DEEP DECARBONIZATION PATHWAYS

CLIMATE AMBITION BEYOND EMISSION NUMBERS

Taking stock of progress by looking inside countries and sectors

CANADA

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Disclaimer

The results presented in this report are outputs of the academic research conducted under the DDP BIICS project as per the contractual agreement. The academic work does not in any way represent our considered opinion for climate negotiations and also does not reflect the official policy or position of the Government of Canada.

How is this document relevant to the Global Stocktake?

This document is part of a collective report that assesses the evolution of climate ambition in 26 countries and 3 hard-to-abate sectors through a granular and context-specific analysis of trends and progress of national and sectoral transformations.[1] This approach allows identifying what hinders and spurs action in countries and sectors, and understanding the conditions that can support enhanced ambition, which could be political, social, economic, governance.

These insights are directly relevant to four overarching functions of the Global Stocktake in support of its desired outcome, i.e. "to inform Parties in updating and enhancing, in a nationally determined manner, their actions and support in accordance with the provisions of the Paris Agreement, as well as enhancing international cooperation for climate action" (Article 14.3 of the Paris Agreement):

- Create the conditions for an open and constructive conversation on global cooperation (on e.g., technology, trade, finance, etc.), based on an in-depth understanding of the international enablers of enhanced country ambition.
- Organize a process for knowledge sharing and collective learning, based on concrete examples of actions already in place or being discussed, including best practices.
- Create space for open dialogues across different stakeholders to support better coordination of actions, based on a detailed understanding of the levers to be activated to enhance ambition in national and sectoral transitions
- Facilitate ownership by decision-makers of the climate challenge and the risks and opportunities of the low-emission and resilient transition, based on context-specific and granular analysis of barriers and enablers.

More specifically, the collective report in general – and this document in particular – can contribute to address some of the key guiding questions for the Global Stocktake[2], notably:

- What actions have been taken to increase the ability to adapt to the adverse impacts of climate change and foster the climate resilience of people, livelihoods, and ecosystem? To what extent have national adaptation plans and related efforts contributed to these actions (Decision 19/CMA.1, paragraph 36(c))?
- How adequate and effective are current adaptation efforts and support provided for adaptation (Article 7.14 (c) Paris Agreement)?

1 The full report « Climate ambition beyond emission numbers - Taking stock of progress by looking inside countries and sectors" can be found at: https://www.iddri.org/en/publications-and-events/report/climate-ambition-beyond-emission-numbers-taking-stock-progress

2 Draft Guiding Questions for the Technical Assessment of GST1 (version 20th October 2021), available at: https://unfccc.int/sites/default/files/resource/Draft%20GST1_TA%20Guiding%20Questions.pdf

- What are the barriers and challenges, including finance, technology development and transfer and capacity-building gaps, faced by developing countries?
- What is the collective progress made towards achieving the long-term vision on the importance of fully realizing technology development and transfer in order to improve resilience to climate change and to reduce greenhouse gas emissions referred in Article 10.1 of the Paris Agreement? What is the state of cooperative action on technology development and transfer?
- What progress been made on enhancing the capacity of developing country Parties to implement the Paris Agreement (Article 11.3 Paris Agreement)?
- To achieve the purpose and long-term goals of the Paris Agreement (mitigation, adaptation, and finance flows and means of implementation, as well as loss and damage, response measures), in the light of equity and the best available science, taking into account the contextual matters in the preambular paragraphs of the Paris Agreement:
  - What are the good practices, barriers and challenges for enhanced action?
  - What is needed to make finance flows consistent with a pathway towards low GHG emissions and climate-resilient development?
  - What are the needs of developing countries related to the ambitious implementation of the Paris Agreement?
- What is needed to enhance national level action and support, as well as to enhance international cooperation for climate action, including in the short term?
- What is the collective progress made by non-Party stakeholders, including indigenous peoples and local communities, to achieve the purpose and long-term goals of the Paris Agreement, and what are the impacts, good practices, potential opportunities, barriers and challenges (Decision 19/CMA.1, paras 36(g) and 37(i))?

Foreword

Henri Waisman, Marta Torres Gunfaus, Anna Perez Catala, IDDRI.

Country commitments as reflected in enhanced Nationally Determined Contributions submitted to the UNFCCC are insufficient to put the world on track to achieve the collective objective of the Paris Agreement to hold temperature increase below 2 °C or 1.5 °C above pre-industrial levels. Furthermore, concrete policies and actions adopted by countries on the ground are often not sufficient to achieve these NDC targets. These conclusions highlight the need to increase ambition and to provide convincing evidence to accelerate action in the immediate and short term to give effect to this ambition. Yet these assessments are not sufficient to effectively guide the progressive increase of ambition, as organized by the cyclical process of the Paris Agreement.

APPROACH

With this imperative in mind, this report adopts a different, complementary, perspective on climate ambition. It seeks to open the box of emission pathways, by considering multiple dimensions of the conditions that will make these pathways possible. These are technical, economic, political, social and governance considerations in need of attention to enable the required far-reaching and systemic transformation towards the long-term goal. On the one hand, the revision of emission targets needs to be directed by an assessment of how drivers of emissions should change to trigger transformation. On the other hand, converting emissions' targets into pertinent concrete implementation requires well-designed policy packages and investment plans that are also informed by a clear and detailed understanding of the starting point, priorities and interplays between the available levers of transformation.

This bottom-up assessment aims at contributing to the process of collective learning in support of the progressive increase of collective ambition, as inserted at the core of the Paris Agreement paradigm. Approaching climate ambition through the lens of underlying transformations calls for reflecting the heterogeneous nature and the multi-faceted aspects of transitions in different sectors and countries. This forces a move away from a purely global perspective and adopts a more granular approach based on country and individual sector perspectives. Thus, the report explores trends and progress on these transformations, as locally observed over the past years, notably since the Paris Agreement. This 'backwards looking' approach can help identify where developments are going in the right direction, where they should be accelerated and where major tensions remain that should be addressed as a priority to avoid undermining the transition. The picture of the state of the ambition discussion, firmly embedded in the country and sectoral realities, can provide means for reflection and action within the international climate community, particularly to inform focus areas for advancing the collective ambition agenda.

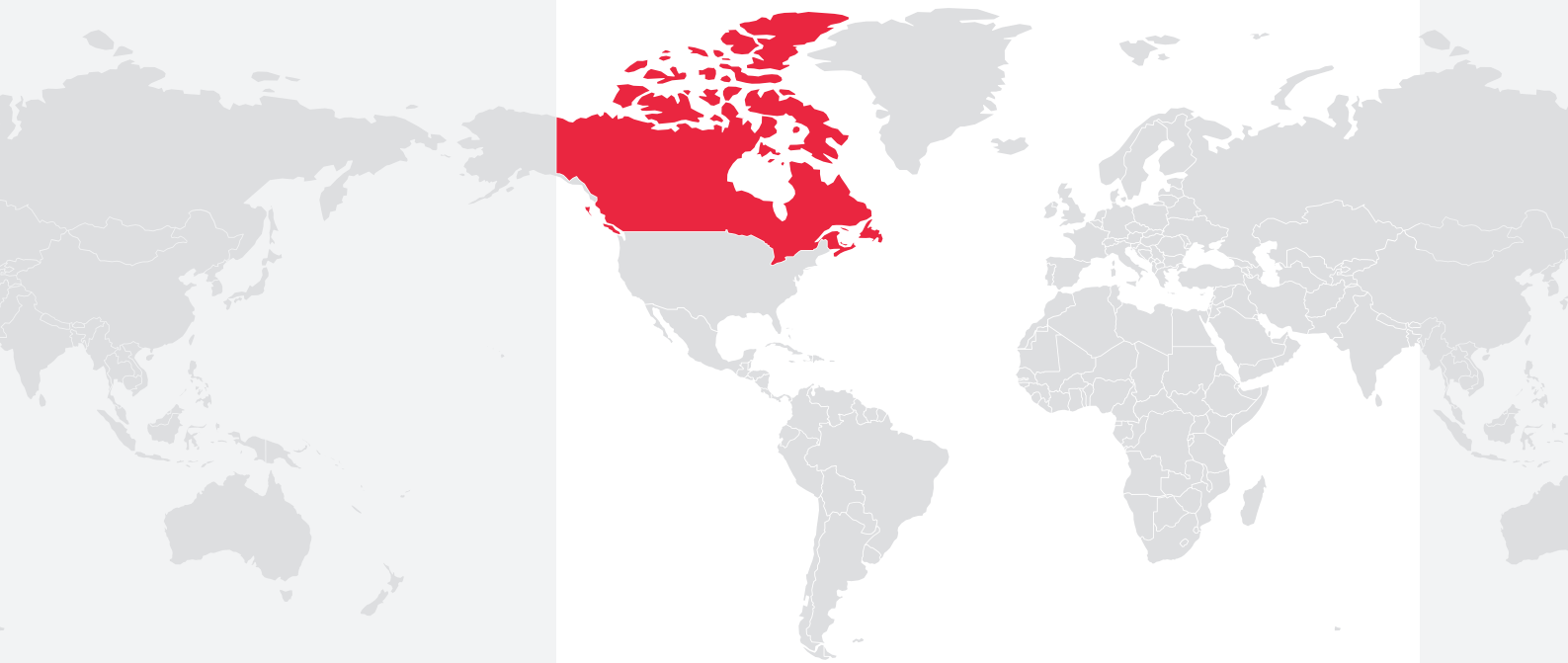
STRUCTURE OF THE REPORT

This country report describes the recent evolutions of domestic discourses on climate ambition, national climate policy, national governance and concrete policies and actions with a significant effect on GHG emissions. The chapter highlights a selection of striking and structurally important elements to advance the transformation towards carbon neutrality from an in-country perspective.

This report is part of a full series of 26 country chapters and three sectoral chapters. The full report includes a "summary for decision-makers" to present 10 cross-cutting messages emerging from the country and sector analysis, as a guide to the selection of priorities for collective action in the post-COP26 period.

You will find the full report at: https://www.iddri.org/sites/default/files/PDF/Publications/Catalogue%20Iddri/Rapport/DDP_beyond%20emissions%20report.pdf

CANADA



CLIMATE AMBITION

This chapter has been written thanks to the support of the International Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU).

DOMESTIC DISCOURSE

Opinion research has shown for over a decade that Canadians are willing to move on climate policy, with historical opinion surveys consistently showing that about half the population support more climate action. More recent surveys show a growing awareness of the climate emergency and the need to act to increase Canada's climate ambition. A growing awareness, and lived experience, of more dangerous storms and climate damages are also contributing to the increased support for more climate ambition. Yet, underscoring this awareness is a deep polarization against carbon pricing and climate action more generally. Indeed, the discourse in Canada over the last decade or more can be characterized as a very polarized discourse about how to tackle the climate change problem. This discord has meant that increasing Canada's mitigation ambitions is not without political risk. Still, Canada has moved significantly in the last five years to implement a comprehensive policy package that can increase ambition to its 2030 GHG target[1] and net-zero beyond.

1 Canada recently committed to achieving a 40% to 45% reduction in greenhouse gases below 2005 levels in 2030.

A willingness to move on climate change. Opinion surveys prior to 2012 found that 81% of Canadians believed climate change is happening but only 47% thought climate change is caused *mostly* by human activities. By 2016, this had changed, with a majority to three-quarters of Canadians agree that human activities contribute to climate change. While this arc of climate support continued upward, in the lead up to the Paris Agreement, the Canadian public was not yet having its "climate moment". Notably, as many as one in ten in 2016 did not believe that human activities have any meaningful impact on climate. Mildenberger et. al (2016) found broad support for implementing climate policy across Canada, but it was differentiated by the type of instrument, with support for cap-and-trade systems but less for carbon taxes.

More ambition and a sense of urgency needed. By 2019, dangerous climate change was no longer an abstract threat impacting people somewhere else or at some time in the future, with three-quarters of Canadians surveyed said they or someone close to them had experienced the effects of climate change. More extreme events and associated damages, including wildfires that shut down significant portions of industrial production, and resulted in significant air quality problems in major urban centres, resulted in a noticeable shift in public sentiment towards more ambition. A growing awareness of the impacts of climate change on Canada did much to create political space for politicians to increase ambition.

Recent opinion surveys show Canadians think there is a need to do more to reduce carbon pollution, with two-thirds of Canadians think governments, companies, and individuals need to do more to deal with issues relating to climate change. About half said they would be willing to pay more to fund adaptation and mitigation. In 2002, for example, a full 2/3 of Canadians think climate change is as serious as COVID. But in this regard, Canadians trailed global sentiment by about 8 percent on the need for governments to act on climate change. Still, in 2020 Canadians saw an upside in more ambitious targets with 72% believing that countries that set more ambitious targets will have stronger economies than those countries adopting less ambition.

Yet continue polarization is risk to more ambition. By 2021, despite polls indicating the majority of Canadians leaning towards more climate action and a growing sense of urgency to act, views remained polarized. A sizeable number of Canadians hold very strong opinions against action on climate. An entrenched opposition to climate action has been a defining challenge for Canada for well over a decade, making ambitious climate action a continual challenge for politicians.

This polarization has its roots in political attacks on carbon pricing by right leaning conservative politicians who sought to wedge against competing political platforms. Right leaning political opposition first emerged against a centralist carbon tax and green shift platform in the 2008 federal election and then became entrenched against a left-leaning cap-and-trade proposal in 2012. These continued attacks on carbon pricing and climate action more broadly draw upon populist themes of the policies unfair burden on working families.

This polarization culminated in the repeal of the Ontario cap and trade system which was linked through the Western Climate Initiative to California and Quebec. A right leaning conservative government, swept into power on a waive of populism, scrapped the "tax on everything" as one of its first acts. With so many years of shaping the norms of the conservative base of supporters, claim action will continually face opposition from many on the political right. The federal government's use of carbon tax revenue to give Climate Action Rebates to households directly while committing to revenue neutrality did much too assuage the public's opinion of the carbon tax. Canada's carbon pricing system is discussed in more detail in the section below.

NATIONAL GOVERNANCE

Canada is a federation with shared jurisdiction over energy and pollution control between the provinces, territories, and the federal government. Provinces and territories have broad jurisdictional powers to regulate greenhouse gas emissions, fuels, and facilities. They can do so directly through regulations, but they also can impose carbon pricing through provincial taxation powers as well as imposing regulatory charges under environmental protection laws. Ontario's now defunct cap and trade program is a good example of these broad powers, which was enabled as a regulatory charge under the Environmental Protection Act. The federal government under the Canadian Consti-

tution can regulate greenhouse gas emissions using several different mechanisms. It can regulate some industries directly that are under its jurisdiction, including aviation and shipping. Under criminal law, six greenhouse gases are listed as a toxic substance under Schedule 1 of the *Canadian Environmental Protection Act*, enabling the federal government to regulate these emissions directly. Emissions standards for vehicles and engines imported or transported across provincial borders are regulated under federal trade and commerce powers.

Given the shared jurisdiction of climate policy in Canada, and ongoing effort by the provinces and territories to implement carbon policy, the Pan-Canadian Framework on Clean Growth and Climate Change (PCF) and was developed in 2016. The PCF was driven by the then newly elected federal government that had made carbon pricing an election issue but was developed in consultation with the provinces, territories, and some Indigenous Peoples. The PCF provides the basis from which federal, provincial, and territorial cooperation on climate policy is being pursued.

The PCF is organized under four pillars that include pricing carbon pollution, developing complementary climate actions to address market barriers where pricing alone is insufficient, adapting and building resilience to climate change, and developing a low carbon economy by promoting clean technology, innovation, and jobs. Two important governance frames are also provided including reporting regularly and transparency to Canadians on progress towards emissions reduction targets as well as taking stock of policy effectiveness. The need for governments to recognize respect and safeguard the rights of Indigenous Peoples is also a core principle of the PCF.

The PCF has been an important step in coordinating climate action and strengthening climate governance within the Canadian federation. The provinces and territories are not obligated to follow the federal government on climate action, and as such the federal government uses spending powers to help coordinate and promote joint climate action.

Commencing in 2020, the federal government imposed a carbon tax and large emitter industrial carbon pricing program under the *Greenhouse Gas Pollution Pricing Act*, 2018 (GGPPA). The Act sets up a backstop federal carbon price system where provinces or territories who do not meet a federal standard for carbon pricing[2] will have the federal carbon pricing program imposed upon them. The federal carbon pricing backstop was developed in recognition that several provinces had forged ahead with their own carbon pricing programs, including British Columbia's carbon tax, Alberta's large emitter program, and Quebec's cap and trade program. Prior to the federal backstop being introduced, 38% of Canada's total GHGs in 2016 were under some form of carbon pricing. In 2022, 78% of Canada's emissions were covered by a carbon price of CDN $30 per tonne escalating to CDN $50 per tonne in 2022.

The carbon pricing backstop includes two separate programs: a fuel charge applied on all fossil fuels; and, a large emitter program focused on emission intensive and trade exposed heavy industry. Part one of the GGPPA, the fuel charge, is administered by the Canada Revenue Agency (tax authority) and applies to 21 types of fuel and combustible waste. This is essentially a carbon tax on the distribution, importation, and sale of fossil fuels. Part 2 of the GGPPA imposes a large emitter program known as Output Based Pricing System (OBPS), which establishes an emissions intensity limit on specified industrial emitters and enables emissions trading for compliance. Environment and Climate Change Canada operates the OBPS.

Reflecting the ongoing pollicization of carbon pricing in Canada, the legality of the federal carbon pricing backstop was challenged all the way to the Supreme Court of Canada by the provinces of Alberta, Saskatchewan, and Ontario. These right leaning jurisdictions questioned the constitutionality of the federal government to impose carbon pricing. In March 2021, the Supreme Court of Canada ruled that the federal carbon pricing law is constitutional, effectively scoring both a political and legal win for carbon pricing in Canada.

The Canadian Net-Zero Emissions Accountability Act was introduced into the federal parliament in November 2020 and became law in June 2021, establishing a legally binding process of five-year national emissions reduction targets starting in 2030. These five-year milestones or targets are intended to be developed with the best available scientific information and reflect Canada's international climate change commitments. A series of routine stock-taking, and emis-

2 Either a quantity-based cap-and-trade program with a hard cap that meets or exceeds Canada's 2030 emissions target or a price-based carbon tax with a price schedule rising to CDN $50 in 2022.

sions reduction plans are to be developed to provide transparency on the progress of setting the five-year milestones. An independent advisory council is also established to provide advice to the responsible minister. The Act represents an important step towards developing the accountability framework needed to keep Canada on track to meet its climate targets. It will also likely serve as a much-needed focal point to help coordinate joint federal, provincial, and territorial action on climate policy.

ACTIONS AND POLICIES

Collectively, the federal government, provinces, and territories have implemented a carbon mitigation policy architecture that includes a set of performance regulations, carbon pricing, fiscal incentives, and innovation programs. These policies cover most of Canadian emissions and are often layered on top of the same emissions sources (**Figure 1**).[3] Below is an abbreviated list of some of the major policies that have been implemented.

Performance regulations are an important tool adopted by governments to implement carbon mitigation policy. These performance regulations are designed to provide compliance flexibility so that cost-effective compliance is achieved. For example, Canada's light duty vehicle regulations provide vehicle manufacturers the ability to generate credits from the manufacture of low emitting vehicles to offset the emissions intensity of higher emitting vehicles such that the overall fleet intensity is falling in time. Notable performance regulations implemented to date include:

- **Energy efficiency standards** for buildings and equipment have been implemetned for years. The routine **updating of building codes** to set expectations about the future energy performance of new construction;
- In the **electricity sector**, Ontario's coal phaseout was the single largest reduction policy implemented in the country, with all coat-fired electricity generated in Ontario stopped in 2014. In 2018, the federal government implemented regulations to phase out the use of coal fired power by 2030. Other coal phaseout programs exist in Nova Scotia and Alberta.
- In **transportation**, most provinces and the federal government have **biofuel mandates** while the federal government has a new **Clean Fuel Standard**[4] based on California and British Columbia experience;
- The Government of Canada is requiring 100% of car and passenger truck sales be zero-emission by 2035 in Canada;
- **Federal methane regulations** in the oil and gas sector came into force in 2020 while Alberta, British Columbia, and Saskatchewan have their own regulations. If the federal government determines the provincial regulations are of equivalent stringency to the federal regulations, the provincial regulations can regulate the emissions in the provincial jurisdiction.

Carbon pricing is a key element of Canada's efforts to achieve its emissions reduction targets and net-zero beyond. Prior to 2016, successive federal governments were reluctant to impose a national carbon policy on the provinces and territories, especially a national carbon price. Instead, the federal government implemented a few sector-based regulations related to controlling emissions from electricity, improving energy efficiency standards in buildings and equipment, and harmonizing energy efficiency standards for light duty and heavy-duty vehicles with the United States.

A light regulatory touch by the federal government then led a few provinces to chart their own climate policy course. Carbon pricing was implemented in several jurisdictions including British Columbia with its carbon tax, Alberta with its emission intensity-based credit and trade program for industrial emitters, and Quebec with its cap-and-trade program aligned with California under the Western Climate Initiative.

But in 2016 and with the implementation of federal carbon pricing backstop in 2020, this all changed. Canada's carbon pricing programs now cover 78% of national emissions through a diverse set of price-based taxation systems, cap-and-trade systems, and large emitter credit and trading systems. These programs typically coexist within the provinces. Often the federal government implements one aspect of its carbon pricing backstop, for example, the federal fuel charge on liquid fuels, while the province implements its own large emitter program. **Figure 2** provides an

3 Sawyer, D., S. Stiebert, R. Gignac, A. Campney, and D. Beugin. 2021. 2020 Expert Assessment of Carbon Pricing Systems. Canadian Institute for Climate Choices. https://climatechoices.ca/reports/the-state-of-carbon-pricing-in-canada/

4 Government of Canada, 2020. "Canada Gazette, Part I, Volume 154, Number 51: Clean Fuel Regulations." https://gazette.gc.ca/rp-pr/p1/2020/2020-12-19/html/reg2-eng.html

Figure 1. Canada's Climate Carbon Policy Architecture

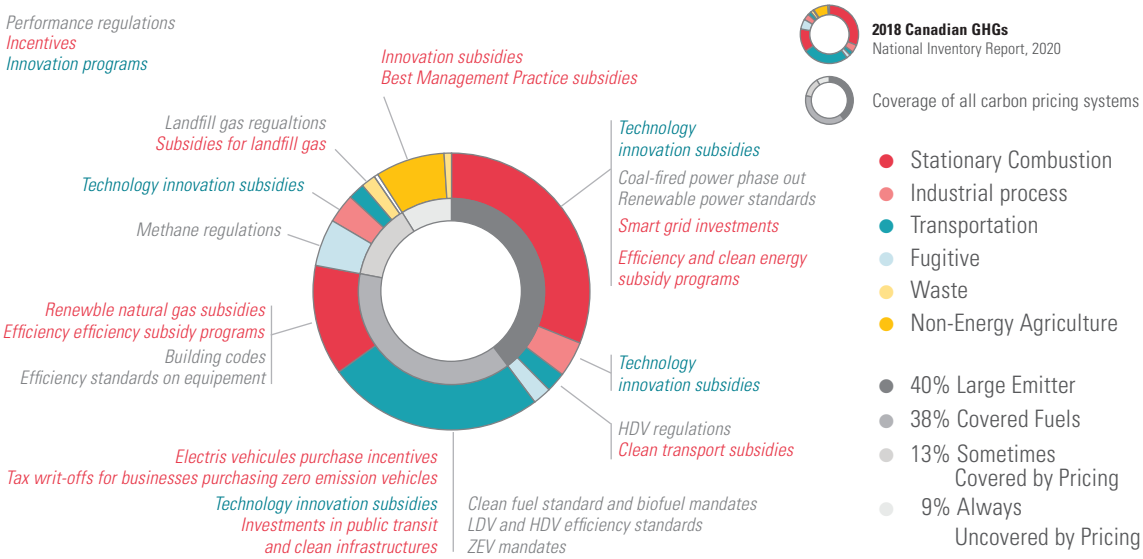


Figure 2. Carbon Pricing Groupings Operating in 2020: five programs exist, covering 78% of 2018 national emissions.

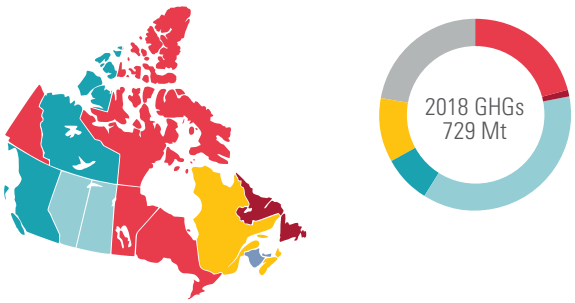


Figure 3. Carbon Pricing for Covered Fuels: covered fuels are 38% of national emissions.

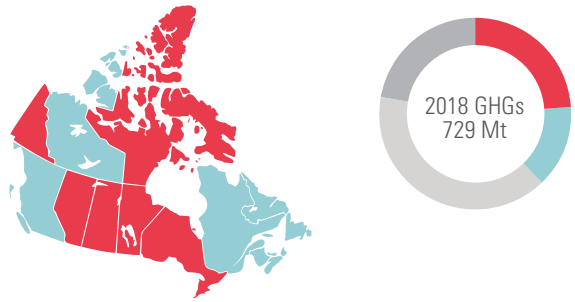
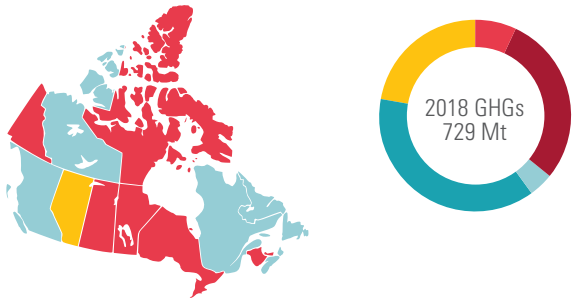


Figure 4. Carbon Pricing for Large Emitters: large emitters are 40% of national emissions.



overview of how these programs coexist within the country. **Figure 3** indicates how liquid fuels are being covered by the carbon taxes while **Figure 4** identifies how large emitter programs are being implemented. The carbon price schedule is set to rises from CDN $30 per tonne in 2020 to $50 per tonne in 2022. In December 2020, the Government of Canada committed to a carbon price rising to $170 per tonne in 2030. This patchwork of policies is not necessarily a risk to overall cost-effectiveness. If these programs seek broad emissions coverage and implement stringent carbon prices, effectiveness can be assured. One risk identified in the Canadian patchwork, however, is the use of exemptions of emission sources or point-of-sale rebates that mute the carbon price signal to consumers by offsetting the carbon price with the reduction in another tax, for example the excise tax on gasoline. These approaches are typically designed to shield some segments of society or businesses from the financial impact of the carbon price. A better approach adopted by many Canadian carbon pricing programs to address income concerns is to rebate carbon proceeds back to households and businesses in a manner that is unrelated to the quantity of fuel purchased. Notably, the federal carbon tax system rebates 90% of all proceeds collected back to households in the form of a flat income tax rebate on a per capita basis. This flat rebate approach also addresses tax regressivity issues caused when carbon pricing imposes disproportionally high costs on lower income families.

A broad set of **fiscal incentives** are being implemented by all levels of government in Canada. These range from public transit spending, industrial decarbonization programs, electric vehicle incentives, and subsidies for energy efficiency initiatives such as energy retrofits for buildings. Canada has committed to the phaseout of inefficient fossil fuel subsidies, with some movement by the federal government but there is still much work to do. Provinces still tend to subsidise oil and gas development to promote activity in high cost and more technically challenging areas. **Innovation programs** are being implemented across a broad spectrum of emission sources including in the industrial, transportation and buildings sectors.

The DDP is an initiative of the Institute for Sustainable Development and International Relations (IDDRI). It aims to demonstrate how countries can transform their economies by 2050 to achieve global net zero emissions and national development priorities, consistently with the Paris Agreement.. The DDP initiative is a collaboration of leading research teams currently covering 36 countries. It originated as the Deep Decarbonization Pathways Project (DDPP), which analysed the deep decarbonization of energy systems in 16 countries prior to COP21 (deepdecarbonization.org). Analyses are carried out at the national scale, by national research teams. These analyses adopt a long-term time horizon to 2050 to reveal the necessary short-term conditions and actions to reach carbon neutrality in national contexts. They help governments and non-state actors make choices and contribute to in-country expertise and international scientific knowledge. The aim is to help governments and non-state actors make choices that put economies and societies on track to reach a carbon neutral world by the second half of the century. Finally, national research teams openly share their methods, modelling tools, data and the results of their analyses to share knowledge between partners in a very collaborative manner and to facilitate engagement with sectoral experts and decision-makers.
www.ddpinitiative.org

The Institute for Sustainable Development and International Relations (IDDRI) is an independent, not-for-profit policy research institute based in Paris. Its objective is to identify the conditions and propose tools to put sustainable development at the heart of international relations and public and private policies. IDDRI is also a multi-stakeholder dialogue platform and supports stakeholders in global governance debates on the major issues of common interest, such as actions to mitigate climate change, protect biodiversity, strengthen food security, and to manage urbanisation. The institute also participates in work to build development trajectories that are compatible with national priorities and the sustainable development goals.

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