Court of Appeal File No.: C65807

COURT OF APPEAL FOR ONTARIO

IN THE MATTER OF A REFERENCE to the Court of Appeal pursuant to section 8 of the *Courts of Justice Act*, RSO 1990, c. C.34, by Order-in-Council 1014/2018 respecting the constitutionality of the *Greenhouse Gas Pollution Pricing Act*, Part 5 of the *Budget Implementation Act, 2018, No. 1,* SC 2018, c. 12

RECORD OF THE ATTORNEY GENERAL OF CANADA
Volume 3 of 4

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RECORD OF THE ATTORNEY GENERAL OF CANADA

I N D E X

This is **Exhibit S** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

#224458

Government of Canada Gouvernement du Canada

Pan-Canadian Approach to Pricing Carbon Pollution

Backgrounder

In March 2016, the First Ministers committed to putting Canada on a credible path to meet or exceed our national target of reducing greenhouse gas (GHG) emissions by 30 percent below 2005 levels by 2030. The First Ministers agreed that this will require transitioning to a low-carbon economy by adopting a range of measures, including carbon pricing, adapted to the specific circumstances of each province and territory. Federal, provincial and territorial governments are developing a Pan-Canadian Framework on Clean Growth and Climate Change to implement these commitments, for adoption at the First Ministers Meeting in fall 2016.

Economy-wide carbon pricing is the most efficient way to reduce emissions, and by pricing pollution, will drive innovative solutions to provide low-carbon choices for consumers and businesses. British Columbia, Alberta, Ontario and Quebec, representing over 80 percent of the population, have already introduced carbon pricing. More action is needed, however, to expand the application of carbon pricing across Canada and ensure that it plays a significant role in reducing GHG emissions by increasing its stringency over time.

The Government of Canada supports the following principles, which are based on those proposed by the Working Group on Carbon Pricing Mechanisms:

- Carbon pricing should be a central component of the Pan-Canadian Framework.
- The approach should be flexible and recognize carbon pricing policies already implemented or in development by provinces and territories.
- Carbon pricing should be applied to a broad set of emission sources across the economy.
- Carbon pricing policies should be introduced in a timely manner to minimize investment into assets that could become stranded and maximize cumulative emission reductions.
- Carbon price increases should occur in a predictable and gradual way to limit economic impacts.

- Reporting on carbon pricing policies should be consistent, regular, transparent and verifiable.
- Carbon pricing policies should minimize competitiveness impacts and carbon leakage, particularly for trade-exposed sectors.
- Carbon pricing policies should include revenue recycling to avoid a disproportionate burden on vulnerable groups and Indigenous peoples.

The Government of Canada proposes a pan-Canadian benchmark for carbon pricing that reflects these principles and the Vancouver Declaration. Its goal is to ensure that carbon pricing applies to a broad set of emission sources throughout Canada with increasing stringency over time to reduce GHG emissions at lowest cost to business and consumers and to support innovation and clean growth.

The benchmark includes the following elements:

1. Timely introduction. All jurisdictions will have carbon pricing by 2018.
2. Common scope. Pricing will be based on GHG emissions and applied to a common and broad set of sources to ensure effectiveness and minimize interprovincial competitiveness impacts. At a minimum, carbon pricing should apply to substantively the same sources as British Columbia’s carbon tax.
3. Two systems. Jurisdictions can implement: (i) an explicit price-based system (a carbon tax like British Columbia’s or a carbon levy and performance-based emissions system like in Alberta), or (ii) a cap-and-trade system (e.g. Ontario and Quebec).
4. Legislated increases in stringency, based on modelling, to contribute to our national target and provide market certainty.
    - For jurisdictions with an explicit price-based system, the carbon price should start at a minimum of $10 per tonne in 2018, and rise by $10 per year to $50 per tonne in 2022.
    - Provinces with cap-and-trade need: (i) a 2030 emissions reduction target equal to or greater than Canada’s 30 percent reduction target; (ii) declining (more stringent) annual caps to at least 2022 that correspond, at a minimum, to the projected emissions reductions resulting from the carbon price that year in price-based systems.
5. Revenues remain in the jurisdiction of origin. Each jurisdiction can use carbon pricing revenues according to their needs, including to address impacts on vulnerable populations and sectors and to support climate change and clean growth goals.
6. Federal backstop. The federal government will introduce an explicit price-based carbon pricing system that will apply in jurisdictions that do not meet the benchmark. The federal system will be consistent with the principles and will return revenues to the jurisdiction of origin.

7. Five-year review. The overall approach will be reviewed by early 2022 to confirm the path forward, including continued increases in stringency. The review will account for progress and for the actions of other countries in response to carbon pricing, as well as recognition of permits or credits imported from other countries.
8. Reporting. Jurisdictions should provide regular, transparent and verifiable reports on the outcomes and impacts of carbon pricing policies.

The Government will work with the territories to address their specific challenges.

This pan-Canadian approach to carbon pricing is a practical and cost-effective way to address climate change and will contribute to substantial emission reductions, stimulate innovation, clean growth and jobs for the middle class to support the transition to a low-carbon economy. The Government of Canada is committed to continuing to work with provinces and territories to implement carbon pricing as a central component of the Pan-Canadian Framework on Clean Growth and Climate Change. It will also continue to engage with Indigenous peoples. By acting now and acting together, we will build a better Canada for our children and grandchildren.

Search for related information by keyword

Hon. Catherine McKenna | Environment and Climate Change Canada | Nature and Environment

Date modified:
2016-10-03

This is **Exhibit T** referred to in the

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Commissioner for Oaths for Québec

#224458

PAN-CANADIAN FRAMEWORK

on Clean Growth and Climate Change

Canada's Plan to Address Climate Change and Grow the Economy

PDF version
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ISBN: 978-0-660-07023-0

Aussi disponible en français

PAN-CANADIAN FRAMEWORK on Clean Growth and Climate Change

Canada's Plan to Address Climate Change and Grow the Economy

FOREWORD

The Pan-Canadian Framework on Clean Growth and Climate Change presented here is our collective plan to grow our economy while reducing emissions and building resilience to adapt to a changing climate. It will help us transition to a strong, diverse and competitive economy; foster job creation, with new technologies and exports; and provide a healthy environment for our children and grandchildren.

The Pan-Canadian Framework is both a commitment to the world that Canada will do its part on climate change, and a plan to meet the needs of Canadians. We have built on the momentum of the Paris Agreement by developing a concrete plan which, when implemented, will allow us to achieve Canada's international commitments.

When First Ministers met last March in Vancouver, they agreed to take ambitious action in support of meeting or exceeding Canada's 2030 target of a 30 percent reduction below 2005 levels of greenhouse gas (GHG) emissions. First Ministers issued the Vancouver Declaration on Clean Growth and Climate Change and agreed that a collaborative approach between provincial, territorial, and federal governments is important to reduce GHG emissions and to enable sustainable economic growth.

The Pan-Canadian Framework builds on the leadership shown and actions taken individually and collectively by the provinces and territories, including through the Declaration of the Premiers adopted at the Quebec Summit on Climate Change in 2015. To note, the province of Saskatchewan has decided not to adopt the Pan-Canadian Framework at this time. The federal government has committed to ensuring that the provinces and territories have the flexibility to design their own policies and programs to meet emission-reductions targets, supported by federal investments in infrastructure, specific emission-reduction opportunities and clean technologies. This flexibility enables governments to move forward and to collaborate on shared priorities while respecting each jurisdiction's needs and plans, including the need to ensure the continued competitiveness and viability of businesses.

In the Paris Agreement, Parties agreed that they should, when taking action to address climate change, recognize and respect the rights of Indigenous Peoples. As we implement this Framework, we will move forward respecting the rights of Indigenous Peoples, with robust, meaningful engagement drawing on their Traditional Knowledge. We will take into account the unique circumstances and opportunities of Indigenous Peoples and northern, remote, and vulnerable communities. We acknowledge and thank Indigenous Peoples across Canada for their climate leadership long before the Paris Agreement and for being active drivers of positive change.

Pricing carbon pollution is central to this Framework. Carbon pricing will encourage innovation because businesses and households will seek out new ways to increase efficiencies and to pollute less. We will complement carbon pricing with actions to build the foundation of our low-carbon and resilient economy.

As Canada transitions to a low-carbon future, energy will play an integral role in meeting our collective commitment, given that energy production and use account for over 80 percent of Canada's GHG emissions. This means using clean energy to power our homes, workplaces, vehicles, and industries, and using energy more efficiently. It means convenient transportation systems that run on cleaner fuels, that move more people by public transit and zero-emission vehicles, and that have streamlined trade corridors. It means healthier and more comfortable homes that can generate

as much power as they use. It means more resilient infrastructure and ecosystems that can better withstand climatic changes. It means land use and conservation measures that sequester carbon and foster adaptation to climate change. It means new jobs for Canadians across the country and opportunities for growth. It means leveraging technology and innovation to seize export and trade opportunities for Canada, which will allow us to become a leader in the global clean growth economy and will also help bring down the cost of low-emission technologies. It means healthier communities with cleaner air and healthy and diverse ecosystems across the country.

We will maintain a sustained focus on implementation of the Pan-Canadian Framework, consistent with the commitment under the Paris Agreement, to increase the level of ambition over time.

The Pan-Canadian Framework is a historic step in the transition to a clean growth and resilient economy. It is informed by what we have heard from Canadians. We will continue to grow our economy and create good jobs as we take ambitious action on climate change. We will work to ensure that the Pan-Canadian Framework opens new opportunities for Canadian businesses to not only maintain but also enhance their competitiveness. We will continue to engage Canadians to strengthen and deepen our action on clean growth and climate change. And we are committed to transparently assessing and reporting to Canadians on our progress.

Together, we have developed a Pan-Canadian Framework on Clean Growth and Climate Change. This is Canada's plan to address climate change and grow the clean economy.

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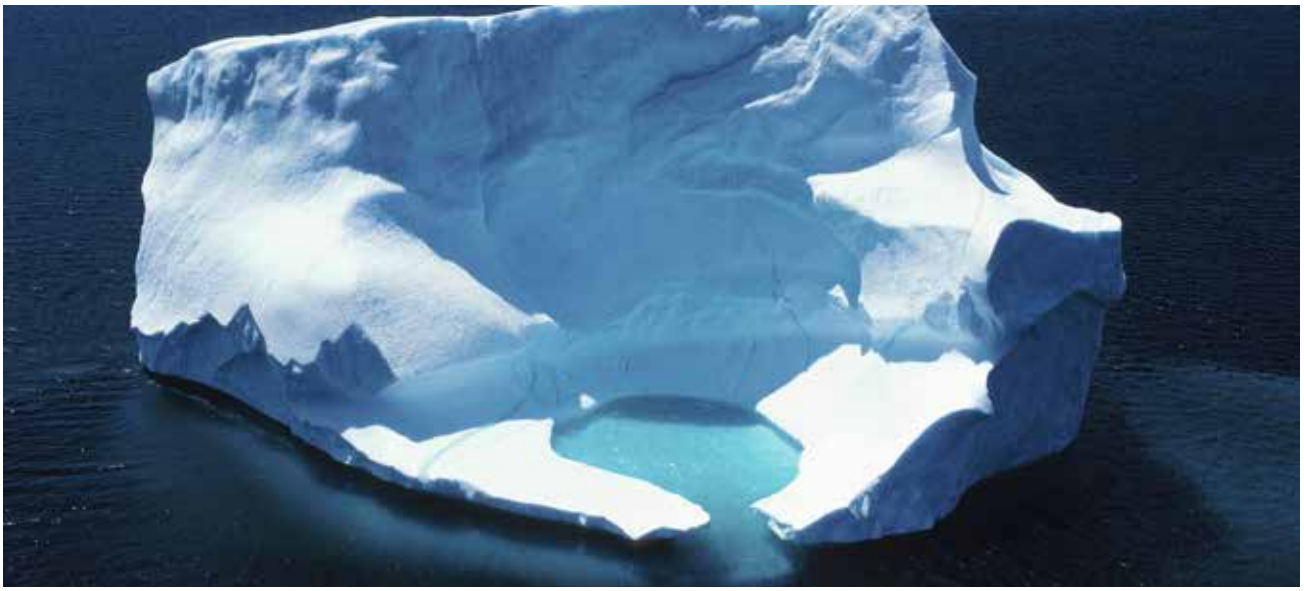


INTRODUCTION

In Canada and abroad, the impacts of climate change are becoming evident. Impacts such as coastal erosion; thawing permafrost; increases in heat waves, droughts and flooding; and risks to critical infrastructure and food security are already being felt in Canada. The science is clear that human activities are driving unprecedented changes in the Earth's climate, which pose significant risks to human health, security, and economic growth.

Taking strong action to address climate change is critical and urgent. The cost of inaction is greater than the cost of action: climate change could cost Canada $21-$43 billion per year by 2050, according to 2011 estimates from the National Round Table on the Environment and the Economy. Businesses and markets are increasingly considering climate risks. In recent years, severe weather events have cost Canadians billions of dollars, including in insured losses. Indigenous Peoples, northern and coastal regions and communities in Canada are particularly vulnerable and disproportionately affected. Geographic location, socio-economic challenges, and for Indigenous Peoples, the reliance on wild food sources, often converge with climate change to put pressure on these communities. Much has been done to begin addressing these challenges, including by Indigenous Peoples.

Acting on climate change will reduce risks and create new economic opportunities and good jobs for Canadians. There is already a global market for low-carbon goods and services worth over $5.8 trillion, which is projected to keep growing at a rate of 3 percent per year. Clean growth opportunities will benefit all sectors and regions. Canada will remain globally competitive through innovation, including through the development and promotion of innovative technologies with the potential to address climate change globally. This includes clean technology to enable the sustainable development of Canada's energy and resource sectors, including getting these resources to market, as Canada transitions to a low-carbon economy. Innovation can help further reduce emissions and the cost of taking action at home. Canadian technologies and solutions can also be exported abroad and deployed around the world, creating new markets and partners for Canadian businesses and supporting global action to reduce emissions.

The federal government will continue to work in close collaboration with other countries on climate solutions, including with partners across North America. A number of provinces and territories have already joined or are exploring entry into regional and international efforts to reduce GHG emissions.

Canadian municipalities will also continue to be important partners in developing and implementing climate solutions locally, as well as through international collaboration with other municipalities around the world.

The international community has agreed that tackling climate change is an urgent priority and also an historic opportunity to shift towards a global low-carbon economy. The adoption of the Paris Agreement in December 2015 was the culmination of years of negotiations under the United Nations Framework Convention on Climate Change. The Paris Agreement is a commitment to accelerate and intensify the actions and investments needed for a sustainable low-carbon future, to limit global average temperature rise to well below 2 °C above pre-industrial levels, and to pursue efforts to limit the increase to 1.5 °C. This will require taking action on long-lived GHGs such as carbon dioxide and short-lived climate pollutants such as methane, hydrofluorocarbons and black carbon.

As a first step towards implementing the commitments Canada made under the Paris Agreement, First Ministers released the Vancouver Declaration on Clean Growth and Climate Change on March 3, 2016.

1.1 How we developed the Framework

The development of the Pan-Canadian Framework was informed by input from Canadians across the country, who made it clear that they want to be part of the solution to climate change. Under the Vancouver Declaration, First Ministers asked four federal-provincial-territorial working groups to work with Indigenous Peoples; to consult with the public, businesses and civil society; and to present options to act on climate change and enable clean growth. The working groups heard solutions directly from Canadians, through an interactive website, in-person engagement sessions, and independent town halls.

Representatives of Indigenous Peoples contributed their knowledge and expectations for meaningful engagement in climate action and provided important considerations and recommendations either directly to working groups or to ministers, which helped shape this framework.

Ministers also reached out to Canadians, businesses, non-governmental organizations, and Indigenous Peoples to hear their priorities. In addition, ministerial tables were convened to provide their advice, including the Canadian Council of Ministers of the Environment, Ministers of Innovation, Ministers of Energy, and Ministers of Finance.

ENGAGING CANADIANS:
The Let's Talk Climate Action website was launched on April 22, 2016 to gather ideas and comments from Canadians about how Canada should address climate change. By the submission deadline of September 27, 2016, over 13,000 ideas and comments were received. In addition, consultations by governments and working groups on clean growth and climate change were held across Canada.

1.2 Pillars of the Framework

The Pan-Canadian Framework has four main pillars: pricing carbon pollution; complementary measures to further reduce emissions across the economy; measures to adapt to the impacts of climate change and build resilience; and actions to accelerate innovation, support clean technology, and create jobs. Together, these interrelated pillars form a comprehensive plan.

Pricing carbon pollution is an efficient way to reduce emissions, drive innovation, and encourage people and businesses to pollute less. However, relying on a carbon price alone to achieve Canada's international target would require a very high price.

Complementary climate actions can reduce emissions by addressing market barriers where pricing alone is insufficient or not timely enough to reduce emissions in the pre-2030 timeframe. For instance, tightening energy efficiency standards and codes for

vehicles and buildings are common sense actions that reduce emissions, while also helping consumers save money by using less energy.

Canada is experiencing the impacts of climate change, so there is also a need to **adapt and build resilience**. This means making sure that our infrastructure and communities are adequately prepared for climate risks like floods, wildfires, droughts, and extreme weather events, including in particularly vulnerable regions like Indigenous, northern, coastal, and remote communities. This also means adapting to the impacts of changes in temperature, including thawing permafrost.

A low-carbon economy can and will be a strong and thriving economy. Taking action now, to position Canada as a global leader on clean technology innovation, will help ensure that Canada remains internationally competitive and will lead to the creation of new good jobs across the country. Investing in **clean technology, innovation, and jobs** will bring new and in-demand Canadian technologies to expanding global markets. These investments will help improve the efficiency and cost-effectiveness of mitigation and adaptation measures and will equip Canada's workforce with the knowledge and skills to succeed.

In implementing the Pan-Canadian Framework on Clean Growth and Climate Change, federal, provincial and territorial governments will review progress annually to assess the effectiveness of our collective actions and ensure continual improvement. First Ministers commit to **report regularly and transparently** to Canadians on progress towards GHG-reduction targets, on building climate resilience, and on growing a clean economy.

Our governments will continue to recognize, respect and safeguard the **rights of Indigenous Peoples** as we take actions under these pillars.

1.3 Elements of collaboration

The Pan-Canadian Framework reaffirms the principles outlined in the Vancouver Declaration, including

- recognizing the diversity of provincial and territorial economies and the need for fair and flexible approaches to ensure international competitiveness and a business environment that enables firms to capitalize on opportunities related to the transition to a low-carbon economy in each jurisdiction;
- recognizing that growing our economy and achieving our GHG-emissions targets will require an integrated, economy-wide approach that includes all sectors, creates jobs, and promotes innovation;
- recognizing that a collaborative approach between provincial, territorial, and federal governments is important to reduce GHG emissions and enable sustainable economic growth;
- recognizing that provinces and territories have been early leaders in the fight against climate change and have taken proactive steps, such as adopting carbon pricing mechanisms, placing caps on emissions, involvement in international partnerships with other states and regions, closing coal plants, carbon capture and storage projects, renewable energy production (including hydroelectric developments) and targets, and investments in energy efficiency;
- recognizing that the federal government has committed to ensuring that the provinces and territories have the flexibility to design their own policies to meet emission-reductions targets, including their own carbon pricing mechanisms, supported by federal investments in infrastructure, specific emission-reduction opportunities and clean technologies;
- recognizing the commitment of the federal government to work with provinces and territories to complement and support their actions without duplicating them, including by promoting innovation and enabling clean growth across all sectors;
- strengthening the collaboration between our governments and Indigenous Peoples on mitigation and adaptation actions, based on recognition of rights, respect, cooperation, and partnership;
- recognizing the importance of Traditional Knowledge in regard to understanding climate impacts and adaptation measures;

- recognizing that comprehensive adaptation efforts must complement ambitious mitigation measures to address unavoidable climate change impacts; and
- implementing a collaborative, science-based approach to inform Canada's future targets that will increase in stringency as required by the Paris Agreement.

Governments recognize the unique circumstances of the North, including disproportionate impacts from climate change and the associated challenges with food security, emerging economies and the high costs of living and of energy.

Federal, provincial, and territorial governments will work collaboratively to grow the economy, create good-paying and long-term jobs, and reduce GHG emissions in support of meeting or exceeding Canada's 2030 target. These actions will be supported by strong, complementary adaptation policies to build climate resilience. Indigenous Peoples will be important partners in developing real and meaningful outcomes that position them as drivers of climate action in the implementation of the Pan-Canadian Framework. All governments across Canada are committed to ambitious and sustained action on climate change, building on current actions and future opportunities.

THE FEDERAL GOVERNMENT'S RENEWED RELATIONSHIP WITH INDIGENOUS PEOPLES:

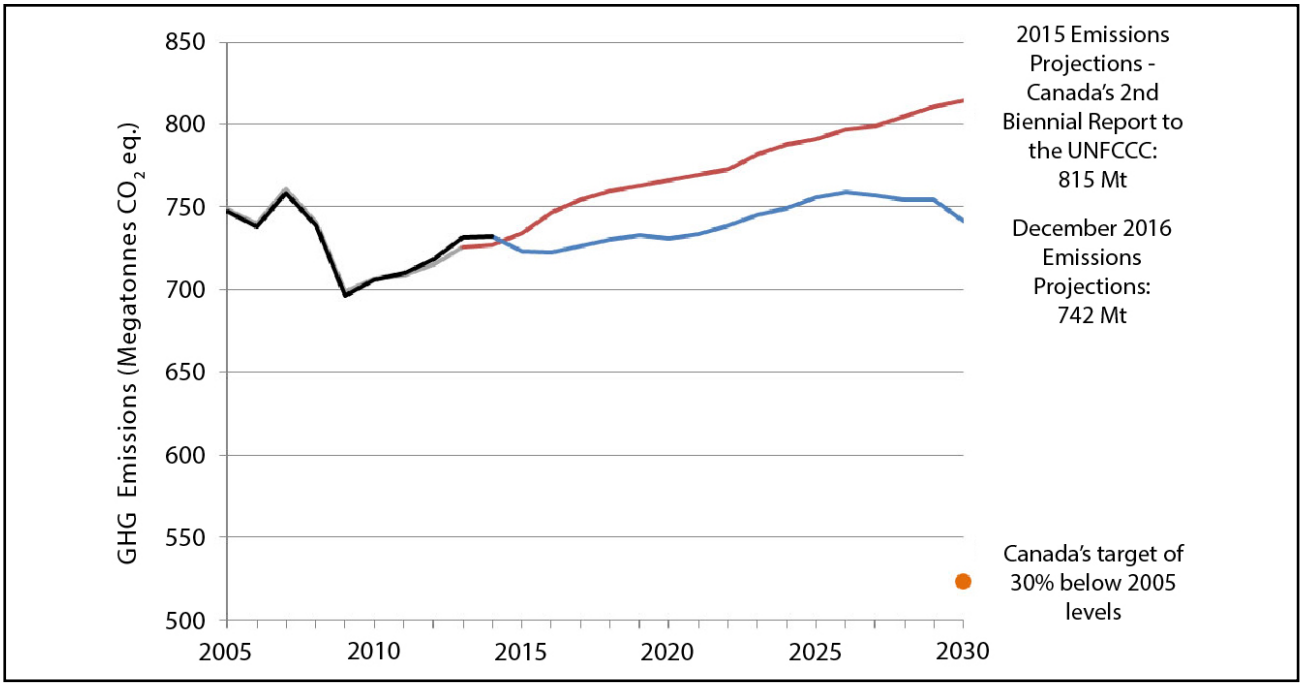
The federal government also reiterates its commitment to renewed nation-to-nation, government-to-government, and Inuit-to-Crown relationships with First Nations, the Métis Nation and Inuit, based on the recognition of rights, respect, cooperation, and partnership, consistent with the Government of Canada's support for the United Nations Declaration on the Rights of Indigenous Peoples, including free, prior and informed consent.

1.4 Emissions trajectory to 2030

The graph below highlights that total Canadian GHG emissions are projected to be 742 megatonnes (Mt) in 2030 under the December 2016 emissions projections (Environment and Climate Change Canada)[1]. Canada's target is 523 Mt.

Projections from the December 2016 emissions projections include revised forecasts for GDP and oil and gas prices and production[2]. Also incorporated are new federal, provincial, and territorial government measures that have legislative or funding certainty as of November 1st, 2016 and were not included in the 2015 emissions projections. These include: federal measures for increasing energy efficiency of equipment in buildings; Ontario's commitment to join the Western Climate Initiative cap-and-trade system; Alberta's coal phase-out, carbon levy, and oil sands emissions cap; Quebec's regulations for new high-rise buildings; and, British Columbia's low carbon fuel standard.

Figure 1: Emissions Projections to 2030



1 Canada's 2016 greenhouse gas emissions projections to 2030 will be released by Environment and Climate Change Canada in December 2016.

2

	Scenarios		
December 2016 Assumptions	**Low**	**Reference**	**High**
Average Annual GDP Growth (2014-2030)	1.0%	1.7%	2.3%
2030 WTI Oil Price (2014 US$/bbl)	42	81	111
2030 Henry Hub Natural Gas Price (2014 US$/GJ)	2.89	3.72	4.62
2030 GHG Emissions (Mt CO2eq.)	**697**	**742**	**790**

PRICING CARBON POLLUTION

Overview

Carbon pricing is broadly recognized as one of the most effective, transparent, and efficient policy approaches to reduce GHG emissions. Many Canadian provinces are already leading the way on pricing carbon pollution. British Columbia has a carbon tax, Alberta has a hybrid system that combines a carbon levy with a performance-based system for large industrial emitters, and Quebec and Ontario have cap-and-trade systems. With existing and planned provincial action, broad-based carbon pricing will apply in provinces with nearly 85 per cent of Canada's economy and population by 2017, covering a large part of our emissions.

The federal government outlined a benchmark for pricing carbon pollution by 2018 (see Annex I). The goal of this benchmark is to ensure that carbon pricing applies to a broad set of emission sources throughout Canada and with increasing stringency over time either through a rising price or declining caps. The benchmark outlines that jurisdictions can implement (i) an explicit price-based system (a carbon tax or a carbon levy and performance-based emissions system) or (ii) a cap-and-trade system. Some existing provincial systems already exceeded the benchmark. As affirmed in the Vancouver Declaration, provinces and territories continue to have the flexibility to design their own policies to meet emissions-reduction targets, including carbon pricing, adapted to each province and territory's specific circumstances.

"THERE IS A GROWING CONSENSUS AMONG BOTH GOVERNMENTS AND BUSINESSES ON THE FUNDAMENTAL ROLE OF CARBON PRICING IN THE TRANSITION TO A DECARBONIZED ECONOMY."

World Bank, State and Trends of Carbon Pricing 2015

The following **principles** guide the pan-Canadian approach to pricing carbon pollution, and they are broadly based on those proposed by the Working Group on Carbon Pricing Mechanisms:

- Carbon pricing should be a central component of the Pan-Canadian Framework.

- The approach should be flexible and recognize carbon pricing policies already implemented or in development by provinces and territories.
- Carbon pricing should be applied to a broad set of emission sources across the economy.
- Carbon pricing policies should be introduced in a timely manner to minimize investment into assets that could become stranded and maximize cumulative emission reductions.
- Carbon price increases should occur in a predictable and gradual way to limit economic impacts.
- Reporting on carbon pricing policies should be consistent, regular, transparent, and verifiable.
- Carbon pricing policies should minimize competitiveness impacts and carbon leakage, particularly for emissions-intensive, trade-exposed sectors.
- Carbon pricing policies should include revenue recycling to avoid a disproportionate burden on vulnerable groups and Indigenous Peoples.

NEW ACTIONS

1) Provincial and territorial actions on pricing carbon pollution are described in Annex II.

2) The federal government will work with the territories to find solutions that address their unique circumstances, including high costs of living and of energy, challenges with food security, and emerging economies. The federal government will also engage Indigenous Peoples to find solutions that address their unique circumstances, including high costs of living and of energy, challenges with food security, and emerging economies.

3) The overall approach will be reviewed by 2022 to confirm the path forward.

"CARBON PRICING IS THE MOST PRACTICAL AND COST-EFFECTIVE WAY TO LOWER GHG EMISSIONS WHILE ENCOURAGING LOW-CARBON INNOVATION."

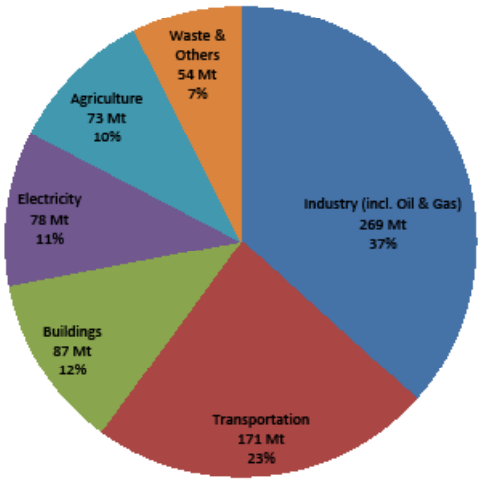
Canada's Ecofiscal Commission

COMPLEMENTARY ACTIONS TO REDUCE EMISSIONS

Overview

To reduce emissions, meaningful action will need to be taken across all regions and sectors of the economy. Many of the things that Canadians do every day—like driving cars and heating homes—produce GHG emissions. Many activities that drive economic growth in the country, like extracting natural resources, industrial and manufacturing activities, and transporting goods to customers, also produce emissions. The policies that help drive down emissions can also help the economy to keep growing by cutting costs for Canadians, creating new markets for low-emission goods and services, and helping businesses use cleaner and more efficient technologies that give them a leg up on international competitors.

Emissions by sector in 2014 (megatonnes of CO_2 eq.)



Federal, provincial, and territorial governments will work together to make sure new actions build on and complement existing plans, policies, programs, and regulations and reflect lessons learned from past experience. New policies will be designed to focus on GHG-emission outcomes and will recognize flexibility for regional differences, including through outcomes-based regulatory equivalency agreements. Indigenous Peoples will be involved in defining and developing policies to support clean energy in their communities.

In developing policies, a number of factors will be considered, including:

- economic, environmental, and social impacts and benefits;
- how individual policies will work with carbon pricing;
- the need to consider and mitigate the impacts on emissions-intensive trade exposed sectors (e.g., resource sectors that are price takers on the global market), including the need to avoid carbon leakage;
- co-benefits such as improved health due to air pollutant reductions, and jobs and business growth;
- opportunities to realize near-term climate and health benefits through reducing emissions of short-lived climate pollutants; and,
- benefits for ecosystems and biodiversity.

FALLING COSTS OF RENEWABLE ENERGY:
Between 2010 and 2015, the costs for new utility-scale solar photovoltaic (PV) installations declined by two-thirds, while over the same period the cost of onshore wind fell by an estimated 30 percent on average (IEA, 2016)

Governments will be supporting the actions outlined in the Pan-Canadian Framework through policies and investments. Federal actions are described in Annex I, and provincial and territorial key actions and collaboration opportunities with the Government of Canada are described in Annex II.

3.1 Electricity

Canada already has one of the cleanest electricity systems in the world. About 80 percent of electricity production comes from non-emitting sources, more than any other G7 country. While electricity emissions are going down in large part due to the move away from coal-fired power toward cleaner sources, electricity generation is still Canada's fourth-largest source of GHG emissions.

Clean, non-emitting electricity systems will be the cornerstone of a modern, clean growth economy. Transformations to electricity systems will be supported by federal, provincial, and territorial governments, and, undertaken by utilities, private-sector players, and Indigenous Peoples.

The approach to electricity will include
(1) increasing the amount of electricity generated from renewable and low-emitting sources;
(2) connecting clean power with places that need it;
(3) modernizing electricity systems; and
(4) reducing reliance on diesel working with Indigenous Peoples and northern and remote communities.

Provinces and territories have already taken action on moving from traditional coal-fired generation to clean electricity. Ontario and Manitoba have already phased out their use of coal, Alberta has plans in place to phase out coal-fired electricity by 2030, Nova Scotia has created a regulatory framework to transition from coal to clean electricity generation, and Saskatchewan has a coal-fired generating unit with carbon capture technology, which captures 90 percent of emissions. New capacity will come from non-emitting sources—including hydro, wind, and solar—as well as natural gas. Energy efficiency and conservation will make added contributions to clean electricity systems.

ONTARIO'S COAL PHASE-OUT:
On April 15, 2014, **Ontario** became the first jurisdiction in North America to fully eliminate coal as a source of electricity generation. This action is the single largest GHG-reduction initiative in North America, eliminating more than 30 Mt of annual GHG emissions and equivalent to taking seven million vehicles off the road. On November 23, 2015, Ontario passed the *Ending Coal for Cleaner Air Act*, permanently banning coal-fired electricity generation in the province.

SASKATCHEWAN'S BOUNDARY DAM INTEGRATED CARBON CAPTURE AND STORAGE PROJECT:
is the world's first commercial-scale, coal-fired carbon capture and storage electricity project, and it is able to capture and sequester up to 90 percent of its GHG emissions.

WIND POWER:

Wind capacity in Canada grew 20 times between 2005 and 2015, and there is strong potential for further growth. For example, 4 wind farms in **Prince Edward Island** now generate almost 25 percent of the province's electricity requirements.

ALBERTA'S COAL PHASE-OUT:

Alberta's commitments to end emissions from coal-fired electricity and replace it with 30 percent renewable energy by 2030 are expected to achieve cumulative emission reductions of 67 Mt between now and 2030, and emissions in 2030 will be at least 14 Mt below what is forecast under the status quo. This reduction is the equivalent of taking 2.8 million cars off the road. This move will improve air quality and the health of Albertans and other Canadians. It will also ensure reliability, encourage private investment, and provide price stability for all Albertans.

Connecting clean power across Canada through stronger transmission-line interconnections will help reduce emissions and support the move away from coal. Many provinces already trade electricity across their borders, and there is potential to increase these flows, consistent with market rules and fair competition among electricity producers.

THE CANADIAN ENERGY STRATEGY:

Provinces and territories are already taking a cooperative approach toward sustainable energy development through the Canadian Energy Strategy, which was released by premiers in July 2015. As agreed under the Vancouver Declaration and building on the Quebec Summit on Climate Change in 2015, federal, provincial, and territorial energy ministers are collaborating on specific actions through the Canadian Energy Strategy, to contribute to the Pan-Canadian Framework on Clean Growth and Climate Change. Actions include energy conservation and efficiency, clean energy technology and innovation, and deployment of energy to people and global markets.

Modernizing electricity systems will involve expanding energy storage, updating infrastructure, and deploying smart-grid technologies to improve the reliability and stability of electric grids and to allow more renewable power to be added. As a leader in the development and deployment of innovative energy-storage solutions and smart-grid technology, Canadian clean technology producers stand to benefit from increased investments in our electricity systems.

Many Indigenous Peoples, as well as northern and remote communities in Canada rely on diesel fuel to produce electricity and heat. Opportunities exist for clean electricity infrastructure, distributed energy systems, renewable energy microgrids, as well as grid connections and hybrid systems, which will enhance wellbeing, create local economic opportunities, and contribute to better air quality and a cleaner environment overall. Investing in clean energy solutions will advance the priorities of Indigenous Peoples, as well as northern and remote communities to transition away from diesel.

COLVILLE LAKE SOLAR PROJECT – Colville Lake, Northwest Territories is located north of the Arctic Circle, and it is served with a winter road that is open just a couple of months each year. To reduce diesel use in this remote, off-grid community, a solar/diesel/battery hybrid electricity system has been installed. This system has allowed the diesel generators to be shut down for extended periods in the summer. This innovative energy solution has reduced diesel use and related emissions by 20-25 percent per year.

Taking these actions will have a number of benefits beyond reducing GHG emissions. Phasing out coal and reducing the use of diesel will reduce harmful air pollutants, which have significant implications for human health and associated health-care costs. Designing and building clean-power technologies and transmission lines represents major economic opportunities for Canada. Increasing the amount of clean and renewable electricity sold to the United States could also bring new revenue to utilities and provinces, respecting open-access rules under the authority of the U.S. Federal Energy Regulatory Commission.

THE CANADA INFRASTRUCTURE BANK: The federal government is creating the Canada Infrastructure Bank, which will work with provinces, territories, and municipalities to further the reach of government funding directed to infrastructure, including clean electricity systems.

COMMUNITY-BASED ENERGY GENERATION: In May 2015, **New Brunswick** introduced legislation to allow local entities to develop renewable-energy sourced electricity generation in their communities. This legislation will allow universities, non-profit organizations, cooperatives, First Nations, and municipalities to contribute to NB Power's renewable energy requirements.

NEW ACTIONS

1. Increasing renewable and non-emitting energy sources

Federal, provincial, and territorial governments will work together to accelerate the phase out of traditional coal units across Canada, by 2030, as recently announced by the federal government (see Annex I) and to build on provincial and territorial leadership.

The federal government has announced it will set performance standards for natural gas-fired electricity generation, in consultation with provinces, territories, and stakeholders (see Annex I).

Federal, provincial, and territorial governments will work together to facilitate, invest in, and increase the use of clean electricity across Canada, including through additional investments in research, development, and demonstration activities.

2. Connecting clean power with places that need it

Federal, provincial, and territorial governments will work together to help build new and enhanced transmission lines between and within provinces and territories.

3. Modernizing electricity systems

Federal, provincial, and territorial governments will work together to support the demonstration and deployment of smart-grid technologies that help electric systems make better use of renewable energy, facilitate the integration of energy storage for renewables, and help expand renewable power capacity.

4. Reducing reliance on diesel working with Indigenous Peoples and northern and remote communities

Governments are committed to accelerating and intensifying efforts to improve the energy efficiency of diesel generating units, demonstrate and install hybrid or renewable energy systems, and connect communities to electricity grids. This will be done in partnership with Indigenous Peoples and businesses. These actions will have significant benefits for communities, such as improving air quality and energy security, and creating the potential for locally owned and sourced power generation.

RAMEA WIND-HYDROGEN-DIESEL ENERGY PROJECT:

The off-grid community of Ramea in **Newfoundland and Labrador** hosts one of the first projects in the world to integrate generation from wind, hydrogen, and diesel in an isolated electricity system. Since 2010, the Ramea Wind-Hydrogen-Diesel Energy Project has successfully produced approximately 680 000 kilowatt hours of renewable energy.

3.2 Built environment

In Canada, using energy to heat and cool buildings accounted for about 12 percent of national GHG emissions in 2014 or 17 percent if emissions from generating the electricity used in buildings is also included. The emissions in this sector—created by burning fossil fuels and leaks in air conditioning systems—are projected to grow modestly by 2030 unless further action is taken.

In a low-carbon, clean growth economy, buildings and communities will be highly energy efficient, rely on clean electricity and renewable energy, and be smart and sustainable. Making the built environment more energy efficient reduces GHGs, helps make homes and buildings more comfortable and more affordable by lowering energy bills, and can promote innovation and clean job opportunities. Most building owners and architects estimate that retrofitting commercial and institutional buildings pays off in less than ten years, according to data from the Canada Green Building Council. Residential energy efficiency improvements helped Canadians save $12 billion in energy costs in 2013, an average savings of $869 per household.

The approach to the built environment will include (1) making new buildings more energy efficient; (2) retrofitting existing buildings, as well as fuel switching; (3) improving energy efficiency for appliances and equipment; and (4) supporting building codes and energy efficient housing in Indigenous communities.

Advances in clean technologies and building practices can make new buildings "net-zero energy", meaning they require so little energy they could potentially rely on their own renewable energy supplies for all of their energy needs. Through research and development, technology costs continue to fall, and government and industry efforts and investments will accelerate that trend. These advances, supported by a model "net-zero energy ready" building code, will enable all builders to adopt these practices and lower lifecycle costs for homeowners.

EFFICIENCY NOVA SCOTIA:
Canada's first energy efficiency utility—works with more than 100 local partners, and it has helped 225 000 program participants complete energy efficiency projects, saving Nova Scotians $110 million in 2016 alone. For example, the HomeWarming service is funded by the province of Nova Scotia as part of a long-term plan to upgrade all low-income homes in Nova Scotia, over the next 10 years.

At the same time, action is needed on existing buildings, since more than 75 percent of the building stock in 2030 will be composed of buildings already standing today. This can be supported by innovative policies like labelling a building's energy performance, establishing retrofit codes, and offering low-cost financing for retrofits.

Housing for Indigenous communities is particularly pressing. New housing will be built to high-efficiency standards and existing housing will be retrofitted. Indigenous Peoples have also identified the need to incorporate Traditional Knowledge and culture into building designs. Governments will partner with Indigenous Peoples in the design of relevant policies and programs.

Energy efficiency standards for equipment and appliances save consumers and businesses money on energy bills. An early market signal by the government, in the form of an intention to introduce standards by a specific year, can motivate the market to accelerate the uptake of the targeted technologies. Regulations can be supported by actions to educate consumers, to demonstrate benefits, and to overcome market barriers.

Construction in Canada is a $171 billion industry, and it employs well over a million people. New building codes will spur innovation and support Canadian businesses in developing more efficient building techniques and technologies. Investments in retrofits to improve energy efficiency have been shown to be strong job creators, providing direct local benefits, creating local jobs, and reducing energy bills.

NET-ZERO ENERGY BUILDINGS:
Construction costs for net-zero energy buildings have dropped 40 percent in the past decade, and they are continuing to fall. The benefits of net-zero energy buildings are significant. Estimated operating costs for a net-zero energy ready house is 30 percent to 55 percent less than for a typical house, depending on region, fuel type and occupant behaviour. For example, on a -32 °C day, the Riverdale NetZero Project (a semi-detached duplex in Edmonton, Alberta) only needs 6500 W of power for heat—the same amount of heat produced by four toasters.

NEW ACTIONS

1. Making new buildings more energy efficient

Federal, provincial, and territorial governments will work to develop and adopt increasingly stringent model building codes, starting in 2020, with the goal that provinces and territories adopt a "net-zero energy ready" model building code by 2030. These building codes will take regional differences into account. Continued federal investment in research, development, and demonstration, and cooperation with industry will help to reduce technology costs over time.

2. Retrofitting existing buildings

Federal, provincial, and territorial governments will work to develop a model code for existing buildings by 2022, with the goal that provinces and territories adopt the code. This code will help guide energy efficiency improvements that can be made when renovating buildings.

Federal, provincial, and territorial governments will work together with the aim of requiring labelling of building energy use by as early as 2019. Labelling will provide consumers and businesses with transparent information on energy performance.

Provincial and territorial governments will work to sustain and, where possible, expand efforts to retrofit existing buildings by supporting energy efficiency improvements as well as fuel switching, where appropriate, and by accelerating the adoption of high-efficiency equipment while tailoring their programs to regional circumstances. The federal government could support efforts of provinces and territories through the Low Carbon Economy Fund and infrastructure initiatives.

3. Improving energy efficiency for appliances and equipment

The federal government will set new standards for heating equipment and other key technologies to the highest level of efficiency that is economically and technically achievable.

4. Supporting building codes and energy efficient housing in Indigenous communities

Governments will collaborate with Indigenous Peoples as they move towards more efficient building standards and incorporate energy efficiency into their building-renovation programs.

SOCIAL HOUSING RETROFITS:
To help fight climate change, Ontario invested $92 million in 2016 to retrofit social housing buildings to reduce GHG emissions by installing energy efficient boilers, insulating outer walls and mechanical systems, and installing more energy efficient windows and lighting. Ontario's Climate Change Action Plan builds on this initial investment by committing up to $500 million more for social housing retrofits over the next five years.

Aki Energy in **Manitoba** is a non-profit Aboriginal social enterprise that works with First Nations to start green businesses in their communities and to create local jobs and strong local economies. Aki Energy is committed to helping First Nations lower the utility bills to heat buildings, and it has installed over $3 million in cost-effective renewable energy technologies in partnership with Manitoba First Nations.

3.3 Transportation

The transportation sector accounted for about 23 percent of Canada's emissions in 2014, mostly from passenger vehicles and freight trucks. Transportation emissions are projected to decline slightly by 2030 if no further action is taken. Governments are already working to make all modes of transportation more efficient and convenient, but more action is needed.

Low-carbon transportation systems will use cleaner fuels, will have more zero-emission vehicles on the road, will provide convenient and affordable public transit, and will transport people and goods more efficiently.

The approach to transportation will include (1) setting and updating vehicle emissions standards and improving the efficiency of vehicles and transportation systems; (2) expanding the number of zero-emission vehicles on Canadian roads; (3) supporting the shift from higher to lower-emitting types of transportation, including through investing in infrastructure; and (4) using cleaner fuels.

Emissions standards for cars and trucks ensure new engines are more fuel efficient. Retrofitting freight trucks to reduce wind resistance can also cut emissions. And streamlining how goods are transported can improve the overall efficiency of transportation systems.

Zero-emission vehicle technologies include plug-in hybrids, electric vehicles, and hydrogen fuel-cell vehicles. Many of these are becoming increasingly affordable and viable, and governments can help accelerate these trends, including by investing in charging and fueling infrastructure.

ELECTRIFICATION OF TRANSPORTATION:

Québec has committed to take significant action on the electrification of transportation by 2020, including by increasing the number of electric and plug-in hybrid vehicles registered in Québec to 100 000; adding 5000 electric-vehicle jobs and generating $500 million in investments; reducing the amount of fuel used each year in Québec by 66 million liters; and cutting annual GHG emissions from the transportation sector by 150 000 tonnes.

Shifting from higher- to lower-emitting modes of transportation includes things like riding public transit or cycling instead of driving a car, and transporting goods by rail instead of trucks. Improving public transit infrastructure and optimizing freight corridors can help drive these shifts.

Using cleaner fuels such as advanced biofuels can reduce the lifecycle carbon intensities of all fuels across transportation systems, as well as in other sectors like industry and buildings.

Taking these actions will have additional environmental and economic benefits beyond reducing GHG emissions. Efficiency improvements can help Canadians and businesses save money by spending less on fuel and reducing the costs of transporting goods. New, cleaner fuels can create opportunities for resource sectors. Businesses that develop new fuel and vehicle technologies will create jobs, help the economy grow, and give those businesses a competitive edge.

NEW ACTIONS

1. Setting emissions standards and improving efficiency

The federal government will continue its work to implement increasingly stringent standards for emissions from light-duty vehicles, including fuel-efficient tire standards, and to update emissions standards for heavy-duty vehicles.

The federal government will work with provinces, territories, and industry to develop new requirements for heavy-duty trucks to install fuel-saving devices like aerodynamic add-ons.

The federal government will take a number of actions to improve efficiency and support fuel switching in the rail, aviation, marine, and off-road sectors.

2. Putting more zero-emission vehicles on the road

Federal, provincial, and territorial governments will work with industry and other stakeholders to develop a Canada-wide strategy for zero-emission vehicles by 2018.

Federal, provincial, and territorial governments will work together, including with private-sector partners, to accelerate demonstration and deployment of infrastructure to support zero-emission vehicles, such as electric-charging stations.

3. Shifting from higher- to lower-emitting modes and investing in infrastructure

Federal, provincial, and territorial governments will work together to enhance investments in public-transit upgrades and expansions.

Federal, provincial, and territorial governments will invest in building more efficient trade and transportation corridors including investments in transportation hubs and ports.

Federal, provincial, and territorial governments will consider opportunities with the private sector to support refueling stations for alternative fuels for light- and heavy-duty vehicles, including natural gas, electricity, and hydrogen.

4. Using cleaner fuels

The federal government, working with provincial and territorial governments, industry, and other stakeholders, will develop a clean fuel standard to reduce emissions from fuels used in transportation, buildings and industry.

This will take into account the unique circumstances of Indigenous Peoples and northern and remote communities.

3.4 Industry

Canada's industries are the backbone of the economy, but they are also a major source of GHG emissions. In 2014, industrial sectors accounted for about 37 percent of Canada's emissions, the majority of which came from the oil and gas sector. Industrial emissions are projected to grow between now and 2030 as demand grows for Canadian-produced goods, at home and abroad.

A low-carbon industrial sector will rely heavily on clean electricity and lower-carbon fuels, will make more efficient use of energy, and will seize opportunities unlocked by innovative technologies. The province of Alberta has legislated an absolute cap of 100 Mt a year on emissions from the oil sands sector. There are a number of near-term opportunities to reduce industrial emissions while maintaining the competitive position of Canadian firms.

The approach to the industrial sector will include three main areas of action: (1) regulations to reduce methane and hydrofluorocarbon (HFC) emissions; (2) improving industrial energy efficiency; and (3) investing in new technologies to reduce emissions. Together, these actions will help set the path for long-term clean growth and the transition to a low-carbon economy.

Methane and HFCs are potent GHGs, dozens to thousands of times more powerful than carbon dioxide. The oil and gas sector is the largest contributor to methane emissions in Canada. Building on provincial actions and targets, the federal government has committed to reduce methane emissions by 40-45 percent by 2025. Canada joined almost 200 other countries in signing the Kigali Amendment to the Montreal Protocol, which will push the global phase out of HFC emissions. Taking action on HFCs can prevent up to 0.5 °C of global warming due to the potency of these gases, while continuing to protect the ozone layer.

There is significant potential to improve energy efficiency in Canada's industrial sectors. Energy management systems such as ISO 50001, the Superior Energy Performance program (SEP), and the ENERGY STAR for Industry program are useful tools that help businesses track, analyze, and improve their energy efficiency.

Using today's low-emission technologies and switching to clean electricity and lower-carbon fuels are near-term actions industry can take to reduce emissions. Over the longer-term, more dramatic emission reductions will be possible by using new technologies to transform how some industries operate. Investing in promising new technologies is an important area for action. Innovation will help Canadian businesses access global markets and attract foreign investment.

LOWER-CARBON INDUSTRIAL ACTIVITY IN CANADA:
Quebec's aluminum smelters have reduced their emissions by 30 percent since 1990. The modernized world-class aluminum smelter in Kitimat, BC will boost production and reduce emissions by nearly 50 percent. As a result of these investments, Canada's aluminum industry is now the most carbon-efficient producer of aluminum in the world.

OIL SANDS INNOVATION:
COSIA (Canada's Oil Sands Innovation Alliance) is an alliance of 13 oil sands producers, representing 90 percent of production from the Canadian oil sands, who are working together to develop technologies that help reduce the environmental impact of the oil sands, including reducing GHG emissions. Member companies have shared 936 distinct environmental technologies, costing $1.33 billion, since coming together in 2012.

Taking these actions will benefit businesses. Strengthening energy performance is one of the most cost-effective ways for industry to reduce energy use, it generally has quick payback periods, and it will continually generate financial savings. Measures that help cut costs or develop new technologies can improve competitiveness and create jobs and export opportunities for the clean technology sector.

NEW ACTIONS

1. Reducing methane and HFC emissions

The federal government will work with provinces and territories to achieve the objective of reducing methane emissions from the oil and gas sector, including offshore activities, by 40-45 percent by 2025, including through equivalency agreements.

The federal government has introduced proposed regulations to phase down use of HFCs to support Canada's commitment to the Montreal Protocol amendment.

2. Improving industrial energy efficiency

Federal, provincial, and territorial governments will work together to help industries save energy and money, including by supporting them in adopting energy management systems.

3. Investing in technology

Federal, provincial, and territorial governments working with industry will continue to invest in research and development and to promote deployment of new technologies that help reduce emissions.

Federal, provincial, and territorial governments will also work with industry to identify demonstration projects for promising pre-commercial clean energy technologies required to reduce emissions from energy production and use in the Canadian economy, including in the oil and gas sector.

3.5 Forestry, agriculture, and waste

Emissions from agriculture (livestock and crop production) and extraction of forestry resources accounted for about 10 percent of Canada's emissions in 2014, and they are not projected to significantly change by 2030. Municipal waste accounts for a small portion (about 3 percent) of Canada's total GHGs, and these emissions are projected to decline, largely due to increases in landfill gas capture.

Agricultural soils and forests also absorb and store carbon. The emissions or removals from carbon sinks can fluctuate with natural disturbances (e.g. forest fires), but there are still a number of actions that can increase carbon storage and reduce emissions.

Forests, wetlands, and agricultural lands across Canada will play an important natural role in a low-carbon economy by absorbing and storing atmospheric carbon. Actions taken by jurisdictions and woodlot owners to accelerate reforestation, to continuously improve sustainable management practices, and to plant new forests where they do not currently exist will enhance stored carbon. Clean technology, such as lower-carbon bioenergy, and bioproducts that use feedstock from agriculture and forestry waste and dedicated crops to replace higher-carbon fuels can also reduce emissions. Continued innovation and clean technology in agriculture will build on past GHG reduction successes of decreasing emissions per unit of production. The municipal waste sector will also be a key source of cleaner fuels such as renewable natural gas from landfills.

The approach to these sectors will include (1) enhancing carbon storage in forests and agricultural lands; (2) supporting the increased use of wood for construction; (3) generating fuel from bioenergy and bioproducts; and, (4) advancing innovation.

Forests, wetlands, and agricultural lands can be enhanced as “carbon sinks” through actions such as planting more trees, improving forest carbon management practices, minimizing losses from fires and invasive species, restoring forests that have been affected by natural disturbances, and increasing adoption of land management practices like increasing perennial and permanent cover crops and zero-till farming. Protecting and restoring natural areas, including wetlands, can also benefit biodiversity and maintain or enhance carbon storage.

Increasing the use of wood for construction can reduce emissions as the carbon stored in that wood gets locked in for a long period of time. Increasing domestic demand for Canadian wood products will also support the vibrant forest industries across Canada, which have a long history of innovating to develop new products and more efficient and sustainable forest practices.

The **Cheakamus Community Forest** carbon offset project is located adjacent to the Resort Municipality of Whistler, within the traditional territories of the Squamish and Lil'wat Nations. The project retains more carbon in the forest by using ecosystem-based management practices that include increasing protected areas and using lower-impact harvesting techniques.

The forestry, agriculture, and waste sectors also provide biomass for bioproducts that can be used in place of fossil fuels in other sectors. For example, waste products from forestry, agriculture, and landfills can be converted into energy sources such as renewable natural gas. Dedicated crops can be grown as feedstocks for products like bioplastics. Expanding renewable fuel industries represents an opportunity to create new jobs and economic growth across Canada.

BIOMASS-FIRED DISTRICT HEATING:

Prince Edward Island is home to Canada's longest running, biomass-fired district heating system. Operating since the 1980's, the system has expanded to serve over 125 buildings in the downtown core of Charlottetown, including the University of Prince Edward Island and the Queen Elizabeth Hospital, and cleanly burns 66 000 tons of waste materials annually.

Innovative solutions, including clean technologies, are required to reduce emissions from agriculture. Promising new technologies are being developed to reduce emissions from livestock and crop production, including from the use of precision farming and "smart" fertilizers, which time the release to match plant needs, and from feed innovations that reduce methane production in cattle. Actions pertaining to the agriculture sector will be developed collaboratively through Canada's Next Agriculture Policy Framework.

These actions in the forestry, agriculture, and waste sectors, and supporting clean technology businesses, can help to create jobs and build more sustainable communities.

NEW ACTIONS

1. Increasing stored carbon

Federal, provincial, and territorial governments will work together to protect and enhance carbon sinks, including in forests, wetlands, and agricultural lands (e.g. through land-use and conservation measures).

2. Increasing the use of wood for construction

Federal, provincial, and territorial governments will collaborate to encourage the increased use of wood products in construction, including through updated building codes.

3. Generating bioenergy and bioproducts

Federal, provincial, and territorial governments will work together to identify opportunities to produce renewable fuels and bioproducts, for example, generating renewable fuel from waste.

4. Advancing innovation

Federal, provincial, and territorial governments will work together to enhance innovation to advance GHG efficient management practices in forestry and agriculture.

3.6 Government leadership

Governments are directly responsible for a relatively small share of Canada's emissions (about 0.6 percent), but they have an opportunity to lead by example. A number of provinces are already demonstrating leadership, including through carbon neutral policies.

CARBON NEUTRAL GOVERNMENT:
British Columbia's public sector has successfully achieved carbon neutrality each year since 2010. Over the past 6 years, schools, post-secondary institutions, government offices, Crown corporations, and hospitals have reduced a total of 4.3 million tonnes of emissions through improvements to their operations and investments of $51.4 million in offset projects. British Columbia was the first—and continues to be the only—carbon neutral jurisdiction on the continent.

In a low-carbon, clean growth economy, federal, provincial, and territorial governments will be leaders in sustainable, low-emission practices that support the goals of clean growth and address climate change.

Municipalities are also essential partners. How cities develop and operate has an important impact on energy use and therefore GHG emissions.

LEADERSHIP BY CITIES:
The City of Whitehorse's Sustainability Plan outlines 12 community-wide goals in areas such as transportation, buildings, waste, GHG reductions, and resilient, accessible food systems, with associated targets for 2020, 2030, and 2050. For example, Whitehorse has set a target that new buildings will be 30 percent more efficient than the National Energy Code of Canada for Buildings, the National Building Codes, or achievable comparable EnerGuide ratings, while city-owned buildings will be 50 percent more efficient than the National Energy Code.

The public sector can play an important role by setting ambitious emissions reduction targets and by demonstrating the effectiveness of policies to reduce emissions (e.g. from vehicle fleets and buildings).

The approach to government leadership will include (1) setting ambitious targets; (2) cutting emissions from government buildings and fleets; and (3) scaling up clean procurement.

Governments control a significant share of assets like fleets and buildings. By setting targets and implementing policies to make buildings more efficient and to reduce emissions from vehicle fleets, the public sector can help to demonstrate the business case for ambitious action. Governments are also major purchasers and providers of goods and services, and they can help to build demand for low-carbon goods and services through procurement policies. They can also provide a testing ground for new and emerging technologies, creating new opportunities for Canadian firms developing clean technology products, services, and processes.

NEW ACTIONS

1. Setting ambitious targets

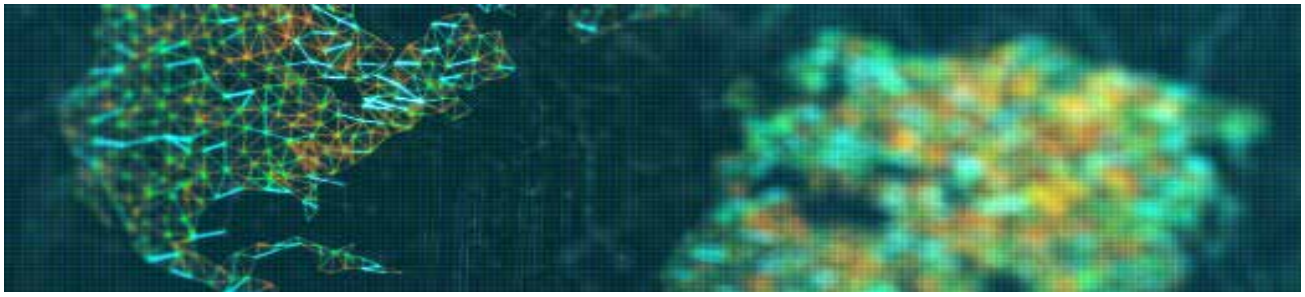
Federal, provincial, and territorial governments will demonstrate leadership through commitments to ambitious targets to reduce emissions from government operations. The federal government is committed to reduce its own GHG emissions to 40 percent below 2005 levels, by 2030 or sooner.

2. Cutting emissions from government buildings and fleets

Federal, provincial, and territorial government will scale up efforts to transition to highly efficient buildings and zero-emission vehicle fleets. The federal government has set a goal of using 100 percent clean power by 2025.

3. Scaling up clean procurement

Federal, provincial, and territorial governments will work together to modernize procurement practices, adopt clean energy and technologies, and prioritize opportunities to help Canadian businesses grow, demonstrate new technologies, and create jobs.



3.7 International leadership

Governments will work with their international partners, including developing countries, to help reduce emissions around the world. The federal government is investing $2.65 billion in climate finance to help developing countries transition to low-carbon economies and build climate resilience.

The priority is to first focus on reduction in emissions within Canada, but part of Canada's approach to climate change could also involve acquiring allowances for emissions reductions in other parts of the world, as a complement to domestic emissions reduction efforts. As recognized under the Paris Agreement (article 6), countries may choose to use emissions reductions that take place outside of their own borders, known as "internationally transferred mitigation outcomes", to meet their targets. Emissions reductions that take place outside of Canada may have lower costs and contribute to investment in sustainable development abroad. Quebec and California already participate in international emissions trading under their linked cap-and-trade system, which Ontario will soon join.

The approach to international leadership will include (1) delivering on Canada's international climate finance commitments; (2) acquiring internationally transferred mitigation outcomes; and (3) engaging in trade and climate policy.

Federal, provincial, and territorial governments will also explore mechanisms and opportunities for provinces and territories to collaborate in international fora, joint missions, and discussions on climate change and energy.

The federal government will continue to engage with and support Indigenous Peoples' action on international climate change issues, including through the United Nations Framework Convention on Climate Change, to formulate a platform for Indigenous Peoples, as agreed to in the Paris decision.

NEW ACTIONS

1. Delivering on Canada's international climate-finance commitments

The federal government will deliver on its historic commitment of $2.65 billion by 2020 to help the poorest and most vulnerable countries mitigate and adapt to the adverse effects of climate change.

2. Acquiring internationally transferred mitigation outcomes

The federal government, in cooperation with provincial and territorial governments and relevant partners, will continue to explore which types of tools related to the acquisition of internationally transferred mitigation outcomes may be beneficial to Canada and will advance a robust approach to the implementation of article 6 of the Paris Agreement. A first priority is ensuring any cross-border transfer of mitigation outcomes is based on rigorous accounting rules, informed by experts, which result in real reductions.

The federal government will work with Ontario, Quebec, and other interested provinces and territories, as well as with international partners, to ensure that allowances acquired through international-emissions trading are counted towards Canada's international target.

3. Engaging in trade and climate policy

The federal government, in cooperation with provincial and territorial governments, will work with its international partners to ensure that trade rules support climate policy.

ADAPTATION AND CLIMATE RESILIENCE

Overview

The impacts of climate change are already being felt across Canada. These changes are being magnified in Canada's Arctic, where average temperature has increased at a rate of nearly three times the global average. They pose significant risks to communities, health and well-being, the economy, and the natural environment, especially in Canada's northern and coastal regions and for Indigenous Peoples. Indigenous Peoples are among the most vulnerable to climate change due to their remote locations and reliance on wild foods. The changes already being experienced are both dramatic and permanent, with significant social, cultural, ecological, and economic implications.

Taking action to adapt to current and future climate impacts will help protect Canadians from climate change risks, build resilience, reduce costs, and ensure that society thrives in a changing climate.

INUIT AND CLIMATE IMPACTS:

Inuit and Inuit Nunangat, the homeland of Inuit in Canada, are experiencing significant climate change impacts, as highlighted in Inuit Tapiriit Kanatami's recent report on Inuit Priorities for Canada's Climate Strategy. More than 70 per cent of Canada's coastline is located in the Arctic and it is defined by ice. Average sea ice thickness is decreasing and sea ice cover is now dominated by younger, thinner ice. Some models are projecting that summer sea ice cover could be almost completely lost before 2050. These changes are already impacting access to wild foods and contributing to hazards and risks on ice.

Developing adaptation expertise and technology can further contribute to clean growth by creating jobs and spurring innovation. Adaptation is a long-term challenge, and it requires ongoing commitment to action, leadership across all governments, strong governance to assess and sustain progress, adequate funding, and meaningful engagement with, and continued leadership by, Indigenous Peoples. Federal investments (see Annex I) will support key adaptation measures.

Federal, provincial, and territorial governments have identified new actions to build resilience to climate change across Canada in the following areas:

1. Translating scientific information and Traditional Knowledge into action
2. Building climate resilience through infrastructure
3. Protecting and improving human health and well-being
4. Supporting particularly vulnerable regions
5. Reducing climate-related hazards and disaster risks

4.1 Translating scientific information and Traditional Knowledge into action

Canadians need authoritative science and information to understand current and expected changes. This includes changing conditions (e.g., rainfall, temperature, and sea ice) and the impacts of climate change across Canada. Long-term monitoring and local observations are also key. Data, tools, and information need to be widely accessible, equitable, and relevant to different types of decision-makers in different settings.

Translating knowledge into action takes leadership, skilled people, and resources. The Government of Canada's Adaptation Platform supports collaboration among governments, industry, and professional organizations on adaptation priorities. Building regional expertise and capacity for adaptation will improve risk management; support land-use planning; help safeguard investments; and strengthen emergency planning, response, and recovery. Decision-making by all governments will be guided by consideration of scientific and Traditional Knowledge.

INFORMATION AND TOOLS FOR ADAPTATION DECISIONS:
Decision-makers in five Quebec coastal municipalities collaborated with researchers, notably from the Université du Quebec à Rimouski and from Ouranos, a regional climate and adaptation consortium, to explore solutions to repeated damage of coastal infrastructure. Projections of future erosion, studies of sea ice and coastal vulnerability due to climate change, and cost-benefit analyses provided the foundation for the municipalities to make decisions on an adaptation solution.

The approach to information, knowledge, and capacity building will include (1) providing authoritative climate information and (2) building regional adaptation capacity and expertise.

Ensuring Canadians across all regions and sectors have the capacity to make informed decisions and to act on them provides the foundation for

advancing adaptation in Canada. Indigenous-led community-based initiatives that combine science and Traditional Knowledge can help guide decision making. Including this information in regional and national impacts and adaptation assessments can further advance understanding of climate change across the country.

NEW ACTIONS

1. Providing authoritative climate information

The federal government will establish a Canadian centre for climate services, to improve access to authoritative, foundational climate science and information. This centre will work with provincial and territorial governments, Indigenous Peoples and other partners to support adaptation decision making across the country.

2. Building regional adaptation capacity and expertise

Governments will work with regional partners, including with Indigenous Peoples through community-based initiatives, to build regional capacity, develop adaptation expertise, respectfully incorporate Traditional Knowledge, and mobilize action. Canada's Adaptation Platform and regional consortia and centres support the sharing of expertise and information among governments, Indigenous Peoples and communities, businesses, and professional organizations and support action on joint priorities.

4.2 Building climate resilience through infrastructure

Climate change is already impacting infrastructure, particularly in vulnerable northern and coastal regions, as well as Indigenous Peoples. Climate-related infrastructure failures can threaten health and safety, interrupt essential services, disrupt economic activity, and incur high costs for recovery and replacement.

The approach to building climate resilience through infrastructure will include (1) investing in infrastructure that strengthens resilience and (2) developing climate-resilient codes and standards.

Traditional built infrastructure (e.g. roads, dykes, seawalls, bridges, and measures to address permafrost thaw) can address specific vulnerabilities. Additionally, living natural infrastructure (e.g. constructed/managed wetlands and urban forests) can build the resilience of communities and ecosystems and deliver additional benefits, such as carbon storage and health benefits.

Considering climate change in long-lived infrastructure investments, including retrofits and upgrades, and investing in traditional and natural adaptation solutions can build resilience, reduce disaster risks, and save costs over the long term.

ADAPTATION INFRASTRUCTURE:
The Red River Floodway was originally constructed in 1968 at a total cost of $63 million. It was recently expanded in 2014, at a cost of $627 million. Since 1968, the Floodway has prevented over $40 billion (in 2011 dollars) in flood-related damages for the City of Winnipeg.

NEW ACTIONS

1. Investing in infrastructure to build climate resilience

Federal, provincial, and territorial governments will partner to invest in infrastructure projects that strengthen climate resilience.

2. Developing climate-resilient codes and standards

Federal, provincial, and territorial governments will work collaboratively to integrate climate resilience into building design guides and codes. The development of revised national building codes for residential, institutional, commercial, and industrial facilities and guidance for the design and rehabilitation of climate-resilient public infrastructure by 2020 will be supported by federal investments.

4.3 Protecting and improving human health and well-being

Climate change is increasingly affecting the health and well-being of Canadians (e.g. extreme heat, air pollution, allergens, diseases carried by ticks and insects, and food security). Indigenous Peoples and northern and remote communities in particular are experiencing unique and growing risks to health and vitality.

The approach to protecting and improving human health and well-being will include (1) taking action to address climate change related health risks and (2) supporting healthy Indigenous communities.

Adaptation actions with an inclusive view of well-being (e.g. social and cultural determinants of health and mental health) will keep Canadians healthy and reduce pressures on the health system.

NEW ACTIONS

1. Addressing climate change-related health risks

Governments will collaborate to prevent illness resulting from extreme heat events and to reduce the risks associated with climate-driven infectious diseases, such as Lyme disease. Federal adaptation investments will support actions including surveillance and monitoring, risk assessments, modelling, laboratory diagnostics, as well as health-professional education and public awareness activities. Efforts will also continue to advance the science and understanding of health risks and best practices to adapt.

2. Supporting healthy Indigenous communities

The federal government will increase support for First Nations and Inuit communities to undertake climate-change and health adaptation projects that protect public health.

The federal government will also work with the Métis Nation on addressing the health effects of climate change.

FOOD SECURITY AND SUSTAINABILITY – PLANNING FOR CLIMATE CHANGE IMPACTS IN ARVIAT, NUNAVUT:

With the goal of promoting and providing access to healthy foods, a community-based project in Arviat, **Nunavut** involved researchers and community youth to monitor and collect data on optimal growing conditions in the community greenhouse and to build capacity for its ongoing operation.

4.4 Supporting particularly vulnerable regions

The Indigenous Peoples of Canada, along with coastal and northern regions are particularly vulnerable and disproportionately affected by the impacts of climate change. Unlike rebuilding after an extreme event like a flood or a fire, once permafrost has thawed, coastlines have eroded, or socio-cultural sites and assets have disappeared, they are lost forever.

The approach to supporting vulnerable regions will include (1) investing in resilient infrastructure to protect vulnerable regions; (2) building climate resilience in the North; (3) supporting community-based monitoring in Indigenous communities; and (4) supporting adaptation in coastal areas.

Action taken to support adaptation in vulnerable regions can help communities, traditional ways of life, and economic sectors endure and thrive in a changing climate. The knowledge, expertise, technologies, and lessons from adaptation actions in vulnerable northern and coastal regions can benefit other vulnerable regions and sectors.

COLLABORATING TO ADDRESS CLIMATE IMPACTS IN THE NORTH:
Nunavut, the Northwest Territories, and Yukon hosted the Pan-Territorial Permafrost Workshop in 2013, which brought together front-line decision makers and permafrost researchers from each territory to share knowledge, form connections, and look at possibilities for adaptation in the future.

NEW ACTIONS

1. Investing in resilient infrastructure to protect vulnerable regions

Federal, provincial, and territorial governments will work together to ensure infrastructure investments help build resilience with Indigenous Peoples as well as in vulnerable coastal and northern regions.

2. Building climate resilience in the North

Federal, territorial, and northern governments and Indigenous Peoples will continue working together to develop and implement a Northern Adaptation Strategy to strengthen northern capacity for climate change adaptation. Federal investments to build resilience in the North and northern Indigenous Peoples will support this work.

3. Supporting community-based monitoring by Indigenous Peoples

The federal government will provide support for Indigenous communities to monitor climate change in their communities and to connect Traditional

Knowledge and science to build a better understanding of impacts and inform adaptation actions.

4. Supporting adaptation in coastal regions

Federal, provincial, and territorial governments will support adaptation efforts in vulnerable coastal and marine areas and Arctic ecosystems. Activities will include science, research, and monitoring to identify climate change impacts and vulnerabilities; the development of adaptation tools for coastal regions; and the improvement of ocean forecasting. This knowledge will help inform adaptation decisions related to fisheries and oceans management and coastal infrastructure. Federal adaptation investments will help advance this work.

SUPPORTING VULNERABLE COASTAL COMMUNITIES:
Through the Atlantic Climate Adaptation Solutions Project, **Newfoundland and Labrador, Nova Scotia, Prince Edward Island,** and **New Brunswick** partner together and with Indigenous communities, regional non-profits, and industry to develop practical tools and resources to help vulnerable coastal communities consider climate change in planning, engineering practices, and water and resource management. Examples include land-use planning tools, best practices, and risk assessments.

4.5 Reducing climate-related hazards and disaster risks

Climate change is impacting the intensity and frequency of events such as floods, wildfires, drought, extreme heat, high winds, and winter road failures. Recognizing this reality, Federal-Provincial-Territorial Ministers Responsible for Emergency Management are updating emergency management in Canada including work to mitigate disasters, review the Disaster Financial Assistance Arrangements, develop build-back better strategies, and collaborate on public alerting. Additionally, the Canadian Council of Forest Ministers is working on the establishment of the Canadian Wildland Fire Strategy, with climate change highlighted as a key challenge.

The approach to reducing climate-related hazards and disaster risks will include (1) investing in infrastructure to reduce disaster risks; (2) advancing efforts to protect against floods; and (3) supporting adaptation for Indigenous Peoples.

Disaster risk-reduction efforts and adaptation measures can reduce the negative impacts of these events, some of which have a disproportionate impact on Indigenous Peoples.

NEW ACTIONS

1. Investing in infrastructure to reduce disaster risks

Federal, provincial, and territorial governments will partner to invest in traditional and natural infrastructure that reduces disaster risks and protects Canadian communities from climate-related hazards such as flooding and wildfires.

2. Advancing efforts to protect against floods

Federal, provincial, and territorial governments will work together through the National Disaster Mitigation Program to develop and modernize flood maps and assess and address flood risks.

3. Supporting adaptation in Indigenous Communities

Governments will work in partnership with Indigenous communities to address climate change impacts, including repeated and severe climate impacts related to flooding, forest fires, and failures of winter roads. The federal government will provide support to Indigenous communities for adaptation.

FLOOD AND DROUGHT PROTECTIONS THROUGH WETLANDS RESTORATION:

Alberta's Watershed Resiliency and Restoration Program provided a grant to Ducks Unlimited to restore approximately 558 hectares of wetlands in the South Saskatchewan River basin for the purposes of water storage for flood and drought protection. Using historical imagery and LiDAR data to identify drained wetlands, project leads then work with and compensate landowners to restore wetlands on private land.

CLEAN TECHNOLOGY, INNOVATION, AND JOBS

Overview

Global demand for clean technologies is significant and increasing. Fostering and encouraging investment in clean technology solutions can facilitate economic growth, long-term job creation, and environmental responsibility and sustainability. Taking action on climate change will help to capture new and emerging economic opportunities, including for Indigenous Peoples and northern and remote communities. The window of opportunity exists for Canada to create the conditions for new clean technology investment and exports and seize growing global markets for clean technology goods, services, and processes.

To effectively compete in the global marketplace and capitalize on current and future economic opportunities, Canada needs a step change in clean technology development, commercialization, and adoption across all industrial sectors. Clarity of purpose, investment, and strong coordination that leverages pan-Canadian regional and provincial/territorial strengths are essential to seizing the economic growth and job-creation opportunities of clean technology. International research, development, and demonstration collaboration is also essential. Governments, Indigenous Peoples, industry, and other stakeholders all have a role to play and must be engaged.

5.1 Building early-stage innovation

To become a leader in the development and deployment of clean technologies, Canada needs a strong flow of innovative ideas.

Government investments in clean technology research, development, and demonstration will create the largest benefit where coordinated and focused in areas that will most effectively help Canada to meet its climate change goals, create economic opportunities, and expand global-market opportunities. Efforts to coordinate and focus investment must go beyond governments and involve the collaboration of industry, stakeholders, academia, and Indigenous Peoples in the innovation process. Canada must leverage its domestic strengths, which vary by region. Developing international partnerships will create new economic opportunities, build areas of shared expertise, and foster stronger bilateral relations.

Sustainable Development Technology Canada (SDTC) provides funding support to companies across Canada to develop, demonstrate, and deploy innovative new clean technologies. SDTC has also launched joint funding opportunities in collaboration with Emissions Reduction Alberta and Alberta Innovates and partners with the Ontario Centres of Excellence to enhance Ontario's Greenhouse Gas Innovation Initiative. SDTC estimates its projects have reduced annual emissions by 6.3 Mt of CO_2e, generated $1.4 billion in annual revenue and, in 2015, supported more than 9200 direct and indirect jobs.

Through its participation in Mission Innovation, the federal government has committed to double its investments in clean energy research and technology development over five years, while encouraging greater levels of private sector investment in transformative clean energy technologies. On November 14, 2016, Canada and 21 other Mission Innovation partners launched seven Innovation Challenges aimed at catalyzing global research efforts in areas that could provide significant benefits in reducing GHG emissions, increasing energy security, and creating new opportunities for clean economic growth.

NEW ACTIONS

1. Supporting early-stage technology development

Governments will support new approaches to early-stage technology development, including breakthrough technologies, to advance research in areas that have the potential to substantially reduce GHG emissions and other pollutants. Innovative partnerships with the private sector will make an important contribution to this effort.

2. Mission-oriented research and development

Governments will encourage new "mission-oriented" research approaches to focus RD&D facilities, programs, and supports on clean technology and environmental performance issues.

5.2 Accelerating commercialization and growth

Given Canada's small domestic market, Canadian firms must look to highly competitive international markets to achieve scale. Succeeding in the globally competitive clean technology marketplace requires globally competitive talent, access to the capital and resources needed to demonstrate the commercial viability of products, and strong international networks that facilitate the cross-border flow of clean technology goods and services.

Canadian clean technology producers and researchers are currently confronted by a myriad of programs and services, at the federal, provincial, and territorial level. Streamlining and integrating access to support programs and services is a priority for businesses and essential to building commercial capacity in this area.

Compared with other technology areas, clean technologies face unique challenges and often take longer to get to market, making access to "patient capital" important to successful commercialization. While federal and provincial governments already have a range of supports in place, key needs exist in terms of accessing venture capital as well as working capital and support for first, large-scale commercial projects or deployments.

20/20 Catalysts Program is a mentorship program that matches Indigenous and non-Indigenous project mentors with Indigenous mentees to promote knowledge sharing that will enable Indigenous communities to drive change towards clean technology business and economic development.

Further development of clean technologies could create new opportunities in Canada's resource sectors, increase the productivity and competitiveness of Canadian businesses, and create new employment opportunities, while also improving environmental performance. Canada will need to be able to access the skills and expertise of talented workers from around the world to enable Canadian businesses to succeed in the global marketplace. It will also be important to ensure a commitment to skills and training to provide Canadian workers with a just and fair transition to opportunities in Canada's clean growth economy.

Indigenous Peoples are leaders of change in the transition to a low-carbon economy. Indigenous governments, organizations, and businesses can play a key role in developing pathways for the adoption and adaptation of clean technology solutions for Indigenous Peoples.

Building stronger businesses and commercial capacity in all of Canada's regions is essential to taking advantage of new market opportunities. Support for new technology start-ups, through incubators and accelerators, is important to this effort. A strong, focused Canadian clean technology export strategy is needed to position Canada in growing and emerging global markets.

MaRS Cleantech works closely with entrepreneurs and investors to create solutions in energy, water, agri-tech, advanced materials and manufacturing, and smart cities. Industry looks to MaRS Cleantech to assist with company growth and to remove complex technology-adoption barriers. MaRS supports high-impact businesses by connecting innovators with potential partners, customers, investors, talent, and capital. MaRS strives to build globally competitive companies and to drive clean technology innovation.

VENTURE CAPITAL:
BDC Capital is launching a new $135 million venture capital fund to support Canadian energy and clean technology start-up businesses with global potential. The Industrial, Clean and Energy Technology (ICE) Venture Fund II will invest in 15 to 20 new high-impact Canadian start-up firms that demonstrate efficiency and strong scalability and will support the transition to a low-carbon economy. Fund II is a follow-on to BDC Capital's highly successful ICE Venture Fund I, which was launched in 2011 with investments of $287 million now under management.

NEW ACTIONS

1. Access to government programs

Federal, provincial, and territorial governments will work together to create a coordinated "no-wrong door" approach to supporting Canadian clean technology businesses, ensuring full and effective access to the suite of government programs and services available to support their commercial success.

2. Increasing support to advance and commercialize innovative technologies

Governments will collaborate to enable access to capital for clean technology businesses to bring their products and services to market, including at the commercial-scale demonstration and deployment stages. This will include support for clean technology businesses in the natural resource sectors to improve both competitiveness and environmental performance.

3. Strengthening support for skills development and business leadership

Governments will work together to strengthen skills development and business-leadership capacity in support of the transition to a low-carbon economy.

4. Expedite immigration of highly qualified personnel

Governments will work together to enable expedited processing of visas and work permits for global talent, in particular for high-growth Canadian businesses such as those in the clean technology sector. This will attract top international talent and expand Canada's clean growth capacity.

5. Promoting exports of clean technology goods and services

Federal, provincial, and territorial governments will work collaboratively to strengthen clean technology export potential. This will include targeted export missions and the development of better market intelligence, addressing barriers to markets, support for export financing and marketing, and leveraging Canada's Trade Commissioner services.

6. Standards-setting

Governments will work together to exert a strong leadership role in international standards-setting processes for new clean technologies and to ensure that Canada's clean-technology capacity shapes future international standards.

5.3 Fostering adoption

The adoption of clean technology can create economic opportunities and improve environmental outcomes. Canada's performance on clean technology adoption by industry has significant room for improvement. Even amongst Canadian businesses that regularly adopt advanced technologies, clean technologies are the least likely to be adopted.

SmartICE (Sea-ice Monitoring And Real-Time Information for Coastal Environments) is a partnership with community, academic, government, and industry participation. It is developing an integrated system to provide near-real-time information about coastal sea-ice travel and shipping, improving safety and the ability to adapt to changing climate conditions. The pilot program is preparing to expand across the Arctic through a northern social enterprise.

Pricing carbon pollution will send a market signal that can drive innovation among Canadian businesses and, in return, will make them more competitive, including by opening up access to new markets and reducing costs of deploying clean technologies.

There is significant potential for Canadian governments to "lead by example" as early adopters of clean technology serving an essential role as a first or "reference customer" for Canadian clean technology goods, services, and processes. Having a "first sale" in Canada would boost businesses' chances of securing sales abroad. Beyond direct federal, provincial, and territorial government operations, other bodies, such as municipalities and publicly regulated utilities, could become significant markets for and adopters of clean technology.

Done effectively, the adoption of clean technology could be a mechanism for improving environmental circumstances and creating economic opportunity for Indigenous Peoples and northern and remote communities. Effective engagement and partnership with Indigenous Peoples is essential to this effort.

Encouraging dialogue between regulators and industry could improve certainty in clean technology development and allow for more effective and responsible regulation.

NEW ACTIONS

1. Leading by example

Federal, provincial, and territorial governments will develop action plans for greening government operations and encourage utilities and municipalities and other public sector entities to adopt clean technologies to lead by example.

2. Supporting Indigenous Peoples and northern and remote communities to adopt and adapt clean technologies

Federal, provincial, and territorial governments will support Indigenous Peoples and northern and remote communities in adopting and adapting clean technologies, and ensuring business models support community ownership and operation of clean technology solutions.

3. Consumer and industry adoption

Federal, provincial, and territorial governments will work together to promote and encourage effective working relationships between regulators and industry, providing for early dialogue and effective guidance, which can assist in bringing new clean technologies to market quickly and responsibly.

Governments will also support visible and effective certification programs to ensure consumer and business confidence and support green procurement.

5.4 Strengthening collaboration and metrics for success

An effective approach to clean technology development, commercialization, and adoption in Canada requires coherent, collaborative, and focused approaches. This is true within individual governments and between Canadian jurisdictions. A collaborative approach between governments should take into account regional strategies and jurisdictional responsibilities.

Regular and ongoing discussions between federal, provincial, and territorial governments regarding clean technology and clean growth would help eliminate duplication of efforts and identify gaps in support for clean technology development. Engaging Indigenous Peoples, industry, and stakeholders as a routine component of this process would be important.

There is inadequate data on Canada's clean technology capacity and potential. Building better data, and clear metrics for tracing the impact of government activities, would properly focus these activities and ensure that they achieve intended, meaningful results.

NEW ACTIONS

1. Enhance alignment between federal, provincial, and territorial actions

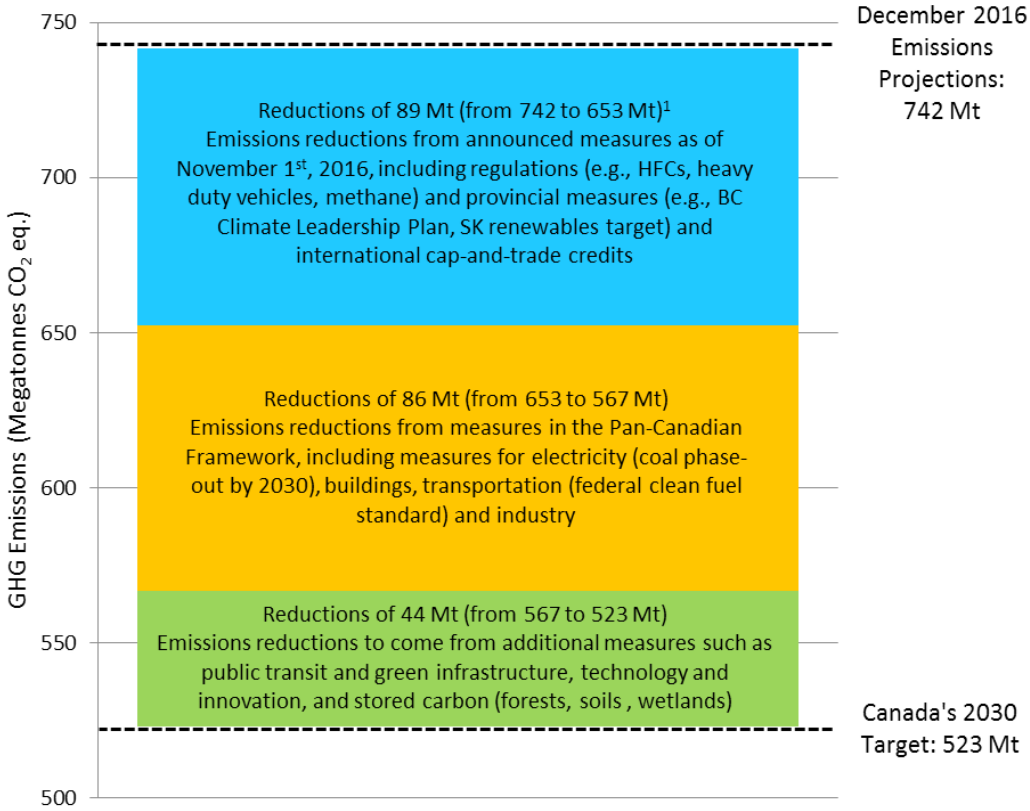
Governments will work together to improve policy and program coordination and sharing of data and best practices, which can sustain intergovernmental momentum and action on clean technology and clean growth. Continued partnership and engagement of Indigenous Peoples, industry, and stakeholders is essential to this effort.

Governments will work together to target and better align clean technology RD&D investments and activities in Canada, including opportunities for co-funding clean technology projects.

2. Establishing a clean technology data strategy

The federal government, working with the provinces and territories, will support the collection and regular publication of comprehensive data on clean technology in Canada to inform future government decision making, to improve knowledge in the private sector and stakeholder community, and to foster innovation.

PATHWAY TO MEETING CANADA'S 2030 TARGET



Note: Reductions from carbon pricing are built into the different elements depending on whether they are implemented, announced, or included in the Pan-Canadian Framework. The path forward on pricing will be determined by the review to be completed by early 2022.

[1] Estimates assume purchase of carbon credits from California by regulated entities under Quebec and Ontario's cap-and-trade system that are or will be linked through the Western Climate Initiative.

REPORTING AND OVERSIGHT

Overview

To help achieve the goals and actions laid out in this Pan-Canadian Framework, the programs and policies put in place will be monitored, results will be measured including impacts on GHG emissions, and actions and performance will be reported on publicly in a way that is transparent and accountable to Canadians. This public reporting will be complemented by ongoing public outreach, including with youth, inviting their contributions to Canada's action on clean growth and climate change. The effectiveness of actions will also be assessed with a view to ensuring continual improvement so as to increase ambition over time, in accordance with the Paris Agreement.

NEW ACTIONS

Measurement and reporting on emissions – Federal, provincial, and territorial governments will continue to collaborate on efforts to track and report GHG emissions in a consistent way across the country, to track progress on the Pan-Canadian Framework, and to support international reporting obligations. This will involve further technical work on measurement to improve emissions inventories and projections, and aligning these where possible. Federal, provincial, and territorial governments will work together through the Canadian Council of Ministers of the Environment (CCME) to examine options for the reporting of emissions and inventories to ensure consistency across provinces and territories, to support Canada's reporting to the UNFCCC, and for a pan-Canadian offset protocol framework and verified carbon credits that can be traded domestically and internationally.

Reporting on implementation – Federal, provincial, and territorial governments will work together to support the coordinated implementation of the Pan-Canadian Framework, engaging with relevant ministerial tables including ministers of environment, energy and mines, transportation, forestry, agriculture, innovation, infrastructure, emergency management, and finance, and with meaningful involvement of Indigenous Peoples. This will include a process to take regular stock of

progress achieved, to report to Canadians and, to inform Canada's future national commitments in accordance with the Paris Agreement.

Analysis and advice – Federal, provincial, and territorial governments will engage with external experts to provide informed advice to First Ministers and decision makers; assess the effectiveness of measures, including through the use of modeling; and identify best practices. This will help ensure that actions identified in the Pan-Canadian Framework are open to external, independent review, and are transparent and informed by science and evidence.

Review - Federal, provincial, and territorial governments will work together to establish the approach to the review of carbon pricing, including expert assessment of stringency and effectiveness that compares carbon pricing systems across Canada, which will be completed by early 2022 to provide certainty on the path forward. An interim report will be completed in 2020 which will be reviewed and assessed by First Ministers. As an early deliverable, the review will assess approaches and best practices to address the competitiveness of emissions-intensive trade-exposed sectors.

Federal, provincial, and territorial governments will continue to engage and partner with Indigenous Peoples as actions are implemented and progress is tracked.

LOOKING AHEAD

This Plan provides a foundation for working together to grow the economy, reduce emissions, and strengthen resilience. Ongoing, collaborative action is needed to generate transformational change and to ensure that all Canadians benefit from the transition to a low-carbon economy. First Ministers are tasking their officials to develop an agenda for federal, provincial, and territorial Ministers to implement this Plan. Annual reports to First Ministers will enable governments to take stock of progress and give direction to sustain and enhance efforts.

ANNEX I: FEDERAL INVESTMENTS AND MEASURES TO SUPPORT THE TRANSITION TO A LOW-CARBON ECONOMY

FEDERAL INVESTMENTS

The federal government will help catalyze the transition to a clean growth economy through significant new investments to complement provincial and territorial actions and investments, including investments in infrastructure, the Low-Carbon Economy Fund, and clean technology funding.

- Budget 2016 outlined a number of new federal investments that will support a transition to a low-carbon economy. Some of these investments include
  - » $62.5 million to support the deployment of infrastructure for alternative transportation fuels, including charging infrastructure for electric vehicles and natural gas and hydrogen refueling stations as well as demonstration of next generation recharging technologies;
  - » $50 million over two years to invest in technologies that will reduce GHG emissions from the oil and gas sector;
  - » $82.5 million over two years to support research, development, and demonstration of clean energy technologies with the greatest potential to reduce GHG emissions;
  - » $100 million per year from the Regional Development Agencies to support clean technology, representing a doubling of thei existing annual aggregate support;
  - » $50 million over four years to Sustainable Development Technology Canada (SDTC) for the SD Tech Fund. These resources will enable SDTC to announce new clean technology projects in 2016 that support the development and demonstration of new technologies that address climate change, air quality, clean water, and clean soil;

THE FEDERAL GOVERNMENT HAS COLLABORATED WITH THE FEDERATION OF CANADIAN MUNICIPALITIES ON THE GREEN MUNICIPAL FUND (GMF) SINCE 2000.

- Budget 2016 provided an additional $125 million over two years including for projects that reduce GHG emissions.
- Recently announced projects under the GMF include a $31.5 million investment for 20 new sustainable municipal projects, such as Canada's first net-zero municipal library and Halifax's ground-breaking Solar City project.

» $40 million over five years to integrate climate resilience into building design guides and codes. The funding will support revised national building codes by 2020 for residential, institutional, commercial, and industrial facilities;
» $129.5 million to implement programming focused on building the science base to inform decision making, protecting the health and well-being of Canadians, building resilience in the North and Indigenous communities, and enhancing competitiveness in key economic sectors; and
» $10.7 million over two years to implement renewable energy projects in off-grid Indigenous and northern communities that rely on diesel and other fossil fuels to generate heat and power.

- Building on the infrastructure investments outlined in Budget 2016, the federal government has announced an additional $81 billion over 11 years for investments in public transit, social infrastructure, transportation that supports trade, Canada's rural and northern communities, smart cities, and green infrastructure.
- Green infrastructure funding will support projects that reduce GHG emissions, enable greater climate change adaptation and resilience, and ensure that more communities can provide clean air and safe drinking water for their citizens. Specific projects could include interprovincial transmission lines that reduce reliance on coal, the development of new low-carbon/renewable power projects, and the expansion of smart grids to make more efficient use of existing power supplies.
- The federal government is proposing the creation of the Canada Infrastructure Bank that will work with provinces, territories, and municipalities to further the reach of government funding directed to infrastructure. The Canada Infrastructure Bank will be responsible for investing at least $35 billion on a cash basis from the federal government into large infrastructure projects that contribute to economic growth through direct investments, loans, loan guarantees, and equity investments.
- Funding under the $2 billion Low Carbon Economy Fund will begin in 2017. This Fund will support new provincial and territorial actions to reduce emissions between now and 2030. Projects will focus on concrete measures that generate new, incremental reductions, while considering cost-effectiveness.
- The Government has also committed more than $1 billion, over four years, to support clean technology including in the forestry, fisheries, mining, energy and agriculture sectors.

FEDERAL CARBON PRICING BENCHMARK

The federal government outlined a benchmark for carbon pricing that reflects the principles proposed by the Working Group on Carbon Pricing Mechanisms and the Vancouver Declaration. Its goal is to ensure that carbon pricing applies to a broad set of emission sources throughout Canada with increasing stringency over time to reduce GHG emissions at lowest cost to business and consumers and to support innovation and clean growth.

The benchmark includes the following elements:

1. Timely introduction.

All jurisdictions will have carbon pricing by 2018.

2. Common scope.

Pricing will be based on GHG emissions and applied to a common and broad set of sources to ensure effectiveness and minimize interprovincial competitiveness impacts. At a minimum, carbon pricing should apply to substantively the same sources as British Columbia's carbon tax.

3. Two systems.

Jurisdictions can implement (i) an explicit price-based system (a carbon tax like British Columbia's or a carbon levy and performance-based emissions system like in Alberta) or (ii) a cap-and-trade system (e.g. Ontario and Quebec).

4. Legislated increases in stringency, based on modelling, to contribute to our national target and provide market certainty.

For jurisdictions with an explicit price-based system, the carbon price should start at a minimum of $10 per tonne in 2018 and rise by $10 per year to $50 per tonne in 2022.

Provinces with cap-and-trade need (i) a 2030 emissions-reduction target equal to or greater than Canada's 30 percent reduction target and (ii) declining (more stringent) annual caps to at least 2022 that correspond, at a minimum, to the projected emissions reductions resulting from the carbon price that year in price-based systems.

5. Revenues remain in the jurisdiction of origin.

Each jurisdiction can use carbon-pricing revenues according to their needs, including to address impacts on vulnerable populations and sectors and to support climate change and clean growth goals.

6. Federal backstop.

The federal government will introduce an explicit price-based carbon pricing system that will apply in jurisdictions that do not meet the benchmark. The federal system will be consistent with the principles and will return revenues to the jurisdiction of origin.

7. Five-year review.

The overall approach will be reviewed by early 2022 to confirm the path forward, including continued increases in stringency. The review will account for progress and for the actions of other countries in response to carbon pricing, as well as recognition of permits or credits imported from other countries.

8. Reporting.

Jurisdictions should provide regular, transparent, and verifiable reports on the outcomes and impacts of carbon pricing policies.

The federal government will work with the territories to address their unique circumstances, including high costs of living, challenges with food security, and emerging economies.

OTHER RECENT FEDERAL MEASURES

The federal government has also recently announced new federal measures, including

- During the North American Leaders Summit in June 2016, the federal government made joint commitments with the United States and Mexico to
  - » phase out fossil fuel subsidies by 2025. The commitment was reaffirmed by G-20 countries in September 2016.
  - » reduce methane emissions from the oil and gas sector by 40 to 45 percent below 2012 levels by 2025.
- On October 15, 2016, Canada signed onto the Kigali Amendment to the Montreal Protocol and committed to propose new regulations to significantly reduce HFC consumption and prohibit the manufacture and import into Canada of certain products containing HFCs. These proposed regulations were published on November 26, 2016. This is additional to measures already introduced to increase the recovery, recycling, and destruction of HFCs in refrigeration and air conditioning equipment and to established regulatory provisions for an HFC reporting system.
- On November 17, 2016, Canada released its Mid-Century Long-Term Low-Greenhouse Gas Development Strategy. The mid-century strategy describes various pathways for innovative and creative solutions. Canada's mid-century strategy is not a blueprint for action nor is it policy prescriptive. It is based on modelling of different scenarios and looks beyond 2030 to start a conversation on the ways we can reduce emissions for a cleaner, more sustainable future by 2050. As a result, it will be a living document.
- On November 21, 2016, the federal government announced that it would be amending its existing coal-fired electricity regulations to accelerate the phase out of traditional coal-fired electricity by 2030. The federal government also announced that, to support the transition away from coal towards cleaner sources of generation, performance standards for natural gas-fired electricity are also being developed.
- On November 25, 2016, the federal government announced that it will consult with provinces and territories, Indigenous Peoples, industries, and non-governmental organizations to develop a clean fuel standard. It is expected that once developed, a clean fuel standard would promote the use of clean technology and lower carbon fuels, and promote alternatives such as electricity, biogas, and hydrogen.

ANNEX II: PROVINCIAL AND TERRITORIAL KEY ACTIONS AND COLLABORATION OPPORTUNITIES WITH THE GOVERNMENT OF CANADA

INTRODUCTION

The Paris Agreement and the Vancouver Declaration have set an ambitious course for low carbon growth and climate action in Canada. The Pan-Canadian Framework on Clean Growth and Climate Change will build on the leadership shown and actions taken by the provinces and territories as well as new policies announced by the federal government.

This annex outlines provincial and territorial accomplishments in reducing greenhouse gas emissions and accelerating clean growth, and presents steps that each jurisdiction has taken or is taking to implement carbon pricing.

The annex also outlines areas where the federal government and each provincial and territorial government will work together to implement the Pan-Canadian Framework in order to spur growth and jobs for Canadians, reduce our emissions and adapt to climate change.

Each province and territory is unique and is responding to the urgency of climate change and the opportunity offered by clean growth in its own way. Effective action will require close collaboration between governments. Each provincial and territorial government has identified multiple areas for potential partnerships with the federal government, adapted to their own priorities, circumstances and strengths. Governments are committed to working together on these priorities to support the implementation of the Pan-Canadian Framework. Governments will also engage the contributions of Indigenous Peoples in advancing shared goals.

This work will be supported by significant new federal investments to drive the transition to a clean growth economy, as outlined in Budget 2016 and the 2016 Fall Economic Statement, including public transit and Green Infrastructure, the Canada Infrastructure Bank, the Low-Carbon Economy Fund, and funding for clean technology and innovation. Federal investments are intended to supplement and accelerate investments by provinces and territories, and will follow applicable program criteria.

BRITISH COLUMBIA

KEY ACTIONS TO DATE

Some of the key actions taken to date or under development in British Columbia include:

British Columbia's Climate Leadership Plan

B.C. has proven that it is possible to reduce emissions while growing the economy and creating jobs and it's important that this balance be maintained. With this in mind, B.C. released its Climate Leadership Plan in the summer of 2016.

Building on the comprehensive foundation established in 2008, the plan lays out a series of targeted, sector-specific actions that will reduce emissions by 25 million tonnes (Mt) of carbon dioxide equivalent (CO_2e) and create 66,000 jobs. The plan will be further strengthened in the months and years ahead, as B.C. continues to work with First Nations, the federal government, communities, industry and others. B.C. is committed to reducing GHG emissions by 80% below 2007 levels by 2050. To read B.C.'s Climate Leadership Plan, visit: http://climate.gov.bc.ca/

Revenue-Neutral Carbon Tax

B.C. has the highest broad-based carbon tax in North America. The carbon tax sets a transparent and predictable price on carbon while returning all revenue to B.C. individuals and businesses. The price signal creates a real incentive to reduce emissions across the economy and is the backbone of B.C.'s approach to climate action.

Forestry

B.C.'s forests offer potential for storing carbon, so the Province is taking further action to rehabilitate up to 300,000 hectares of Mountain Pine Beetle and wildfire impacted forests over the first five years of the program; recover more wood fibre; and avoid emissions from burning slash.

Clean LNG

B.C. has an abundance of natural gas, which is a lower carbon fuel that will play a critical role in transitioning the world economy off of high carbon fuels such as coal. B.C. is developing the resource responsibly, and provincial legislation will make the emerging LNG sector the cleanest in the world. B.C. is also electrifying upstream development of natural gas and will require a 45% reduction in methane emissions by 2025.

100% Clean Electricity

Thanks to significant historical investments, B.C.'s electricity is already 98% clean or renewable and British Columbians have the third-lowest residential rates in North America. Going forward under the Climate Leadership Plan, 100% of the supply of electricity acquired by BC Hydro for the integrated grid must be from clean or renewable sources. The $8.3 billion Site C Clean Energy Project is a major part of B.C.'s clean energy future and will create enough electricity to power 450,000 homes.

Clean Transportation

B.C. is taking real action to reduce emissions from the transportation sector and help British Columbians make greener choices—initiatives include Zero Emissions Vehicles rebates and funding for more charging stations (which have helped BC become the Canadian leader in clean energy vehicle sales per capita); a scrap-it program; low carbon and renewable fuel standards; and historic investments in transit. B.C.'s actions in the transportation sector have

already reduced annual emissions by an estimated 2.5 Mt and combined with the new actions, will reduce annual emissions by up to a further 3.4 Mt by 2050.

Adaptation

In 2010, the Province created a comprehensive strategy to address the changes we will see as a result of climate change. It is based on three key strategies: build a strong foundation of knowledge and tools; make adaptation a part of government business; and assess risks and implement priority adaptation actions in key climate sensitive sectors. The Province is now working with the federal government and other Canadian jurisdictions to further improve the management of the risks associated with a changing climate.

These actions provide a strong contribution to a comprehensive pan-Canadian framework.

ACTION ON PRICING CARBON POLLUTION

B.C.'s revenue-neutral carbon tax has been in place since 2008. It is set at $30/tonne and covers approximately 75% of the province's economy. All revenues generated will be returned to tax payers. B.C. will assess the interim study in 2020 and determine a path forward to meet climate change objectives.

COLLABORATION PARTNERSHIP OPPORTUNITIES FOR CLEAN GROWTH AND CLIMATE CHANGE

British Columbia and the Government of Canada intend to collaborate in the following domains of priority to address climate change and advance clean growth:

Growing our forests; reducing our emissions

Forests present a unique opportunity to address climate change because trees absorb CO_2 when they grow. British Columbia, the Government of Canada and First Nations will work together to reduce GHG emissions through forestry activities, including reforestation, enhanced silviculture techniques, and the salvaging of unmerchantable trees for processing into dimensional lumber and bioenergy. The initiative is expected to reduce emissions by 12 Mt in 2050 and create 20,000 jobs.

Preparing for and adapting to climate change

British Columbia and the Government of Canada will support projects across the province to make infrastructure more resilient to a changing climate, and to help communities adapt to a changing climate. Flood mitigation will be an area of focus.

Reduce Emissions from Natural Gas Activities

British Columbia and the Government of Canada will work together to bring clean grid electricity to natural gas operations in northeast B.C. They will co-fund the construction of new transmission lines and other public electrification infrastructure that could serve up to 760 megawatts of upstream natural gas processing load and avoid up to 4 Mt of emissions per year.

Electricity Grid Interconnection

British Columbia and the Governments of Canada and Alberta will work together to restore the capability of the existing high-voltage electricity grid interconnection with Alberta. This project will improve access to clean electricity in Alberta and will result in lower GHG emissions and air

pollution, and improved grid reliability in both provinces.

Clean Technology Innovation

British Columbia and the Government of Canada will work together to spur the development and commercialization of new technologies that will reduce emissions and create jobs for Canadians.

ALBERTA

KEY ACTIONS TO DATE

Some of the key actions taken to date or under development in Alberta include:

Climate Leadership Plan

The Climate Leadership Plan is a made-in-Alberta climate change strategy, specifically designed for Alberta's unique economy. While details of the final strategy are still being developed, the Alberta government has moved forward on a number of key areas.

Clean Electricity

Alberta will phase-out GHGs from coal-fired power plants and achieve 30% renewable energy by 2030.

Alberta will add 5,000 megawatts of renewable energy capacity by 2030 through the Renewable Electricity Program. To meet this target, investment in Alberta's electricity system will be solicited through a competitive and transparent bidding process, while ensuring projects come online in a way that does not impact grid reliability and is delivered at the lowest possible cost to consumers.

A new provincial agency, Energy Efficiency Alberta, has been created to promote and support energy efficiency and community energy systems for homes, businesses and communities.

Capping Oil Sands Emissions

A legislated maximum emissions limit of 100 Mt in any year, with provisions for cogeneration and new upgrading capacity, will help drive technological progress.

Reducing Methane Emissions

Alberta will reduce methane gas emissions from oil and gas operations by 45% by 2025.

Innovation and Technology

Alberta is investing in innovation and technology to reduce GHGs, encourage a more diversified economy and energy industry, and create new jobs, while improving opportunities to get the province's energy products to new markets. Alberta has created a task force that will make recommendations on a Climate Change Innovation and Technology Framework.

These actions provide a strong contribution to a comprehensive pan-Canadian framework.

ACTION ON PRICING CARBON POLLUTION

A carbon levy to be included in the price of all fuels that emit greenhouse gases when combusted, including transportation and heating fuels such as diesel, gasoline, natural gas and propane. The levy will be applied at a rate of $20/tonne on January 1, 2017 and will increase to $30/tonne one year later.

The Climate Leadership Plan is designed for Alberta's economy. The economic impact of carbon pricing is expected to be small, and every dollar will be reinvested back into the local economy. Reinvesting carbon revenue in our economy will diversify our energy industry by investing in large scale renewable energy, bioenergy initiatives, and transformative innovation and technology. Over the next 5 years:

$6.2 billion will help diversify our energy industry and create new jobs:

- $3.4 billion for large scale renewable energy, bioenergy and technology

- $2.2 billion for green infrastructure like transit
- $645 million for Energy Efficiency Alberta

$3.4 billion will help households, businesses and communities adjust to the carbon levy:

- $2.3 billion for carbon rebates to help low- and middle-income families
- $865 million to pay for a cut in the small business tax rate from 3% to 2%
- $195 million to assist coal communities, Indigenous communities and others with adjustment

COLLABORATION PARTNERSHIP OPPORTUNITIES FOR CLEAN GROWTH AND CLIMATE CHANGE

Alberta and the Government of Canada intend to collaborate in the following domains of priority to address climate change and advance clean growth:

Clean Electricity

Alberta and the federal government will to work together to advance renewable energy, coal to natural gas conversion, and potential hydroelectric projects, including pump storage projects. Alberta is committed to developing incentives for renewable generation in a manner that is compatible with Alberta's unique electricity market.

B.C. – Alberta Intertie

Alberta is working with British Columbia and the federal government to explore new and enhanced interties. The Alberta Electric System Operator is currently working with BC Hydro and industry on a key project, the restoration of the B.C.-Alberta 950 MW intertie to its full path rating (expected completion is in 2020). This restoration would allow imports of 1200 MW on the BC-AB intertie.

Innovation and Technology

Alberta is focused on the opportunity to leverage environmental policies and programs into new manufacturing, innovation, and clean technology businesses. Current opportunities include superclusters, advanced sensor technology for environmental applications including methane monitoring and reductions, and municipal waste diversion. Innovative solutions will result in meaningful GHG reductions across Canada and the export of solutions to promote a lower carbon world.

Disaster Mitigation / Infrastructure

Alberta is undertaking targeted work to address the hazards to which Albertans are vulnerable, including flood, wildfire, heat, drought, landslides, and wind.

While hazards and disaster risks have always been a concern, climate change is driving the need to adapt to more intense and frequent events. Federal support for wildfire mitigation infrastructure will reduce the risk of wildland fires. In addition, flood risk requires immediate mitigation infrastructure such as dykes and dams. Federal partnership on these initiatives will support risk management.

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ONTARIO

KEY ACTIONS TO DATE

Some of the key actions taken to date or under development in Ontario include:

Permanent Closure of Coal-fired Electricity Generating Stations

On April 15, 2014, Ontario became the first jurisdiction in North America to fully eliminate coal as a source of electricity generation. This action is the single largest GHG reduction initiative in North America. On November 23, 2015, Ontario passed the *Ending Coal for Cleaner Air Act*, permanently banning coal-fired electricity generation in the province.

Ontario's Climate Change Strategy and Action Plan

On November 24, 2015, Ontario released its Climate Change Strategy setting the framework for the province to meet its long-term 2050 GHG emissions reduction target. The Strategy highlights five key objectives for transformation:

1. A prosperous low-carbon economy with world-leading innovation, science and technology
2. Government collaboration and leadership
3. A resource-efficient, high-productivity society
4. Reducing GHG emissions across sectors
5. Adapting and thriving in a changing climate

On June 8, 2016, Ontario released its Climate Change Action Plan to implement the strategy over the next five years and put Ontario on the path to achieve its longer term objectives. Policies and programs identified in the Action Plan include:

- Transforming how ultra-low and carbon-free energy technologies are deployed in our homes and workplaces, and how we move people and goods
- Halting rising building-related emissions, with a focus on helping homeowners and small businesses move to low- and zero-carbon energy
- Making available funding for industries and manufacturers proposing to transform their operations and move off carbon-based fuels and peak electricity
- Aligning Ontario's R&D and innovation funding to place a greater emphasis on climate change science and technologies, with a view to making the discoveries that could lead to breakthroughs in zero-carbon technology

Ontario has made measurable progress in reducing GHGs. According to Environment and Climate Change Canada's 2016 National Inventory Report, from 2005 to 2014, Ontario's emissions decreased by 41 Mt (-19%), over the same period, Canada-wide emissions fell by 15 Mt (-2%).

These actions provide a strong contribution to a comprehensive pan-Canadian framework.

ACTION ON PRICING CARBON POLLUTION

On May 18, 2016, Ontario passed its landmark *Climate Change Mitigation and Low-carbon Economy Act,* which creates a long term framework for climate action. The Act creates a robust framework for cap and trade program, ensures transparency and accountability on how any proceeds collected under the program are used and enshrines emission reduction targets in legislation.

Ontario's approach, including its cap and trade program and associated emissions reduction

targets, will exceed the standards of the federal carbon pricing benchmark. Ontario's targets are:

- 15% below 1990 levels by 2020;
- 37% below 1990 levels by 2030; and
- 80% below 1990 levels by 2050.

Ontario is a founding member of the Western Climate Initiative (WCI), a not-for-profit organization established in 2008 to help member states and provinces execute their cap and trade programs. In 2017, Ontario will link its cap and trade system with those of WCI members Quebec and California to create the largest cap and trade system in North America.

Ontario will set a cap on total emissions from the covered sectors in 2017 based on the forecast emissions for large final emitters, electricity generation and transportation and heating fuels. Allowances will then be created in an amount equal to the cap and either sold or provided free-of-charge to Ontario emitters.

COLLABORATION PARTNERSHIP OPPORTUNITIES FOR CLEAN GROWTH AND CLIMATE CHANGE

Ontario and the Government of Canada intend to collaborate in the following domains of priority to address climate change and advance clean growth:

Invest in Zero Emission Transportation and Infrastructure

Ontario is committed to increase uptake of zero emission passenger and commercial vehicles, both by providing purchasing incentives and by expanding the EV charging network across Ontario. In its 2016 budget, the federal government committed to support the deployment of alternative transportation fuel infrastructure, including electric charging stations. Ontario and the Government of Canada will work together to support the deployment of EV vehicles through enabling infrastructure.

Invest in Other Zero Emission Transportation

Ontario seeks a partnership with the Government of Canada to support enabling infrastructure that will increase the availability and use of lower carbon fuels, including LNG, increase the use of low carbon trucks and buses and increase the availability of LNG fueling infrastructure. Ontario is dedicating significant resources for these additional transportation initiatives. Expected emissions reductions in the transportation sector overall are 2.45 Mt in 2020.

Assist with Building Retrofits, Energy Audits and Technology Deployment

Ontario seeks a partnership with the Government of Canada as the province develops programs for fuel switching and energy efficiency, such as retrofits for existing residential buildings (including targeted initiatives for low-income households), and clean technologies for industries and small and medium enterprises. Partnership would increase investment in this area, allowing acceleration and scaling up of progress.

Ontario Climate Modelling Services Consortium

Ontario seeks a partnership with the Government of Canada to build regional capacity and support adaptation actions. Ontario plans to establish an Ontario Climate Modelling Services Consortium, which would act as a one window source of data to help the public and private sectors make evidence-based decisions.

The Consortium would operate at arm's length from government. Ontario would seek partnerships with other governments, non-governmental organizations and the private sector to ensure the organization's effectiveness and long term success. The Consortium would also be expected to develop service fee revenue

streams to contribute to the organization's fiscal sustainability.

Electricity Transmission

Ontario, in collaboration with the Government of Canada, will work with its regional partners to advance opportunities to expand and upgrade electricity transmission infrastructure to support clean hydroelectric power to displace the production of electricity from fossil fuels.

Ontario will also collaborate with the Government of Canada to accelerate access to clean electricity in remote Indigenous communities. This will lessen dependence on expensive diesel fuel and reduce greenhouse gas emissions and air pollution.

QUÉBEC

KEY ACTIONS TO DATE

Some of the key measures taken to date by Québec, which has the lowest greenhouse gas emissions per capita between the provinces in Canada, include:

2013-2020 Action Plan on Climate Change (PACC 2013-2020)

PACC 2013-2020 will reduce GHG emissions by 20% below the 1990 level by 2020. Among its other measures, the action plan offers financial help to the different stakeholders of Québec society so they can reduce their energy consumption, improve their practices, innovate and adjust. The work surrounding the development of the actions of Québec after the 2020 period is underway, in particular to reduce GHG emissions of the province by 37.5 % below the 1990 level by 2030.

2016-2030 Energy Policy

The Energy Policy will favour a transition to a low carbon footprint economy, chiefly by improving energy efficiency by 15%, by reducing petroleum consumption by 40%, and by increasing the production of renewable energies by 25%. Québec is one of the world's main producers of renewable energy, which represents 99.8% of its total electricity production.

2013-2020 Governmental Climate Change Adjustment Strategy

The Strategy will mitigate the impact of climate change on the environment, the economy and the communities, and will strengthen the resiliency of Québec society. The government of Québec has, notably, invested in the Ouranos consortium in order to get a better understanding of the impact of climate change on its territory, and to better inform the decision-making process and the development of solutions.

2015-2020 Transport Electrification Plan

Québec targets 100,000 electric vehicles on the road in 2020 and one million in 2030. The zero-emission vehicle (ZEV) standard adopted in October 2016 will encourage automotive manufacturers to improve their offer of ZEV, and the investments in electrification will allow Québec to build up its available renewable energies, its expertise and its world-class know-how.

These measures represent a major contribution at the Pan-Canadian level.

ACTION ON PRICING CARBON POLLUTION

Pioneer in the use of cap-and-trade systems for greenhouse gas emissions allowances, Québec`s system has been linked to California's since 2014, and will soon be linked to that of Ontario. It represents the largest carbon market in North America, and is often referred to as an example of performance and rigour. Because it is based on hard caps to reduce GHG emissions, it is a robust and efficient tool to achieve the ambitious mitigation goals Québec has set for itself for 2020 and 2030.

Furthermore, auction revenues from its cap-and-trade system are entirely reinvested in measures that will spur the transition of Québec's economy to a more resilient and low-carbon one. This comprehensive approach, tailored to the needs and specificities of Québec, allows Québec to fulfill its leadership role in the fight against climate change in North America and internationally.

COLLABORATION PARTNERSHIP OPPORTUNITIES FOR CLEAN GROWTH AND CLIMATE CHANGE

The governments of Québec and Canada intend to collaborate in the following priority areas in order to fight climate change and allow clean economic growth:

Electric and Public Transport

Support the development of the offer and infrastructure of electric and public transport, by completing various projects such as the Metropolitan Electric Network (MEN), the implementation of bus rapid transit (BRT) systems between Montreal and Laval, the extension of the BRT in Gatineau, and the implementation of a BRT in Québec.

Energy Efficiency and Conversion

Speed up the reduction of GHG emissions in Northern communities, as well as on the Lower North Shore and Magdalen Islands, by replacing diesel with renewable energy sources for the electricity supply of their free-standing network.

Promote the implementation of energy performance and efficiency standards for new buildings, as well as for the renovation of existing buildings. Invest in the industrial sector to improve the energy performance of fixed production processes, by providing innovative technologies and reducing the use of gases with high warming potential such as hydrofluorocarbons, which Québec will continue to prioritize.

Recognition of the International Trade of Emission Rights

Contribute to the implementation of Articles 6 and 13 of the Paris Accord, to which the accounting and disclosure principles of the Western Climate Initiative (WCI) can contribute, as well as within a possible agreement between Canada and the United States regarding the accounting and attribution of "internationally transferred mitigation outcomes" as part of the contributions determined at national level (CDN).

Québec will also share with the government of Canada a detailed methodology, developed in collaboration with California and soon Ontario, in order to tabulate in its international reports the emission reductions achieved by Québec thanks to the carbon market.

Innovation and Adjustment to Climate Change

Promote innovation in green technology and GHG emission reduction, and collaborate on increasing the resiliency of the communities affected by climate change, by assessing the vulnerabilities and risks, adjusting land planning and use, and designing sustainable projects.

Québec will provide its expertise to the initiatives of the government of Canada, focusing in particular on joint financing of prevention and protection infrastructure against certain natural disasters linked to climate change.

NEW BRUNSWICK

KEY ACTIONS TO DATE

Some of the key actions taken to date or under development in New Brunswick include:

Transitioning to a Low-Carbon Economy: New Brunswick's Climate Change Action Plan

The Climate Change Action Plan outlines a bold vision for New Brunswick and sets renewed GHG reduction targets: 2030 target of 35% below 1990 levels; and 80% below 2001 levels by 2050. The plan also address other commitments, such as the Canadian Energy Strategy, released by the Council of the Federation in 2015, and contains a Climate Change Adaptation Strategy supported by actions to build resilience into New Brunswick communities, businesses, infrastructures and natural resources.

The Action Plan provides a clear path forward to reduce GHG emissions while promoting economic growth and enhancing current efforts to adapt to the effects of climate change.

Locally-owned Renewable Energy Projects that are Small Scale (LORESS)

In May 2015, the province introduced legislation to allow local entities to develop renewable energy sourced electricity generation in their communities. This will enable universities, non-profit organizations, co-operatives, First Nations and municipalities to contribute to NB Power's renewable energy requirements.

Shifting to renewables in electricity generation

Two fossil fuelled power plants were closed in recent years – one coal and one heavy oil. Also, 300 megawatts of wind energy was installed in the province and biomass fuel use in industry was expanded to displace oil. Solid waste landfills are capturing biogas and some are generating electricity.

These actions are allowing NB Power to achieve the regulated Renewable Portfolio Standard of 40% of in-province sales from renewable energy sources by 2020. This translates to approximately 75% non-emitting by 2020 including nuclear.

Adaptation

The province has developed a progressive Climate Change Adaptation Program including assembling future climate projections, and supporting climate impact vulnerability assessments in communities and for infrastructure. Adaptation projects also focus on solutions building and advanced planning to help reduce or avoid the costs of impacts such as more severe and frequent flooding, coastal erosion and storm events and disease and pest migration.

Several projects are carried out in collaboration with other Atlantic provinces, notably under the Regional Adaptation Collaborative (RAC), which involves federal support, as well as with the Gulf of Maine Council and US partners.

These actions provide a strong contribution to a comprehensive Pan-Canadian Framework.

ACTION ON PRICING CARBON POLLUTION

The province will implement a made-in-New Brunswick carbon pricing mechanism that addresses the requirements of the federal government for implementing a price on carbon emissions by 2018 and that at the same time recognizes New Brunswick's unique economic and social circumstances. The provincial government will take into consideration the impacts on low-income families, trade-exposed and energy-intensive industries, and consumers

and businesses, when developing the specific mechanisms and implementation details, including how to reinvest proceeds.

Any carbon pricing policy will strive to maintain competitiveness and minimize carbon leakage (i.e., investments moving to other jurisdictions). Proceeds from carbon emissions pricing will be directed to a dedicated climate change fund.

COLLABORATION PARTNERSHIP OPPORTUNITIES FOR CLEAN GROWTH AND CLIMATE CHANGE

The Government of New Brunswick and the Government of Canada intend to collaborate in the following domains of priority to address climate change and advance clean growth:

Enhanced Electricity Generation and Transmission System

New Brunswick will work with the other Atlantic provinces and the Government of Canada to advance opportunities for clean electricity generation, transmission, storage and demand management linkages across the region. This will: improve access to non-emitting electricity; support the phase-out of coal-fired electricity generation; improve grid reliability and energy security; and, consistent with fair market principles, help provinces access export markets for clean, non-emitting electricity.

This will contribute to both the Atlantic Growth Strategy and Canadian Energy Strategy and will build on existing regional coordination efforts, leading to an integrated regional electricity strategy.

Energy Efficiency

The Government of New Brunswick, in partnership with the Government of Canada, will seek to enhance energy efficiency programs by targeting GHG emission reduction opportunities across sectors and fuels.

Examples of possible targeted interventions include programs that help: trucking fleets add aerodynamic and other efficiency measures to existing equipment; small- to medium-size industry improve their compressed air systems, boilers and lighting; commercial and institutional facilities invest in heating, lighting and other retrofits; and families retrofitting their homes to reduce energy costs, with special treatment for low- and fixed-income families.

Industrial Emissions Reductions

The Government of New Brunswick and the Government of Canada will work to support industrial emission reduction initiatives through technology and energy efficiency improvements while maintaining productivity. For example, there are significant opportunities to reduce emissions resulting from industrial production in the Belledune area of New Brunswick.

NOVA SCOTIA

KEY ACTIONS TO DATE

Some of the key actions taken to date or under development in Nova Scotia include:

The Environmental Goals and Sustainable Prosperity Act (2007)

In 2007, Nova Scotia passed legislation outlining principles for sustainable economic growth, including a requirement to reduce GHG emissions in the province to 10% below 1990 levels by 2020. The development and implementation of the Nova Scotia Climate Action Plan led to early action on the electricity sector, the largest source of emissions in the province. As a result, Nova Scotia has not only achieved its target six years early, it has also already met the Canadian 2030 target of 30% below 2005 levels, and is on a track to continue reducing emissions.

Nova Scotia's Greenhouse Gas Emissions Regulations

Nova Scotia was the first province in Canada to place a hard cap on GHG emissions from the electricity sector. These regulations, created in 2009 and enhanced in 2013, required the utility to reduce GHG emissions by 25% by 2020, and 55% by 2030. This is a measured and flexible approach which will enable a transition from coal to clean energy in the province.

Nova Scotia's Renewable Energy Regulations

In addition to the hard cap on GHG emissions, Nova Scotia also has a renewable energy standard for the electricity sector. This standard established requirements for 25% of electricity to be sourced from renewable energy by 2015, and 40% by 2020.

Energy Efficiency

Nova Scotia has Canada's first energy efficiency utility, Efficiency Nova Scotia. This independent organization has achieved an annual reduction in electricity demand of over 1% since its creation. It also administers comprehensive energy efficiency programs for low income and First Nations Nova Scotians. These efforts reduce GHG emissions while supporting the growth of the low carbon economy.

Tidal Energy

The Bay of Fundy and Minas Basin are home to the highest tides in the world- every day, more water flows into this bay than the output from all the rivers in the world combined. Nova Scotia has been supporting the development of these tides as a source of clean, predictable and reliable energy for Nova Scotians and as a clean technology export. The Fundy Ocean Research Centre for Energy (FORCE) now has a grid connected 2MW tidal turbine with plans to install more in the coming years.

Waste Management

Nova Scotia is also making efforts to reduce GHG emissions by diverting organic waste from landfills, recycling and creating a circular economy. Progress on waste diversion is reflected in a 30% reduction in greenhouse emissions from the waste sector since 2002.

These actions are just a snapshot of what Nova Scotians are doing to reduce GHG emissions and provide a strong contribution to a comprehensive pan-Canadian framework.

ACTION ON PRICING CARBON POLLUTION

As part of the pan-Canadian benchmark for carbon pricing, Nova Scotia has committed to

implement a cap and trade program in the province that builds on our early action in the electricity sector.

COLLABORATION PARTNERSHIP OPPORTUNITIES FOR CLEAN GROWTH AND CLIMATE CHANGE

The Government of Nova Scotia and the Government of Canada intend to collaborate in the following priority domains to address climate change and advance clean growth:

Energy Efficiency

Nova Scotia and the Government of Canada are committed to partnering to enhance the existing provincial energy efficiency programs for homes and businesses with the objective of reducing energy use and saving energy costs. This could include expanded energy efficiency programs, efforts to accelerate the electrification of homes and businesses through heat pumps and smart meters, district energy systems, as well as electric vehicle infrastructure.

Renewable Energy Generation, Transmission and Storage

Nova Scotia, in partnership with the Government of Canada, will work together to advance opportunities for renewable energy generated from sources such as wind, tidal and solar, as well as the enabling transmission and storage infrastructure to ensure growth beyond current technical limits. Research and development capacity will continue to be strengthened.

Planning and Implementing Adaptation Infrastructure

Nova Scotia and the Government of Canada will work together and invest in projects to make infrastructure more resilient to a changing climate, and to help communities increase their capacity to adapt to a changing climate.

Regional Electricity Grid Connections

Nova Scotia will work with the other Atlantic provinces and the Government of Canada to advance opportunities for clean electricity generation, transmission, storage and demand management linkages across the region.

This will: improve access to non-emitting electricity; support the phase-out of coal-fired electricity generation; improve grid reliability and energy security; and, consistent with fair market principles, help provinces access export markets for clean, non-emitting electricity. This will contribute to both the Atlantic Growth Strategy and Canadian Energy Strategy and will build on existing regional coordination efforts, leading to an integrated regional electricity strategy.

PRINCE EDWARD ISLAND

KEY ACTIONS TO DATE

Some of the key actions taken to date or under development in Prince Edward Island include:

Climate Change Policy Framework

Prince Edward Island's primary areas of strategic focus for climate change fall into the themes of built environment, transportation, agriculture, conservation and adaptation. Prince Edward Island is in the process of developing new climate change strategies that will result in further actions and initiatives to reduce GHG emissions across the province, increase our resilience to a changing climate, and advance measures to strengthen and grow a prosperous green economy in the province.

Prince Edward Island does not have a legislated provincial emissions reduction target but does contribute to the regional target set by the Conference of the New England Governors and Eastern Canadian Premiers (NEG-ECP). The targets are 10% reductions from 1990 by 2020, 35% - 45% below 1990 levels by 2030, and 75-85% reduction from 2001 levels by 2050. PEI has realized a 9% reduction in GHG emissions since 2005.

PEI Wind Energy

Prince Edward Island is a world leader in producing clean electricity from wind. Prince Edward Island boasts the highest penetration of wind in Canada and 2nd highest in the world next to Denmark. The Government of Prince Edward Island has demonstrated a long-term commitment and investments of $119 million to wind energy.

The first commercial wind farm in Atlantic Canada was developed by the PEI Energy Corporation at North Cape in 2001. North Cape was expanded in 2003, doubling in size.

In January 2007, the PEI Energy Corporation commissioned its second wind farm at East Point. In 2014, the Island's newest wind farm was commissioned at Hermanville/ Clearspring. As a result, Prince Edward Island now has a total installed wind capacity of 78% of peak load, which supplies almost 25% of the province's total electricity requirements.

Biomass

Prince Edward Island is home to Canada's longest-running, biomass-fired district heating system. Operating since the 1980s, the system has expanded to serve over 125 buildings in the downtown core of Charlottetown, including the University of Prince Edward Island and the Queen Elizabeth Hospital. It has contributed to the establishment of a local waste-wood fuel-supply market. The system burns approximately 66,000 tons of waste materials annually.

Coastal Erosion

Prince Edward Island has partnered with the University of Prince Edward Island (UPEI) Climate Research Lab to study coastal vulnerability, including the award-winning Coastal Impacts Visualization Environment (CLIVE). CLIVE is an innovative 3D platform for visualizing the potential future impacts of coastal erosion and coastal flooding at local community scales, on PEI and elsewhere, using past data and Intergovernmental Panel on Climate Change models.

The province has also invested in UPEI in its development of an expansive, cutting-edge coastal erosion monitoring network. This research includes the use of drone and GIS technology to quantify and assess erosion volume of shoreline disappearance along Prince Edward Island's coastline.

Environmental Awareness in Agriculture

As a key industry for Prince Edward Island, agriculture is of particular consequence for climate change and green growth. In recent years, PEI farmers, watershed groups and the fertilizer industry have been implementing a 4R Nutrient Stewardship program to encourage the efficient use of fertilizer and help reduce related emissions.

Island farmers have been making advances in crop diversification, including testing potato varieties that require less fertilizer and adding nitrogen-fixing pulse crops which improve the environmental sustainability of annual cropping systems. The further use of robotics in dairy farming and food additives in livestock production is being employed to reduce methane emissions.

Prince Edward Island is also the first and only jurisdiction in Canada with a provincially-supported Alternative Land Use Services program. Currently, the program has converted almost 4,000 hectares of marginal land from annual crop production to perennial or permanent cover.

These actions provide a strong contribution to a comprehensive pan-Canadian framework and are helping facilitate the transition to a low-carbon economy.

ACTION ON PRICING CARBON POLLUTION

Prince Edward Island will introduce a made-in-PEI approach to carbon pricing which positively contributes to climate change action while benefitting Prince Edward Islanders and ensures optimal conditions for continued growth of the provincial economy. Prince Edward Island will focus on measures that will meaningfully decrease our GHG emissions and recognize the particular elements of our economy.

Our approach will ensure consistent and competitive alignment with efforts being made across the country, including mitigation and price initiatives in all provinces, especially those in our region. PEI is committed to an approach that will directly enhance provincial adaptation and mitigation efforts.

COLLABORATION PARTNERSHIP OPPORTUNITIES FOR CLEAN GROWTH AND CLIMATE CHANGE

Prince Edward Island and the Government of Canada intend to collaborate in the following domains of priority to address climate change and advance clean growth:

Energy Efficiency

Prince Edward Island, in partnership with the Government of Canada, will pursue improved energy efficiency for all sectors in the province as outlined in the 2016 PEI Energy Strategy. The Strategy and forthcoming Climate Change Action Plan are key policy tools in reducing GHGs, driving economic growth and creating jobs locally and in the region.

Prince Edward Island is committed to engaging in incremental actions through solutions for the built environment, including businesses and homes, as well as in new building construction. It has been clearly illustrated by research in the region that investing in efficiency is one of the most effective means of delivering jobs and economic growth widely – across sectors and regions – while reducing emissions and providing savings to consumers.

With a predominantly rural population and some of the highest electricity rates in the country, particular consideration will be given to low-income Island families, and sectors that may find the transition to a lower-carbon environment challenging.

Clean Energy

Energy resilience and security and a move to greater electrification are key priorities for the province. Prince Edward Island, in partnership

with the Government of Canada, will work to expand its world-class wind resource, invest in solar, and enable greater integration of renewable energy through storage. Prince Edward Island will work with the other Atlantic Provinces and the Government of Canada to advance opportunities for clean electricity generation, transmission, storage and demand management linkages across the region.

This will: improve access to non-emitting electricity; support the phase-out of coal-fired electricity generation; improve grid reliability and energy security; and, consistent with fair market principles, help provinces access export markets for clean, non-emitting electricity. This will contribute to both the Atlantic Growth Strategy and Canadian Energy Strategy and will build on existing regional coordination efforts leading to an integrated regional electricity strategy.

Adaptation

With its 1100 km of coastline, Prince Edward Island is uniquely vulnerable to climate impacts and is positioned to advance innovative solutions to make infrastructure more resilient to a changing climate.

Prince Edward Island and the Government of Canada will work together to act on findings from disaster risk reduction planning and coastal infrastructure assessment, and to improve decision-making capacity to adapt to climate change through planning, training and monitoring.

Research and Development

Prince Edward Island and the Government of Canada will work together to support research and development on promising practices and innovation in the areas of agriculture, marine industries, and smart grid and micro-grid/ storage. Prince Edward Island provides an ideal demonstration site for development in these areas.

This research will advance better understanding of influences on emissions and opportunities for clean growth in key sectors of the Prince Edward Island economy.

Transportation

Prince Edward Island relies on exports for continued economic growth. The Prince Edward Island economy is heavily reliant on ground transportation for the movement of goods to markets across Canada and around the world, and the movement of people across the province. The province has no rail system, large container ports, or robust public transit. As the most rural province in Canada, mitigation in transportation is a difficult challenge.

Prince Edward Island and the Government of Canada will work together on methods to support an eventual move to greater electrification in transportation, including corresponding work with other jurisdictions in Canada. Proposed specific areas of work include installation of public charging infrastructure across the province and in collaboration regionally where possible.

NEWFOUNDLAND & LABRADOR

KEY ACTIONS TO DATE

Newfoundland and Labrador is making significant investments to increase the use of clean and renewable hydroelectric power in the province. The Muskrat Falls hydroelectric development, with capital costs of over $9 billion, will result in 98% of electricity consumed in the province coming from renewable sources by 2020.

Muskrat Falls will facilitate advancing by more than a decade the decommissioning of the largest thermal oil-fired electricity generation facility in the province, reducing greenhouse gas (GHG) emissions by about 1.2 Mt annually (equivalent to more than 10% of the province's total emissions in 2015), and assisting other jurisdictions to meet their GHG reduction targets.

To focus the province's efforts to tackle climate change, Newfoundland and Labrador has adopted GHG emission reduction targets of 10% below 1990 levels by 2020 and 75-85% below 2001 levels by 2050, and has endorsed, on a regional basis, the Conference of New England Governors and Eastern Canadian Premiers' reduction marker range of at least 35-45% below 1990 levels by 2030.

To make progress towards these targets Newfoundland and Labrador released a Climate Change Action Plan in 2011 identifying 75 actions to reduce GHG emissions and adapt to the adverse impacts of climate change. Building on this work, Newfoundland and Labrador passed the *Management of Greenhouse Gas Act* in June 2016, creating a legislative framework for reducing GHGs from large industry, and has completed public consultations to inform new provincial actions on climate change.

These actions provide a strong contribution to a comprehensive Pan-Canadian Framework.

ACTION ON PRICING CARBON POLLUTION

The Government of Newfoundland and Labrador and the Government of Canada continue to collaborate to ensure that Newfoundland and Labrador's climate change plan, including carbon pricing, is consistent with the goals in the Pan-Canadian Framework to reduce GHG emissions, improves resilience to climate impacts, and accelerates innovation and job creation.

This made-in-Newfoundland and Labrador plan will address the province's particular social, economic, and fiscal realities. This includes sensitivity to the particular circumstances facing Labrador communities, and the need to consider impacts on all remote and isolated communities, vulnerable populations, consumers and trade-exposed industries, as well as the need to take account of the province's reliance on marine transportation and the absence of lower carbon alternatives.

COLLABORATION PARTNERSHIP OPPORTUNITIES FOR CLEAN GROWTH AND CLIMATE CHANGE

Newfoundland and Labrador and the Government of Canada intend to explore collaboration in the following priority domains to address climate change and advance clean growth:

Renewable Energy

Newfoundland and Labrador and the Government of Canada intend to jointly explore opportunities to develop renewable energy, including such actions as enhancing hydroelectric capacity, increasing transmission infrastructure, and offsetting diesel use in small-scale off-grid electricity systems.

These efforts will also seek to maximize collaboration with other Atlantic provinces in the

electricity sector, contributing to both the Atlantic Growth Strategy and Canadian Energy Strategy, and will build on existing regional coordination efforts, leading to an integrated regional electricity strategy.

Transportation

Newfoundland and Labrador and the Government of Canada intend to jointly explore opportunities to reduce GHG emissions in all parts of the transportation sector, including electric vehicles and associated infrastructure, on- and off-road freight and industrial transportation, marine vessels, and public transit.

Energy Efficiency

Newfoundland and Labrador and the Government of Canada intend to jointly explore opportunities to develop energy efficiency programming, improve energy codes, and support fuel switching in all sectors reliant on fossil fuels.

Adaptation

Newfoundland and Labrador and the Government of Canada intend to jointly explore opportunities to expand climate monitoring and adaptation product and information development, as well as best management practices.

Green Innovation

Newfoundland and Labrador and the Government of Canada intend to jointly explore opportunities in research and development in green technology, including fostering innovation networks and initiation of pilot projects.

YUKON

KEY ACTIONS TO DATE

Some of the key actions taken to date or under development in Yukon include:

Yukon Government Climate Change Action Plan

The Yukon government *Climate Change Action Plan* has four goals: reducing GHG emissions; addressing the impacts of climate change; leading Yukon action on climate change; and enhancing our knowledge and understanding of climate change.

KEY ACTIONS

Work to date in achieving *Climate Change Action Plan* goals includes:

Reducing GHG emissions (mitigation)

- Setting nine sector-specific targets in the areas of transportation, heating buildings, electricity, and industrial operations.
- Completing a study of Yukon's transportation sector, and launching a Ride Share program in partnership with the City of Whitehorse.
- Supporting Yukon homeowners with the Good Energy Residential Incentives Program, which provides incentives to purchase high efficiency wood stoves, boilers and pellet stoves.
- Carrying out detailed energy audits of seven high-consumption Yukon government buildings.
- A Yukon Biomass Strategy to guide the development of a biomass energy sector in the territory.

Addressing the impacts of climate change (adaptation)

- Completing ten adaptation projects in the areas of permafrost impacts to highways, buildings, hydrological responses, and agricultural capacity; flood risk mapping; forestry implications including the encroachment of mountain pine beetle in lodgepole pine forests; and bioclimate shifts.
- With the Pan-Territorial Adaptation Strategy, territorial governments are collaborating on practical adaptation measures for the north. Permafrost thaw has been a key focus.

Leading Yukon action on climate change

- Participating in international and national climate change efforts that impact Yukon, such as the United Nations Framework Convention on Climate Change Conference of the Parties (COP) meetings, including a developmental opportunity for a Yukon youth ambassador.
- Currently supporting the Yukon College to develop a climate change policy course to be offered by Yukon College.

Enhance our knowledge and understanding of climate change

- Supporting development of the Climate Change Indicators and Key Findings report, an important source of independent information that will guide action and research on climate change in Yukon.
- Provide ongoing funding for the Northern Climate Exchange at Yukon College.

These actions provide a strong contribution to a comprehensive pan-Canadian framework.

ACTION ON PRICING CARBON POLLUTION

The Government of Yukon recognizes the role of carbon pricing in the pan-Canadian Framework for Clean Growth and Climate Change.

Given Yukon's particular circumstances, the Government of Canada and the Government of Yukon will work together to assess the implications of carbon pricing in the territory for its economy, communities and people including energy costs, and to develop solutions together.

The Government of Yukon and the Government of Canada will also work together to assess the implications of carbon pricing in Canada on the cost of living in Yukon. This will be an important consideration for future policy development.

As outlined in the federal government's benchmark, 100% of the revenues from carbon pricing will be retained by Yukon. Yukon government will distribute these revenues back to individual Yukoners and businesses through a rebate.

COLLABORATION PARTNERSHIP OPPORTUNITIES FOR CLEAN GROWTH AND CLIMATE CHANGE

Yukon and the Government of Canada intend to collaborate in the following domains of priority to address climate change and advance clean growth:

Advancing Renewable Energy

Yukon government and the Government of Canada will partner in advancing renewable energy projects in Yukon. This will improve the energy infrastructure in Yukon, including developing new renewable energy sources to provide clean energy for current and future electricity needs.

It will also support remote communities in diminishing their reliance on diesel for electricity and will support the expanded use of biomass as a cleaner option for heating in Yukon.

Energy Efficiency

Yukon government, in partnership with the Government of Canada, will support energy efficiency through the retrofitting of existing buildings. Sound investments in retrofits and new energy efficiency projects will be supported by expanding the capacity for collecting, analyzing, and reporting emissions data that will help identify the areas of greatest opportunity for reducing emissions.

Adaptation: Building Resilient Yukon Communities

Canada's Northern jurisdictions and the Government of Canada are working together to develop the Northern Adaptation Strategy. The Government of Canada will partner with Yukon to help build climate-resilient Yukon communities.

Research collaboration will build the knowledge necessary for evidence-based decision-making in community planning. Investments in infrastructure will address known risks such as infrastructure built on thawing permafrost.

Green Innovation and Technology

Yukon government and the Government of Canada will partner on new research and pilot projects that will explore promising areas for climate action in the north, such as seasonal energy storage, cleaner transportation options, and community-level renewable energy generation.

NORTHWEST TERRITORIES

KEY ACTIONS TO DATE

NWT Climate Change Strategic Framework

The Government of the Northwest Territories (GNWT) has committed to develop a climate change strategy that takes northern energy demands and the cost of living into account. It will reflect commitments to reduce greenhouse gas emissions, explore carbon pricing systems and how to develop local alternatives such as hydro, biomass, wind and solar.

NWT Energy Strategy

The GNWT is currently working on a new 10 year Energy Strategy. The Energy Strategy will focus on the affordability, reliability and environmental impacts of energy in the NWT and will promote energy efficiency, renewable and alternative energy in the electricity, heating and transportation sectors.

The GNWT continues to take the following territorial adaptation actions:

- Support adaptation decision-making with knowledge, information collection and sharing
- Build capacity to translate adaptation knowledge into action
- Build climate-resilience through investments in infrastructure
- Invest in land use planning, management plans and building adaptation capacity and expertise
- Support most vulnerable regions, conducting risk assessments and completing hazard mapping
- Reduce climate-related hazards and disaster by developing disaster risk management plans
- Adapt renewable energy options and solutions for cold regions

The GNWT continues to take the following territorial emissions mitigation actions:

- Work with our federal, provincial indigenous partners and others to find solutions to address diesel use in remote off-grid communities including to develop the NWT's hydroelectricity potential to reduce GHG emissions in the electricity sector.
- Implement policies to support the adoption of lower carbon and energy efficient technologies.
- Implement policies to support industry and large emitters in the adoption of lower carbon and energy efficient technologies.
- Continue biomass initiatives and work towards the development of a local forest and wood product industry and develop local wood pellet manufacturing as an alternate local fuel source.
- Addressing energy use and GHG emissions in government buildings and operations.

These actions provide a strong contribution to a comprehensive pan-Canadian framework.

ACTION ON PRICING CARBON POLLUTION

Through the Climate Change Strategic Framework, the GNWT is exploring potential impacts and opportunities that may arise from pursuing different carbon pricing systems in the territory.

The GNWT recognizes the role of carbon pricing in the pan-Canadian Framework for Clean Growth and Climate Change. Given the NWT's particular circumstances, the Government of Canada and the GNWT will work together to assess the

implications of carbon pricing in the territory for its economy, communities and people including energy costs, and to develop solutions together.

The GNWT and the Government of Canada will also work together to assess the implications of carbon pricing in Canada on the cost of living in the NWT. This will be an important consideration for future policy development.

As outlined in the federal government's benchmark, 100% of the revenues from carbon pricing will be retained by the NWT.

COLLABORATION PARTNERSHIP OPPORTUNITIES FOR CLEAN GROWTH AND CLIMATE CHANGE

The NWT will work with the Government of Canada, in collaboration with regional partners, to advance opportunities for clean electricity generation, transmission, storage and demand management linkages across the region.

This will: improve access to non-emitting electricity; support the phase-out of coal-fired electricity generation; improve grid reliability and energy security; and, subject to fair market principles, help the region access export markets for clean, non-emitting electricity.

The NWT and the Government of Canada intend to collaborate in the following priority areas to address climate change and advance clean growth:

Taltson Hydro Expansion and Transmission Links

The proposed Taltson hydro expansion is a small scale run of river hydro project that could be developed with little environmental impact next to the existing power plant, on an already developed river, and combined with a transmission link to provide a green energy corridor to our southern neighbours.

The expansion of the Taltson hydro facility would help reduce Canada's GHG emissions by 360,000 tonnes annually for 50-plus years.

The 60 MW expansion of the Taltson hydro facility could be built in partnership with NWT Indigenous governments, creating economic opportunities for Indigenous-owned businesses across the North. The NWT and Government of Canada will undertake technical and feasibility studies as a first step, including the NWT launching the environment assessment process.

Renewable Solutions for Off-Grid Diesel Communities

The Government of Canada and the GNWT will explore opportunities for reducing reliance on diesel in off-grid communities. For example, the Inuvik Wind Project could produce between 2 and 4 megawatts of wind energy for the Town of Inuvik. The project would reduce GHG emissions by 4,300 tonnes per year and eliminate the need for 1.3 million litres of diesel annually in the largest diesel community in the NWT, and help reduce the cost of living for residents.

For other off-grid diesel powered communities of the NWT, a suite of renewable solutions such as solar and wind in combination with energy storage systems and variable generators could reduce diesel use and emissions by 25 percent, an annual GHG elimination of nearly 3000 tonnes.

All-Weather Road Infrastructure for Adapting to Climate Impacts

The safety and reliability of winter roads is being impacted by climate change. Construction of the Mackenzie Valley Highway from Wrigley to Norman Wells would provide safe, secure, and reliable access into the Sahtu region, helping decrease the high cost of living in communities and support the development of resources in the region.

The Great Bear River is a priority as the seasonal ice crossing is increasingly vulnerable to impacts of climate change. Climate change is also

limiting access to existing diamond mining operations in the Slave Geological Province.

Construction of an all-weather Slave Geological Province Access Corridor would reduce costs for industry exploration and development in a region that holds world-class deposits of natural resources and continues to be a major contributor to the Canadian and NWT economy.

NUNAVUT

KEY ACTIONS TO DATE

Some of the key actions taken to date or under development in Nunavut include:

Energy efficiency upgrades

The Nunavut Energy Retrofit Program was piloted in Iqaluit in 2007, and addressed all of the government of Nunavut's Iqaluit Government of Nunavut-owned buildings. The one-time project investment of $12.8 million has led to annual savings in excess of $1.6 million and 1,594 tonnes of GHG reductions.

In combination with the conversion of three of our facilities to residual heat, our GHG reduction is approximately 4,100 tonnes, which is roughly 20% of those buildings' total emissions.

Development of a Climate Change and Adaptation strategy

Upagiaqtavut was developed in 2011 and serves as a guiding document for the impacts of climate change in Nunavut (http://climatechangenunavut.ca/sites/default/files/3154-315_climate_english_reduced_size_1_0.pdf).

Climate change databank

The Government of Nunavut is developing and uses information technology to centralize and increase the access to climate change information, such as permafrost data and landscape hazards maps. The information is used to improve infrastructure planning and help mitigate the effects of climate change across Nunavut.

Climate Change Secretariat

The Government of Nunavut is establishing a Climate Change Secretariat (CCS), which will be the central point within the government to address both climate change adaptation and mitigation issues.

ACTION ON PRICING CARBON POLLUTION

The Government of Nunavut recognizes the role of carbon pricing in the pan-Canadian Framework for Clean Growth and Climate Change. Given Nunavut's particular circumstances, the Government of Canada and the Government of Nunavut will work together to assess the implications of carbon pricing in the territory for its economy, communities and people including energy costs, and to develop solutions together.

The Government of Nunavut and the Government of Canada will also work together to assess the implications of carbon pricing in Canada on the cost of living in Nunavut. This will be an important consideration for future policy development.

As outlined in the federal government's benchmark, 100% of the revenues from carbon pricing will be retained by Nunavut.

COLLABORATION PARTNERSHIP OPPORTUNITIES FOR CLEAN GROWTH AND CLIMATE CHANGE

Nunavut and the Government of Canada intend to collaborate in the following domains of priority to address climate change and advance clean growth:

Nunavut and the Government of Canada will assess the economic and technical feasibility of electrification through hybrid power generation in Nunavut's communities. Hybrid power generation would significantly reduce emissions while at the same time ensure that Nunavut's isolated communities have reliable power.

Nunavut and the Government of Canada will work together to develop a retrofit program to increase the energy efficiency of public and private

housing. Investment in safe and energy efficient housing is a key component of building strong resilient communities in the Arctic.

This is **Exhibit U** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

#224458

November 23, 2016

Dear Prime Minister and Premiers:

Building a high performance, low carbon economy is a major economic opportunity and a vital environmental responsibility for Canada. As a diverse group of leaders from different sectors and regions across the country, we applaud your initiative in developing the Pan-Canadian Framework for Clean Growth and Climate Change. And we offer our support in advancing smart policies to help seize this opportunity – building on the momentum already mounting across the country.

The world's most advanced economic players are hard at work forging cleaner, more innovative economies, fueled by a desire to compete in a changing global marketplace – one with huge potential to spur growth in all parts of Canada's economy. Clean technology companies can tap into a fast-growing global market expected to exceed $2 trillion per year by 2020, while resource and manufacturing firms can gain competitive ground by boosting their environmental performance and using energy and resources more efficiently.

Canadians also understand they have a responsibility to future generations to do their part in the global effort to fight climate change. And we have begun to make progress in reducing emissions over the past decade, as our economy has grown. Across the country, initiatives by many different governments, businesses and communities are driving a shift towards energy efficiency, greener power, smarter transportation and cleaner production.

Now is the crucial moment to build on these successes and expand our efforts. We can meet our Paris climate commitments, grow our exports of clean technologies, energy, resources and other products, and position Canada to prosper in a changing world. "Made in Canada" can be a global brand of clean performance and innovation across all economic sectors. With smart government leadership, that supports Canadians' sustainability efforts and catalyses private initiative across the country, we can meet this dual economic and environmental opportunity.

To achieve these goals will require bold, timely action using a range of approaches. Putting a price on carbon, to reflect the real environmental costs, is the most cost-effective way to reduce emissions, stimulate innovation and drive energy efficiency. Several provinces are already demonstrating that this approach can work for both the environment and the economy. Coordinated Canada-wide carbon pricing, rising predictably over time, can do much of the heavy lifting towards meeting our climate targets. What's more, the revenues can be used by provinces and territories to advance climate and/or economic goals, including helping vulnerable households to adjust and businesses to remain globally competitive while making the low carbon transition.

Equally important in this transition will be a major investment in clean infrastructure. The critical investments we make now in energy, transportation, and urban systems will build the foundation for Canada's future prosperity. Targeted public funds are also needed to spur breakthrough clean technology research, development and deployment across all sectors, leveraging private capital. And a strong, transparent policy framework should include world

class standards for energy efficient buildings, appliances and vehicles; greening government procurement (to lead by example); and training and immigration programs that build the skills for an advanced, 21st century economy.

This mix of public policies (incentives, infrastructure and investment) must be ambitious, to drive clean innovation – which is the key to generating climate solutions and securing Canadian competitiveness and jobs in a low-carbon world. It must be inclusive, to ensure benefits accrue to all Canadians. It must send long-term signals, to provide the predictability investors need. And it must be coordinated across governments and Indigenous Peoples, to allow for regionally tailored paths towards a common goal. All these efforts should come together in a national strategy that sets a clear direction, builds on our strengths, and targets key areas of economic opportunity across the country.

Canada has a history of taking far-sighted policy actions to capitalize on the opportunities created by global economic change. The time is right for that same kind of bold leadership. We encourage the First Ministers, through their continued collaboration, to forge an ambitious clean growth and climate action plan. And each of us commits to join you, leading by example in our own organizations and networks to accelerate this transition. Together, we can lay the foundation for a cleaner, stronger economy, and a better future for all Canadians.

Sincerely,

Elyse Allan, President and CEO, GE Canada

Kathy Bardswick, CEO, The Co-operators

Dominic Barton, Global Managing Director, McKinsey and Company

Ross Beaty, Chairman, Pan American Silver Corp; Executive Chairman, Alterra Power Corp

Léopold Beaulieu, CEO, Fondaction CSN

Tzeporah Berman, Adjunct Professor, York University; Co-Chair Oil Sands Advisory Group

Sophie Brochu, President and CEO, Gaz Métro

Neil Bruce, President and CEO, SNC-Lavalin

Chris Buckley, President, Ontario Federation of Labour

Vincent Chornet, President and CEO, Enerkem

Guy Cormier, President and CEO, Desjardins Group

John Coyne, Vice-President, Legal and External Affairs and General Counsel, Unilever Canada

Michael Crothers, President and Canada Country Chair, Shell Canada

Arlene Dickinson, CEO, Venture Communications

William Downe, CEO, BMO Financial Group

Stewart Elgie, Professor, University of Ottawa; co-Chair, Smart Prosperity

Brian Ferguson, President and CEO, Cenovus Energy

Phil Fontaine, Former National Chief, Assembly of First Nations

Pierre Gratton, President and CEO, Mining Association of Canada

Steven Guilbeault, Cofounder and Senior Director, Equiterre

Robert Hardt, President and CEO, Siemens Canada

Linda Hasenfratz, CEO, Linamar Corporation

Toby Heaps, CEO, Corporate Knights

Gordon Hicks, President & CEO Americas, Brookfield Global Integrated Solutions

Robert Hornung, President, Canadian Wind Energy Association

Jean-Francois Huc, President and CEO, BioAmber

David Hughes, Executive Director, The Natural Step

Jacob Irving, President, Canadian Hydropower Association

Gervais Jacques, Managing Director, Atlantic Operations, Aluminium, Rio Tinto

Hector Jacques, Chairman, LED Roadway Lighting

Greg Kiessling, President, UpCapital Ltd.

David Labistour, CEO, Mountain Equipment Co-op

Alain Lemaire, Executive Chairman of the Board of Directors, Cascades

Donald R. Lindsay, President and CEO, Teck Resources Limited

Charles Loewen, Chairman of the Board of Directors, Loewen Windows

Jim Lopez, President and CEO, Tembec

John Lounds, President and CEO, Nature Conservancy of Canada

Ian MacGregor, Chairman and CEO, North West Refining Inc.

The Honourable John Manley, President and CEO, Business Council of Canada

Bill McFarland, CEO and Senior Partner, PwC Canada

Sean McKay, President and CEO, Composites Innovation Centre Manitoba Inc.

Michael McSweeney, President and CEO, Cement Association of Canada

Andrée-Lise Méthot, Founder and Managing Partner, Cycle Capital Management

Lorraine Mitchelmore, co-Chair, Smart Prosperity; former President and Canada Country Chair, Shell Canada

David Miller, President and CEO, WWF – Canada; Former Mayor, City of Toronto

Joe Nemeth, President and CEO, Catalyst Paper Corporation

Ken Neumann, Canadian National Director, United Steelworkers

Derek Nighbor, CEO, Forests Products Association of Canada

Robert Niven, Founder and CEO, CarbonCure Technologies

Merrell-Ann Phare, Founding Executive Director, Centre for Indigenous Environmental Resources

John Risley, Co-Founder, Chairman and President, Clearwater Fine Foods

Peter Robinson, CEO, David Suzuki Foundation

Ron Seftel, CEO, Bullfrog Power

Vicky Sharpe, Founding President, Sustainable Development Technology Canada

Jean Simard, President, Aluminum Association of Canada; co-Founder and Director, SWITCH

Scott Skinner, Executive Director, Clean Foundation

Merran Smith, Executive Director, Clean Energy Canada

Rick Smith, Executive Director, Broadbent Institute

John Stackhouse, Senior Vice-President, Office of the CEO, Royal Bank of Canada

Kali Taylor, Founding Executive Director, Student Energy

Ilse Treunicht, CEO, MaRS Discovery District

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This is **Exhibit V** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

#224458

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Canada

TECHNICAL PAPER ON THE FEDERAL CARBON PRICING BACKSTOP

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TECHNICAL PAPER ON THE FEDERAL CARBON PRICING BACKSTOP

The Pan-Canadian Framework on Clean Growth and Climate Change is Canada's plan to grow the economy while reducing greenhouse gas (GHG) emissions and building resilience to adapt to a changing climate. A central component of the Pan-Canadian Framework is the commitment to pricing carbon pollution across the country by 2018. In October 2016, the federal government published a benchmark for ensuring that carbon pricing applies to a broad set of emission sources throughout Canada by 2018 with increasing stringency over time.[1] This benchmark provides provinces and territories with flexibility to implement their own carbon pollution pricing systems. In the benchmark, the federal government also committed to implement a federal carbon pricing backstop system that will apply in any province or territory that does not have a carbon pricing system in place by 2018 that aligns with the benchmark.

Pricing carbon pollution is widely recognized as an efficient way to reduce GHG emissions and help achieve our objectives to protect the environment, stimulate investments in low-carbon innovation and create a sustainable clean-growth economy. Carbon pricing sends an important signal to markets and provides incentives to reduce energy use through conservation and efficiency measures, while also serving to drive fuel switching and technology advances. Applying carbon pricing to a broad set of emission sources across Canada, with increases in stringency over time, will help to reduce GHG emissions at the lowest cost to businesses and consumers, while supporting clean growth.

This technical discussion paper seeks to inform Canadians and stakeholders about the federal carbon pricing backstop and to obtain feedback on its design.

Interested parties are invited to provide written comments to Environment and Climate Change Canada (Carbonpricing-tarificationcarbone@canada.ca) on or before June 30, 2017. There will be further opportunities to provide input as the details of the system are developed.

FEDERAL CARBON PRICING BENCHMARK

On October 3, 2016, the Government of Canada released "The pan-Canadian approach to pricing carbon pollution" – the benchmark[2] – outlining the criteria that carbon pricing systems implemented by provinces and territories need to meet. The goal of the benchmark is to ensure that carbon pollution pricing applies to a broad set of emission sources with increasing stringency over time in order to reduce GHG emissions at lowest cost to business and consumers and support innovation and clean growth.

The pan-Canadian approach to pricing carbon pollution provides jurisdictions the flexibility to implement either an explicit price-based system (a carbon tax such as the one in British Columbia, or a hybrid approach composed of a carbon levy and an output-based pricing system, such as in Alberta) or a cap-and-trade system (such as those in Quebec and Ontario).

1 "Pan-Canadian Approach to Pricing Carbon Pollution" http://news.gc.ca/web/article-en.do?nid=1132169. The benchmark is also outlined in the PCF at https://www.canada.ca/en/services/environment/weather/climatechange/pan-canadian-framework.html.

2 "Backgrounder: Pan-Canadian Approach to Pricing Carbon Pollution" available at http://news.gc.ca/web/article-en.do?nid=1132169. The benchmark was also outlined on December 9, 2016 in the PCF available at https://www.canada.ca/en/services/environment/weather/climatechange/pan-canadian-framework.html.

The Pan-Canadian Framework includes a commitment for a review of the overall approach to pricing carbon by early 2022 to confirm the path forward. An interim report will also be completed in 2020, which will be reviewed and assessed by First Ministers. As an early deliverable, the review will assess approaches and best practices to address the competitiveness of emissions-intensive, trade-exposed sectors.

FEDERAL CARBON PRICING BACKSTOP

The federal government plans to introduce new legislation and regulations to implement a carbon pollution pricing system – the backstop – to be applied in jurisdictions that do not have carbon pricing systems that align with the benchmark.

All elements of the backstop will apply in a jurisdiction that does not have a carbon pricing system in place. The backstop will also supplement (or "top-up") systems that do not fully meet the benchmark. For example, the backstop could expand the sources covered by provincial carbon pollution pricing or it could increase the stringency of the provincial carbon price.

As committed in the October 3, 2016 document Pan-Canadian Approach to Pricing Carbon Pollution, the federal system will return direct revenues from the carbon price to the jurisdiction of origin. The federal government is open to feedback on the best mechanism to achieve this.

BACKSTOP INSTRUMENT

The federal carbon pollution pricing backstop will be composed of two key elements:

- A carbon levy applied to fossil fuels; and
- An output-based pricing system for industrial facilities that emit above a certain threshold, with an opt-in capability for smaller facilities with emissions below the threshold.

HOW GHG EMISSIONS ARE MEASURED

Both the carbon levy and the output-based pricing system will price carbon on a CO_2e basis. The United Nations Framework Convention on Climate Change (UNFCCC) reporting requirements apply to seven greenhouse gases (GHGs).[3] Each of these gases has a different impact on the climate. The use of CO_2e is the internationally-recognized approach to establishing a standard carbon price (e.g., $10/tonne of CO_2e) and translating that price to the appropriate price for each greenhouse gas. More detail on the calculation of CO_2e is provided in Annex 1.

3 The seven UNFCCC GHGs are CO_2, methane (CH_4), nitrous oxide (N_2O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), sulphur hexafluoride (SF_6) and nitrogen trifluoride (NF_3).

For both components of the backstop, emissions will be converted to a CO_2e basis. For the levy, rates will be set out under the relevant legislation and will be based on the Canadian average CO_2 emission factor for a fossil fuel (where factors differ by region for that fuel) and the technology that is most commonly used to combust that fuel. For the output-based pricing system, regulated entities will use the same factors to calculate their emissions following a methodology that will be specified in regulations.

THE CARBON LEVY COMPONENT OF THE BACKSTOP

SCOPE OF THE CARBON PRICING LEVY

Coverage and Rates of the Carbon Levy

Fossil fuels that will be subject to the levy include liquid fuels (e.g., gasoline, diesel fuel, and aviation fuel), gaseous fuels (e.g., natural gas) and solid fuels (e.g., coal and coke).

Carbon levy rates will initially be set for the period from 2018 to 2022. Rates for each fuel subject to the levy will be set such that they are equivalent to $10 per tonne of CO_2e in 2018 and increase by $10 per tonne annually to $50 per tonne in 2022. The rates will be based on global warming potential factors and emission factors[4] used by Environment and Climate Change Canada to report Canada's emissions to the UNFCCC, and will be expressed in standard commercial units to facilitate the compliance with, and the administration of, the levy. Tables 1 to 3 below show the rates for liquid fuels, gaseous fuels, and solid fuels, respectively, over the initial 5-year period.

Table 1: Rates of Levy on Liquid Fossil Fuels from 2018 to 2022

LIQUID FUEL	UNIT	2018 ($10/TONNE)	2019 ($20/TONNE)	2020 ($30/TONNE)	2021 ($40/TONNE)	2022 ($50/TONNE)
GASOLINE	¢/L	2.33	4.65	6.98	9.30	11.63
DIESEL / LIGHT FUEL OIL	¢/L	2.74	5.48	8.21	10.95	13.69
HEAVY FUEL OIL	¢/L	3.19	6.37	9.56	12.75	15.93
AVIATION GASOLINE	¢/L	2.49	4.98	7.47	9.95	12.44
AVIATION TURBO FUEL / JET FUEL / KEROSENE	¢/L	2.58	5.16	7.75	10.33	12.91
METHANOL	¢/L	1.10	2.20	3.29	4.39	5.49
NAPHTHA	¢/L	2.25	4.51	6.76	9.02	11.27
PETROLEUM COKE	¢/L	3.84	7.67	11.51	15.35	19.19

4 For the purposes of determining the levy rates, the CO_2e of a fossil fuel includes the following GHG emissions: CO_2, CH_4 and N_2O.

Table 2: Rates of Levy on Gaseous Fossil Fuels from 2018 to 2022

GASEOUS FUEL	UNIT	2018 ($10/TONNE)	2019 ($20/TONNE)	2020 ($30/TONNE)	2021 ($40/TONNE)	2022 ($50/TONNE)
MARKETABLE NATURAL GAS	¢/m^3	1.96	3.91	5.87	7.83	9.79
NON-MARKETABLE NATURAL GAS	¢/m^3	2.59	5.17	7.76	10.34	12.93
PROPANE	¢/L	1.55	3.10	4.64	6.19	7.74
BUTANE	¢/L	1.78	3.56	5.34	7.12	8.90
ETHANE	¢/L	1.02	2.04	3.06	4.08	5.09
GAS LIQUIDS	¢/L	1.67	3.33	4.99	6.66	8.32
STILL GAS	¢/m^3	2.70	5.40	8.10	10.80	13.50
PENTANES PLUS	¢/L	1.78	3.56	5.34	7.12	8.90
COKE OVEN GAS	¢/m^3	0.70	1.40	2.10	2.80	3.50

Table 3: Rates of Levy on Solid Fossil Fuels from 2018 to 2022

SOLID FUEL	UNIT	2018 ($10/TONNE)	2019 ($20/TONNE)	2020 ($30/TONNE)	2021 ($40/TONNE)	2022 ($50/TONNE)
LOW HEAT VALUE COAL (I.E., SUB-BITUMINOUS COAL; LIGNITE)	$/tonne	17.72	35.45	53.17	70.90	88.62
HIGH HEAT VALUE COAL (I.E., BITUMINOUS COAL; ANTHRACITE)	$/tonne	22.52	45.03	67.55	90.07	112.58
COKE (COAL)	$/tonne	31.80	63.59	95.39	127.19	158.99
WASTE FUEL / TIRES	$/tonne	19.97	39.95	59.92	79.89	99.87

APPLICATION OF THE CARBON LEVY

In general, the levy will apply to fuels that are used in a backstop jurisdiction, irrespective of whether the fuels were produced in, or brought into, the backstop jurisdiction.

In most cases, the levy will be applied early in the supply chain of each fuel used in a backstop jurisdiction, and will be payable by the producer or distributor. The final user of a fuel will not generally have any special rights or obligations in respect of the levy, as the user will purchase levy-paid fuel in most cases.

Fuel producers and certain distributors will be able to acquire and hold fuel without the levy being payable until the fuel is subsequently used by the producer or distributor, or, as discussed later, delivered to a final retailer or end-user.

For purposes of the levy, use will generally include fuel that is combusted, vented or flared.[5] Fuel used as a raw material, diluent or solvent in a manufacturing or petrochemical process in a manner that does not produce heat or energy will not be subject to the carbon levy.[6]

This general approach will be achieved by a series of application rules and registration requirements that are presented below.

Application Framework of the Carbon Levy

Generally, the levy will apply to fuel that is produced, imported or brought into a backstop jurisdiction.

For the purposes of the levy, there will be four categories of persons within the fuel supply chain: Registered Fuel Distributors, Registered Fuel Importers, Registered Fuel Users, and other non-registered persons.

- Registered Fuel Distributors will generally be producers of fuel, large wholesale distributors of fuel, and natural gas retailers.
- Registered Fuel Importers will be entities that cannot become Registered Fuel Distributors and that import fuel from outside Canada at a location in a backstop jurisdiction, or that bring fuel into a backstop jurisdiction from another jurisdiction in Canada.

5 Venting is the direct release of gas, which is predominately methane, into the atmosphere without combustion. Flaring is the controlled combustion of a gas from industrial activities, in maintenance or emergency circumstances that require a release of pressure by removing the gas.

6 Petrochemicals are organic chemicals made from crude oil and natural gas, such as methanol, ethylene, benzene, or butadiene, for use in industrial processes (i.e., feedstock to make other chemicals).

- Registered Fuel Users will be persons that cannot become Registered Fuel Distributors and that are required to report on fuel used in a backstop jurisdiction and, in certain circumstances, may be required to pay the levy[7] or be entitled to claim relief from the levy, where it has been previously paid. Registered Fuel Users will include inter-jurisdictional commercial transportation operators, and entities operating a facility covered by the output-based pricing system.
- Non-registered persons will generally be retailers (other than natural gas retailers) and end-users, including individuals and business consumers.

The levy will generally be payable when a Registered Fuel Distributor uses fuel in a backstop jurisdiction or delivers fuel to a person in the backstop jurisdiction that is not a Registered Fuel Distributor. Consequently, a Registered Fuel Distributor will be able to deal in fuel with other Registered Fuel Distributors without the levy being payable.

The levy will generally apply to fuel when it is imported or brought into the backstop jurisdiction by a Registered Fuel Importer. However, the levy will not be payable by a Registered Fuel Importer if the Registered Fuel Importer delivers the fuel to a person in the backstop jurisdiction that is a Registered Fuel Distributor, or delivers the fuel outside the backstop jurisdiction in a timely manner.

Registered Fuel Users that are operators of a facility covered by the output-based pricing system may be able to acquire fuel without the levy being payable, if the fuel is for use at that facility. Registered Fuel Users that are inter-jurisdictional commercial transportation operators will generally acquire fuel in a backstop jurisdiction on which the levy has been paid, except in limited circumstances as described below.

Generally, non-registered persons will acquire fuel on which the levy has been paid.

Fuels Produced in a Backstop Jurisdiction

In the case of fuel that is produced by a Registered Fuel Distributor and used by that Registered Fuel Distributor in a backstop jurisdiction, the levy will become payable by the Registered Fuel Distributor at the time that it is used. In this case, the levy will be reported to the Canada Revenue Agency (CRA) by the Registered Fuel Distributor through a return and remitted to the Receiver General of Canada.

In the case of fuel that is produced by a Registered Fuel Distributor in a backstop jurisdiction and delivered to a purchaser in a backstop jurisdiction that is not a Registered Fuel Distributor, the levy will become payable by the Registered Fuel Distributor upon delivery to the purchaser. In this case, the levy will be reported to the CRA by the Registered Fuel Distributor through a return and remitted to the Receiver General of Canada. However, if the fuel is delivered to a purchaser that is another Registered Fuel Distributor, the levy will not become payable on that transaction. Instead, the levy will become payable by that other Registered Fuel Distributor at the time the fuel is used by that other Registered Fuel Distributor in a backstop jurisdiction, or at the time the fuel is subsequently delivered in a backstop jurisdiction to a person that is not a Registered Fuel Distributor.

- For example, if a Registered Fuel Distributor, such as an entity operating an oil refinery, delivers gasoline to another Registered Fuel Distributor, such as a wholesale distributor, then the levy will not be payable upon that delivery of the fuel. Rather, the levy will become payable when that other Registered Fuel Distributor (i.e., the wholesaler) delivers the fuel in a backstop jurisdiction to a purchaser that is not a Registered Fuel Distributor, such as a retail gas station.

7 For example, inter-jurisdictional carriers may, depending on where they purchase fuel and where they actually travel, be required to remit the levy on fuel purchased outside a backstop jurisdiction or be entitled to a rebate of the levy on fuel purchased inside a backstop jurisdiction.

The levy will not be payable on fuel that is produced by a Registered Fuel Distributor in a backstop jurisdiction and that is delivered outside a backstop jurisdiction.

- For example, gasoline that is produced in a refinery that is operated by a Registered Fuel Distributor in a backstop jurisdiction would ultimately not be subject to the levy if that gasoline is delivered outside a backstop jurisdiction.

Fuels Brought into a Backstop Jurisdiction from another Jurisdiction in Canada

Generally, anyone that brings fuel into a backstop jurisdiction from another jurisdiction in Canada will be required to register as either a Registered Fuel Distributor or, if they do not meet the minimal volume threshold or other requirements to become a Registered Fuel Distributor, as a Registered Fuel Importer.

A Registered Fuel Distributor will be able to bring fuel into a backstop jurisdiction on a levy-deferred basis. The levy will become payable by the Registered Fuel Distributor only at the time it uses the fuel in the backstop jurisdiction or delivers it in the backstop jurisdiction to a person that is not a Registered Fuel Distributor. In either case, the Registered Fuel Distributor will report to the CRA through a return and remit the levy to the Receiver General of Canada. If the fuel is instead delivered to another Registered Fuel Distributor, no levy will be applied to that transaction. The levy will become payable when the Registered Fuel Distributor that acquired the fuel uses it or delivers it to another person, unless that other person is another Registered Fuel Distributor.

Registered Fuel Importers will generally not be able to bring fuel into a backstop jurisdiction and hold it on a levy-deferred basis. The levy will apply to fuel that is brought into a backstop jurisdiction by a Registered Fuel Importer at the time the fuel is brought in. In this case, the Registered Fuel Importer will report to the CRA through a return and remit the levy to the Receiver General of Canada. However, if the Registered Fuel Importer brings in the fuel for delivery to a Registered Fuel Distributor, the levy will not become payable by the Registered Fuel Importer. The levy will become payable when the Registered Fuel Distributor that acquired the fuel uses it or delivers it to another person in the backstop jurisdiction, unless that person is also a Registered Fuel Distributor. If fuel is brought into a backstop jurisdiction by a Registered Fuel Importer for delivery to a Registered Fuel Distributor but is subsequently diverted for use in the backstop jurisdiction or delivery in the backstop jurisdiction to a person that is not a Registered Fuel Distributor, then the levy will become payable upon that use or delivery.

There will be special bringing-in rules for Registered Fuel Users that are inter-jurisdictional carriers, which are described below.

The levy will generally not be applicable on fuel that is brought into a backstop jurisdiction if the fuel is subsequently delivered outside the backstop jurisdiction in a timely manner. For example, the levy will not become payable if the fuel is merely in transit through a backstop jurisdiction, such as gasoline transiting in a tanker truck from one province to another through a backstop jurisdiction. If fuel is brought into a backstop jurisdiction by a Registered Fuel Importer for delivery outside the backstop jurisdiction but is subsequently diverted for use in the backstop jurisdiction or for delivery in the backstop jurisdiction to a person that is not a Registered Fuel Distributor, then the levy will become payable upon that use or delivery.

Fuels Imported into Canada at a Location in a Backstop Jurisdiction

Generally, anyone that imports fuel into Canada at a location in a backstop jurisdiction will be required to register as either a Registered Fuel Distributor or, if they do not meet the requirements of a Registered Fuel Distributor, as a Registered Fuel Importer.

Registered Fuel Distributors will be able to import fuel into a backstop jurisdiction on a levy-deferred basis. The levy will apply upon importation into Canada, but will become payable by the Registered Fuel Distributor that imported the fuel only at the time it uses the fuel in the backstop jurisdiction or at the time it delivers the fuel in the backstop jurisdiction to a person that is not a Registered Fuel Distributor. In this case, the Registered Fuel Distributor will report to the CRA through a return and remit the levy to the Receiver General of Canada. If the fuel is delivered outside a backstop jurisdiction, the levy will not become payable. If the fuel is instead delivered to another Registered Fuel Distributor, the levy will become payable when the other Registered Fuel Distributor uses it or delivers it to another person, unless that other person is also a Registered Fuel Distributor.

If a Registered Fuel Importer imports fuels for its own use in a backstop jurisdiction or for delivery in a backstop jurisdiction to a person that is not a Registered Fuel Distributor, then the levy will become payable at the time of importation. In this case, the Registered Fuel Importer will report to the CRA through a return and remit the levy to the Receiver General of Canada (i.e., the levy is not collected at the border upon importation).

If a Registered Fuel Importer imports the fuel for subsequent delivery outside the backstop jurisdiction in a timely manner, the levy will not be payable. If fuel is imported by a Registered Fuel Importer for delivery outside the backstop jurisdiction but is subsequently diverted for use in the backstop jurisdiction or for delivery in the backstop jurisdiction to a person that is not a Registered Fuel Distributor, then the levy will become payable upon that use or delivery.

If a Registered Fuel Importer imports fuel for delivery to a Registered Fuel Distributor, the levy will not become payable by the Registered Fuel Importer. The levy will become payable by the Registered Fuel Distributor when it uses the fuel or delivers it to another person in the backstop jurisdiction, unless that other person is also a Registered Fuel Distributor. If fuel is imported by a Registered Fuel Importer for delivery to a Registered Fuel Distributor but is subsequently diverted for use in the backstop jurisdiction or delivery in the backstop jurisdiction to a person that is not a Registered Fuel Distributor, then the levy will become payable upon that use or delivery.

If a non-registered person imports fuel at a location in a backstop jurisdiction, the person will report directly to the Canada Border Services Agency upon importation and remit the levy to the Receiver General of Canada at that time (i.e., the levy will be collected at the border upon importation).

Fuels Imported Into Canada at a Location other than in a Backstop Jurisdiction for Delivery in a Backstop Jurisdiction

Similar rules will apply to fuel that is imported into Canada at a location outside of a backstop jurisdiction if the fuel is for delivery in a backstop jurisdiction. For example, if a Registered Fuel Distributor imports gasoline into Canada at a location in a non-backstop jurisdiction, but the fuel is for delivery to a backstop jurisdiction, the levy will not be payable until the fuel is used in the backstop jurisdiction by the Registered Fuel Distributor, or is delivered to a person in the backstop jurisdiction that is not a Registered Fuel Distributor. In this case, the levy will be reported to the CRA by the Registered Fuel Distributor through a return and remitted to the Receiver General of Canada.

If a non-registered person imports gasoline into Canada at a location in a non-backstop jurisdiction, but the gasoline is for delivery to a backstop jurisdiction, the person will report directly to the Canada Border Services Agency upon importation and remit the levy to the Receiver General of Canada at that time.

Application of the Carbon Levy to Natural Gas

In addition to upstream entities that produce natural gas (e.g., gas batteries, gas production plants) in a backstop jurisdiction, natural gas retailers that deliver natural gas in a backstop jurisdiction will be required to become Registered Fuel Distributors.

The carbon levy will generally not be payable on natural gas until it is delivered to a final user (e.g., delivered to residential homes), at which time the levy will generally become payable by the natural gas retailer that delivers the fuel.

Where transactions occur in a backstop jurisdiction between natural gas distributors or producers, the levy will generally not be payable, as these would typically be transactions between Registered Fuel Distributors.

The levy will apply to natural gas that is used by a Registered Fuel Distributor in the natural gas supply chain and become payable by the Registered Fuel Distributor at the time the fuel is used. If a Registered Fuel Distributor delivers fuel to a person that is not a Registered Fuel Distributor, the levy will become payable by the Registered Fuel Distributor at the time the fuel is delivered.

Generally, the levy will not become payable on natural gas that is delivered outside a backstop jurisdiction.

Relief from the Carbon Levy

There will be certain situations in which relief from the levy will be provided, including in respect of:

- Fuel used at a facility whose emissions are accounted for under the output-based pricing system (once it comes into effect);
- Gasoline and diesel fuel used by registered farmers in certain farming activities;
- Fuel exported or removed from a backstop jurisdiction;
- Fuel used as international ships' stores (e.g., international aviation and marine fuels);
- In specified circumstances, fuel used as a raw material, diluent or solvent in a manufacturing or petrochemical process in a manner that does not produce heat or energy;

- Fuel purchased by visiting military forces and diplomatic representatives;
- Fuel in sealed, pre-packaged containers of one litre or less; and
- Biofuel portion of blended fuels (e.g., for gasoline or diesel blended with biofuels, the levy will apply to only the fossil fuel content).

The Government will develop a mechanism for providing relief (e.g., exemption certificate, rebate) for each of these circumstance.

Registration Requirements

As noted above, certain persons will be required to register with the CRA as a Registered Fuel Distributor, a Registered Fuel Importer or a Registered Fuel User.

The registrations will be administered on a fuel-by-fuel basis. Therefore, the registration status of a person may differ per type of fossil fuel subject to the levy.

Registered Fuel Distributors

Generally, all producers of fuels covered by the carbon levy operating within a backstop jurisdiction will be required to be registered as a fuel distributor with the CRA. This will include oil refiners and coal mine operators.

Large wholesale distributors (e.g., entities whose business essentially consists of purchasing fuels for purpose of resale other than at retail and above a specified annual volume threshold) of fossil fuels operating within a backstop jurisdiction will be able to become Registered Fuel Distributors. Generally, wholesale distributors of fuels are entities that purchase fuels for purpose of re-sale in a backstop jurisdiction to entities other than end-users. An entity will be considered a wholesale distributor and required to become a Registered Fuel Distributor, whether it acquires fuel from within the backstop jurisdiction or whether it imports or brings-in the fuel from another jurisdiction.

In addition to upstream entities that produce natural gas, natural gas retailers that deliver natural gas in a backstop jurisdiction will be required to become Registered Fuel Distributors.

In addition to the requirements noted above, there will be some restrictions on who will be able to become a Registered Fuel Distributor. For example, entities that will be considered as Registered Fuel Distributor of some fuels, including gasoline and diesel, may be restricted to those entities that deal in fuel above a specified quantity. In other words, for some fuel types, if an entity does not satisfy the specified minimum quantity requirement, it may not be eligible to become or to continue to be a Registered Fuel Distributor. Also, retailers and end-users will generally not be able to become Registered Fuel Distributors.

Registered Fuel Importers

Generally, any person that is not able to become a Registered Fuel Distributor and that imports fuel into Canada for delivery or use in a backstop jurisdiction or that brings fuel into a backstop jurisdiction from another jurisdiction in Canada will be required to become a Registered Fuel Importer.

However, a person that brings in or imports 200 litres or less will generally not be subject to this requirement.

Registered Fuel Users

Some persons will be required to become Registered Fuel Users, including the following:

- Commercial carriers (e.g., operators of transport trucks, operators of rail transportation, operators of marine transportation, air carriers) that operate in a backstop jurisdiction and at least one other jurisdiction;
- An operator of a facility whose emissions are covered under the output-based pricing system;
- Certain businesses that burn waste that is subject to the carbon levy (e.g., tires, asphalt shingles) in a backstop jurisdiction; and
- Certain businesses that use fuel as a raw material, diluent or solvent in a manufacturing or petrochemical process in a manner that does not produce heat or energy.

Inter-Jurisdictional Commercial Transportation Requirements

Commercial carriers (i.e., persons transporting passengers, freight, or both) that operate in a backstop jurisdiction, and in at least one other jurisdiction, will be required to be registered with the CRA as Registered Fuel Users.

Road and Rail

For fuels consumed in commercial road and rail transportation, the levy will apply to only the fuel that is used within a backstop jurisdiction. In other words, the levy will apply both to fuel that is used during a journey that starts and ends in the same jurisdiction (intra-jurisdictional travel) and to fuel that is used during the portion of an inter-jurisdictional or international journey that occurs in a backstop jurisdiction.

- Inter-jurisdictional road and rail carriers will purchase fuel in a backstop jurisdiction with the levy embedded.
- These carriers will also be required to pay the carbon levy on fuel that was purchased outside the backstop jurisdiction, brought into the backstop jurisdiction and used in the backstop jurisdiction. Conversely, they will be entitled to relief for fuel that is purchased in the backstop jurisdiction but used outside the jurisdiction.
- To this end, inter-jurisdictional road and rail carriers will be required to file a return with the CRA and report fuel purchases made inside and outside each backstop jurisdiction, as well as the distance travelled inside and outside each backstop jurisdiction in order to self-assess the amount of carbon levy owing, or amount of relief to the carrier, as the case may be.
- All truck operators and commercial buses – domestic and international – that transit through a backstop jurisdiction will be required to register with CRA, report on levy paid and payable and file regular returns.

Marine

For fuels consumed in commercial marine transportation, the levy will only apply to fuel used in intra-jurisdictional travel. In other words, the levy will only apply to fuel used for commercial marine transportation that occurs between two points in the backstop jurisdiction.

- Marine carriers in a backstop jurisdiction will generally purchase fuel with the levy embedded. They will file regular returns and will be entitled to relief for levy paid on fuel that is used in inter-jurisdictional journeys (e.g., trips between a point in the backstop jurisdiction and a point outside the backstop jurisdiction).
- Further, these carriers will be required to self-assess on fuels purchased without the levy previously applied and used in intra-jurisdictional journeys. For example, if a ship ends a journey in a backstop jurisdiction with unused fuel and subsequently makes an intra-jurisdictional journey using that fuel, the marine carrier is required to self-assess on the fuel used in that journey.
- For fuel that is destined for international ships' stores, fuel could be delivered without the levy being payable if delivered by a Registered Fuel Distributor. If the fuel used for international ships' stores had levy embedded, relief will be provided for that fuel.

Aviation

To date, provinces that have introduced carbon pricing systems have either not covered GHG emissions from aviation fuels at all or not applied the carbon price to aviation fuels used in inter-jurisdictional flights within Canada. The Government recognizes that this exemption may have been made to address competitiveness concerns for local airports. The introduction of carbon pricing in all Canadian provinces and territories eliminates these inter-jurisdictional competitiveness concerns and presents an opportunity for this important source of GHG emissions to be covered across Canada. The federal government will engage with provincial and territorial governments and stakeholders to ensure that this emission source is properly covered, through a consistent national approach, and to determine which role the backstop should play in this regard, including in jurisdictions that have a carbon pricing system in place.

In the meantime, for fuels consumed in commercial aviation transportation, the backstop levy will only apply to fuel used in intra-jurisdictional travel. In other words, the levy will only apply to fuel used for commercial aviation transportation that occurs between two points in the backstop jurisdiction.

- Air carriers in a backstop jurisdiction will generally purchase fuel with the levy embedded. They will file regular returns and will be entitled to relief for levy paid on fuel that is used in inter-jurisdictional journeys (e.g., trips between a point in the backstop jurisdiction and a point outside the backstop jurisdiction).
- Further, these carriers will be required to self-assess on fuels purchased without the levy previously applied and used in intra-jurisdictional journeys. For example, if an aircraft lands in a backstop jurisdiction with unused fuel and subsequently makes an intra-jurisdictional journey using that fuel, the air carrier is required to self-assess on the fuel used in that journey.
- For fuel that is destined for international ships' stores, fuel could be delivered without the levy being payable if delivered by a Registered Fuel Distributor. If the fuel used for international ships' stores had levy embedded, relief will be provided for that fuel.

Transitional Rules and Rules Related to Rate Changes

Persons that are required to register with the CRA will be able to do so on a provisional basis prior to the implementation date of the carbon levy.

Any person that possesses a quantity of fuel in a backstop jurisdiction that exceeds a minimum threshold on the implementation date of the levy will be required to self-assess and remit the levy on fuel in their possession. However, this requirement would not apply to a Registered Fuel Distributor that is registered as of the implementation date.

Registered Fuel Distributors will be required to pay the levy on fuel that is delivered in a backstop jurisdiction on or after the implementation date to a person, unless that person is a Registered Fuel Distributor.

Similarly, in respect of rate increases that occur after 2018, any person that possesses a minimum quantity of fuel in a backstop jurisdiction on the implementation date of a rate increase will be required to assess and remit the levy on fuels in their possession. This requirement would not apply to a Registered Fuel Distributor that is registered as of the implementation date of a rate increase.

Also, in respect of future rate increases, Registered Fuel Distributors will be required to pay the levy at the new rate on fuel that is delivered to a person in a backstop jurisdiction, unless that person is a Registered Fuel Distributor, on or after the implementation date of a rate increase.

Administrative Aspects

Every Registered Fuel Distributor, Registered Fuel Importer and Registered Fuel User will be required to file monthly returns with the CRA. Registered persons will need to calculate in the return the total amount of levy payable for each backstop jurisdiction and remit that amount to the Receiver General of Canada.

The return for each registered person will have to be filed, and any amount payable will have to be paid, by the end of the first month following the fiscal month of the person. For example, assuming a registered person's fiscal month is also a calendar month, if a Registered Fuel Distributor delivers fuel to a purchaser that is not a Registered Fuel Distributor on June 15th, the Registered Fuel Distributor will be required to file a return and remit the levy to the Receiver General of Canada by July 31st. Similarly, if a Registered Fuel Distributor uses fuel it holds on June 15th, the Registered Fuel Distributor will be required to file a return and remit the levy to the Receiver General of Canada by July 31st.

Registered Fuel Distributors will generally need to provide information on quantities of fuels produced, brought into, and imported into each backstop jurisdiction, as well as quantities of fuels used and delivered within each backstop jurisdiction and delivered outside a backstop jurisdiction.

Registered Fuel Importers will generally need to provide information on quantities of fuels brought into and imported into, or for delivery or use into, each backstop jurisdiction, as well as quantities of fuels used and delivered within each backstop jurisdiction and delivered outside the backstop jurisdiction.

The information that Registered Fuel Users will need to provide will vary depending on the class of user (e.g., air carriers versus persons burning waste). Generally, they will be required to provide information to the CRA and determine the amount of levy payable or refundable for each backstop jurisdiction, as explained above.

Registered Fuel Distributors, Registered Fuel Importers and Registered Fuel Users will be required to keep books and records sufficient to enable a determination to be made of whether they have complied with payment requirements and other carbon levy rules in general. The basic period for retaining records will be 6 years after the end of the year in which they relate.

Registered Fuel Distributors, Registered Fuel Importers and Registered Fuel Users may be required to provide and maintain security in an amount and in a form satisfactory to the Minister of National Revenue.

To promote compliance with the carbon levy, its framework will include modern elements of an enforcement regime (e.g., interest, penalties, offences) aligned with those found in other statutes administered by the Canada Revenue Agency.

THE OUTPUT-BASED PRICING SYSTEM ELEMENT OF THE BACKSTOP

The aim of an output-based pricing system is to minimize competitiveness and carbon leakage risks for activities for which those risks are high, while retaining the incentives to reduce emissions created by the carbon pricing signal.

The output-based pricing system will apply the carbon pollution price to the portion of a covered source's emissions that exceed those allowed by the emissions-intensity standard for the type of activity. Facilities in the system that emit less than the limit that corresponds to the relevant emissions-intensity standard will receive "surplus credits" from the Government of Canada that they can bank for future use or trade to another participant in the output-based pricing system. Facilities whose emissions exceed their limit will need to submit compliance units (surplus credits banked from a previous year or acquired from another facility or offset credits: see "compliance units" below) or pay the carbon price to make up the difference.

Under this system, only a portion of a covered source's emissions will be subject to a direct price obligation. However, the price incentive will apply to all of the emissions, as facilities can earn surplus credits that they can sell if they emit less than their regulatory limit.

SCOPE OF THE OUTPUT-BASED PRICING SYSTEM

Facilities and Sectors Included in the Output-Based Pricing System

The output-based pricing system will apply to all industrial facilities that emit 50 kilotonnes (kt) or more of CO_2e per year. It will not apply to facilities in specifically listed sectors such as buildings (including municipal, hospitals, universities, schools, commercial), waste and wastewater, regardless of the quantity of their emissions.

Facilities in industrial sectors that emit less than 50 kt of CO_2e per year will have the ability to "opt in" to the output-based pricing system, allowing similar treatment of competitors with varying emissions output. This will allow smaller facilities to choose between paying the carbon levy and fulfilling the administrative requirements to participate in the output-based pricing system. This will also avoid creating the perverse incentive to emit more in order to be eligible for treatment under the output-based pricing system.

Emissions Covered in the Output-Based Pricing System

The output-based pricing system will apply to emissions from fuel combustion as well as emissions of synthetically-produced greenhouse gases from industrial processes and product use.

Like the carbon levy, pricing will be applied on a CO_2e basis. Because industrial emissions can include more greenhouse gases than those emitted from fuel combustion, the output-based pricing system will apply to emissions of all seven of the UNFCCC greenhouse gases – CO_2, CH_4, N_2O, hydrofluorocarbons

(HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6) and nitrogen trifluoride (NF_3) – that can be quantified using robust and replicable quantification methodologies. This will cover emissions from all fossil fuels used by facilities subject to the output-based pricing system, including some venting, flaring and fugitive emissions.[8]

The output-based pricing system will also apply to other GHG emissions such as process emissions and emissions from solvent use.

At the outset, CO_2 emissions resulting from the combustion of biomass will not be covered because these emissions are not counted in Canada's National Inventory total.[9]

Output-Based Standards

An output-based standard is an emissions-intensity standard for a type of activity or product (e.g., tonnes of CO_2e per megawatt hour of electricity). The output-based standard will be set at a level that represents best-in-class performance (top quartile or better) in order to drive reduced emissions intensity.

APPLICATION OF THE OUTPUT-BASED PRICING SYSTEM

Compliance reporting for the output-based pricing system will apply annually, based on a calendar year.

Determining a Facility's Emissions Limit

The annual GHG emissions limit for a facility will be the sum of the emission limits for all activities that the facility undertakes.

For a single product facility, the annual emissions limit will be based on the applicable output-based standard and the facility's total output:

> Annual Facility Emissions Limit (tonnes CO_2e) = Output-based standard (tonnes CO_2e/unit) x Units Produced (units)

For a multi-product facility, the same approach will apply. For example, for a facility that produces two products, the annual GHG emissions limit for the facility will be:

> Annual Facility Emissions Limit (tonnes CO_2e) = [Product 1 Output-based standard (tonnes CO_2e/unit 1) x Product 1 Units Produced (units 1)] + [Product 2 Output-based standard (tonnes CO_2e/unit 2) x Product 2 Units Produced (units 2)]

If a Facility Emits Less than its Emissions Limit

A facility that emits less than its annual limit will receive surplus credits from the Government of Canada for the difference between its limit and its reported emissions, where each surplus credit represents one tonne of CO_2e.

8 Forthcoming methane reduction regulations for the oil and gas sector will complement carbon pollution pricing.

9 For more information, please see "Technical Guidance on Reporting Greenhouse Gas Emissions" (https://www.ec.gc.ca/ges-ghg/default.asp?lang=En&n=47B640C5-1&offset=5&toc=hide)

If a Facility Exceeds its Emissions Allocation

A facility that exceeds its annual emissions limit will have several options to meet its compliance obligation, including:

- Payment to the Government at the carbon price that will be set in the backstop legislation and based on the federal benchmark (i.e., $10/tonne CO_2e in 2018, rising to $50/tonne CO_2e in 2022);
- Use of eligible carbon offset credits (see below); and
- Use of surplus credits issued by the Government to facilities that emitted less than their regulated limits.

Facilities will have the flexibility to meet their full compliance obligation with any of these options or any combination thereof in a given year.

This flexibility will allow each regulated facility to achieve compliance at the lowest cost for its operation. Enabling the use of carbon offsets will spread the carbon price signal to all sectors of the economy that are not subject to direct carbon pricing, and allowing the use of surplus credits will encourage regulated facilities to reduce their emissions intensity as much as possible, regardless of the emissions-intensity standards that apply to them.

Compliance Units

Output-based pricing system surplus credits: Credits will be issued by the Government of Canada to a regulated facility after confirming that the facility's reported emissions for the previous year were less than its limit. Subject to certain rules, surplus credits may be banked for future use or traded to another participant in the output-based pricing system.

Carbon offset credits: Credits can be generated from voluntary activities, namely those that are not subject to GHG emissions reduction regulations, that are not required by law, that have not been supported by government financing, and that go beyond "business as usual" practices. The federal government will develop rules to determine which offset credits can be accepted for compliance under the output-based pricing system, which could include foreign compliance units (referred to as "internationally transferred mitigation outcomes"). This will be informed by the pan-Canadian offsets framework being developed by the Canadian Council of Ministers of the Environment.

A limit will be set on the start date for projects from which offset credits will be authorized for compliance purpose. The Government may restrict the number of years that offset credits can be banked, and may require regulated facilities to replace offset credits that are revoked or invalidated after they have been submitted for compliance.[10]

Reporting and Verification Requirements

After the end of each compliance year, each facility in the output-based pricing system will be required to quantify its emissions using prescribed methodologies for each of its activities. This will allow the facility to compare its reported emissions to its annual GHG emissions limit.

Each facility will also be required to submit an annual compliance report on its annual emissions limit and its emissions. These reports will need to be third-party verified to a reasonable level of assurance by verification bodies that are accredited to ISO 14065 by a member of the International Accreditation Forum.

Compliance reports will be submitted by March 31 following the calendar year of compliance (e.g., reports will be due March 31, 2020 for emissions associated with the facility from January 1 to December 31, 2019).

Administration of the Output-based Pricing System

Environment and Climate Change Canada will administer the output-based pricing system. Industrial facilities that are subject to the output-based pricing system will have to register with and submit compliance reports to Environment and Climate Change Canada. Verification bodies engaged by output-based pricing system participants will submit their reports directly to Environment and Climate Change Canada.

Compliance, Penalties and Enforcement

The output-based pricing system part of the backstop legislation will provide authorities for a modern enforcement regime aligned with the enforcement schemes found in other legislation administered by Environment and Climate Change Canada. This will include access to a variety of enforcement measures to encourage compliance or deter future non-compliance including written warnings, administrative penalties, compliance orders and prosecution.

10 To maintain program integrity, authorities will be able to revoke credits issued for projects that do not meet program requirements. In such cases, the Government would require the facility to replace compliance obligation made with the revoked credits.

BACKSTOP IMPLEMENTATION TIMING

The backstop will apply in a province or territory that does not have a pricing system that aligns with the benchmark.

The carbon levy will come into effect in 2018.

The output-based pricing system will not come into effect before January 1, 2019.

For the interim period between when the levy and the output-based pricing system come into force, the carbon levy will apply fully to fuels used by all industrial facilities.

HOW TO PROVIDE INPUT

Canadian stakeholders, businesses and the public are invited to submit feedback as part of the Government of Canada's consultation on the federal benchmark and backstop for carbon pricing.

Closing date: June 30, 2017

Written comments should be sent to:
Carbonpricing-tarificationcarbone@canada.ca

In order to add to the transparency of the consultation process, the Government of Canada may make public some or all of the responses received or may provide summaries in its public documents. Therefore, parties making submissions are asked to clearly indicate the name of the individual or the organization that should be identified as having made the submission.

In order to respect privacy and confidentiality, when providing your submission please advise whether you:

- consent to the disclosure of your submission in whole or in part;
- request that your identity and any personal identifiers be removed prior to publication; and/or
- wish any portions of your submission to be kept confidential (if so, clearly identify the confidential portions).

Information received throughout this submission process is subject to the *Access to Information Act* and the *Privacy Act*. Should you express an intention that your submission, or any portions thereof, be considered confidential, the Government of Canada will make all reasonable efforts to protect this information.

ANNEX 1: CO_2E

The concept of "global warming potential" allows for a comparison of the ability of each GHG to trap heat in the atmosphere relative to CO_2. CO_2e is a measure of the quantity of CO_2 that would be required to produce a similar warming effect as another GHG over the same time horizon. It is calculated by multiplying the quantity of a GHG by its global warming potential. The United Nations Intergovernmental Panel on Climate Change regularly updates the measurement of global warming potential.

The combustion of fossil fuels results in three different GHG emissions being produced – carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) – each of which has a unique atmospheric lifetime and heat-trapping potential. The total GHG emissions from combusting a fuel is the CO_2e of all three GHG emissions added together.

The quantity of CO_2 emitted is related to the carbon content in a given type of a fossil fuel and the amount of fuel combusted. The carbon content of some fuels can vary. For example, natural gas from different regions has different carbon content. As a result, natural gas from Western Canada will have a different level of GHG emissions per litre of fuel than natural gas from Eastern Canada.

The quantity of methane and nitrous oxide emitted is related to the amount of fuel combusted and the type of technology used to combust that fuel. For example, fuel that is used to heat a home will have different levels of methane and nitrous oxide emissions per litre than a fuel used in a heavy-duty vehicle.

For both components of the backstop, emissions will be converted to a CO_2e basis using current global warming factors. For the levy, rates will be set out under the relevant legislation and will be based on the Canadian average emission factor for a fossil fuel (where factors differ by region for that fuel) and the technology that is most commonly used to combust a fossil fuel. For the output-based pricing system, regulated entities will use the same factors to calculate their emissions following a methodology that will be specified in regulations.

The output-based pricing system will apply to emissions from fuel combustion as well as emissions of synthetically-produced greenhouse gases from industrial processes and product use, and will cover all seven of the greenhouse gases included in the United Nations Framework Convention on Climate Change reporting requirements: CO_2, methane (CH_4), nitrous oxide (N_2O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), sulphur hexafluoride (SF_6) and nitrogen trifluoride (NF_3).

The global warming factors for both components may be updated from time to time when changes are made to requirements for inventory reporting under the United Nations Framework Convention on Climate Change.

This is **Exhibit W** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

#224458

Guidance on the pan-Canadian carbon pollution pricing benchmark

Introduction

Pricing of carbon pollution is central to the Pan-Canadian Framework on Clean Growth and Climate Change (the PCF). It is an effective, transparent and efficient way to reduce GHG emissions at lowest cost to consumers and business and to support innovation and clean growth. The federal government is committed to ensuring the provinces and territories have the flexibility to design their own policies and programs, enabling governments to move forward and to collaborate on shared priorities while respecting each jurisdiction's needs and plans.

The Government of Canada published the Pan-Canadian Approach to Pricing Carbon Pollution on October 3, 2016. That document outlines the principles on which the pan-Canadian approach to pricing carbon pollution is based, and states that a federal carbon pollution pricing backstop will begin to apply in all jurisdictions that do not have a carbon pollution pricing system in place that meets the elements of the Benchmark by 2018.

This document provides further guidance on the carbon pollution pricing Benchmark to support governments' efforts to have carbon pollution pricing in place throughout Canada in 2018.

Benchmark guidance

The carbon pollution pricing Benchmark includes the following elements. The October 3, 2016 Benchmark text is provided in bold. Where applicable, further guidance follows.

Timely introduction

All jurisdictions will have carbon pricing in place by 2018.

Additional guidance:

- The federal government will provide technical assistance to provinces and territories to support the design of their carbon pollution pricing systems, as requested, such as modelling GHG emission projections and economic analysis.

Common scope

Pricing will be based on GHG emissions and applied to a common and broad set of sources to ensure effectiveness and minimize interprovincial competitiveness impacts. At a minimum, carbon pricing should apply to substantively the same sources as British Columbia's carbon tax.

Additional guidance:

- At the time of the publication of the Benchmark in October 2016, British Columbia's carbon tax applied broadly across the economy, including but not limited to fuels that produce GHG emissions when combusted in transportation, heating, electricity, light manufacturing and industry. There are specific exemptions from B.C.'s carbon tax for the use of fuels where combustion does not occur (e.g., fuel used as a raw material in industrial processes, fuel used to remove natural gas liquid or impurities in the processing of natural gas). Other specific exemptions from B.C's carbon tax, as in effect in 2016, included marked gasoline and diesel used for certain agricultural purposes, and fuels sold for export.
- The goal of the Benchmark is to ensure that each carbon pollution pricing system applies to a broad base of emissions. Each jurisdiction should apply its carbon pollution pricing system to essentially the same sources and fuels as those to which British Columbia's carbon tax applies, to the extent to which the same sources exist in the jurisdiction.

Two systems

Jurisdictions can implement (i) an explicit price-based system (a carbon tax like British Columbia's or a hybrid system comprised of a carbon levy on fuels and performance-based emissions trading system like in Alberta) or (ii) a cap-and-trade system (e.g. Ontario and Quebec).

Legislated increases in stringency

Based on modelling, to contribute to our national target and provide market certainty.

For jurisdictions with an explicit price-based system, the carbon price should start at a minimum of $10 per tonne in 2018 and rise by $10 per year to $50 per tonne in 2022.

Additional guidance on explicit price-based systems similar to Alberta's hybrid system:

- A hybrid system includes two components: a carbon levy (or tax) that applies to fossil fuels and an output-based pricing system that applies to designated facilities or sectors (which do not pay the levy on the fuel they use). The carbon pollution price in both components of a hybrid system – the fuel levy and the fixed payment per tonne of CO2e that is a compliance option under the output-based pricing component – must be at least equal to the Benchmark carbon pollution price.
- The output-based pricing system component should not apply to fuel distributed to consumers.
- Jurisdictions may tailor the emission intensity standards in the output-based pricing component of their hybrid system to the circumstances of their sectors. These standards should be at levels that drive improved performance in carbon intensity over the 2018 to 2022 period, and should account for best-in-class performance. The reviews of carbon pricing committed to in the Pan-Canadian Framework will consider the adequacy of these emission intensity standards, accounting for their impacts on emissions, innovation, competitiveness and carbon leakage.
- The output-based pricing component should include best practices in emission trading systems internationally and in Canada (e.g., robust quantification methodologies; requirements for the third-party verification of compliance reports; transparent registries for the tracking of units; and strong reporting requirements).

Provinces with cap-and-trade need (i) a 2030 emissions-reduction target equal to or greater than Canada's 30 percent reduction target and (ii) declining (more stringent) annual caps to at least 2022 that correspond, at a minimum, to the projected emissions reductions resulting from the carbon price that year in price-based systems.

Additional guidance on cap-and-trade systems:

- Caps must cover a broad base of emissions comparable to BC's carbon tax, decline in time and result in incremental reductions, and cannot be adjusted upwards in order to accommodate large new activities.
- Jurisdictions can set an annual or a multi-year compliance period.
- The emission limits set by the caps for 2018 to 2022 should be less than or equal to a modeled estimate of the emissions that would have resulted in that jurisdiction from applying the Benchmark carbon price during that period to the sources covered by

the cap. The baseline for modeling will be an accurate and recent projection, informed by Canada and the jurisdiction.
- Cap-and-trade systems should include best practices in use in cap-and-trade systems internationally and in Canada (e.g., robust quantification methodologies; requirements for the third-party verification of compliance reports; transparent registries for the tracking of units; and strong reporting requirements).

Revenues remain in the jurisdiction of origin

Each jurisdiction can use carbon pricing revenues according to their needs, including to address impacts on vulnerable populations and sectors and to support climate change and clean growth goals.

Federal backstop

The federal government will introduce an explicit price-based carbon pricing system that will apply in jurisdictions that do not meet the Benchmark. The federal system will be consistent with the principles [1] and will return revenues to the jurisdiction of origin.

Additional guidance: As committed to in the PCF, the federal government will:

- work with the territories to find solutions that address their unique circumstances, including high costs of living and of energy, challenges with food security, and emerging economies; and
- engage Indigenous Peoples to find solutions that address their unique circumstances, including high costs of living and of energy, challenges with food security, and emerging economies.

Five-year review

The overall approach will be reviewed by early 2022 to confirm the path forward, including continued increases in stringency. The review will account for progress and for the actions of other countries in response to carbon pricing, as well as recognition of permits or credits imported from other countries.

Additional guidance:

- **Five-year review**: Federal, provincial and territorial governments will work together to establish the approach to the review of carbon pollution pricing, including expert assessment of stringency and effectiveness that compares carbon pollution pricing

systems across Canada, which will be completed by early 2022 to provide certainty on the path forward.
- **An interim report**: will be completed in 2020, and reviewed and assessed by First Ministers.
- **EITE Review**: as an early deliverable, the federal, provincial and territorial governments will work together to assess approaches and best practices to address the competitiveness of emissions-intensive, trade-exposed sectors. This work will start in 2017.

Reporting

Jurisdictions should provide regular, transparent, and verifiable reports on the outcomes and impacts of carbon pricing policies.

Additional guidance: the Federal government will:

- continue to collaborate with provinces and territories on efforts to track and report GHG emissions in a consistent way across the country;
- take regular stock of progress under carbon pollution pricing in order to report to Canadians and to inform Canada's future commitments in accordance with the Paris Agreement;
- engage with external experts to provide informed advice to First Ministers and decision makers, assess the effectiveness of measures, including through the use of modelling, and identify best practices; and
- collaborate with provincial and territorial governments, through the Canadian Council of Ministers of Environment to examine:
    1. options for a pan-Canadian GHG offset framework, and
    2. international mitigation opportunities including the scope for ongoing recognition by Canadian jurisdictions of credits associated with reductions occurring in other countries.

Footnotes

1 The principles, based on those proposed by the Working Group on Carbon Pricing Mechanisms.

Date modified:

2018-01-16

This is **Exhibit X** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

#224458

Government of Canada Gouvernement du Canada

Supplemental benchmark guidance

Pricing of carbon pollution is central to the Pan-Canadian Framework on Clean Growth and Climate Change (the PCF). Carbon pricing is an effective, transparent and efficient way to reduce GHG emissions at lowest cost to consumers and business and to support innovation and clean growth.

The Government of Canada published the Pan-Canadian Approach to Pricing Carbon Pollution (the Benchmark) on October 3, 2016. That document outlines the principles on which the pan-Canadian approach to pricing carbon pollution is based, and states that a federal carbon pollution pricing backstop will begin to apply in all jurisdictions that do not have a carbon pollution pricing system in place that meets the elements of the Benchmark by 2018. In August 2017, the Government published Guidance on the pan-Canadian carbon pollution pricing benchmark.

This document supplements those two documents, and provides further guidance on the carbon pollution pricing Benchmark to support governments' efforts to have carbon pollution pricing in place throughout Canada in 2018.

Additional guidance to the section in the Benchmark on "Legislated increases in stringency" regarding incremental reduction requirement (applies both to explicit price-based systems and to cap-and-trade systems)

- Carbon pricing systems should be designed to achieve incremental GHG emissions reductions in the 2018 to 2022 period through a clear price signal flowing from the level at which caps are set or an explicit carbon price, meaning fewer emissions than would have occurred without the pricing system in place.

Additional guidance to the section in the Benchmark on "Legislated increases in stringency" for cap-and-trade systems [1]

- A reserve should be established from which emission allowances can be released to moderate sudden pressures in the market that could significantly and rapidly change prices to capped participants, including new entrants. [2]

- The system should include other measures to support price predictability and market stability, including auction floor prices that increase consistently. [3]
- Allowances should be distributed and reported in a transparent manner while protecting confidential business information, including methodologies for allowance allocation and quantities of free allowance provided.
- Clear rules should define the treatment of allowances and credits held by any capped facilities that cease operation.
- There should be clear rules and limits to prevent market manipulation.

Additional guidance to the section in the Benchmark on "Reporting" (applies both to explicit price-based systems and to cap-and-trade systems)

Jurisdictions should require, at minimum, annual reporting of emissions by regulated entities.

Jurisdictions with emissions trading should establish registries for tracking tradable units (allowances and credits), and should report periodically on market holdings and activities.

Footnotes

1 The elements outlined in this section are design features in most cap and trade systems, including the Western Climate Initiative, the European Union Emissions Trading System, and the Regional Greenhouse Gas Initiative.

2 The WCI Guidance suggests a minimum of 5% of total allowances issued should be kept in reserve.

3 The WCI Guidance sets an annual price floor increase of 5% plus inflation until 2020.

Date modified:
2017-12-20

This is **Exhibit Y** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

#224458

Carbon pricing: regulatory framework for the output-based pricing system

Introduction

Carbon pricing is a central component of the Pan-Canadian Framework on Clean Growth and Climate Change (PCF). Carbon pricing is an efficient way to reduce greenhouse gas (GHG) emissions at the lowest cost to businesses and consumers, while stimulating innovation and clean growth.

In October 2016, the Government of Canada published the Pan-Canadian Approach to Pricing Carbon Pollution (the benchmark) to ensure that carbon pricing applies to a broad set of emission sources throughout Canada in 2018 with increasing stringency over time. Under the benchmark, provinces and territories can implement the type of carbon pricing system that makes sense for their circumstances--either an explicit price-based system (such as a carbon tax or carbon charge and performance-based emissions system) or cap-and-trade. As part of the benchmark, the federal government also committed to implement a federal carbon pricing backstop that will apply in any province or territory that requests it or that does not have a carbon pricing system in place in 2018 that meets the benchmark (referred to as “backstop jurisdictions”). In early 2018, the Government of Canada will release a draft legislative proposal for the federal backstop for comment.

The Government of Canada has requested that provinces and territories that choose the federal backstop, in whole or in part, confirm this by March 30, 2018. Those opting to establish or maintain a provincial or territorial pricing system that meets the benchmark need to outline how they are doing so by September 1, 2018. After reviewing each system, the Government of Canada intends to implement the federal backstop in whole or in part on January 1, 2019 in any province and territory that does not have a carbon pricing system that meets the benchmark. To minimize uncertainty for residents, businesses and investors, once in effect, the backstop will remain in effect until at least 2022.

From 2019 onwards, there will be an annual verification process to ensure carbon pricing systems continue to meet the benchmark. We will also monitor major changes to provincial and territorial systems on an ongoing basis.

In May 2017, the federal government released a Technical Paper on the Federal Carbon Pricing Backstop [1] outlining the federal carbon pricing backstop with two elements:

- a charge on fossil fuels [2] that is generally payable by fuel producers or distributors, with rates that will be set for each fuel such that they are equivalent to $10 per tonne of carbon dioxide equivalent (CO_2e) [3] in 2018, rising by $10 per year to $50 per tonne CO_2e in 2022
- an Output-Based Pricing System (OBPS) for industrial facilities

The aim of the OBPS is to minimize competitiveness risks for emissions-intensive, trade-exposed industrial facilities, while retaining the carbon price signal and incentive to reduce GHG emissions. The charge is not intended to apply to fuel used at a facility that is part of the OBPS. Each OBPS facility [4] will instead be subject to the carbon price on the portion of emissions that exceed an annual output-based emissions limit. In jurisdictions where the backstop applies, the OBPS will apply to

industrial facilities that emit 50 kilotonnes (kt) CO_2e or more and for which an output-based standard is specified, or that emit between 10 and 50 kt CO_2e per year and whose application for voluntary participation is approved.

This paper provides additional information on the proposed design of the OBPS, and seeks further input from the public and stakeholders on key technical issues to inform its development.

Design principles of the Output-Based Pricing System

The OBPS is based on the following principles, subject to practical considerations:

1. **Deliver incremental GHG emissions reductions**
   The OBPS will create incentives for incremental GHG emission reductions (meaning fewer emissions than would have occurred without the OBPS in place).
2. **Minimize carbon leakage and competitiveness risks**
   The OBPS will be designed to minimize carbon leakage by limiting impacts on competiveness from carbon pricing for large industrial facilities.
3. **Treat OBPS participants in a consistent manner**
   The design of output-based standards will be consistent within and across sectors and products.
4. **Provide transparency**
   The OBPS will be implemented in a transparent manner.
5. **Commitment to review**
   The OBPS will be reviewed by 2022, in conjunction with the review of the overall pan-Canadian approach to carbon pricing, committed to as part of the Pan-Canadian Framework on Clean Growth and Climate Change.

Overview of the Output-Based Pricing System

Industrial facilities that are registered under the OBPS will be able to purchase charge-free fuel from the time the charge starts to apply. OBPS facilities will instead be subject to the carbon price on the portion of their emissions that exceed an annual output-based emissions limit.

An OBPS facility's annual GHG emissions limit, expressed in tonnes of CO_2e, will be based on the prescribed output-based standards (OBS) for the production activities that the facility undertakes. The limit for a single product facility will be determined by multiplying the applicable output-based standard and the facility's total annual production. For a facility to which more than one output-based standard applies, the annual facility emissions limit will be based on the sum of the limits for each product, expressed as follows:

$$\text{Annual Facility Emissions Limit (tonnes CO2e)} = \sum_{i=1}^{n} \left[\text{OBS}_{\text{i}} \left(\frac{\text{tonnes CO2e}}{\text{units i}} \right) \times \text{Production}_{\text{i}} (\text{un}$$

The compliance obligation of a facility will be calculated as follows:

Compliance obligation (tonnes CO_2e) = Total annual facility emissions - Annual facility emissions limit

The Government of Canada will issue surplus credits to facilities whose emissions are below their annual facility emissions limit. Each surplus credit will represent one tonne of CO_2e.

A facility whose emissions are above its limit will have three options to meet its obligation:

- paying a charge to the Government of Canada. This charge will be set at the same level as the fuel charge ($10 per tonne CO_2e in 2018, increasing by $10 per tonne CO_2e each year to $50 per tonne CO_2e in 2022)

- submitting surplus credits issued by the federal government
- submitting eligible offset credits [5]

Regulated facilities

The OBPS will apply to facilities:

- in backstop jurisdictions
- that reported annual emissions of 50 kt CO_2e or more
- that carry out an activity for which an output-based standard is prescribed

Consideration is being given to which year(s) will be included when assessing a facility's emissions against the threshold of 50 kt CO_2e.

The OBPS will not apply to buildings (including municipal, hospitals, universities, schools, and commercial), or landfills not associated with an OBPS facility, municipal wastewater treatment facilities or to natural gas distribution pipelines.

Facilities that meet the 50 kt CO_2e threshold will be required to register with Environment and Climate Change Canada.

Voluntary participation in the Output-Based Pricing System (opt-in)

Facilities in backstop jurisdictions with annual emissions between 10 kt CO_2e and 50 kt CO_2e and that carry out an activity for which an output-based standard has been prescribed will be able to opt-in to the OBPS starting with the January 1 to December 31, 2020 compliance period (i.e., they will purchase charge-in fuel during 2019). Once a facility opts-in, it will be subject to the same obligations as all other OBPS facilities and will be able to purchase charge-free fuel.

A facility wishing to opt-in will need to submit a request to Environment and Climate Change Canada in advance of the first year in which it would like to be subject to the OBPS. Environment and Climate Change Canada will review each application and will designate approved applicants. For those facilities, the OBPS will apply starting at the beginning of the next relevant compliance period.

Additional information will be provided following further consultation on the eligibility criteria and process for opting in.

Covered emission sources

Covered emission sources will include fuel combustion, industrial process, flaring, and some venting and fugitive sources. Methane venting and methane fugitive emissions from oil and gas facilities will not be subject to pricing under the OBPS.

Emissions of all seven of the United Nations Framework Convention on Climate Change (UNFCCC) greenhouse gases will be included, to the extent practicable – carbon dioxide (CO_2) [6] , methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6) and nitrogen trifluoride (NF_3).

Output-based standards

To the extent practicable, output-based standards will be developed using a consistent approach across sectors.

In most cases, output-based standards will be set as a percentage of the production-weighted national average of emission intensity [7] . In some cases it may be necessary to use alternate metrics that better characterize the sector.

The proposed starting percentage for all output-based standards will be 70% of the production-weighted national average of emission intensity (i.e., the output-based standard will be set 30% below the production-weighted national average of emission intensity). That percentage may be adjusted based on various considerations, such as the emissions intensity of the best-in-class performer (the facility with the lowest emissions intensity); the distribution of emissions intensities among facilities in the sector; and potential impacts on competitiveness.

The stringency of output-based standards will increase over time. Consideration is being given to different approaches, including a fixed annual percent reduction and scheduled revisions at multi-year intervals.

Output-based standards will initially be developed for the following industrial sectors: oil and gas, pulp and paper, chemicals, nitrogen-fertilizers, lime, cement, base metal smelting and refining, potash, iron ore pelletizing, mining, iron and steel, and food processing. Over time, output-based standards for additional sectors may be developed.

To address heterogeneity within some sectors, output-based standards may be developed within sub-sector categories at a product level, or in some cases, for a grouping of products, as illustrated in Table 1.

Table 1: preliminary list of output-based standards

Sector/ sub-sector	Proposed standard basis	Proposed standard metric
Base Metal Smelting and Refining	Base metals	Tonne CO_2e/tonne base metals produced
Bitumen and Heavy Oil Upgrading	Synthetic Crude Oil (SCO)	Tonne CO_2e/barrel SCO
Cement	Grey cement	Tonnes CO_2e/tonne clinker
Chemicals (Ethanol)	Ethanol	Tonne CO_2e/tonne ethanol
Iron ore pelletizing	Iron ore pellets	Tonne CO_2e/tonne iron ore pellets
Iron and Steel	Mini mills	Tonnes CO_2e/tonne cast steel
Lime	High calcium and dolomitic	Tonnes CO_2e/tonne lime
Mining	Overburden and ore or coal	Tonnes CO_2e/tonne overburden and ore or coal product
Natural Gas Pipelines	Natural gas transmission pipelines	Tonne CO_2e/km throughput
Nitrogen Fertilizers	Nitric acid Ammonia	Tonne CO_2e/tonne nitric acid Tonne CO_2e/tonne ammonia
Oil Sands and Heavy Oil	Thermal production of bitumen and heavy oil	Tonne CO_2e/barrel bitumen (or heavy oil)

Sector/ sub-sector	Proposed standard basis	Proposed standard metric
Other Manufacturing	Food processing	Tonne CO_2e/unit product
Potash	Conventional Solution	Tonnes CO_2e/tonne potash
Pulp and Paper	Pulp or paper from a chemical process Pulp or paper from a mechanical process	Tonne CO_2e/air dried tonne finished product
Refining	Complexity weighted barrel (CWB)	Tonne CO_2e/CWB
Steam/Heat	Steam/heat transferred on or off-site	Tonne CO_2e/gigajoule steam
Upstream Oil & Gas	Natural gas processing	Tonne CO_2e/volume processed NG

Consideration is being given to how to apply carbon pricing to offshore oil and gas production and to electricity generation.

Developing new output-based standards

Although all efforts will be made to ensure that output-based standards are developed for all types of eligible facilities, there may be facilities in a backstop jurisdiction that meet the 50 kt CO_2e threshold, or facilities that have annual emissions between 10 kt and 50 kt CO_2e, for which an output-based standard has not been prescribed. For example, the need for an output-based standard for a facility producing a new product line that is unique to Canada, may not be identified in advance. Options to enable these facilities to participate in the OBPS after 2020 are being considered.

Treatment of indirect emissions

Many facilities produce energy and intermediate products on-site, with the resulting emissions occurring on-site. Other facilities may purchase energy and intermediate products from third parties. The emissions associated with this energy production and these intermediate products occur off-site and are considered “indirect emissions”. Consideration is being given to how to address these emissions under the OBPS.

Compliance

Compliance periods will generally be on a calendar year basis (i.e. January 1 to December 31).

Facilities will be required to submit a compliance report for each compliance period.

Compliance reports will include the information needed to assess whether the facility meets its compliance obligations. This information will include: the facility’s annual emissions limit, its total emissions, and its calculated compliance obligation. Reports will also include information such as total emissions by activity/product; quantity of fuel used by type of fuel; production, sale, and purchase of key products such as electricity, steam, and hydrogen; and information related to facility emissions that are not subject to pricing.

Facilities will be required to quantify their emissions using prescribed methodologies, and will need to arrange for their annual compliance reports to be third-party verified to a reasonable level of assurance by verification bodies that are accredited to ISO 14065 by the Standards Council of Canada or the American National Standards Institute.

Consideration is being given to setting a deadline for submission of compliance reports of June 1 the year following the compliance year (e.g., reports would be due June 1, 2020 for a compliance period ending Dec. 31, 2019).

Facilities that emit above their annual facility emissions limit will need to fulfill compliance obligations by a set date. Consideration is being given to setting that deadline as November 1 of the year following the compliance year.

Compliance units

Consideration is being given to the need for, and the design of, rules designed to enhance market liquidity (i.e., to encourage trading of surplus credits among OBPS participants). Examples include limits on the banking and holding of credits.

Further information will be provided on eligible offset credits in a forthcoming guidance paper. This will build on the recommendations of the pan-Canadian Offset Framework report of the Canadian Council of Ministers of the Environment.

Tracking systems for compliance units

A tracking and compliance assessment system to track issuance and use of OBPS surplus credits and the use of eligible offsets will be developed. Each OBPS facility will be required to open accounts in the tracking system.

Review and update

The Pan-Canadian Framework includes a commitment for a review of the overall approach to carbon pricing by early 2022 to confirm the path forward. An interim report will also be completed in 2020. The design of the OBPS may be adjusted in response to these reviews.

Next steps and engagement process

The federal government plans to introduce legislation and regulations to implement the carbon pricing backstop system, including the OBPS, in jurisdictions that request it or that do not have a system in place in 2018 that meets the pan-Canadian benchmark.

In jurisdictions where both components of the federal backstop apply (the charge and the OBPS), both components will take effect at the same time. Registered OBPS facilities will be able to access charge-free fuel from the time the charge starts to apply.

Environment and Climate Change Canada will undertake structured engagement on the OBPS in the winter/spring 2018. This will include engagement and consultation with provinces and territories, Indigenous Peoples, environmental non-governmental organizations, industry, and business. Further details will be made available in advance of the start of consultations.

In the meantime, interested parties wishing to comment on any aspect of this Framework are invited to provide written comments to Environment and Climate Change Canada at the following address, on or before April 9, 2018: ec.tarificationducarbonecarbonpricing.ec@canada.ca

1 Individuals, businesses, civil society, governments and academia from across Canada provided more than 200 submissions on the Technical Paper.

2 For more information on the charge on fossil fuels, see the Technical Paper on the Federal Carbon Pricing Backstop

3 The concept of “global warming potential” allows for a comparison of the ability of each GHG to trap heat in the atmosphere relative to CO_2. CO_2e is a measure of the quantity of CO_2 that would be required to produce a similar warming effect as another GHG over the same time horizon

4 The requirements for a facility under the OBPS will generally apply to a person responsible for a covered facility. For simplicity, this document refers to “facility” when referring to OBPS obligations.

5 ECCC will provide further information on eligible offset credits in a forthcoming paper.

6 At the outset, CO_2 emissions from the combustion of biomass will not be subject to carbon pricing. The intent is to remain aligned with the treatment of biomass under Canada’s National Greenhouse Gas Inventory. At present, the Inventory only accounts for emissions of methane and nitrous oxide resulting from biomass combustion.

7 Production-weighted average is calculated as the total emissions of the sector (or grouping of products) divided by the total production of the sector (or grouping of products).

Date modified:
2018-01-31

This is **Exhibit Z** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

#224458

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 year[1] 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

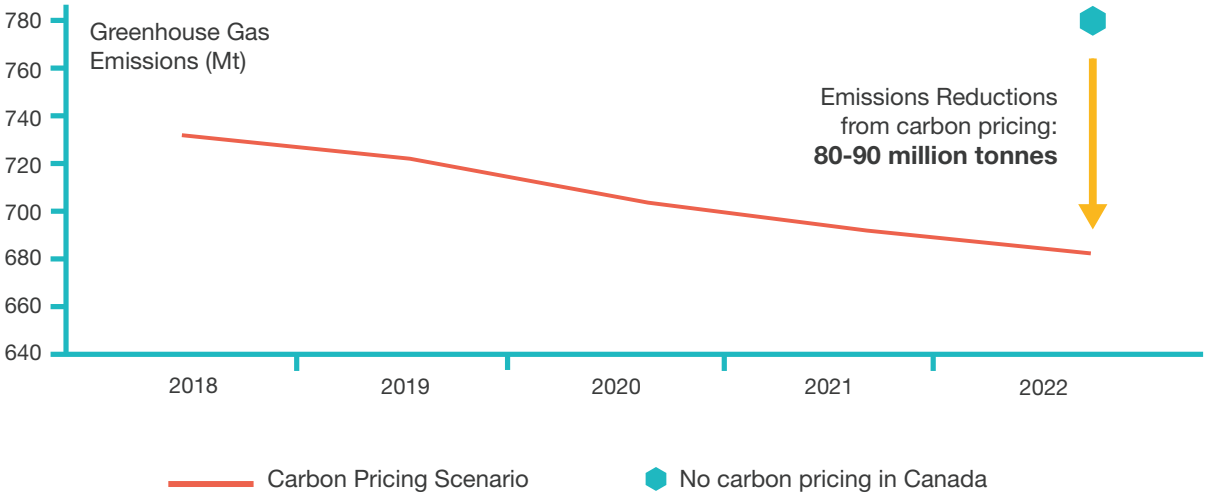
The Pan-Canadian Framework on Clean Growth and Climate Change is Canada's plan – developed with the provinces and territories and with input from Indigenous peoples – to meet our emissions reduction targets, grow the economy, and build resilience to a changing climate. The plan includes a pan-Canadian 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

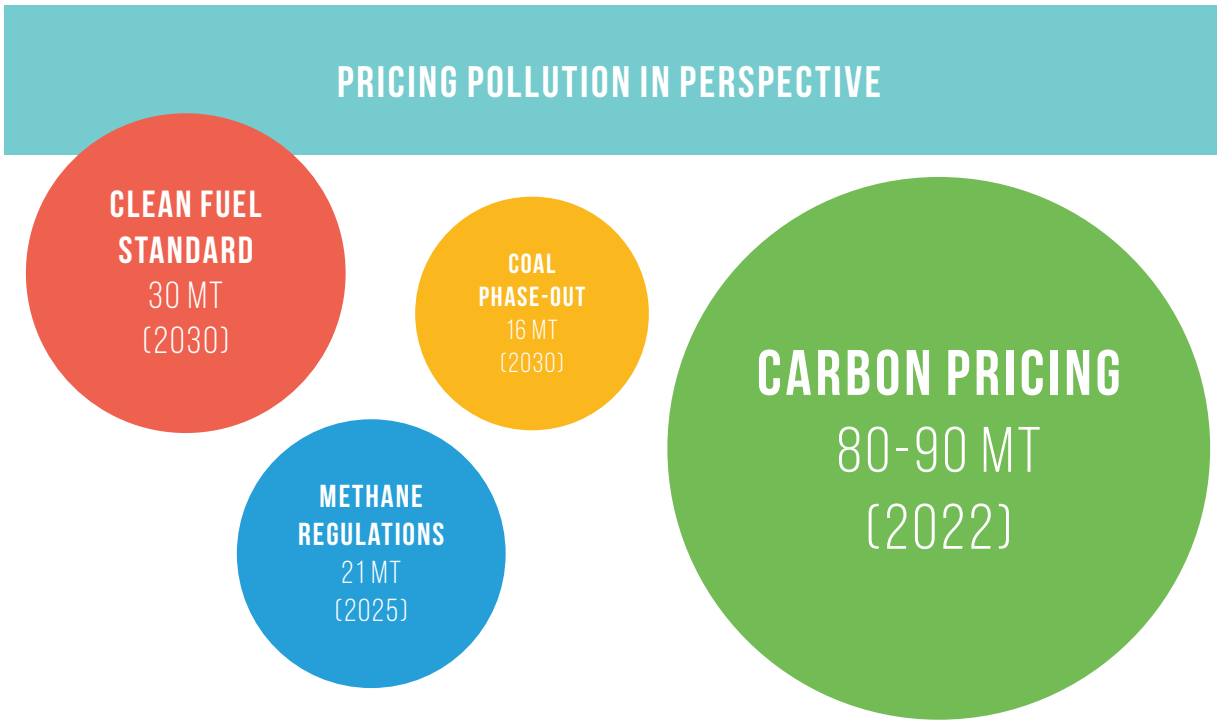
Under the scenario in this analysis, carbon pricing would reduce greenhouse gas pollution by between 80 and 90 million tonnes in 2022, making a significant contribution to meeting Canada's national target. This is equivalent to taking between 23 and 26 million cars off the road for one year,[4] or to 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.



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.**

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.

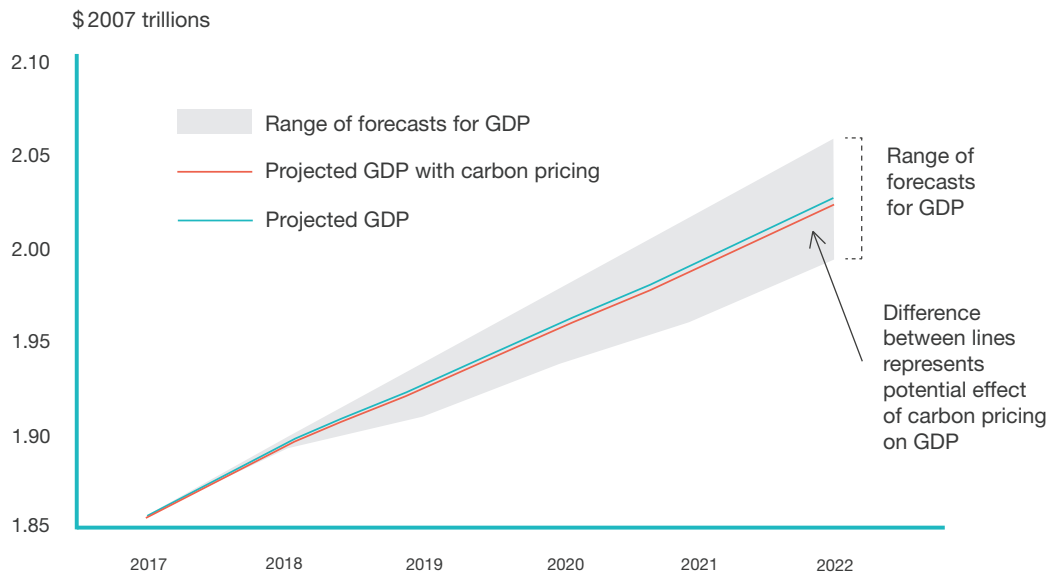
Impacts on GDP

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.

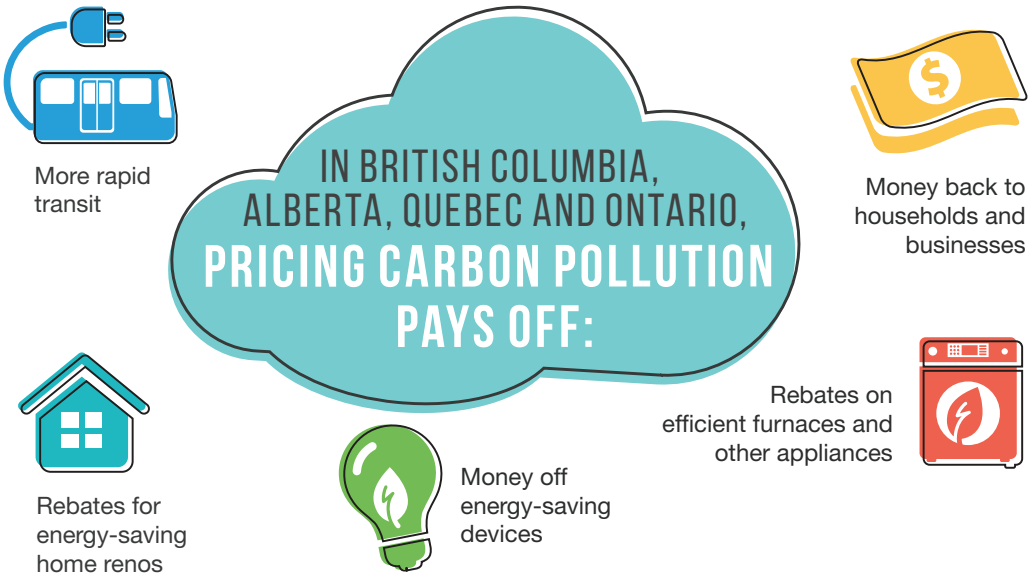
The Benefits of Pricing Pollution

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

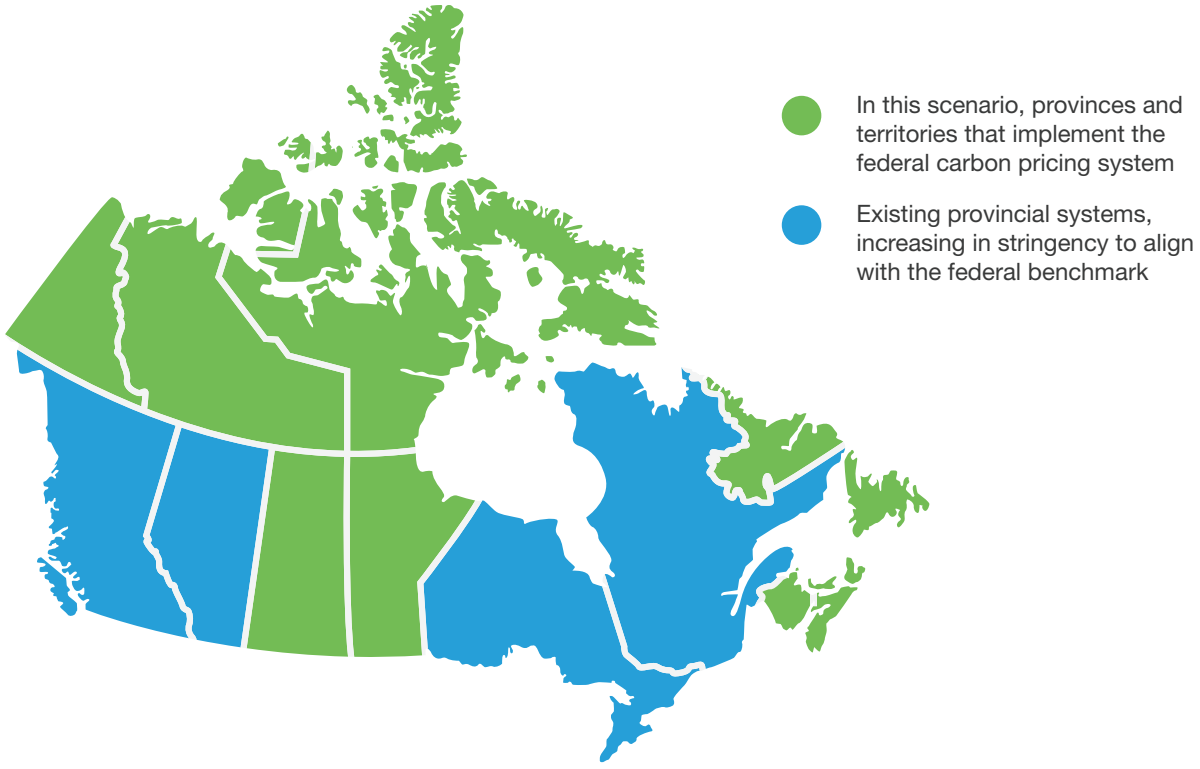
Pricing carbon reduces pollution at the lowest cost to businesses and consumers while driving innovative ways to enhance energy efficiency and cleaner energy sources. This analysis shows that the adoption of carbon pricing at the federal standard throughout Canada will reduce greenhouse gas pollution 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 Comission, 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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This is **Exhibit AA** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

#224458

Government of Canada / Gouvernement du Canada

Carbon pricing: compliance options under the federal output-based pricing system

Industries in Canada that are covered by the federal carbon pricing system will have an emissions limit. If they are above this limit, they will need to pay the carbon price, or use certain credits. This paper lists the proposed rules on which types of credits are allowed. We are asking for feedback from the public until July 6, 2018.

On this page

Introduction

Carbon pricing is a central component of the Pan-Canadian Framework on Clean Growth and Climate Change (PCF). Carbon pricing is an efficient way to reduce greenhouse gas (GHG) emissions at the lowest cost to businesses and consumers, while stimulating innovation and clean growth.

In October 2016, the Government of Canada published the Pan-Canadian Approach to Pricing Carbon Pollution (the benchmark) to ensure that carbon pricing applies to a broad set of emission sources throughout Canada in 2018 with increasing stringency over time. Under the benchmark, provinces and territories can implement the type of carbon pricing system that makes sense for their circumstances. As part of the benchmark, the federal

government also committed to implement a federal carbon pricing backstop that will apply in any province or territory that requests it or that does not have a carbon pricing system in place in 2018 that meets the benchmark (referred to as “backstop jurisdictions”).

In May 2017, the federal government released a Technical Paper on the Federal Carbon Pricing Backstop outlining the federal carbon pricing backstop’s two elements:

- a charge on fossil fuels, that is generally payable by fuel producers or distributors, with rates for each fuel that are equivalent to $10 per tonne of carbon dioxide equivalent (CO_2e [1]) in 2018, rising by $10 per year to $50 per tonne CO_2e in 2022
- an output-based pricing system (OBPS) for industrial facilities

In January 2018, the federal government released a Technical Paper on the Regulatory Framework for the Output-Based Pricing System outlining the design of the system, including the need for, and the design of, rules to enhance market liquidity.

In March 2018, the government introduced Bill C-74, the Budget Implementation Act, No. 1 in Parliament. Part 5 of Bill C-74 would implement the Greenhouse Gas Pollution Pricing Act, which establishes the legal framework for the federal carbon pricing backstop.

The aim of the OBPS is to minimize competitiveness risks for emissions-intensive, trade-exposed industrial facilities [2] , while retaining the carbon price signal and incentive to reduce GHG emissions. Industrial facilities that are registered under the OBPS will have a compliance obligation for the portion of their emissions that exceeds an annual output-based emissions limit. Facilities that emit less than the annual limit will receive surplus credits for the portion of their emissions that are below the limit. A facility’s ability to bank or trade credits when it performs below its limit maintains the full carbon price incentive on all emissions.

Compliance flexibility is an important feature of the OBPS design, as it reduces overall costs of compliance to OBPS facilities. It broadens the carbon pricing signal across the economy and supports investment in emission reduction solutions. Offset credits can also help reduce GHGs from sectors not covered under specific regulations or emission caps.

This document provides additional details regarding compliance units and their use in the OBPS and seeks input from Indigenous Peoples, stakeholders, and the public on key technical issues related to the criteria and considerations for the OBPS system to provide opportunities for emission trading while ensuring environmental integrity is maintained. Further information regarding next steps and timelines is provided below.

Compliance obligations under the federal output-based pricing system

In jurisdictions where the federal OBPS applies, it will include industrial facilities that emit 50kt CO_2e or more annually as reported to Environment and Climate Change Canada's Greenhouse Gas Reporting Program (GHGRP [3]), with ability for smaller facilities to opt-in starting in 2020.

Compliance periods will be on a calendar year basis (i.e., January 1 to December 31). After the end of each compliance period, OBPS facilities will be required to submit annual third party verified compliance reports to Environment and Climate Change Canada. An OBPS facility's annual GHG emissions limit, expressed in tonnes of CO_2e, will be established based on the prescribed output-based standards (OBS) for the production activities that the facility undertakes.

A facility that emits less than its annual limit will receive surplus credits from the Government of Canada for the difference between its limit and its reported emissions, where each surplus credit represents one tonne CO2e. A facility that emits more than its annual limit will have a compliance obligation equal to the difference between its annual limit and its reported emissions.

Compliance instrument usage

A facility whose emissions are above its limit will calculate the excess emissions above the annual compliance limit, such amount being the annual "compliance obligation", and have the following options to meet its compliance obligation:

- paying an emissions charge to the Government of Canada, set at the same level as the fuel charge ($20 per tonne CO_2e owed in 2019, increasing by $10 per tonne CO_2e each year to $50 per tonne CO_2e in 2022)
- submitting OBPS surplus credits issued by the federal government
- submitting eligible offset credits
- submitting a combination of any of the above three compliance options

These flexible compliance options allow for regulated facilities with higher abatement costs to reduce emissions by purchasing lower cost surplus credits or eligible offset credits, thereby reducing the overall costs of compliance. In addition, accepting eligible offset credits for compliance encourages voluntary emission reductions from activities that go beyond common practice and promote innovation.

Surplus credits

A facility that emits less than its annual emissions limit will receive surplus credits from the Government of Canada, for the difference between its limit and its reported emissions. Each surplus credit represents one tonne CO_2e. These credits can be banked for future use or traded.

A facility that emits more than its annual emissions limit may submit surplus credits to meet its compliance obligation. The Government of Canada will only accept federal OBPS surplus credits issued by Environment and Climate Change Canada for compliance under the federal OBPS. In future, the Government of Canada may consider the potential to accept government-issued units from provincial/territorial carbon pricing programs.

A system to track issuance and use of OBPS surplus credits will be developed by Environment and Climate Change Canada. Each OBPS facility will be required to open an account in the tracking system.

Offset credits

Offset credits represent GHG emission reductions or removal enhancements [4] generated from voluntary, project-based activities that are not subject to carbon pricing and that would not have occurred under business as usual conditions (i.e. the reductions go beyond legal requirements and standard practice). Each GHG offset credit typically represents one tonne of CO_2e.

Offset projects range in scope but typically involve implementation of new management practices, new technology, fuel switching and/or new emissions control systems. In principle, each offset credit generated by an offset project represents one tonne of CO_2e reduced or removed compared to what would have happened in the absence of the project. As a result, a facility with an emissions target that submits an offset credit for compliance can release an extra tonne of CO_2e without increasing the total level of emissions.

The Government of Canada will allow certain GHG offset credits from provincial/territorial programs to be submitted for compliance in order to support availability of offset credits in the immediate term (2019 onwards). Eligibility of offset credits will be determined based on assessment of offset programs and protocols against criteria defined in this paper. In future, the Government of Canada may consider the potential to establish a federal offset program or support jurisdictions that are implementing their own offset programs (e.g. in the creation of protocols).

Some First Nations, Inuit and Métis groups and organizations have expressed interest in exploring carbon offset opportunities in their communities and territories. The Government of Canada is committed to working with First Nations, Inuit and Métis to enable access to offset markets, encourage activities to reduce GHG emissions and promote local economic development.

Offset program design criteria

To support Canada's actions to reduce GHG emissions, eligible offset credits must be generated by programs that are designed in such a way to ensure integrity and credibility of the emission reductions or removal enhancements.

A federal-provincial-territorial project team working under the Canadian Council of Ministers of the Environment (CCME) is currently developing a pan-Canadian GHG offsets framework. This framework is considering design criteria to ensure offsets are real, additional, verifiable, permanent and enforceable. Building from the work of the CCME, the federal OBPS program design criteria include:

- governance and oversight requirements
- transparency
- uniqueness and avoidance of double-counting
- program infrastructure and tracking systems
- permanence
- third party verification
- robust compliance and enforcement

These criteria are described in further detail in Annex I.

Provincial/Territorial offset programs

Offset programs currently established in Alberta, British Columbia, Ontario and Quebec generate credits that can be used by organizations and companies for compliance with their provincial carbon pricing systems. The design of these provincial offset programs is generally consistent with the program criteria presented above.

The ability to submit offset credits issued by provincial/territorial offset systems for compliance with the federal OBPS will provide additional compliance options for OBPS facilities. To ensure environmental integrity, an offset credit can only be used once, either for compliance with a provincial regulatory system or for compliance with the federal OBPS. In addition, the project may generate more than one type of credit for the same activity, provided the credit types reward different environmental attributes. The key is to

avoid double counting or issuing more than one credit for the same environmental attribute (e.g., a renewable energy project can generate either renewable energy credits or offset credits – not both).

Environment and Climate Change Canada will work with provincial/territorial Program Authorities, from programs deemed eligible for use in the federal OBPS, to develop arrangements for the tracking, use and assurance of offset credits from their programs to ensure that there is no double counting or double use.

Other provinces and territories are developing their own carbon pricing systems and may decide to implement an offset system. If new compliance offset systems are developed in Canada, Environment and Climate Change Canada will assess their designs against the above criteria.

Offset protocol design criteria

For eligible provincial/territorial offset programs, Environment and Climate Change Canada will evaluate existing GHG offset protocols [5] for eligibility under the federal OBPS.

At the outset, Environment and Climate Change Canada will maintain a narrow focus on protocols for activities that occur across multiple jurisdictions and that are not covered by carbon pricing. Offset protocols covering activities in the Agriculture, Waste, and Land Use Land-Use Change and Forestry (LULUCF) sectors will be considered first. Assessment of protocols will begin in summer 2018.

While existing protocols in these sectors may meet the needs of the provincial offset programs, to be eligible for use in the federal OBPS, a protocol must also meet the federal protocol design criteria listed in Table 1. These criteria are informed by the pan-Canadian GHG offsets framework currently under development and ensure the environmental integrity of offset credits used for compliance by OBPS facilities.

Eligible protocols will need to be reassessed when the Government of Canada reviews the OBPS in 2022 (see Review and Update section below) and regularly thereafter to ensure they continue to meet the criteria. Additionally, a protocol should be reassessed whenever the federal design criteria are updated, or if the protocol is amended. New protocols will be assessed as they are developed and approved for use in a provincial/territorial offset program.

In a regulatory program such as the OBPS, it is important that project and verification documents are reviewed by Program Authorities to provide assurance that offset credits accepted for compliance represent real, additional, verified and unique reductions. Offset system Program Authorities in British Columbia, Quebec and Ontario conduct these reviews on all projects before they issue offset credits. Alberta's Program Authority

conducts these reviews when offset credits are submitted by a regulated entity for compliance. Recognizing the difference in assurance processes, Environment and Climate Change Canada will work with Alberta's Program Authority to develop arrangements for application of supplementary assurance of Alberta's offset credits in order for them to be eligible for compliance with the federal OBPS.

Table 1: protocol design criteria

Protocol design considerations [6]	Assessment criteria
Eligibility (emission sources and activities, project types, sectors, gases, GWPs)	The protocol: • ensures that the emission reductions/removals are generated in Canada from an activity not required by law or captured by carbon pricing (i.e. landfill gas capture, reduction in enteric fermentation emissions from livestock, etc.) • results in reductions or removals of one or more greenhouse gases that are reported in Canada's National Inventory Report (NIR) : carbon dioxide (CO_2), methane (CH_4) nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3) • specifies the use of GHG global warming potentials (GWPs) that are less than or equal to those in the latest NIR [7]
Additionality	The protocol is based on reasonable, conservative and justifiable baseline condition assumptions. Any legal requirements in the jurisdictions where the protocol is applicable have been considered, as well as whether the technology or project activity is in common use or is considered business-as-usual (as appropriate).

Crediting period	The length of a crediting period is determined based on time span over which the baseline is expected to remain valid and over which avoided emissions/emission reductions are quantified. The protocol specifies: • an initial crediting period of not more than 10 years from the project's start date for non-sequestration projects, with renewal possibilities based on a rigorous and full evaluation of all requirements established in the quantification protocol, chiefly a vigorous re-evaluation of the baseline scenario at each renewal • an initial crediting period of not more than 30 years for sequestration projects, depending on project type as identified in the quantification protocol, with a possibility of subsequent renewals as identified in the quantification protocol
Accurate quantification method	GHG reductions/removals resulting from the offset project are calculated in accordance with a reliable and replicable methodology set out in the protocol that ensures: • net emission reductions/removals are capable of being measured or modeled in a reliable and repeatable manner that includes all relevant sources and sinks • uncertainty considerations are taken into account to ensure quantified or estimated reductions are accurate and within scientifically-established standards or acceptable statistical precision for the project or equipment type • the conservativeness principle is taken into consideration in the quantification of the GHG reductions/removals to ensure they are not over-estimated
Permanent	For projects that sequester carbon in sinks or reservoirs through biological and geological carbon sequestration projects, the protocol stipulates requirements for monitoring permanence, provisions to mitigate the risk of reversal, and ensures environmental integrity in the event a reversal occurs.

Verifiable	The protocol outlines requirements that will allow for verification to a reasonable level of assurance by an independent third party. This includes incorporation of best practices for measurement and monitoring of data and information, establishment of data management procedures and record keeping, as well as quality assurance/quality control activities.
Guarded against leakage	The protocol takes into consideration the likelihood of leakage, which is that emitting activities are shifted from the location of project implementation to another site due to the project's implementation (creating a situation of no net emissions reductions). If leakage is expected or possible the protocol requires specific actions, including assessment and mitigation, to be undertaken by the Project Developer to ensure this is minimized. [8]

Offset credit eligibility requirements

An offset credit generated from a project using an eligible GHG offset protocol will be considered eligible for compliance use under the federal OBPS if it meets the following additional requirements:

- The project start date (i.e., the date at which the first GHG reductions occur from a new or re-registered project) must be after the date that the Government of Canada published the pan-Canadian approach to pricing carbon pollution
    - Therefore, to be eligible, offset credits must have been generated from a project with a start date of October 2016 or later.
- The offset credit has been verified by a Third Party Verification Body that is accredited to ISO 14065 by either the American National Standards Institute (ANSI) or the Standards Council of Canada (SCC) in a technical scope consistent with the project type.

A list of eligible offset protocols will be developed and included in the OBPS Regulation. This list will be updated periodically, for example, if new protocols are approved or existing protocols are amended.

Voluntary offset programs

Offset credits can be generated and used for compliance within a regulatory program (compliance offsets), or created through voluntary offset programs. Voluntary carbon offset programs generate credits that are purchased and used by individuals and organizations to achieve voluntary GHG emissions reduction commitments. For example, some individuals purchase credits from voluntary programs to offset their air travel. A voluntary offset program is under development by the Government of Ontario to help achieve its commitment to make Ontario's government operations carbon neutral beginning in 2018.

Voluntary offset programs are distinct from compliance programs because they are created for a different purpose and are largely unregulated. Credits issued by voluntary offset programs are not usually accepted for compliance with regulatory programs and will not be eligible for compliance use under the OBPS.

International offset credits

The Government of Canada aims to enhance opportunities for emissions trading across Canada and internationally. In the Pan-Canadian Framework on Clean Growth and Climate Change, First Ministers agreed that the priority is to first focus on emission reductions within Canada, but part of Canada's approach to climate change could also involve acquiring emission trading units from other parts of the world as a complement to domestic emissions reduction efforts.

Negotiations under the United Nations Framework Convention on Climate Change (UNFCCC) related to international transfers from market mechanisms under Article 6 of the Paris Agreement are ongoing. These negotiations include the complexities and legalities with trading units between countries. Environment and Climate Change Canada may consider rules to determine whether foreign compliance units (referred to as "internationally transferred mitigation outcomes" or ITMOs) would be accepted for compliance under the federal OBPS once negotiations under Article 6 are complete.

Emissions trading

Based on experience from emissions trading systems, such as the European Union Emission Trading System, the Regional Greenhouse Gas Initiative and Alberta's compliance program, it is important to achieve the right balance between stringency of regulatory requirements and the degree of compliance flexibility. An over-supply of credits makes it difficult to maintain a carbon price that will encourage emission reductions. The proposals made in this section are based on the proposed output-based standard (OBS) basis of 70% of weighted production average for all sectors, and may need adjustment depending on the final stringency of the OBPS.

Use and expiry of compliance units

There will be no limit to the use of any type of compliance instruments in a given year. [9] A facility may comply through any combination of payment of the emissions charge, use of surplus credits, use of offset credits.

To ensure that reductions continue to be achieved towards Canada's 2030 emission reduction target, surplus credits issued for the 2019 to 2022 compliance periods can only be used to compensate for excess emissions that occurred within a 5-year period following the year for which the credits were issued. For example, surplus credits issued for the 2021 compliance period can be used to compensate for excess emissions that occurred in any year up to and including 2026.

The federal OBPS system will be reviewed in 2022. Expiry dates for eligible offset credits in future compliance periods may be considered at this time.

Retirement of remitted compliance units

Facilities with a compliance obligation may choose to pay the emissions charge or to remit eligible compliance units annually, on or before the compliance deadline. As part of Environment and Climate Change Canada's annual compliance review process, it will retire any units used for compliance so that they cannot be traded or used again.

Revocation or replacement of compliance units

In the event that an error is detected in a facility's compliance report after surplus credits have been issued and the corrected report indicates that the quantity of GHGs emitted exceeds the emissions limit for the facility, the responsible person for the facility must provide compensation.

If, as the result of an error, a facility received too many surplus credits and the excess credits are in its account in the tracking system, Environment and Climate Change Canada will revoke the excess surplus credits so that they can no longer be traded or used.

If a surplus credit that was issued on the basis of an erroneous compliance report has been transferred to another entity or used for compliance, the facility to which the unit was issued must replace it. That facility would be required to replace the surplus credit by remitting another credit that is eligible to be used for compliance with the OBPS or by paying an emissions charge to be specified in the regulations.

Requirements, if any, to replace provincial/territorial offset credits that are later found to be invalid by the provincial/territorial government that issued them will be developed in consultation with each provincial/territorial government. These requirements may differ by jurisdiction and will be set out in the OBPS regulations.

Voluntary cancellation of compliance units

An OBPS facility may choose to voluntarily retire surplus credits or offset credits at any time to benefit the environment.

Review and update

The Pan-Canadian Framework on Clean Growth and Climate Change includes a commitment to review the overall approach to carbon pricing by early 2022 to confirm the path forward. An interim report will be completed in 2020. Concurrent with the 2022 review, the Government of Canada will also be reviewing the OBPS design, including provisions for emissions trading.

Next steps and engagement process

Environment and Climate Change Canada is currently undertaking structured engagement on the OBPS. This includes engagement with provincial and territorial governments, Indigenous Peoples, environmental non-governmental organizations, industry and business. Engagement on the proposed emission trading approach will be included as part of the engagement underway.

Parties wishing to comment on any aspect of this proposal are invited to provide written comments to Environment and Climate Change Canada, on or before July 6, 2018: at: ec.tarificationducarbonecarbonpricing.ec@canada.ca.

Annex I: offset program design criteria

Governance and oversight requirements

The offset program establishes clear rules and operational procedures for implementation of the offset program (including defined roles and responsibilities) with regards to:

- overseeing the program’s ongoing operation
- providing regulatory guidance documents and ongoing education to program participants

- ensuring clear ownerships
- overseeing offset protocol development, review and approval
- registration of projects
- issuing verified offset credits
- providing compliance and enforcement structures and processes including dispute resolution mechanisms

Transparency

The offset program establishes clear rules and operational procedures for public disclosure of information related to:

- offset protocols (e.g., protocol development processes, protocols under development, approved protocols, protocols under review, invalidated protocols)
- projects (registered projects with year, crediting period of projects, projects under review for renewal, de-registered projects; projects under investigation, and identity of the project developer, etc.)
- reporting of offset credits by type (protocol), year (vintage) and quantity, including active and retired units in publicly accessible registries

Uniqueness and avoidance of double-counting

- The offset program establishes clear rules and operational procedures to ensure that a GHG emission reduction or removal is issued an offset credit only once and each offset credit is assigned a unique serial number upon its creation in a program registry/tracking system.
- Transparent procedures for issuance/transfer/retirement of credits have been implemented which ensure that the credit can only be used once to meet a compliance obligation or to fulfill a voluntary commitment (i.e., not double-issued, double-sold or double-used).
- Checks are undertaken to ensure that the project/units have not been registered in other systems.

Program infrastructure and tracking systems

The offset program establishes clear rules and operational procedures for the establishment and maintenance of an electronic/automated registry and tracking system that enables robust record keeping, detailed and reliable compliance units tracking (including serialization and tracking of transfers, surrenders and retirements of units) and transparent reporting of information to market participants and regulators, to ensure market efficiency and environmental integrity, including the avoidance of double-counting (double-issuance, double-selling and double-use).

Permanence

The offset program establishes clear rules and operational procedures for consideration of reversal risks and require the implementation of effective: (i) monitoring systems, (ii) risk mitigation approaches, and (iii) contingency plans which address how, in the event of a reversal that is the result of proponent intention or negligence, any affected offsets will be replaced if reversal is post-retirement of credits, or returned if reversal is pre-retirement of credits, including how unintentional reversals would be handled.

Third party verification

The offset program establishes clear rules and operational procedures for third party verification of emission reductions including a requirement that the GHG reductions/removals must be verified to a reasonable level of assurance.

Robust compliance and enforcement

The offset program establishes clear rules and operational procedures in regards to regulatory oversight to ensure that program officials have the appropriate authority and resources to carry out compliance and enforcement functions (as necessary), such as inspections, audits, compliance verifications, and enforcement actions. Penalties for intentional non-compliance should be designed in ways that ensure the benefits of non-compliance are less than the costs non-compliance entails. The offset program should also establish who is liable in the case that the offset credits are deemed ineligible after they are issued as well as after they are used for compliance.

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1 The concept of “global warming potential” allows for a comparison of the ability of each GHG to trap heat in the atmosphere relative to CO_2. CO_2e is a measure of the quantity of CO_2 that would be required to produce a similar warming effect as another GHG over the same time horizon.

2 The requirements for a facility under the OBPS will generally apply to a person responsible for the covered facility. For simplicity, this document refers to “facility” when referring to federal OBPS obligations.

3 More information on the GHGRP is available on the Greenhouse gas reporting: facilities page.

4 GHG removal enhancements are achieved by capturing and permanently storing CO_2 in a reservoir, or increasing the amount of CO_2 removed from the atmosphere in biological sinks such as forests.

5 An offset system protocol sets out the method approved by the Program Authority for quantifying the greenhouse gas reductions or removals from a specific project type. An offset project developer must follow the protocol in order to generate credits.

6 In addition to protocols, Environment and Climate Change Canada will consider requirements set out in provincial regulations or guidance material when assessing these criteria.

7 In cases where a GWP specified in a protocol is not consistent with the GWP in the latest NIR (for the same GHG), Environment and Climate Change Canada will consider a protocol to be eligible only if the GWP used is lower than what are required for use in the current NIR, as this aligns with the principle of conservativeness.

8 Leakage may be determined to be negligible or non-existent for some project types, such as landfill gas destruction. Sequestration project types must account for leakage to demonstrate the project activity has not led to shifting of emissions to another site or source. For example, an afforestation project should not lead to a deforesting activity elsewhere.

9 Many cap-and-trade programs, including those in Quebec and Ontario, limit the use of offset credits to ensure that the majority of emission reductions are achieved by regulated entities. In price-based systems such as the OBPS, regulated entities have the option to pay an emissions charge. So, limiting the use of surplus or offset credits for compliance would not necessarily increase emission reductions at regulated facilities. To help ensure that credits do not remain in its system for prolonged periods, Alberta limits the use of and sets expiry periods for their credits.

Date modified:
2018-05-28

This is **Exhibit BB** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

#224458

How we're putting a price on carbon pollution

Backgrounder

From Environment and Climate Change Canada

Canadians see the costs of a changing climate all around us. Climate change is driving stronger storms, wildfires, and record-breaking heat waves. We also know that taking climate action is an enormous opportunity to create jobs and advance economic growth, save households money by increasing the energy efficiency of their homes, and ensure the air we breathe is clean and healthy.

Pricing carbon pollution in Canada

A price on carbon pollution is an essential part of Canada's plan to fight climate change and grow the economy. Pricing carbon pollution is the most efficient way to reduce greenhouse gas emissions and stimulate investments in clean innovation. A price on carbon pollution creates incentives for individuals, households, and businesses to choose cleaner options.

In October 2016, the Prime Minister announced the Pan-Canadian Approach to Pricing Carbon Pollution (the federal benchmark), which gave provinces and territories the flexibility to develop their own carbon-pollution pricing system and outlined criteria all systems must meet to ensure they are stringent, fair, and efficient. The federal government also committed to implementing a federal carbon-pollution pricing system in provinces and territories that request it or do not have a carbon-pollution pricing system that meets the federal benchmark.

Under the *Greenhouse Gas Pollution Pricing Act*, adopted on June 21, 2018, the federal carbon-pollution pricing system has two parts:

1. a trading system for large industry, known as the output-based pricing system
2. a regulatory charge on fuel (fuel charge)

Provinces and territories had until September 1, 2018, to outline their plans. The stringency of each of the provincial and territorial systems was assessed against the federal benchmark, drawing on information submitted by provinces and territories as well as public documents, where applicable.

The results of that assessment are as follows:

- **Provincial systems will apply in British Columbia, Alberta, Quebec, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador.** The governments in these jurisdictions are either already implementing or are on track to implement carbon-pollution pricing systems that meet the federal benchmark.
- **The federal pricing system for large industry will apply starting in January 2019, in Ontario, Manitoba, New Brunswick, Prince Edward Island, and partially in Saskatchewan.** Saskatchewan has proposed a pricing system for some of its

industries; the federal system will fill in the gaps in that province by covering the electricity and natural-gas pipeline sectors.
- **The federal fuel charge will apply starting in April 2019, in Saskatchewan, Ontario, Manitoba, and New Brunswick** because those governments have not developed a system to price carbon pollution, which meets the federal benchmark.

Pricing carbon pollution in the territories

The Government of the Northwest Territories is planning to implement a system that meets the federal benchmark, on July 1, 2019. The federal carbon-pollution pricing system will apply in Yukon and Nunavut. The federal system will start applying in the territories on July 1, 2019, to ensure alignment across the territories. This is one of several solutions to address the unique circumstances of the territories. Other solutions include providing full relief on aviation fuel and diesel-fired electricity generation in remote communities.

Proceeds from the federal carbon-pollution pricing system

All direct proceeds from pricing carbon pollution under the federal system will be returned to the jurisdiction in which they were collected.

Provincial and territorial governments that have committed to addressing climate change by voluntarily adopting the federal system will receive these proceeds directly from the federal government and can decide on how to use them.

Proposed climate action incentive payments

The federal carbon-pollution pricing system is not about raising revenues. It is about recognizing that pollution has a cost, empowering Canadians, and encouraging cleaner growth and a more sustainable future. That is why, for provinces that have not committed to pricing carbon pollution (Ontario, New Brunswick, Manitoba, and Saskatchewan), the federal government proposes to return the majority of direct proceeds from the regulatory charge on fuel, in the form of climate action incentive payments, directly to individuals and families in the province of origin.

Most households in those provinces will receive more in climate action incentive payments than the increased costs they incur from carbon-pollution pricing. This incentive will benefit those who adopt practices that lead to less carbon pollution.

How climate action incentive payments would work

Under the proposed approach, individuals will receive the full amount of the climate action incentive payment for the year, after having filed their tax returns (starting in early 2019). This amount will include a 10 per cent supplement for residents of small communities and rural areas, in recognition of their specific needs. Having the Canada Revenue Agency provide these payments will ensure timely, accurate, and cost-efficient delivery.

The amounts of climate action incentive payments made to individuals and families will vary according to the province of residence. Different levels of proceeds will be generated in each jurisdiction where the federal carbon-pollution pricing system applies, an outcome of the

different types and quantities of fuels consumed in different provinces. In Ontario, for example, the baseline amount for a family of four will be $307, in 2019.

Climate action incentive payment amounts will be increased annually to reflect increases in the price on carbon pollution, under the federal carbon-pollution pricing system. The Minister of Finance will make announcements on climate action incentive payment amounts once a year, reflecting the increasing price on carbon pollution and updated levels of direct proceeds. In Ontario, for example, the baseline amount for a family of four is expected to be $718, by 2022.

Supporting key sectors in provinces not committed to carbon-pollution pricing

In each province that has not committed to pricing carbon pollution, those direct proceeds from the federal regulatory charge on fuel, which are not returned directly to individuals and families through climate action incentive payments, will be earmarked to provide support to schools, hospitals, small and medium-sized businesses, colleges and universities, municipalities, not-for-profits, and Indigenous communities in the province. Further details on how this support will be delivered will be outlined in early 2019.

The proceeds from the output-based pricing system will also be reinvested in the province or territory of origin to support carbon-pollution reduction. Further details on how these investments will be allocated will be outlined in early 2019.

This is **Exhibit CC** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

#224458

Environment and Climate Change Canada | Environnement et Changement climatique Canada

Fall 2018 update: Estimated impacts of the federal pollution pricing system

Backgrounder
From Environment and Climate Change Canada

Key findings

Pricing carbon reduces pollution at the lowest overall cost to businesses and consumers. A well-designed price on carbon pollution provides an incentive for climate action and clean innovation while protecting competitiveness. Carbon-pollution pricing is efficient and cost effective because it allows businesses and households to decide for themselves how best to reduce pollution.

In April 2018, the Government of Canada released early estimates of the potential impacts of the federal carbon-pollution pricing system across Canada. That analysis was based on an illustrative scenario in which the provinces that had carbon-pollution pricing systems at the time—British Columbia, Alberta, Ontario, and Quebec—met the federal standard through 2022, and the federal pricing system was implemented in the other nine provinces and territories.

Since then, the Government of Canada has assessed provincial and territorial carbon-pollution pricing systems and has announced where the federal carbon-pollution-pricing backstop system will apply.[1] The updated analysis presented here reflects this actual approach. It finds that

- Carbon-pollution pricing will make a significant contribution toward meeting Canada's greenhouse gas reduction target. It will cut carbon pollution by 50 to 60 million tonnes in 2022. This is lower than the April 2018 estimate, mostly because of Ontario's decision to cancel its cap-and-trade system.
- Applying pollution pricing across Canada is not expected to have any significant impact on national economic growth rates. It is also likely to stimulate innovation and investments in clean technology, which support long-term growth, although these benefits are not captured in the quantitative estimates presented here.
- In Ontario, Saskatchewan, Manitoba, and New Brunswick, the Government of Canada will return all of the direct proceeds from the federal fuel charge directly to individuals, families, and affected sectors. With the Climate Action Incentive, most households in these jurisdictions will receive more money back than they pay in increased direct costs. In jurisdictions that requested the federal system, the Government of Canada will return the direct proceeds to the provincial or territorial government to use as it chooses.

Benefits of pricing carbon pollution

There are significant economic benefits from pricing carbon pollution:

- Carbon-pollution pricing stimulates innovation, which helps Canadian businesses compete in the emerging low-carbon economy. Putting a price on pollution creates an

incentive to innovate, develop, and adopt clean technologies and processes. 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 clean solutions.
- Pricing carbon pollution also encourages consumers and households to improve energy efficiency. This could include installing better insulation or choosing cleaner technologies (like high-efficiency furnaces), investments and behaviour changes that can save money over the long term. As new technologies are deployed, costs will fall, helping make new technologies more widely available and effective over time.

Although significant, these benefits are not fully accounted for in economic models such as those used for the analysis presented below. This means that the estimated economic impacts presented below are likely overstated.

Estimated greenhouse gas emission reductions across Canada

Under the scenario in this analysis, carbon-pollution pricing would reduce greenhouse gas pollution by 50 to 60 million tonnes[2] in 2022. This amount is equivalent to shutting down about 30 to 35 coal-fired electricity-generating units for a year.[3] This includes reductions from

- the existing systems in British Columbia, Alberta, and Quebec, including an assumption that Alberta's price would increase to align with the federal standard;
- the planned provincial and territorial systems in Nova Scotia, Newfoundland and Labrador, the Northwest Territories, Saskatchewan's large industry system (or output-based pricing system), and Prince Edward Island's fuel charge; and
- the application of the federal backstop in Ontario, New Brunswick, Manitoba, Yukon, and Nunavut; the federal output-based pricing system in Prince Edward Island; and the fuel charge and partial output-based pricing system (for electricity and natural-gas transmission pipelines) in Saskatchewan.

This estimate is based on a similar analytical approach as the estimates released by Environment and Climate Change Canada, in spring 2018, which indicated pollution pricing could lead to reductions of 80 to 90 megatonnes by 2022.[4] The difference between the current estimate and the spring estimate is largely due to Ontario's cancellation of its cap-and-trade system, under which facilities in Ontario were able to purchase allowances in California as a means of reducing their emissions as well as in Ontario.

Estimated impacts on GDP

The federal carbon-pollution pricing system is not expected to have any significant impact on national economic growth rates. National real GDP is expected to grow by about 1.8 per cent per year, from 2018 to 2022, without pollution pricing in place, and about 1.7 per cent per year, with pollution pricing across Canada. 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-pollution pricing.

For comparison, this estimated impact from carbon-pollution pricing is significantly less than the range of current GDP projections (which vary by more than 0.1 per cent) and is much less than the typical impact of annual fluctuations in world energy prices.

As explained above, this estimate also does not account for any of the economic activity that likely will be stimulated by carbon-pollution pricing. As a result, the estimated economic impact of pricing carbon pollution outlined above is likely overstated.

Estimated implications for households

The cost impact of pollution pricing on households in Canada will vary by province and territory, depending on a variety of factors, including regional differences in energy and fuel-consumption patterns, differences in how electricity is generated (although most electricity is generated from non-emitting sources, in Canada, some regions make significant use of coal, diesel, or natural gas for electricity generation). In addition, the impact on a household will also depend on the extent to which it changes energy use and other consumption patterns in response to the price on pollution.

Provinces with existing pollution pricing systems—British Columbia, Alberta, and Quebec—have invested proceeds from pricing pollution in a variety of ways, including in rebates to citizens, tax cuts, and various climate action programs.

Some provinces and territories are still developing their approaches for how they will use the proceeds from pricing carbon pollution. The implications for households in those jurisdictions depend on how the proceeds are invested.

In the four provinces where the Government of Canada is returning proceeds to individuals and families through the Climate Action Incentive, most households will get more back than they pay as a result of pollution pricing.

	Average cost impact per household* of federal system**				**Average climate action incentive[1] payment per household**			
	2019	**2020**	**2021**	**2022**	**2019**	**2020**	**2021**	**2022**
Ontario	$244	$357	$463	$564	$300	$439	$571	$697
New Brunswick	$202	$296	$386	$470	$248	$365	$476	$583
Manitoba	$232	$342	$447	$547	$336	$495	$649	$797
Saskatchewan* **	$403	$588	$768	$946	$598	$883	$1,161	$1,419

Source: Finance Canada calculations using inputs from Environment and Climate Change Canada and Statistics Canada.

*Average family size in these four provinces, in 2016, was 2.6 people.

**Estimated average household impacts reflect the impact on household spending costs, accounting for direct impacts (reflecting consumption of fuels to which carbon-pollution pricing applies) and indirect impacts (reflecting consumption of goods and services with carbon-pollution pricing embedded in them). These impacts are inclusive

[1] Subject to parliamentary approval.

of carbon-pollution pricing embedded in imports that households purchase from other provinces/territories that have the backstop applied. They do not include the costs associated with pricing in jurisdictions implementing their own systems. Estimates assume full-year application of the federal backstop for 2019. Estimates also assume full pass-through from businesses to consumers.

***Estimated average cost impact for Saskatchewan also includes impacts from the province's output-based pricing system.

Climate action incentive payments*

	2019	2020	2021	2022
Manitoba				
First adult	$170	$250	$328	$402
Second adult in a couple	$85	$125	$164	$201
Child	$42	$62	$81	$99
Family of four	$339	$499	$654	$801
New Brunswick				
First adult	$128	$189	$247	$303
Second adult in a couple	$64	$94	$124	$152
Child	$32	$47	$62	$76
Family of four	$256	$377	$495	$607
Ontario				
First adult	$154	$226	$295	$360
Second adult in a couple	$77	$113	$147	$180
Child	$38	$56	$73	$89
Family of four	$307	$451	$588	$718
Saskatchewan				
First adult	$305	$452	$596	$731
Second adult in a couple	$152	$225	$297	$364
Child	$76	$113	$148	$182
Family of four	$609	$903	$1,189	$1,459

*Note: *Climate action incentive payments for 2020–2022 are illustrative and subject to change.*

Annex A – Technical details on modelling

Models

The baseline of the EC-PRO model is calibrated to a revised version of the **2017 Reference Case** from Environment and Climate Change Canada's E3MC model. The revisions to the reference case pertain to the removal of provincial carbon-pricing policies previously embedded in the case. Alberta, British Columbia, Quebec, and Ontario had carbon-pricing (carbon tax, cap-and-trade, or hybrid) policies in the reference case, which are not included in

the baseline presented here. Other non-market greenhouse gas policies and various regulations remain in the reference case.

The analysis reported here was informed by modelling using the EC-PRO model, which is Environment and Climate Change Canada's provincial computable general equilibrium model. Such models are widely used tools for examining the dynamic response across the economy of relative price changes, such as those resulting from a price on greenhouse gases.

Federal backstop design assumptions

Details of the federal system continue to be finalized. Assumptions related to the fuel charge reflect rates and coverage outlined in the *Greenhouse Gas Pollution Pricing Act*, [link to Finance news release]. Assumptions related to the output-based pollution pricing system reflect current design proposals, including the update on output-based standards released in July 2018, as well as an approach for electricity that differentiates by fuel type. The electricity approach is still under consultation; the most recent proposal is to set coal at 800 tonnes of carbon dioxide per gigawatt hour of electricity produced (t of CO_2/GWh), natural gas at 370 t of CO_2/GWh, and diesel at 550 t of CO_2/GWh.

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[1] The federal fuel charge will apply in Saskatchewan, Ontario, Manitoba, New Brunswick, Yukon, and Nunavut, and the federal system for large industry (output-based pricing system) will apply in Ontario, Manitoba, New Brunswick, Prince Edward Island, Yukon, Nunavut, and partially in Saskatchewan. [link to assessment results]

[2] Carbon pollution, or greenhouse gases, is measured in tonnes of carbon dioxide equivalent (CO2e).

[3] A coal-fired power plant may consist of multiple coal-fired electricity-generating units. In 2017, there were 36 coal-fired electricity-generating units operating at 16 facilities in five provinces. 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*.

[4] The reference case used here was released in December 2015 and is being used for consistency with previous estimates.

This is **Exhibit DD** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

#224458

Saskatchewan and pollution pricing

Protecting the environment and growing the economy go together. In 2016, the federal government worked with provinces, territories, and with input from Indigenous Peoples, on Canada's first comprehensive climate action plan, which includes a stringent, fair and efficient price on carbon pollution.

As part of Canada's plan, provinces and territories had the flexibility to maintain or develop a carbon pollution pricing system that works for their circumstances, provided it meets the federal standard. The Government of Canada worked on this with provinces and territories for over two years.

Saskatchewan remains the only jurisdiction that has not joined the national plan - the Pan-Canadian Framework on Clean Growth and Climate Change.

On August 29, 2018, the Government of Saskatchewan released its plan to price carbon pollution, based on an output-based performance standards approach, which will be applied only to some of its large industrial facilities.

Saskatchewan's proposed system is on track to only partially meet the benchmark stringency requirements. Therefore, the federal carbon pollution pricing system will apply to the emission sources not covered by Saskatchewan's system.

Please contact the Province of Saskatchewan for further details on its carbon pricing system and programs.

Saskatchewan System Highlights

- Saskatchewan plans to implement its output-based performance standards system on January 1, 2019.
- It will apply to large industrial facilities that emit 25,000 tonnes or more of carbon dioxide equivalent (CO2e) per year, with the exception of electricity generation and natural gas transmission pipelines. Saskatchewan estimates it will cover approximately 11 percent of the province's emissions.

Federal System Highlights

The federal carbon pollution pricing system will be implemented, in part, in Saskatchewan under the federal Greenhouse Gas Pollution Pricing Act with the following features:

- The federal output-based pricing system will apply to electricity generation and natural gas transmission pipelines, beginning in January 2019. This will cover

facilities from those sectors that emit 50,000 tonnes of carbon dioxide equivalent (CO_2e) per year or more, with the ability for smaller facilities that emit 10,000 tonnes of CO_2e per year or more to voluntarily opt-in to the system over time.
- The federal regulatory charges will apply to fossil fuels. It will generally be paid by registered distributors (fuel producers and distributors), as set out in the Greenhouse Gas Pollution Pricing Act, Part 1, and will start applying in April 2019. Information on targeted relief for rural and remote residents, farmers and fishers is available from Finance Canada.

Use of Proceeds

The Government of Canada has committed to return all direct proceeds collected in Saskatchewan under the federal pollution pricing backstop system through direct payments to families and investments in energy efficiency to reduce emissions, save money and create jobs. In Saskatchewan, we will return the direct proceeds as follows:

- **Climate Action Incentive Payments**: Under the proposed approach, most proceeds the federal government collects from Saskatchewan through the fuel charge will be returned directly to Saskatchewan's individuals and families through Climate Action Incentive payments Footnote 1 .
- **Support for Particularly Affected Sectors**: The remainder of direct fuel charge proceeds will be used to provide support to the province's schools, hospitals, small and medium-sized businesses, colleges and universities, municipalities, non-profit organisations and Indigenous communities. In Saskatchewan, this is estimated at $445 million over the next five fiscal years.
- Direct proceeds from industrial facilities under the federal output-based pricing system will support reductions in greenhouse gas emissions in Saskatchewan.

How Climate Action Incentive Payments will be Calculated – A Saskatchewan Family of Four will receive $609 in 2019

Under the proposed approach, individuals in Saskatchewan will receive a tax-free Climate Action Incentive payment after filing their 2018 tax return starting in early 2019. Climate Action Incentive payments in Saskatchewan will be calculated as follows for 2019:

- $305 for a single adult or the first adult in a couple.
- $152 for the second adult in a couple. Single parents will receive this amount for their first child.
- $76 for each child in the family (starting with the second child for single parents). Under this proposal, a Saskatchewan family of four will receive $609 in 2019.

The average household in Saskatchewan will receive $598, taking into account the various family sizes and circumstances.

Family of three

Jane and Molly, who have an eight-year-old child, live in Regina. They decide that Jane will be the parent claiming the Climate Action Incentive payment for their family when she files her 2018 tax return in early 2019. She will claim $305 for herself, $152 for Molly and $76 for their child, for a total amount of $533. She will see this full amount when her tax return is assessed.

Supplement for Residents of Small and Rural Communities

To further support small and rural community residents in Saskatchewan, the Government proposes to provide a supplementary Climate Action Incentive amount for people who live in small and rural communities, in recognition of their increased energy needs and reduced access to energy-efficient transportation options. This supplement will be an additional 10 per cent of the payment amount to which they are entitled. Small and rural communities will be defined as anywhere outside of a census metropolitan area (CMA), as defined by Statistics Canada Footnote 2 .

Delivery of Payments

Under the proposal, individuals will claim the Climate Action Incentive payment on their tax return. This will involve filling out a short schedule identifying the number of adults and children in the family unit for which payments would be claimed. There will be one claim per family.

The provision of Climate Action Incentive payments through the Canada Revenue Agency will ensure timely, accurate, and cost-efficient delivery.

Single parent with one child eligible for rural supplement

Michael is a single father who lives in Maple Creek, Saskatchewan with his twelve-year-old son. Under the proposed Climate Action Incentive payment, Michael will claim $305 for himself and $152 for his son when he files his 2018 tax return in early 2019, for a total Climate Action Incentive amount of $457. Given that the family lives in a small and rural community, Michael will indicate on his tax return that his family qualifies for the small and rural community supplement, meaning that their payment will be boosted by

10 per cent. As a result, Michael will see an amount of $503 when his tax return is assessed.

Impact on Individuals and Families

Climate Action Incentive payments enable the Government to encourage lower greenhouse gas (GHG) emissions without imposing a financial burden on households. The federal backstop system helps the environment and the economy because it puts a price on pollution and supports cleaner alternatives. Most households in Saskatchewan will receive more in Climate Action Incentive payments than they incur in total costs resulting from pollution pricing. As the pollution price itself encourages fewer GHG emissions, it will both protect the environment and promote green innovation.

Payment Amounts in Subsequent Years

Climate Action Incentive payments will increase annually to reflect increases in the price on pollution under the federal backstop system, until at least 2022. The federal Minister of Finance will make annual announcements of Climate Action Incentive payment amounts, reflecting the increasing price on pollution and updated levels of direct proceeds.

Based on current projections, Climate Action Initiative payment amounts (excluding supplement for residents of small and rural communities) in Saskatchewan in future years would be as follows:

	2020	**2021**	**2022**
First adult	$452	$596	$731
Spouse	$225	$297	$364
Child	$113	$148	$182
Family of four	$903	$1,189	$1,459

Building on the examples above, based on current projections, in 2022, Molly will receive $1,277 for her family of three, and Michael will receive $1,205 for his family of two (including the supplement for residents of small and rural communities).

Costs Summary

Federal Fuel Charges – Starting in April 2019 and increasing in stringency over time, the federal carbon pollution pricing system will add a nominal cost to everyday fuels.

In Saskatchewan, for example, in 2019 the fuel charge on gasoline will be 4.42 cents per litre in 2019 and the fuel charge for natural gas used in home heating will be 3.91 cents per cubic metre – these rates will increase over time. A complete list of fuel charge rates is available on Finance Canada's website.

Estimated Annual Costs – We know from experience in BC, Alberta and Quebec that provinces with a price on carbon pollution in 2017 were the fastest-growing economies in Canada.

Under the federal system, the average cost impact for a household in Saskatchewan is $403 in 2019, which is less than the corresponding average for Climate Action Incentive payments ($598). Residences of Saskatchewan can also reduce this cost through many options, such as better home insulation, switching to a more fuel efficient vehicle, using public transit, and lower cost solutions like LED lightbulbs.

Studies consistently show the cost of inaction is much greater than the cost of addressing climate change. Extreme weather events like floods and wildfires are becoming more severe and happening more frequently due to climate change. These disasters can carry huge costs from damaged homes, businesses and infrastructure. For example, insurance losses related to climate change and severe weather averaged $405 million per year between 1983 and 2008, and $1.8 billion between 2009 and 2017.

Canada's Clean Growth Investments in Saskatchewan

Since 2016, the Government of Canada has allocated over $336 million for investments in public transit projects in Saskatchewan. Projects like bus fleet renewals in Saskatoon and Moose Jaw are ways we're working to make sure public transit is available for all, ensuring that people can get where they need to go, quickly and safely while reducing pollution. It's part of the Government's Investing in Canada Plan.

In addition, over $416 million is allocated for investments in Green Infrastructure in Saskatchewan, for projects that will reduce emissions, build resilience to the impacts of climate change or provide additional environmental benefits such as clean air and clean water. The Saskatchewan Government and Canada are working together to fund priority projects that will help reduce carbon pollution and grow the economy.
The Government of Canada invests in programs that improve energy efficiency in industrial buildings, like the one at Terra Grain Fuels facility in Belle Plaine. This program helps farmers and industry cut costs, and supports clean technologies like biofuels,that help reduce emissions.

To protect Canadians from the impacts of climate change, Canada is collaborating with Saskatchewan, and other prairie provinces to create a regional climate organization to jointly deliver climate services with the Government of Canada's Canadian Centre for

Climate Services. In addition, specific initiatives to increase resilience to climate impacts within Saskatchewan include education and awareness raising, assessing risks like flooding and forest fires to make sure that, as the climate changes, Saskatchewanians remain safe.

Footnote 1

The Government of Canada will propose amendments to the Income Tax Act to allow for these payments to be made.

Return to footnote1 Referrer

Footnote 2

Individuals will indicate on their tax return whether they reside in a rural area. Saskatchewan has 2 CMAs: Saskatoon and Regina.

This is **Exhibit EE** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

#224458

Manitoba and pollution pricing

Protecting the environment and growing the economy go together. In 2016, the federal government worked with provinces, territories, and with input from Indigenous Peoples on Canada's first comprehensive climate action plan, which includes a stringent, fair, and efficient price on carbon pollution.

As part of Canada's plan, provinces and territories had the flexibility to maintain or develop a carbon-pollution pricing system that works for their circumstances, provided it meets the federal standard. The Government of Canada worked with provinces and territories on this plan for over two years.

On October 3, 2018, the Government of Manitoba announced that it no longer intends to establish and implement a carbon-pollution pricing system. Therefore, the federal carbon-pollution pricing system will apply in Manitoba.

Federal system highlights

The federal pollution pricing system will be implemented in Manitoba under the federal Greenhouse Gas Pollution Pricing Act with the following features:

- For larger industrial facilities, an output-based pricing system for emissions-intensive trade-exposed industries will start applying in January 2019. This system will cover facilities emitting 50,000 tonnes of carbon dioxide equivalent per year or more, with the ability for smaller emissions-intensive trade-exposed facilities that emit 10,000 tonnes of carbon dioxide equivalent per year or more to voluntarily opt-in to the system over time.
- A charge applied to fossil fuels, generally paid by registered distributors (fuel producers and distributors) as set out in the Greenhouse Gas Pollution Pricing Act, part 1, will start applying in April 2019. Information on targeted relief for rural and remote residents, farmers, and fishers is available from Finance Canada.

Use of proceeds

The Government of Canada has committed to return all direct proceeds collected in Manitoba, under the federal carbon pollution pricing backstop system, through direct payments to families and investments in energy efficiency to reduce emissions, save money, and create jobs. In Manitoba, we will return the direct proceeds as follows:

- **Climate Action Incentive payments** – Under the proposed approach, the most of the proceeds the federal government collects from Manitoba, through the fuel

charge, will be returned directly to Manitoba individuals and families through Climate Action incentive payments [Footnote 1] .

- **Support for potentially affected sectors** – The remainder of direct proceeds from pricing pollution will be used to provide support to the province's schools, hospitals, small and medium-sized businesses, colleges and universities, municipalities, not-for-profit organizations, and Indigenous communities, which will help save money and create good jobs. In Manitoba, this amount is estimated at $190 million over the next five fiscal years.
- Direct proceeds from industrial facilities under the federal output-based pricing system will be directed to supporting reductions in greenhouse gas emissions in Manitoba.

How Climate Action Incentive payments will be calculated – a Manitoba family of four will receive $339 in 2019

Under the proposed approach, individuals in Manitoba will receive a tax-free Climate Action Incentive payment after filing their 2018 tax return, starting in early 2019. Climate Action Incentive payments in Manitoba will be calculated as follows for 2019:

- $170 for a single adult or the first adult in a couple.
- $85 for the second adult in a couple. Single parents will receive this amount for their first child.
- $42 for each child in the family (starting with the second child for single parents).

Under this proposal, a Manitoba family of four will receive $339 in 2019. The average household in Manitoba will receive $336, taking into account the various family sizes and circumstances.

Family of five

Jacob and Melody, who have three children (aged four, six, and eight), live in Winnipeg. They decide that Jacob will be the parent claiming the Climate Action Incentive payment for their family when he files his 2018 tax return in early 2019. He will claim $170 for himself, $85 for Melody, and $42 for each of their three children, for a total amount of $381. Jacob will see this full amount when his tax return is assessed.

Supplement for residents of small and rural communities

To further support small and rural communities in Manitoba, the Government proposes to provide a supplementary Climate Action Incentive amount for people who live in small and rural communities, in recognition of their increased energy needs and reduced access to energy-efficient transportation options. This supplement will be an additional 10 per cent of the payment amount to which they are entitled. Small and rural communities will be defined as being located anywhere outside of a census metropolitan area, as defined by Statistics Canada Footnote 2 .

Delivery of payments

Under the proposal, individuals will claim the Climate Action Incentive payment on their tax return. This will involve filling out a short schedule identifying the number of adults and children in the family unit for which payments would be claimed. There will be one claim per family.

The provision of Climate Action Incentive payments through the Canada Revenue Agency will ensure timely, accurate, and cost-efficient delivery.

Single parent with two children, eligible for the small and rural community supplement

Joann is a single mother who lives in Virden, Manitoba, with her six-year-old twins. Under the proposed Climate Action Incentive payment, Joann will claim $170 for herself, $85 for one of her children, and $42 for her other child, when she files her tax return in early 2019, for a total Climate Action Incentive payment of $297. Given that the family lives in a small and rural community, Joann will indicate on her tax return that her family qualifies for the small and rural community supplement, meaning that her payment will be boosted by 10 per cent. As a result, Joann will see an amount of $327 when her tax return is assessed.

Impact on individuals and families

Climate Action Incentive payments enable the Government to encourage lower greenhouse gas emissions without imposing a financial burden on households. The federal backstop system helps the environment and the economy because it puts a price on pollution and supports cleaner alternatives. Most households in Manitoba will receive more in Climate Action Incentive payments than they incur in total costs resulting from pollution pricing. As the pollution price itself encourages fewer greenhouse gas emissions, it will both protect the environment and promote green innovation.

Payment amounts in subsequent years

Under the Government of Canada's proposed approach, the Climate Action Incentive payment amounts for Manitoba will be boosted annually to reflect increases in the price on pollution under the federal backstop system, until at least 2022. The federal Minister of Finance will make annual announcements of Climate Action Incentive payment amounts, reflecting the increasing price on pollution and updated levels of direct proceeds.

Based on current projections, Climate Action Incentive payment amounts (excluding the supplement for residents of small and rural communities) in future years would be as follows:

	2020	2021	2022
First adult	$250	$328	$402
Spouse	$125	$164	$201
Child	$62	$81	$99
Family of four	$499	$654	$801

Building on the examples above, based on current projections, in 2022, Jacob will receive $900 for his family of five, and Joann will receive $772 for her family of three (including the supplement for residents of small and rural communities).

Costs summary

Federal fuel charges – Starting in April 2019 and increasing in stringency over time, the federal pollution pricing system will add a nominal cost to everyday fuels.

In Manitoba, for example, the fuel charge on gasoline, in 2019, will be 4.42 cents per litre and the fuel charge for natural gas used in home heating will be 3.91 cents per cubic metre. These rates will increase over time. A complete list of fuel charge rates is available on Finance Canada's website.

Estimated annual costs – We know from experience (British Columbia, Alberta, and Quebec) that provinces with a price on pollution, in 2017, were the fastest-growing economies in Canada.

Under the federal system, the average cost impact for a household in Manitoba is $232 in 2019, which is less than the corresponding average for Climate Action Incentive payments ($336). Households in Manitoba can also reduce this cost through many

options, such as better home insulation, switching to a more fuel efficient vehicle, using public transit, and lower-cost solutions like LED lightbulbs.

Studies consistently show the cost of inaction is much greater than the cost of addressing climate change. Extreme weather events like floods and wildfires are becoming more severe and happening more frequently due to climate change. These disasters can carry huge costs from damaged homes, businesses, and infrastructure. For example, insurance losses related to climate change and severe weather averaged $405 million per year, between 1983 and 2008, and $1.8 billion, between 2009 and 2017.

Canada's clean growth investments in Manitoba

Since 2016, the Government of Canada has allocated over $628 million for investments in Manitoba for public-transit projects. Helping expand the bus fleet in Thompson is one way we're keeping Canadians moving and reducing pollution. In Winnipeg, federal investments are helping add buses and build cycling infrastructure. These are the ways we're working to make sure that public transit is available for all and that people can get where they need to go—quickly and safely—while reducing pollution. These measures are part of the Government's Investing in Canada Plan.

Over $451 million is allocated for investments in Green Infrastructure in Manitoba, for projects that reduce emissions, build resilience to the impacts of climate change or provide additional environmental benefits such as clean air and clean water. The governments of Manitoba and Canada are working together to fund priority projects that will help reduce pollution and grow the economy.

Canada is investing in electric-vehicle charging stations to help people drive to more places with low emission vehicles. Natural Resources Canada's Electric Vehicle and Alternative Fuel Infrastructure Demonstration program provided $8 million to support the development of an electric-vehicle fast-charging network across the Trans-Canada Highway, which will serve rural areas. The network will include 34 stations, each with three charging heads, connecting Ontario to the Manitoba-Saskatchewan border along the Trans-Canada Highway. Expanding the charging network helps support Canadians interested in purchasing hybrid plug-in and fully electric vehicles.

To protect Canadians from the impacts of climate change, Canada is collaborating with Manitoba and other prairie provinces to create a regional climate organization to jointly deliver climate services with the Government of Canada's Canadian Centre for Climate Services. Canada has also supported the Prairie Climate Centre's Climate Atlas. The Climate Atlas gives Canadians access to information that helps them respond to the impacts of climate change. In addition, other specific initiatives supported include $247.5 million for flood management infrastructure in the Lake Manitoba and Lake St. Martin outlet channels, provided through the Disaster Mitigation and Adaptation Fund. These investments help make sure that Manitoba is ready to face the impacts of climate change and that Canadians will remain safe.

Footnote 1

The Government of Canada will propose amendments to the Income Tax Act to allow for these payments to be made.

Return to footnote1 Referrer

Footnote 2

Individuals will indicate on their tax return whether they reside in a rural area. Winnipeg is the only census metropolitan area in Manitoba.

This is **Exhibit FF** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

#224458

Ontario and pollution pricing

Protecting the environment and growing the economy go together. In 2016, the federal government worked with provinces, territories, and with input from Indigenous Peoples on Canada's first comprehensive climate action plan, which includes a stringent, fair, and efficient price on carbon pollution.

As part of Canada's plan, provinces and territories had the flexibility to maintain or develop a carbon-pollution pricing system that works for their circumstances, provided it meets the federal standard. The Government of Canada worked with provinces and territories on this for over two years.

On July 3, 2018, the Government of Ontario ended its climate plan, including its cap-and-trade pollution pricing system. This has resulted in a projected annual increase of emissions of approximately 48 million tonnes of carbon pollution in 2030, equivalent to the emissions from about 30 coal-fired electricity units. The province has also cancelled their investments in energy efficiency and low-carbon projects that help schools, businesses, and hospitals reduce emissions and reduce costs, therefore costing Ontarians money and good jobs.

The federal carbon-pollution pricing system will apply in Ontario.

Federal system highlights

The federal carbon-pollution pricing system will be implemented in Ontario, under the federal Greenhouse Gas Pollution Pricing Act with the following features:

- For larger industrial facilities, an output-based pricing system for emissions-intensive trade-exposed industries will start applying in January 2019. This system will cover facilities emitting 50,000 tonnes of carbon dioxide equivalent per year or more, with the ability for smaller emissions-intensive trade-exposed facilities that emit 10,000 tonnes of carbon dioxide equivalent per year or more to voluntarily opt in to the system over time.
- A charge applied to fossil fuels, generally paid by registered distributors (fuel producers and distributors), as set out in the Greenhouse Gas Pollution Pricing Act, Part 1, will start applying in April 2019. Information on targeted relief for rural and remote residents, farmers, and fishers is available from Finance Canada.

Use of proceeds

The Government of Canada has committed to return all direct proceeds collected in Ontario, under the federal carbon-pollution pricing backstop system through direct

payments to families and investments in energy efficiency to reduce emissions, save money, and create jobs. In Ontario, we will return the direct proceeds as follows:

- **Climate Action Incentive payments**: Under the proposed approach, most of the proceeds the federal government collects from Ontario through the fuel charge will be returned directly to Ontario's individuals and families through Climate Action Incentive Payments Footnote 1 .
- **Support for particularly affected sectors**: The remainder of fuel-charge proceeds will be used to provide support to the province's schools, hospitals, small and medium-sized businesses, colleges and universities, municipalities, not-for-profit organizations and Indigenous communities. In Ontario, this is estimated at about $1.45 billion over the next five fiscal years.
- Direct proceeds from industrial facilities under the federal output-based pricing system will support reductions in greenhouse gas emissions in Ontario.

How Climate Action Incentive payments will be calculated: An Ontario family of four will receive $307 in 2019

Under the proposed approach, individuals in Ontario will receive a tax-free Climate Action Incentive payment after filing their 2018 tax return starting in early 2019. Climate Action Incentive payments in Ontario will be calculated as follows for 2019:

- $154 for a single adult or the first adult in a couple.
- $77 for the second adult in a couple. Single parents will receive this amount for their first child.
- $38 for each child in the family (starting with the second child for single parents).

Under this proposal, an Ontario family of four will receive $307 in 2019. The average household in Ontario will receive $300, taking into account the various family sizes and circumstances.

Family of four

Joseph and Bianca, who have two young children, live in Windsor. They decide that Bianca will be the parent claiming the Climate Action Incentive payment for their family when she files her 2018 tax return in early 2019. She will claim $154 for herself, $77 for Joseph, and $38 for each child, for a total amount of $307. She will see this full amount when her tax return is assessed.

Supplement for residents of small and rural communities

To further support small and rural community residents in Ontario, the Government proposes to provide a supplementary Climate Action Incentive amount for people who live in small and rural communities, in recognition of their increased energy needs and reduced access to energy-efficient transportation options. This supplement will be an additional 10 per cent of the payment amount to which they are entitled. Small and rural communities will be defined as anywhere outside of a census metropolitan area, as defined by Statistics Canada Footnote 2 .

Delivery of payments

Under the proposal, individuals will claim the Climate Action Incentive payment on their tax return. This will involve filling out a short schedule identifying the number of adults and children in the family unit for which payments would be claimed. There will be one claim per family.

The provision of Climate Action Incentive payments through the Canada Revenue Agency will ensure timely, accurate, and cost-efficient delivery.

Single parent with one child eligible for rural supplement

Melissa is a single mother who lives in Petawawa, with her three-year-old son. Under the proposed Climate Action Incentive payment, Melissa will claim $154 for herself and $77 for her son when she files her 2018 tax return in early 2019, for a total Climate Action Incentive payment of $231. Given that the family lives in a small and rural community, Melissa will indicate on her tax return that her family qualifies for the small and rural community supplement, meaning that their payment will be boosted by 10 per cent. As a result, Melissa will see an amount of $254 when her tax return is assessed.

Impact on individuals and families

Climate Action Incentive payments enable the Government to encourage lower greenhouse gas emissions without imposing a financial burden on households. The federal backstop system helps the environment and the economy because it puts a price on pollution and supports cleaner alternatives. Most households in Ontario will receive more in Climate Action Incentive payments than they incur in total costs resulting from pollution pricing. As the pollution price itself encourages fewer greenhouse gas emissions, it will both protect the environment and promote green innovation.

Payment amounts in subsequent years

Climate Action Incentive payments will increase annually to reflect increases in the price on pollution under the federal backstop system, until at least 2022. The federal Minister of Finance will make annual announcements of Climate Action Incentive payment amounts, reflecting the increasing price on pollution and updated levels of direct proceeds.

Based on current projections, Climate Action Initiative payment amounts (excluding the supplement for residents of small and rural communities) in future years would be as follows:

	2020	2021	2022
First adult	$226	$295	$360
Spouse	$113	$147	$180
Child	$56	$73	$89
Family of four	$451	$588	$718

Building on the examples above and based on current projections, Bianca will receive $718 for her family of four, and Melissa will receive $594 (including the supplement for residents of small and rural communities) for her family of two—in 2022.

Costs summary

Federal fuel charges – Starting in April 2019 and increasing in stringency over time, the federal pollution pricing system will add a nominal cost to everyday fuels.

In Ontario, for example, the fuel charge on gasoline, in 2019, will be 4.42 cents per litre and the fuel charge for natural gas used in home heating will be 3.91 cents per cubic metre. These rates will increase over time. A complete list of fuel charge rates is available on Finance Canada's website.

Estimated annual costs – We know from experience—in British Columbia, Alberta, and Quebec—that provinces with a price on carbon pollution in 2017 were the fastest-growing economies in Canada.

Under the federal system, the estimated average cost impact for a household in Ontario is $244, in 2019, which is less than the average for Climate Action Incentive payments ($300). Households of Ontario can also reduce this cost through many options, such as better home insulation, switching to a more fuel-efficient vehicle, using public transit, and lower-cost solutions like LED lightbulbs.

Studies consistently show the cost of inaction is much greater than the cost of addressing climate change. Extreme weather events like floods and wildfires are becoming more severe and happening more frequently due to climate change. These disasters can carry huge costs from damaged homes, businesses, and infrastructure. For example, insurance losses related to climate change and severe weather averaged $405 million per year between 1983 and 2008, and $1.8 billion between 2009 and 2017.

Canada's clean growth investments in Ontario

Since 2016, the Government of Canada has allocated over $9.8 billion for investments in Ontario for public transit projects. Through our investments, Sudbury was able to expand its fleet of busses, make it easier and faster for people to get to around. In addition to investing in the Yonge subway extension, the Government of Canada helped the TTC buy clean diesel and electric busses, all of which help reduce emission and improve air quality. The Government of Canada also invested in Toronto's cycling network, helping install bike lanes on Lakeshore and Woodbine, which keep cyclists safe. This is how we're working to make sure that public transit is available for all and that people can get where they need to go, quickly and safely, while reducing pollution. It's a part of the Government's Investing in Canada Plan.

Over $2.8 billion is also allocated for investments in Green Infrastructure in Ontario, for projects that reduce emissions, build resilience to the impacts of climate change, or provide additional environmental benefits such as clean air and clean water. For example, the Government of Canada contributed $384 million to the Toronto Port Lands Flood Protection Project to protect residents and businesses. The Government of Ontario and Canada are working together to fund priority projects that will help reduce pollution and grow the economy.

Canada is investing in electric-vehicle charging stations to help people drive to more places, with low-emission vehicles. Natural Resources Canada's Electric Vehicle and Alternative Fuel Infrastructure Deployment Initiative gave $1.2 million to install electric-vehicle charges across the Greater Toronto Area (GTA) and southern Ontario, from Niagara Falls, to London, to Pickering. The Initiative has also made investments in hydrogen and natural gas fueling stations.

Investing in new technologies is also critical to Canada's economic and environmental plan. For example, Morgan Solar received almost $3 million to support the development of products that provide solar power for large buildings.

Specific initiatives to increase resilience to climate impacts within Ontario include community-based climate-risk assessments, address the impacts of extreme events to the shores of Lake Huron, and build the resilience of nature and wildlife in addition to developing a regional climate organization to work with the Government of Canada's Canadian Centre for Climate Services. Furthermore, the Government of Canada is investing $44.84 million for the Great Lakes Protection Initiative, protecting the world's largest body of fresh water for swimmers, boaters, and wildlife.

Footnote 1

The Government of Canada will propose amendments to the Income Tax Act to allow for these payments to be made.

Return to footnote1 Referrer

Footnote 2

Individuals will indicate on their tax return whether they reside in a rural area. Ontario has 16 census metropolitan areas: Barrie, Belleville, Brantford, Greater Sudbury, Guelph, Hamilton, Kingston, Kitchener-Cambridge-Waterloo, London, Oshawa, the Ontario part of Ottawa-Gatineau, Peterborough, St. Catharines-Niagara, Thunder Bay, Toronto, and Windsor.

This is **Exhibit GG** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

#224458

New Brunswick and pollution pricing

Protecting the environment and growing the economy go together. In 2016, the federal government worked with provinces, territories, and with input from Indigenous peoples, on Canada's first comprehensive climate action plan, which includes a fair, stringent and efficient price on carbon pollution.

As part of Canada's plan, provinces and territories had the flexibility to maintain or develop a carbon pollution pricing system that works for their circumstances, provided it meets the federal standard. The Government of Canada worked with provinces and territories on this for over two years.

New Brunswick's proposed carbon pollution pricing system does not meet the federal benchmark stringency requirements. Therefore, the federal carbon pollution pricing system will apply in the province.

Federal System Highlights

The federal pollution pricing system will be implemented in New Brunswick under the federal Greenhouse Gas Pollution Pricing Act with the following features:

- For larger industrial facilities, an output-based pricing system for emissions-intensive trade-exposed (EITE) industries will start applying in January 2019. This will cover facilities emitting 50,000 tonnes of carbon dioxide equivalent (CO2e) per year or more, with the ability for smaller EITE facilities that emit 10,000 tonnes of CO2e per year or more to voluntarily opt-in to the system over time.
- A charge applied to fossil fuels, generally paid by registered distributors (fuel producers and distributors), as set out in the Greenhouse Gas Pollution Pricing Act, Part 1, will start applying in April 2019. Information on targeted relief for rural and remote residents, farmers and fishers is available from Finance Canada.

Use of Proceeds

The Government of Canada has committed to return all direct proceeds collected in New Brunswick under the federal carbon pollution pricing backstop system, through direct payments to families and investments in energy efficiency to reduce emissions, save money and create jobs. In New Brunswick, we will return the proceeds as follows:

- **Climate Action Incentive payments:** Under the proposed approach, most proceeds the federal government collects from New Brunswick through the fuel

charge will be returned directly to individuals and families in New Brunswick through Climate Action Incentive payments.[Footnote 1]

- **Supporting Particularly Affected Sectors:** The remainder of fuel charge proceeds will be used to provide support to the province's schools, hospitals, small and medium-sized businesses, colleges and universities, municipalities, non-profit organizations and Indigenous communities. In New Brunswick, this is estimated at about $77 million over the next five fiscal years.
- Direct proceeds from industrial facilities under the federal output-based pricing system will be directed to supporting reductions in greenhouse gas emissions in New Brunswick.

How Climate Action Incentive Payments will be Calculated – A New Brunswick Family of Four will receive $256 in 2019

Under the proposed approach, individuals in New Brunswick will receive a tax-free Climate Action Incentive payment after filing their 2018 tax return starting in early 2019. Climate Action Incentive payments in New Brunswick will be calculated as follows for 2019:

- $128 for a single adult or the first adult in a couple.
- $64 for the second adult in a couple. Single parents will receive this amount for their first child.
- $32 for each child in the family (starting with the second child for single parents).

Under this proposal a New Brunswick family of four will receive $256 in 2019. The average household in New Brunswick will receive $248, taking into account the various family sizes and circumstances.

Family of four

William and Jenna, who have two young children, live in Saint John. They have decided that William will be the parent claiming the Climate Action Incentive payment for their family when he files his 2018 tax return in early 2019. He will claim $128 for himself, $64 for Jenna and $32 for each child, for a total amount of $256. He will see this full amount when his tax return is assessed.

Supplement for Residents of Small and Rural Communities

To further support small and rural community residents in New Brunswick, the Government proposes to provide a supplementary Climate Action Incentive amount for people who live in small and rural communities in recognition of their increased energy needs and reduced access to energy-efficient transportation options. This supplement will be an additional 10 per cent of the payment amount to which they are entitled. Small and rural communities will be defined as anywhere outside of a census metropolitan area (CMA), as defined by Statistics Canada.[Footnote 2]

Delivery of Payments

Under the proposal, individuals will claim the Climate Action Incentive payment on their tax return. This will involve filling out a short schedule identifying the number of adults and children in the family unit for which payments would be claimed. There will be one claim per family.

The provision of Climate Action Incentive payments through the Canada Revenue Agency will ensure timely, accurate, and cost-efficient delivery.

Single parent with two children eligible for rural supplement

Brigitte is a single mother who lives in Plaster Rock, New Brunswick with her twelve-year-old daughter and eight-year-old son. Under the proposed Climate Action Incentive payment, Brigitte will claim $128 for herself, $64 for her daughter and $32 for her son when she files her 2018 tax return in early 2019, for a total Climate Action Incentive payment of $224. Given that the family lives in a small and rural community, Brigitte will indicate on her tax return that her family qualifies for the small and rural community supplement, meaning that her payment will be boosted by 10 per cent. As a result, Brigitte will see an amount of $246 when her tax return is assessed.

Impact on Individuals and Families

Climate Action Incentive payments enable the Government to encourage lower greenhouse gas (GHG) emissions without imposing a financial burden on households. The federal backstop system helps the environment and the economy because it puts a price on pollution and supports cleaner alternatives. Most households in New Brunswick will receive more in Climate Action Incentive payments than they incur in total costs resulting from pollution pricing. As the pollution price itself encourages fewer GHG emissions, it will both protect the environment and promote green innovation.

Payment Amounts in Subsequent Years

The Climate Action Incentive payments will increase annually to reflect increases in the price on carbon pollution under the federal backstop system, until at least 2022. The federal Minister of Finance will make annual announcements of Climate Action Incentive payment amounts, reflecting the increasing price on pollution and updated levels of direct proceeds.

Based on current projections, Climate Action Initiative payment amounts (excluding the supplement for residents of small and rural communities) in New Brunswick in future years would be as follows:

	2020	2021	2022

First adult	189	247	303
Spouse	94	124	152
Child	47	62	76
Family of Four	377	495	607

Building on the examples above, based on current projections, in 2022, William will receive $607 for his family of four, and Brigitte will receive $584 for her family of three (including the supplement for residents of small and rural communities).

Costs Summary

Federal Fuel Charges – Starting in April 2019 and increasing in stringency over time, the federal pollution pricing system will add a nominal cost to everyday fuels.

In New Brunswick, for example, in 2019 the fuel charge on gasoline will be 4.42 cents per litre in 2019 and the fuel charge for natural gas used in home heating will be 3.91 cents per cubic metre – these rates will increase over time. A complete list of fuel charge rates is available on Finance Canada's website.

Estimated Annual Costs – We know from experience in BC, Alberta and Quebec that governments can make sure a price on pollution protects middle-class families from any undue economic impacts.

Under the federal system, the average cost impact for a household in New Brunswick is $202 in 2019, which is less than the corresponding average for Climate Action Incentive payments ($248). New Brunswick residents can also reduce this cost through many options such as better home insulation, switching to a fuel efficient vehicle, and lower cost options like LED lights.

Studies consistently show the cost of inaction is much greater than the cost of addressing climate change. Extreme weather events like floods and wildfires are becoming more severe and happening more frequently due to climate change. These disasters can carry huge costs from damaged homes, businesses and infrastructure. For example, insurance losses related to climate change and severe weather averaged $405 million per year between 1983 and 2008, and $1.8 billion between 2009 and 2017.

Clean Growth Investments in New Brunswick

The Government of Canada's Low Carbon Economy Fund is reducing emissions and creating opportunities in New Brunswick by providing over $50 million to support projects that increase energy efficiency in homes and businesses, saving families money and cutting costs for businesses. Investments like these help communities reduce pollution and create good jobs.

Since 2016, the Government of Canada has allocated over $173 million for investments in public transit projects. Investing in accessible busses in Fredericton is one way we're working to make sure public transit is available for all, ensuring that people can get where they need to go, quickly and safely while reducing pollution. It's part of the Government's Investing in Canada Plan.

In addition, the Government of Canada has allocated more than $347 million for projects that reduce emissions, build resilience to the impacts of climate change or provide additional environmental benefits such as clean air and clean water. The Government of New Brunswick and Canada are working together to fund priority projects that will help reduce pollution and grow the economy.

Part of reducing emissions is building up infrastructure for low-emission vehicles, like hybrid plug-in and fully electric cars. Natural Resources Canada's Electric Vehicle and Alternative Fuel Infrastructure Deployment program provided $950,000 for the installation of electric fast-charging stations in nineteen communities across the province, to help people switch to zero emitting electric cars and travel with confidence all over the province.

To protect Canadians from the impacts of climate change, Canada is collaborating with New Brunswick and other Atlantic provinces to create a regional climate expert organization that will work with the Government of Canada's Canadian Centre for Climate Services. Other initiatives, such as the National Trade Corridors Fund and First Nation Adapt Program, are increasing New Brunswick's resilience to climate impacts by supporting a study on adapting transportation infrastructure around the Chignecto Isthmus corridor, a vulnerability assessment to community infrastructure from inland flooding, and an assessment of the health impacts related to a changing climate. These studies will make sure that New Brunswick is ready for the impacts of climate change and that Canadians will remain safe.

Footnote 1

The Government of Canada will propose amendments to the Income Tax Act to allow for these payments to be made.

Return to footnote1 Referrer

Footnote 2

Individuals will indicate on their tax return whether they reside in a rural area. New Brunswick has 2 CMAs: Moncton and Saint John.

This is **Exhibit HH** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

#224458

Prince Edward Island and pollution pricing

Protecting the environment and growing the economy go together. In 2016, the federal government worked with provinces, territories, and with input from Indigenous Peoples, on Canada's first comprehensive climate action plan, which includes a stringent, fair and efficient price on carbon pollution.

As part of Canada's plan, provinces and territories had the flexibility to maintain or develop a carbon pollution pricing system that works for their circumstances, provided it meets the federal standard.

Prince Edward Island's approach of a proposed carbon charge on fossil fuels and a request for the federal backstop on large industry is on track to meet the federal benchmark stringency requirements.

Please contact the Province of PEI for additional details and information on its carbon pollution pricing system and programs.

Federal System Highlights

The federal carbon pollution pricing system will be implemented, in part, in Prince Edward Island under the federal Greenhouse Gas Pollution Pricing Act with the following features:

- For larger industrial facilities, an output-based pricing system for emissions-intensive trade-exposed (EITE) industries will start applying in January 2019. This will cover facilities emitting 50,000 tonnes of carbon dioxide equivalent (CO2e) per year or more, with the ability for smaller EITE facilities that emit 10,000 tonnes of CO2e per year or more to voluntarily opt-in to the system over time.

Canada's Clean Growth Investments in Prince Edward Island

The Government of Canada's Low Carbon Economy Fund is reducing emissions and creating opportunities in Prince Edward Island by providing nearly $35 million to support projects that:

- Provide homeowners with various incentives to increase energy efficiency in their homes, as well as incentives for improving efficiency in low-income housing and businesses, making life more affordable for everyone.
- Help farmers reduce pollution and increase the efficiency of their operations; and
- Plant trees, which helps keep the air clean and absorbs carbon.

Since 2016, the Government of Canada has allocated almost $28 million for investments in public transit. Investing in Charlottetown's T3 transit bus upgrades is one way we're working to make sure public transit is available for all, ensuring that people can get where they need to go, quickly and safely while reducing pollution. It's part of the Government's Investing in Canada Plan.

In addition, the Government of Canada has allocated over $228 million for investments in Green Infrastructure in PEI, for projects that reduce emissions, build resilience to the impacts of climate change or provide additional environmental benefits such as clean air and clean water. The PEI Government and Canada are working together to fund priority projects that will help reduce pollution and grow the economy.

Investing in new technologies is also critical to Canada's economic and environmental plan. The Fisheries and Aquaculture Clean Technology Adoption Program provided Bulk Harvest Tanks that help trucks carry more oysters to the processing plant. This results in getting the mollusks to market faster and reducing the number of highway trips. This program cuts costs for businesses and reduces pollution, helping improve the air people breath.

To protect Canadians from the impacts of climate change, Canada is collaborating with PEI and other Atlantic provinces to create a regional climate expert organization, to jointly deliver climate services with the Government of Canada's Canadian Centre for Climate Services. Additional adaptation programs will help PEI deal with rising sea levels and support the development of emergency management plans for severe weather, increasing the safety of Islanders.

This is **Exhibit II** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

#224458

Yukon and pollution pricing

Protecting the environment and growing the economy go together. In 2016, the federal government worked with provinces, territories, and with input from Indigenous Peoples, on Canada's first comprehensive climate action plan, which includes a stringent, fair and efficient price on carbon pollution.

As part of Canada's plan, provinces and territories had the flexibility to maintain or develop a carbon pollution pricing system that works for their circumstances, provided it meets the federal standard.

At the request of the Yukon Government, the Government of Canada will apply the federal backstop.

Please contact the Yukon Government for additional details.

Federal System Highlights

The federal carbon pollution pricing system will be implemented in Yukon under the federal Greenhouse Gas Pollution Pricing Act with the following features:

- For larger industrial facilities, an output-based pricing system for emissions-intensive trade-exposed (EITE) industries will start applying in July 2019. This will cover facilities emitting 50,000 tonnes of carbon dioxide equivalent (CO2e) per year or more, with the ability for smaller EITE facilities that emit 10,000 tonnes of CO2e per year or more to voluntarily opt-in to the system over time.
- A charge applied to fossil fuels, generally paid by registered distributors (fuel producers and distributors), as set out in the Greenhouse Gas Pollution Pricing Act, Part 1, will start applying in July 2019. Aviation gasoline and aviation turbo fuel will not be subject to a carbon pollution price (i.e., the fuel charge will apply to these fuels at a rate of $0/litre). Information on targeted relief for rural and remote residents, farmers and fishers is available from Finance Canada.

Addressing Territorial Commitments in the Pan-Canadian Framework

The approach to pricing carbon pollution in the territories takes into account their unique circumstances, including high costs of living and of energy, challenges with food security, and emerging economies.

In recognition of the unique circumstances of Yukon and to support the implementation of the federal system in the territory, the Government of Canada has agreed to:

- Provide relief for fuels used for aviation in the territory - the fuel charge would apply to these fuels at a rate of $0/litre.
- Provide fuel charge relief for diesel-fired electricity generation for remote communities.
- Implementation date in July 2019 to align with Northwest Territories.

Canada's Clean Growth Investments in Yukon

The Government of Canada's Low Carbon Economy Fund is reducing emissions and creating opportunities in Yukon with over $30 million for projects that increase energy efficiency and clean our air. These projects with save people money, help create good jobs, and build cleaner and more sustainable communities.

Since 2016, the Government of Canada has allocated over $10.8 million for investments in public transit projects in Yukon. Canada has helped Whitehorse expand its fleet of busses, which is one way we're working to make sure public transit is available for all, ensuring that people can get where they need to go, quickly and safely while reducing pollution. It's part of the Government's Investing in Canada Plan

In addition, over $207 million is allocated for investments in Green Infrastructure in Yukon, for projects that reduce emissions, build resilience to the impacts of climate change or provide additional environmental benefits such a clean air and clean water. The Yukon Government and Canada are working together to fund priority projects that will help reduce pollution and grow the economy.

Through the Northern REACHE program, the Government of Canada has invested over $3.8 million to support 15 community-driven clean energy projects in Yukon's remote and Indigenous communities. One project installed solar panels in Old Crow, bringing affordable renewable energy to a remote First Nations community, saving them money on heating their homes and keeping the air clean.

The impacts of climate change are being magnified in Canada's Arctic, where average temperature has increased at a rate of nearly three times the global average. They pose significant risks to communities, health and well-being, the economy, and the natural environment, especially in Canada's northern and coastal regions and for Indigenous Peoples.

The Government's Climate Change Preparedness in the North Program is helping residents of Yukon adapt to climate change by studying the impact of permafrost thaw on infrastructure like buildings and the Dempster Highway, to ensure that these structures remain safe and that they can withstand the changing climate. The program will also work to predict fire risks across Yukon to make sure people remain safe.

This is **Exhibit JJ** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

#224458

Nunavut and pollution pricing

Protecting the environment and growing the economy go together. In 2016, the federal government worked with provinces, territories, and with input from Indigenous Peoples, on Canada's first comprehensive climate action plan, which includes a stringent, fair and efficient price on carbon pollution.

As part of Canada's plan, provinces and territories had the flexibility to maintain or develop a carbon pollution pricing system that works for their circumstances, provided it meets the federal standard.

With the support of the Nunavut Government, the Government of Canada will apply the federal backstop in Nunavut.

Please contact the Nunavut Government for additional details.

Federal system highlights

The federal carbon pollution pricing system will be implemented in Nunavut under the federal Greenhouse Gas Pollution Pricing Act with the following features:

- For larger industrial facilities, an output-based pricing system for emissions-intensive trade-exposed (EITE) industries will start applying in July 2019. This will cover facilities emitting 50,000 tonnes of carbon dioxide equivalent (CO_{2e}) per year or more, with the ability for smaller EITE facilities that emit 10,000 tonnes of CO_{2e} per year or more to voluntarily opt-in to the system over time.
- A charge applied to fossil fuels, generally paid by registered distributors (fuel producers and distributors), as set out in the Greenhouse Gas Pollution Pricing Act, Part 1, will start applying in July 2019. Aviation gasoline and aviation turbo fuel will not be subject to a carbon pollution price (i.e., the fuel charge will apply to these fuels at a rate of $0/litre). Information on targeted relief for rural and remote residents, farmers and fishers is available from Finance Canada.

Addressing territorial commitments in the Pan-Canadian Framework

The approach to pricing pollution in the territories takes into account their unique circumstances, including high costs of living and of energy, challenges with food security, and emerging economies.

In recognition of the unique circumstances of Nunavut and to support the implementation of the federal system in the territory, the Government of Canada has agreed to:

- Provide relief for fuels used for aviation in the territory - the fuel charge would apply to these fuels at a rate of $0/litre.
- Provide fuel charge relief for diesel-fired electricity generation for remote communities.
- Implementation date in July 2019 to align with Northwest Territories.

Canada's clean growth investments in Nunavut

The Government of Canada's Low Carbon Economy Fund is reducing emissions and creating opportunities in Nunavut by providing over $30 million to support projects that:

- Bring District Heating Systems to Sanikiluaq and Taloyoakthat, reducing emissions and saving residents money on their heating bills.
- Modernizing Public Housing with energy efficiency measures that will save communities money.

Since 2016, the Government of Canada has allocated over $6 million for investments in public transit projects, which is one way we are working to make sure public transit is available for all, ensuring that people can get where they need to go, quickly and safely while reducing pollution. It's part of the Government's Investing in Canada Plan.

In addition, the Government of Canada allocated more than $200 million for investments in Green Infrastructure in Nunavut, for projects that reduce emissions, build resilience to the impacts of climate change or provide additional environmental benefits such as clean air and clean water. The Nunavut Government and Canada are working together to fund priority projects that will help reduce pollution and grow the economy.

The Northern REACHE program provided $3.41 million to support 13 community-driven clean energy projects in remote and Indigenous communities. Among the projects was $2 million for the expansion of a district heating system that will provide 70-85% of the heating requirements for an Aquatic Centre in Iqaluit, keeping the swimming pool heated all year round while using less fuel than traditional heating.

The impacts of climate change are being magnified in Canada's Arctic, where average temperature has increased at a rate of nearly three times the global average. They pose significant risks to communities, health and well-being, the economy, and the natural environment, especially in Canada's northern and coastal regions and for Indigenous Peoples.

The Climate Change and Health Adaptation Program will help Inuit communities adapt to the health impacts of climate change through community-designed and driven projects. Other initiatives, such as the Climate Change Preparedness in the North Program, provides support to assess the vulnerability of wastewater systems in Iqaluit

and water quality monitoring, to make sure we protect clean water. The program will also provide increased access to knowledge about changing sea-ice conditions, to keep hunters and fishers safe in the changing winter conditions. These studies make sure that Nunavut is ready for the impacts of climate change and that northern Canadians will remain safe.

This is **Exhibit KK** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

#224458

BACKGROUNDER

Fuel Charge Rates in Listed Provinces and Territories

Fuel Charge Rates

The fuel charge rates reflect a carbon pollution price of $20 per tonne of carbon dioxide equivalent (CO_2e) in 2019, rising by $10 per tonne annually to $50 per tonne in 2022. The rates are based on global warming potential factors and emission factors used by Environment and Climate Change Canada to report Canada's emissions to the United Nations Framework Convention on Climate Change. Applying the fuel charge at higher rates over time will help to reduce greenhouse gas emissions and support clean growth, while keeping costs low for Canadians and Canadian businesses. It will send a signal to markets and provide an incentive to reduce energy use through conservation and efficiency measures.

The rates for gasoline and light fuel oil also take into account the average renewable content of these fuels.

Rates for Provinces

The following table presents fuel charge rates that will apply in Ontario, New Brunswick, Manitoba and Saskatchewan. The rates will become effective as of April 2019, with future increases effective as of April of the year noted in the table.

Federal Fuel Charge Rates for Listed Provinces

Type	Unit ($ per)	Apri1 2019 ($20/tonne)	April 2020 ($30/tonne)	April 2021 ($40/tonne)	April 2022 ($50/tonne)
Aviation gasoline	litre	0.0498	0.0747	0.0995	0.1244
Aviation turbo fuel	litre	0.0516	0.0775	0.1033	0.1291
Butane	litre	0.0356	0.0534	0.0712	0.0890
Ethane	litre	0.0204	0.0306	0.0408	0.0509
Gas liquids	litre	0.0333	0.0499	0.0666	0.0832
Gasoline	litre	0.0442	0.0663	0.0884	0.1105
Heavy fuel oil	litre	0.0637	0.0956	0.1275	0.1593
Kerosene	litre	0.0516	0.0775	0.1033	0.1291
Light fuel oil	litre	0.0537	0.0805	0.1073	0.1341
Methanol	litre	0.0220	0.0329	0.0439	0.0549
Naphtha	litre	0.0451	0.0676	0.0902	0.1127
Petroleum coke	litre	0.0767	0.1151	0.1535	0.1919
Pentanes plus	litre	0.0356	0.0534	0.0712	0.0890
Propane	litre	0.0310	0.0464	0.0619	0.0774
Coke oven gas	cubic metre	0.0140	0.0210	0.0280	0.0350
Marketable natural gas	cubic metre	0.0391	0.0587	0.0783	0.0979

Non-marketable natural gas	cubic metre	0.0517	0.0776	0.1034	0.1293
Still gas	cubic metre	0.0540	0.0810	0.1080	0.1350
Coke	tonne	63.59	95.39	127.19	158.99
High heat value coal	tonne	45.03	67.55	90.07	112.58
Low heat value coal	tonne	35.45	53.17	70.90	88.62
Combustible waste	tonne	39.95	59.92	79.89	99.87

Rates for Territories

The following table presents fuel charge rates that will apply in Yukon and Nunavut. The rates will become effective as of July 2019, with future increases effective as of April of the year noted in the table. The July 2019 implementation date for Yukon and Nunavut recognizes that Northwest Territories will have a carbon pollution pricing system in place as of that date. This approach seeks to align the implementation date of carbon pollution pricing across all territories.

As part of the Pan-Canadian Framework on Clean Growth and Climate Change, the Federal Carbon Pollution Pricing Benchmark noted that the federal government would work with the territories to address their unique circumstances, including the high cost of living, challenges with food security and emerging economies. Reflecting the high-reliance of the territories on air transportation, the rates for aviation gasoline and aviation turbo fuel are set to $0 for listed territories.

Federal Fuel Charge Rates for Listed Territories

Type	Unit ($ per)	July 2019 ($20/tonne)	April 2020 ($30/tonne)	April 2021 ($40/tonne)	April 2022 ($50/tonne)
Aviation gasoline	litre	0.0	0.0	0.0	0.0
Aviation turbo fuel	litre	0.0	0.0	0.0	0.0
Butane	litre	0.0356	0.0534	0.0712	0.0890
Ethane	litre	0.0204	0.0306	0.0408	0.0509
Gas liquids	litre	0.0333	0.0499	0.0666	0.0832
Gasoline	litre	0.0442	0.0663	0.0884	0.1105
Heavy fuel oil	litre	0.0637	0.0956	0.1275	0.1593
Kerosene	litre	0.0516	0.0775	0.1033	0.1291
Light fuel oil	litre	0.0537	0.0805	0.1073	0.1341
Methanol	litre	0.0220	0.0329	0.0439	0.0549
Naphtha	litre	0.0451	0.0676	0.0902	0.1127
Petroleum coke	litre	0.0767	0.1151	0.1535	0.1919
Pentanes plus	litre	0.0356	0.0534	0.0712	0.0890
Propane	litre	0.0310	0.0464	0.0619	0.0774
Coke oven gas	cubic metre	0.0140	0.0210	0.0280	0.0350
Marketable natural gas	cubic metre	0.0391	0.0587	0.0783	0.0979
Non-marketable natural gas	cubic metre	0.0517	0.0776	0.1034	0.1293
Still gas	cubic metre	0.0540	0.0810	0.1080	0.1350
Coke	tonne	63.59	95.39	127.19	158.99
High heat value coal	tonne	45.03	67.55	90.07	112.58

Low heat value coal	tonne	35.45	53.17	70.90	88.62
Combustible waste	tonne	39.95	59.92	79.89	99.87

This is **Exhibit LL** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

#224458

BACKGROUNDER

Ensuring Transparency

The Federal Carbon Pollution Pricing System

The federal carbon pollution pricing system has two components:

1. A charge on fossil fuels ("fuel charge"), which will be administered by the Canada Revenue Agency (CRA), and
2. An output-based pricing system (OBPS) for emission-intense industrial facilities, which will be administered by Environment and Climate Change Canada.

Any fuel charge owing in applicable provinces and territories would generally be paid by fuel producers and distributors to the CRA on a monthly basis. The Government of Canada would only start to receive any proceeds that may arise from the OBPS in November 2020 for the 2019 compliance year.

Returning Proceeds to Jurisdictions of Origin

The Government of Canada has committed to returning direct proceeds from the federal carbon pollution pricing system to the province or territory of origin. The Government of Canada will return those proceeds:

- Directly to the governments of those jurisdictions that choose to adopt the federal system; and
- Directly to individuals and families, through proposed Climate Action Incentive payments, as well as to particularly affected sectors in those other jurisdictions that do not meet the Canada-wide federal standard for reducing carbon pollution – Ontario, New Brunswick, Manitoba, and Saskatchewan – in order to ensure that the carbon pollution price signal is preserved.
- Proceeds from the OBPS in Ontario, New Brunswick, Manitoba, and Saskatchewan will also be returned to the province of origin. Given that these proceeds would only be realized in 2020, the Government will decide in due course how best to return these proceeds in these provinces.

The Government of Canada will not keep any direct proceeds from carbon pollution pricing, and will provide an update each year on exactly how those proceeds were used.

Projected Proceeds for Provinces that Do Not Meet the Canada-wide Federal Standard for Reducing Carbon Pollution

For Ontario, New Brunswick, Manitoba and Saskatchewan, the tables below show the estimated direct proceeds from the federal fuel charge for fiscal years 2019-20 to 2023-24. The tables also indicate how much of the direct proceeds will be provided to support particularly affected sectors

including small and medium-sized enterprises (SMEs) and the municipalities, universities, colleges, schools and hospitals, non-profit organizations, and Indigenous communities. An estimate for total Climate Action Incentive payments to individuals and families is also included in the tables.

As the tables show, all net fuel charge proceeds will be returned in each of these provinces.

Table 1: Projected Proceeds and Proceeds Return in Ontario, 2019-20 to 2023-24 (in Million $)

	2019-20	2020-21	2021-22	2022-23	2023-24
Projected Fuel Charge Proceeds – before Proposed Additional Targeted Relief	1,770	2,625	3,455	4,270	4,270
Less: Additional Targeted Relief for Greenhouses and Generation of Electricity in Remote Communities	30	45	65	80	80
Net Fuel Charge Proceeds	1,740	2,580	3,395	4,190	4,190
Less: Proceeds Return					
Projected Total Climate Action Incentive Payments	1,585	2,345	3,085	3,810	3,810
Support for SMEs	105	155	205	255	255
Support for the Municipalities, Universities, Schools, Colleges, Hospitals, Non-Profit Organizations, and Indigenous Communities	50	75	100	125	125
Total Net Fuel Charge Proceeds Returned	1,740	2,580	3,395	4,190	4,190
Projected Fuel Charge Proceeds less Total Proceeds Returned	**0**	**0**	**0**	**0**	**0**

Notes: Totals may not add due to rounding. Numbers under $5 million are rounded to the nearest million; those over $5 million are rounded to the nearest $5 million; and “S” indicates a value of less than $500,000. This table excludes the costs of administering the fuel charge and OBPS in jurisdictions subject to the federal carbon pollution pricing system, and the costs of delivering Climate Action Incentive payments and relief to certain sectors, which will be borne by the Government of Canada. Estimates beyond 2019-20, in particular of Climate Action Incentive Payments, are illustrative and subject to adjustments as more information becomes available.

Table 2: Projected Proceeds and Proceeds Return in New Brunswick, 2019-20 to 2023-24 (in Million $)

	2019-20	2020-21	2021-22	2022-23	2023-24
Projected Fuel Charge Proceeds – before Proposed Additional Targeted Relief	90	130	170	210	210
Less: Additional Targeted Relief for Greenhouses and Generation of Electricity in Remote Communities	S	S	S	S	S
Net Fuel Charge Proceeds	90	130	170	210	210
Less: Proceeds Return					
Projected Total Climate Action Incentive Payments	80	120	155	190	190
Support for SMEs	5	10	10	15	15
Support for the Municipalities, Universities, Schools, Colleges, Hospitals, Non-Profit Organizations, and Indigenous Communities	3	4	5	5	5
Total Net Fuel Charge Proceeds Returned	90	130	170	210	210
Projected Fuel Charge Proceeds less Total Proceeds Returned	**0**	**0**	**0**	**0**	**0**

Notes: Totals may not add due to rounding. Numbers under $5 million are rounded to the nearest million; those over $5 million are rounded to the nearest $5 million; and “S” indicates a value of less than $500,000. This table excludes the costs of administering the fuel charge and OBPS in jurisdictions subject to the federal carbon pollution pricing system, and the costs of delivering Climate Action Incentive payments and relief to certain sectors, which will be borne by the Government of Canada. Estimates beyond 2019-20, in particular of Climate Action Incentive payments, are illustrative and subject to adjustments as more information becomes available.

Table 3: Projected Proceeds and Proceeds Return in Manitoba, 2019-20 to 2023-24 (in Million $)

	2019-20	2020-21	2021-22	2022-23	2023-24
Projected Fuel Charge Proceeds – before Proposed Additional Targeted Relief	190	280	370	460	460
Less: Additional Targeted Relief for Greenhouses and Generation of Electricity in Remote Communities	S	1	1	1	1
Net Fuel Charge Proceeds	190	280	370	460	460
Less: Proceeds Return					
Projected Total Climate Action Incentive Payments	170	250	330	410	410
Support for SMEs	15	20	25	35	35
Support for the Municipalities, Universities, Schools, Colleges, Hospitals, Non-Profit Organizations, and Indigenous Communities	5	10	15	15	15
Total Net Fuel Charge Proceeds Returned	190	280	370	460	460
Projected Fuel Charge Proceeds less Total Proceeds Returned	**0**	**0**	**0**	**0**	**0**

Notes: Totals may not add due to rounding. Numbers under $5 million are rounded to the nearest million; those over $5 million are rounded to the nearest $5 million; and "S" indicates a value of less than $500,000. This table excludes the costs of administering the fuel charge and OBPS in jurisdictions subject to the federal carbon pollution pricing system, and the costs of delivering Climate Action Incentive payments and relief to certain sectors, which will be borne by the Government of Canada. Estimates beyond 2019-20, in particular of Climate Action Incentive payments, are illustrative and subject to adjustments as more information becomes available.

Table 4: Projected Proceeds and Proceeds Return in Saskatchewan, 2019-20 to 2023-24 (in Million $)

	2019-20	2020-21	2021-22	2022-23	2023-24
Projected Fuel Charge Proceeds – before Proposed Additional Targeted Relief	310	465	615	770	770
Less: Additional Targeted Relief for Greenhouses and Generation of Electricity in Remote Communities	1	2	2	3	3
Net Fuel Charge Proceeds	310	465	615	765	765
Less: Proceeds Return					
Projected Total Climate Action Incentive Payments	265	395	525	650	650
Support for SMEs	30	45	60	80	80
Support for the Municipalities, Universities, Schools, Colleges, Hospitals, Non-Profit Organizations, and Indigenous Communities	15	25	30	40	40
Total Net Fuel Charge Proceeds Returned	310	465	615	765	765
Projected Fuel Charge Proceeds less Total Proceeds Returned	**0**	**0**	**0**	**0**	**0**

Notes: Totals may not add due to rounding. Numbers under $5 million are rounded to the nearest million; those over $5 million are rounded to the nearest $5 million; and "S" indicates a value of less than $500,000. This table excludes the costs of administering the fuel charge and OBPS in jurisdictions subject to the federal carbon pollution pricing system, and the costs of delivering Climate Action Incentive payments and relief to certain sectors, which will be borne by the Government of Canada. Estimates beyond 2019-20, in particular of Climate Action Incentive payments, are illustrative and subject to adjustments as more information becomes available.

Transparency and Annual Reporting

To ensure accountability, the Government of Canada will provide annual updates on the direct proceeds and disbursements realized from the federal carbon pollution pricing system in respect of each province and territory where it applies. Any actual variance between the proceeds originating in a given jurisdiction and the amount of proceeds returned to that jurisdiction would be addressed through changes in future payment amounts to that jurisdiction. This transparent process will ensure that direct proceeds are fully returned to the jurisdiction of origin over time.

For those jurisdictions that do not meet the Canada-wide federal standard for pricing carbon pollution, the amounts being returned to individuals and families under Climate Action Incentive payments would be based on estimated proceeds. As actual proceeds and the total amount of proceeds returned in a specific jurisdiction through Climate Action Incentive payments (where applicable) may differ from estimates, adjustments would be made through changes in future Climate Action Incentive payment amounts to individuals and families (and possibly also through changes in amounts of support for affected sectors).

This is **Exhibit MM** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

#224458

BACKGROUNDER

Targeted Relief for Farmers and Fishers, and Residents of Rural and Remote Communities

Background

The Government of Canada has a plan to build a cleaner environment and a stronger economy for today and tomorrow. A key part of this plan, the *Greenhouse Gas Pollution Pricing Act* (GGPPA), which was enacted on June 21, 2018, establishes a federal Canada-wide standard for reducing carbon pollution. The federal standard gives provinces and territories the flexibility to choose a system that meets this standard and works best for them.

Provinces or territories that meet this standard with their own carbon pollution pricing systems will continue to reduce carbon pollution using their own systems.

For all other provinces and territories, beginning in 2019, the federal "backstop" carbon pollution pricing system will apply to ensure that all jurisdictions in Canada meet the federal standard.

The federal carbon pollution pricing backstop system is composed of two components:

- A charge on fossil fuels ("fuel charge"), which will be administered by the Canada Revenue Agency (CRA) starting in April 2019; and
- An output-based pricing system (OBPS), which will be administered by Environment and Climate Change Canada (ECCC) starting in January 2019.

The purpose of the GGPPA is to reduce greenhouse gas emissions by ensuring that carbon pollution pricing applies broadly throughout Canada.

At the same time, the Government recognizes that particular groups or sectors require targeted relief from the fuel charge – in particular because of the small number of alternative options they may have in the face of carbon pollution pricing.

Relief for Farmers

The GGPPA will provide farmers with relief from the fuel charge for fuels used in tractors, trucks and other farm machinery. The relief is provided upfront through the use of exemption certificates, when certain conditions are met. Specifically, the GGPPA provides that a registered distributor can generally deliver, without the fuel charge applying, gasoline or light fuel oil (e.g., diesel) to a farmer at a farm, if the fuel is for use exclusively in the operation of eligible farming machinery and all or substantially all of the fuel is for use in the course of eligible farming activities. Farmers do not need to be registered for the purposes of this relief.

Under the GGPPA, eligible farming machinery means property that is primarily used for the purposes of farming and that is a farm truck or tractor, a vehicle not licensed to be operated on a public road, or an industrial machine or stationary or portable engine.

The GGPPA also includes diversion rules to ensure that the fuel charge applies if gasoline or light fuel oil is used in a manner contrary to the intended relief.

Relief for Fishers

The GGPPA also provides relief of the fuel charge for gasoline and light fuel oil (e.g., diesel) that is generally delivered to a fisher, if the fuel is for use exclusively in an eligible fishing vessel and all or substantially all of the fuel is for use in the course of eligible fishing activities. The relief is provided upfront through the use of exemption certificates, when certain conditions are met, one of them being that the province or territory subject to the fuel charge (i.e., "listed") be prescribed for the purposed of the relief. Fishers do not need to be registered for the purposes of this relief.

The GGPPA also includes diversion rules to ensure that the fuel charge applies if gasoline or light fuel oil is used in a manner contrary to the intended relief.

There are currently no listed provinces that are prescribed. It is proposed that all listed provinces and territories for the purpose of the fuel charge be prescribed for the purpose of the relief.

It is proposed that this relief apply as of April 2019, for the purpose of the fuel charge.

Providing Additional, Targeted Relief Under the GGPPA

In addition to the relief from the fuel charge that is already provided under the GGPPA, the Government is proposing that additional, targeted relief be provided to certain groups or sectors, including:

- Residents of rural and small communities;
- Users of aviation fuels in the territories;
- Greenhouse operators;
- Power plants that generate electricity for remote communities; and
- Indigenous Peoples.

The following sections provide further details on proposed relief measures.

Supplement for Residents of Rural and Small Communities

For provinces that have not taken adequate action to meet the federal standard for pricing carbon pollution — Ontario, New Brunswick, Manitoba, and Saskatchewan – the Government proposes to provide a supplementary amount to the baseline Climate Action Incentive payments for residents of rural and small communities, in recognition of their increased energy needs and reduced access to alternative transportation options. This supplement would increase the amount that people living in these provinces would receive by 10 per cent. For more information, see the accompanying backgrounders regarding return of direct proceeds to the respective provinces.

Users of Aviation Fuels in the Territories

Generally, the fuel charge under the GGPPA applies to aviation gasoline and aviation turbo fuel that is used in intra-jurisdictional flights (i.e., between two points in the same province or territory), but not in inter-jurisdictional flights (e.g., between two different Canadian provinces or territories, or international flights).

As part of the Pan-Canadian Framework on Clean Growth and Climate Change, the federal government committed to work with the territories to address their unique circumstances, including the high cost of living, challenges with food security and emerging territorial economies.

Consequently, the federal government is proposing to apply the fuel charge at a rate of $0 per litre to aviation gasoline and aviation turbo fuel for listed territories (Yukon and Nunavut), as noted in the backgrounder entitled Fuel Charge Rates in Listed Provinces and Territories. This will also be in keeping with the treatment of aviation fuels under the proposed carbon pollution pricing system of the Northwest Territories. This ensures that, while carbon pollution pricing applies broadly in Canada, it also reflects the high-reliance on air transportation in the territories.

Air carriers in the listed territories will continue to be subject to the GGPPA (e.g., reporting and filing requirements), as required, but ultimately the fuel charge will not be paid on any flights in the territories.

The proposed rate of $0 per litre will be effective as of July 2019 (the implementation date of the fuel charge in the listed territories) and will apply for all years.

Greenhouse Operators

Partial relief of the fuel charge (i.e., 80 per cent) is proposed to apply to natural gas and propane that is exclusively for use in the operation of a commercial greenhouse for growing any plants, including vegetables, fruits, bedding plants, cut flowers, ornamental plants, tree seedlings and medicinal plants. It is also proposed that, in order for relief to be available, all or substantially all of the greenhouse building must be used for the growing of plants.

The relief is proposed to be provided upfront through the use of exemption certificates, similar to other exemption certificates under the GGPPA, such that only 20 per cent of the fuel charge applies to natural gas and propane that is delivered by a registered distributor to an eligible greenhouse operator if the fuel is exclusively for use in the heating of, or for the production of carbon dioxide for use in the operation of, a commercial greenhouse.

- An eligible greenhouse operator is proposed to be a person that carries on a greenhouse operation with a reasonable expectation of profit.

It is also proposed that diversion rules be included, in line with existing provisions of the GGPPA, to ensure that the fuel charge applies if natural gas or propane is used in a manner contrary to the intended relief.

This relief is proposed to generally apply as of April 2019 in all listed provinces and as of July 2019 in all listed territories, for the purpose of the fuel charge.

Power Plant Operators that Generate Electricity for Remote Communities

Full relief of the fuel charge is proposed to apply to light fuel oil (e.g., diesel) that is used exclusively to generate electricity for remote communities.

The relief is proposed to be provided upfront through the use of exemption certificates, similar to other exemption certificates under the GGPPA, such that the fuel charge does not apply to light fuel oil that is delivered by a registered distributor to a person that operates a remote power plant if that fuel is exclusively for use in the generation of electricity for distribution to the general public in remote communities.

- A remote community will be defined to mean a geographic area that is neither serviced by an electrical distribution network that is under the jurisdiction of the North American Electric Reliability Corporation nor a natural gas distribution system.

It is also proposed that diversion rules be included, in line with existing provisions of the GGPPA, to ensure that the fuel charge applies if light fuel oil is used in a manner contrary to the intended relief.

This relief is proposed to generally apply as of April 2019 in all listed provinces and as of July 2019 in all listed territories, for the purpose of the fuel charge.

Indigenous Peoples

Indigenous peoples could benefit from a number of the proposed relief measures announced by the Government – the supplement for residents of rural and small communities, the fuel charge relief for aviation fuels in the territories, the fuel charge relief for diesel-fired generation of electricity for remote communities, the fuel charge relief for greenhouse operators, and other targeted support for affected sectors. More information is found in the backgrounder entitled Support for Indigenous Peoples.

Have Your Say

Canadians are invited to provide comments on the proposed relief for greenhouse operators and power plant operators that generate electricity for remote communities.

Please send your comments to fin.tarification-pollution-pricing.fin@canada.ca by November 23, 2018. Written correspondence related to these consultations can also be mailed to:

Carbon Pollution Pricing
Department of Finance Canada
90 Elgin Street
Ottawa, Ontario
K1A 0G5

This is **Exhibit NN** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

#224458

BACKGROUNDER

Support for Municipalities, Universities, Schools and Colleges, Hospitals, Non-Profits, and Indigenous Communities

The Government of Canada has a plan to build a cleaner environment and a stronger economy for today and tomorrow. Over the past two years, it has established a federal standard for reducing carbon pollution, and has given provinces and territories the flexibility to choose a pollution pricing system for meeting this standard that works best for them.

Provinces or territories that meet this standard with their own carbon pollution pricing systems will continue to reduce carbon pollution using their own systems. For all other provinces and territories, starting in 2019, a federal 'backstop' carbon pollution pricing system will apply to ensure that all jurisdictions in Canada meet the federal standard.

In the provinces that have not taken action to meet the federal standard for pricing carbon pollution (Saskatchewan, Manitoba, Ontario and New Brunswick), sectors such as universities and colleges, hospitals, schools, municipalities, non-profit organizations, and Indigenous communities can expect to incur additional costs as a result of pricing carbon pollution. In recognition of this fact, the Government intends to return a portion of the proceeds collected through the price on carbon pollution to help these groups take climate action, and this will also help them lower their energy costs.

Estimates of support available for those groups in provinces that do not meet the federal carbon pollution pricing standard in fiscal years 2019-20 to 2023-24 are presented in Table 1.

Table 1: Estimated Support to Universities, Colleges, Hospitals, Schools, Municipalities, Non-Profit Organizations, and Indigenous Communities, 2019-20 to 2023-24

Province	2019-20	2020-21	2021-22	2022-23	2023-24	Total
Ontario	$50 million	$75 million	$100 million	$125 million	$125 million	$475 million
Saskatchewan	$15 million	$25 million	$30 million	$40 million	$40 million	$150 million
Manitoba	$5 million	$10 million	$15 million	$15 million	$15 million	$60 million
New Brunswick	$3 million	$4 million	$5 million	$5 million	$5 million	$22 million

Note: Annual amounts under $5 million are rounded to the nearest million; those over $5 million are rounded to the nearest $5 million. Estimates are illustrative and subject to adjustments as more information becomes available. Costs to administer the support are not included in the above figures and will be borne by the Government of Canada.

Further details on the program design will be outlined in early 2019.

In addition, universities, schools and hospitals can benefit from the Low Carbon Economy Fund (LCEF). Under both the Low Carbon Economy Leadership Fund and the LCEF Challenge, universities, schools and hospitals are eligible recipients for federal funding of proposals that aim to reduce greenhouse gas emissions and contribute to clean growth.

Additional information on support for Indigenous communities can be found in the backgrounder *Climate Action and Indigenous Peoples.*

This is **Exhibit OO** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

#224458

BACKGROUNDER

Support for Small and Medium-Sized Businesses

The Government of Canada has a plan to build a cleaner environment and a stronger economy for today and tomorrow. A key part of this plan, the Greenhouse Gas Pollution Pricing Act (GGPPA), which was enacted on June 21, 2018, establishes a federal Canada-wide standard for reducing carbon pollution. The federal standard gives provinces and territories the flexibility to choose a system that meets this standard and works best for them.

Provinces or territories that meet this standard with their own carbon pollution pricing systems will continue to reduce carbon pollution using their own systems. For all other provinces and territories, starting in 2019, a federal "backstop" carbon pollution pricing system will apply to ensure that all jurisdictions in Canada meet the federal standard.

Small and medium-sized enterprises (SMEs) are a critically important part of the Canadian economy. The Government recognizes that SMEs can expect to incur additional costs as a result of carbon pollution pricing, and is committed to providing additional support to help them take climate action, and lower their energy costs while remaining competitive.

Estimates of support available to small and medium-sized businesses in provinces that do not meet the federal carbon pollution pricing standard in fiscal years 2019-20 to 2023-24 are presented in Table 1.

Table 1: Estimated Support to Small and Medium-Sized Businesses, 2019-20 to 2023-24

Province	2019-20	2020-21	2021-22	2022-23	2023-24	Total
Ontario	$105 million	$155 million	$205 million	$255 million	$255 million	$975 million
Saskatchewan	$30 million	$45 million	$60 million	$80 million	$80 million	$295 million
Manitoba	$15 million	$20 million	$25 million	$35 million	$35 million	$130 million
New Brunswick	$5 million	$10 million	$10 million	$15 million	$15 million	$55 million

Note: Numbers are rounded to the nearest $5 million. Estimates are illustrative and subject to adjustments as more information becomes available. Costs to administer the support are not included in the above figures and will be borne by the Government of Canada.

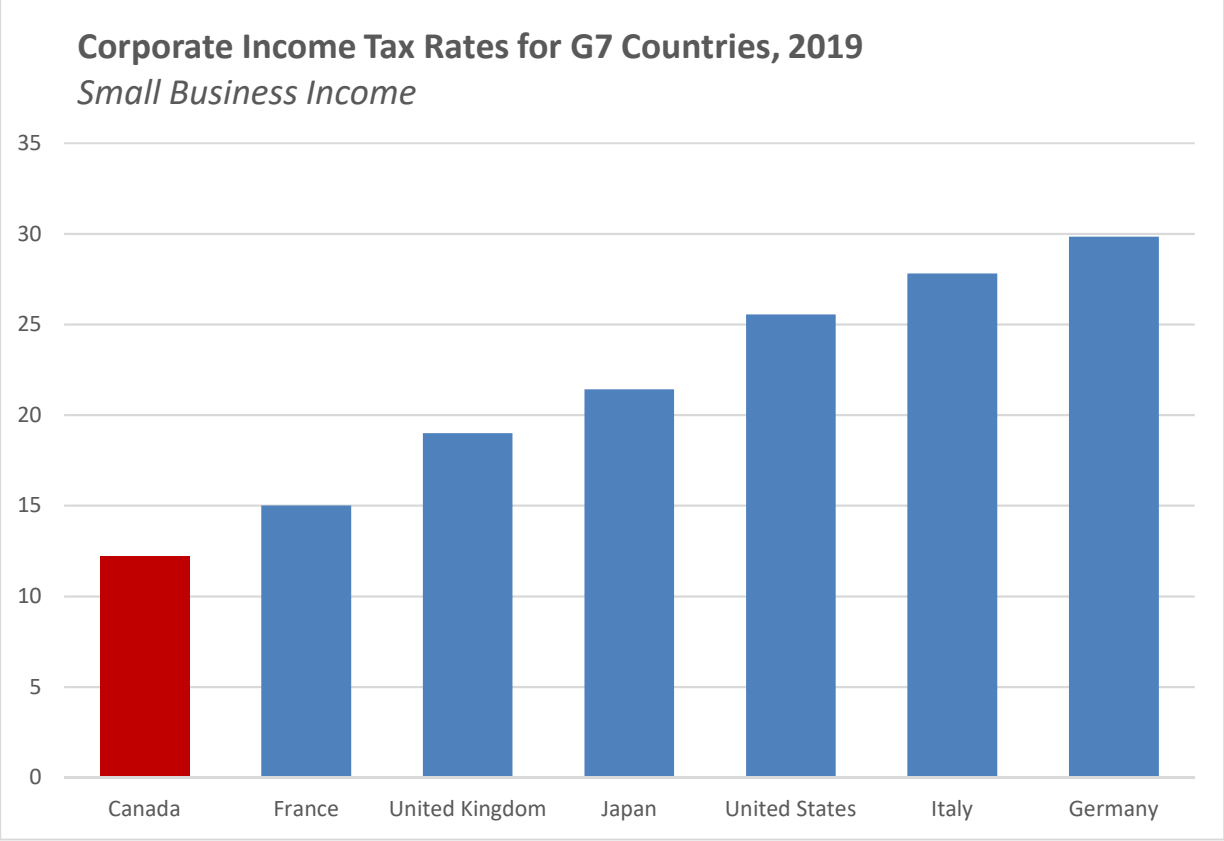
The Government is developing options on how best to deliver this direct support to eligible businesses. Further details on the program design will be outlined in early 2019.

In addition to this direct support, small and medium-sized firms will also benefit from proposed payments to individuals and families in the form of Climate Action Incentive payments. These payments will help to ensure that Canadian businesses continue to benefit from strong consumer demand and a growing economy.

The Government has also provided over $2.3 billion of support to Canada's clean technology companies since 2017. These companies are developing new technologies that other SMEs can integrate into their operations to be cleaner, more competitive, more efficient, and reduce their carbon pollution pricing costs.

In addition, SMEs are benefitting from the Low Carbon Economy Fund (LCEF). Under the LCEF Leadership Fund, the Government of Canada has so far contributed over $300 million to programs offered by provinces and territories for which SMEs are eligible, including for energy retrofits, energy efficient equipment upgrades and fuel switching. SMEs have also submitted project applications for the Low Carbon Economy Challenge, under the Champions Stream, for which funding decisions will be announced in early 2019. SMEs are also eligible to apply to the Partnerships Stream to be launched early in 2019.

Canadian small businesses are also benefiting from the Government's reduction of the small business tax rate, which was lowered to 10% in January 2018 and will be further reduced to 9% in January 2019. By this time next year, the combined average income tax rate for Canada's small businesses will be just 12.2%—the lowest in the G7 and the fourth-lowest among members of the Organisation for Economic Co-operation and Development.



Source: Organisation for Economic Co-operation and Development tax database

Along with a low small business tax rate, SMEs benefit from direct program support for scaling up, including access to financing and foreign markets, support for innovation, and services to build entrepreneurial and management capacity. Of note are services and products offered by the Business Development Bank of Canada as well as the Canada Small Business Financing Program, which helps small businesses obtain loans to finance equipment and leasehold improvements.

This is **Exhibit PP** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

#224458

BACKGROUNDER

Climate Action and Indigenous Peoples

Helping Indigenous Communities Access Climate Action Incentive Payments

In the provinces that have not taken action to meet the federal benchmark for pricing carbon pollution (Ontario, New Brunswick, Manitoba and Saskatchewan), the Government of Canada proposes to provide Climate Action Incentive payments directly to individuals.

Individuals in these provinces will claim the Climate Action Incentive payment by filing a T1 Income Tax and Benefit Return. Individuals who do not file their income tax return will not be able to access this payment and other benefits.

The Government recognizes that some individuals, including those in remote and northern Indigenous communities, may face distinct barriers to filing their tax return and accessing benefits. Two important initiatives are underway to ensure that Canadians receive the benefits to which they are entitled, including Climate Action Incentive payments.

The first initiative is the Community Volunteer Income Tax Program (CVITP), a collaboration between participating community organizations and the Canada Revenue Agency (CRA). These organizations host free tax preparation clinics and arrange for volunteers to prepare tax and benefit returns for low- and modest-income individuals in simple tax situations, including Indigenous persons. In Quebec, this program is known as the Income Tax Assistance – Volunteer Program, and volunteers prepare both the federal and provincial return.

The Government has more than doubled the size of the CVITP and the Income Tax Assistance – Volunteer Program. With total annual ongoing investments of $13 million in Budget 2016 and Budget 2018, the Government has quadrupled funding to support this program in recent years. Planned activities include significantly enhancing the outreach of this program, with an emphasis on outreach to Indigenous communities.

The second initiative by Service Canada is expanding provision of in-person support for tax filing and benefit applications to all on-reserve, remote and northern Indigenous communities, and piloting outreach activities for urban Indigenous communities. Planned activities will include information workshops, facilitation of social insurance number applications and birth registrations, direct support for completing federal benefit applications, and advice and support on tax filing. In Budget 2018, the Government provided funding of $17.3 million over three years, starting in 2018-19, to support these activities.

Supplement for Residents of Rural and Small Communities

The Government proposes to provide a supplementary Climate Action Incentive amount for residents of rural and small communities in recognition of their increased energy needs and

reduced access to clean transportation options. This supplement would be equal to 10 per cent of the payment amount to which they would otherwise be entitled. Rural and small communities would be defined as anywhere outside of a census metropolitan area, as defined by Statistics Canada.

Other Targeted Relief from the Fuel Charge

To address high costs of living and energy, full relief from carbon pollution pricing will be granted to diesel-fired electricity generation in remote communities. In addition, the Government is proposing fuel charge relief for aviation fuels in the territories. More information on targeted relief from the fuel charge is available in the backgrounder titled Targeted Relief for Farmers and Fishers, and Residents of Rural and Remote Communities.

Support for Particularly Affected Sectors including Indigenous Communities

The Government is developing options to provide direct support to particularly affected sectors of the economy in backstop jurisdictions — including small and medium-sized enterprises (SMEs), municipalities, non-profit organizations, and Indigenous communities — in recognition of the additional costs these sectors incur as a result of carbon pollution pricing. Further details on the program design to support particularly affected sectors will be outlined in early 2019.

This is **Exhibit QQ** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

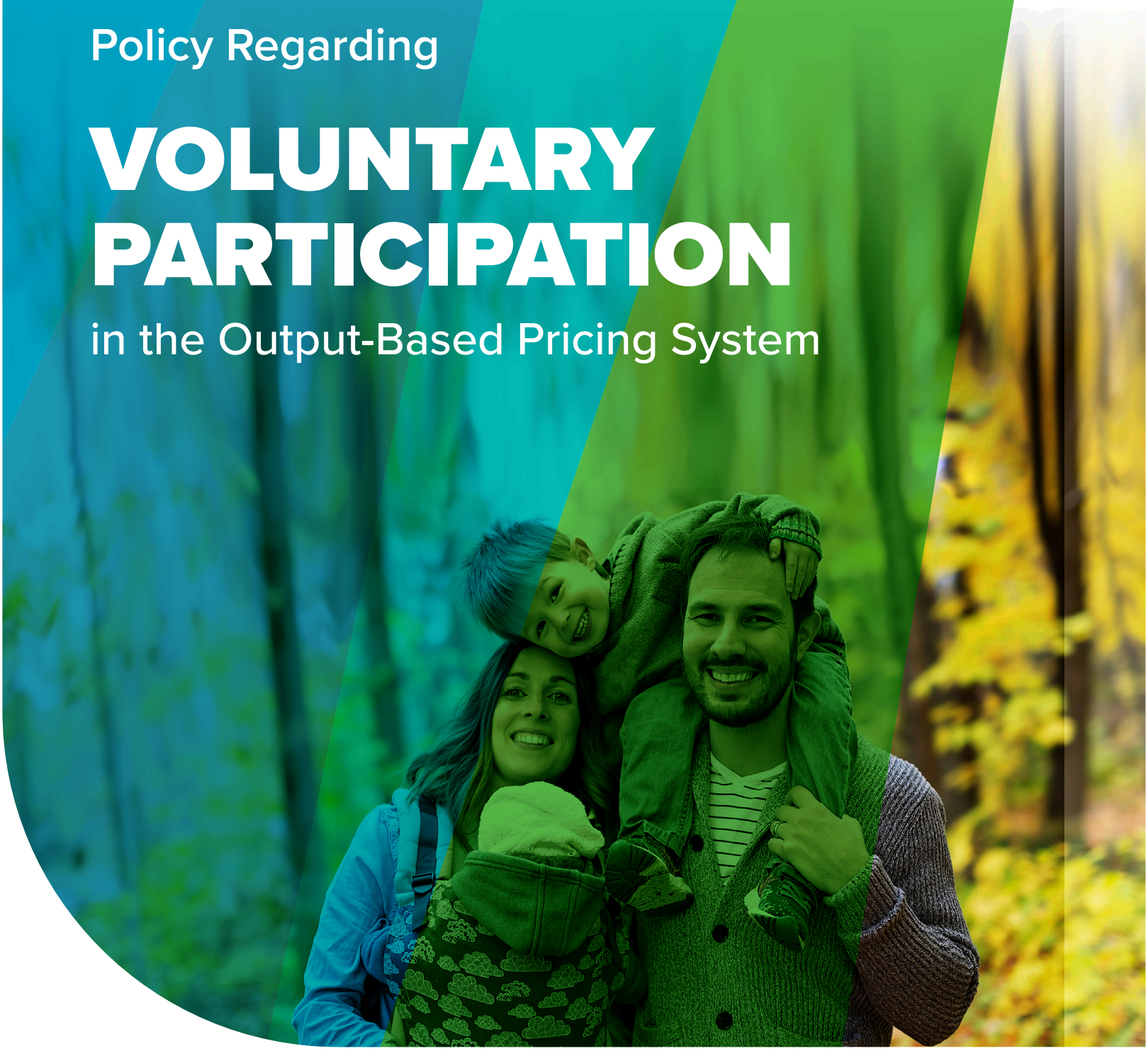
#224458

Environment and Climate Change Canada
Environnement et Changement climatique Canada

Policy Regarding

VOLUNTARY PARTICIPATION

in the Output-Based Pricing System



Canada

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Aussi disponible en français

POLICY REGARDING VOLUNTARY PARTICIPATION IN THE OUTPUT-BASED PRICING SYSTEM

PURPOSE

Under section 172 of the *Greenhouse Gas Pollution Pricing Act* (GGPPA), a person responsible for a facility may request that the facility be designated as a covered facility under the Act. This policy outlines considerations the Minister would take into account when making such a designation. It also outlines the procedures that the person responsible for such facilities is to follow when requesting such a designation. This policy does not apply to facilities that meet the criteria in the *Notice Establishing Criteria Respecting Facilities and Persons and Publishing Measures*[1] (the Notice) issued under section 194 of the GGPPA.

The aim of this policy is to minimize competitiveness and carbon leakage risks from the exposure of a sector to the federal fuel charge (under Part 1 of the GGPPA), while retaining a price signal on carbon pollution that creates an incentive to reduce greenhouse gas emissions.

DEFINITIONS

For the purposes of this policy, facility has the same meaning as under the Notice.

Covered activity means a covered activity listed in section 3 of the Notice.

The date of commissioning means either:

a) the date on which the facility first produces a product resulting from carrying out a covered activity;

b) the date on which the facility starts producing a product resulting from carrying out a covered activity after a major retrofit has occurred; or

c) the date on which a facility resumes producing a product resulting from carrying out a covered activity after an expansion has occurred.

A major retrofit has occurred if the facility has made an investment equal to or greater than 25% of the original capital required for the facility, adjusted for inflation, and the facility no longer carries out a previous covered activity and instead carries out a new covered activity.

An expansion has occurred when a facility has increased its production resulting from carrying out a covered activity by 25% or more.

[1] Available at http://gazette.gc.ca/rp-pr/p2/2018/2018-10-31/html/sor-dors213-eng.html

DESIGNATION AS A COVERED FACILITY

EXISTING FACILITIES

1. The facility is located in a province or area set out in Part 2 of Schedule 1 to the GGPPA;
2. The facility is used to carry out any of the covered activities listed in section 3 of the Notice in a province or area set out in Part 2 of Schedule 1 of the GGPPA;
3. A report was made, in accordance with a *Notice with respect to reporting of greenhouse gases* (GHGs) published under section 46 of the *Canadian Environmental Protection Act, 1999*, in respect of that facility indicating that that facility emitted a quantity of greenhouse gases equal to 10 kt of CO_2e or more, as one or more facilities as defined in such a notice, during the 2017 calendar years or after; and
4. A complete application for registration in the Output-based Pricing System is submitted in respect of the facility in the form and manner determined by the Minister. The application must be made by a person responsible for that facility. For the purpose of section 172 of the Act, the organization or individual that is the owner or operator is the person responsible for that facility.

NEW, RETROFITTED OR EXPANDED FACILITY

1. The facility is located in a province or area set out in Part 2 of Schedule 1 to the GGPPA;
2. The facility is used to carry out any of the covered activities listed in section 3 of the Notice in a province or area set out in Part 2 of Schedule 1 of the GGPPA;
3. The facility was not required to report greenhouse gas emissions under a previous *Notice with respect to reporting of greenhouse gases* (GHGs) published under section 46 of the *Canadian Environmental Protection Act, 1999*, and:

   a) Was first commissioned in the past three years but no earlier than 2017,

   b) Has undergone a major retrofit in the past three years, or

   c) Has undergone an expansion in the past three years,

   The facility submits as part of its application for registration in the Output-based Pricing System estimates, bearing a valid engineering stamp in accordance with the law of a province or territory that governs the practice of professional engineering, that demonstrate the facility is projected to emit 10 kt of CO_2e or more per year within 3 years from the date of commissioning. Such estimates should be consistent with currently recognized industry practices for the quantification of emissions; and
4. A complete application for registration in the Output-based Pricing System is submitted in respect of the facility in the form and manner determined by the Minister. The application must be made by a person responsible for that facility. For the purpose of section 172 of the Act, the organization or individual that is the owner or operator of the facility is the person responsible for the facility.

TIMING

A responsible person for a facility may request that it be designated as a covered facility at any time. A responsible person for a facility that makes an application under this policy will receive a notification indicating the decision regarding their request to have their facility designated as a covered facility.

This policy may be amended from time to time.

This is **Exhibit RR** referred to in the

affidavit of **John Moffet**

affirmed before me on **January 29, 2019**

Commissioner for Oaths for Québec

#224458

Climate Action in Ontario: What's Next?

2018 Greenhouse Gas Progress Report

Environmental Commissioner of Ontario

How can Ontario rebuild its climate policy?

Here's how to start.

The ECO recommends that the provincial government develop a climate framework with the following central features:

1. Commit: targets and law

a. A climate law that commits the provincial government to a credible, long-term program to achieve statutory emission reductions that:
   i. meets Ontario's fair share of Canada's emission reduction obligations and creates good jobs (see sections 1.5 and 3.1 of this report), and
   ii. meets the requirements of the Pan-Canadian Framework to unlock federal funds (section 3.3).

b. Legally binding carbon budgets set well in advance, based on non-partisan, expert advice, coupled with rigorous progress reporting and independent evaluation (section 2.1).

c. Provincial leadership on adaptation and preservation of natural areas (Part 4).

2. Plan a pathway

a. A transparent, achievable, cost-effective pathway to each carbon budget. The model described in this report is a good start. Note: The lowest cost pathways require much more clean electricity and storage than the current Long-Term Energy Plan will provide (section 3.1).

3. Take action

a. Effective policy tools to achieve the necessary emission reductions, using the lowest cost pathway, public health and ecological integrity to choose priorities. Appendix A contains a convenient menu of the potential tools discussed in this report.

b. Act fast and take advantage of work already done, here and elsewhere. Ontario is not starting from scratch and does not need to reinvent the wheel. Build on the best of the previous programs. Emphasize efficiency first (e.g., in social housing, schools, hospitals) (section 1.3, Appendix B).

c. Minimize disruption from the cancellation of previous programs (section 1.4).

4. Check and improve

a. Monitor and report progress to the public, with third-party validation (section 2.2), and

b. Revise plan and actions as needed to stay on track for targets (section 2.2).

Listen

At each stage, it is essential to listen to Ontarians. Ontarians deserve a real consultation, in compliance with the *Environmental Bill of Rights*, on every key step of Ontario climate policy. This includes having an open and honest conversation about what climate disruption will cost and who will pay for it (Part 4). Climate policy is too important to be decided behind closed doors, without telling Ontarians what is planned or hearing what they have to say (section 2.2).

Environmental Commissioner of Ontario | Commissaire à l'environnement de l'Ontario

September 2018

The Honourable Ted Arnott
Speaker of the Legislative Assembly of Ontario

Room 180, Legislative Building
Legislative Assembly
Queen's Park
Province of Ontario

Dear Speaker:

In accordance with section 58.2 of the *Environmental Bill of Rights, 1993* (*EBR*), I am pleased to present the 2018 Greenhouse Gas Progress Report of the Environmental Commissioner of Ontario for your submission to the Legislative Assembly of Ontario. This Annual Report is my independent review of the progress of activities in Ontario to reduce emissions of greenhouse gases.

Sincerely,

D Saxe

Dianne Saxe
Environmental Commissioner of Ontario

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Contents

Introduction

The challenges of the transition to a low carbon economy are great, but the opportunities are greater.

Accelerating Green Finance, UK Green Finance Task Force

Ontario has a huge climate challenge.

Ontario has a huge climate challenge. It is no longer possible for us to have both a safe, predictable climate that sustains our lives and economy, and unlimited fossil fuel use. We must take most fossil fuels and other sources of greenhouse gases (GHGs) out of our economy – soon – or the consequences may overwhelm us. No one wants to contaminate the world our children will live in, but that's what fossil fuels do. Ontario must also get ready for the impacts of climate disruption, both those that have arrived and those that are still ahead.

Ontarians can pull together to meet this challenge. There are opportunities all over our province to reduce fossil fuel use, to protect natural systems and to build better lives for us and for future generations. There can be challenging adjustments along the way, and we must all be willing to make some changes and some sacrifices. But the changes we need seem harder and scarier than they really are, and they bring along with them important health and economic benefits.

To succeed requires both urgency and patience. Urgency, because only urgent action can stem the tide of impacts we are now feeling from climate disruption, preserve our way of life and turn this challenge into opportunity. Each additional tonne of GHGs makes the problem bigger. And patience, because it takes time for policy and investment changes to have much effect on reducing the emissions that drive climate change. Industries and investors need government policies to deliver a steady, reliable signal as to what can be expected, looking ten years ahead and longer.

Ontario is already on its way. Low-carbon ideas, innovation and opportunities have bloomed as Ontarians use their intelligence, resourcefulness, and passion for the future of their children to transform their use of energy and to look after their communities. Businesses, municipalities, citizen groups, colleges, universities and many others have shown how, and they are ready to do more.

Ontario is already on its way.

But they cannot do their best without leadership from the provincial government. An effective response to climate change does not have to mean government spending more money, but the government has essential roles that no one else can play. Only with strong, clear provincial rules, targets and incentives can individuals, municipalities and the private sector build on the momentum and do their best.

The government has essential roles that no one else can play.

There is no mystery in the key roles that the provincial government must play. It is the government's responsibility to:

- **Set strong, legally binding, durable targets and metrics.** Emission reduction targets should be consistent with Canada's international obligations and climate science; and set by statute, with firm short- and long-term dates.
- **Build public understanding.** Ontarians need an open conversation about climate risks and opportunities, what they will cost and who will pay for them. The government should engage and empower Ontarians by giving them information and tools they need. People need to know that everyone is doing their fair share, what solutions work and where to get them, and how their own role fits in. They also need to know that what seems appealing in the shortrun, such as reducing the cost of gasoline, damages our chances of being winners in the new low-carbon economy.
- **Listen to Ontarians.** It is the law. *The Environmental Bill of Rights* gives Ontarians the right to participate in significant environmental decisions of the provincial government, and climate policy involves some of the most significant environmental decisions that the provincial government can make. Ontarians have a lot to contribute when it comes to good climate policy. The government does not know everything.
- **Set rules and incentives that drive down, and provide alternatives to, fossil fuel use.** We all need both the ability and the economic incentive to dramatically reduce our use of fossil fuels. This will only happen when fossil fuels are less necessary, less available, less convenient, less permitted, less socially acceptable and/or more expensive. Fossil fuel use will not go down enough by itself.
- **Avoid locking in fossil fuel dependence, which drives emissions up.** It is cheaper and more effective to design efficiency and low emissions into new communities, buildings, vehicles and infrastructure than to try and retrofit them later.
- **Support cleaner technologies.** New technical solutions can drive down the cost and pave the way to a greener economy. Government should fund the research and innovations that Ontario needs, and support them with adequate funding and incentives.
- **Measure and report progress.** Regular public reports on where we started, how far we have come, where we are on track and where we are falling behind allow government, and the people of Ontario, to learn from experience and to improve how policy tools work. Independent, non-partisan evaluations of the reports can help keep them credible.
- **Lead by example.** Government can show Ontarians how it is done, and prove that we can do it.

The ECO will report to the Speaker, and to the people of Ontario, on how well the provincial government accomplishes each of these roles.

Summary

Dianne Saxe
Environmental Commissioner of Ontario

Part 1: Ontario (again) needs a climate policy

Ontario has a huge climate challenge.

Although climate disruption is already starting to hammer Ontario, we continue to emit high levels of greenhouse gas pollution. It is no longer possible for us to have what we all want: both a safe, predictable climate that sustains our lives and economy and unlimited fossil fuel use. Like other places, Ontario must take most fossil fuels and other sources of greenhouse gases out of our economy, and soon.

Despite the odds, Ontario can still meet this challenge. There are opportunities all over Ontario to be less wasteful and more self-reliant, while building better lives. Businesses, municipalities, citizen groups, universities and others have shown the way, and are ready to do more.

The government has essential roles that no one else can play.

But they cannot do it without strong leadership from the provincial government. An effective response to climate change does not have to mean government spending more. But the government has essential roles that no one else can play. Only with strong, clear provincial targets, rules and incentives can individuals, municipalities and the private sector do their best. Fortunately, a good climate policy is still achievable, and would bring Ontario many benefits.

Climate disruption already affects Ontario, and will get worse.

1.1 Why climate disruption matters in Ontario

The science of climate change is beyond reasonable doubt. After 30 years of intense study, virtually all of the world's climate scientists agree: climate disruption is here, and accelerating faster than seemed possible just a few years ago. It affects us, not just polar bears. We humans cause it, and every time we use fossil fuels (e.g., gasoline, natural gas), we make it worse. No one wants to contaminate the world we and our children live in, but that's what using fossil fuels does.

What used to be "normal" weather is gone.

Photo credit: Shawn Goldberg / Alamy Stock Photo

What used to be "normal" weather is gone, and cannot come back. Extreme events, e.g., heat waves, drought and storms, are affecting people across the province. Warmer, wilder, unpredictable weather is damaging tourism, agriculture and infrastructure. Flooding has devastated some Ontario families. Hotter weather and wildfire smoke pollute air and damage public health. Lyme disease, the first climate disruption epidemic, has reached Ontario. Water supplies and wildlife in some areas are stressed. Fire-fighting costs and insurance losses are rising. Ten percent of Canadian properties may soon be too high risk to be insured by the private sector if no measures are taken to mitigate flood risk by the owner or through public policy.

Worst case climate scenarios are all too believable and should be central concerns of contemporary public policy.

If we work together, it is not yet too late.

If we work together, it is not yet too late to reduce the damage that is coming. In 2015, all the countries of the world agreed to work together to protect ourselves and our children from the overwhelming threats of climate change. Canada made important international commitments to do its fair share in this global task; Ontario can, and must, do its part.

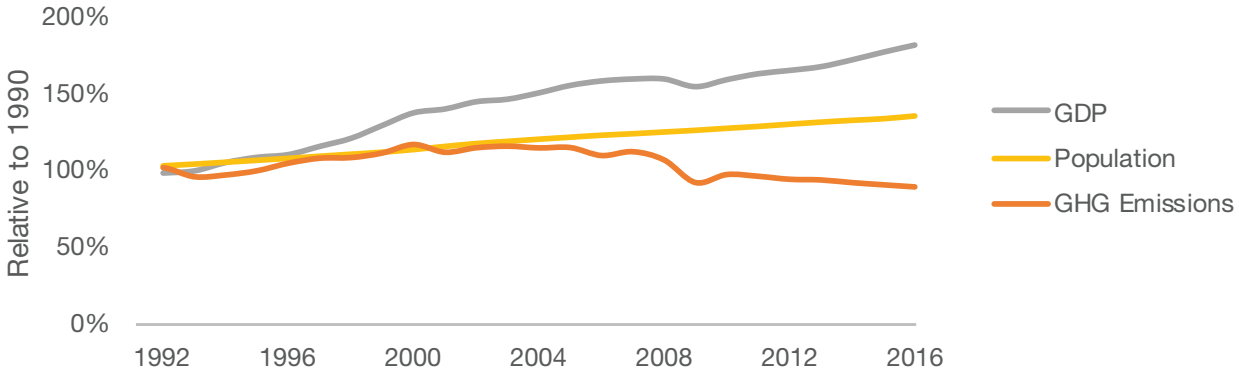
1.2 Ontario's greenhouse gas emissions were dropping

Ontario's greenhouse gas emissions in 2016 were the lowest since reporting began in 1990. This continues the recent downward trend in emissions that allowed Ontario to meet its 2014 emissions-reduction target of 6% below 1990 levels.

1.3 How Ontario brought emissions down

Ontario became a world climate leader after years of hard work that included:

- closing coal plants
- slowing urban sprawl and promoting conservation
- the 2009 *Green Energy and Green Economy Act*
- the 2016 *Climate Change Mitigation* and *Low-carbon Economy Act* and its cap and trade system
- joining the shared carbon market with California and Quebec, and
- joining the Pan-Canadian Framework on Clean Growth and Climate Change.

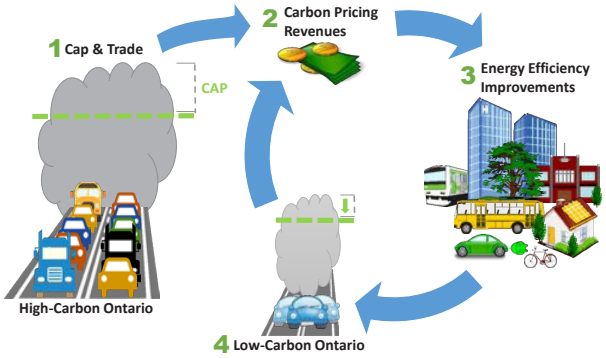


Ontario greenhouse gas (GHG) emissions compared to gross domestic product (GDP) and population trends by year.

Source: Statistics Canada, *Gross domestic product, expenditure-based, provincial and territorial* (2018), CANSIM Table 384-0038; Statistics Canada, Population by year, by province and territory (2018), CANSIM Table 051-0001.

Despite flaws, these were good policies that worked. Ontario's greenhouse gas emissions dropped to the lowest level ever reported, while the economy and population grew.

Cap and Trade Cycle



Cap and trade was providing the motivation and billions in funding for meaningful emission reductions across the province; climate leadership was enhancing Ontario's reputation and drawing in foreign investment. In short, there was some inefficiency, but cap and trade was on its way to producing many economic and environmental benefits for the people of Ontario.

Where are we now?

No climate policy, no emissions targets, no money for solutions. Climate polluters pollute for free. Good conduct is punished and bad conduct is rewarded.

1.4 2018: A wrenching halt

Unfortunately, cap and trade was both complex and poorly communicated; for some, its costs were more obvious than its benefits. Today, cap and trade, the low-carbon programs that it funded, and 752 renewable energy projects have all been swept away, with nothing in their place. The government's proposed replacement, the *Cap and Trade Cancellation Act* (Bill 4), currently lacks most of the features of a good climate law.

Without a strong climate law, Ontario's climate pollution will grow, we will not keep our word, and we will lose out on good jobs, clean air, lower health costs and more.

1.5 Ontario needs climate action

Ontario cannot afford to give up fighting climate change. The window for action is shrinking fast. The sooner we act, the easier and less costly it will be.

The most effective methods of fighting climate change can also improve public health and create good jobs. Today, air pollution from fossil-fueled vehicles is a major threat to air quality and public health in Ontario cities. And Ontarians could make much better use of the $11 billion that we spend every year to import fossil fuels; energy conservation can increase our self-reliance and keep some of that money circulating in Ontario.

Photo credit: Toronto Hydro.

Ontarians need to pull together and protect what we care about.

There are many tried and tested policy options. Ontarians need to pull together and protect what we care about. Government must provide leadership and be clear about the tough decisions, and opportunities, ahead of us. If we choose what seems appealing in the short run, such as reducing the cost of gasoline, we damage our own chances of being winners in the low-carbon economy.

So Ontario again needs a strong climate strategy – one that meets our fair share of Canada's international obligations, reduces our climate pollution, improves air quality and creates good jobs. Ontario must also adapt, i.e., get ready for the climate disruptions ahead.

Why does Ontario need stable climate change policies?

To attract investment and talent, and to give policies time to work.

Part 2: Commitment and credibility

One key feature of an effective climate policy is consistency over time. Transforming Ontario's relationship to fossil fuels is a long-term challenge that requires sustained research, training, innovation, and investment; all are easily disrupted by policy changes.

There is no perfect answer, but the best international model for long-term consistency is the United Kingdom's *Climate Change Act*. The U.K. Parliament sets legally binding long-term emission limits, plus five-year carbon budgets 12 years in advance, based on non-partisan, expert advice and reporting. Ontario should do the same.

The government should consult the people of Ontario.

To make better decisions that people can trust.

Another key feature of an effective climate policy is good consultation with the public, as the *Environmental Bill of Rights (EBR)* requires. For almost 25 years, the *EBR* has provided a solid framework for public consultation on significant environmental decisions, improving the quality of government decisions and increasing public acceptance of their legitimacy.

Photo credit: Toronto Hydro.

Can Ontario meet strong climate targets with existing technology?

Yes, with better government policies.

Part 3: Tools for reducing emissions

3.1 The least-cost pathway

Ontario can still achieve stringent emission reductions by 2030 and 2050.

A detailed model of Ontario's energy system, commissioned by the ECO, shows that Ontario can minimize the cost of reducing emissions by:

- investing in new emissions reduction technologies, including carbon capture and storage, and ways to store carbon in natural systems
- significantly conserving energy and increasing Ontario's clean electricity supply, and
- preparing to minimize fossil fuel use in transportation, buildings and industry.

3.2 The three-legged stool

To get there, government must choose the right policy tools. Like a three-legged stool, effective government policy to reduce greenhouse gas pollution combines:

- taking advantage of the power of the polluter-pay principle (section 3.3)
- unlocking funds for the low-carbon solutions that Ontario needs (section 3.4), and
- regulating climate pollution (section 3.5).

Polluter-pay programs are fair and they work.

3.3 Making polluters pay

The first key element is a "polluter pay" price on carbon or related pollution emitted into the atmosphere. Without it, polluters have no financial incentive to reduce their pollution. Ontario has just given up one version of this tool, but may end up with another if the federal government implements its carbon tax backstop. There are also other variations, such as congestion pricing or feebates.

Without a carbon price, where can the money come from?

Good policies can unlock some public and private funds.

3.4 *Finding ways to pay for solutions*

The second key element is funding to invest in low-carbon solutions. Without the $1.9 billion/year from cap and trade, how can Ontario unlock funds for these solutions, especially if the federal carbon tax does not kick in? We review some other options, including stopping Ontario's subsidies for fossil fuel use.

Without polluter pay, what will drive emissions down?

Regulations will have to do most of the heavy lifting.

3.5 *Regulating climate polluters*

The third key element is regulation of climate pollution, and enforcement of those regulations. In many jurisdictions, regulations do most of the heavy lifting.

Transportation, buildings and waste are key sectors for regulation because emissions from all three sectors have grown since 1990. The strongest regulations directly affect emissions, such as bans, pollution limits or technology or performance requirements. Supplementary regulations may motivate emission reductions, such as reporting and disclosure requirements, and may also facilitate voluntary action.

Photo credit: SimplyCreativePhotography

What can we do to prepare for climate disruption?

Lots, and the province must lead the way.

Part 4: Getting ready for what's coming

Ontario must also prepare for heat, winds, fires, floods, droughts and other extreme events. The costs of adapting to (and coping with) climate disruption could be enormous, and Ontario needs an open conversation on who is going to pay for them. For example, what, if anything, will the government do for property owners or tenants who do not or cannot purchase flood insurance?

In addition, the Ontario government needs to:

- understand Ontario's key vulnerabilities, and protect natural areas that buffer extreme events
- provide trustworthy data on the future climate that new infrastructure must be built for, and
- encourage Ontarians to increase their own resilience to what's ahead.

How can Ontario rebuild its climate policy?

Here's how to start.

Part 5: Summary of key recommendations

The ECO recommends that the provincial government should immediately develop a climate framework with the following central features:

1. **Commit: targets and law**
   a. A climate law that commits the provincial government to a credible, long-term program to achieve statutory emission reductions that:
      i. meets Ontario's fair share of Canada's emission reduction obligations and creates good jobs (sections 1.5 and 3.1), and
      ii. meets the requirements of the Pan-Canadian Framework to unlock federal funds (section 3.3).

   b. Legally binding carbon budgets set well in advance, based on non-partisan, expert advice, coupled with rigorous progress reporting and independent evaluation (section 2.1).

   c. Provincial leadership on adaptation and preservation of natural areas (Part 4).

2. **Plan a pathway**
   a. A transparent, achievable, cost-effective pathway to each carbon budget. The model described in this report is a good start. Note: The lowest-cost pathways require much more clean electricity and storage than the current Long-Term Energy Plan will provide (section 3.1).

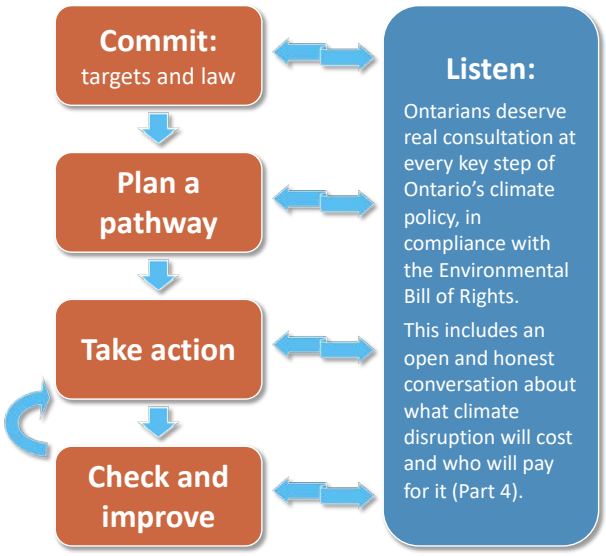
3. **Take action**
   a. Effective policy tools to achieve the necessary emission reductions, using the lowest-cost pathway, public health and ecological integrity to choose priorities. Appendix A contains a convenient menu of the potential tools discussed in this report.

   b. Act fast and take advantage of work already done, here and elsewhere. Ontario is not starting from scratch and does not need to reinvent the wheel. Build on the best of the previous programs. Emphasize efficiency first (e.g., in social housing, schools, hospitals) (section 1.3, Appendix B).

   c. Minimize disruption from the cancellation of previous programs (section 1.4).

4. **Check and improve**
   a. Monitor and report progress to the public, with third-party validation (section 2.2), and

   b. Revise plan and actions as needed to stay on track for targets (section 2.2).



IN THE MATTER OF A REFERENCE to the Court of Appeal pursuant to section 8 of the *Courts of Justice Act*, RSO 1990, c. C.34, by Order-in-Council 1014/2018 respecting the constitutionality of the *Greenhouse Gas Pollution Pricing Act*, Part 5 of the *Budget Implementation Act, 2018, No. 1*, SC 2018, c. 12

Court of Appeal File No.: C65807

COURT OF APPEAL FOR ONTARIO
Proceedings commenced at Toronto

AFFIDAVIT OF JOHN MOFFET AFFIRMED JANUARY 29, 2019 FILED ON BEHALF OF THE ATTORNEY GENERAL OF CANADA

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AFFIDAVIT OF DR. DOMINIQUE BLAIN
AFFIRMED ON JANUARY 25, 2019
FILED ON BEHALF OF THE ATTORNEY GENERAL OF CANADA

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Docket: C65807

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AFFIDAVIT OF DR. DOMINIQUE BLAIN

I, DOMINIQUE BLAIN, of the Rural Municipality of Chelsea, in the Province of Quebec, SOLEMNLY AFFIRM AND DECLARE THAT:

1. I am the Director of Pollutant Inventories and Reporting Division of the Science and Technology Branch of Environment and Climate Change Canada (ECCC). I have been employed by ECCC since 2000. I have held the position of Director of the Pollutant Inventories and Reporting Division since February, 2013.

2. In my role as Director of the Pollutant Inventories and Reporting Division, I am responsible for overseeing a multidisciplinary team of over 40 scientists and engineers who develop and implement methods to quantify anthropogenic emissions of greenhouse gases (GHGs) and other pollutants.

3. The Pollutant Inventories and Reporting Division develops, periodically updates, and reports Canada's national inventories of GHG emissions and atmospheric pollutants. In addition to developing emission inventories, the Pollutant Inventories and Reporting Division tracks emission trends and progress towards emission reduction objectives. The emission inventories and trends contained therein are submitted, on behalf of the Government of Canada, to the *United Nations Framework Convention on Climate Change* (*UNFCCC*) and the United Nations Economic Commission for Europe (UNECE).

My Experience

4. I obtained a Bachelor of Science in Geography at Concordia University in 1986, a Master of Science in Biogeography from York University in 1989, and a Doctor of Philosophy in Forestry from the University of Toronto in 1996. Prior to my current position as Director of the Pollutant Inventories and Reporting Division, I was Manager with the Greenhouse Gas Division of Environment Canada from 2006 to 2012 and a Senior Policy Advisor for the Economics and Programs Branch of Canadian Forest Service of Natural Resources Canada from 2012 to 2013.

5. I have made many international contributions to developing the scientific methodologies for monitoring and reporting on GHG emissions in national inventories. I am Canada's elected representative on the Bureau of the Intergovernmental Panel on Climate Change (IPCC) Task Force on National Inventories. I have been informed by counsel for Canada that the IPCC will be described in the affidavit of Mr. John Moffet. I have been an author, a coordinating lead author, and a review editor of methodological reports published by the IPCC. I am also recognized as a contributing individual to the award of the Nobel Peace Prize to the IPCC in 2007.

UNFCCC Reporting Guidelines

6. All countries listed as a party in Annex I to the *UNFCCC* (Party to the *UNFCC*C) are required to prepare and submit national GHG inventories by 15 April of each year. The *UNFCCC* was ratified by Canada in December 1992 and came into force in March 1994, making Canada a Party to the *UNFCCC*. I have been informed by counsel for Canada that the *UNFCCC* will be attached as an Exhibit to the Affidavit of Mr. John Moffet.

7. Pursuant to the requirements of Articles 4 and 12 of the *UNFCCC*, Canada develops, periodically updates, publishes, and reports its national inventories of anthropogenic emissions by source and removals by sinks of all GHGs not controlled by the *Montreal Protocol on Substances that Deplete the Ozone Layer* (*Montreal Protocol*). I am informed by counsel for Canada that the *Montreal Protocol* will be described in the affidavit of Mr. John Moffet. In the context of national inventories, an emission is defined as "the release of greenhouse gases and/or their precursors into the atmosphere over a specified area and period of time"; a removal is defined as "removal of greenhouse gases and/or their precursors from the atmosphere by a sink"; and a sink is defined as "any process, activity or mechanism which removes a greenhouse gas, and aerosol, or a precursor of a greenhouse gas from the atmosphere" (Glossary of the 2006 IPCC Guidelines).

8. Standardized requirements for reporting national inventories under the *UNFCCC* have been developed by the Conference of the Parties (COP). I am informed by counsel for Canada that the COP will be described in the affidavit of Mr. John Moffet. Pursuant to the *UNFCCC*'s *Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories*, as revised (*UNFCCC* Reporting Guidelines), Canada must detail its emissions and removals of GHGs (carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3)) from five sectors: energy; industrial processes and product use; agriculture; land use, land-use change and forestry; and waste.

9. In accordance with the *UNFCCC* Reporting Guidelines, Canada prepares its inventory submissions in two parts: 1) common reporting format tables, being a series of standardized data tables containing mainly quantitative information; and 2) a national inventory report (NIR), being a report containing transparent and detailed information on the inventory and emission trends, including a description of the methodologies used in the estimations, the data sources, the institutional arrangements for the preparation of the inventory, and recalculations.

10. In keeping with *UNFCCC* Reporting Guidelines, Canada's national inventory uses 1990 as a base year of emissions. Each annual update of the inventory provides a complete time series of annual estimates, by sector and activity, from the base year to two years before the inventory is due. For example, the inventory that was published on 15 April 2018 covered emissions and removals for all years from 1990 to 2016. The complete time series enables an easy comparison with emissions in 2005, Canada's base year under the *Paris Agreement*. I have been informed by counsel for Canada that the *Paris Agreement* will be attached as an Exhibit to the Affidavit of Mr. John Moffet.

11. The *UNFCCC* Reporting Guidelines explicitly requires that inventory estimates be developed using methodologies consistent with those provided in the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* (2006 IPCC Guidelines). Although national inventories were originally prepared pursuant to the *UNFCCC* Reporting Guidelines to fulfil reporting obligations under the *UNFCCC*, these inventories offer a transparent, complete, comparable, consistent, and accurate historical picture permitting Canada to track emissions trends and their drivers.

2006 IPCC Guidelines for National Greenhouse Gas Inventories

12. The 2006 IPCC Guidelines provide a methodological framework and good practice guidance for estimating anthropogenic emissions by sources and removals by sinks for national GHG inventories. The 2006 IPCC Guidelines have been structured so that any country, regardless of experience and resources, should be able to produce reliable estimates of their emissions and removals of GHGs. These estimates will be internally consistent and generally

comparable between countries. The 2006 IPCC Guidelines provide for the use of refined methods and data to reflect national circumstances.

13. The production of IPCC Guidelines follows a stringent writing and review process that incorporates reviews by experts and by governments, culminating in a formal adoption by the IPCC Plenary. The 2006 IPCC Guidelines were developed based on the expertise, knowledge, and co-operation of over 250 experts and countless reviewers worldwide. I was a lead author of Volume 4: *Agriculture, Forestry and Other Land Use*. I was also a reviewer of the 2006 IPCC Guidelines. It is my belief that the 2006 IPCC Guidelines provide the best available methodological framework for the preparation of national emission inventories.

Overview of Canada's Inventory Preparation Process

14. Sources and sinks of pollutants originate from a range of economic sectors and activities. Data is collected by the Pollutant Inventories and Reporting Division from numerous data providers and using a range of tools. In compliance with the sector-specific methodological framework set out in the 2006 IPCC Guidelines that are refined to respect national circumstances, the Pollutant Inventories and Reporting Division is able to estimate sector- and source-specific GHG emissions.

15. The preparation of inventories follows strict timelines. Extensive quality control procedures, including internal and external reviews, are in place to ensure the estimates are accurate and reflect the best available knowledge. Estimates from a given source are calculated using the same methodologies in all years, ensuring that changes in emission trends are not introduced as a result of changes in estimation methods or assumptions over the series of annual estimates.

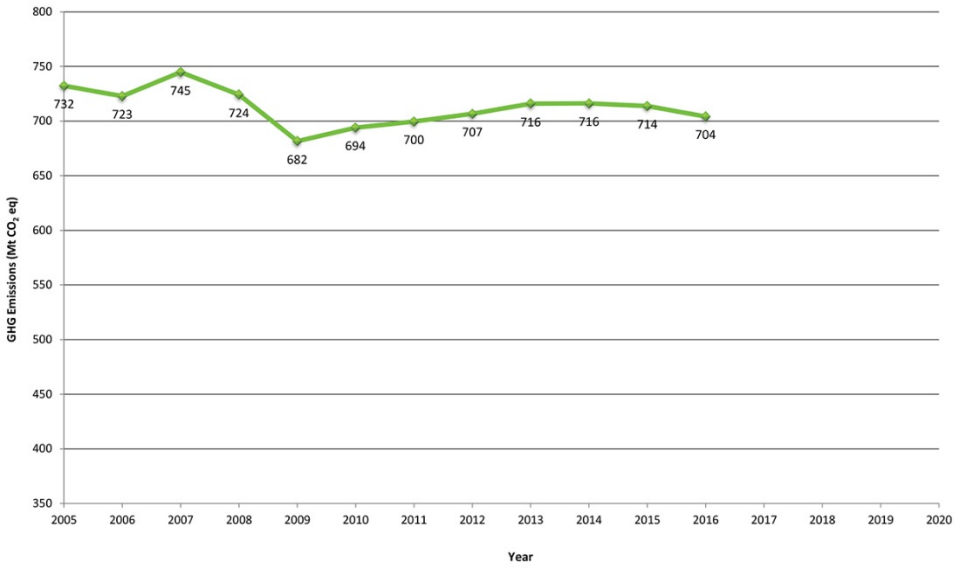
16. The quality of a GHG inventory depends on the integrity of the methodologies used, the completeness of reporting, and the procedures for compiling the data. Canada's national GHG inventory is a factual, science based assessment, consistent with the 2006 IPCC Guidelines, and prepared in accordance with the *UNFCCC* Reporting Guidelines. The national inventory is an authoritative source of information on GHG emissions in Canada.

Canada's Latest National GHG Inventory

17. Canada's most recent National Inventory Report ("NIR"), its 25th, was made to the *UNFCCC* on 13 April 2018. In the April 2018 submission, the most recent annual dataset is 2016, with emissions estimates between 1990 and 2016 being reported. An executive summary of the latest NIR, titled "National Inventory Report 1990-2016: Greenhouse Gas Sources and Sinks in Canada", is attached as Exhibit "A" to my affidavit.

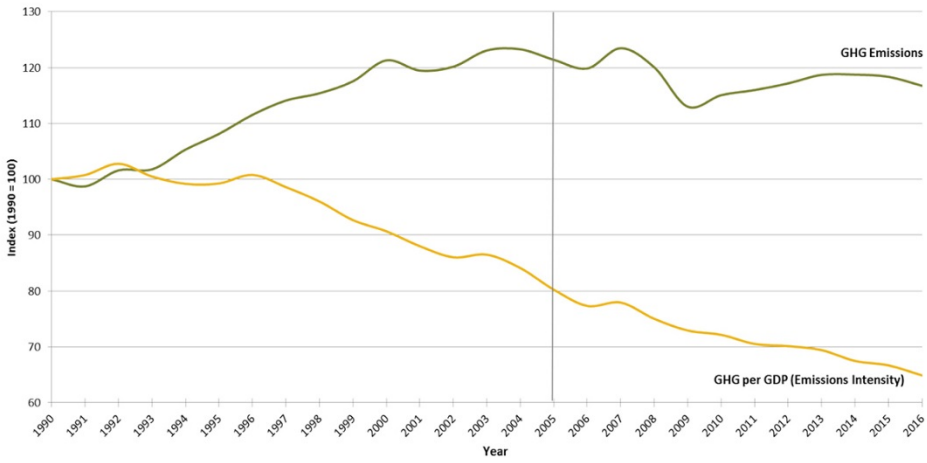
18. Canada's GHG emissions in 2016 were 704 megatonnes of carbon dioxide equivalent (Mt CO_2e). This is a net decrease of 28 Mt, or 3.8%, from 2005 emissions. Since 2005, annual emissions fluctuated between 2005 and 2008, dropped in 2009, then gradually increased until 2013.

Figure S–1 **Canadian GHG Emissions Trend (2005–2016) (excluding LULUCF)**



19. Canada's economy is growing more rapidly than its GHG emissions. As a result, the emissions intensity for the entire economy (GHG per GDP) has declined by 35% since 1990 and 19% since 2005. The decline in emissions intensity since 1995 can be attributed to fuel switching, increases in efficiency, the modernization of industrial processes, and structural changes in the economy. The following graph, prepared by the Pollutant Inventories and Reporting Division and published in the 2018 NIR, is the indexed trend in GHG emissions and GHG emission intensity from 1990-2016.

Figure S–4 **Indexed Trend in GHG Emissions and GHG Emissions Intensity (1990–2016)**



20. The following table, prepared by Pollutant Inventories and Reporting Division and published in the 2018 NIR, sets out for select years the trends in emissions and economic indicators.

Table S–1 **Trends in Emissions and Economic Indicators, Selected Years**

Year	2005	2010	2011	2012	2013	2014	2015	2016
Total GHG (Mt)	**732**	**694**	**700**	**707**	**716**	**716**	**714**	**704**
Change since 2005 (%)	NA	-5.2%	-4.5%	-3.5%	-2.2%	-2.2%	-2.5%	-3.8%
GDP (Billion 2007$)	**1 503**	**1 584**	**1 633**	**1 659**	**1 698**	**1 747**	**1 763**	**1 787**
Change since 2005 (%)	NA	5.4%	8.7%	10.4%	13.0%	16.3%	17.3%	18.9%
GHG Intensity (Mt/$B GDP)	**0.49**	**0.44**	**0.43**	**0.43**	**0.42**	**0.41**	**0.40**	**0.39**
Change since 2005 (%)	NA	-10.1%	-12.1%	-12.6%	-13.5%	-15.9%	-16.9%	-19.1%

Notes:
GDP data source: Statistics Canada a
NA = not applicable

21. Emissions and emission trends vary by province. As per the 2018 NIR, since 2005, emissions in Newfoundland and Labrador, Manitoba, Saskatchewan, Alberta, Northwest Territories, and Nunavut have increased. In contrast, since 2005, emissions in Prince Edward Island, Nova Scotia, New Brunswick, Quebec, Ontario, British Columbia, and Yukon have decreased.

Table S–4 **GHG Emissions by Provinces / Territories, Selected Years**

	GHG Emissions (Mt CO_2 eq)[1]								Change (%)
Year	1990	2005	2011	2012	2013	2014	2015	2016	2005–2016
GHG Total (Canada)	**603**	**732**	**700**	**707**	**716**	**716**	**714**	**704**	**-3.8%**
NL	9.3	9.9	10.0	9.4	9.4	10.4	10.6	10.8	8.7%
PE	1.9	2.0	2.1	2.0	1.7	1.7	1.7	1.8	-10%
NS	19.6	23.2	20.9	19.2	18.2	16.4	16.6	15.6	-33%
NB	16.1	20.1	18.7	16.8	14.8	14.4	14.3	15.3	-24%
QC	86.6	86.5	81.7	79.5	79.9	78.0	78.4	77.3	-11%
ON	179.2	204.7	172.5	169.1	168.4	165.4	162.9	160.6	-22%
MB	18.3	20.2	19.0	20.2	20.9	20.9	20.8	20.9	3.5%
SK	44.7	68.9	69.0	71.3	74.0	77.4	79.5	76.3	10.7%
AB	174.1	231.0	243.8	256.1	264.9	268.6	266.9	262.9	14%
BC	51.1	63.3	59.3	60.3	60.9	60.4	59.4	60.1	-5.1%
YT	0.5	0.5	0.7	0.7	0.6	0.4	0.5	0.4	-19%
NT	NA	1.6	1.4	1.5	1.4	1.5	1.7	1.6	3%
NU	NA	0.4	0.5	0.6	0.7	0.7	0.6	0.7	58%

Notes:
1. Totals may not add up due to rounding.

Recalculations and changes compared with previous inventory editions

22. Pursuant to the *UNFCCC* Reporting Guidelines, and in accordance with the 2006 IPCC Guidelines, recalculations are to be carried out when required to ensure the consistency, accuracy, and completeness of national inventories. Recalculations of the national inventories may be conducted as a result of correction of errors detected by quality control procedures, incorporation of updates to activity data, reallocation of emissions to different categories (although this only affects sub-totals), refinements of methodologies and emission factors, inclusion of categories previously not estimated, and incorporating recommendations from *UNFCCC* reviews. Where recalculations are made, the NIR provides explanatory information and justifications for recalculations.

23. For example, the emissions estimates for 2013 have been recalculated and updated annually based on continually evolving information and quantification methodologies. In the NIR submitted to the *UNFCCC* in 2015, Canada's national GHG emissions for 2013 were estimated to be 726 Mt CO_2e. This was the GHG emissions data used by the Working Group

on Carbon Pricing Mechanisms. In the NIR submitted to the *UNFCCC* in 2016, Canada's national GHG emissions for 2013 were estimated to be 731 Mt CO_2e, being 5 Mt CO_2e higher than the previous estimate. This recalculation was primarily due to updated activity data and energy statistics provided by Statistics Canada. In the NIR submitted to the *UNFCCC* in 2017, emissions estimates for 2013 were further recalculated to be 729 Mt CO_2e. The recalculations in the NIR submitted in 2017 were primarily due to updates in emission factors for coal as well as the implementation of an improved model and updated parameters for estimating emission from landfilled waste. Finally, in the NIR submitted to the *UNFCCC* in 2018, emissions estimates for 2013 were recalculated to be 716 Mt CO_2e. This latest recalculation is primarily due to new activity data in the energy sector, updated emission factors for stationary combustion emissions, and an updated model for solid waste disposal. Since original estimates were published in 2015, recalculations of 2013 GHG emissions have stayed within 1.4% of their original value.

Closing Ontario's coal-fired power plants drove Ontario's emissions reductions

24. The closure of 19 coal-fired generating units between 2005 and 2014 drove Ontario's reduction in greenhouse gas emissions between 2005 and 2016.

25. The majority of the decrease in Ontario's greenhouse gas emissions since 2005 was attributable to the closure of all 5 of Ontario's coal-fired electricity generation plants. Between 2005 and 2016, Ontario's greenhouse gas emissions decreased by 44 Mt, from 205 Mt to 161 Mt. The closure of Ontario's coal-fired electricity generation plants resulted in emissions from coal-fired electric power generation dropping from 30 Mt in 2005 to 0 Mt in 2016. Another 2.5 Mt of those emissions reductions relates to the 2009 recommissioning of the sole facility in Canada which had produced adipic acid, a compound used in the production of nylon and other plastics, which now produces other chemicals.

26. Each of those reductions in emissions for Ontario was reported in Canada's annual National Inventory Reports. The Table to Canada's most recent National Inventory Report that shows those reductions, Table A11-12, in Annex 11 of the latest NIR titled "National Inventory

Report 1990-2016: Greenhouse Gas Sources and Sinks in Canada", is attached as Exhibit "B" to my affidavit.

DECLARED UNDER OATH)
BEFORE ME at the City of)
Gatineau, in the Province of)
Québec, this 25th day of January)
2019.)
)

Commissioner for Oaths for Québec)
224458

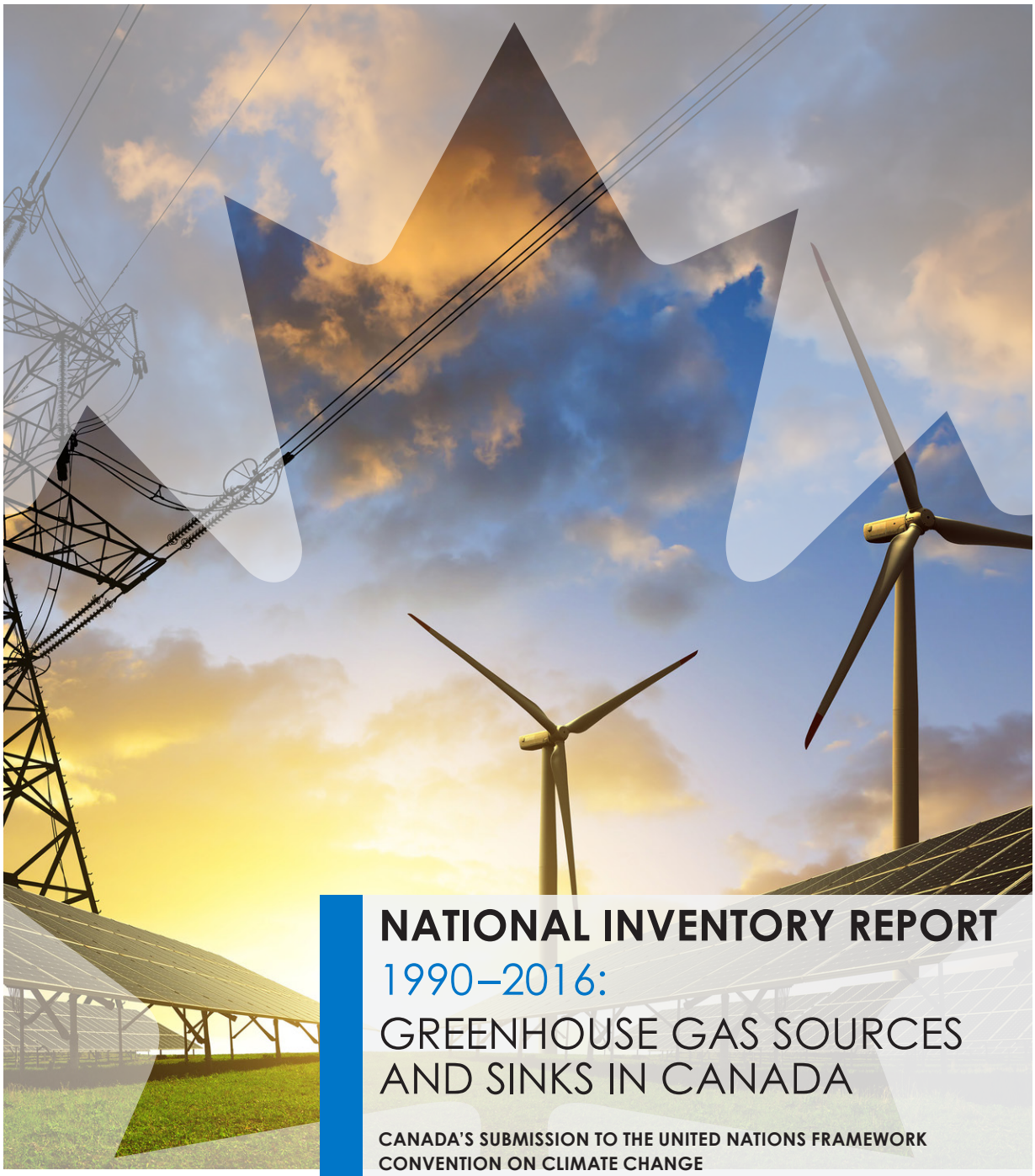
Dr. Dominique Blain

This is **Exhibit A** referred to in the
affidavit of **Dr. Dominique Blain**
affirmed before me on **January 25, 2019**

Commissioner for Oaths for Québec

#224458

Environment and Climate Change Canada
Environnement et Changement climatique Canada



NATIONAL INVENTORY REPORT 1990–2016: GREENHOUSE GAS SOURCES AND SINKS IN CANADA

CANADA'S SUBMISSION TO THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

EXECUTIVE SUMMARY

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Continues: Canada's Greenhouse Gas Inventory.
This report is available on Environment and Climate Change Canada's web site at https://www.canada.ca/en/environment-climate-change/services/climate-change/greenhouse-gas-emissions.html

1. Greenhouse gases—Canada—Measurement—Periodicals
2. Methane—Environmental aspects—Canada—Periodicals
3. Nitrous oxide—Environmental aspects—Canada—Periodicals
4. Carbon dioxide—Environmental aspects—Canada—Periodicals
5. Pollution—Canada—Measurement—Periodicals
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II. Pollutant Inventories and Reporting Division.
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EXECUTIVE SUMMARY

ES.1. Introduction

The United Nations Framework Convention on Climate Change (UNFCCC) is an international treaty established in 1992 to cooperatively address climate change issues. The ultimate objective of the UNFCCC is to stabilize atmospheric greenhouse gas (GHG) concentrations at a level that would prevent dangerous interference with the climate system. Canada ratified the UNFCCC in December 1992, and the Convention came into force in March 1994.

To achieve its objective and implement its provisions, the UNFCCC lays out several guiding principles and commitments. Specifically, Articles 4 and 12 commit all Parties to develop, periodically update, publish and make available to the Conference of the Parties (COP) their national inventories of anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol.[1]

Canada's National Inventory is prepared and submitted annually to the UNFCCC by April 15 of each year, in accordance with revised *Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories* (UNFCCC Reporting Guidelines), adopted through Decision 24/CP.19 at COP 19 in Warsaw in 2013. The annual inventory submission consists of the National Inventory Report (NIR) and the Common Reporting Format (CRF) tables.

The inventory GHG estimates include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), sulphur hexafluoride (SF_6) and nitrogen trifluoride (NF_3) in the following five sectors: Energy; Industrial Processes and Product Use; Agriculture; Waste; and Land Use, Land-Use Change and Forestry (LULUCF). The GHG emission and removal estimates contained in Canada's GHG inventory are developed using methodologies consistent with the Intergovernmental Panel on Climate Change's (IPCC) 2006 Guidelines for the preparation of National GHG Inventories. In line with the principle of continuous improvement, the underlying data and methodology for estimating emissions are revised over time; hence, total emissions in all years are subject to change as both data and methods are improved.

In May 2015, Canada indicated its intent to reduce GHG emissions by 30% below 2005 levels by 2030. In December 2015 at COP 21, Canada, alongside the other countries of the world, reached an ambitious and balanced agreement to fight climate change. Since 2005 was adopted as a base year for both Canada's 2020 and 2030 targets many of the metrics in this report are presented in that context, in addition to the 1990 base year as required by the UNFCCC Reporting Guidelines.

[1] Under the United Nations Environment Programme (UNEP), the Montreal Protocol on Substances that Deplete the Ozone Layer is an international agreement designed to reduce the global consumption and production of ozone-depleting substances.

The Pan-Canadian Framework on Clean Growth and Climate Change

Established on December 9, 2016, the Pan-Canadian Framework on Clean Growth and Climate Change is a comprehensive plan to reduce emissions across all sectors of Canada's economy, as well as to stimulate clean economic growth and build resilience to the impacts of climate change. The Framework was developed collaboratively by Canada's federal, provincial and territorial governments with input from Indigenous Peoples as well as from businesses, non-governmental organizations and Canadians across the country. It builds on the early leadership of provinces and territories and the diverse array of policies and measures already in place across Canada to reduce greenhouse gas emissions and enhance resilience in all sectors of the economy.

Actions taken under the Pan-Canadian Framework, supported by significant federal investments, will support Canada's efforts to meet its target to reduce GHG emissions by 30% below 2005 levels by 2030, as committed under the Paris Agreement. Canada's latest emissions projections, which were published in the Seventh National Communication and Third Biennial Report to the UNFCCC in December 2017, indicate that the policies in the Pan-Canadian Framework are putting the country on track to meet its target. The Pan-Canadian Framework will drive both near- and longer-term reductions and has established processes to enhance ambition over time, setting Canada on a pathway consistent with its **Mid-Century Long-Term Low-GHG Development Strategy**. Canada's GHG inventory plays a key role in keeping Canadians informed of progress made in reducing GHG emissions.

Pricing carbon pollution is central to Canada's plan. The Government of Canada has outlined a benchmark for pricing carbon pollution that will build on existing provincial systems, and which gives provinces and territories the flexibility to implement either an explicit price-based system or cap-and-trade systems. It sets common criteria that all systems must meet, in order to ensure that they are fair and effective. As part of the benchmark, the federal government committed to develop and implement a federal carbon pricing backstop system in any province or territory that requests it or that does not have a carbon pricing system in place in 2018 that meets the benchmark. Carbon pricing will help influence investment and purchasing decisions towards lower carbon-intensive options.

In addition to carbon pricing, the complementary mitigation measures included in the Framework will enable Canada to achieve emissions reductions across all sectors, both in the near-term and as part of a longer-term strategy.

Expanding the use of clean electricity and low-carbon fuels are foundational actions that will reduce emissions across the economy. Canada is taking action to reduce energy use by improving energy efficiency, encouraging fuel switching and supporting innovative alternatives. In the built environment sector, this includes developing "net-zero energy ready" building codes.

Actions in the transportation sector include increasingly stringent standards for light- and heavy-duty vehicles, as well as taking action to improve efficiency and support fuel switching in the rail, aviation, marine and off-road sectors. Zero-emissions vehicles will be supported through the development of a national strategy and through investments in supportive infrastructure such as charging stations. To reduce emissions from industrial sectors, Canada published draft regulations to achieve a reduction in methane emissions from the oil and gas sector, including offshore activities, by 40%–45% by 2025. Canada has also finalized regulations to phase down the use of hydrofluorocarbons in line with the Kigali Amendment to the Montreal Protocol.

The Pan-Canadian Framework also recognizes the importance of building climate resilience and sets out measures to help Canadians understand, plan for and take action to adapt to the unavoidable impacts of climate change. A number of measures are being developed in this area with a focus on infrastructure, information and capacity-building, and health. This includes a particular focus on supporting Canada's Indigenous Peoples and northern and remote communities, which are particularly vulnerable to the effects of climate change.

The Framework also includes support for clean technology and innovation, including for early-stage technology development, establishing international partnerships and encouraging "mission-oriented" research to help generate innovative new opportunities to reduce emissions.

In its first year of implementation, federal, provincial and territorial governments have already made good progress in putting the Pan-Canadian Framework into action, as reported on December 9, 2017, in the First Annual Synthesis Report on the Status of Implementation (ECCC 2017). Governance, reporting and oversight structures have been established to track progress and ensure success. Funding has been mobilized to support many of the new actions included in the Framework, including significant transfers from the federal government to the provincial and territorial governments. Work is underway to implement carbon pricing systems across Canada, and governments have made significant progress on complementary measures to reduce emissions across the economy.

Section ES.2 of this Executive Summary summarizes the latest information on Canada's net anthropogenic (i.e. human-induced) GHG emissions over the 2005–2016 period and links this information to relevant indicators of the Canadian economy. Section ES.3 outlines the major trends in emissions from each of the IPCC sectors.

For the purposes of analyzing economic trends and policies, it is useful to allocate emissions to the economic sector from which they originate. Section ES.4 presents Canada's emissions by the following economic sectors: Oil and Gas, Electricity, Transportation, Heavy Industry, Buildings, Agriculture, Waste and Others. Throughout this report, the word "sector" generally refers to activity sectors as defined by the IPCC for national GHG inventories; exceptions occur when the expression "economic sectors" is used in reference to the Canadian context.

Section ES.5 details GHG emissions for Canada's 13 sub-national jurisdictions. Finally, as Canada's annual inventory submission to the UNFCCC embodies almost two decades of learning and improvements, Section ES.6 provides some detail on the components of this submission and outlines key elements of its preparation.

ES.2. Overview, National GHG Emissions

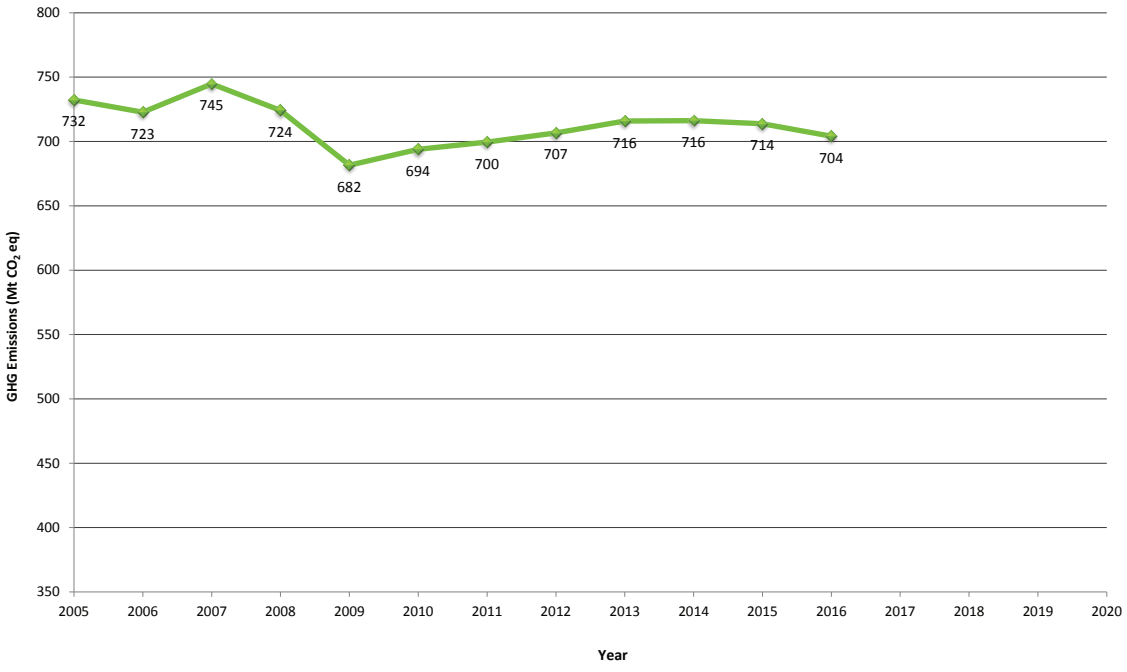
In 2016, the most recent annual dataset in this report, Canada's GHG emissions were 704 megatonnes of carbon dioxide equivalent (Mt CO_2 eq),[2] a net decrease of 28 Mt or 3.8% from 2005 emissions (Figure S–1).[3] Annual emissions fluctuated between 2005 and 2008, dropped in 2009 and gradually increased thereafter.

In 2016, the Energy Sector (consisting of Stationary Combustion, Transport and Fugitive Sources) emitted 572 Mt of greenhouse gases, or 81% of

[2] Unless explicitly stated otherwise, all emission estimates given in Mt represent emissions of GHGs in Mt CO_2 eq.

[3] Throughout this report, data are presented as rounded figures. However, all calculations (including percentages) have been performed using unrounded data.

Figure S–1 **Canadian GHG Emissions Trend (2005–2016) (excluding LULUCF)**



E

Canada's total GHG emissions (Figure S–2). The remaining emissions were largely generated by the Agriculture and Industrial Processes and Product Use Sectors (approximately 8% each), with minor contributions from the Waste Sector (3%). In 2016, the LULUCF Sector removed 28 Mt of CO_2 from the atmosphere, 7 Mt more than in 2005.

Canada's emissions profile is similar to that of most industrialized countries, in that CO_2 is the largest contributor to total emissions, accounting for 79% of total emissions in 2016 (Figure S–3). The majority of the CO_2 emissions in Canada result from the combustion of fossil fuels. Methane (CH_4) emissions in 2016 amounted to 96 Mt or 14% of Canada's total. These emissions consist largely of fugitive emissions from oil and natural gas systems, agriculture and landfills. Nitrous oxide (N_2O) emissions mostly arise from agricultural soil management and transport, and accounted for 37 Mt or 5% of Canada's emissions in 2016. Emissions of synthetic gases (HFCs, PFCs, SF_6 and NF_3) constituted slightly less than 2%.

Over the long term, Canada's economy has grown more rapidly than its GHG emissions. As a result, the emissions intensity for the entire economy (GHG per GDP) has declined by 35% since 1990 and 19% since 2005 (Figure S–4 and Table S–1).

Figure S–2 **Breakdown of Canada's Emissions by IPCC Sector (2016)***

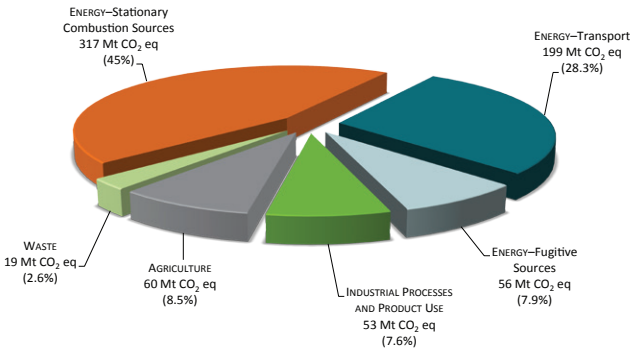
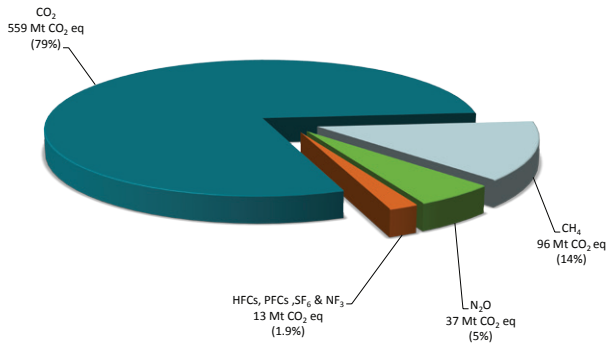


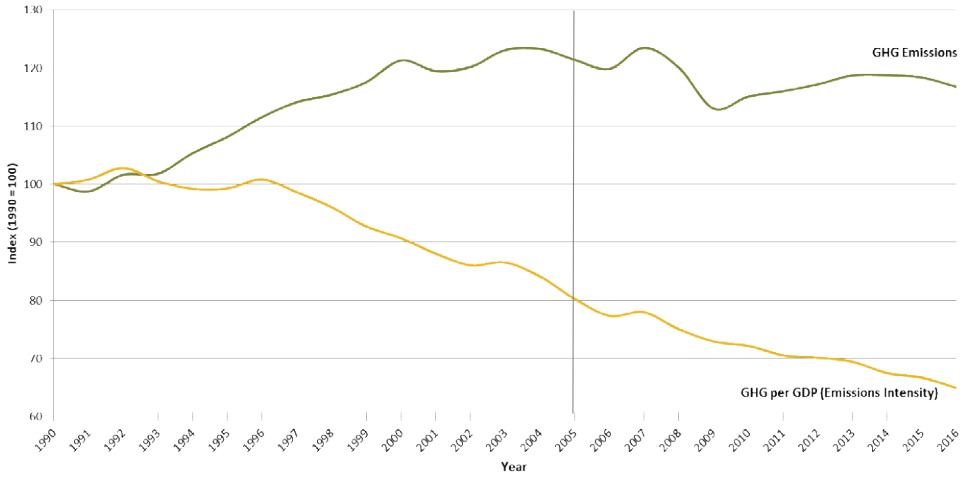
Figure S–3 **Breakdown of Canada's Emissions by GHG (2016)***



*Note: Totals may not add up due to rounding.

Total: 704 Mt CO_2 eq

Figure S–4 **Indexed Trend in GHG Emissions and GHG Emissions Intensity (1990–2016)**



The decline in emissions intensity since 1995 (Figure S–4) can be attributed to fuel switching, increases in efficiency, the modernization of industrial processes and structural changes in the economy. Section ES.3 provides more information on trends in GHG emissions.

Canada represented approximately 1.6% of total global GHG emissions in 2014 (CAIT 2017), although it is one of the highest per capita emitters. Canada's per capita emissions have dropped substantially since 2005, when this indicator was 22.7t, reaching a new low of 19.4 in 2016 (Figure S–5).

ES.3. Emissions and Trends by IPCC Sectors

Trends in Emissions

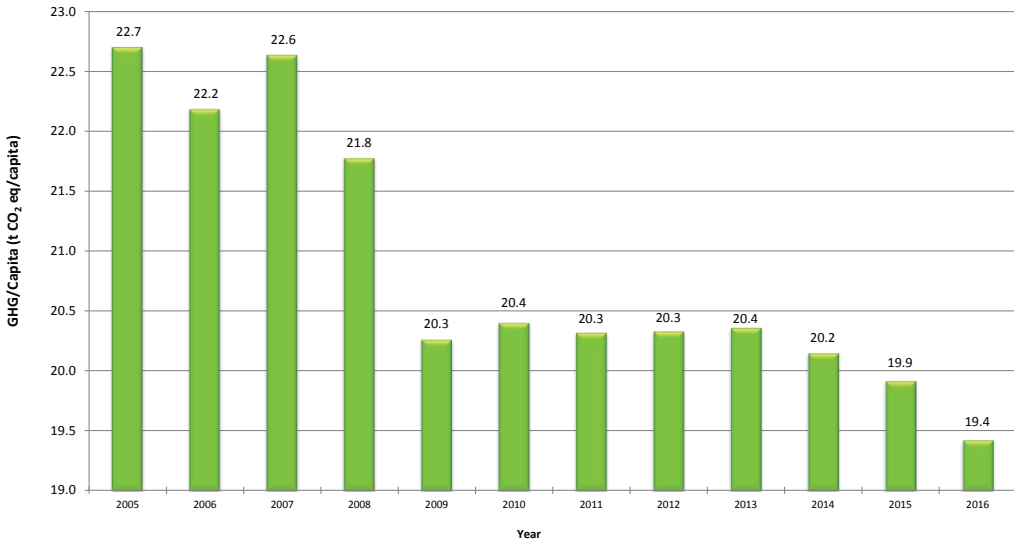
Over the 2005–2016 period, total emissions decreased by 28 Mt or 3.8% (Figure S–6). The Energy Sector dominated this trend, with emission decreases of 25 Mt (7%) in Stationary Combustion Sources and 5 Mt (8%) in Fugitive Sources (Table S–2). In addition, there was a decrease of 2 Mt (3%) in the IPPU Sector, a decrease of 1 Mt (1%) in the Agriculture Sector and a decrease of 3 Mt (12%) in the Waste Sector. Over the same period, emissions

Table S–1 **Trends in Emissions and Economic Indicators, Selected Years**

Year	2005	2010	2011	2012	2013	2014	2015	2016
Total GHG (Mt)	**732**	**694**	**700**	**707**	**716**	**716**	**714**	**704**
Change since 2005 (%)	NA	-5.2%	-4.5%	-3.5%	-2.2%	-2.2%	-2.5%	-3.8%
GDP (Billion 2007$)	**1 503**	**1 584**	**1 633**	**1 659**	**1 698**	**1 747**	**1 763**	**1 787**
Change since 2005 (%)	NA	5.4%	8.7%	10.4%	13.0%	16.3%	17.3%	18.9%
GHG Intensity (Mt/$B GDP)	**0.49**	**0.44**	**0.43**	**0.43**	**0.42**	**0.41**	**0.40**	**0.39**
Change since 2005 (%)	NA	-10.1%	-12.1%	-12.6%	-13.5%	-15.9%	-16.9%	-19.1%

Notes:
GDP data source: Statistics Canada a
NA = not applicable

Figure S–5 **Canadian per Capita GHG Emissions (2005–2015)**



Population data source: Statistics Canada b

from Transport increased by 7 Mt (4%) partially offsetting the decreases from the other sectors (Figure S–7).

Since 2009, when emissions were at their lowest in recent years, emission increases can be attributed to increases in Mining and Upstream Oil and Gas Production (21 Mt); in the number of light-duty gasoline trucks (8 Mt) and heavy-duty diesel vehicles in operation (5 Mt); in the consumption of halocarbons, SF_6 and NF_3 (5 Mt); and in the application of inorganic nitrogen fertilizers (3 Mt). During the same period, there was a 16 Mt decrease in emissions from electricity generation, which partly offset the growth in emissions.

Figure S–6 **Trends in Canadian GHG Emissions by IPCC Sector (2005–2016)**

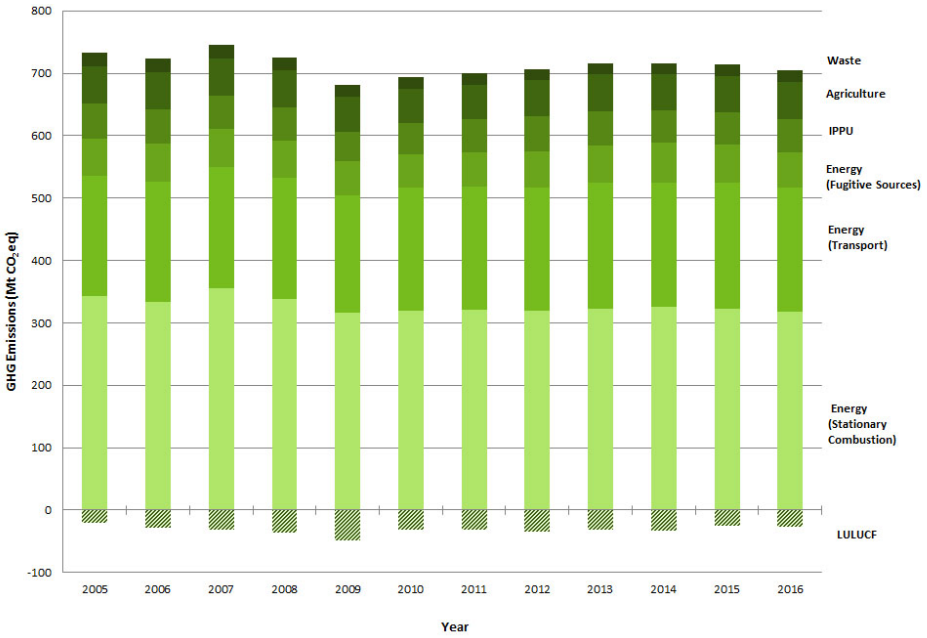


Figure S–7 **Changes in Emissions by IPCC Sector (2005–2016)**

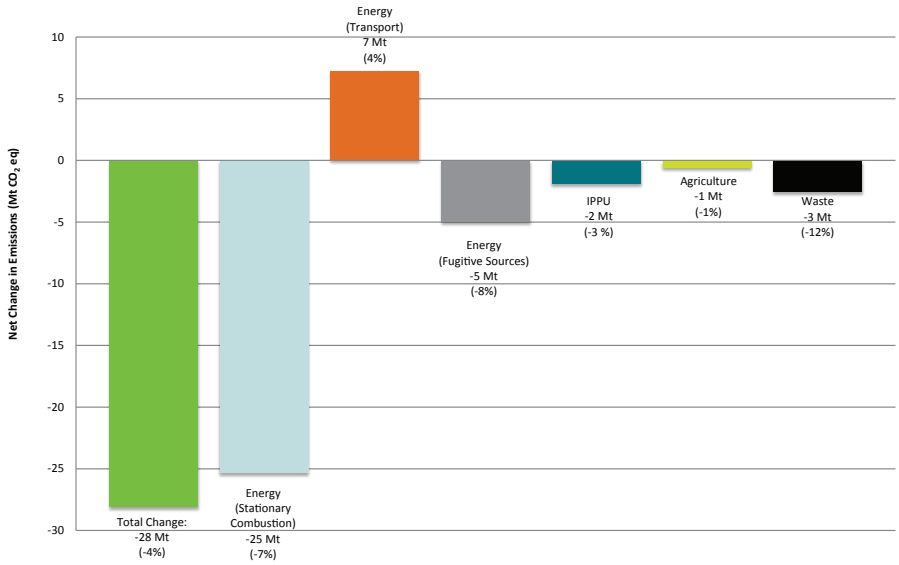


Table S–2 **Canada's GHG Emissions by IPCC Sector, Selected Years**

Greenhouse Gas Categories	2005	2011	2012	2013	2014	2015	2016
	Mt CO_2 equivalent						
TOTAL[1,2]	**732**	**700**	**707**	**716**	**716**	**714**	**704**
ENERGY	**595**	**573**	**574**	**584**	**588**	**585**	**572**
a. Stationary Combustion Sources	342	320	319	322	325	322	317
Public Electricity and Heat Production	125	94	91	87	84	87	84
Petroleum Refining Industries	20	18	19	18	18	17	17
Mining and Upstream Oil and Gas Production	68	83	89	93	96	96	100
Manufacturing Industries	48	44	44	45	45	44	42
Construction	1	1	1	1	1	1	1
Commercial and Institutional	32	30	28	29	31	30	30
Residential	46	46	42	44	46	43	39
Agriculture and Forestry	2	4	4	4	4	4	4
b. Transport	192	197	197	202	200	202	199
Domestic Aviation	8	6	7	8	7	7	7
Road Transportation	129	139	140	144	141	142	143
Railways	7	8	8	7	8	7	7
Domestic Navigation	6	6	6	5	5	5	4
Other Transportation	43	39	36	38	40	41	40
c. Fugitive Sources	61	55	58	60	63	61	56
Coal Mining	1	1	1	2	1	1	1
Oil and Natural Gas	59	54	57	59	62	60	55
d. CO_2 Transport and Storage	0	0	0	0	0	0	0
INDUSTRIAL PROCESSES AND PRODUCT USE	**55**	**53**	**57**	**54**	**52**	**51**	**53**
a. Mineral Products	10	8	9	8	8	8	8
b. Chemical Industry	9	6	6	6	6	7	7
c. Metal Production	20	17	17	15	15	14	16
d. Production and Consumption of Halocarbons, SF_6 and NF_3	5	9	9	9	10	11	12
e. Non-Energy Products from Fuels and Solvent Use	10	13	16	15	13	11	11
f. Other Product Manufacture and Use	1	0	0	1	0	0	1
AGRICULTURE	**60**	**55**	**57**	**59**	**58**	**59**	**60**
a. Enteric Fermentation	31	25	25	25	25	24	25
b. Manure Management	9	8	8	8	8	8	8
c. Agricultural Soils	19	20	22	24	23	23	24
d. Field Burning of Agricultural Residues	0.05	0.03	0.04	0.05	0.05	0.05	0.05
e. Liming, Urea Application and Other Carbon-containing Fertilizers	1	2	2	3	2	3	3
WASTE	**21**	**19**	**18**	**18**	**18**	**19**	**19**
a. Solid Waste Disposal	19	17	16	16	16	16	16
b. Biological Treatment of Solid Waste	0	0	0	0	1	1	1
c. Wastewater Treatment and Discharge	1	1	1	1	1	1	1
d. Incineration and Open Burning of Waste	1	1	1	1	1	1	1
LAND USE, LAND-USE CHANGE AND FORESTRY	**-21**	**-32**	**-34**	**-32**	**-33**	**-26**	**-28**
a. Forest Land	-160	-160	-160	-160	-160	-150	-150
b. Cropland	-11	-12	-12	-12	-12	-11	-11
c. Grassland	1	1	2	2	1	1	1
d. Wetlands	3	3	3	3	3	3	3
e. Settlements	4	4	4	4	4	4	4
f. Harvested Wood Products	140	130	130	130	130	130	130

Notes:

1. National totals exclude all GHGs from the Land Use, Land-Use Change and Forestry Sector.
2. This summary data is presented in more detail at open.canada.ca.

Going forward, the measures established through the Pan-Canadian Framework on Clean Growth and Climate Change have been designed to influence emissions trends across all sectors. Carbon pricing will apply to a broad set of emission sources throughout Canada, while complementary mitigation actions across the economy aim to support additional emissions reductions. This includes a broad suite of measures to further decarbonize Canada's electricity sector; reduce emissions from fuels used in transportation, buildings and industry; improve the efficiency of transportation systems, buildings and industrial operations; and protect and enhance Canada's carbon sinks. In addition, support for clean technology and innovation will support new emission reduction opportunities.

Chapter 2 provides more information on trends in GHG emissions from both 1990 and 2005 and their drivers.[4] Further breakdowns of emissions and a complete time series can be found at open.canada.ca.

The following describes the emissions and trends of each IPCC sector in further detail.

Energy – 2016 GHG Emissions (572 Mt)

In 2016, GHG emissions from the IPCC Energy Sector (572 Mt) were 3.9% lower than in 2005 (595 Mt). Within the Energy Sector, the 32 Mt increase in emissions from Mining and Upstream Oil and Gas Production was offset by a 41 Mt decrease in emissions from Public Electricity and Heat Production.

Decreasing energy generation from coal and oil, accompanied by an increase in hydro, nuclear and wind generation, was the largest driver of the 32% decrease in emissions associated with Electricity and Heat Production between 2005 and 2016. The permanent closure of all coal generating stations in Ontario by 2014 was the driving factor.[5] Minor emission fluctuations over the period reflect variations in the mix of electricity generation sources.[6]

GHG emissions from Manufacturing Industries decreased by 5.8 Mt between 2005 and 2016, consistent with both a 16% decrease in energy use and an observed decline in output[7] in these industries.

Oil production has been driven primarily by a rapid rise in the extraction of bitumen and synthetic crude oil from Canada's oil sands operations, where total output has increased by 145% since 2005. This rising production has contributed to the 32 Mt increase in fuel consumption emissions from Mining and Upstream Oil and Gas Production. However, from 2010 to 2016 the emission intensity of oil sands operations themselves dropped by approximately 15% as a result of technological and efficiency improvements, fewer venting emissions and reductions in the percentage of crude bitumen being upgraded to synthetic crude oil.

The majority of transport emissions in Canada are related to Road Transportation, which includes personal transportation (light-duty vehicles and trucks) and heavyduty vehicles. The growth in road transport emissions is largely due to more driving. Despite a reduction in kilometres driven per vehicle, the total vehicle fleet has increased by 38% since 2005, most notably for trucks (both light- and heavy-duty), leading to more kilometres driven overall.

Industrial Processes and Product Use – 2016 GHG Emissions (53 Mt)

The Industrial Processes and Product Use Sector covers non-energy GHG emissions that result from manufacturing processes and use of products, such as limestone calcination in cement production and the use of HFCs and PFCs as replacement refrigerants for ozone-depleting substances (ODSs). Emissions from the IPPU Sector contributed 53 Mt (7.6%) to Canada's 2016 emissions.

Emissions from most industries decreased in 2008 and 2009 compared with the previous year respectively. A notable exception is the 6.9 Mt (136%) increase in emissions from the use of HFCs between 2005 and 2016.

The aluminium industry has decreased its process emissions since 1990, largely due to technological improvements introduced to mitigate PFC emissions. The overall decrease in GHG emissions

[4] The complete NIR can be accessed here: http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/10566.php

[5] *Ontario Power Generation News,* April 15, 2014; http://www.opg.com/news-and-media/news-releases/Pages/news-releases.aspx?year=2014, accessed 2018 January).

[6] The mix of electricity generation sources is characterized by the amount of fossil fuel vs. hydro, other renewable sources and nuclear sources. In general, only fossil fuel sources generate net GHG emissions.

[7] See, for example, Energy Consumption by the Manufacturing Sector, 2016, Statistics Canada Daily, October 31, 2016; http://www.statcan.gc.ca/daily-quotidien/161031/dq161031d-eng.pdf (accessed 2018 January 9).

from chemical industries since 1990 is primarily the result of the closure in 2009 of the sole Canadian adipic acid plant located in Ontario; since 2009 the emissions from chemical industries have remained relatively stable.

Agriculture – 2016 GHG Emissions (60 Mt)

The Agriculture Sector covers non-energy GHG emissions relating to the production of crops and livestock. Emissions from Agriculture accounted for 60 Mt, or 8.5% of total GHG emissions for Canada in 2016, down 1% (0.6 Mt) from their peak in 2005.

In 2016, Agriculture accounted for 30% of national CH_4 emissions and 77% of national N_2O emissions.

The main drivers of the emission trend in the Agriculture Sector are the fluctuations in livestock populations and the application of inorganic nitrogen fertilizers to agricultural soils in the Prairie provinces. Since 2005, fertilizer use has increased, while livestock populations peaked in 2005 and decreased sharply until 2011. In 2016, emissions from livestock digestion (enteric fermentation) accounted for 41% of total agricultural emissions, and the application of inorganic nitrogen fertilizers accounted for 22% of total agricultural emissions.

Waste – 2016 GHG Emissions (19 Mt)

The Waste Sector includes GHG emissions from the treatment and disposal of liquid and solid wastes. Emissions from Waste contributed 19 Mt (2.6%) to Canada's total emissions in 2016 and 21 Mt (2.9%) in 2005.

The primary source of emissions in the Waste Sector is Solid Waste Disposal (SWD) (16.4 Mt CO_2 eq in 2016), which includes municipal solid waste (MSW) landfills (12.9 Mt in 2016) and wood waste landfills (3.5 Mt in 2016). In 2016, Solid Waste Disposal accounted for 88% of Waste emissions, while Biological Treatment of Solid Waste (composting), Wastewater Treatment and Discharge, and Incineration and Open Burning of Waste contributed the remaining 12%.

Methane emissions from publicly and privately owned MSW landfills make up 96% of emissions from SWD; these emissions decreased by 14% between 2005 and 2016. Of the 26 Mt CO_2 eq of CH_4 generated by MSW landfills in 2016, only 13 Mt (50%) were actually emitted to the atmosphere. A small portion (6% or 1 Mt) of the generated CH_4 was oxidized by landfill cover material. A larger portion (44% or 11 Mt) was captured by landfill gas collection facilities compared with 32% of generated CH_4 captured in 2005.

Land Use, Land-Use Change and Forestry – 2016 (Net GHG Removals of 28 Mt)

The Land Use, Land-Use Change and Forestry (LULUCF) Sector reports anthropogenic GHG fluxes between the atmosphere and Canada's managed lands, including those associated with land-use change and emissions from Harvested Wood Products (HWPs), which are closely linked to Forest Land.

In this sector, the net flux is calculated as the sum of CO_2 and non-CO_2 emissions to the atmosphere and CO_2 removals from the atmosphere. In 2016, this net flux amounted to removals of 28 Mt, which, if included, would decrease total Canadian GHG emissions by 3.9%. The LULUCF estimates separate the impact of significant natural disturbances on managed forests (wildfires and insects), revealing trends associated with anthropogenic forest management activities. Additional information on the changes made this year can be found in Chapter 6.

Net removals from the LULUCF Sector have fluctuated over recent years, increasing from 21 Mt in 2005 to 49 Mt in 2009 and have since decreased to 28 Mt in 2016. Fluctuations are driven mainly by variations in emissions from HWP and removals from Forest Land that are closely tied to harvest rates.

Net removals from Forest Land have fluctuated between 160 Mt to a minimum of 150 Mt over the period between 2005 and 2016, as forests recover from peak harvest rates and insect disturbance in the mid-2000s. Over this same period, emissions from HWPs originating from domestic harvest declined from 140 Mt in 2005 to a low of 120 Mt in 2009 (the year of the lowest harvest rates), and have since increased to 130 Mt in 2016. Approximately 29% of HWP emissions result from long-lived wood products reaching the end of their economic life decades after the wood was harvested. Hence emission and removal patterns in both HWPs and Forest Land are influenced by recent forest management trends and by the long-term impact of forest management that occurred in past decades.

Current net removals from Cropland are similar to those in 2005. GHG removals in cropland peaked in 2009 at 12.1 Mt and have since declined as a result of an increase in the conversion of perennial to annual crops on the Prairies, the declining effect of conversion to conservation tillage and slower rates of agricultural expansion onto forest land.

The conversion of forests[8] to other land uses is a prevalent, yet declining, practice in Canada and is mainly due to forest conversion to settlements for resource extraction and cropland expansion. Emissions due to forest conversion fell from 16 Mt in 2005 to 14 Mt in 2016.

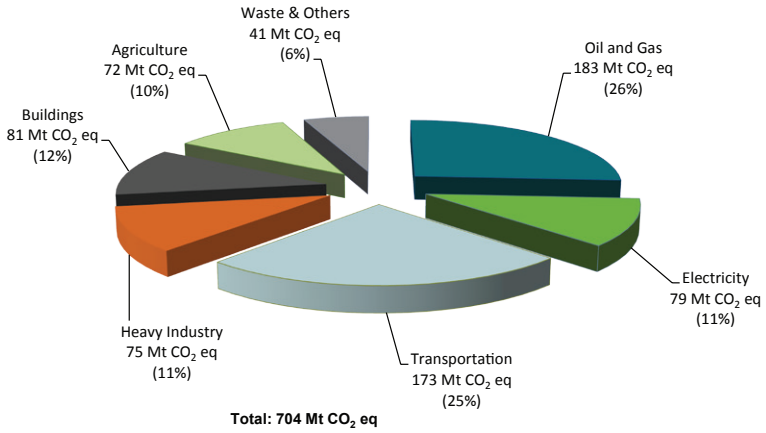
[8] Forest conversion emissions are incorporated within sums of emissions of other land-use categories; therefore, the values of 14 and 16 Mt reported here are included in the sums associated with the other land-use category totals.

ES.4. Canadian Economic Sectors

For the purposes of analyzing economic trends and policies, it is useful to allocate emissions to the economic sector from which the emissions originate. In general, a comprehensive emission profile for a specific economic sector is developed by reallocating the relevant proportion of emissions from various IPCC subcategories. This reallocation simply recategorizes emissions under different headings and does not change the overall magnitude of Canadian emissions estimates.

GHG emissions trends in Canada's economic sectors from 2005 to 2016 are consistent with those described for IPCC sectors, with the Oil and Gas and Transportation economic sectors showing emission increases of 16% and 7% respectively since 2005 (Figure S–8 and Table S–3). These increases have been

Figure S–8 **Breakdown of Canada's Emissions by Economic Sector (2016)**



Note: Totals may not add up due to rounding.

Table S–3 **Canada's GHG Emissions by Economic Sector, Selected Years**

	1990	2005	2011	2012	2013	2014	2015	2016
	Mt CO_2 equivalent							
NATIONAL GHG TOTAL	**603**	**732**	**700**	**707**	**716**	**716**	**714**	**704**
Oil and Gas	107	158	161	172	180	187	184	183
Electricity	94	120	88	85	82	79	81	79
Transportation	122	162	171	173	176	173	174	173
Heavy Industry[1]	97	86	80	79	77	77	76	75
Buildings	74	86	87	85	86	88	85	81
Agriculture	58	73	69	70	73	71	72	72
Waste & Others[2]	51	48	44	43	43	41	42	41

Notes:

Totals may not add up due to rounding.

Estimates presented here are under continuous improvement. Historical emissions may be changed in future publications as new data becomes available and methods and models are refined and improved.

1. Heavy Industry represents emissions arising from non-coal, -oil and -gas mining activities, smelting and refining, and the production and processing of industrial goods such as paper or cement.
2. "Others" includes Coal Production, Light Manufacturing, Construction & Forest Resources.

more than offset by emission decreases in Electricity (34%), Heavy Industry (13%) and Waste & Others (13%).

Further information on economic sector trends can be found in Chapter 2. Additional information on the IPCC and economic sector definitions, as well as a detailed cross-walk between IPCC and economic sector categories can be found in Part 3 of this report.

ES.5. Provincial and Territorial GHG Emissions

Emissions vary significantly by province as a result of population, energy sources and economic structure. All else being equal, economies based on resource extraction will tend to have higher emission levels than service-based economies. Likewise, provinces that rely on fossil fuels for their electricity generation emit relatively more greenhouse gases than those that rely more on hydroelectricity.

Historically, Alberta and Ontario have been the highest emitting provinces. Since 2005, emission patterns in these two provinces have diverged. Emissions in Alberta increased from 231 Mt in 2005 to 263 Mt in 2016 (14%), primarily as a result of the expansion of oil and gas operations (Figure S–9 and Table S–4). In contrast, Ontario's emissions have steadily decreased since 2005 (by 44 Mt or 22%), owing primarily to the closure of coal-fired electricity generation plants.

Figure S–9 **Emissions by Province in 2005, 2010 and 2016**

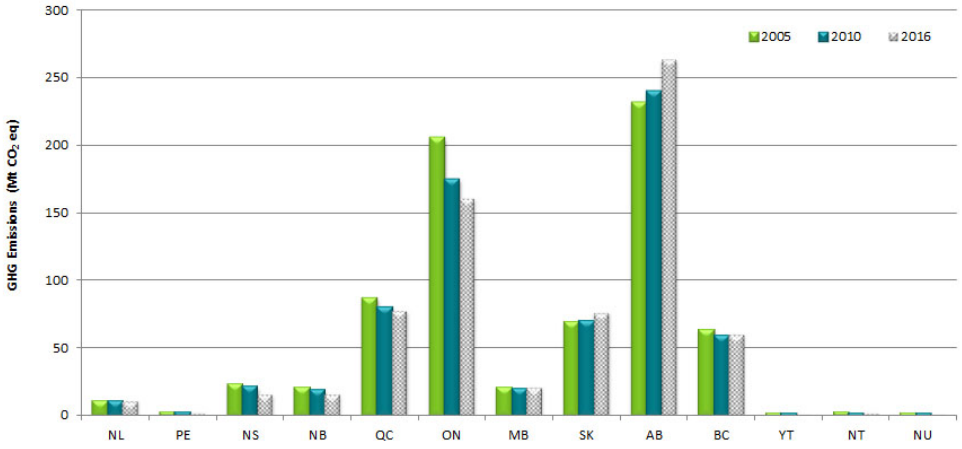


Table S–4 **GHG Emissions by Provinces / Territories, Selected Years**

	GHG Emissions (Mt CO_2 eq)[1]								Change (%)
Year	1990	2005	2011	2012	2013	2014	2015	2016	2005–2016
GHG Total (Canada)	**603**	**732**	**700**	**707**	**716**	**716**	**714**	**704**	**-3.8%**
NL	9.3	9.9	10.0	9.4	9.4	10.4	10.6	10.8	8.7%
PE	1.9	2.0	2.1	2.0	1.7	1.7	1.7	1.8	-10%
NS	19.6	23.2	20.9	19.2	18.2	16.4	16.6	15.6	-33%
NB	16.1	20.1	18.7	16.8	14.8	14.4	14.3	15.3	-24%
QC	86.6	86.5	81.7	79.5	79.9	78.0	78.4	77.3	-11%
ON	179.2	204.7	172.5	169.1	168.4	165.4	162.9	160.6	-22%
MB	18.3	20.2	19.0	20.2	20.9	20.9	20.8	20.9	3.5%
SK	44.7	68.9	69.0	71.3	74.0	77.4	79.5	76.3	10.7%
AB	174.1	231.0	243.8	256.1	264.9	268.6	266.9	262.9	14%
BC	51.1	63.3	59.3	60.3	60.9	60.4	59.4	60.1	-5.1%
YT	0.5	0.5	0.7	0.7	0.6	0.4	0.5	0.4	-19%
NT	NA	1.6	1.4	1.5	1.4	1.5	1.7	1.6	3%
NU	NA	0.4	0.5	0.6	0.7	0.7	0.6	0.7	58%

Notes:
1. Totals may not add up due to rounding.

Quebec experienced a 9.2 Mt (11%) decrease from its 2005 emissions level, while British Columbia had a decline of 3.2 Mt (5.1%). Emissions in Saskatchewan increased by 7.4 Mt (11%) between 2005 and 2016 as a result of activities in the oil and gas industry, potash and uranium mining and transportation. Emissions in Manitoba as well as Newfoundland and Labrador have also increased since 2005, but to a lesser extent (0.7 Mt or 3.5% and 0.9 Mt or 8.7% respectively). Provinces which have seen more significant decreases in emissions include New Brunswick (4.8 Mt, or a 24% reduction), Nova Scotia (7.6 Mt, or a 33% reduction) and Prince Edward Island (0.2 Mt, or a 10% reduction).

ES.6. National Inventory Arrangements

Environment and Climate Change Canada is the single national entity with responsibility for preparing and submitting the National Inventory to the UNFCCC and for managing the supporting processes and procedures.

The institutional arrangements for the preparation of the inventory include formal agreements supporting data collection and estimate development; a quality management plan, including an improvement plan; the ability to identify key categories and generate quantitative uncertainty analysis; a process for performing recalculations due to improvements; procedures for official approval; and a working archive system to facilitate third-party review.

Submission of information regarding the national inventory arrangements, including details on institutional arrangements for inventory preparation, is also an annual requirement under the UNFCCC reporting guidelines on annual inventories (see Chapter 1, Section 1.2).

Structure of Submission

The UNFCCC requirements include the annual compilation and submission of both the National Inventory Report (NIR) and the Common Reporting Format (CRF) tables. The CRF tables are a series of standardized data tables, containing mainly numerical information, which are submitted electronically. The NIR contains the information to support the CRF tables, including a comprehensive description of the methodologies used in compiling the inventory, the data sources, the institutional structures, and the quality assurance and quality control procedures.

Part 1 of the NIR includes Chapters 1 to 8. Chapter 1 (Introduction) provides an overview of Canada's legal, institutional and procedural arrangements for producing the inventory (i.e. the national inventory arrangements), quality assurance and quality control procedures as well as a description of Canada's facility emission-reporting system. Chapter 2 provides an analysis of Canada's GHG emission trends in accordance with the UNFCCC reporting structure, as well as a breakdown of emission trends by Canadian economic sectors. Chapters 3 to 7 provide descriptions and additional analysis for each sector, according to UNFCCC reporting requirements. Chapter 8 presents a summary of recalculations and planned improvements.

Part 2 of the NIR consists of Annexes 1 to 7, which provide a key category analysis, an inventory uncertainty assessment, detailed explanations of estimation methodologies, Canada's energy balance, completeness assessments, emission factors and information on ozone and aerosol precursors.

Part 3 comprises Annexes 8 to 13, which present rounding procedures, summary tables of GHG emissions at the national level and for each provincial and territorial jurisdiction, sector and gas, as well as additional details on the GHG intensity of electricity generation. Detailed GHG data is also available on the Government of Canada's Open Data website: http://open.canada.ca/data/en/dataset/779c7bcf-4982-47eb-af1b-a33618a05e5b.

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Additional information can be otained at:

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This is **Exhibit B** referred to in the
affidavit of **Dr. Dominique Blain**
affirmed before me on **January 25, 2019**

Commissioner for Oaths for Québec

#224458

Table A11–12 GHG Emission Summary for Ontario, Selected Years

Greenhouse Gas Categories	1990	2005	2011	2012	2013	2014	2015	2016
	kt CO_2 eq							
TOTAL	**179 000**	**205 000**	**172 000**	**169 000**	**168 000**	**165 000**	**163 000**	**161 000**
ENERGY	**133 000**	**163 000**	**134 000**	**129 000**	**130 000**	**127 000**	**125 000**	**121 000**
a. Stationary Combustion Sources	**83 300**	**96 900**	**72 300**	**69 400**	**67 300**	**66 100**	**63 200**	**58 900**
Public Electricity and Heat Production	25 800	35 400	14 400	14 300	10 300	6 030	6 250	5 500
Petroleum Refining Industries	6 200	6 900	6 500	6 800	6 100	6 000	5 500	5 200
Mining and Upstream Oil and Gas Production	593	614	820	929	634	645	532	630
Manufacturing Industries	22 000	18 800	16 100	15 900	16 200	16 500	15 800	15 500
Construction	571	637	416	436	361	380	350	341
Commercial and Institutional	9 140	12 800	11 800	10 900	11 900	13 200	12 600	12 200
Residential	18 200	20 700	20 500	18 300	20 200	21 800	20 700	18 100
Agriculture and Forestry	775	1 040	1 650	1 690	1 650	1 500	1 420	1 510
b. Transport[1]	**48 000**	**64 100**	**60 600**	**58 300**	**61 000**	**59 300**	**60 700**	**60 200**
Domestic Aviation	2 200	2 300	1 900	2 200	2 300	2 200	2 200	2 200
Road Transportation	28 600	47 400	47 000	45 000	47 100	45 100	46 000	46 100
Light-Duty Gasoline Vehicles	15 900	16 500	13 800	12 700	13 300	12 700	12 800	12 600
Light-Duty Gasoline Trucks	7 020	15 600	16 300	15 400	16 400	16 200	16 700	17 500
Heavy-Duty Gasoline Vehicles	1 440	3 120	3 390	3 280	3 520	3 270	3 280	3 370
Motorcycles	27	61	84	83	86	85	87	91
Light-Duty Diesel Vehicles	127	217	276	296	326	327	362	336
Light-Duty Diesel Trucks	34	72	145	156	192	241	328	375
Heavy-Duty Diesel Vehicles	3 970	11 800	12 900	13 100	13 200	12 300	12 400	11 800
Propane and Natural Gas Vehicles	68	55	4	4	1	1	1	1
Railways	1 800	1 600	1 300	1 200	1 300	1 400	1 400	1 500
Domestic Navigation	920	860	780	980	1 200	1 200	1 200	1 100
Other Transportation	14 000	12 000	9 600	8 900	9 100	9 300	9 900	9 300
Off-Road Agriculture & Forestry	1 300	1 400	1 300	1 200	1 200	1 100	1 200	1 000
Off-Road Commercial & Institutional	560	960	1 100	960	1 000	1 000	990	1 000
Off-Road Manufacturing, Mining & Construction	3 100	3 300	3 700	3 500	3 300	3 100	3 600	3 400
Off-Road Residential	88	490	520	470	470	480	470	450
Off-Road Other Transportation	7 000	2 800	2 100	1 900	2 000	2 100	2 100	2 200
Pipeline Transport	2 280	3 070	896	844	1 070	1 530	1 550	1 200
c. Fugitive Sources	**1 600**	**1 500**	**1 400**	**1 300**	**1 400**	**1 400**	**1 400**	**1 400**
Coal Mining	-	-	-	-	-	-	-	-
Oil and Natural Gas	1 600	1 500	1 400	1 300	1 400	1 400	1 400	1 400
d. CO_2 Transport and Storage	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
INDUSTRIAL PROCESSES AND PRODUCT USE	**30 600**	**25 000**	**22 000**	**24 000**	**22 400**	**22 900**	**22 200**	**24 300**
a. Mineral Products	**3 900**	**4 800**	**3 500**	**3 700**	**3 400**	**3 400**	**3 500**	**3 500**
Cement Production	2 400	3 700	2 700	2 900	2 700	2 700	2 800	2 800
Lime Production	1 090	800	599	607	572	616	573	558
Mineral Products Use	410	320	160	160	130	120	120	110
b. Chemical Industry[2]	**10 300**	**2 550**	**-**	**-**	**-**	**-**	**-**	**-**
Adipic Acid Production	10 000	2 500	-	-	-	-	-	-
c. Metal Production	**11 200**	**11 400**	**10 200**	**10 400**	**8 200**	**9 110**	**8 210**	**9 530**
Iron and Steel Production	10 500	10 300	10 000	10 100	8 010	8 900	8 010	9 290
Aluminum Production	-	-	-	-	-	-	-	-
SF_6 Used in Magnesium Smelters and Casters	687	1 130	170	232	191	205	198	240
d. Production and Consumption of Halocarbons, SF_6 and NF_3[3]	**970**	**2 000**	**3 200**	**3 400**	**3 500**	**3 800**	**4 100**	**4 500**
e. Non-Energy Products from Fuels and Solvent Use	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**
f. Other Product Manufacture and Use	**140**	**190**	**140**	**170**	**170**	**150**	**170**	**190**
AGRICULTURE	**10 000**	**10 000**	**9 800**	**9 700**	**10 000**	**9 800**	**9 600**	**10 000**
a. Enteric Fermentation	**4 300**	**4 100**	**3 400**	**3 400**	**3 500**	**3 400**	**3 500**	**3 400**
b. Manure Management	**1 900**	**2 100**	**1 800**	**1 900**	**1 900**	**1 900**	**1 900**	**1 900**
c. Agricultural Soils	**3 900**	**3 700**	**4 300**	**4 200**	**4 600**	**4 300**	**4 100**	**4 400**
Direct Sources	3 300	3 100	3 700	3 600	4 000	3 700	3 600	3 800
Indirect Sources	600	500	600	600	600	600	600	600
d. Field Burning of Agricultural Residues	**4**	**0.60**	**0.30**	**0.40**	**0.30**	**0.30**	**0.30**	**0.30**
e. Liming, Urea Application and Other Carbon-containing Fertilizers	**300**	**200**	**200**	**200**	**200**	**200**	**100**	**200**
WASTE	**5 400**	**7 000**	**6 400**	**6 400**	**6 200**	**5 700**	**5 700**	**5 800**
a. Solid Waste Disposal	**4 800**	**6 300**	**5 600**	**5 600**	**5 400**	**4 800**	**4 800**	**4 800**
b. Biological Treatment of Solid Waste	**50**	**100**	**200**	**200**	**200**	**200**	**200**	**200**
c. Wastewater Treatment and Discharge	**240**	**320**	**320**	**330**	**330**	**330**	**330**	**330**
d. Incineration and Open Burning of Waste	**320**	**290**	**270**	**280**	**290**	**350**	**380**	**380**

Notes:

1. Emissions from ethanol and biodiesel are included in the Transport categories using gasoline and diesel respectively.
2. Emissions from Ammonia Production, Nitric Acid Production and Petrochemical Production and Carbon Black categories are included in Non-Energy Products from Fuels and Solvent Use as CO_2 eq values within provincial/territorial tables.
3. HFC and PFC consumption began in 1995; HFC emissions occurring as a by-product of HCFC production (HCFC-22 exclusively) only occurred in Canada from 1990–1992 and PFC emissions prior to 1995 are the result of by-product CF_4 emissions from the use of NF_3.

- Indicates no emissions

0.00 Indicates emissions truncated due to rounding

x Indicates data has been suppressed to respect confidentiality

Estimates for the latest year (2016) are based on preliminary energy data; these data, though the best available information at the time of publication, are subject to revision in the next submission year.

Provincial/Territorial GHG emissions allocated to Canadian economic sectors are provided in Annex 12 of this report

IN THE MATTER OF A REFERENCE to the Court of Appeal pursuant to section 8 of the *Courts of Justice Act*, RSO 1990, c. C.34, by Order-in-Council 1014/2018 respecting the constitutionality of the *Greenhouse Gas Pollution Pricing Act*, Part 5 of the *Budget Implementation Act, 2018, No. 1*, SC 2018, c. 12

Court of Appeal File No.: C65807

COURT OF APPEAL FOR ONTARIO
Proceedings commenced at Toronto

AFFIDAVIT OF DR DOMINIQUE BLAIN AFFIRMED JANUARY 25, 2019 FILED ON BEHALF OF THE ATTORNEY GENERAL OF CANADA

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