fuel Requirements:** requires fuel suppliers to decrease the average carbon intensity of their fuels
- ▶ **Incentive Programs:** includes a range of programs to encourage British Columbians to develop and adopt climate solutions
- ▶ **Investment in Public Transit:** ongoing capital investment in public transit, including funding in partnership with federal and local governments
- ▶ **BC Building Code:** increasingly stringent requirements for energy conservation to reduce emissions.

To learn more about these and other significant actions B.C. is taking to reduce emissions, go to our [Climate Action Areas](#) webpage.

Going forward, our *CleanBC* plan sets out a clear path to meeting our climate action targets. These include a range of new and ambitious actions for transforming our buildings, the way we get around, and how we power our economy and use cleaner energy. These actions were developed through public consultations and are targeted to deliver the greatest GHG reductions at the lowest cost while generating jobs and opportunities.

Together, the actions in *CleanBC* will get us 75 per cent of the way to our 2030 target of 40 per cent reduction of GHG emissions.

The remaining 25 per cent in reductions will be achieved through initiatives such as:

- ▶ reducing and making better use of waste
- ▶ improving community planning, active transportation and transit
- ▶ cleaner heavy-duty vehicles and freight
- ▶ increasing industrial electrification
- ▶ maintaining a resilient agricultural sector, and
- ▶ cleaner and more efficient technology.

## CleanBC’s Key Actions

<b>Buildings and Communities</b>	
<b>Energy efficiency</b>	<ul style="list-style-type: none"> <li>• Improve the Building Code in phases leading up to “net-zero energy ready” by 2032</li> <li>• Adopt the model National Energy Code for existing buildings by 2024</li> <li>• Increase efficiency standards for heating equipment and windows</li> </ul>
<b>Programs and incentives</b>	<ul style="list-style-type: none"> <li>• Encourage the development of innovative and cost-effective low-carbon building solutions</li> </ul>
	<ul style="list-style-type: none"> <li>• \$1.1 B for Capital Renewal fund for public housing to improve living conditions, energy efficiency, and reduce emissions</li> </ul>
	<ul style="list-style-type: none"> <li>• Incentives to make heat pumps affordable and make homes more comfortable through building envelope upgrades</li> </ul>
	<ul style="list-style-type: none"> <li>• Retrofits for public buildings so they use less energy</li> </ul>
<b>Renewable gas requirement</b>	<ul style="list-style-type: none"> <li>• Make residential natural gas consumption cleaner by putting in place a minimum requirement of 15% to come from renewable gas</li> </ul>
<b>Support for communities</b>	<ul style="list-style-type: none"> <li>• Help remote communities reduce their dependence on diesel</li> <li>• Support public infrastructure efficiency upgrades and fuel switching to biofuels with the CleanBC Communities Fund</li> </ul>
<b>Transportation</b>	
<b>Zero-Emission Vehicle standard</b>	<ul style="list-style-type: none"> <li>• Mandate 100% of new cars to be zero-emission vehicles (ZEVs) by 2040; 30% ZEV by 2030 and 10% ZEV by 2025</li> </ul>
<b>Light and heavy duty vehicles and buses</b>	<ul style="list-style-type: none"> <li>• Continue to provide rebates for light-duty vehicles</li> <li>• Expand incentives for clean buses and heavy-duty vehicles</li> </ul>
<b>Charging / fueling infrastructure</b>	<ul style="list-style-type: none"> <li>• Expand the charging network with home, work and public fast-charging stations and additional hydrogen fueling stations</li> <li>• Enable private investment in charging and hydrogen fueling infrastructure to get more stations faster</li> </ul>
<b>Cleaner fuels</b>	<ul style="list-style-type: none"> <li>• Make our fuel cleaner by increasing the low carbon fuel standard to 20% by 2030</li> <li>• Increase the supply of cleaner fuels by ramping up new production in BC of 650 million litres of renewable gasoline and diesel by 2030</li> </ul>
<b>Emissions standards</b>	<ul style="list-style-type: none"> <li>• Make vehicles run cleaner by increasing tailpipe emissions standards for vehicles sold after 2025</li> </ul>
<b>Active transportation</b>	<ul style="list-style-type: none"> <li>• Help people get around with a long-term strategy to increase walking, cycling and other active modes and look at better commuting solutions</li> </ul>
<b>Skills Development</b>	
<b>Training programs</b>	<ul style="list-style-type: none"> <li>• Develop programs like Energy Step Code training and certification and Certified Retrofit Professional accreditation</li> </ul>
	<ul style="list-style-type: none"> <li>• Expand job training for electric and zero emission vehicles</li> </ul>
<b>Waste</b>	
<b>Reducing waste</b>	<ul style="list-style-type: none"> <li>• Help communities to achieve 95% organic waste diversion for agricultural, industrial, and municipal waste -- including systems in place to capture 75% of landfill gas</li> </ul>
	<ul style="list-style-type: none"> <li>• 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</li> </ul>

<b>Industry</b>	
<b>Clean growth program</b>	<ul style="list-style-type: none"> <li>Direct a portion of BC's carbon tax paid by industry into incentives for cleaner operations</li> </ul>
<b>Improving air quality</b>	<ul style="list-style-type: none"> <li>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</li> </ul>
<b>Fuel efficiency</b>	<ul style="list-style-type: none"> <li>Make heavy-duty vehicles more efficient with fuel efficiency improvements, education on best driving practices</li> </ul>
<b>Methane emissions</b>	<ul style="list-style-type: none"> <li>Reduce methane emissions from upstream oil and gas operations by 45%</li> </ul>
<b>Industrial electrification</b>	<ul style="list-style-type: none"> <li>Provide clean electricity to planned natural gas production in the Peace region</li> </ul>
	<ul style="list-style-type: none"> <li>Increase access to clean electricity for large operations with new transmission lines and interconnectivity to existing lines</li> </ul>
<b>Carbon capture and storage</b>	<ul style="list-style-type: none"> <li>Ensure a regulatory framework for safe and effective underground CO<sub>2</sub> storage and direct air capture</li> </ul>
<b>Renewable gas</b>	<ul style="list-style-type: none"> <li>Make industrial natural gas consumption cleaner by putting in place a minimum requirement of 15% to come from renewable gas</li> </ul>
<b>Accountability and Goals</b>	
<b>Targets and strategy</b>	<ul style="list-style-type: none"> <li>Roll out associated programs and enabling legislation for CleanBC</li> </ul>
<b>Carbon pricing</b>	<ul style="list-style-type: none"> <li>Grow the carbon tax \$5.00 per year from 2018 to 2021 to continue the incentive to choose lower emission alternatives, with rebates for low and middle income British Columbians and support for clean investments</li> </ul>
<b>Accountability</b>	<ul style="list-style-type: none"> <li>Coordinate implementation and reporting for CleanBC</li> </ul>

Additional public engagement will begin in 2019 to ensure future actions in the strategy reflect the needs and priorities of British Columbians.

Together, these actions will help move us to a future where buildings and new vehicles produce no emissions at all, industries are the cleanest in the world, and companies gain a competitive advantage in the expanding clean energy and low carbon products market.

# ADAPTING TO CLIMATE CHANGE IN B.C.

At the same time that B.C. is taking bold steps to reduce our emissions, we must also prepare for, and adapt to, the unavoidable effects of climate change already impacting our province. Across B.C., average temperatures are rising and extreme weather is becoming more frequent, with many communities devastated by floods and wildfires. Managing these risks is essential to protecting our health and well-being and ensuring our communities and economy continue to thrive.

In 2018, two important reports called for stronger action on managing climate-related risk in B.C.:

► **B.C. Auditor General Report: *Managing Climate Change Risks: An Independent Audit***

This independent audit reviewed whether government is adequately managing the risks posed by climate change. It outlined 17 recommendations for improving climate risk management. The Province accepted all of the report's recommendations, which included fifteen focused on adaptation and two on GHG mitigation.

► **Addressing the New Normal: *21st Century Disaster Management in British Columbia***

In this report, George Abbott and Chief Maureen Chapman released their strategic review of the 2017 Wildfire and Freshet Flooding Seasons. The 2017 wildfire season was unprecedented in British Columbia's recorded history, and the spring flooding that preceded it resulted in hardships for many residents. Government is already taking action on 19 of the report's 108 recommendations.

Considerable work to adapt to climate change is underway across provincial government ministries and in partnership with local governments and First Nations. These efforts include strategies for addressing the impacts of severe weather, identifying areas where we need to collect more climate data, and new funding to support the emergency response programs of local governments.

Following the report from the Auditor General, B.C. is also undertaking a provincial strategic climate risk assessment. It will provide a foundation for future adaptation efforts by helping us assess and compare the severity of climate-related risks. This will inform priority areas of action and the development of a new Adaptation Strategy that is expected in 2020.



# STAYING ON TRACK

We've come a long way with our climate action, but there's more to do particularly in the areas of community development and infrastructure, public transportation, industrial waste, using more clean energy, and working with B.C.'s Indigenous communities. Our CleanBC plan provides a clear roadmap for reducing our emissions – and we need to make sure we stay on track.

Under the new *Climate Change Accountability Act*, we will continue to provide comprehensive reports on our progress to targets. In addition, we will:

- ▶ table in the Legislature an annual report of spending, program results and anticipated reductions from the previous year
- ▶ forecast emissions for three years in the future, based on strategic initiatives and modelling, and
- ▶ publish emissions results as we get the information.

The independent Climate Solutions and Clean Growth Advisory Council will review our progress in, and provide advice on, future actions.<sup>2</sup> Their first report will be available in 2019.

We will also report publicly on how we are adapting to, and preparing for, climate change. Starting in 2020, we will report every two years on the climate risks to B.C., plans for minimizing those risks, and progress made towards minimizing them.

Going forward, we will continue to work with British Columbians to identify opportunities and put them into action. In 2020, we will report on the new initiatives and how much closer they will bring us to our targets. Each year we will also give an update on what's working and what needs more attention.

By working together to integrate climate, economic and energy solutions, we can protect our communities, meet our climate commitments, and generate benefits for more people as we build a cleaner economy.

<sup>2</sup> The Climate Solutions and Clean Growth Advisory Council was established in 2017 and includes members from Indigenous communities, environmental organizations, industry, academic research, labour and local government.





# APPENDIX

## Emissions Accounting Against B.C.'s Targets

B.C. produces an annual Provincial Greenhouse Gas Emissions Inventory that includes the majority of emissions that fall under the scope of B.C.'s reduction targets. The inventory provides the gross emissions total. In alignment with international GHG inventory standards, emissions from and carbon stored within B.C.'s forests are out of the scope of B.C.'s Provincial Inventory totals, as they are largely outside of human control (e.g. natural growth/decay, emissions due to pests or wildfires). These natural emissions can also fluctuate significantly from year to year, potentially masking underlying human-caused emissions trends.

However, B.C. does include increased carbon storage from certain specific, deliberate human activities when calculating its progress to targets. For example, this includes the creation of protected areas within forests previously available for commercial harvest, and imposing forest cover constraints in those areas that are still available for harvest.

Only emissions reductions or sequestration projects that meet rigorous standards for planning, implementation and monitoring are counted toward our targets. For carbon offsets, this means they must be appropriately quantified and validated by qualified third parties. For 2016, this only includes validated B.C. forestry offset projects under the *Greenhouse Gas Industrial Reporting and Control Act*, which are subject to very strict rules and controls. Once these projects are brought into the scope of the inventory, they remain in scope in perpetuity. If in the future they become emissions sources, for example through wildfire, they would then be included as such in progress to targets calculations.

In 2016, B.C.'s Provincial Inventory showed emissions of 62.3 million tonnes of carbon dioxide equivalent (Mt CO<sub>2</sub>e). This represents B.C.'s gross GHG emissions. The inclusion of offsets from forest management projects brought B.C.'s total emissions down to 61.3 Mt CO<sub>2</sub>e. This represents B.C.'s net GHG emissions.





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