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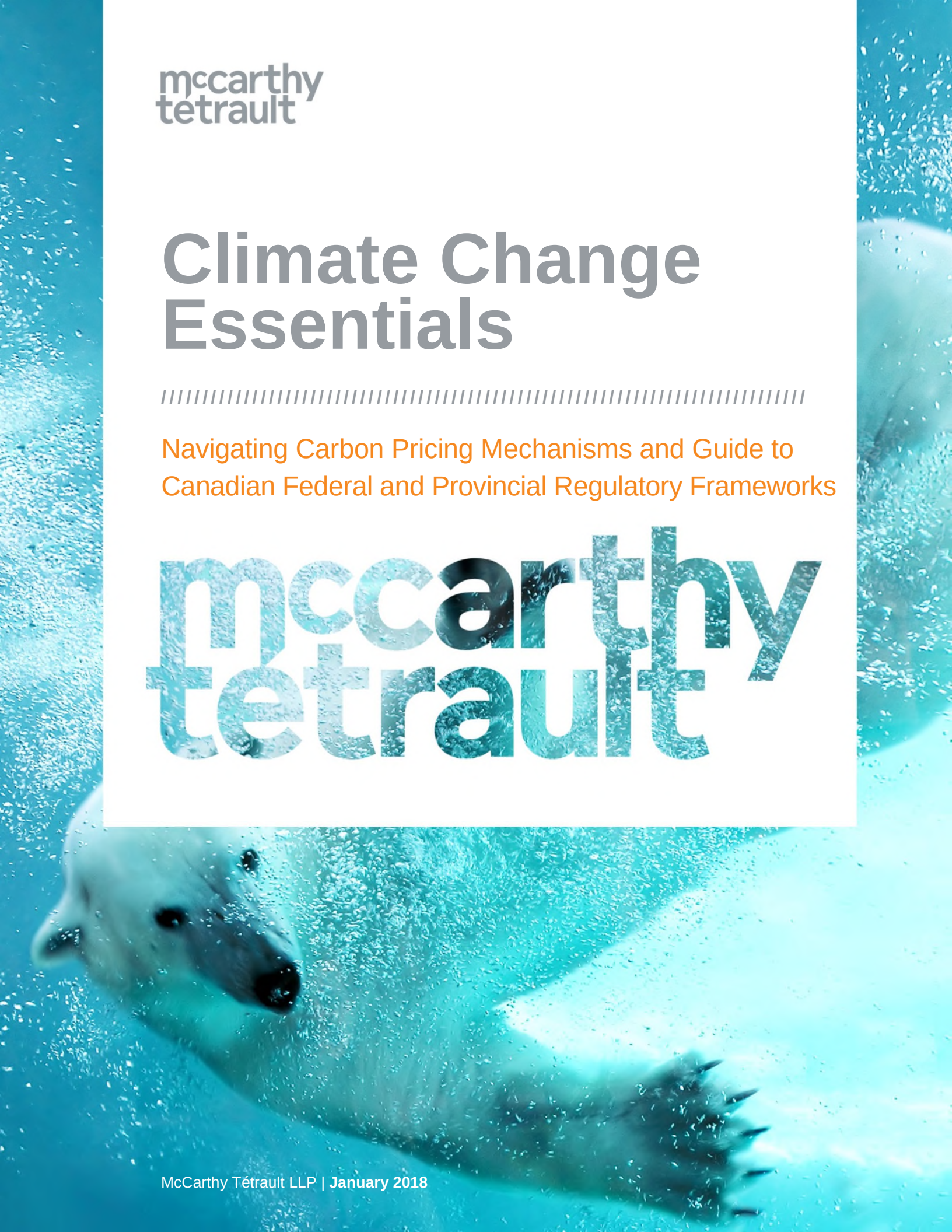
Climate Change Essentials

Navigating Carbon Pricing Mechanisms and Guide to Canadian Federal and Provincial Regulatory Frameworks



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The laws, regulations and policies discussed in this overview are stated as of January 2018.

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Introduction

Over the years, climate change policy has experienced its ebbs and flows. Climate change arrived on the international stage at the Rio Earth Summit in 1992, where 154 countries signed the United Nations Framework Convention on Climate Change (UNFCCC) to stabilize atmospheric concentrations of greenhouse gas (GHG) emissions at a level to prevent "dangerous anthropogenic interference with the climate system". The UNFCCC entered into force on March 21, 1994 and 195 countries have ratified the UNFCCC to date. Subsequent international negotiations led to the Kyoto Protocol, an international treaty which extends the UNFCCC and commits its signatories to reduce GHG emissions. The Kyoto Protocol was adopted in December 1997 and came into force on February 16, 2005. There are currently 192 signatories to the Kyoto Protocol. While Canada withdrew from the Kyoto Protocol effective December 2012, a federal election in October 2015 brought into power a new government that has taken steps to re-engage in international efforts to implement a new global climate change treaty for the post-Kyoto era.

Following the anti-climactic outcome of the 15th session of the Conference of the Parties to the UNFCCC (COP 15) which produced the non-legally binding Copenhagen Accord in 2009, there was cautious expectation of a legally binding successor agreement – or at least certain legally binding components of an agreement – to the Kyoto Protocol as countries convened in Paris for the latest round of international climate change talks held from November 30 to December 11, 2015 (COP 21). After marathon negotiations and compromises on all sides, COP 21 reached a successful conclusion on December 12, 2015 with the adoption of the Paris Agreement by 195 member nations of the UNFCCC. The Paris Agreement was opened for signature on April 22, 2016 at the United Nations (UN) Headquarters in New York and achieved the threshold for entry into force on October 5, 2016; the Paris Agreement came into force on November 4, 2016. As of January 4, 2018, 195 countries had signed the Paris Agreement, 172 of which had also deposited instruments of ratification (accounting for 87.90% of the world's total GHG emissions). Canada ratified the Paris Agreement on October 5, 2016.

Paris Agreement – A Quick Overview

The Paris Agreement articulates a series of global goals to enhance climate adaptation efforts and capacity-building, as well as strengthen resilience and reduce vulnerability to climate change. The Paris Agreement also establishes a long-term emissions goal of peaking global GHG emissions as soon as possible, with a view to achieving net zero emissions – i.e. a balance between anthropogenic emissions by sources and removals of GHG emissions by sinks – in the second half of this century. In 2018, member parties launched the Talanoa dialogue (also referred to as the 2018 Facilitative dialogue) in accordance with their commitment under the Paris Agreement, the purpose of which is to assess the parties' collective efforts in relation to their progress towards the long-term emissions goal. The outcomes of this dialogue will likely inform future climate policies and actions.

Under the Paris Agreement, countries have also committed to an ambitious goal of **holding** the increase in global average temperature to **well below 2°C** above pre-industrial levels, while they **pursue efforts** to limit the temperature increase to **1.5°C** above pre-industrial levels. Prior to the Paris Agreement, limiting the rise in global temperatures to no more than **two degrees Celsius** (2°C) was the *de facto* target for global climate change policy. 2°C is the level scientists of the Intergovernmental Panel on Climate Change (IPCC) say is needed to avoid the potentially adverse

consequences of climate change. The two degree limit was formally enshrined into international climate policy in the 2010 Cancun Agreements, which commits governments to "hold the increase in global average temperature below 2°C above pre-industrial levels". With the British Met Office reporting that global temperatures for 2018 are forecast to be between 0.88 and 1.12°C above the 1850-1900 average, there is a sense that the window is quickly closing for collective action on climate change.

Since national pledges to reduce emissions are voluntary, the success of the pact in achieving meaningful GHG emission reductions will likely turn on the willingness of future governments to take action as well as global peer pressure. Ahead of COP 21, countries were invited to submit their Intended Nationally Determined Contributions (INDCs), which set out what post-2020 climate actions they intend to take under a new international climate agreement. As of December 31, 2017, 165 INDCs had been submitted to the UNFCCC, representing 192 countries and covering approximately 96.4% of their emissions. There is wide variation among national plans in terms of scope and ambition. Member nations are required to put forward a plan, but as noted above, the pledges by countries to reduce emissions are voluntary and there are no legal requirements around how – or how much – countries should reduce emissions. That said, negotiators have built certain legally binding commitments into the Paris Agreement, including a requirement that countries present updated plans every five years (starting in 2020) with ever-tightening emission reduction targets. Countries will also be required to undertake a global stocktake in 2023 (and every five years thereafter) to assess their collective progress toward achieving the goals of the Paris Agreement. Further, they will be required to monitor and report on their national GHG inventories based on standardized requirements. Developed countries have been called on to mobilize financial resources to assist developing countries with respect to both mitigation and adaptation, and other parties are encouraged to provide or continue to provide such support voluntarily.

The adoption of the Paris Agreement marked the start of a renaissance period for climate change policy, one that represents a global paradigm shift towards a lower-carbon economy. Despite the US announcement in June 2017 that it would withdraw from the Paris Agreement, international efforts to reduce GHG emissions continue full steam ahead. In the absence of US federal leadership on climate change, local communities in the US have stepped in to fill the void with "We Are Still In", a coalition of 2,500 local government and business leaders representing more than 127 million Americans and $6.2 trillion of the US economy. At the global level, China has asserted itself as a leader on climate change policy and has committed to fully honouring its obligations under the Paris Agreement.

COP 23 was held in Bonn, Germany in November 2017, where international climate negotiations focused on implementation of the Paris Agreement. At the end of COP 23, UNFCCC parties had adopted 31 decisions dealing with a range of issues from pre-2020 implementation activities and adaptation funding, to gender action and capacity building in developing countries.

In Canada, federal and provincial efforts are well underway to implement climate change policy initiatives under the Pan-Canadian Framework on Clean Growth and Climate Change, which was released in December 2016. Canada has expressed its support for more ambitious climate action by endorsing the global goal of keeping rising average temperatures to within 1.5°C above pre-industrial levels; how this ambition will translate into federal, provincial and municipal climate action remains continues to evolve. By the end of 2018, stakeholders can expect the federal carbon pricing backstop to come into force, as well as the implementation of a range of climate change policy initiatives at all levels of government.

What's New

The climate change and energy policy landscape both domestically and globally continues to evolve. Recent developments in Canada include:

- **Federal Government sets deadline of September 1, 2018 for Provinces to submit carbon pricing plans and releases draft carbon pricing backstop legislation**: In October 2016, the federal government announced that it would establish a minimum price on carbon starting at $10 per tonne of carbon dioxide equivalent (CO_2e) in 2018, increasing by $10 per year until it reaches $50 per tonne of CO_2e by 2022. This approach will be reviewed in 2022 to confirm the path forward, including continued increases in stringency. Under the federal plan, each province and territory will be required to implement carbon pricing in its jurisdiction in 2018, whether in the form of a carbon tax or a cap-and-trade system. If the carbon price in a jurisdiction does not meet the federal minimum price, the federal government will step in and impose a carbon price that makes up the difference and return the revenue to the province or territory. In addition, provincial and territorial goals for reducing emissions must be at least as stringent as federal targets. Canada has pledged to reduce its GHG emissions by 30% from 2005 levels (approximately 523 megatonnes (Mt)) by 2030. Currently, Canada's four biggest provinces representing more than 80% of Canada's population (Ontario, Québec, Alberta and British Columbia) have carbon pricing in place that meet the federal benchmark. In May 2017, Environment and Climate Change Canada (ECCC) released its *Technical Paper on the Federal Carbon Pricing Backstop*, which was followed by the Guidance on the *Pan-Canadian Carbon Pollution Pricing Benchmark* in August 2017. In December 2017, *Supplemental Benchmark Guidance* was issued and federal Environment Minister Catherine McKenna and Finance Minister Bill Morneau announced a deadline of September 1, 2018 for each province to outline how it is implementing a carbon pricing system that meets the federal standard (the federal government has requested that provinces and territories that choose the federal backstop, in whole or in part, confirm this by March 30, 2018). The federal government will then determine whether the planned systems are on track to meet the standard, or whether the federal approach should be applied in that jurisdiction. On January 15, 2018, ECCC released draft legislative proposals for public comment relating to the proposed *Greenhouse Gas Pollution Pricing Act* and the proposed regulatory framework for the output-based pricing system (which is designed to minimize competitiveness risks for emissions-intensive, trade-exposed industrial facilities). The comment periods for the federal carbon pricing backstop legislation and the regulatory framework end on February 12, 2018 and April 9, 2018, respectively.

- **Federal Government lowers GHG reporting threshold to 10,000 tonnes**: In December 2017, ECCC published its updated requirements and step-by-step reporting instructions in advance of the 2017 reporting period under the federal *Greenhouse Gas Reporting Program* (GHGRP):

    - the Notice with respect to reporting of greenhouse gases for 2017, which was published on December 30, 2017 in Part I of the *Canada Gazette,* outlines the 2017 reporting requirements for GHG-emitting facilities;

- Canada's Greenhouse Gas Quantification Requirements provides details of the prescribed methodological framework to be used by those facilities subject to expanded requirements.

In addition, (i) all facilities engaged in carbon capture, transport and geological storage (CCTS), regardless of their annual GHG emissions, will be required to submit a report covering CCTS activities for 2017 and relevant years for the period 2014 to 2016; and (ii) expanded data and methodological requirements will apply to facilities engaged in CCTS and to manufacturers of lime, cement, iron and steel, and aluminium.

- **Environment and Climate Change Canada releases Clean Fuel Standard regulatory framework**: In November 2016, the federal government announced that it would commence development of a performance-based clean fuel standard (CFS) that would incent the use of a broad range of low carbon fuels, energy sources and technologies. The objective of the CFS is to achieve 30 Mt of annual reductions in GHG emissions by 2030, as part of efforts to achieve Canada's commitments under the Paris Agreement. On December 13, 2017, ECCC published a regulatory framework on the CFS, which outlines the key design elements for the CFS regulation, including its scope, regulated parties, carbon intensity approach, timing, and potential compliance options such as credit trading. Draft CFS regulations are expected to be published in late 2018.

- **Alberta transitions to Carbon Competitiveness System in January 2018**: The *Carbon Competitiveness Incentive Regulation* (CCI Regulation) replaced the *Specified Gas Emitters Regulation* on Jan 1, 2018. Under the CCI Regulation, large emitters in Alberta are allowed to emit a certain amount of GHG, free of charge from the carbon levy. This approach is designed to protect industries from competitiveness impacts that could shift production to other jurisdictions. The CCI Regulation applies to facilities that emitted 100,000 tonnes or more of GHG in 2003, or a subsequent year. A facility with less than 100,000 tonnes of GHG may be eligible to opt-in to the CCI Regulation if it competes against a facility regulated under the CCI or has more than 50,000 tonnes of annual emissions, high emissions-intensity and trade-exposure (by opting in, facilities become exempt from the application of the carbon levy for fuels whose emissions are included in their site reporting). Under the updated system, a facility will receive performance credits if their greenhouse gas emissions are less than the amount freely permitted. If their emissions are above the amount freely permitted, they will be required take one or more of the following actions to bring the facility into compliance:

  - make improvements at their facility to reduce emissions intensity;
  - use emission performance credits generated at facilities that achieve more than the required reductions;
  - purchase Alberta-based carbon offset credits; or
  - contribute to Alberta's Climate Change and Emissions Management Fund.

- **Ontario finalizes Carbon Offset Regulation and looks to develop a Voluntary Carbon Offset Program**: In December 2017, the Ontario government finalized a regulation (O. Reg. 539/17) to allow for the creation of offset credits for use in the cap-and-trade program. In particular, the regulation allows the provincial government to issue offset credits to

individuals, companies and organizations for initiatives that reduce, avoid or remove GHG that follow an approved protocol (the first protocol is for landfill gas). Mandatory participants in the cap-and-trade program can use offset credits to help meet up to 8% of their compliance obligations. Ontario is also developing a voluntary carbon offsets program that will establish a clear set of requirements for parties that want to create carbon offsets from eligible emission reduction projects, which offsets can be traded on the voluntary market. The proposed voluntary carbon offsets program is separate and distinct from the proposed compliance offsets program and capped emitters will not be able to use voluntary carbon offset credits to meet their compliance obligations under the cap-and-trade program. In November 2017, the Ontario government posted a discussion paper on key elements of a proposed voluntary carbon offsets program to the Environmental Registry for a 46-day consultation period, which ended on January 15, 2018.

- **Saskatchewan releases Made-in-Saskatchewan Climate Change Strategy**: In December 2017, the Saskatchewan government released its comprehensive climate change strategy, Prairie Resilience: A Made-in-Saskatchewan Climate Change Strategy (the Strategy). The Strategy focuses on the principles of readiness and climate resilience, curbing GHG emissions, and preparing for changing conditions such as extreme weather, drought or wildfire. Saskatchewan has decided not to sign on to the Pan-Canadian Framework on Clean Growth and Climate Change or to adopt a carbon pricing mechanism, meaning that it will be out of compliance with federal requirements once the federal carbon pricing backstop kicks in. The Strategy proposes actions in key areas, including (i) natural systems; (ii) physical infrastructure; (iii) economic sustainability; (iv) community preparedness; and (v) measuring, monitoring and reporting. Highlights of proposed initiatives include:

    - implementing a carbon offset system that recognizes emission reductions from sequestration activities, especially from soils and forests;

    - meeting the province's commitment of up to 50% electricity capacity from renewables through increasing renewable energy sources (including wind and solar) and research into energy storage services;

    - adopting the 2015 National Building Code (effective January 1, 2018);

    - implementing sector-specific output-based performance standards on facilities emitting more than 25,000 tonnes of CO_2e per year, which can be met through a range of compliance options (i.e. reducing emissions intensity, purchasing emission offsets, using best performance credits, engaging in internationally transferred mitigation outcomes as provided for in the Paris Agreement, or paying into a provincial technology fund);

    - develop regulations to reduce GHG emissions from oil and gas wells and facilities using a results-based system; and

    - develop annual reporting regulations for industry to apply to (i) all emitters of more than 25,000 tonnes of CO_2e annually, and (ii) a voluntary opt-in for emitters for over 10,000 tonnes of CO_2e annually.

- **Manitoba releases Made-in-Manitoba Climate and Green Plan**: In October 2017, Manitoba released its *Made-in-Manitoba Climate and Green Plan* (the Plan), which

proposes a fixed carbon price of $25 per tonne of CO_2e. Under the Plan, an output-based pricing approach has been proposed for large emitters in order to minimize competitiveness and carbon leakage risks to industries that are emissions-intensive and trade-exposed. This system, to be introduced in 2019, would apply carbon pricing to that portion of a facility's emissions that exceed a designated emissions-intensity performance standard for that type of facility. A facility that emits less than what is allowed under the performance standard would receive a credit (which can be banked or traded) for each tonne of surplus CO_2e between the standard and the facility's actual emissions.

- **Ontario, Québec and California sign agreement to link cap-and-trade programs**: On September 22, 2017, Ontario, Québec and California sign an agreement to link their carbon markets. On January 1, 2018, Ontario formally entered the Québec-California carbon market, allowing all three governments to hold joint auctions of GHG emission allowances and to harmonize regulations and reporting.

- **BC's Carbon Tax no longer revenue neutral; Carbon Tax set to increase on April 1, 2018**: BC's New Democratic Party (NDP) was sworn into government in July 2017. In its Budget 2017 Update (2017/18 – 2019/20), which was released in September 2017, certain changes to the BC carbon tax were announced: (i) as of April 1, 2018, the carbon tax will increase by $5 per tonne of CO_2e per year until it reaches the federal target carbon price of $50 on April 1, 2021 (one year before Ottawa's 2022 deadline). BC's carbon tax is currently set at $30 per tonne of CO_2e; (ii) Part 2 of the *Carbon Tax Act* has been repealed, meaning that the *Carbon Tax Act* will no longer require that revenue measures be introduced to offset carbon tax revenues (this will allow the government to spend carbon tax revenues on emission reduction measures or other green initiatives, rather than returning carbon tax revenues to taxpayers).

- **Federal Government proposes new regulations for methane from oil and gas sector**: On May 27, 2017, the federal government published the proposed *Regulations Respecting Reduction in the Release of Methane and Certain Volatile Organic Compounds (Upstream Oil and Gas Sector)* (the Proposed Regulations) in the Canada Gazette Part I. The Proposed Regulations are designed to meet the federal government's domestic (under the Pan-Canadian Framework on Clean Growth and Climate Change) and international commitments (under the Paris Agreement) to reduce methane emissions by 40–45% by 2025. In particular, the Proposed Regulations seek to introduce control measures (i.e. facility and equipment level standards) to reduce fugitive and venting emissions of hydrocarbons, including methane, from the oil and gas sector. Depending on the standard adopted, the Proposed Regulations would come into force on January 1, 2020 or January 1, 2023. Both Alberta and BC have also made matching commitments under their climate change strategies to reduce methane emissions in the oil and gas sector by 45% by 2025.

Recent global developments include:

- **China announces National Emissions Trading Scheme**: In December 2017, China approved the first phase of its emissions trading system (ETS), which will focus on the power sector. Trading will be based in Shanghai and involve 1,700 power companies, covering over 3 billion tonnes of carbon dioxide released annually, making it the world's largest program (by comparison, the European Union's ETS covers approximately 2 billion tonnes of carbon dioxide). Nine regions and cities (including Jiangsu, Fujian and seven regions where pilot schemes have taken place) will coordinate to establish the ETS. Other

sectors including iron and steel, chemicals and paper-making will eventually be included in the Chinese ETS. While a timeline for the program has not yet been released, it is anticipated that the program will take at least a year to be implemented.

- **California Fine Tunes and Extends its Cap-and-Trade Program to 2030**: On July 17, 2017, the California legislature passed legislation to extend the state's cap-and-trade program to 2030 (the program was originally set to expire in 2020). Bill AB 398 received broad bi-partisan support and was passed with a two-thirds majority vote, which is the threshold required to pass tax laws in California. With a super-majority vote, California's cap-and-trade program will be harder to challenge in court, thus providing policy certainty to market participants and partner jurisdictions including Québec and Ontario. AB 398 was accompanied by two bills: (1) AB 617, which seeks to address local air quality concerns by requiring increased monitoring, mandating upgrades of outdated equipment and technology, and imposing stricter penalties for noncompliance with regulations; and (2) ACA 1, which establishes the Greenhouse Gas Reduction Fund, into which all revenue from the auction or sale of allowances will be deposited (a 2/3 vote of each house will be required to appropriate the funds).

- **US Administration announces intent to withdraw from Paris Agreement**: On June 1, 2017, US President Donald Trump announced his intent to withdraw the United States from the Paris Agreement. Article 28 of the Paris Agreement permits a party to withdraw by giving written notification to the Secretary-General of the United Nations, which notification may only be provided "after three years from the date on which [the Paris Agreement] entered into force for a Party." Withdrawal then takes effect upon expiry of one year from the date of receipt. The Paris Agreement entered into force for the US on November 4, 2016, meaning that the earliest the US can give written notice is three years later on November 4, 2019 and the earliest the US can leave the Paris Agreement is November 4, 2020. Until such time as the withdrawal process is complete, the US will remain a party to the Paris Agreement and is obliged under international law not to frustrate or obstruct the implementation of the accord.

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Purpose of this Guide

This guide provides an overview of key climate change issues, focusing on the market mechanisms for addressing climate change as well as the context for climate change concepts such as the global carbon budget and the social cost of carbon. In addition, an overview of Canadian federal, provincial and territorial climate policies, and regional climate change initiatives is provided. While a discussion of municipal climate change initiatives, climate change mitigation and adaptation plans, air quality regulations, and provincial renewable energy policies and incentives is outside the scope of this guide, such initiatives and policies play a key role in the fight against climate change.

Climate Change – Demystifying the Terminology

While there are varying definitions in use, the term "climate change" generally refers to the large-scale, long-term shift in the planet's weather patterns or average temperatures. Environment Canada describes climate change in the following terms: "*Climate change is a long-term shift in weather conditions identified by changes in temperature, precipitation, winds, and other indicators. Climate change can involve both changes in average conditions and changes in variability, including, for example, extreme events.*" The National Aeronautics and Space Administration (NASA) distinguishes between climate change and "global warming", which refers to the upward temperature trend across the entire earth since the early 20th century, most notably since the late 1970s, due to the increase in fossil fuel emissions since the industrial revolution. While global warming is causing climate patterns to change, it represents only one aspect of climate change.

Greenhouse gases (GHG) are naturally occurring gases in the earth's atmosphere that trap some of the sun's heat and prevent it from escaping into space, thus insulating the earth. GHG include water vapour, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_20), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6). Each of these gases can remain in the atmosphere for different amounts of time, from a few years to thousands of years.

Canada's diverse geography means that climate impacts will vary from region to region. In its 2014 report, Canada in a Changing Climate: Sector Perspectives on Impacts and Adaptation, Natural Resources Canada notes that the impacts of a changing climate are already noticeable throughout Canada, especially in the North. Ice is breaking up on most rivers and lakes earlier in the spring and glaciers and polar sea ice are shrinking. Other changes in climate are expected, including the amount and distribution of rain, snow, and ice and the risk of extreme weather events such as heat waves, heavy rainfalls and related flooding, dry spells and/or droughts, and forest fires. Since Canada is a maritime nation with eight of its ten provinces and all three territories bordering on ocean waters, many regions of Canada will also be affected by changing ocean environments, including changes in average and extreme sea level, wave regimes, and ice conditions.

A phrase by any other name…

In scientific circles such as the IPCC, **climate change** refers to a change in the state of the climate that can be identified (e.g. using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. It refers to any change in climate over time, whether due to natural variability or as a result of human activity. This usage differs from that in UNFCC circles, where climate change refers to a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods.

Understanding Global Warming Potential

Since different GHG have different effects on global warming, the concept of a **Global Warming Potential** (GWP) was developed to allow comparisons of the impacts of different gases. GWP is a measure of how much energy the emissions of one tonne of a gas will absorb over a given period of time (usually 100 years), relative to the emissions of one tonne of carbon dioxide – hence the term carbon dioxide equivalent, or CO_2e. The larger the GWP, the more that a given gas warms the earth compared to carbon dioxide over that time period. GWP provides a common unit of measure, which allows policymakers to estimate emissions and to compare emission reduction opportunities across sectors.

The Global Carbon Budget

One of the recent contributions of the IPCC to the climate lexicon is the concept of a global "carbon budget". The concept of a carbon budget was first articulated in the IPCC's 2013 Fifth Assessment Report, which addressed the physical basis of climate change. Essentially, the carbon budget represents the amount of carbon dioxide emissions the world can emit while still having a likely chance of limiting global temperature rise to 2°C above pre-industrial levels. According to the IPCC, we have already used 65% of our carbon budget (from 1870 to 2011: we used 1,900 gigatonnes of carbon dioxide ($GtCO_2$), from a total carbon budget of 2,900 $GtCO_2$). If emissions continue unabated, the IPCC estimates we will exceed our budget before the end of 2045.

The concept of the **two degree** threshold first emerged in the 1970s, when Professor William Nordhaus suggested that warming of more than two degrees would push the climate beyond the limits that humans were familiar with.

Researchers from the Global Carbon Project (GCP) found that in 2017, global carbon emissions are on the rise after three years of little-to-no growth. Estimates that global CO_2 emissions from all human activities (i.e. fossil fuels, industry and land-use change) will reach around 41 billion tonnes of CO_2 (with global fossil fuel emissions reaching a record 37 billion tonnes of CO_2 in 2017). CO_2 concentrations in the atmosphere have increased from approximately 277 parts per million at the dawn of the industrial era to 403 parts per million as of 2016.

Climate Mitigation vs. Climate Adaptation

There are two main approaches to managing climate change: **mitigation** and **adaptation**. Climate change mitigation involves designing and implementing methods to reduce GHG emissions, such as energy conservation. Climate change adaptation involves taking action to minimize the adverse impacts and maximize potential benefits from a changing climate. Adaptation measures acknowledge that changes are inevitable and that planning and decision making process must adapt accordingly.

Intergovernmental Panel on Climate Change (IPCC)

The Intergovernmental Panel on Climate Change (IPCC) is an inter-governmental scientific body that operates under the auspices of the United Nations. It is the leading international body for the assessment of climate change. Established in 1988 by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO), the IPCC's mandate is to provide its members with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts. While the IPCC reviews and assesses the most recent scientific, technical and socio-economic information produced worldwide as it relates to climate change, it does not conduct any research nor does it monitor climate related data or parameters.

Overview of Carbon Pricing Market Mechanisms

Carbon pricing is increasingly seen as the key mechanism by which meaningful GHG emission reductions can be achieved. As a result, there has been growing pressure on governments to account for the societal costs of climate change and put a price on carbon. A price on carbon looks to capture what are referred to as the external costs of carbon emissions, i.e. costs that the public pays for indirectly, such as damage to crops and damage to property as a result of flooding. By placing a monetary value on carbon, governments, businesses and individuals will have an incentive to change their behaviour to less carbon intensive alternatives.

While governments have traditionally relied on command-and-control regulations or voluntary actions to tackle environmental issues, there has been growing acknowledgement that these traditional policy approaches are no longer adequate to deal with complex environmental issues, such as climate change, where multiple sources of pollution and multi-sector industrial processes that are integral to economic activity are involved. With so many competing economic and environmental interests, policy makers are looking outside the traditional policy tool box to take on the climate change challenge. Since market instruments are perceived as providing more cost efficient and flexible compliance mechanisms, governments are now looking to the market for solutions. In addition to giving an economic signal to emitters, a carbon price can also stimulate investments in clean technology.

There are two main types of carbon pricing mechanisms available to policymakers: emissions trading systems (ETS) and carbon taxes. Each of these is discussed in further detail below. The key differences between the mechanisms are that with an ETS, the quantity of emission reductions is known, but the price is uncertain. With a carbon tax, the price is known, however the quantity of emissions reductions is uncertain. A tax requires decisions on the scope and rate of the tax, while within a trading system, a firm can acquire or bank emission allowances over multiple years depending on the program – emissions trading offers a broader range of compliance options, thus increasing flexibility for participants and potentially lowering compliance costs. Both carbon pricing mechanisms can generate revenue that can be used to lower other taxes or invest in “green” initiatives. Both mechanisms also have related monitoring, reporting, verification and compliance obligations, and both need special provisions to minimize the effects on certain energy intensive, trade exposed industries. The choice of the instrument will depend on each jurisdiction’s national and economic circumstances. There are also more indirect carbon pricing tools, such as fuel taxes, the elimination of fossil fuel subsidies, and regulations that incorporate a “social cost of carbon” (discussed in further detail below).

Emissions Trading Systems

Emissions trading is a market-based approach used to manage GHG emissions by providing economic incentives for participants to reduce emissions. While emissions trading systems tend to be complex, the economic concept behind it is straightforward – since climate change is a shared global burden and the environmental impacts of reducing emissions is the same wherever the reductions take place, it makes economic sense to reduce emissions where the cost is lowest. As a result, an emissions trading system provides regulated entities with greater flexibility in how they can comply with their emission reduction obligations, thereby reducing the overall costs of compliance.

Under an ETS, the government or another central authority sets an annual limit or cap on the amount of GHG emissions that can be emitted by certain industries. Regulated entities are then required to hold a number of emissions allowances equivalent to their emissions. Regulated entities that reduce their GHG emissions below their target will require fewer allowances and can sell any surplus allowances to generate revenue. Regulated entities that are unable to reduce their emissions can purchase allowances to comply with their target. By creating demand and supply for emissions allowances, an ETS establishes a market price for GHG emissions. In order to achieve absolute reductions in GHG emissions, the limit or cap is gradually lowered over time.

An **emissions allowance** is issued by a governmental or other central authority and represents the right to emit a specific volume of carbon, typically one tonne of CO_2e. Emission allowances are also commonly known as emission credits or permits.

For added compliance flexibility, some emissions trading systems may allow for the use of emission offset credits. Emission offset credits (discussed in further detail below) are generated by GHG-reducing projects in sectors that are not subject to the emissions trading system.

Carbon Tax

A carbon tax puts a price on each tonne of GHG emissions generated from the combustion of fossil fuels. The idea is that over time, the carbon price will elicit a market response from all sectors of the economy, i.e. consumers and businesses will choose less carbon intensive alternatives, thus resulting in reduced emissions. The design and implementation of carbon taxes varies widely across jurisdictions. Design aspects such as the scope of coverage, point of application, and tax rate will depend on the jurisdiction's energy mix, composition of its economy, existing tax burdens, existence of complementary environmental policies, and political considerations. With respect to scope, some jurisdictions have focused on a narrow category of energy users and large emitters, while others such as British Columbia (BC) have adopted a broader scope where the carbon tax covers GHG emissions from the combustion of all fossil fuels. According to the Institute for European Environmental Policy, there are currently no schemes that cover all GHG emissions in a given jurisdiction.

Emission Offsets 101

An emission offset, also known as a carbon offset, is a market-based tool used by individuals, businesses, governmental and non-governmental organizations to compensate their "carbon footprint", which represents the amount of GHG emissions emitted as a result of their activities. Emission offsets are usually employed after efforts have been made to reduce emissions and further tools are needed to bring one's emissions to a net zero position, which is referred to as becoming "carbon neutral". The basic concept of an emission offset is that it represents the reduction, removal or avoidance of GHG emissions from a specific activity or project in one location that is used to compensate for GHG emissions occurring at another location – simply put, they are credits for GHG reductions

FUN FACT: The phrase **carbon footprint** was derived from the term **ecological footprint**, which was first coined by Professor William Rees and Mathis Wackernagel at the University of British Columbia in 1992. In his work, Rees described the balance that exists between what people take and use from the environment versus the availability of nature's resources to continue to provide them.

made elsewhere. Emission offsets are quantified and sold in tonnes of CO_2e and can be bought or sold through brokers, online retailers or trading platforms.

The essential promise of an offset is the achievement of a real and verifiable reduction in GHG emission levels beyond what would have otherwise occurred. A number of activities can generate carbon offsets, ranging from renewable energy projects (which create carbon offsets by displacing fossil fuels) and energy efficiency projects, to methane capture from landfills and carbon sequestration projects (such as reforestation or agricultural activities that absorb CO_2 from the atmosphere). Emission offsets must meet certain criteria in order to be recognized as quality offsets. In particular, quality emission offsets must:

- be real,
- be additional,
- be based on a realistic baseline,
- be unambiguously owned,
- be quantified and monitored,
- be independently verified,
- address leakage,
- address permanence, and
- do no net harm.

Anyone can purchase emission offsets to balance their GHG emissions. As a result, demand for emission offsets around the world has led to a large and growing carbon market, which is divided into two segments: (1) compliance market, which includes government-regulated programs (such as the European Union ETS) that require regulated entities to reduce their emissions; and (2) voluntary market, which covers activities that are not required by government regulation as part of mandatory GHG reduction programs (or activities that are above and beyond what is required by regulation).

State of the Voluntary Markets

As individuals, businesses, governmental and non-governmental organizations look to reduce their carbon footprints, many are turning to offsets as a way to achieve carbon neutrality. According to the Forest Trends Ecosystem Marketplace report, Unlocking Potential: State of the Voluntary Carbon Markets 2017 (2017 Report), voluntary buyers transacted a total of 63.4 million tonnes of carbon dioxide equivalent ($MtCO_2e$) in 2016, a 24% decrease over 2015. This demand has enabled offset project developers to find innovative ways to reduce emissions and verify their results in unregulated sectors. Private companies are the most common type of offset buyer and governments draw on voluntary offset project methodologies and market frameworks to help develop their own carbon pricing regimes. The average price of carbon offsets in 2016 was US $3.00/tonne, with a total market value of US $191.3 million. Over the years, the cumulative value of the voluntary carbon markets has topped US $4.8 billion. The 2017 Report found that in 2016, over 17.3 $MtCO_2e$ of offsets transacted at $1.0/$tCO_2e$ or less, and the vast majority (93%) of these transacted on the secondary market. In contrast, only 2.4 $MtCO_2e$ were sold at $10.0/$tCO_2e$ or more, and 47% of these transacted on the primary market. While the total volume transacted at $12/tonne or more was much smaller than the total volume transacted at prices between $0-1/tonne, the number of transactions recorded was nearly the same. This indicates that there are just as many deals at high average prices, but that those buyers purchase offsets in much smaller quantities. In addition, the 2017 Report found that most offsets sold came from wind, REDD+, or landfill methane projects; however smaller or more community-focused project types were more prominent on the primary markets.

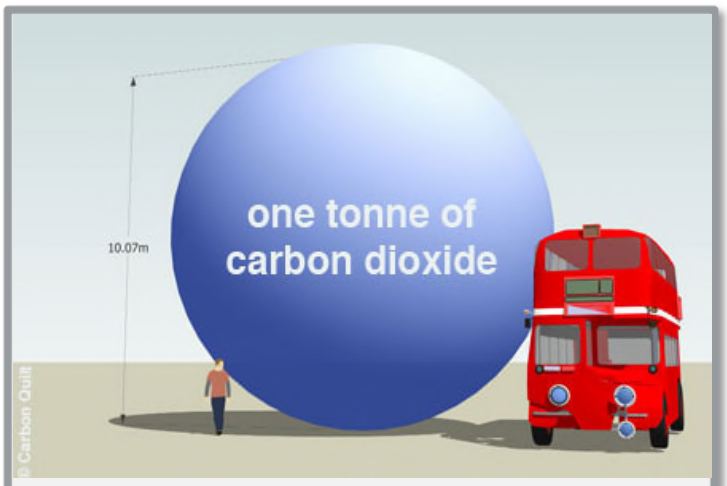
How does our carbon footprint compare?

According to Environment Canada, the amount of GHG emitted per person in Canada amounted to 20.1 tonnes of CO_2e in 2015. The Conference Board of Canada reports that Canada ranks 15th out of 17 OECD countries on GHG emissions per capita. By comparison, the 17-country average of OECD countries is 12.5 tonnes per person.

Although not required by law, the majority of voluntary carbon projects use third-party verified standards to guide project development and to ensure that emissions reductions meet the requisite quality criteria. Today, most standards require projects to undertake a feasibility and risk assessment, which is followed by an outline of project activities and the establishment of a baseline level of emissions. A third-party auditor will then validate these assumptions. Once project implementation is complete and monitoring is underway, a verification process is used to assess the delivery of GHG reductions. To register and track these reductions, an offset project registry will issue each tonne of emissions reduction (now an eligible offset) a unique serial number that can then be transacted multiple times before it is retired on a registry, at which point it can no longer be sold. Over the years, numerous standards for offset project development and third-party certification have emerged. However, only a handful have emerged as the preferred standards, including the Verified Carbon Standard (VCS), Gold Standard, Climate Action Reserve (CAR) and American Carbon Registry (ACR). The 2017 Report indicates that in 2016, VCS and the Gold Standard dominated buyer preferences with each standard holding 58% and 17% of market share, respectively.

Quick Look: Carbon Pricing Around the World

In its State and Trends of Carbon Pricing 2017 Report (November 2017), the World Bank and Ecofys estimate that approximately 42 countries and more than 25 cities, states and provinces currently use carbon pricing mechanisms or are planning to implement them. Carbon pricing initiatives cover about half of the emissions in these jurisdictions, which translates into approximately 15% of global CO_2 emissions. While climate policy in jurisdictions around the world tended to lag early on, recent developments have signaled a general move towards cap-and-trade as the preferred market tool for addressing climate change. In North America, both Québec and California launched cap-and-trade systems in January 2013 and linked their programs one year later, creating North America's largest carbon market. Ontario's cap-and-trade program came online in January 2017, which will link to the existing programs in Québec and California. In January 2009, the Regional Greenhouse Gas Initiative (RGGI, comprising nine states in the US Northeast) began operating the first market-based regulatory program in the United States to cap and reduce CO_2 emissions from the power sector.



So what does a tonne of CO_2 look like anyway?

Source: carbonvisuals.com

At the international level, the European Union Emissions Trading System (EU ETS) has been in operation since 2005 and represents the first, and still the largest, global system for trading emission permits. Together with Québec and California's system, and the launch of a cap-and-trade system in South Korea, the World Bank estimates that in 2017, the total value of global emissions trading systems and carbon taxes is approximately US $52 billion. Once a national ETS is implemented in China (China has announced that a national ETS will be launched towards the end of 2018), unofficial estimates suggest that the total value of ETSs and carbon taxes could potentially double to about US$100 billion.

The following provides a snapshot of current carbon pricing initiatives around the world:

- Québec and California launched emissions trading systems in 2013 as part of the Western Climate Initiative (WCI), which were formally linked in 2014. Ontario's cap-and-trade program came into force on January 1, 2017 and formally linked with the Québec and California systems on January 1, 2018. The WCI was formed in 2007 by a group of US states and Canadian provinces (including BC, Manitoba, Ontario and Québec) that decided to adopt a common approach for addressing climate change, in particular by designing and implementing a North American system for capping and trading GHG emission rights. The WCI has since been succeeded by the Western Climate Initiative, Inc., a non-profit corporation established to provide administrative and technical services to support the implementation of state and provincial GHG emissions trading programs.

- In Canada, the federal government will implement a pan-Canadian carbon price, requiring all provinces and territories to have a carbon pricing mechanism in place by the end of 2018 that meets federal criteria.

- While US climate action at the federal level has been set back, there have been positive developments at the subnational level. The intended withdrawal of the US from the Paris Agreement and its review of energy- and climate-related policies, including the Climate Action Plan and the Clean Power Plan, dampens the ambition of the federal government's policies on climate change mitigation. In response to these national developments, the America's Pledge initiative is bringing together states, cities, companies, universities and other actors to highlight the continued support of the Paris Agreement goals by compiling and quantifying their efforts to reduce GHG emissions. These actions are reinforced by state level actions, including Washington state's launch of a baseline-and-credit ETS in 2017 (which was suspended as of December 15, 2017 pending resolution of a legal challenge) and the extension of the California ETS until 2030. In addition, the Regional Greenhouse Gas Initiative (RGGI) is looking to strengthen its ETS after 2020, Massachusetts is scheduled to launch its own state-level ETS which will operate alongside RGGI in 2018, and Oregon and Virginia are working to introduce carbon pricing.

- China is gearing up for the commencement of its national ETS, which is planned for the end of 2018. Currently, pilot emissions trading systems are operating in seven cities and provinces (including Beijing, Tianjin, Shanghai, Chongqing, Hubei, Guangdong, and Shenzhen). A voluntary emissions trading market has also been active in China since 2008. In 2009, the "Panda Standard" (a voluntary carbon standard) was introduced. China's has set a target of peaking CO_2 emissions by 2030 at the latest and reducing CO_2 emissions intensity by 60-65% below 2005 levels by 2030.

- The European Union (EU) ETS, launched in 2005, has the distinction of being the world's first emissions trading system. The system covers more than 11,000 power stations and industrial facilities, along with airlines, in the 28 EU member states plus Iceland, Liechtenstein and Norway. In total, around 45% of total EU emissions are subject to the EU ETS. The system remains the world's largest emissions trading market, accounting for more than three-quarters of international carbon trading. As many as 40 million allowances have been traded per day. In 2012, 7.9 billion allowances were traded with a total value of €56 billion. In February 2017, EU legislators proposed revisions to the EU ETS for the post-2020 period, including: an increase in the annual cap reduction from 1.74% to 2.2% to meet the 2030 GHG emission reduction targets, and a temporary doubling of the yearly withholding rate of surplus allowances into the market stability reserve to 24 percent. Discussions are ongoing to agree on the modalities to ensure more targeted allocation of free allowances, as well as the size and sourcing of low-carbon funding mechanisms.

- Mexico will start an ETS simulation in preparation for its pilot ETS launch in 2018, while Colombia and Chile are both investigating the introduction of ETSs. These ETS developments follow the carbon taxes that were implemented in these jurisdictions over the past three years.

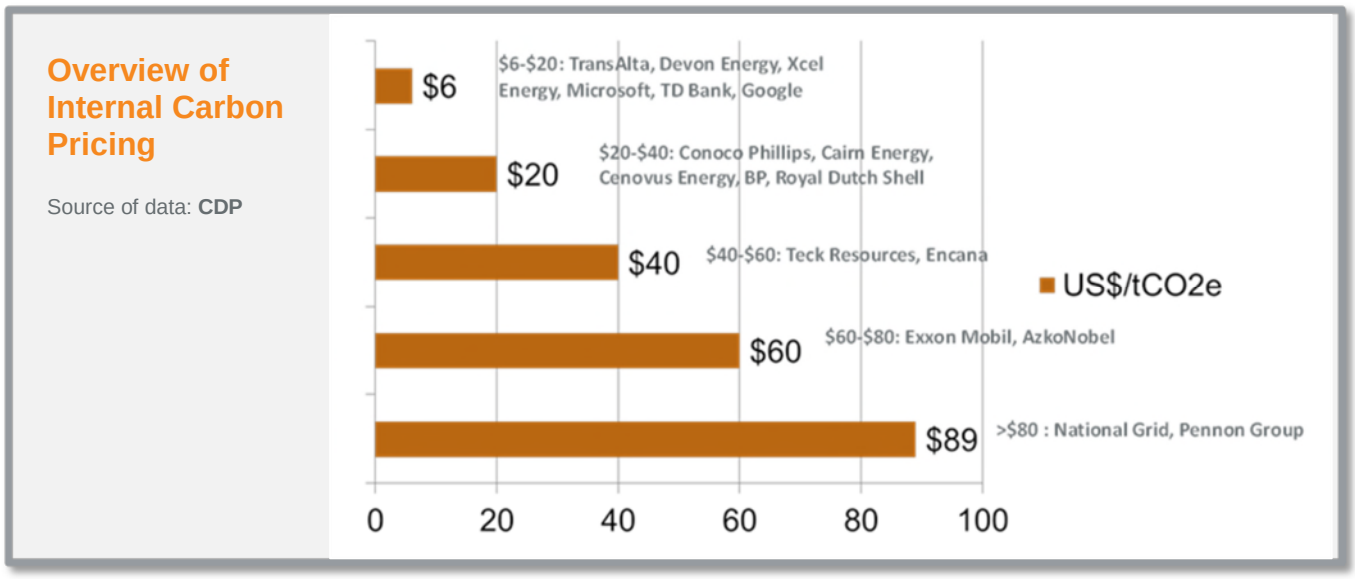
A Word on Corporate Carbon Pricing

In recent years, companies have been working hard to reduce their carbon footprints and signal corporate support for the transition to a lower carbon economy. In particular, an increasing number of companies are setting emission reduction targets and taking action to address climate change impacts in both their own operations and their supply chain. Since many companies operate in jurisdictions where GHG emissions are subject to mandatory emission reduction program or carbon taxes, they are well attuned to carbon pricing issues as a response to the regulatory environments in which they operate. However, given the diversity in scope and timing of climate policies, companies are faced with having to consider multiple carbon compliance costs in their business decisions. As a result, there have been increasing calls from the private sector on governments to establish clear pricing and regulatory certainty to support climate-related investments and climate risk assessment efforts. In the meantime, companies have been managing their emissions, assessing risk and developing business plans based on a real or internal carbon price that is incorporated into their planning and investment decisions. This means that companies worldwide are already advanced in their use of carbon pricing and in planning for climate change risks, costs and opportunities.

The Value of Shadow Carbon Pricing

According to the CDP, internal carbon pricing has become standard operating practice in business planning. The prices used range from US $6 to 89 per tonne of CO_2e and companies use varying terminology such as “internal carbon price”, “shadow price”, “internal carbon fee”, “carbon adder” or “carbon cost”. Since most companies reporting to the CDP expect that some form of regulatory regime will be eventually implemented to address climate change, they have been preparing by using a carbon price as a planning tool to help identify revenue opportunities, risks, and as an incentive to drive maximum energy efficiencies to reduce costs and guide capital investment decisions.

In its report, Embedding a Carbon Price into Business Strategy (September 2016), the CDP (formerly the Carbon Disclosure Project) reported that in 2016, 1,249 companies disclosed that they are now using or plan to use an internal carbon price in their business models. The CDP also reports that companies are using an internal carbon price ranging from less than US $1 to as high as US $150 per tonne of CO_2e. On April 22, 2016, the United Nations Global Compact (UNGC) called for a minimum internal carbon price level of US$100 per tonne of CO_2e by 2020, which UNGC believes is the minimum price needed to spur innovation, unlock investment and shift market signals in line with the 1.5 – 2°C pathway. Internal carbon pricing is currently used by a range of companies across a number of sectors, as illustrated in the table below:



In walking the talk, companies and investors have expressed their support for a carbon price through a series of initiatives. In 2014, more than 1,000 companies and investors issued a statement in support of carbon pricing through a series of initiatives led by the World Bank. The *2014/2015 Global Investor Statement on Climate Change* has been signed by over 400 investors with more than $24 trillion in assets. The statement sets out steps that institutional investors can take to address climate change and calls on governments to support a new global agreement on climate change.

An increase in the adoption of internal carbon pricing is anticipated following the final recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD) published in June 2017 (discussed in further detail below). The TCFD considers climate-related risks to be material and advises businesses to disclose their climate-related financial risks and opportunities under existing financial disclosure obligations, including in a scenario that limits global warming to 2°C or below. As part of this disclosure, the TCFD recommends companies and investors to report the internal carbon prices that are used to manage these risks and opportunities.

The Growing Importance of Climate-Related Financial Disclosures

In response to demands from investors and shareholders for greater action on climate change that delivers positive returns on investment, there has a been a proliferation of investor-led initiatives designed to accelerate meaningful climate action at both government and corporate levels. From the Global Investor Statement on Climate Change and the Ceres Shareholder Initiative on Climate and Sustainability, to the Portfolio Decarbonization Coalition and Investor Expectations on Corporate Climate Risk Management, investors are looking to address risk management issues within the context of climate change, such as how business plans will fare in a low-carbon future and the fate of potential stranded assets. These initiatives are driving the need for more reliable and consistent information. As a result, corporate disclosure of climate change-related matters is becoming an increasingly important tool to help companies and investors better understand environmental risks and opportunities.

2017 saw broad push by global institutional investors to encourage governments to fully implement the Paris Agreement. Ahead of the G20 Summit in Hamburg, 390 investors with US$22 trillion in assets under management sent a letter to all G20 governments urging them to stand by their commitments to the Paris Agreement and support the recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD), which has set out an ambitious five-year path for full implementation of the Paris Agreement. The TCFD has developed four voluntary recommendations on climate-related financial disclosures that can be applied to organizations across sectors and jurisdictions, including financial sector organizations. The recommendations are structured around four main themes (each of which sets out specific recommended disclosures):

1. **Governance** – disclose the organization's governance around climate-related risks and opportunities (e.g. board oversight for climate-related matters).

2. **Strategy** – disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material (e.g. identification of climate-related risks and opportunities over the short, medium, and long term).

3. **Risk Management** – disclose how the organization identifies, assesses, and manages climate-related risks (e.g. organization's processes for managing climate-related risks)

4. **Metrics and Targets** – disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material (e.g. disclosure of Scope 1, Scope 2, and Scope 3 (if appropriate) GHG emissions and related risks).

To date, more than 240 major banks, insurers and investors have publicly committed to supporting the TCFD's recommendations, which underscores the growing trend for companies to consider the impact of climate change on their operations, and for institutional investors to demand better information from companies. On December 11, 2017, the World Business Council for Sustainable Development (WBCSD) released the CEO Guide to climate-related financial disclosures, which sets out clear actions that CEOs can take to align their organizations with the recommendations of the TCFD.

In Canada, as of June 2015, 24 asset owners and 30 asset managers are among global investors with US $45 trillion in assets that have endorsed the *Principles for Responsible Investment*, pledging to integrate environmental, social and governance criteria into the selection and ownership of securities. A country-specific review of the TCFD's recommendations for Canada prepared by the Principles for Responsible Investing (PRI) organization concluded that company disclosure requirements are "progressing relatively slowly" in Canada. PRI noted that Canada currently has limited corporate disclosure covering environmental, social and governance factors. Further, climate change tends to be grouped under the umbrella of environmental requirements, and is not addressed as a stand-alone concern. CDP currently receives GHG emissions information from 109 of 200 largest TSX-listed companies (by market capitalization). PRI said that the next steps should be for the federal government, as well as federal and provincial securities regulators, to endorse the TCFD's recommendations, and that the Toronto Stock Exchange and TSX Venture Exchange should reference them in their reporting guidance. In March 2017, the Canadian Securities Administrators (CSA) launched a project to review the disclosure of risks and financial impacts

associated with climate change. The CSA had planned to conduct its information gathering in spring and summer 2017, and publish a progress report following the completion of its review.

Understanding the Social Cost of Carbon

For policymakers, the "social cost of carbon" (SCC) is emerging as an important new instrument for pricing carbon. The SCC, which has its origins in US policy processes where new regulations are required to undergo a cost-benefit analysis, represents an estimate of the economic damages associated with a small increase in CO_2 emissions (usually one tonne) in a given year. In particular, it provides a measure of the marginal damage from CO_2 emissions, and thus the marginal benefit of abatement – i.e. the SCC is the monetized value of future worldwide economic damages associated with a one tonne increase in CO2 emissions in a particular year discounted to the present. It is intended to be a comprehensive measure of climate change damages, which could take various forms including decreased agricultural yields, property damages from increased flood risk, harm to human health and lower worker productivity – all related to climate change. The purpose of the SCC is to allow government agencies to incorporate the social benefits of reducing CO_2 emissions into cost-benefit analyses of regulatory actions that impact cumulative emissions. While the SCC is meant to be a comprehensive estimate of climate change damages, current modeling and data limitations mean that the SCC does not include all important damages.

There are three main models for calculating the SCC, referred to as Integrated Assessment Models: (i) Dynamic Integrated Climate Economy model (DICE), developed by William Nordhaus at Yale University; (ii) Framework for Uncertainty, Negotiation and Distribution model (FUND), originally developed by Richard Tol at the Unversity of Sussex and now co-developed by Tol and David Anthoff at the University of California; and (iii) Policy Analysis of the Greenhouse Effect model (PAGE), developed by Chris Hope at the University of Cambridge. While all three models contain the same four basic "modules" – socioeconomic, climate, damages and discounting – there are significant differences in the way each model translates emissions into warming. As a result, estimates of the SCC vary because of different assumptions around future emission trends, how the climate will respond, potential impacts, and the way in which future damages are valued. Notwithstanding these limitations, the SCC is a useful measure to assess the benefits of CO_2 reductions. In 2017, the US government made policy based on the assumption that each tonne of CO_2 costs US $39. However, researchers at Stanford University have estimated that at US $220 per tonne, the SCC could actually be more than five times higher than the value that the US now uses to guide current policy decisions.

In an October 2017 analysis prepared by the US Environmental Protection Agency (EPA) in connection with the Trump Administration's plans to repeal the Obama-era Clean Power Plan, the SCC was revised sharply lower to be between US $1 and $6 in the year 2020 (which is down from the EPA's previous 2020 estimate of US $45). The dramatic difference in projected SCC values arises in large part because the EPA is now calculating the cost of carbon only within the US, rather than around the globe. As noted above, the SCC is becoming an increasingly important metric that guides policymakers in assessing the cost-benefit analysis of climate change policy initiatives. By shrinking the SCC, the estimated benefits of climate change policy initiatives will also shrink, meaning that an analysis using a narrower SCC value will likely result in findings where the benefits of climate mitigation policies are not worth the costs.

Current Climate Change Policy in Canada

Federal

In May 2015, Canada submitted its Intended Nationally Determined Contribution (INDC) to the UNFCCC Secretariat, pledging a 30% reduction from 2005 levels – approximately 523 Mt – by 2030. In advance of COP 21, the federal Liberal government announced that Canada would contribute an additional $2.65 billion over five years to the international Green Climate Fund, which is looking to raise US $100 billion annually by 2020 to help developing countries adapt to the impacts of climate change. In its 2016 Greenhouse Gas Emissions Reference Case, Environment and Climate Change Canada (ECCC) projects that Canada's emissions will be 742 $MtCO_2e$ in 2030, or 5% below 2005 levels, with current policies in place. Given the overall increase in Canada's emissions over the past two decades and continuing upwards trajectory, achieving Canada's INDC will require ambitious federal and provincial policies. Prior to COP 21, provincial/territorial and federal leaders met and agreed that they would work together to build a national climate change plan. At a follow-up meeting of the First Ministers and Prime Minister on March 3, 2016, the parties agreed under the Vancouver Declaration on Clean Growth and Climate Change to launch a process to develop the Pan-Canadian Framework on Clean Growth and Climate Change (the Framework), which was released on December 9, 2016 at the First Ministers meeting. Saskatchewan was the only province that decided not to adopt the Framework, which outlines critical actions for growing the economy while reducing GHG emissions. In the associated Communiqué of Canada's First Ministers, the First Ministers set out the next steps for implementation of the framework. In particular, provincial and territorial officials have been tasked with implementing the Framework and reporting back annually to the First Ministers on progress. Federal and provincial governments will deliver an interim report in 2020, while undertaking a more comprehensive review of the stringency and effectiveness of carbon pricing across Canada by early 2022, which will inform the path forward. In the meantime, the federal government is working on draft legislation for the backstop mechanism and is expected to release a report in 2018 on the competitiveness of emissions-intensive and trade-exposed sectors.

What is an INDC?

Countries participating in the United Nations Framework Convention on Climate Change (UNFCCC) process were asked to publicly outline what post-2020 climate actions they intend to take under a new international agreement. These actions are known as their **Intended Nationally Determined Contributions** or INDCs. With the adoption of the Paris Agreement, these actions are now simply referred to as **Nationally Determined Contributions**, or NDCs.

Prior to the release of the Framework, the federal government announced in October 2016 that it will set a minimum price on carbon starting at $10 per tonne of CO_2e in 2018, which will increase by $10 per year until it reaches $50 per tonne of CO_2e by 2022. This approach will be reviewed in 2022 to confirm the path forward, including continued increases in stringency. Under the federal plan, each province and territory will be required to implement carbon pricing in its jurisdiction by 2018, whether in the form of a carbon tax or a cap-and-trade system. If the carbon price in a jurisdiction does not meet the federal minimum price, the federal government will step in and impose a carbon price that makes up the difference and return the revenue to the province or territory. In addition, provincial and territorial goals for reducing emissions must be at least as stringent as federal targets. Currently, Canada's four biggest provinces representing more than

80% of Canada's population (Ontario, Québec, Alberta and British Columbia) have carbon pricing in place.

Greenhouse Gas Emissions Reporting Program (Federal)

In March 2004, the federal government announced the introduction of the Greenhouse Gas Emissions Reporting Program (GHGRP), which applies to large industrial GHG emitters in Canada. In December 2017, ECCC published its updated requirements and step-by-step reporting instructions in advance of the 2017 reporting period under the GHGRP. Stakeholders should note that for the 2017 reporting year under the GHGRP, the reporting threshold has been lowered from 50,000 tonnes to 10,000 tonnes of CO_2e. All facilities that emitted the equivalent of 10,000 tonnes of CO_2e in 2017 will be required to submit a report by June 1, 2018. Facilities in BC, Alberta and Ontario may submit their GHG reports online through Environment Canada's Single Window system, which connects to a series of reporting modules that support various partner programs including the GHGRP.

Provincial

Provincial and territorial leaders have taken a leadership role on the climate change file and have recognized the importance of joint action to adapt to and combat climate change. At the Québec Summit on Climate Change held in April 2015, all of the provinces and territories issued a joint declaration in which they committed to foster the transition to a lower-carbon economy and increase adaptation initiatives to build resiliency. A more detailed look at each of the climate change programs of each province and territory is set out below and is accompanied by a summary table which provides an overview of the key climate change legislation, policies, targets, GHG reporting requirements and carbon pricing mechanism (if any) of each provincial and territorial jurisdiction.

Local Government Action

Recognizing that climate change has immediate, tangible impacts on local infrastructure as well as public health and safety, local governments have been pro-active in building resilient communities and establishing the right conditions for climate change adaptation. While a consideration of local government climate change initiatives is outside the scope of this guide, the role of local governments will be key to ensuring that communities have the right resources to address the impacts of rising temperatures and increasingly frequent storm events on municipal services and infrastructure. The provinces are also recognizing the important role of local governments in addressing climate change and as a result, are providing much needed resources to local governments. For example in BC, the Climate Action Toolkit provides best practices, practical advice, information, and strategic guidance to help BC local governments successfully reduce their greenhouse gas emissions. In Alberta, the Municipal Climate Change Action Centre provides technical assistance, expertise, and funding programs to support Alberta municipalities in reducing their greenhouse gas emissions and improving energy efficiency. In the Atlantic region, over 50 Nova Scotian municipalities have developed Municipal Climate Change Action Plans to build knowledge and capacity at the local level so that local communities can effectively respond to climate change.

A Word on Regional Initiatives

There has been a proliferation of regional climate initiatives to fill the void left by national inaction on climate change. Early regional initiatives such as the Western Climate Initiative (WCI) and the Regional Greenhouse Gas Initiative (RGGI), have given way to larger regional initiatives such as the Under 2 MOU, which brings together states and regions willing to make key emission reduction commitments and to help galvanize action at the international level. The broad appeal of climate action at the regional level is evidenced by the fact that as of January 2018, 205 jurisdictions from 43 countries and six continents have signed or endorsed the Under 2 MOU, collectively representing nearly $30 trillion in GDP (almost 40% of the global economy) and 1.3 billion people.

Within the context of Canadian climate change policy, two regional initiatives have an important bearing on the direction of climate policy for both east and west coast provinces. The first is the Pacific Coast Collaborative (PCC), which is a framework for co-operative climate action that was established in 2008 by BC, Washington, Oregon and California (Alaska is currently an observer). PCC members have agreed to develop or maintain a price on carbon and to align carbon policies, where feasible, in areas that include: clean energy, emergency management, regional transportation, research and innovation, and sustainable regional economies. On the east coast, the New England Governments/Eastern Canadian Premiers (NEG/ECP) Annual Conference (NEG/ECP Conference) has been instrumental in setting regional emission reduction targets for the Atlantic provinces. Since 1973, the NEG/ECP Conference has sought to advance the interests of five provinces (New Brunswick, Newfoundland and Labrador, Nova Scotia, Prince Edward Island, and Québec) and six states (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont) through the implementation of regional initiatives in the areas of trade, energy, economic development, environment, oceans, forestry, agriculture, fisheries, and transportation. On climate change, the NEG-ECP Climate Change Action Plan 2001 is a resolution that was adopted in August 2001 and calls for a reduction in emissions to 1990 levels by 2010, at least 10% below 1990 levels by 2020, and a 75-85% reduction of 2001 levels as a long-term goal. The NEG/ECP Climate Change Action Plan 2001 includes a commitment from each state and province to its own climate change plan with a view to achieving emission reduction targets for the region as a whole. The NEG/ECP region met its short term target to reduce regional emissions to 1990 levels by 2010 and is now working on meeting its 2020 target.

Overview of Provincial Frameworks for Climate Change Action

British Columbia

In 2007, the Government of British Columbia (BC) passed the *Greenhouse Gas Reduction Targets Act* (GGRTA), which legislated targets for reducing provincial GHG emissions by 33% below 2007 levels by 2020 and 80% below 2007 levels by 2050. Supporting this legislation was the 2008 Climate Action Plan, which set out a range of the climate actions to be taken across all sectors of the economy. Three of the more prominent policies included the introduction of a revenue neutral carbon tax, a carbon neutral government initiative and the implementation of a low carbon fuel standard.

Perhaps the most significant climate policy in BC's policy toolkit is the carbon tax, which was introduced in July 2008 through the *Carbon Tax Act* and applies to the purchase or use of fossil

fuels within the province. Since the carbon tax is applied and collected at the wholesale level in essentially the same way that motor fuel taxes are currently applied and collected (however for marketable natural gas and propane, the tax is collected at the retail level), BC has been able to put into place a relatively simple administrative process for managing the carbon tax. Covering over 70% of provincial emissions, the BC carbon tax is considered the most comprehensive tax of its kind in North America. In September 2017, BC's New Democratic Party announced certain changes to the BC carbon tax in its Budget 2017 Update (2017/18 – 2019/20): (i) as of April 1, 2018, the carbon tax will increase by $5 per tonne of CO_2e per year until it reaches the federal target carbon price of $50 on April 1, 2021 (BC's carbon tax is currently set at $30 per tonne of CO_2e); (ii) Part 2 of the *Carbon Tax Act* has been repealed, meaning that the *Carbon Tax Act* will no longer require that revenue measures be introduced to offset carbon tax revenues (this will allow the government to spend carbon tax revenues on emission reduction measures or other green initiatives, rather than returning carbon tax revenues to taxpayers).

One of the targets under the 2008 Climate Action Plan was for the BC public sector to be carbon neutral by 2010. Under the GGRTA and the *Carbon Neutral Government Regulation*, all public sector organizations are required to:

1. reduce emissions as much as possible each year;
2. measure any remaining GHG emissions from buildings, vehicle fleets, paper use, and government travel;
3. purchase an equivalent amount of emission offsets to get to net zero; and
4. report on achievements.

In July 2017, BC reported that it achieved carbon neutrality across its provincial public sector for the seventh consecutive year, as confirmed in the Carbon Neutral Government year in Review 2016 report.

Along with California, BC was the first to implement a low carbon fuel standard beginning in 2010. Transportation emissions account for approximately 37% of the province's emissions, which represents the largest source of emissions. BC's *Renewable and Low Carbon Fuel Requirements Regulation* mandates a 10% reduction in the carbon intensity of fuels by 2020 (relative to 2010), 5% renewable content in gasoline and 4% in diesel. As part of the 2016 Climate Leadership Plan, BC announced an increase of the carbon intensity target to 15% by 2030.

On adaptation, BC has introduced a Climate Adaptation Strategy to address three main themes: (1) knowledge and tools to prepare for climate change; (2) making adaption part of the BC government's business; and (3) assessing risks and implementing priority policies. A subsequent strategy, Climate Action for the 21st Century, builds upon the original plan.

BC also has mandatory GHG reporting requirements, which were introduced in 2009 and requires facilities in BC emitting 10,000 tonnes or more of CO_2e per year to report their emissions. Those reporting operations with emissions of 25,000 tonnes or greater are required to have emissions reports verified by a third party. Under the new *Greenhouse Gas Industrial Reporting and Control Act* (discussed in further detail below), the previous *Reporting Regulation* has been replaced by the *Greenhouse Gas Emission Reporting Regulation* (which came into force on January 1, 2016).

BC's *Greenhouse Gas Industrial Reporting and Control Act* (the Act) came into force on January 1, 2016. The Act was originally passed by the BC legislature in November 2014 and enables performance standards to be established for industrial facilities or sectors. The Act currently sets a GHG emissions benchmark for liquefied natural gas (LNG) facilities, along with an emissions benchmark for coal-based electricity generation operations. Performance standards for other industrial facilities and sectors will likely be added later on. The Act also streamlines several aspects of existing GHG legislation into a single legislative and regulatory system, including the GHG reporting framework established under the *Greenhouse Gas Reduction (Cap and Trade) Act*. Three regulations necessary to implement the Act also came into effect on January 1, 2016:

- *Greenhouse Gas Emission Reporting Regulation*, which replaces the existing *Reporting Regulation* and adds compliance reporting requirements.
- *Greenhouse Gas Emission Control Regulation*, which establishes the BC Carbon Registry to track compliance unit transactions and sets criteria for developing emission offsets issued by the BC government. The regulation also establishes a price of $25 for funded units issued under the Act that will be put towards a technology fund to support the development of clean technologies. Regulated operations will purchase offsets from the market or funded units from government to meet emission limits.
- *Greenhouse Gas Emission Administrative Penalties and Appeals Regulation*, which establishes the process for when, how much, and under what conditions administrative penalties may be levied for non-compliance with the Act or regulations.

This legislation represents BC's efforts to keep its emissions in check as the province strives to achieve its legislated GHG emission reduction target of 33% below 2007 levels by 2020.

The BC government released its long awaited Climate Leadership Plan (the Plan) on August 19, 2016. The Plan, which updates the province's 2008 Climate Action Plan, contains 21 new actions to reduce emissions across the following sectors: (i) natural gas, (ii) transportation, (iii) forestry and agriculture, (iv) communities and built environment, and (v) public sector. The Plan follows the release of the Climate Leadership Team's (CLT) report in November 2015. The CLT, which was appointed by the BC government in May 2015 to provide advice for the development of the Plan, made 32 recommendations including, among others, the establishment of a mid-term 2030 emissions reduction target and a reduction in the provincial sales tax from 7% to 6%, which would be offset by an increase in the carbon tax by $10 per year commencing in July 2018. While the Plan reflects some recommendations made by the CLT and feedback received through public consultation and stakeholder engagement sessions, the Plan bypasses BC's 2020 target of achieving a reduction in GHG emissions of 33% below 2007 levels and instead charts a path for BC to reach its 2050 target of 80% below 2007 levels.

Alberta

Alberta's Climate Leadership Plan was introduced in November 2015 with the following policy objectives: (i) putting a price on GHG emissions; (ii) phasing out coal-generated electricity by 2030; (iii) having 30% of electricity be generated from renewable sources by 2030; (iv) capping oil sands emissions to 100 Mt per year; and (v)reducing methane emissions by 45% by 2025.

Carbon pricing was identified under the Climate Leadership Plan as a key policy tool for reducing GHG emissions. On January 1, 2017, a carbon levy of $20 per tonne of CO_2e was implemented and applies to all heating and transportation fuels. The carbon levy increased to $30 per tonne on January 1, 2018.

On January 1, 2018, the *Carbon Competitiveness Incentive Regulation* (CCI Regulation) replaced the *Specified Gas Emitters Regulation*. Under the CCI Regulation, facilities are allowed to emit a certain amount of GHG, free of charge from the carbon levy. This approach is designed to protect industries from competitiveness impacts that could shift production to other jurisdictions. The CCI Regulation applies to facilities that emitted 100,000 tonnes or more of GHG in 2003, or a subsequent year. A facility with less than 100,000 tonnes of GHG may be eligible to opt-in to the CCI Regulation if it competes against a facility regulated under the CCI or has more than 50,000 tonnes of annual emissions, high emissions-intensity and trade-exposure (by opting in, facilities become exempt from the application of the carbon levy for fuels whose emissions are included in their site reporting). Under the updated system, a facility will receive performance credits if its GHG emissions are less than the amount freely permitted. If its emissions are above the amount freely permitted, they will be required take one or more of the following actions to bring the facility into compliance:

- make improvements at their facility to reduce emissions intensity;
- use emission performance credits generated at facilities that achieve more than the required reductions;
- purchase Alberta-based carbon offset credits; or
- contribute to Alberta's Climate Change and Emissions Management Fund.

As noted above, emissions from the oil sands sector (which account for approximately one-quarter of Alberta's annual emissions) have been capped at 100 Mt per year. This cap has been legislated in the *Oil Sands Emissions Limit Act* (Bill 25), which was introduced in November 2016. The legislation contemplates certain exceptions in respect of cogeneration emissions, upgrading emissions, and potential discretionary exemptions by regulation (likely to accommodate new technological developments). Bill 25 came into force on December 14, 2016.

In January 2018, the Alberta government also announced that it is adopting ECCC's greenhouse gas reporting requirements for the 2017 reporting period, meaning that facilities emitting 10,000 tonnes of CO_2e or more must submit a specified gas report to Alberta Climate Change Office via ECCC's SWIM reporting system (the reporting threshold for previous years is 50,000 tonnes of CO_2e). Facilities must report their 2017 greenhouse gas emissions to ECCC's SWIM system by June 1, 2018.

Saskatchewan

In October 2016, Saskatchewan released its Climate Change White Paper, which outlined the principles of the province's approach to climate change, including a focus on both mitigation and adaptation responses to climate change. Following the release of the White Paper, the government worked on developing its comprehensive climate change strategy, which was released in December 2017: Prairie Resilience: A Made-in-Saskatchewan Climate Change Strategy (the Strategy). The

Strategy focuses on the principles of readiness and climate resilience, curbing GHG emissions, and preparing for changing conditions such as extreme weather, drought or wildfire. Saskatchewan has decided not to sign on to the Pan-Canadian Framework on Clean Growth and Climate Change or to adopt a carbon pricing mechanism, meaning that it will be out of compliance with federal requirements. The Strategy proposes actions in key areas, including (i) natural systems; (ii) physical infrastructure; (iii) economic sustainability; (iv) community preparedness; and (v) measuring, monitoring and reporting. Although no specific emission reduction targets are set out in the Strategy, the Saskatchewan government has indicated that it will support Canada's efforts to meet national commitments under the Paris Agreement. Prior to the release of the Strategy, Saskatchewan relied on the GoGreen Saskatchewan initiative to encourage the reduction of GHG emissions and to educate the public about climate change. Between 2008 and 2015, the Saskatchewan government estimates that it invested $60 million in GoGreen funding through public/private partnerships.

Saskatchewan has also identified technology as a key driver of emission reductions, including carbon capture use and storage as well as renewable energy. In 2015, SaskPower set a target of doubling its percentage of electricity capacity from renewable energy sources, i.e. to have 50% of the province's power sourced from renewables by 2030.

As part of the Strategy, Saskatchewan will develop annual GHG reporting regulations for facilities that emit more than 25,000 tonnes of CO_2e annually (with a voluntary opt-in for emitters over 10,000 tonnes of CO_2e annually).

Manitoba

In October 2017, Manitoba released its Made-in-Manitoba Climate and Green Plan (the Plan), which proposes a fixed carbon price of $25 per tonne of CO_2e. Under the Plan, an output-based pricing approach has been proposed for large emitters in order to minimize competitiveness and carbon leakage risks to industries that are emissions-intensive and trade-exposed. This system, to be introduced in 2019, would apply carbon pricing to that portion of a facility's emissions that exceed a designated emissions-intensity performance standard for that type of facility. A facility that emits less than what is allowed under the performance standard would receive a credit (which can be banked or traded) for each tonne of surplus CO_2e between the standard and the facility's actual emissions.

One of the design features of Manitoba's carbon price is that it will remain fixed at $25 per tonne. By implementing a $25 per tonne carbon price right away (rather than starting low and ramping up over time), the province will be able to drive additional emission reductions in the short-term by sending a strong price signal to incentivize greater efficiency or the switch to lower carbon alternatives. However, by maintaining the carbon price at $25, the policy will drive fewer emissions reductions in the long run than if it increased to $30 in 2020, $40 in 2021 and $50 in 2022, in line with the pricing plan under the federal Pan-Canadian Framework on Clean Growth and Climate Change. Manitoba has sought to justify its carbon pricing approach by introducing the concept of "cumulative emission reductions", which considers total emissions reductions from 2018 to 2022, rather than annual emission reductions. According to Manitoba's plan, its carbon pricing approach will drive sufficient emission reductions without having to increase the carbon price beyond $25.

In January 2012, Manitoba introduced a tax on coal emissions through the *Emissions Tax on Coal Act*. All coal tax revenues are being redirected to the Manitoba Agriculture, Food and Rural

Development's Biomass Energy Support Program in order to support the conversion to biomass energy. Manitoba has also banned the use of coal and petroleum coke for space heating and taxing petroleum coke used for non-space heating purposes (which was phased-in beginning January 1, 2014).

Ontario

Ontario's first climate action plan was released in 2007 – under "Go Green: Ontario's Climate Action Plan", Ontario promised to cut emissions to:

- 6% below 1990 levels by 2014;
- 15% below 1990 levels by 2020;
- 37% below 1990 levels by 2030; and
- 80% 1990 levels by 2050.

Ontario's second strategy was issued in 2011 and dealt with climate adaptation. The Climate Ready: Ontario's Adaptation Strategy and Action Plan (2011-2014) contains recommendations with respect to planning and infrastructure investments. In February 2015, Ontario released a Climate Change Discussion Paper to help frame the issues for public consultation and in April 2015, it was announced that Ontario would implement a cap-and-trade program that would link to the existing cap-and-trade systems in Québec and California. On the heels of the release of its Cap and Trade Program Design Options consultation paper, the Ontario government introduced the province's Climate Change Strategy on November 24, 2015, which sets out in broad terms the government's near and long-term vision for a low-carbon future. Under the latest Climate Change Strategy, the Ontario government will:

- introduce climate legislation to establish a long-term framework for action and enshrine the cap and trade program in law;
- integrate climate change mitigation and adaptation considerations into government decision-making and infrastructure planning; and
- introduce changes to government operations, procurement, employee training, building retrofits and other areas to help government move towards carbon neutrality.

The government will also report on and renew its action plan every five years. This strategy is intended to support Ontario's cap-and-trade program and complements earlier climate initiatives, which included bringing an end to coal-fired electricity generation and electrifying Ontario's commuter rail network.

Ontario's climate change policy evolved significantly in 2016 with the release of legislation that brought into force its cap-and-trade program on January 1, 2017. In the spring of 2016, the Ontario Government finalized the *Climate Change Mitigation and Low-Carbon Economy Act, 2016*, as well as *The Cap and Trade Program* regulation under the Act (the regulation came into force on July 1, 2016 along with the incorporated Methodology for the Distribution of Ontario Emission Allowances Free of Charge). Together, the Act and regulation set out the details of Ontario's cap-and-trade program, which is the key policy initiative aimed at meeting Ontario's climate change goals. The Ontario Government also released a Climate Change Action Plan in June 2016, which sets out the

province's specific commitments to meet its near-term 2020 emissions reduction targets. These initiatives include retrofitting buildings, technology to help industry reduce emissions, accelerating public transport and rail expansion, increasing bicycle transportation, fuel switching to low-carbon fuel, low carbon fuel standards, research and development and electric vehicle incentives. In addition, the new *Quantification, Reporting and Verification of Greenhouse Gas Emission Regulation* and incorporated Guideline both came into force on January 1, 2017 and apply to activities by persons on and after that date. The predecessor legislation, the *Greenhouse Gas Emissions Reporting Regulation*, will be revoked after all reporting under it is complete.

Highlights of the Ontario cap-and-trade program include:

- A program start date of January 1, 2017 with the first compliance period ending December 31, 2020. Thereafter, each compliance period will last three years (i.e. starting January 1, 2021 until December 31, 2023, and so on).

- The cap on allowances for 2017 is the "business as usual" projection of 142,332,00 allowances (equal to 142,332,00 carbon dioxide equivalents). Between 2017 and 2020, the cap is expected to decline at an average rate of 4.17% each year to meet Ontario's 2020 emissions reduction target. The heating and transportation fuel sector and industries will face cap declines. However the sector-specific cap for the electricity generation sector will remain unchanged from year to year, which recognizes the significant emissions reduction that the sector has already undertaken with the closure of coal-fired power plants.

- Covered emitters (mandatory participants) include large industrial emitters with emissions of 25,000 tonnes or more of CO_2e (including facilities in the ammonia production, cement production, copper and nickel production, iron and steel production, and glass production sectors), as well as natural gas distributors with attributed emissions of 25,000 tonnes or more of CO_2e per year, petroleum product suppliers that supply 200 litres or more in the province per year, and importers of electricity.

Following the launch of the cap-and-trade program, quarterly auctions for allowances were held on March 22, 2017, June 6, 2017, September 6, 2017 and November 29, 2017. The results of the auctions were as follows:

- March 22, 2017: all current 2017 vintage allowances sold (at a settlement price of $18.08 per allowance) and ~25% of future 2020 vintage allowances sold (at a settlement price of $18.07 per allowance) ($472,031,155 in proceeds);

- June 6, 2017: all current 2017 vintage allowances sold (at a settlement price of $18.72 per allowance) and ~50% of future 2020 vintage allowances sold (at a settlement price of $18.30 per allowance) ($504,182,190 in proceeds);

- September 6, 2017: all current vintage allowances sold (at a settlement price of $18.56 per allowance) and all of future 2020 vintage allowances sold (at a settlement price of $18.03 per allowance) ($525,694,672 in proceeds); and

- November 29, 2017: 83% of current vintage allowances sold (at a settlement price of $17.38 per allowance) and all future 2020 vintage allowances sold (at a settlement price of $18.89 per allowance) ($422,081,073 in proceeds).

The cumulative proceeds from the four auctions was close to $2 billion and was directed to the Ontario Greenhouse Gas Reduction Account, as required by the applicable legislation.

In December 2017, Ontario finalized a regulation (O. Reg. 539/17) to allow for the creation of offset credits for use in the cap-and-trade program. The regulation allows Ontario to issue offset credits to individuals, companies and organizations for initiatives that reduce, avoid or remove greenhouse gases that follow an approved protocol (the first protocol is for landfill gas). Mandatory participants in the cap-and-trade program can use offset credits to help meet up to 8% of their compliance obligations.

Ontario is also developing a voluntary carbon offsets program that will establish a clear set of requirements for parties that want to create carbon offsets from eligible emission reduction projects, which offsets can be traded on the voluntary market. The proposed voluntary carbon offsets program is separate and distinct from the proposed compliance offsets program and capped emitters will not be able to use voluntary carbon offset credits to meet their compliance obligations under the cap-and-trade program. In November 2017, the Ontario government posted a discussion paper on key elements of a proposed voluntary carbon offsets program to the Environmental Registry for a 46-day consultation period, which ended on January 15, 2018.

Québec

The Québec government has adopted a mid-term GHG emissions reduction target of 37.5% below 1990 levels by 2030.

Following the adoption of the Kyoto Protocol, Québec set out province's climate change commitments in its 2006-2012 Climate Change Action Plan (CCAP 2006-2012). The CCAP 2006-2012 was followed by the 2013-2020 Climate Change Action Plan (CCAP 2013-2020), which establishes measures for every GHG-emitting sector in Québec, including the transportation, industry, and construction sectors. Several measures were also put into place to support adaptation efforts under the 2013-2020 Government Strategy for Climate Change Adaptation, include initiatives relating to land use management, research and innovation, public awareness, production methods, consumption habits and organization of local communities.

One of Québec's key climate change initiatives is its cap-and-trade system, which was officially launched on January 1, 2013. Québec's cap-and-trade program, which covers close to 85% of the province's emissions, was linked to California's cap-and-trade program on January 1, 2014 and to Ontario's program on January 1, 2018, thereby creating the largest carbon market in North America. Revenue generated by the carbon market (which is expected to exceed $3 billion by 2020) is allocated to the Green Fund and reinvested in full for the implementation of the CCAP 2013-2020.

MECHANICS OF QUÉBEC'S CAP & TRADE SYSTEM

The Québec government has set a cap on the number of emission units that are put into circulation each year, which began gradually declining in 2015. Businesses emitting 25,000 tonnes or more of CO_2e per year are subject to the cap-and-trade system. To participate, businesses must be registered with the Compliance Instrument Tracking System Service (CITSS), a management and tracking system for accounts and compliance instruments issued through participating WCI cap-and-trade programs. Administered by the Western Climate Initiative, Inc., CITSS tracks compliance

instruments (emissions allowances and offsets) from the point of issuance by jurisdictional governments, to ownership, transfer by regulated greenhouse gas emitters and other voluntary or general market participants, and to final compliance retirement.

For the first compliance period (2013-2014), only the industrial and electricity sectors were subject to the system. However, during the second and third compliance periods (2015-2017 and 2018-2020), fossil fuel distributors will also be included in the system. In addition, the cap-and-trade system is open to individuals and other non-regulated entities that would like to participate in the carbon market. In 2013 and 2014, industrial emitters exposed to foreign competition received most of the emission units they needed free of charge in order to prevent carbon leakage (that is, the movement of companies to other jurisdictions with less stringent or no emission reduction requirements). Starting in 2015, however, the number of units allocated free of charge to these emitters will generally drop about 1% to 2% a year (notably for combustion emissions). Subject to certain exceptions, electricity producers and fossil fuel distributors do not receive free allocations.

Emission units not allocated free of charge are auctioned off by the government four times a year. A minimum price of $10.75 was set for 2013, which increases at a rate of 5% plus inflation every year until 2020. For joint auctions with California, the minimum price is set by retaining the higher of the two system's minimum prices at the exchange rate prevailing at the time of the auction. Auctions are open to all emitters and other participants registered with CITSS. The final sale price of each emission unit is the lowest price bid for which the last available unit is awarded. The government may also organize sales of emission units for emitters that may have difficulty acquiring enough of them to meet their compliance obligations (sales by mutual agreement). As noted above, all auction proceeds go to the Québec Green Fund.

At the end of each compliance period, all covered emitters must have sufficient GHG emission allowances in their account to cover their total reported and audited GHG emissions for the period in question. Several compliance options are available to these emitters, including the ability to acquire emission allowances during government auctions, purchasing emission allowances from other participants or purchasing emission offsets. However, the system sets holding limits to prevent market manipulation and provides for sanctions in case of non-compliance.

New Brunswick

New Brunswick introduced a five-year Climate Change Action Plan in 2007, which set emission reduction targets of reaching 1990 levels in 2012 and a further reduction of 10% below 1990 levels by 2020. New Brunswick updated its climate change strategy in 2014 with its Climate Change Action Plan for 2014 – 2020. The Climate Change Action Plan 2014–2020 establishes 2020 and 2050 provincial GHG emissions reduction targets of 10% below 1990 levels by 2020 and 75-85% below 2001 levels by 2050, which is consistent with the targets established by the New England Governors and Eastern Canadian Premiers' Annual Conference (NEG/ECP Conference) (which are described the NEG/ECP's Climate Change Action Plan 2001). In December 2016, New Brunswick released a new climate action plan entitled Transitioning to a Low-carbon

Atlantic Premiers Sets Mid-Term Target

At the 39th annual conference of New England Governors and Eastern Canadian Premiers held in August 2015, Eastern premiers and New England governors set a target of decreasing GHG emissions by between 35-45% below 1990 levels by 2030. The new target is meant to orient the provinces and states in their long-term goal, to reach 75-85% of 2001 emission levels by 2050.

Economy, which includes more than 100 actions to address climate change. In December 2017, the provincial government introduced the *Climate Change Act*, which sets out a hybrid carbon pricing system, pursuant to which: (i) the New Brunswick government would deliver the carbon levy aspect of the pricing, and (ii) ECCC would deliver the output-based performance standards for the province's large emitters.

Prince Edward Island

While Prince Edward Island (PEI) has not established its own GHG emission reduction targets, the province contributes to the regional targets established by the NEG/ECP Conference. PEI's Climate Change Strategy was released in November 2008 and contains 47 action items designed to lower GHG emissions, enhance carbon sinks, adapt to climate impacts and increase public awareness. The provincial government continues to implement these action items through various initiatives including energy efficiency and conservation, renewable energy, fuel efficiency standards, and adaptation measures. In 2016, PEI launched a process to develop a 2016 Provincial Climate Change Mitigation Strategy. A Climate Change Mitigation Strategy Discussion Document was released in July 2016, which was followed by the release of a draft Recommendations for a 2016 Provincial Climate Change Mitigation Strategy report in October 2016. In March 2017, PEI released its mitigation strategy, Climate Change Mitigation Strategy Report, which complements the province's proposed new energy strategy that supports energy efficiency and conservation, renewable and alternative energy, and economic development. The mitigation recommendations report addresses five areas for action on climate change: (i) buildings and facilities; (ii) food and farming; (iii) forestry policies; (iv) moving people and goods; and (v) making decisions and furthering provincial goals. A second draft of PEI's 2016 Provincial Energy Strategy was released in June 2016 and includes specific action items to be pursued in the next five to ten years. Once the strategy is finalized, an implementation plan will be released. PEI has indicated that it will announce its carbon pricing plans in early 2018.

Nova Scotia

In 2009, Nova Scotia released its Climate Change Action Plan, which set reduction targets of 5 Mt annually by 2020 and a reduction of GHG emissions by at least 10% from 1990 levels by 2020 (as established by the NEG/CEP Conference). The plan also set out short and medium-term actions focused on capping Nova Scotia Power Inc.'s GHG emissions, investments in renewable energy, improvements to the energy efficiency of new and existing homes and buildings, and reducing GHGs from other energy sources. Nova Scotia's cap on GHG emissions from the electricity sector apply until 2020 and additional GHG reductions will be required to 2030. The legislation underpinning Nova Scotia's climate action plan is the *Environmental Goals and Sustainable Prosperity Act*, which also requires cuts in pollutants known to harm health, including nitrogen oxides (NOx), sulphur dioxide (SO_2), mercury, fine airborne particles, and chemicals that produce ground-level ozone. Airborne particles and ground-level ozone are the main components of smog. In 2009, Nova Scotia released the *Greenhouse Gas Emissions Regulations* establishing GHG emission caps on the electricity sector. Amendments were also made to the province's *Air Quality Regulations* to set tighter limits on Nova Scotia Power Inc., sulphur dioxide and nitrogen oxide emissions for 2015 and 2020. The regulations also require a 55% reduction in electricity-sector GHG emissions from 10 Mt in 2007 to 4.5 Mt in 2030.

Following the province's endorsement of the Pan-Canadian Framework on Clean Growth and Climate Change in December 2016, the Nova Scotia government announced that it would

implement a cap-and-trade program which will cover approximately 90% of Nova Scotia's GHG emissions (approximately 20 companies are expected to participate in the cap-and-trade program). Subsequently, Nova Scotia Environment released a discussion paper entitled Nova Scotia Cap and Trade Program Design Options (which was followed by the What We Heard Report in August 2017), and is expected to introduce legislation for the cap-and-trade program in early 2018. Since Nova Scotia is proposing that there be no transfers of emissions in or out of the province, there are no plans to link with a cap-and-trade program in any other jurisdiction at this time.

Newfoundland & Labrador

The Government of Newfoundland and Labrador Department of Energy and Conservation released its first Climate Change Action Plan in 2005 and passed the *Sustainable Development Act* in 2007. A new Climate Change Action Plan, Charting Our Course, was released in 2011 in support of the targets set by the NEG/ECP Conference:

- 10% below 1990 levels by 2020; and
- 75–85% below 2001 levels by 2050.

The 2011 plan identifies the areas where action will be taken over a five-year period, including government operations, transportation, buildings, natural resources, energy, human health, and ecosystem health. The government also committed to including climate change considerations in its Sustainable Development Strategy and to report annually on the provincial Climate Change Action Plan. The 2011 Climate Change Action Plan was released with a companion document, Moving Forward: Energy Efficiency Action Plan 2011. In June 2016, the government passed the *Management of Greenhouse Gas Act*, which establishes a legislative framework for reducing GHG emissions by industrial emitters in the province (i.e. those industrial facilities emitting 15,000 tonnes of CO_2e per year). The legislation provides for two years of emissions monitoring to help set reduction targets that will apply to large industrial facilities emitting 25,000 tonnes of CO_2e per year, and establishes a fund to support emissions reduction technology, which will be fully funded by industry. In addition, the *Management of Greenhouse Gas Reporting Regulations* require facilities meeting the 15,000 tonne threshold to report annually on GHG emissions. The provincial government has indicated that it will unveil its carbon pricing plans in early 2018.

Nunavut

Nunavut's approach to climate change was first articulated in its 2003 Climate Change Strategy, which established goals and associated actions over a ten-year period to (i) control and reduce greenhouse gas emissions, (ii) identify and monitor climate change impacts, and (iii) develop adaptation strategies. Nunavut has since identified adaptation as a high priority in its climate policy. To further adaptation planning, the Government of Nunavut subsequently released Upagiaqtavut – Setting the Course: Climate Change Impacts and Adaptation in Nunavut, which sets the strategic direction for climate change adaptation in Nunavut. In particular, the Upagiaqtavut document establishes a framework for climate change impacts and adaptation initiatives in Nunavut. The adaptation approach outlined in Upagiaqtavut is organized around four main components, or napuit, each with a set of corresponding objectives. These napuit centre around partnership building, research and monitoring, education and outreach, and government planning and policy. In terms of carbon pricing, reports indicate that the federal government is working with each territory to assess the potential impacts of carbon pricing on the territories and to determine which form of carbon pricing (including possible exemptions) could be implemented.

Northwest Territories

The Northwest Territories first developed its climate change plan in 2001, which was subsequently updated in 2007 and again in 2011. Key updates included the introduction of short-term targets and better measures to track and report progress. The 2007-2011 Strategy described 39 initiatives covering all sectors in the NWT. The NWT Greenhouse Gas Strategy 2011-2015 builds on the previous strategies and outlines the government's plan to address GHG emissions in the NWT until 2015 and beyond. Key sectors targeted under the plan include electricity supply, buildings and energy efficiency, communities, industry, and transportation. In November 2017, the government released the draft Climate Change Strategic Framework 2018 – 2030 (the Strategic Framework) for public comment.

NWT has indicated that over the next twenty years, their emissions are expected to grow faster than anywhere else in Canada. As a result, NWT has set targets that acknowledge that increasing demand for energy in the NWT from new mining or oil and gas projects will result in increased emissions until renewable energy alternatives can be planned and implemented. To help meet Canada's commitments under the Paris Agreement, NWT has determined that (using 2015 emissions of 1,441 kt CO_2e as a baseline) it needs to achieve a reduction of approximately 290 kt CO_2e to reach a target of 1,150 kt CO_2e by 2030. In the Strategic Framework, NWT has set the following emission reduction targets:

1. 2020 milestone target = 1,400 kt CO_2e (41 kt or 2.8% reduction from 2015)
2. 2025 milestone target = 1,300 kt CO_2e (100 kt or 7.1% reduction from 2020)
3. 2030 final target = 1,150 kt (150 kt CO_2e or 11.5% reduction from 2025)

The Strategic Framework articulates three climate change goals: (1) transition to a strong, healthy economy that uses 20% less fossil fuels by 2030 (compared to 2015); (2) improve knowledge of the climate change impacts occurring in the NWT; and (3) build resilience and adapt to a changing climate.

NWT has also made biomass an integral part of the NWT energy mix and in February 2010, the government released its Biomass Energy Strategy which guides increased and sustainable local harvest of wood in the NWT, as well as the regulatory development of biomass energy systems. Solar energy is also a focus of NWT climate policy and its Solar Energy Strategy seeks to promote the use of solar energy technology and reduce the territory's reliance on fossil fuels for electricity generation in the NWT. Under the strategy, NWT has set a target of installing solar systems with the capability to supply up to 20% of the average load in NWT diesel communities.

Yukon

The Yukon released its Climate Change Action Plan in 2009, which sets out the actions that the Yukon government is taking to respond to climate change. In the 2015 Climate Change Action Plan Progress Report, the Yukon government provides an update on existing commitments, provides information on actions taken beyond the original commitments and details new actions and initiatives to help achieve the government's existing goals. In lieu of territory-wide targets, the Yukon has committed to sector-specific targets for reduction emissions from the building sector, transportation, electricity and industrial operations. The Yukon government has also set a target for

its own internal operations, which is to reduce emissions by 20% from 2010 levels by 2015 and become carbon neutral by 2020. In terms of carbon pricing, the Yukon government has committed to implementing the federal carbon pricing rather than introducing its own carbon pricing system. The Yukon government anticipates the federal government will collect about $5 million in carbon pricing revenue in 2018, rising to $25 million in 2022, which revenue will be returned to the Yukon.

Quick Summary Table – Federal, Provincial and Territorial Climate Change Frameworks[1]

Jurisdiction	Key Climate Change Legislation	Key Policy Documents	Emission Reduction Targets	Mandatory GHG Reporting Requirements	Carbon Pricing Mechanism
Federal	▪ *Canadian Environmental Protection Act, 1999* ▪ *Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations* ▪ *Heavy-duty Vehicle and Engine Greenhouse Gas Emission Regulations* ▪ *Renewable Fuels Regulations* ▪ *Reduction of Carbon Dioxide Emissions from Coal-fired Generation of Electricity Regulations*	▪ Pan-Canadian Framework on Clean Growth and Climate Change (December 2016) ▪ Federal Actions for a Clean Growth Economy – Delivering on the Pan-Canadian Framework on Clean Growth and Climate Change (January 2017) ▪ Pan-Canadian Framework on Clean Growth and Climate Change – First Annual Synthesis Report on the Status of Implementation (December 2017)	30% below 2005 levels by 2030.	Greenhouse Gas Emissions Reporting Program (GHGRP) requires facilities emitting ≥ 10,000 tonnes of CO_2e per year are required to submit a report to Environment Canada by June 1 each year.	▪ Minimum price on carbon starting at $10 per tonne of CO_2e in 2018, which will increase by $10 per year until it reaches $50 per tonne of CO_2e by 2022. ▪ Each province and territory will be required to implement carbon pricing in its jurisdiction in 2018, whether in the form of a carbon tax or a cap-and-trade system; in the absence of a minimum carbon price, the federal government will step in and impose a carbon price that makes up the difference and return the revenue to the province/territory.
BC	▪ *Greenhouse Gas Reduction Targets Act* ▪ *Carbon Tax Act* ▪ *Carbon Neutral Government Regulation* ▪ *Greenhouse Gas Emission Reporting Regulation* ▪ *Greenhouse Gas Emission Control Regulation* ▪ *Greenhouse Gas Emission Administrative Penalties and Appeals*	▪ Climate Action Plan (2008) ▪ Preparing for Climate Change: British Columbia's Adaptation Strategy (2010) ▪ Climate Action in British Columbia: 2014 Progress Report ▪ Climate Leadership Plan Discussion Paper (July 2015) ▪ Climate Leadership Team: Recommendations to Government (November 2015)	▪ 33% below 2007 levels by 2020 ▪ 80% below 2007 levels by 2050	▪ Facilities emitting ≥ 10,000 tonnes of CO_2e per year are required to report total annual GHG emissions. ▪ Large industrial emitters are also required to report under federal GHGRP. ▪ BC participates in Environment Canada's Single Window GHG reporting system.	▪ Carbon tax implemented on July 1, 2008; currently set at CAD $30 per tonne of CO_2e. ▪ On April 1, 2018, BC carbon tax will increase by $5 per tonne of CO_2e per year until it reaches $50 on April 1, 2021.

[1] As of January 15, 2018.

Jurisdiction	Key Climate Change Legislation	Key Policy Documents	Emission Reduction Targets	Mandatory GHG Reporting Requirements	Carbon Pricing Mechanism
	Regulation ▪ *Greenhouse Gas Reduction (Renewable and Low Carbon Fuel Requirements) Act* ▪ *Local Government (Green Communities) Statutes Amendment Act* ▪ *Greenhouse Gas Industrial Reporting and Control Act*	▪ Climate Leadership Plan (August 2016)			
Alberta	▪ *Climate Change and Emissions Management Act* ▪ *Carbon Competitiveness Incentive Regulation* (CCI) ▪ *Climate Leadership Implementation Act* ▪ *Oil Sands Emissions Limit Act (Bill 25)*	▪ Alberta's 2008 Climate Change Strategy ▪ Alberta Climate Leadership Discussion Document (August 2015) ▪ Climate Leadership Report to Minister (November 2015) ▪ Climate Leadership Plan (November 2015) ▪ Climate Leadership Plan Progress Report – 2016-2017 (December 2017)	▪ No specified emission reduction targets under the new Climate Leadership Plan; however the oil sands sector will face a cap of 100,000 Mt in any year. ▪ Under the 2008 Climate Change Strategy, the following targets were set: - 2020: 50 Mt reduction to stabilize GHG emissions - 2050: 200 Mt reduction to achieve 50% below business as usual and 14% below 2005 levels	▪ CCI applies to facilities that emitted 100,000 tonnes or more of GHG in 2003, or a subsequent year. ▪ A facility with less than 100,000 tonnes of GHG may be eligible to opt-in to the CCI if it competes against a facility regulated under the CCI or has more than 50,000 tonnes of annual emissions, high emissions-intensity and trade-exposure. ▪ Large industrial emitters are also required to report under the federal GHGRP. ▪ Alberta participates in Environment Canada's Single Window GHG reporting system.	▪ $30 per tonne of CO_2e as of January 1, 2018 (on-site combustion in oil and gas facilities will be levied starting January 1, 2023). ▪ Regulated entities under the CCI may contribute to the Climate Change and Emissions Management Fund for compliance purposes. The current compliance fund cost is CAD $30 per tonne of CO_2e.
Saskatchewan	*The Management and Reduction of Greenhouse Gases Act* (the Act) [not yet proclaimed into	▪ GoGreen Saskatchewan ▪ Climate Change White Paper (2016)	▪ To source 50% of provincial power from renewables by 2030.	GHG reporting regulations are being developed for industrial facilities emitting more than 25,000 tonnes of	None. Note: Saskatchewan has decided not to adopt the Pan-

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	force]	▪ Prairie Resilience: A Made-in-Saskatchewan Climate Change Strategy (2017)	▪ Under the Act, regulated emitters will be required to reduce annual GHG emissions to meet the provincial target.	CO_2e annually, along with a voluntary opt-in for emitters with over 10,000 tonnes of CO_2e annually.	Canadian Framework on Clean Growth and Climate Change.
Manitoba	*The Climate Change and Emissions Reductions Act*	▪ Manitoba's Report on Climate Change 2012 ▪ TomorrowNow - Manitoba's Green Plan (2nd Edition, 2014) ▪ TomorrowNow - Manitoba's Green Plan: Toward a New Provincial Climate Change and Green Economy Plan Consultations Background Paper (January 2015) ▪ Manitoba's Climate Change and Green Economy Action Plan (December 2015) ▪ Managing Climate Change – Office of the Auditor General Manitoba (October 2017) ▪ A Made-in-Manitoba Climate and Green Plan (October 2017)	As of December 2015: ▪ One third over 2005 levels by 2030. ▪ One half over 2005 levels by 2050. ▪ Carbon neutral by 2080.	▪ Large industrial emitters report under the federal GHGRP.	Manitoba government has announced a fixed carbon levy of $25 per tonne of CO_2e (starting in 2018).
Ontario	▪ *Environmental Protection Act* ▪ *O. Reg. 452/09 – Greenhouse Gas Emissions Reporting* (to be revoked after all reporting under it is complete) ▪ *Climate Change Mitigation and Low-Carbon Economy Act, 2016* ▪ *The Cap and*	▪ Go Green Action Plan on Climate Change (2007) ▪ Climate Ready – Ontario's Adaptation Strategy and Action Plan (2011-2014) ▪ Ontario Climate Change Update (2014) ▪ Ontario's Climate Change Discussion Paper (2015) ▪ Ontario's Five Year Climate Action Plan	▪ 6% below 1990 levels by 2014. ▪ 15% below 1990 levels by 2020. ▪ 37% below 1990 levels by 2030. ▪ 80% below 1990 levels by 2050.	▪ *Greenhouse Gas Emissions Reporting* requires Ontario facilities emitting ≥ 10,000 tonnes of CO_2e to annually report GHG emissions. Emissions greater than 25,000 tonnes per year must be third party verified. ▪ Large industrial emitters also required to report under federal	▪ Cap-and-trade system. ▪ Settlement price of 2017 vintage allowances: $17.38.

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	Trade Program Regulation ▪ *Methodology for the Distribution of Ontario Emission Allowances Free of Charge* ▪ *Quantification, Reporting, and Verification of Greenhouse Gas Emissions Regulation* ▪ Guideline for Greenhouse Gas Emissions Reporting ▪ *O. Reg. 539/17 – Ontario Offsets Credits Regulation*	2016 – 2020 (June 2016)		GHGRP. ▪ Ontario participates in Environment Canada's Single Window GHG reporting system.	
Québec	▪ *Regulation respecting a cap-and-trade system for greenhouse gas emission allowances* ▪ *Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere*	▪ Québec and Climate Change: A Challenge for the Future – 2006-2012 Climate Change Action Plan (2008) ▪ Québec in Action – Greener by 2020 (2012) ▪ 2013-2020 Government Strategy for Climate Change Adaptation (2012)	▪ 20% below 1990 levels by 2020. ▪ 37.5% below 1990 levels by 2030.	▪ The *Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere* requires Québec facilities emitting ≥ 10,000 tonnes of CO_2e per year to report total annual GHG emissions ▪ Large industrial emitters also required to report under federal GHGRP.	▪ Cap-and-trade system. ▪ Settlement price of 2016/2017 vintage allowances: CAD $19.10.
New Brunswick	▪ *Climate Change Act* (introduced December 2017) ▪ *Clean Air Act* ▪ *Air Quality Regulation*	▪ New Brunswick Climate Change Action Plan 2014-2020 ▪ New Brunswick Climate Change Action Plan 2007-2012 ▪ Transitioning to a Low-carbon Economy (2016) ▪ Updated on New	▪ Reducing emissions to 1990 levels by 2012. ▪ 10% below 1990 levels by 2020. ▪ 35-45% below 1990 levels by 2030. ▪ 75-80% below 2001 levels by 2050.	Large industrial emitters report under federal GHGRP.	▪ Modified hybrid carbon pricing system, pursuant to which: (i) the government will deliver the carbon levy aspect of the pricing; and (ii) Environment and Climate Change Canada will deliver the output-based performance

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		Brunswick Climate Change Actions (2017)			standards for New Brunswick's large emitters. Note: There will be no new direct tax on consumers; rather the government will redirect existing taxes on gasoline and diesel to fund programs that combat climate change.
Prince Edward Island	None.	▪ New England Governors/Eastern Canadian Premiers Climate Change Action Plan 2001 ▪ Prince Edward Island and Climate Change: A Strategy for Reducing the Impacts of Global Warming (2008) ▪ Planning for a Sustainable Future (2012) ▪ Principles of Sustainable Development (2013) ▪ Recommendations for a 2016 Provincial Climate Change Mitigation Strategy (2016) ▪ 2016 Provincial Energy Strategy (2016) ▪ Climate Change Mitigation Strategy Report (2017)	▪ 10% below 1990 levels by 2020. ▪ 35-45% below 1990 levels by 2030. ▪ 75-80% below 2001 levels by 2050.	Large industrial emitters report under federal GHGRP.	Announcement pending.
Nova Scotia	▪ *Environmental Goals and Sustainable Prosperity Act* ▪ *Greenhouse Gas Emissions Regulations*	▪ Toward a Greener Future: Nova Scotia's Climate Change Action Plan (2009) ▪ Nova Scotia Cap and Trade Program Design Options (2016) ▪ What We Heard	▪ 10% below 1990 levels by 2020. ▪ 35-45% below 1990 levels by 2030. ▪ 80% below 2009 levels by 2050.	▪ Large industrial emitters report under federal GHGRP. ▪ For the electricity sector, the *Greenhouse Gas Emissions Regulations* require an annual GHG emissions report to	Provincial government has announced it will implement a cap-and-trade program.

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		Report – Nova Scotia Cap and Trade Design Options (August 2017)		be filed by March 31 each year.	
Newfoundland & Labrador	▪ *Management of Greenhouse Gas Act* ▪ *Management of Greenhouse Gas Reporting Regulations*	▪ Charting our Course: Climate Change Action Plan 2011 ▪ Moving Forward: Energy Efficiency Action Plan 2011	▪ 10% below 1990 levels by 2020. ▪ 35-45% below 1990 levels by 2030. ▪ 75-80% below 2001 levels by 2050.	▪ Large industrial emitters report under federal GHGRP. ▪ *Management of Greenhouse Gas Reporting Regulations* require facilities emitting ≥15,000 tonnes of CO_2e to file annual GHG reports by June 1 each year.	Announcement pending.
Nunavut	None.	▪ Upagiaqtavut: Climate Change Impacts and Adaptation in Nunavut (2011) ▪ Pan-Territorial Adaptation Strategy (2011) ▪ Nunavut Climate Change Strategy (2003)	No targets.	Large industrial emitters report under federal GHGRP.	Under review.
Northwest Territories	None.	▪ Greenhouse Gas Strategy for the Northwest Territories 2011-2015 ▪ An Exploration into the Impact of Carbon Pricing in the NWT ▪ Assessing Emission Reductions from Potential Climate Policies in the NWT ▪ Biomass Energy Strategy 2012-2015 ▪ Solar Energy Strategy 2012-2017 ▪ Draft Climate Change Strategic Framework 2018-2030 (November 2017)	As proposed in Draft Climate Change Strategic Framework: ▪ 2020 milestone target = 1,400 kt CO_2e (41 kt or 2.8% reduction from 2015) ▪ 2025 milestone target = 1,300 kt CO_2e (100 kt or 7.1% reduction from 2020) ▪ 2030 final target = 1,150 kt (150 kt CO_2e or 11.5% reduction from 2025)	Large industrial emitters report under federal GHGRP.	Under review.

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Yukon	None.	▪ Yukon Government Climate Change Action Plan (2009) ▪ Climate Change Action Plan Progress Report 2012 ▪ 2015 Climate Change Action Plan Progress Report	▪ No territory-wide targets. ▪ Yukon Government has set sector-specific emission reduction targets for the electricity, building, industrial and transportation sectors ▪ Yukon Government has committed to a 20% reduction in GHG emissions from government operations by 2015 and carbon neutral operations by 2020	Large industrial emitters report under federal GHGRP. Yukon's Climate Action Plan indicates plans, by 2014, to establish reporting protocols for stationary facilities emitting over 2.5 kilotonnes of GHG emissions per year.	Under review.