



ESTIMATED RESULTS OF THE FEDERAL CARBON POLLUTION PRICING SYSTEM

Key Findings

Pricing carbon reduces pollution at the lowest cost to businesses and consumers. Around the world, businesses, governments and experts agree that carbon pricing is the cheapest and most efficient way to cut carbon pollution. According to the World Bank's 2017 *State and Trends of Carbon Pricing Report*, sixty-seven jurisdictions, representing about half of the global economy, are putting a price on carbon. Leading businesses across Canada have joined the World Bank's Carbon Pricing Leadership Coalition: mining companies, retailers, major energy companies and Canada's five biggest banks all support a price on carbon pollution.

A well-designed price on carbon pollution provides an incentive for climate action and clean innovation while protecting competitiveness. Carbon pricing is efficient and cost effective because it allows businesses and households to decide for themselves how best to reduce pollution – and will often save money in the process.

This analysis examines the effects on emissions and the economy of an illustrative scenario in which the four provinces with carbon pricing systems today – British Columbia, Alberta, Ontario and Quebec, representing 80 percent of Canada's population – meet the federal standard through 2022, and the other nine provinces and territories implement the federal carbon pricing system. It finds that:

- Carbon pricing will make a significant contribution towards meeting Canada's greenhouse gas reduction target. A price on carbon could cut carbon pollution across Canada by 80 to 90 million tonnes in 2022, once

all provinces and territories have systems that meet the federal standard. This is equivalent to taking 23-26 million cars off the road for a year¹ or shutting down 20-23 coal-fired power plants for a year.² Without this contribution, more costly regulatory interventions would be needed to meet our target.

- GDP growth would remain strong with pan-Canadian carbon pricing. Applying the federal carbon pricing system to the nine provinces and territories that are not pricing carbon pollution today would not be expected to have any significant impact on national economic growth rates in the context of a more than \$2 trillion economy. It is also likely to stimulate innovation, investments in clean technology and benefit long-term growth opportunities, although these benefits are not included in the modelling analysis.

A note about this analysis

The scenario presented in this document is for illustrative purposes only. It is not intended to signal any expectations on the part of the Government of Canada as to where the federal system will apply. Instead, we expect to see many of the nine jurisdictions not currently pricing carbon pollution develop their own carbon pricing systems. We have asked all jurisdictions to provide the details of their carbon pollution pricing systems by September 1, 2018.

Accurately assessing how pricing carbon pollution could affect the economy and emissions depends on the choices governments make about which carbon pricing system they adopt – a direct price, a cap-and-trade system, or a hybrid system. How

they choose to use the revenues generated from carbon pricing also has a big impact. Revenue can be used for rebates, tax cuts, incentives for energy efficiency or investments in clean infrastructure and innovation. Furthermore, forecasting future economic conditions involves simplifying very complex systems and making many assumptions, resulting in an inherent amount of uncertainty.

Thus, while this assessment provides a general indication of the potential results of carbon pricing, it is not – nor could be, at this point in the development of provincial and territorial systems across Canada – a precise accounting of impacts. Appendix 1 to this document provides a more detailed description of scenario and economic modelling approach.

Overview of the federal approach to pricing pollution

The Pan-Canadian Framework on Clean Growth and Climate Change is Canada's plan – developed with the provinces and territories and with input from Indigenous peoples – to meet our emissions reduction targets, grow the economy, and build resilience to a changing climate. The plan includes a pan-Canadian approach to pricing carbon pollution, and measures to achieve reductions across all sectors of the economy, including major investments in infrastructure, clean technology,

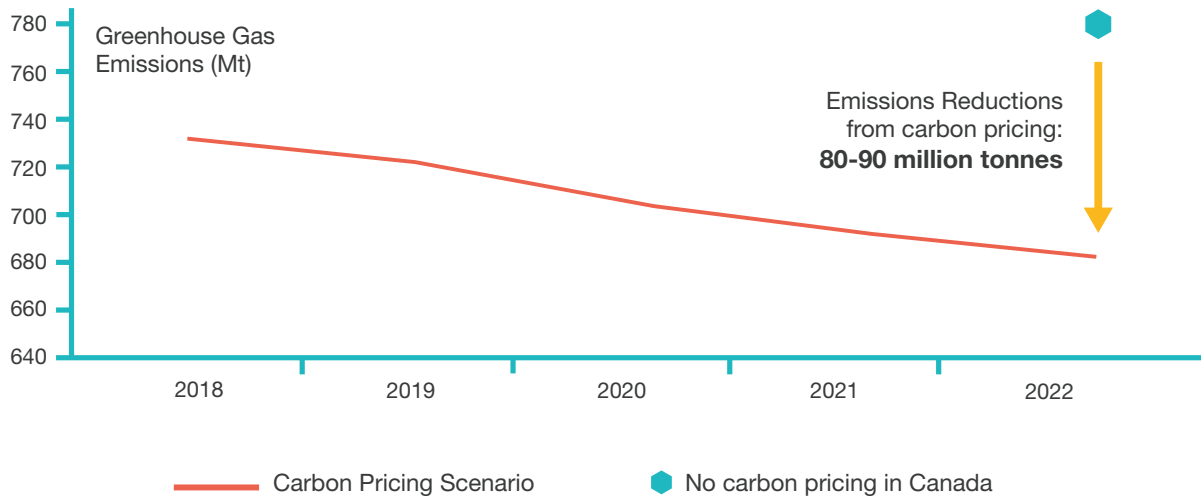
and through the Low Carbon Economy Fund. The plan aims to drive innovation and growth by increasing technology development and adoption to ensure Canadian businesses are competitive in the transition to a global clean economy. It also includes actions to advance climate change adaptation and build resilience to climate impacts across the country.

In October 2016, the Government of Canada published the [Pan-Canadian approach to pricing carbon pollution](#) to ensure that carbon pricing applies to a broad set of emission sources throughout Canada, beginning in 2018 and increasing in stringency over time.

Under that approach, provinces and territories can implement the type of carbon pricing system that makes sense for their circumstances, provided it meets the federal standard. We have committed to work with the territories to find solutions that address their unique circumstances.

The federal government also committed to implement a federal carbon pollution pricing system that will apply on January 1, 2019, in whole or in part, in any province or territory that requests it or that does not have a carbon pricing system in place in 2018 that meets the federal standard. The federal government will return all direct revenue from its carbon pricing system to the jurisdiction of origin.³

PROJECTED GREENHOUSE GAS EMISSIONS IN CANADA WITH AND WITHOUT CARBON PRICING



Estimated Emission Reductions Across Canada

Under the scenario in this analysis, carbon pricing would reduce greenhouse gas pollution by between 80 and 90 million tonnes in 2022, making a significant contribution to meeting Canada's national target. This is equivalent to taking between 23 and 26 million cars off the road for one year,⁴ or to shutting down 20 to 23 coal-fired power plants for a year (for comparison, there are 24 million cars on the road and 16 coal plants in operation in all of Canada today).⁵

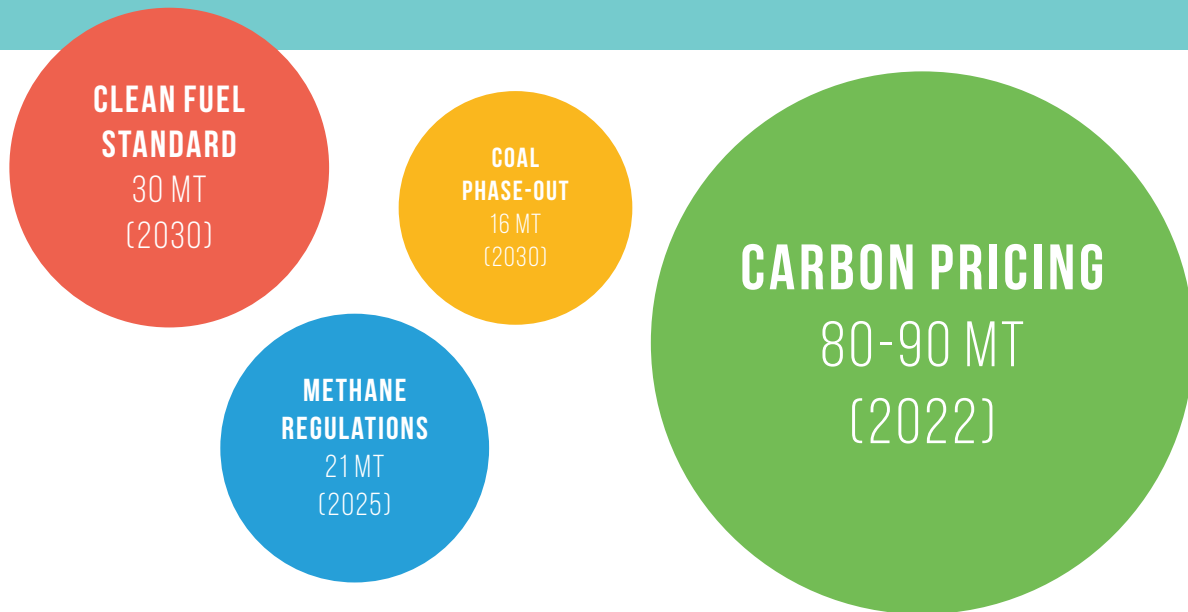
British Columbia's direct price on carbon pollution has been in place since 2008. Analyses suggest that the policy has reduced emissions by 5-15%.⁶ Meanwhile, provincial real GDP grew more than 17% from 2007 to 2015,⁷ outpacing the rest of Canada, and per-capita gasoline demand dropped 15% between 2007 and 2014.⁸

Without carbon pricing, Canada would be 80 to 90 million tonnes further from its target, and would have to fill that gap using less cost effective policies, such as regulations or investments.⁹

The estimated emission reductions attributed to pricing pollution include:

- Reductions from existing provincial carbon pricing systems in B.C., Alberta, Ontario and Quebec, with increasing stringency to meet the federal standard, and compared to a hypothetical scenario in which they did not have pricing systems in place.^{10,11}
- Reductions from applying the federal carbon pricing system in the nine provinces and territories that do not currently have pricing systems in place.

PRICING POLLUTION IN PERSPECTIVE



Complementary Measures

Carbon pricing is a critical element of Canada's clean growth and climate plan and a major part of meeting our national target. However, it was never intended to be the only policy measure in the plan to reduce greenhouse gas emissions. Relying exclusively on a carbon price to achieve Canada's emission targets would require a very high price. Instead, Canada's climate plan includes complementary policies and investments that work in concert with carbon pollution pricing to reduce emissions across the economy.¹² As Canada's Ecofiscal Commission has pointed out, complementary measures are particularly important to target emissions that cannot be covered by carbon pricing and to boost the price signal in certain markets.¹³

These complementary measures will help make carbon pricing more effective, create incentives for innovation and clean growth, and will reduce the cost to Canadians. For example, energy efficiency standards, building code improvements, zero-emission vehicle policies, and investments in

public transit all help Canadians use less energy and make cleaner choices that can save them money, including by reducing their exposure to carbon prices. Investments in clean technology and innovation help accelerate development of the next generation of technologies and ideas that will further improve efficiencies and lower emissions in the future.

The Pan-Canadian Framework on Clean Growth and Climate Change includes measures across the economy to reduce emissions, including:

- **Phasing out coal-fired electricity by 2030;**
 - **Reducing reliance on diesel in northern, remote and Indigenous communities;**
 - **Improving vehicle efficiency, and putting more zero-emission vehicles on the road;**
 - **Developing a Clean Fuel Standard;**
 - **Cutting methane emissions from the oil and gas sector;**
 - **Improving energy efficiency;**
 - **Increasing stored carbon in forests, wetlands and agricultural lands.**
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Economic Impacts of Pricing Pollution

This section looks at the economic effects of the federal carbon pricing system under a scenario in which it is put in place in the nine jurisdictions that are not currently pricing carbon pollution in Canada. As noted above, this is a hypothetical scenario that we do not expect to occur; however, it provides an illustration of the potential effects of pricing carbon pollution in Canada.

Impacts on GDP

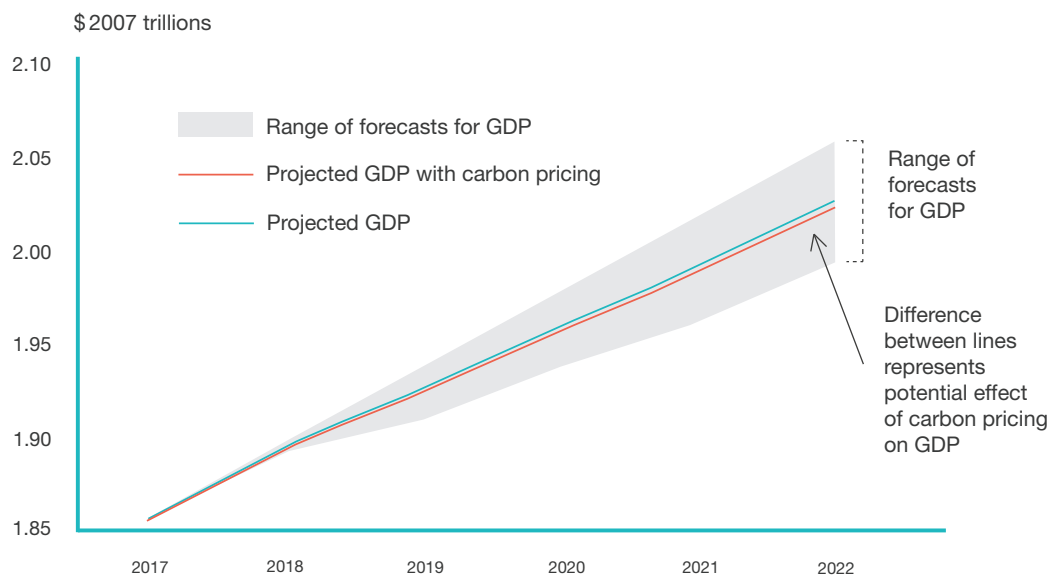
The federal carbon pricing system is not expected to have any significant impact on national economic growth rates. Between 2018 and 2022, the application of the federal carbon pollution pricing system in the nine jurisdictions that do not currently have their own regimes in place is estimated to impact average annual real GDP growth rates for Canada by less than one tenth of one percentage point. The difference in GDP in 2022 would amount to about \$2 billion, or 0.1% of GDP. The average annual outlook for real GDP

growth over this period would be 1.8%, either with or without federal carbon pricing.^{14,15} The model used to develop this estimate accounts for changes to provincial and territorial production and consumption patterns, interjurisdictional trade across Canada, and international imports and exports as a result of carbon pricing (see Appendix 1). This finding is consistent with previous analyses by governments and external experts.¹⁶

For comparison, this estimated impact from carbon pricing is significantly less than the range of current GDP projections, and is much less than the typical impact of annual fluctuations in world energy prices.

The four provinces with carbon pricing systems in place – British Columbia, Alberta, Ontario and Quebec – cover 80 percent of Canada’s population and were also the top four performers in GDP growth across the country in 2017.¹⁷

PROJECTED REAL GDP IN CANADA WITH AND WITHOUT CARBON PRICING*



*Assumes the federal system is applied in the nine jurisdictions that do not currently have pricing systems in place, and also that existing pricing systems continue to meet the federal standard

There are also significant economic benefits from pricing carbon. Some of these benefits, like improved innovation, will increase productivity and hence long-run growth, but are not captured

in our model. As such, the estimated economic impact of pricing carbon pollution outlined above is likely overstated.

The Benefits of Pricing Pollution

Economic models like the one used for this report do not account for some of the significant benefits of pricing pollution that the academic literature, and real-world evidence, have found.¹⁸ These include:

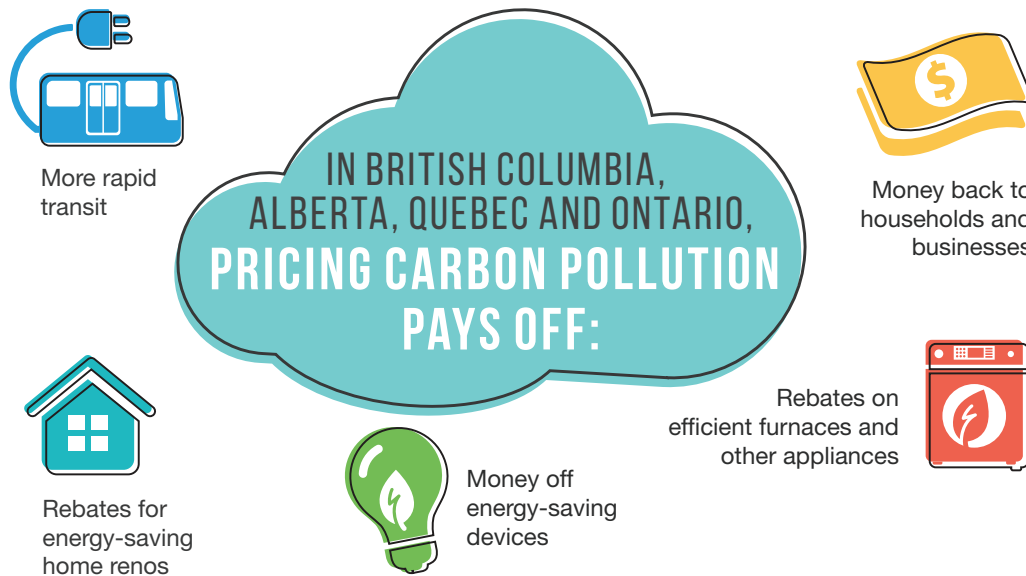
- Carbon pricing will help Canadian businesses **gain an edge in the emerging low-carbon economy**, a growing market that the World Bank's International Finance Corporation calls a \$23 trillion opportunity.¹⁹ Putting a price on carbon pollution creates an incentive to innovate, develop and adopt clean technologies and processes. Canadian firms in provinces with carbon pricing are already switching to cleaner fuels. Others are developing new technologies to make money by capturing carbon emissions – such as some of the new technologies that embed carbon dioxide released from industrial facilities into concrete and other useful materials. Companies and entrepreneurs that develop new ways to produce goods or provide services less carbon intensively will benefit from access to the rapidly growing global market for low carbon solutions.
- Consumers and households will **save money** over the long term by improving energy efficiency (such as better insulation) and using cleaner technologies such as smart thermostats. As new technologies become available, their cost will likely fall, and they will likely become more widely available and effective over time.
- The World Bank's High Level Commission on Carbon Prices, co-chaired by Nobel Laureate Joseph Stiglitz and Lord Nicholas Stern, concluded that "**The transition to a low-carbon economy is potentially a powerful, attractive, and sustainable growth story**, marked by higher resilience, more innovation, more livable cities, robust agriculture, and stronger ecosystems."²⁰
- By reducing pollution, carbon pricing has a range of significant **public health benefits**.²¹ For example, by accelerating the reduction of coal-fired electricity generation, the amendments to the coal-fired electricity regulations that the federal government introduced in February, 2018 are estimated to lead to improved air quality and reduced exposure to air pollutants that are linked to health issues, such as premature deaths, asthma and heart disease.²²

It is also important to account for the **avoided cost of inaction on climate change**. Numerous studies demonstrate that the costs of inaction are much greater than the costs of addressing climate change.²³ In its 2011 *Paying the Price* report, the

former National Round Table on the Environment and the Economy concluded that the costs of climate change could represent about \$5 billion per year by 2020 in Canada, and "could range from \$21 billion to \$43 billion per year by 2050,

equivalent to 0.8% to 1% of GDP, depending upon what future global emissions occur and how Canada grows in the meantime."²⁴ The Insurance Bureau of Canada has tracked a rise in insured

losses due to extreme weather, from \$400 million a year between 1983 and 2008 to around \$1 billion or more in recent years, including more than \$5 billion in 2016, the highest annual payout ever.²⁵



Implications for Households

The net effect of pricing pollution on households in Canada depends on a number of factors, particularly the choice of system in a given jurisdiction (a direct price, a cap-and-trade system, or a hybrid approach) and the ways that governments re-invest the revenues generated from pricing pollution. As governments are still determining their approaches to these policy design questions, this section provides some general considerations related to household impacts in Canada.

The federal government has committed to return all direct revenues from the federal carbon pollution pricing system to the jurisdiction of origin. Around the world, governments use carbon pricing revenues for various purposes, including reducing business or individual taxes, helping businesses and households invest in energy efficiency, building transit and other infrastructure, and

offsetting costs incurred by low-income households or other vulnerable groups. Canada's Ecofiscal Commission recommends a portfolio of approaches in order to address fairness and competitiveness concerns.²⁶

A number of external analyses have explored the potential implications for households of carbon pricing in Canada.²⁷ A key finding is that the final net effect for any household depends a lot on how governments choose to use carbon pollution pricing revenues.²⁸

The four provinces pricing carbon pollution in Canada today – British Columbia, Alberta, Ontario and Quebec – have invested carbon pricing revenues in rebates to citizens, tax cuts, climate action, infrastructure, investing in clean innovation, energy efficiency, and other initiatives.

For example, British Columbia plans to invest its carbon pricing revenues this year in reducing the Medical Service Plan premium by 50%, as well as cutting personal income taxes and small business corporate income taxes.²⁹

Governments can also use revenues to ensure that low-income households are protected. For example, in Alberta about 60 percent of households are eligible for a full or partial rebate on the province's carbon levy. A household with two adults and two children would be eligible to receive a rebate of up to \$540 per year in 2018, more than the estimated cost of the levy for this size of household.

The federal government's commitment to ensuring all revenue from pricing pollution remains within the jurisdiction enables provinces and territories to best design the system for their economy and households.

Conclusion

Pricing carbon reduces pollution at the lowest cost to businesses and consumers while driving innovative ways to enhance energy efficiency and cleaner energy sources. This analysis shows that the adoption of carbon pricing at the federal standard throughout Canada will reduce greenhouse gas pollution by 80 to 90 million tonnes in 2022 while our economy continues to grow. The clean growth and innovation spurred by pricing pollution will help position Canada for success in the economy of the 21st century.

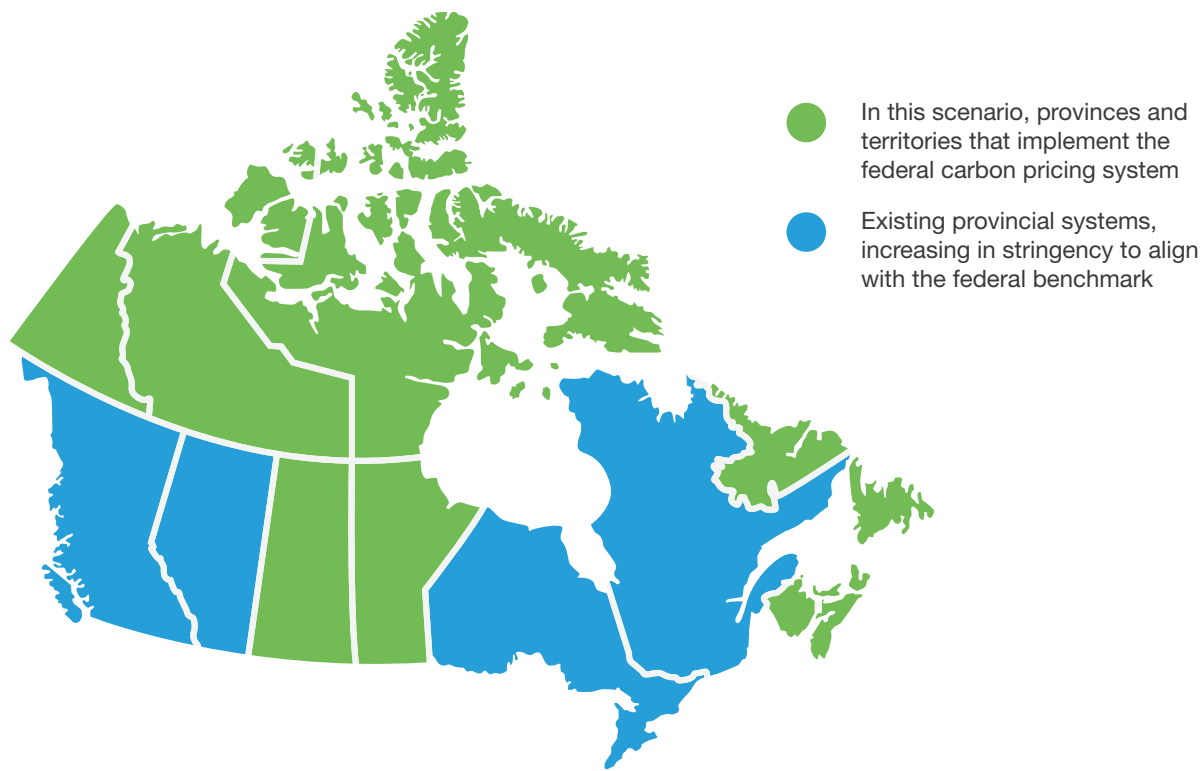
APPENDIX 1: SCENARIO AND MODELLING INFORMATION

This paper presents the estimated results of the pan-Canadian approach to carbon pricing based on an illustrative scenario with the following assumptions:

- The four provinces with carbon pricing systems today – British Columbia, Alberta, Ontario and Quebec, representing 80 percent of Canada's population – remain aligned with the federal standard from 2018 to 2022. Ontario, Quebec and B.C. already have plans to increase the stringency of their systems; in this scenario, we assume Alberta meets the federal standard in 2021 and 2022.

- The other nine provinces and territories – Newfoundland and Labrador, PEI, Nova Scotia, New Brunswick, Manitoba, Saskatchewan, Yukon, Northwest Territories and Nunavut – implement the federal carbon pricing system. For the purposes of this analysis, we have also included indirect impacts of pricing in these nine jurisdictions on the emissions in the four provinces with pricing systems in effect today.

Projections of GHG reductions, and GDP growth, and revenues are derived from ECCC's computable general equilibrium model, EC-PRO, which simulates the response of the main economic sectors in each jurisdiction, and their interactions with each other, including interprovincial trade.



It captures characteristics of provincial production and consumption patterns through a detailed input-output table and links provinces via bilateral trade. Each province and territory is explicitly represented as a region. The rest of the world is represented as import and export flows to Canadian provinces which are assumed to be price takers in international markets. To accommodate analysis of energy and climate policies, the model incorporates information on energy use and greenhouse gas emissions related to the combustion of fossil fuels. It also tracks non-energy-related GHG emissions.

The baseline for this macroeconomic analysis is Canada's 2017 GHG reference case that was reported in Canada's 7th National Communication and 3rd Biennial Report to the United Nations Framework Convention on Climate Change. It includes the future impact of policies and measures taken by the federal, provincial and territorial governments as of November 1, 2017, including the carbon pricing systems in Quebec, Ontario, Alberta and B.C.

In the forecast, key macroeconomic variables in the model such as GDP, the exchange rate, and inflation are aligned to Finance Canada's projections. Population growth projections are obtained from Statistics Canada. Forecasts of oil

and natural gas price and production are taken from the National Energy Board's Canada's Energy Future.

The 2017 reference case is used to compare the impact of an illustrative scenario in which the federal system is implemented in the nine provinces and territories that do not have a pricing system and in which Alberta increases its carbon price to \$40/tonne in 2021 and \$50/tonne in 2022 in order to remain aligned with the federal standard. The reference case already assumes that the B.C., Ontario and Quebec systems will increase in stringency in alignment with the federal standard.

Estimated reductions due to existing carbon pricing systems are generated from a combination of economic modelling results using Environment and Climate Change Canada's EC-PRO model, using current and previous baselines. Previous baselines align to Canada's 2014 GHG reference case; 2015 GHG reference case, reported in Canada's 2nd Biennial Report on Climate Change; or 2016 GHG reference case, and are used to isolate the impact of pricing in existing carbon pricing systems. These estimated reductions from existing systems include units acquired from California by entities covered by cap-and-trade systems in Ontario and Quebec.

APPENDIX 2: SUMMARY OF A GENDER-BASED ANALYSIS (GBA+)

ECCC undertook a GBA+ assessment to assess the impacts of climate change and the pan-Canadian approach to carbon pricing on diverse groups in society. This work included a literature review of the potential gender and diversity implications of carbon pollution pricing policies.

The output-based pricing system is expected to provide relief to energy-intensive, trade-exposed industries and as a result to minimize competitiveness and carbon leakage risks. The lower risk of carbon leakage (and related lower risk of job losses) will benefit the economy as a whole, but may indirectly benefit more men than women, as men are typically a higher proportion of the labour force in these industries.

Impacts on low-income households from the implementation of the output-based pricing system will be contingent on how it impacts specific industrial facilities. In addition, the impact of the federal carbon pollution pricing system on low income households will depend significantly on how revenues are used. As is noted in this study, governments can use revenues in various ways to help offset impacts on low-income and other vulnerable populations, such as through direct rebates, tax cuts and other mechanisms. The Government of Canada has committed to returning all direct revenue to the jurisdiction of origin.

For Indigenous communities, in particular those that are remote or off-grid and rely on diesel for energy, the application of the federal backstop may result in asymmetrical impacts. These could include, for example, increased costs for fuel use and transportation due to reliance on air and marine for residents in communities with limited or no road access, and higher costs of fuel for heating and energy with limited options for fuel-switching. As with low-income households, the extent of these impacts will partially depend on how carbon pollution pricing revenues are used and on the uptake of other programs. The Government of Canada has a number of programs to support reducing diesel use in Indigenous and remote communities—more information on these programs is available at: www.canada.ca/en/services/environment/weather/climatechange/climate-action/actions-reduce-emissions/reducing-reliance-diesel.html. The Government of Canada is also undertaking distinctions-based discussions with First Nations, Inuit and the Métis Nation on carbon pricing to find solutions that address their unique circumstances.

Endnotes

- ¹ Light-duty vehicle emission comparison is based on vehicle fleet and emissions data from Canada's National Inventory Report 1990-2016, www.canada.ca/en/environment-climate-change/services/climate-change/greenhouse-gas-emissions/inventory.html.
- ² Coal emission comparison is based on data from the Regulatory Impact Analysis Statement for the Regulations Amending the Reduction of Carbon Dioxide Emissions from Coal-fired Generation of Electricity Regulations, www.gazette.gc.ca/rp-pr/p1/2018/2018-02-17/html/reg3-eng.html
- ³ The GST will continue to apply to purchases of goods and services.
- ⁴ Ibid., endnote #1.
- ⁵ Ibid., endnote #2.
- ⁶ Murray, Brian C. and Nicholas Rivers, 2015. British Columbia's Revenue-Neutral Carbon Tax: A Review of the Latest "Grand Experiment" in Environmental Policy, nicholasinstitute.duke.edu/sites/default/files/publications/ni_wp_15-04_full.pdf
- ⁷ Government of British Columbia, www2.gov.bc.ca/gov/content/environment/climate-change/planning-and-action/carbon-tax
- ⁸ Antweiler, Werner and Sumeet Gulati, Frugal cars or frugal drivers? How carbon and fuel taxes influence the choice and use of cars, ssrn.com/abstract=2778868
- ⁹ For a discussion of the relative costs of different approaches for reducing emissions, please see section 4 of Canada's Ecofiscal Commission, 2015. The Way Forward: A Practical Approach to Reducing Canada's Greenhouse Gas Emissions. ecofiscal.ca/reports/wayforward/
- ¹⁰ These estimates include reductions in the form of units acquired from California by entities covered by the cap-and-trade systems in Ontario and Quebec.
- ¹¹ Estimated reductions due to existing carbon pricing systems are generated from a combination of EC-Pro results using current and previous baselines. Previous baselines align to Canada's 2014 GHG reference case; 2015 GHG reference case, reported in Canada's 2nd Biennial Report on Climate Change; or 2016 GHG reference case, and are used to isolate the impact of pricing in existing carbon pricing systems.
- ¹² For further information, see the Pan-Canadian Framework on Clean Growth and Climate Change first annual report at: www.canada.ca/en/services/environment/weather/climatechange/pan-canadian-framework/first-annual-report.html
- ¹³ Canada's Ecofiscal Commission, *Supporting Carbon Pricing: How to identify policies that genuinely complement an economy-wide carbon price*, ecofiscal.ca/wp-content/uploads/2017/06/Ecofiscal-Commission-Report-Supporting-Carbon-Pricing-June-2017.pdf
- ¹⁴ The baseline projection is the average real GDP outlook in the Budget 2018 survey of private sector forecasters. The range of forecasts is the difference between the top 4 forecasts and bottom 4 forecasts in the Budget 2018 survey.
- ¹⁵ Statistics Canada, Real gross domestic product, expenditure-based, CANSIM, table 380-0064. www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/econ05-eng.htm.
- ¹⁶ Economic Analysis of the Pan-Canadian Framework, www.canada.ca/en/services/environment/weather/climatechange/climate-action/economic-analysis.html
- ¹⁷ Pembina Institute. www.pembina.org/op-ed/carbon-pricing-economic-growth. Note that carbon pricing did not cause these provinces to have strong economic growth. The fact that they did have strong growth simply indicates that carbon pricing does not appear to have hindered GDP growth in these jurisdictions.
- ¹⁸ The report of the World Bank's High Level Commission on Carbon Prices describes the co-benefits of mitigating GHG emissions, including by carbon pricing, as including the following:
- the *immediate benefits* of avoided GHG emissions: (less adverse effects from air pollution on health and agricultural productivity and enhanced energy security and lower vulnerability of trade balances to the volatility of oil price);
 - an *acceleration of technological change* when early investments in low-carbon technologies deliver learning-by-doing effects with positive spillovers on technological change; and
 - the *short-term knock-on effects and long-term development benefits* of a well-conducted low-carbon transition.
- ¹⁹ International Finance Corporation, 2016. *Climate Investment Opportunities in Emerging Markets*, www.ifc.org/wps/wcm/connect/51183b2d-c82e-443e-bb9b-68d9572dd48d/3503-IFC-Climate_Investment_Opportunity-Report-Dec-FINAL.pdf?MOD=AJPERES
- ²⁰ High-Level Commission on Carbon Prices. 2017. Report of the High-Level Commission on Carbon Prices, www.carbonpricingleadership.org/report-of-the-highlevel-commission-on-carbon-prices/
- ²¹ Pollution from coal power plants results in health issues that cost the health care system over \$800 million annually, according to a study performed by the Pembina Institute in 2014.
- ²² The Regulatory Impact Analysis Statement for the *Regulations Amending the Reduction of Carbon Dioxide Emissions from Coal-fired Generation of Electricity Regulations* estimated the benefits from the proposed amendments over 2019-2055 would include \$1.2 billion in health benefits from reduced air pollutant emissions: www.gazette.gc.ca/rp-pr/p1/2018/2018-02-17/html/reg3-eng.html

²³ Note that fully avoiding costs due to inaction requires concerted global action to address climate change.

²⁴ National Round Table on the Environment and the Economy: Paying the Price: The Economic Impacts of Climate Change for Canada, 2011. nrt-trn.ca/climate/climate-prosperity/the-economic-impacts-of-climate-change-for-canada.

²⁵ Insurance Bureau of Canada, 2017 and 2014. *Facts of the Property and Casualty Insurance Industry in Canada*. www.ibc.ca/ns/resources/industry-resources/insurance-fact-book

²⁶ Canada's Ecofiscal Commission, Choose Wisely: Options and Trade-offs in Recycling Carbon Pricing Revenues, <http://ecofiscal.ca/wp-content/uploads/2016/04/Ecofiscal-Commission-Choose-Wisely-Carbon-Pricing-Revenue-Recycling-Report-April-2016.pdf>

²⁷ See, for example: Tombe, Trevor and Nicholas Rivers, 2017. The cost of carbon pricing in Ontario and Alberta, www.macleans.ca/economy/economicanalysis/what-carbon-prices-in-alberta-and-ontario-will-cost-the-average-household-and-why/amp/; Tombe, Trevor, 2016. Here's how much carbon pricing will likely cost households, www.macleans.ca/economy/economicanalysis/heres-how-much-carbon-pricing-will-likely-cost-households/amp/; or The Senate Standing Committee on Energy, the Environment and Natural Resources, The Effect of Carbon Pricing on Canadian Households https://sencanada.ca/content/sen/committee/421/ENEV/Briefs/Winter_follow-up_e.pdf

²⁸ Tombe, Trevor, 2016. Here's how much carbon pricing will likely cost households, www.macleans.ca/economy/economicanalysis/heres-how-much-carbon-pricing-will-likely-cost-households/amp/

²⁹ British Columbia Budget 2017 September Update, http://bcbudget.gov.bc.ca/2017_Sept_Update/bfp/2017_Sept_Update_Budget_and_Fiscal_Plan.pdf

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