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The Paris Agreement on Climate Change: An Overview and Implications for Canada

EXECUTIVE SUMMARY

- The Paris Agreement on Climate Change (PA) is a legally binding but ambiguous international treaty that gives governments full discretion over domestic policies. The treaty is programmed to grow stronger over time and requires countries to revise domestic policy plans regularly, adopting more stringent emission reduction targets.

- There is widespread global political support among national governments for the PA. Virtually all countries have joined the treaty, and 189 countries accounting for 98% of GHG emissions and 96% of the global population have climate legislation under the PA. A growing pattern of government policies and business practices are converging toward low-carbon development, particularly in Europe and Asia.

- The Paris Agreement will reinforce and accelerate this global trend. Policies on renewable energy, energy efficiency and carbon pricing will likely deepen due to PA implementation in both Canada and abroad.

- National and global implementation of the PA would have moderate short-term consequences as well as medium- and long-term impacts on the Canadian economy and society. Future developments related to the PA warrant sustained attention from corporate and government decision-makers.

INTRODUCTION

The Paris Agreement of 2015 is the first global accord on climate change that contains policy obligations for all countries. It comes after a long series of repeated failures of negotiations, and replaces the Kyoto Protocol as the principal international agreement on climate change. There is strong evidence for widespread and deep global political commitment to the PA and climate mitigation policies. Major countries ratified it with record-breaking speed, and the treaty entered into force less than a year after its negotiation. Many national and subnational governments, in Europe and Asia in particular, have launched implementation policies to reduce greenhouse gas (GHG) emissions and promote low-carbon development.

Canada ratified the agreement in October 2016 and now has legal obligations under it. Canada's current official international pledge is to achieve economy-wide GHG emission reductions of 30 percent below 2005 levels by 2030.[1] Analyzing the consequences of the Paris Agreement for Canada is complicated by two factors.

First, the PA is not a conventional treaty that conforms to the traditional model of international law. This makes it ambiguous and open to interpretation. Second, the manner in which other countries interpret the agreement and the implementation policies they pursue will impact Canada probably more than the treaty itself. Proper assessment of the PA's impact, therefore, requires a broad analytical perspective that considers the PA in conjunction with global policy developments.

THE PARIS AGREEMENT: A SUMMARY

The PA is a comprehensive international treaty with legal provisions on: climate mitigation policy and GHG emission reductions, climate adaptation, international public finance, policy reporting and transparency, and international cooperative mechanisms such as carbon trading and technology transfer.[2] The PA is legally binding but contains a complex mixture of mandatory and *laissez-faire* provisions.[3] On the one hand, the treaty rests on 'intended nationally-determined contributions' (INDCs) to global climate change management. This gives full freedom to governments to formulate their domestic policies, including emission targets and policy instruments for implementation. On the other hand, the PA creates international legal obligations to develop, implement and regularly strengthen such policy actions. National policies are subject to a robust international transparency system. The Agreement provides autonomy to countries to determine their own actions but locks them into a long-term policy path of progressively stronger emissions reductions.

Key provisions include a global objective of holding the temperature increase to "well below 2°C" and a commitment to "pursue efforts to limit the temperature increase to 1.5°C" (Article 2). The long-term goal is to achieve zero net emissions in the second half of the century, and to reach global peak emissions "as soon as possible" (Art. 4.1). This vague language on global targets is balanced by binding provisions on national actions. "Each Party *shall* prepare, communicate and maintain successive nationally determined contributions that it intends to achieve" (Art. 4.2). During the negotiations, the United States, the European Union and island states insisted on this formulation because the word 'shall' entails firm legal obligation. Domestic policy programs are subject to a robust international transparency and monitoring system that places extensive informational requirements on countries (Art. 13). National plans and emission reduction targets are to be recorded in a public registry maintained in Germany and open to international scrutiny.

Notably, the PA requires countries to revise their domestic policies every five years, with strongly worded language that guarantees policy 'progression' over time (Article 4.3). This clause has important ramifications for Canada: once a country formulates and declares its domestic policy plan, it enters a legal obligation to raise its ambition and strengthen its policies every five years. This ratcheting mechanism was extensively negotiated over several years, with strong support from the European Union, Brazil and others, and is intended to avoid backsliding. The relevant provisions bear significance as they ensure ever-accelerating policy actions by countries and constant evolution of the global policy regime.[4]

Financial arrangements under the treaty include an international Green Climate Fund. In Paris, developed countries agreed to collectively provide "from a floor of USD $100 billion per year" beginning in 2020. The money is to finance emission reductions and climate adaptation policy, primarily in developing countries. Canada pledged $2.65 billion over five years. The PA also establishes an international market mechanism for carbon trading and

sustainable development, proposed by Brazil and strongly supported by Japan and most developed countries. Its details are currently under negotiation. Governments continue to meet several times per year, and important elements of the "rulebook" for implementation policies remain to be finalized in 2017 and 2018.[5]

The Paris Agreement is therefore subject to renegotiation and further evolution. Governments will collectively conduct a major review in 2023 and every five years thereafter, to assess policy progress and reconsider the effectiveness of mitigation, adaptation and finance policies. If current efforts are deemed insufficient to achieve the goals of keeping temperature increase well below two degrees, there will be considerable international political pressure on major emitters and donor countries to deliver more. Compliance mechanisms are weak, with a "facilitative" committee to consider country implementation in a "non-adversarial and non-punitive" manner (Art. 15).[6]

SIGNIFICANCE OF THE PARIS AGREEMENT

The complexity and experimental nature of the treaty warrants caution in making predictions about its impact. Because national governments have freedom to determine domestic policy goals, there is a temptation to conclude that the PA itself does not impose particularly strong obligations on Canada. Such narrow legalistic focus on the treaty, however, would be misleading. The power of an international treaty is also a function of what governments do to comply with it. Strong global support for treaty implementation and ambitious policies worldwide would place an additional burden on Canada to comply. Political decisions by both governmental and corporate actors abroad can alter global economic and investment trends and also increase the reputational costs of non-compliance. These factors can generate enormous political and economic pressure on Canada to follow suit.

Several factors suggest the PA already has had a significant impact. These include broad global political support, the rapid speed of ratifications and entry into force, and a sweeping wave of policies around the world for energy efficiency and clean development. These are considered below. Political signs suggest that governments are taking the PA seriously and are moving towards low-carbon development.

Legal status

The Paris Agreement entered into force in November 2016 and is now operational. Governments joined the treaty with record speed: six months after the PA was open for signature, it had been ratified by more than the requisite 55 countries. This makes the PA unusual in international law where treaties typically take years to become valid. As of January 2018, 172 countries out of 197 had ratified the Paris Agreement, and accepted legal obligations under it. They accounted for 87% of global emissions of greenhouse gases, and included China, India, the European Union, the United States, Japan, Brazil, Canada, and Australia.[7] The broad political support by governments and the unusual speed of ratifications suggest a strong probability that the Paris Agreement will be implemented and further strengthened.

Policy developments abroad

Policy developments abroad confirm this. As of October 2017, 189 governments representing 98 percent of global human population had developed and registered INDCs under the Paris Agreement (see Table 1).[8] Comprehensive surveys report a substantial increase in domestic policies worldwide, within a very narrow time frame.[9] Currently 96% of global emissions GHG are under climate legislation and/or policy strategies, compared to 67 percent in 2012 and 45 percent in 2007. Over the last ten years, policy frameworks for emission reductions have become universal in their jurisdictional coverage. The only countries without national policy plans today are Syria, Libya and Nicaragua.

Table 1: Selected Country Pledges Under the Paris Agreement and GHG Emissions

Country	Base Year	Reduction Target	Target Year	GHG Emissions in 2014 ($MtCO_2e$)
Brazil	2005	37% 43%	2025 2030	1,357.18
Canada	2005	30%	2030	867
China	2005	Emissions peaking & 60-65% cuts (carbon intensity)	2030	11,600
European Union	1990	40 %	2030	4,290
India	2005	33-35% (carbon intensity)	2030	3,202.31
Japan	2005	25.4%	2030	1,322.05
Korea	BAU	37%	2030	631.60
Norway	1990	40%	2030	24.94
Russia	1990	25-30%	2030	2,030.14
Switzerland	1990	50%	2030	46.15
United States	2005	26-28%	2025	6,319.02

Sources: INDC Registry of the UNFCCC Secretariat, and World Resources Institute CAIT Climate Data Explorer database.[10]

The widespread and concerted policy developments around the world, combined with the short time frame in which they occurred, provide evidence of a strong global political trend. The rapid proliferation of climate policies is driven partly by economic interests in promoting competitiveness and facilitating industrial modernization. During international negotiations since 2005, South Korea and the European Union launched a diplomatic campaign that emphasized the economic benefits of 'clean development' and 'green growth.' The concept of 'win-win solutions,' in particular, was central to the European Union's negotiating strategy and succeeded in changing perceptions of the costs and benefits of climate policy in other countries.[11] The argument was supported by data in the influential 2007 Stern Report that was sponsored by the British government, concluding that the global costs of reducing emissions are much lower than previously projected.[12]

The European Union adopted stringent policies back in 2008 that were binding on all 28 member states, and overachieved their goals ahead of schedule. Their 2020 policy targets have already been met, and current European Union GHG emissions are 23% below 1990 levels while their economy grew more than 53% in the same period.[13] The EU pledge under the Paris Agreement is to reduce emissions by 40% below 1990 levels by 2030.[14] This is binding policy since the adoption in October 2014 of a new climate and energy policy framework that also aims to improve energy efficiency by 27% and generate 27% of energy from renewable sources.

Notably, Germany adopted the most ambitious binding targets in Europe: 40% cuts by 2020, 55% GHG reductions by 2030 and 80-95% below 1990 levels by 2050. In 2017, 30% of German electricity came from renewables. With the fourth largest economy in the world, Germany has embarked on a national Energy Transition (*Die Energiewende*) that seeks to increase that share to 35% in 2020 and 50% by 2030.[15] Norway aims at zero net emissions and 'climate neutrality' by 2030. India has promised to lower carbon intensity per GDP by 33-35% relative to 2005, and increase the share of non-fossil power generation to 40% by 2030.

Developments in China deserve particular attention due to the country's economic importance and because it accounts for 26 percent of global GHG emissions. China has emerged as a leader in domestic de-carbonization policies, and pursues an ambitious long-term "Strategy of Energy Production and Consumption Revolution (2016-2030)" which was released in December 2016 to support China's INDC under the Paris Agreement.[16] The strategy includes policies for energy market reforms, energy technological innovation, a binding cap on total energy consumption, and binding targets for renewable energy shares of 20% by 2030 and 50% by 2050.

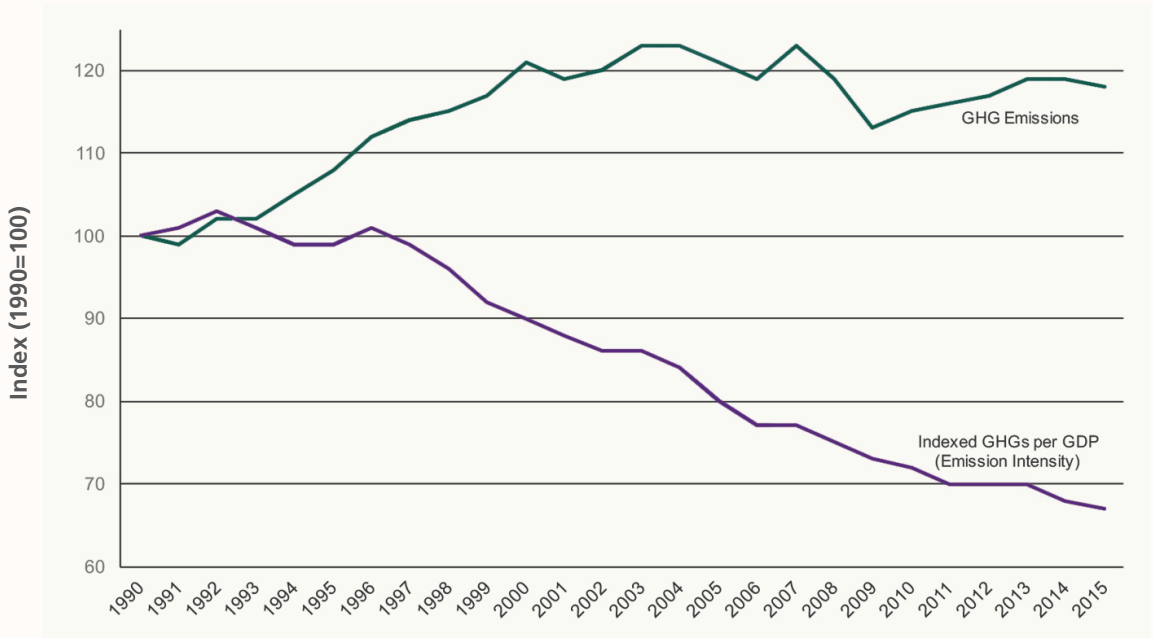
These goals are consistent with recent and current policies: China over-achieved its own targets and reduced carbon intensity by 20% between 2010 and 2015. Their 13th Five-Year Plan requires further reductions of 18% between 2015 and 2020.[17] An existing emissions trading program is scheduled to become nationwide in late 2017. Data shows a reduction of Chinese coal consumption for three consecutive years (2013-2016), and the National Energy Administration announced China will invest 2.5 trillion yuan (US$375 billion) in renewable power generation by 2020, as the world's largest energy market continues to shift away from fossil fuels.[18] China is on track to achieve its pledge under the Paris Agreement to peak its carbon emissions by 2030 and reduce GHG emissions per unit of GDP by 60-65%.

One major question is whether a U.S. withdrawal from the Paris Agreement would cancel the treaty. Today, the U.S. is an anomaly in the global picture and stands out with the absence of a central federal mitigation policy. The Obama administration had a plan to reduce U.S. emissions by 26-28% relative to 2005 by 2025, and reached a bilateral agreement with China in November 2014, a historically significant deal between the two biggest emitters. The Donald Trump administration is planning to reverse domestic policies and reaffirm priorities placed on fossil fuels and conventional industrialization. His government has also expressed intentions to withdraw from the Paris Agreement. A U.S. withdrawal, however, is unlikely to affect the commitment of countries outside North America or to reverse domestic policies in China or Europe, because their domestic policies were adopted partly to modernize national economies and strengthen competitiveness. When the U.S. pulled out of the Kyoto Protocol in 2001, other countries proceeded with its implementation. Today, a similar move would have even less impact since economic trends and social norms are more supportive of clean-growth policies.

IMPACT ON CANADA

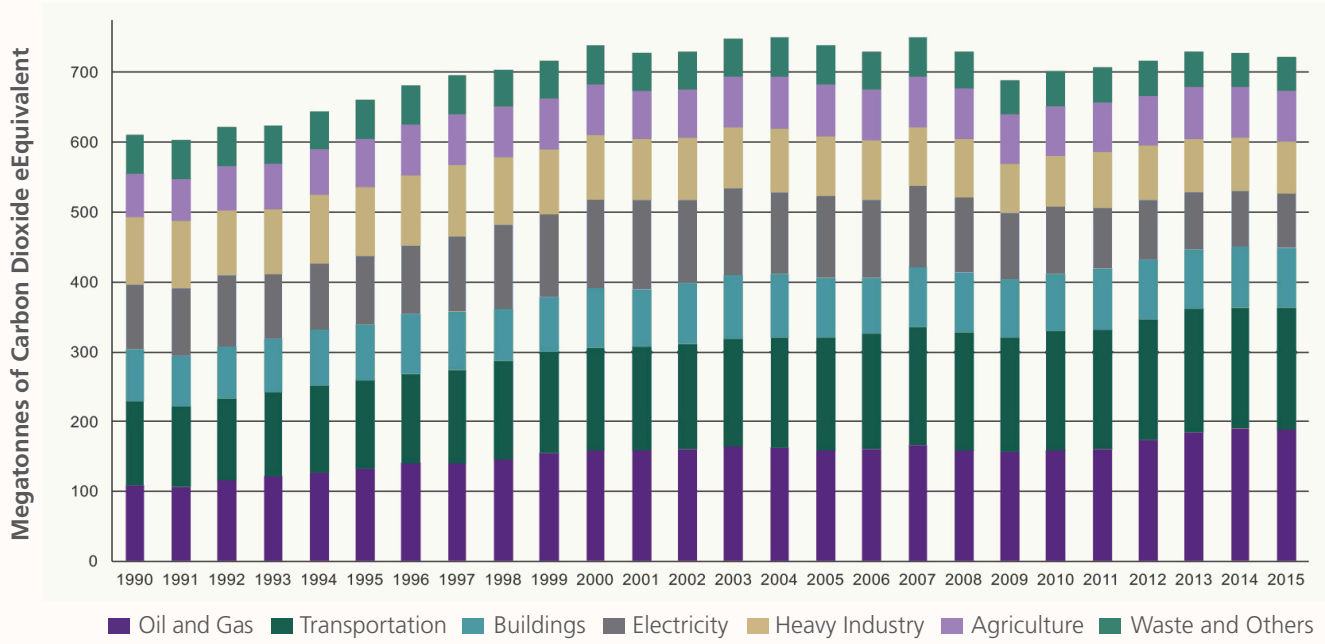
The Paris Agreement and the widespread policies for its implementation have the potential to affect energy-based economies such as Canada. Government regulation and market mechanisms in compliance with the PA will have consequences for three reasons. First, reducing emissions requires adaptation by business and household consumers in energy-intensive activities such as transportation, cooling, heating and manufacturing. Second, the oil and gas sector produces a relatively large share of Canada's GHG emissions, at 26% of the national total in 2015 compared to agriculture and heavy industry which contributed approximately 8% each (see Figures 1 and 2).[19] Emission reduction policies, therefore, will likely target the oil and gas sector. Third, the energy sector (oil, gas and electricity) is important to the Canadian economy, accounting for approximately 10% of national GDP in 2016, more than a quarter of public and private investment, and approximately 29% of exports.[20]

Figure 1: Canada's Greenhouse Gas Emissions (2015)



Source: Environment and Climate Change Canada. 2017.[21]

Figure 2: Canada's Greenhouse Gas Emissions (2015)



Source: Environment and Climate Change Canada. 2017.[21]

Current Canadian Policies

Canada's official international policy pledge under the Paris Agreement, registered with the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat, is to reduce its GHG emissions by 30 percent below 2005 levels by 2030.[22] This is Canada's only binding international commitment (see Table 2). The plan treats carbon removals by forests as credits that offset emissions in other sectors such as energy and industry. Currently, the federal government is developing further regulatory measures to reduce methane emissions from the oil and gas sector, and other GHG emissions from natural gas-fired electricity production.[23] Canada is the first major country to ban the construction of new coal-fired electricity generation units and plans to phase out existing ones.[24] Furthermore, Trudeau's government also developed and registered internationally a long-term, mid-century strategy to reduce Canadian GHG emissions by 80% below 2005 levels by 2050.[25] Excluding carbon removals from forestry, this amounts to economy-wide emission cuts of 65% below 2005.

Table 2: Canada's International Commitments

Commitment	Emission Reduction Target	Legal Status
Kyoto Protocol	6% below 1990 levels by 2012	Withdrawn from treaty
Copenhagen Accord	17% below 2005 levels by 2020	Obsolete
Paris Agreement	30% below 2005 levels by 2030	Ratified
Long-term goal	80% net emissions reductions below 2005 levels by 2050	Non-binding

In December 2016, the federal government launched the Pan-Canadian Framework on Clean Growth and Climate Change, an overarching strategy for emission reductions endorsed at a meeting of the First Ministers.[26] The new framework was developed after broad consultation with business, civil society and municipal governments, and is supported by all provincial governments. It includes economy-wide measures including a carbon pricing plan (see below), a plan to phase out traditional coal plants, and actions to expand clean electricity systems, support zero-emission vehicles, and develop new building codes for energy efficiency. In line with the global political trend, the Canadian government justifies green policies with economic interests. As the government stated in its long-term greenhouse gas development strategy, "We also agree on the importance of having globally competitive Canadian businesses as we transition to a low-carbon economy."[27]

The new Pan-Canadian framework is consistent with previous political initiatives. An April 2015 declaration, supported by all 13 provinces and territories, committed Canada to a transition to a low-carbon economy.[28] Furthermore, the Canadian Energy Strategy released in July 2015 seeks to ensure energy resource management "in a manner compatible with a low-carbon future."[29] The new 2017 federal budget provides financial support and reinforces discourse on clean growth: "To advance Canada's efforts to build a clean economy, Budget 2017 lays out the Government's plan to invest $21.9 billion in green infrastructure, including initiatives that will support the implementation of the Pan-Canadian Framework on Clean Growth and Climate Change."[30] The government has established a $2 billion Low Carbon Economy Fund to leverage investments in projects that reduce emissions and help meet the Paris commitments.[31]

Recent developments in Canadian provinces are similar to those at the federal level. Provincial governments have significant authority over energy and environmental policy in Canada. Almost every province has either introduced or is developing a new legal framework to reduce emissions. These include Quebec's and Ontario's 2030 targets of 37.5% and 37% reductions below 1990 levels, and Manitoba's Climate Change and Green Economy Plan. Ontario recently phased out coal burning power plants and in 2015 signed a Memorandum of Understanding with Quebec and Manitoba to link their cap-and-trade programs to the Western Climate Initiative with California. Alberta's Climate Leadership Plan includes a carbon price on all fuels, currently at $20/tonne and increasing to $30/tonne in 2018 and further each year thereafter. British Columbia introduced a carbon tax in 2008 that is now at $30 per tonne. Saskatchewan aims to generate 50% of its electricity from renewable sources by 2030.[32]

Carbon Pricing

Carbon taxation and carbon pricing are of central relevance to implementing the Paris Agreement. Worldwide, there are 40 national jurisdictions that have placed a price on carbon. They represent 13 percent of global GHG emissions and include China, Mexico and all European countries. The price of carbon varies from US$3 per tonne in Japan to $86 in Switzerland and even US$131 in Sweden.[33] In addition to mandatory carbon taxation, the number of companies using an internal carbon price has tripled between 2014 and 2016.

In October 2016, the Canadian federal government made a key announcement of a national mandatory carbon-pricing plan that requires each province to introduce a cap-and-trade system or to place a direct price on carbon by 2018. The carbon price starts at a minimum C$10/tonne in 2018 and reaches C$50/tonne by 2022.[34] Economists have estimated that a system of coordinated pan-Canadian carbon policies would have a relatively moderate impact on the Canadian economy, reducing cumulative costs to 0.04% of GDP by 2030.[35] [36] The World Bank recommends establishing an international carbon market, noting it can reduce mitigation policy costs by 30%

by 2030 and alleviate the impact on competitiveness of domestic carbon pricing.[37] Similarly, a report from the Canadian Ecofiscal Commission argues that carbon taxation would affect sectors accounting for only two percent of GDP, and concludes that "Overall, the business community should not perceive carbon pricing as a significant economic threat."[38]

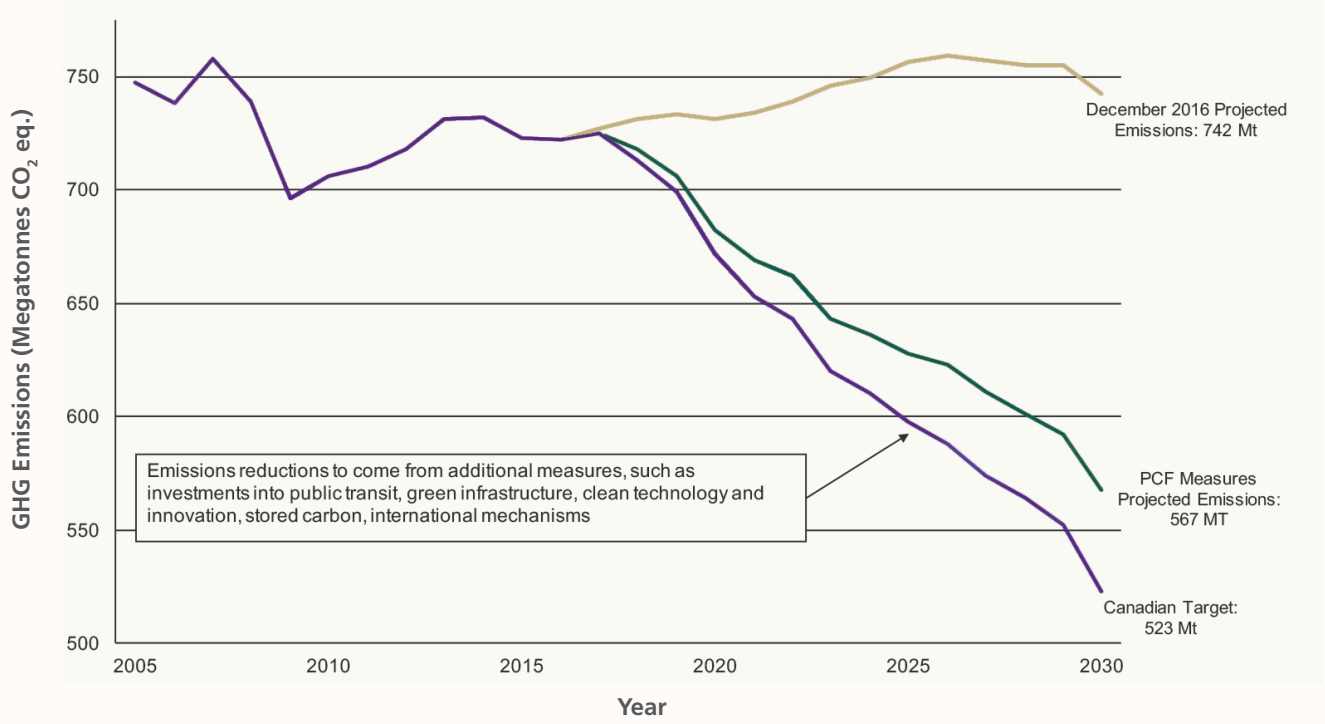
Nonetheless, there is debate over whether a carbon price of $50/tonne would be sufficient to achieve the 30% emission reduction target, potentially requiring additional policy instruments such as taxation, regulation, trade measures, and international market mechanisms through the Western Climate Initiative.[39] The economic consequences of carbon pricing and emission reductions are uncertain because climate policy is a novel policy realm that involves experimentation. The tension between short-term economic priorities, on the one-hand, and long-term interests in clean economic growth and PA-driven environmental commitments, on the other, will continue to confront Canadian governments and corporate decision-makers for the foreseeable future. Considering global political and economic trends related to the Paris Agreement, and policy progress in Europe and China, the pressure on Canada to reduce emissions and embrace a new paradigm of economic development will likely continue and may even intensify.

The Near Future

We can expect further changes to Canadian policy in the next two years, for two reasons. First, the treaty requires them. The PA legal provisions on continuous policy progression require governments to update and strengthen national policies every five years. The first update is due in early 2020 and every country is required to submit its new NDC 9-12 months before the 2020 annual climate conference (Decision 23/24). There is evidence that current policies will be inadequate to meet the Paris targets. Assuming full implementation of current INDCs in all countries, global GHG emissions are expected to decline only in the second half of this century, resulting in a temperature increase of 2.7°C which is above the goal of "well below 2 degrees."[40] This will fuel political calls to strengthen the treaty.

Second, Canada will be under particular pressure to scale up its actions because current policies—even if fully implemented—are insufficient to meet Canada's own pledge.[42] Government of Canada calculations predict a decline of emissions but not sufficient to meet the 2030 target (see Figure 3). Projections from the World Resources Institute expect that Canadian emissions will in fact grow from 722 $MtCO_2e$ in 2015 to 734 in 2020 and further to 815 in 2030.[43] Despite recent progress, Canada has encountered political challenges at the international level because it was the only country to withdraw from the Kyoto Protocol (in 2011), its emissions grew more than that of any other developed country since 1990, and it has an international reputation for historical absence of credible policy efforts to reduce emissions. During UN negotiations, China and India have waged strong attacks on Canada, and global environmental groups have targeted the country as an oil-producing state. This history will add to current pressures that will keep Canada's policies under close international scrutiny.

Figure 3: Government Projections of Canadian GHG Emissions



Source: Environment and Climate Change Canada. 2017. National Inventory Report 1990-2015: Greenhouse Gases Sources and Sinks in Canada.[41]

CONCLUSION

The Paris Agreement has widespread political support among governments as measured by its universal ratification status and the proliferation of national climate policies. The trajectory of policy developments over the past decade shows a global trend toward de-carbonization. Many advanced and emerging economies in Europe and Asia have embarked on industrial restructuring based on renewable energy and energy efficiency. The Paris Agreement is likely to reinforce and deepen these trends. Strong PA implementation policies would entail a significant transition towards a low-carbon economy, with broad implications for Canada. If this process continues, even without the U.S., it will change the global context within which the Canadian economy operates. To keep Canada economically competitive, government policymakers and corporate decisions alike will need to closely monitor developments abroad and adjust to a changing global context.

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