

Climate Change Essentials



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

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This publication is intended as a general guide to carbon market mechanisms and climate change regulations, and was authored by **Selina Lee-Andersen**.

Legal advice should be sought in respect of specific matters or projects.

For more information, please contact:

VANCOUVER

Selina Lee-Andersen

slandersen@mccarthy.ca

CALGARY

Kimberly Howard

khoward@mccarthy.ca

TORONTO

Joanna Rosengarten

jrosengarten@mccarthy.ca

MONTRÉAL

Cindy Vaillancourt

cvaillancourt@mccarthy.ca

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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 anticlimactic 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 November 4, 2016, 194 countries had [signed](#) the Paris Agreement, 123 of which had also deposited instruments of ratification (accounting for 80.43% of the world’s total greenhouse gas emissions). Canada ratified the Paris Agreement on October 5, 2016.

Coming into the climate talks, there were four key international drivers behind the push for a global climate change agreement:

1. Pressure from **sub-national and local governments** around the world, many of which have undertaken their own initiatives to implement policies and programs to reduce GHG emissions and are now calling for more coordinated national strategies to address climate change. From energy efficiency standards and green building codes, to investments in clean energy and infrastructure, Canadian provinces, territories and municipalities have been leading the way on climate change action.
2. Calls from industry leaders and investors around the world for governments to put a **price on carbon**, aimed not only at reducing GHG emissions, but also at facilitating business planning, an “even playing field”, and risk management. The [2014 Global Investor Statement on Climate Change](#) was signed by 385 investors with more than \$24 trillion in assets and sets out steps institutional investors (both asset owners and asset managers) can take to address climate change. In addition, many companies already operate in countries that have carbon pricing systems in place, so they are incorporating a real or internal carbon price into business planning and investment decisions. According to the [CDP](#) (formerly the Carbon Disclosure Project), in 2015, 437 companies are using an internal

carbon price ranging from US \$6 to US \$89 per tonne of carbon dioxide equivalent (CO₂e); an additional 583 companies have indicated they will start carbon pricing by 2017.

3. The world's two biggest emitters – **China** and the **United States** (US) – have made significant commitments in recent years to reducing their GHG emissions. In November 2014, the two countries issued a [Joint Announcement on Climate Change](#), pursuant to which the US set an economy-wide emissions reduction target of 26%-28% below 2005 levels in 2025 and committed to make best efforts to reduce its emissions by 28%, while China will achieve peak emissions around 2030 and will make best efforts to peak early. In addition, China plans to launch its national cap-and-trade program in July 2017 (covering 4 billion tonnes of CO₂e from major industrial sectors) and has committed US \$3.1 billion to help developing countries adapt to climate change. Both China and the US ratified the Paris Agreement in September 2016.
4. 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”. As the British Met Office [reports](#) that global temperatures for 2015 are on track to be 1.02°C above the 1850-1900 average, there is a sense that the window is quickly closing for collective action on climate change. With the adoption of the Paris Agreement, countries have committed to a more 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.

Beyond the temperature limit, 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 will convene a facilitative dialogue to assess their collective efforts in relation to their progress towards the long-term goal. The outcomes of this dialogue will likely inform future climate policies and actions.

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, 2016, 163 INDCs had been submitted to the UNFCCC, representing 190 countries and covering approximately [98.9% 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 marks the start of a renaissance period for climate change policy, one that represents a global paradigm shift towards a lower-carbon economy. The process for renewing Canada's climate action plan is underway, with Canada having 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 to be seen. One thing is clear: in 2017, policy makers, businesses, non-governmental organizations and individuals will continue a collective conversation about the kinds of policies and actions that will be needed to bring Canada closer to meeting its commitments under the Paris Agreement.

What's New

The climate change and energy policy landscape across Canada and North America continues to evolve. Recent developments include:

- **Pan-Canadian Framework on Clean Growth and Climate Change Released:** At the First Ministers meeting on December 9, 2016, the [Pan-Canadian Framework on Clean Growth and Climate Change](#) was released. Notably, Saskatchewan has decided not to adopt the framework, which outlines critical actions for growing the economy while reducing GHG emissions including:
 - developing new building codes to ensure that buildings use less energy, saving money for households and businesses;
 - deploying more electric charging stations to support zero-emitting vehicles, which is an integral part of the future of transportation;
 - expanding clean electricity systems, promoting inter-ties, and using smart-grid technologies to phase out the reliance on coal, make more efficient use of existing power supplies, and ensure a greater use of renewable energy;
 - reducing methane emission from the oil and gas sector;
 - protecting and enhancing carbon stored in forested lands, wetlands and agricultural lands; and
 - setting an example and driving significant reductions in emissions from government operations.

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 to the First Ministers on progress within a year (and annually thereafter). Federal, provincial and territorial governments will work together to establish a review of carbon pricing, including

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

- **Federal Government announces pan-Canadian carbon price:** On October 3, 2016, the federal government announced that it will set a minimum price on carbon starting at \$10 per tonne of CO₂e in 2018, which will increase by \$10 per year until it reaches \$50 per tonne of CO₂e 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. 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.
- **International deal sealed to reduce aviation emissions:** When the Paris Agreement was adopted in December 2015, it did not include any reference to the international aviation sector. The [International Civil Aviation Organization](#) (ICAO) responded to international pressure by designing a global market-based measure to control carbon emissions from international aviation as part of the sector's contribution to global efforts to combat climate change. The ICAO's [Carbon Offsetting and Reduction Scheme for International Aviation](#) (CORSIA) was adopted by the ICAO on October 6, 2016 in Montreal during its 39th Assembly. CORSIA will begin with a pilot phase from 2021 through 2023, followed by a first phase from 2024 through 2026. Participation in both of these early stages will be voluntary, while the subsequent phase from 2027 to 2035 would see all countries on board, except for certain small countries and countries with very low levels of aviation activity.
- **Global agreement reached to reduce HFC emissions:** On October 15, 2016, nearly 200 countries struck a [landmark agreement](#) to reduce the emissions of hydrofluorocarbons (HFCs). In what is considered the most significant achievement on the climate change file since the Paris Agreement, it is anticipated that the Kigali Amendment to the [Montreal Protocol on Substances that Deplete the Ozone Layer](#) could [prevent up to 0.5 degrees Celcius of global warming](#) by the end of the century. The agreement reached in Kigali is significant because HFCs, which are widely used in refrigeration and air conditioning as substitutes for ozone-depleting substances, represent an extremely potent class of GHG, emissions from which are growing by up to 10% each year. There are several different types of HFCs, the most persistent of which can be several thousand times better at absorbing heat than carbon dioxide. According the United Nations Environment Programme, the current mix of HFCs being used has an impact that is [1,600 times stronger](#) than carbon dioxide per tonne emitted.
- **BC government releases updated climate plan:** The BC government released its long awaited [Climate Leadership Plan](#) on August 19, 2016. The plan updates the province's 2008

[Climate Action Plan](#) and 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.

- **Clean electricity initiative in Atlantic Canada:** On August 9, 2016, the federal Minister of Environment and Climate Change and the four Provincial Ministers of the Environment for Nova Scotia, New Brunswick, Newfoundland and Labrador, and Prince Edward Island issued a [joint statement](#) confirming the parties' intent to work together to accelerate the transition to a clean electricity in Atlantic Canada and to enhance the region's capacity to plan for and manage climate risks.

- **Tri-lateral action on clean energy:** On June 29, 2016, Prime Minister Justin Trudeau, US President Barack Obama, and Mexican President Enrique Peña Nieto [announced](#) the North American Climate, Clean Energy, and Environment Partnership, which is supported by an [action plan](#) that details the activities to be pursued by the three countries in order to achieve a "competitive, low-carbon and sustainable North American economy". The plan, which builds on the [Memorandum of Understanding](#) on Climate Change and Energy Collaboration signed by the energy ministers from Canada, the US and Mexico on February 12, 2016, sets out a range of initiatives including a target to achieve 50% clean power generation by 2025 through clean energy development and deployment, clean energy innovation and energy efficiency.

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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 any significant change in the measures of climate lasting for an extended period of time, which includes major changes in temperature, precipitation, or wind patterns (among other effects) that occur over several decades or longer. Environment Canada [describes](#) climate change in the following terms: “*Human activities are altering the chemical composition of the atmosphere through the build-up of greenhouse gases that trap heat and reflect it back to the earth's surface. This is resulting in changes to our climate, including a rise in global temperatures and more frequent extreme weather events.*”

The United States [Environmental Protection Agency](#) (EPA) distinguishes between climate change and “global warming”, which refers to the recent and ongoing rise in global average temperature near the earth's surface, caused primarily by increasing concentrations of greenhouse gases in the atmosphere. 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 (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆). 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

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 UNFCCC 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 CO₂e. 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.

Canada will also be affected by changing ocean environments, including changes in average and extreme sea level, wave regimes, and ice conditions.

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.

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.

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 (GtCO₂), from a total carbon budget of 2,900 GtCO₂). If emissions continue unabated, the IPCC estimates we will exceed our budget before the end of 2045.

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 CO₂e. 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 project in one location that is used to compensate for GHG emissions occurring at another location – simply put, they are credits for GHG reductions made elsewhere. Emission offsets are quantified and sold in tonnes of CO₂e and can be bought or sold through brokers, online retailers or trading platforms.

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.

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 CO₂ 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, [Raising Ambition: State of the Voluntary Carbon Markets 2016](#) (2016 Report), voluntary buyers transacted a total of 84.1 million tonnes of carbon dioxide equivalent (MtCO₂e) in 2015, a 10% increase over 2014. 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. Despite this growth, the average price of carbon offsets fell to US \$3.30/tonne in 2015, driving down the overall value of the voluntary market to US \$278 million, which represents a 7% drop from 2014 and more than 50% from the all-time high of US \$602 million in 2011. Over the years, the cumulative value of the voluntary carbon markets has topped US \$4.6 billion. The 2016 Report found that even though some suppliers continue to transact tonnes at US \$8/tonne or more, an increasing number of offsets are being transacted at lower prices. 52% of all 2015 offsets (23.5 MtCO₂e) transacted at less than US \$3/tonne. Another 16% (7.1 MtCO₂e) sold for between \$3/tonne and \$6/tonne last year, and only 12% (5.6 MtCO₂e) sold for more than \$6/tonne. Volume weighted average prices dropped across nearly all project types and regions, with the most severe price losses occurring for water filtration/clean water projects and avoided planned deforestation projects, and for projects in Oceania.

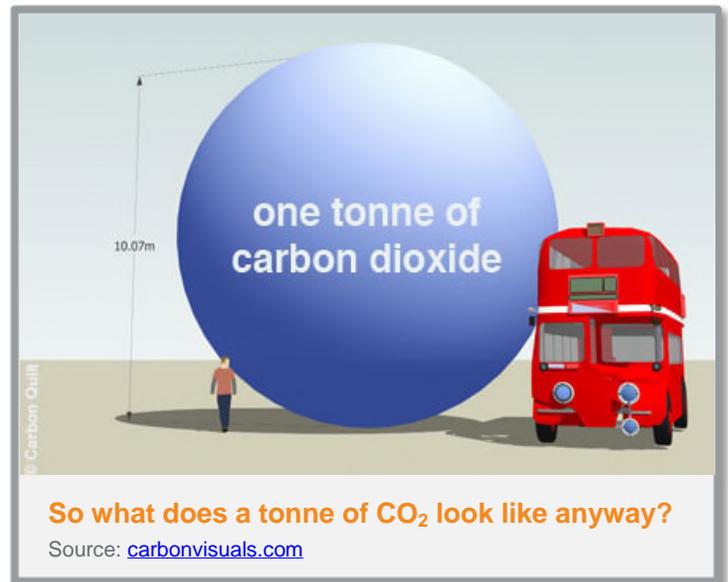
How does our carbon footprint compare?

According to [Environment Canada](#), the amount of GHG emitted per person in Canada amounted to 20.7 tonnes of CO₂e in 2013. 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 2016 Report indicates that in 2015, VCS and the Gold Standard dominated buyer preferences with each standard holding 49% and 19% of market share, respectively.

Quick Look: Carbon Pricing Around the World

In its [State and Trends of Carbon Pricing 2016 Report](#) (October 2016), the World Bank and Ecofys estimate that approximately 40 countries and more than 20 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 13% of global CO₂ 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 CO₂ emissions from the power sector.



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 2016, the total value of global emissions trading systems and carbon taxes is approximately US \$50 billion. If a national ETS is implemented in China (China's regional cap-and-trade markets are currently in their pilot phase), 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. 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.

- BC has implemented a broad based, revenue neutral [carbon tax](#) of CAD \$30 per tonne of CO₂e. Virtually all emissions from fuel combustion in BC are subject to the carbon tax and all carbon tax revenue is recycled through tax reductions.
- China launched pilot emissions trading systems in seven cities and provinces (including Beijing, Tianjin, Shanghai, Chongqing, Hubei, Guangdong, and Shenzhen) in 2013 and 2014 and plans to launch a national system in 2017. A voluntary emissions trading market has also been active in China since 2008. In 2009, the “Panda Standard” (a voluntary carbon standard) was issued. China’s has set a target of reducing CO₂ emissions intensity by 40-45% below 2005 levels by 2020, and 60-65% below 2005 levels by 2030.
- South Korea's cap-and-trade system started on January 1, 2015 and forms part of the country’s efforts to meet its GHG emissions reduction target of 30% below business-as-usual by 2020. Approximately 525 companies are subject to the South Korean cap-and-trade program, which covers about 68% of the country’s total GHG emissions.
- 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. Reforms are being considered for the EU ETS, which has struggled with low prices and an excess number of allowances in the past.
- Mexico introduced a carbon tax in 2014 with an initial price of US \$3.5 per tonne of CO₂e that applies to the use of fossil fuels (natural gas is exempt from the tax). Mexico also has a voluntary carbon market and has implemented climate change legislation which seeks to reduce GHG emissions by 30% below a business-as-usual scenario by 2020. Mexico has also announced the framework for a registry of national emissions that will allow the implementation of a national carbon market starting in 2018.

On April 21, 2016, the World Bank, IMF, Organization for Economic Cooperation and Development and the heads of state of Canada, Chile, Ethiopia, France, Germany and Mexico [released a statement](#) calling for more carbon pricing. The goal is to reach enough countries to cover 25% of the world’s GHG emissions by 2020 and 50% of emissions by 2030.

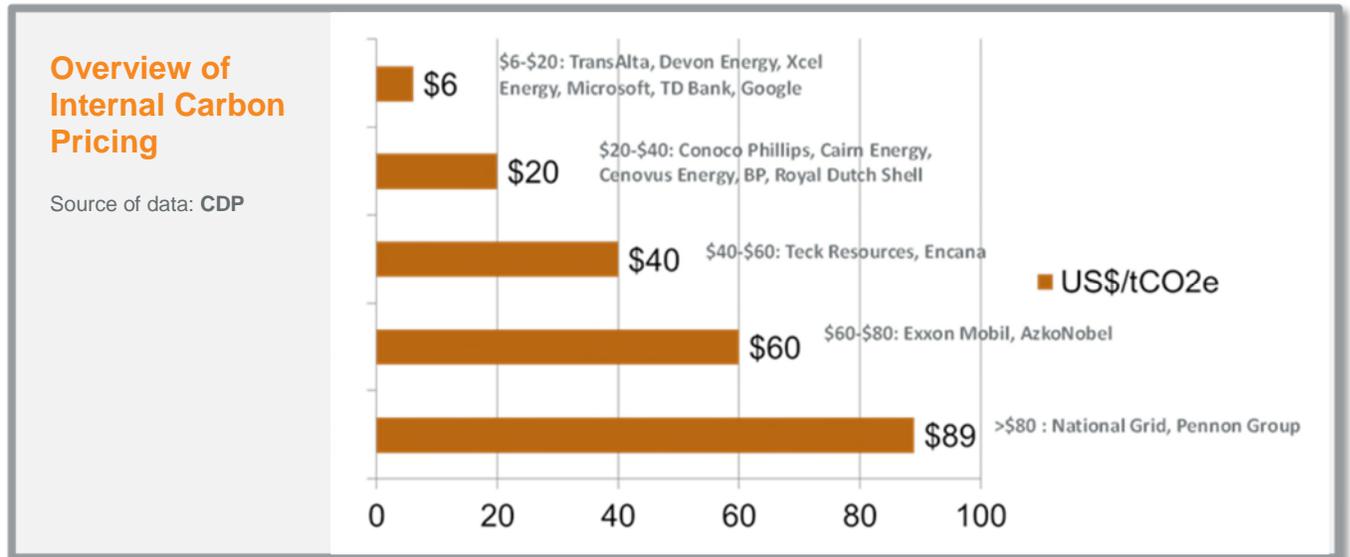
A Word on Corporate Carbon Pricing

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 CO₂e 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](#), 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 as low as US \$1 to as high as US \$150 per tonne of CO₂e. On April 22, 2016, the United Nations Global Compact (UNGC) called for a [minimum internal carbon price](#) level of US\$100 per tonne of CO₂e 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 below:



Putting their money where their mouth is, 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.

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 [EPA](#) describes the SCC (which has its origins in US policy processes where new regulations are required to undergo a cost-benefit analysis) as an estimate of the economic damages associated with a small increase in CO₂ emissions (usually one tonne) in a given year. The dollar figure then represents the monetized damages associated with an incremental increase in carbon emissions in a given year, which could take various forms including decreased agricultural yields, 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 CO₂ 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 and includes changes in net agricultural productivity, human health, property damages from increased flood risk, and changes in energy system costs, current modeling and data limitations mean that the SCC does not include all important damages. Notwithstanding these limitations, the SCC is a useful measure to assess the benefits of CO₂ reductions. The EPA pegs the current dollar value of SCC at US \$37 per tonne of CO₂ emitted, however [researchers](#) at Stanford University have estimated that at US \$220 per tonne, the SCC could actually be six times higher than the value that the United States now uses to guide current policy decisions.

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 new 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 [Sixth National Report on Climate Change](#), Environment Canada projected Canada's emissions to be 815 MtCO₂e, or 11% above 2005 levels, with current measures 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. 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 CO₂e in 2018, which will increase by \$10 per year until it reaches \$50 per tonne of CO₂e 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

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.

In a step towards establishing a continental energy strategy, energy ministers from Canada, Mexico and the United States signed a [Memorandum of Understanding](#) (MOU) on Climate Change and Energy Collaboration on February 12, 2016 during the North American Energy Ministers Meeting in Winnipeg. In addition, they launched a [web platform](#) where North American energy information can be easily accessed in one place. Under the MOU, the three countries will collaborate and share information on six key areas including: (i) low-carbon electricity grids; (ii) clean energy technologies, including renewables; (iii) energy efficiency; (iv) carbon capture, use and storage; (v) climate change adaptation and resilience; and (vi) methods to reduce emissions from the oil and gas sector, including methane and black carbon. In June 2016, Prime Minister Justin Trudeau, US

President Barack Obama, and Mexican President Enrique Peña Nieto [announced](#) the North American Climate, Clean Energy, and Environment Partnership, which is supported by an [action plan](#) that details the activities to be pursued by the three countries in order to achieve a “competitive, low-carbon and sustainable North American economy”. The plan builds on the MOU and sets out a range of initiatives, including a target to achieve 50% clean power generation by 2025 through clean energy development and deployment, clean energy innovation and energy efficiency.

Also in March 2016, a [Joint Statement on Climate, Energy, and Arctic Leadership](#) was issued which sets out specific commitments on energy development, environmental protection, and Arctic leadership. In particular, Canada and the US have made commitments to reduce methane emissions by 40-45% below 2012 levels by 2025 from the oil and gas sector, finalize and implement the second phase of an aligned GHG emission standard for post-2018 model year on-road heavy-duty vehicles, phase out fossil fuel subsidies, accelerate clean energy development and foster sustainable energy development.

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. All facilities that emit the equivalent of 50,000 tonnes or more of CO₂e per year are required to submit a report to Environment Canada. Facilities with emissions below the reporting threshold of 50,000 tonnes per year can voluntarily report their GHG emissions. 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 Greenhouse Gas Emissions Reporting Program.

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 2017, 165 jurisdictions from 33 countries and six continents have signed or endorsed the Under 2 MOU, collectively representing more than \$25.7 trillion in GDP (more than a third of the global economy) and 1.08 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. 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) legislated targets for reducing GHG emissions in the [Greenhouse Gas Reduction Targets Act](#) (GGRTA). BC has pledged to reduce provincial 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. The tax is currently set at \$30 per tonne of CO₂e and is designed to be revenue neutral, returning all revenues to British Columbians through personal or business tax reductions.

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 2016, BC reported that it achieved carbon neutrality across its provincial public sector for the sixth consecutive year, as confirmed in the [Carbon Neutral Government Year in Review 2015](#) report.

Along with California, BC was the first to implement low carbon fuel standards 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 content of fuels by 2020, 5% renewable content in gasoline and 4% in diesel.

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 adaptation 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 CO₂e 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 estimates that five LNG plants in BC will generate 13 million tonnes of GHG emissions, on top of the province's current annual GHG emissions of 62 million tonnes.

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. In addition, the BC government has decided to keep the province's revenue neutral carbon tax at \$30 per tonne until such time as the other provinces' various carbon pricing plans catch up to BC.

Alberta

With the election of a New Democratic Party (NDP) government in Alberta in May 2015, there was a shift in Alberta's approach to climate change. While the proposed new Climate Leadership Plan does not establish any specific emission reduction targets, it will cap emissions from the oil sands sector at 100,000 Mt in any given year. Under the [2008 Climate Change Strategy](#), the following emission reduction targets had been established:

- 2020: 50 Mt reduction to stabilize GHG emissions.

- 2050: 200 Mt reduction to achieve 50% below business-as-usual and 14% below 2005 levels.

On the heels of the election, the NDP government announced two initial steps towards revising its climate policy: (1) renewing Alberta's existing GHG regulation, the [Specified Gas Emitters Regulation](#) (SGER), with more stringent levels that will apply from 2016; and (2) establishing an advisory panel to undertake a comprehensive review of the province's climate change policy in order to assist the government in formulating a new climate change strategy for the province.

Under the current SGER, facilities that emit more than 50,000 tonnes or CO₂e per year must report their emissions annually and any facility that emits 100,000 tonnes or more of CO₂e per year must reduce their emissions intensity by 12%. This level is set to increase:

- 15% as of January 1, 2016; and
- 20% as of January 1, 2017.

A regulated entity can achieve compliance in one of four ways: (1) meeting its target through the implementation of operational efficiencies, (2) Alberta-based emission offset credits, (3) emission performance credits, or (4) contributing \$15 per tonne to the [Climate Change and Emissions Management Fund](#) (the Fund).

For regulated entities looking to pay into the Fund, higher compliance costs are on the horizon:

- in 2016, \$20 for every tonne over a facility's reduction target; and
- in 2017, \$30 for every tonne over a facility's reduction target.

On August 14, 2015, Alberta Environment and Parks released its [Climate Leadership Discussion Document](#) (Discussion Document) as part of the province's ongoing efforts to design a comprehensive action plan on climate change. Following public consultations, Alberta released its [Climate Leadership Plan](#) on November 22, 2015. Contemporaneously with the Climate Leadership Plan, the Government released the Climate Change Advisory Panel's (Climate Panel) Report to the Minister, [Climate Leadership](#). On February 2, 2016, Alberta [announced](#) the creation of the Alberta Climate Change Office, which will report to Environment and Parks Minister Shannon Phillips and assist in the implementation of the Climate Leadership Plan.

Carbon pricing has been identified by the Climate Panel as the primary policy tool for reducing emissions in the province. On June 23, 2016, the Alberta legislature passed the [Climate Leadership Implementation Act](#) (Bill 20) which furthers the implementation of the Climate Leadership Plan. Details of Alberta's carbon pricing model were detailed in its [April 2016 budget](#), which earmarks almost \$8.5 billion to build and modernize major public infrastructure. [Budget 2016](#) also allocates \$634 million to various climate change initiatives in addition to funds for roads and bridges, flood recovery and municipal infrastructure support. The Act came into force on January 1, 2017 and empowers the provincial government to impose a carbon levy in the province. As of January 1, 2017, a \$20 per tonne carbon levy will be applied to fuels that emit GHG when combusted. This levy will increase to \$30 per tonne in 2018. Fuels covered by the levy include transportation and heating fuels such as diesel, gasoline, natural gas and propane. It will not apply directly to consumer purchases of electricity. Revenues from the carbon levy will be used for initiatives to reduce GHG emissions and to fund carbon rebates, as well as for investments in clean technology and green infrastructure. The carbon levy will also be used for an "adjustment fund" to help

individuals and families, small business and First Nations adjust as the new policy is implemented.

Specific initiatives have also been announced for the oil sands sector, which accounts for approximately one-quarter of Alberta's annual emissions. On November 1, 2016, the [Oil Sands Emissions Limit Act](#) (Bill 25) was introduced and is intended to cap emissions from oil sands production at 100 Mt. 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.

Saskatchewan

Although efforts were underway in Saskatchewan in 2009 and 2010 to develop a provincial climate change strategy and the province had even passed legislation regulating GHG emissions ([The Management and Reduction of Greenhouse Gases and Adaptation to Climate Change Act](#), under which regulated emitters would be required to reduce annual GHG emissions to meet the provincial target), Saskatchewan has yet to release a formal climate change strategy or bring its climate legislation into force. It was originally envisioned that a Saskatchewan Climate Change Plan would set annual reduction targets for industry and encourage investment in low-carbon technologies. Under the proposed framework, compliance mechanisms such as a technology fund, recognition for early action, emission intensive trade exposed credits and carbon offsets would have been established to provide flexibility for regulated emitters (those emitting 50,000 tonnes or more of CO₂e) to meet their GHG reduction obligations. As noted above, Saskatchewan has decided not to adopt the Pan-Canadian Framework on Clean Growth and Climate Change.

Currently, the province relies on the [Go Green Saskatchewan](#) initiative to encourage the government, communities, businesses and residents to reduce their environmental impacts. Under the Go Green initiative, the provincial government has committed to ensuring that each ministry will set measurable goals and targets to reduce their environmental footprint and report publicly on their progress. However at this time, there is no overview document or progress reports for Go Green Saskatchewan, and ministry goals and targets are not yet available online.

Any facilities in Saskatchewan that emit more than 50,000 tonnes of GHG emissions annually are subject to federal GHG reporting regulations.

Manitoba

Manitoba was an early mover on climate change. In 2008, Manitoba enacted [The Climate Change and Emissions Reductions Act](#), which set a target of reducing GHG emissions to 6% below 1990 levels by 2012, and required the province to report on whether emissions in 2010 were less than they were in 2000. Also in 2008, Manitoba released [Beyond Kyoto](#), an action plan on climate change that outlined over 60 actions to reduce GHG emissions and adapt to the impacts of climate change across multiple sectors including energy, transportation, agriculture, municipalities, businesses and government operations.

In 2012, the Manitoba government released [TomorrowNow – Manitoba's Green Plan](#), which includes commitments to update its climate change plan and create the province's first green economy action plan. As part of this process, the province asked the International Institute for Sustainable Development (IISD) to host a series of consultation sessions with key stakeholders on

climate change and the green economy. In January 2015, IISD released a [consultation paper](#) framing the issues for discussion. In its updated climate action plan released in December 2015, [Manitoba's Climate Change and Green Economy Action Plan](#), Manitoba committed to reducing its GHG emissions (i) by one-third over 2005 levels by 2030, (ii) by one-half over 2005 levels by 2050, and (iii) Manitoba will become carbon neutral by 2080. The latest plan outlines projects that will be undertaken through Manitoba's new five-year \$5 million Climate Change Action Fund. The plan also confirms Manitoba's commitment to implementing a cap-and-trade program for large emitters (which will be linked to the cap-and-trade systems in Ontario and Québec) and considering other innovative measures, such as a made-in-Manitoba Carbon Stewardship model for sectors not covered by cap-and-trade. However in October 2016, Manitoba Premier Brian Pallister [ruled out](#) the implementation of a cap-and-trade system in Manitoba and may consider a possible carbon tax.

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 climate change strategy continues to evolve. 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 proposed cap and trade program and complements earlier climate initiatives, which include establishing a 2030 mid-term emissions reduction target, 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 set 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 CO₂e (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 CO₂e per year, petroleum product suppliers that supply 200 litres or more in the province per year, and importers of electricity.
- Some capped emitters will be eligible to receive early reduction credits, based on actions that they have already take to reduce the emission of GHGs. A maximum of two million

early action credits will be available distribution and emitters will need to apply for such credits.

According to the [2016 Ontario Budget](#), proceeds from the auction of emissions allowances are expected to amount to \$478 million in 2016-17 and \$1.8-\$1.9 billion annually starting in 2017-18. All proceeds will be deposited into a new Greenhouse Gas Reduction Account and dedicated to investments that support GHG emission reductions such as energy efficiency for homes and businesses, public transit, research, innovation and clean technology adaptation.

To provide greater compliance flexibility for mandatory participants, offset credits will be permitted under Ontario's cap-and-trade program. An [Offset Regulatory Proposal](#) is currently under consultation, and an amendment to *The Cap and Trade Program* regulation is expected in 2017 to facilitate the implementation of an offset credit program.

Québec

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.

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

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, 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; this cap will gradually decline starting in 2015. Businesses emitting 25,000 tonnes or more of CO₂e 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 in the NEG/ECP's [Climate Change Action Plan 2001](#)).

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.

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. PEI is also working on a sustainable development strategy, which started with the release of a discussion paper in 2012, [Planning for a Sustainable Future](#). The PEI Environmental Advisory Council has since released a follow-up paper entitled [Principles of Sustainable Development](#).

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 (NO_x), sulphur dioxide (SO₂), 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.

Newfoundland & Labrador

The Government of Newfoundland and Labrador Department of Energy and Conservation released its first [Climate Change Action Plan in 2005](#) and passed a [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](#).

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.

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 2011-2015 Strategy (discussed below) builds on the previous strategies.

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. NWT has set the following emission reduction targets:

1. Stabilize emissions at 2005 levels (1,500,000 tonnes) by 2015.
2. Limit emissions increases to 66 percent above 2005 levels (2,500,000 tonnes) by 2020.
3. Return emissions to 2005 levels (1,500,000 tonnes) by 2030.

The [NWT Greenhouse Gas Strategy 2011-2015](#) 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. Reports supporting the 2011 strategy include:

- [An Exploration into the Impact of Carbon Pricing in the NWT](#); and
- [Assessing Emission Reductions from Potential Climate Policies in the NWT](#).

NWT is making 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

Climate change impacts vary widely in nature and magnitude across Canada's North. Thawing permafrost, shifting biomes, changing sea ice patterns, and rising sea levels are placing increased stress on Northern ecosystems. In 2009, the Governments of Nunavut, the Northwest Territories and Yukon agreed to work together on climate change, with a focus on adaptation measures. **The Pan-Territorial Adaptation Strategy: Moving Forward on Climate Change Adaptation in Canada's North** identifies six approaches for supporting current and future climate change actions: (1) source funding; (2) collaboration with other governments; (3) community support; (4) integration of adaptation; (5) knowledge sharing; and (6) developing and sharing tools, technology and innovation.

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 (confirmation of whether the Yukon government has met its 2015 target will be available in 2017) and become carbon neutral by 2020.

Quick Summary Table – Federal, Provincial and Territorial Climate Change Frameworks¹

Jurisdiction	Key Climate Change Legislation	Key Policy Documents	Emission Reduction Targets	Mandatory GHG Reporting Requirements	Carbon Pricing Mechanism
Federal	<ul style="list-style-type: none"> ▪ 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 	<p>Pan-Canadian Framework on Clean Growth and Climate Change (December 2016)</p>	<p>30% below 2005 levels by 2030.</p>	<p>Greenhouse Gas Emissions Reporting Program (GHGRP) requires facilities emitting ≥ 50,000 tonnes of CO₂e per year are required to submit a report to Environment Canada by June 1 each year.</p>	<ul style="list-style-type: none"> ▪ Minimum price on carbon starting at \$10 per tonne of CO₂e in 2018, which will increase by \$10 per year until it reaches \$50 per tonne of CO₂e by 2022. ▪ 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; 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	<ul style="list-style-type: none"> ▪ Greenhouse Gas Reduction Targets Act ▪ Carbon Tax Act ▪ Carbon Neutral Government Regulation ▪ Greenhouse Gas Emission Reporting Regulation ▪ Greenhouse Gas Emission 	<ul style="list-style-type: none"> ▪ 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 	<ul style="list-style-type: none"> ▪ 33% below 2007 levels by 2020 ▪ 80% below 2007 levels by 2050 	<ul style="list-style-type: none"> ▪ Facilities emitting ≥ 10,000 tonnes of CO₂e 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 	<ul style="list-style-type: none"> ▪ Carbon tax implemented on July 1, 2008; currently set at CAD \$30 per tonne of CO₂e.

¹ As of September 1, 2016.

Jurisdiction	Key Climate Change Legislation	Key Policy Documents	Emission Reduction Targets	Mandatory GHG Reporting Requirements	Carbon Pricing Mechanism
	<ul style="list-style-type: none"> Control Regulation ▪ Greenhouse Gas Emission Administrative Penalties and Appeals 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 	<ul style="list-style-type: none"> Paper (July 2015) ▪ Climate Leadership Team: Recommendations to Government (November 2015) ▪ Climate Leadership Plan (August 2016) 		Window GHG reporting system.	
Alberta	<ul style="list-style-type: none"> ▪ Climate Change and Emissions Management Act ▪ Specified Gas Emitters Regulation ▪ Climate Leadership Implementation Act ▪ Oil Sands Emissions Limit Act (Bill 25) 	<ul style="list-style-type: none"> ▪ Alberta's 2008 Climate Change Strategy ▪ Alberta Climate Leadership Discussion Document (August 2015) ▪ Climate Leadership Report to Minister (November 2015) ▪ Climate Leadership Plan (details of final strategy continue to be developed) 	<ul style="list-style-type: none"> ▪ 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: <ul style="list-style-type: none"> - 2020: 50 Mt reduction to stabilize GHG emissions - 2050: 200 Mt reduction to achieve 50% below business 	<ul style="list-style-type: none"> ▪ Specified Gas Emitters Regulation requires industrial facilities emitting ≥50,000 tonnes of CO₂e total annual GHG emissions (TAE) to submit GHG emission intensity reports (TAE/Production) by March 31 each year. ▪ Large industrial emitters are also required to report under the federal GHGRP. ▪ Alberta participates in Environment Canada's Single Window GHG reporting system. 	<ul style="list-style-type: none"> ▪ Currently, regulated entities under the SGER may contribute to the Climate Change and Emissions Management Fund for compliance purposes. The current compliance fund cost is CAD \$15 per tonne of CO₂e, which will increase to \$20 per tonne in 2016 and \$30 per tonne in 2017. ▪ \$20 per tonne of CO₂e on January 1, 2017; increasing to \$30 per tonne on January 1, 2018 (on-site combustion in oil and gas

Jurisdiction	Key Climate Change Legislation	Key Policy Documents	Emission Reduction Targets	Mandatory GHG Reporting Requirements	Carbon Pricing Mechanism
			as usual and 14% below 2005 levels		facilities will be levied starting January 1, 2023).
Saskatchewan	<i>The Management and Reduction of Greenhouse Gases Act</i> (the Act) [not yet proclaimed into force]	Go Green Saskatchewan	<ul style="list-style-type: none"> 20% below 2006 levels by 2020. Under the Act, regulated emitters will be required to reduce annual GHG emissions to meet the provincial target. 	Large industrial emitters report under federal GHGRP.	None. Note: Saskatchewan has decided not to adopt the Pan-Canadian Framework on Clean Growth and Climate Change.
Manitoba	<i>The Climate Change and Emissions Reductions Act</i>	<ul style="list-style-type: none"> 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) Green and Growing: Manitoba's Commitment to Green Jobs Manitoba's Climate Change and Green Economy Action Plan (December 2015) 	<ul style="list-style-type: none"> One third over 2005 levels by 2030. One half over 2005 levels by 2050. Carbon neutral by 2080. 	<ul style="list-style-type: none"> Large industrial emitters report under the federal GHGRP. Manitoba government has announced it will develop mandatory GHG emissions reporting requirements and outline thresholds following stakeholder consultations. 	None.
Ontario	<ul style="list-style-type: none"> <i>Environmental Protection Act</i> O. Reg. 452/09 – Greenhouse Gas Emissions Reporting (to be revoked after all reporting under it is complete) 	<ul style="list-style-type: none"> Go Green Action Plan on Climate Change (2007) Climate Ready – Ontario's Adaptation Strategy and Action Plan (2011-2014) Ontario Climate 	<ul style="list-style-type: none"> 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 ₂ e to annually report GHG emissions. Emissions greater	Cap-and-trade system.

Jurisdiction	Key Climate Change Legislation	Key Policy Documents	Emission Reduction Targets	Mandatory GHG Reporting Requirements	Carbon Pricing Mechanism
	<ul style="list-style-type: none"> ▪ Climate Change Mitigation and Low-Carbon Economy Act, 2016 ▪ The Cap and 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 	<ul style="list-style-type: none"> ▪ Change Update (2014) ▪ Ontario's Climate Change Discussion Paper (2015) ▪ Ontario's Five Year Climate Action Plan 2016 – 2020 (June 2016) 		<ul style="list-style-type: none"> ▪ than 25,000 tonnes per year must be third party verified. ▪ Large industrial emitters also required to report under federal GHGRP. ▪ Ontario participates in Environment Canada's Single Window GHG reporting system. 	
Québec	<ul style="list-style-type: none"> ▪ Regulation respecting a cap-and-trade system for greenhouse gas emission allowances ▪ Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere 	<ul style="list-style-type: none"> ▪ 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) 	<ul style="list-style-type: none"> ▪ 20% below 1990 levels by 2020. ▪ 37.5% below 1990 levels by 2030. 	<ul style="list-style-type: none"> ▪ The <i>Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere</i> requires Québec facilities emitting ≥ 10,000 tonnes of CO₂e per year to report total annual GHG emissions ▪ Large industrial emitters also required to report under federal GHGRP. 	<ul style="list-style-type: none"> ▪ Cap-and-trade system. ▪ Settlement price of 2015 vintage allowances: CAD \$16.39.
New Brunswick	<ul style="list-style-type: none"> ▪ Clean Air Act ▪ Air Quality Regulation 	<ul style="list-style-type: none"> ▪ New Brunswick Climate Change Action Plan 2014-2020 ▪ New Brunswick Climate Change Action Plan 2007- 	<ul style="list-style-type: none"> ▪ Reducing emissions to 1990 levels by 2012. ▪ 10% below 1990 levels by 2020. ▪ 35-45% below 1990 	<ul style="list-style-type: none"> ▪ Large industrial emitters report under federal GHGRP. 	<ul style="list-style-type: none"> ▪ None.

Jurisdiction	Key Climate Change Legislation	Key Policy Documents	Emission Reduction Targets	Mandatory GHG Reporting Requirements	Carbon Pricing Mechanism
		2012	<p>levels by 2030.</p> <ul style="list-style-type: none"> 75-80% below 2001 levels by 2050. 		
Prince Edward Island	None.	<ul style="list-style-type: 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 	<ul style="list-style-type: none"> 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.	None.
Nova Scotia	<ul style="list-style-type: none"> Environmental Goals and Sustainable Prosperity Act Greenhouse Gas Emissions Regulations 	Toward a Greener Future: Nova Scotia's Climate Change Action Plan (2009)	<ul style="list-style-type: none"> 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 be filed by March 31 each year.	None.
Newfoundland & Labrador	None.	<ul style="list-style-type: none"> Charting our Course: Climate Change Action Plan 2011 Moving Forward: Energy Efficiency Action Plan 2011 	<ul style="list-style-type: none"> 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.	None.
Nunavut	None.	<ul style="list-style-type: none"> Upagiatqavut: Climate Change Impacts and Adaptation in Nunavut (2011) Pan-Territorial Adaptation Strategy (2011) 	No targets.	Large industrial emitters report under federal GHGRP.	None.

Jurisdiction	Key Climate Change Legislation	Key Policy Documents	Emission Reduction Targets	Mandatory GHG Reporting Requirements	Carbon Pricing Mechanism
		<ul style="list-style-type: none"> ▪ Nunavut Climate Change Strategy (2003) 			
Northwest Territories	None.	<ul style="list-style-type: 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 	<ul style="list-style-type: none"> ▪ Stabilize emissions at 2005 levels (1,500 Kt) by 2015. ▪ Limit emissions increases to 66 percent above 2005 levels (2,500 Kt) by 2020. ▪ Return emissions to 2005 levels (1,500 Kt) by 2030. 	Large industrial emitters report under federal GHGRP.	None.
Yukon	None.	<ul style="list-style-type: none"> ▪ Yukon Government Climate Change Action Plan (2009) ▪ Climate Change Action Plan Progress Report 2012 ▪ 2015 Climate Change Action Plan Progress Report 	<ul style="list-style-type: none"> ▪ 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.	None.