

The Role of Carbon Pricing in a Low-Carbon Transition

Report from Canadian Business Members of
the Carbon Pricing Leadership Coalition (CPLC)
to Minister McKenna and CPLC Membership

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 **Delphi** Group

 **CPLC** CARBON PRICING
LEADERSHIP COALITION

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1.0

EXECUTIVE SUMMARY

The Carbon Pricing Leadership Coalition (CPLC) represents a coalition of 32 national and sub-national government partners, 150+ private sector partners from a range of regions and sectors, and 60+ strategic partners representing NGOs, business organizations, and universities. The World Bank serves as the CPLC's Secretariat, and further supports the expansion of carbon pricing by helping governments build capacity, link markets, and scale up climate finance. In Canada, the CPLC includes the federal government, the provinces of British Columbia, Alberta, Ontario, Quebec and Northwest Territories, along with nearly 40 companies across numerous sectors of the Canadian economy.

Following discussions through 2016 and early 2017, a majority of Canadian CPLC company members agreed that there is an opportunity for business to further contribute to both the domestic and global conversations on carbon pricing and competitiveness. This report is their response to that opportunity. It informs both domestic and international audiences of Canada's corporate experiences to date, and showcases Canadian business responses and strategies in the evolving low-carbon landscape.

Canadian companies found that their greatest risks resulting from carbon pricing are the impacts of costs on competitiveness, especially for emissions intensive, trade exposed industries. Carbon pricing also helps generate opportunities, particularly through the growth of new markets and supporting the development of new technologies. Best practices for companies that are transitioning to low carbon business models are to use internal carbon pricing, to collaborate with industry, NGOs, and government, and to integrate sustainability throughout the company, including in executive compensation, corporate strategy, and across business units. Finally, companies that embrace climate disclosure position themselves well to communicate their risk management strategies and opportunities to investors. To support the private sector, policy makers can support trade exposed industries, make carbon pricing consistent and predictable, and recycle carbon price revenues.

“There is an opportunity for business to further contribute to both the domestic and global conversations on carbon pricing and competitiveness”

This report does not present a debate for or against carbon pricing. Rather it represents the collective voice of companies that have taken the position to support carbon pricing in principle as an important tool in a suite of policies and strategies required to support the transition to a low carbon future. It then seeks to move beyond principle, and make recommendations on how to preserve corporate competitiveness in a future with carbon pricing in place. There are many examples of best practices from across Canada on how to achieve this, which are explored in detail in this report. By expanding on these examples, aligning strategies across provinces and territories, and maintaining collaboration and transparency with business and communities, Canada can act as an international example of how to build a strong climate change strategy that reduces greenhouse gas (GHG) emissions while growing gross domestic product (GDP). This strategy has the greatest chance of success when the Canadian private sector proactively engages with government and other stakeholders in the low-carbon transition.

2.0

INTRODUCTION

The Paris Agreement was ground-breaking insofar as nearly every country in the world agreed for the first time to take on national commitments to address climate change and reduce greenhouse gas (GHG) emissions. A variety of other cutting-edge initiatives were formed on the margins of the Paris Agreement, including the Carbon Pricing Leadership Coalition (CPLC)—a coalition of leaders in government, the private sector and civil society that recognize that to achieve the goals of the Paris Agreement, smart carbon pricing policies will be required. Carbon pricing programs are spreading globally, and the CPLC believes it is crucial to design them from the beginning in a way that incentivizes businesses, industry, and individuals to reduce emissions without compromising economic growth.

Business in Canada is well placed to contribute constructively to the global conversation on carbon pricing and competitiveness, as well as on other current themes, for the following reasons:

- Business is directly impacted by carbon pricing and other climate policies. While some impacts present challenges, many businesses have long advocated for a price on carbon as a clear signal to the market which incentivizes emission reductions while supporting additional benefits such as lowering other taxes, driving investment in the deployment of near-commercial technologies, and funding step-change innovation and research.
- The private sector shapes Canada’s emissions profile, and the low-carbon technologies and markets that companies invest in will be the backbone of Canada’s new low-carbon economy.
- Canadian business has years of experience leading on their own on climate change policies as well as working with different climate policies at federal and provincial levels. This experience can provide helpful insights into the economic challenges and opportunities of different policy pathways.



Contributions by the private sector to the development of low-carbon policies are particularly useful at this moment in Canada, where the federal and provincial governments are currently designing and implementing carbon prices and other climate policies across the country. Avoiding duplication and ensuring complementarity in policy development will be integral, and business can play a vital role. If Canada can successfully create well-designed policies that drive carbon reductions and support corporate competitiveness, a ‘holy grail’ of opportunity could be uncovered at this pivotal point in history on climate change.

In addition to the unique insights that Canadian businesses can give in shaping climate policy, by pro-actively adopting climate-oriented business policies, Canadian companies can contribute to accelerating Canada’s emission reductions and supporting the achievement of its Nationally Determined Contribution (NDC) under the Paris Agreement. By integrating low carbon strategies into long-term planning, such as capital allocation processes and research and development budgeting, the private sector can increase its own competitiveness and become better positioned to share best practices with government.

In addition, Canadian companies can help communicate to the world the business rationale for using pricing and other complementary policies as a strategy to help ease the transition of economies toward low-carbon options.

In that vein, some of the Canadian companies that are members of the CPLC would like to share this report on the Canadian business experience with carbon pricing, including recommendations for the continued development of carbon policies in coming months and best practices for the private sector in making the transition to a low-carbon economy.

This report reflects inputs from the following CPLC members:

- Air Canada
- Barrick Gold
- Blackstone Energy
- Bank of Montreal
- Carbon Engineering
- Catalyst Paper
- Cenovus
- Canadian Imperial Bank of Commerce
- The Co-operators Group Ltd
- Daniel's Power, Climate Solutions Group
- Desjardins
- EllisDon
- Enbridge Inc.
- Kruger Products
- LafargeHolcim
- Loblaw
- Ontario Power Generation
- Royal Bank of Canada
- Resolute
- Scotiabank
- Suncor
- TD
- Teck
- Unilever

A list of participating companies and their sustainability reports can be found in Appendix A. Each company was asked a series of questions, including about the drivers of their transition to a low-carbon business model, the key business and policy principles that are helping them succeed (or would help them succeed) in that transition, and what a successful transition will look like for them, their sector, and Canada. For a full list of the interview questions, see Appendix B.

The questions asked in this report are designed to shed light on how carbon pricing can work in tandem with other regulations, policies, and drivers to most effectively engage companies in a positive (rather than punitive) transition to a low-carbon business model.

This report is structured in three parts

- a description of the context around the transition to a low-carbon economy and its impact on business
- an in-depth analysis of the Canadian business experience with climate and carbon pricing policies to date, based on the responses to the survey questions
- an analysis of these experiences using data from Canadian companies.

“The questions asked in this report are designed to shed light on how carbon pricing can work in tandem with other regulations, policies, and drivers to most effectively engage companies in a positive transition to a low-carbon business model”

3.0

THE BUSINESS CASE FOR CLIMATE ACTION

Much of the current Canadian business experience with climate policy and carbon pricing is driven by a broader global mandate on climate change that is embodied in the Paris Agreement. While there was momentum in Canada to develop climate policy and carbon pricing before Paris, the Agreement added new energy and urgency to these efforts.

Efforts to further a climate change agenda in Canada has led to the following external 'push' and 'pull' factors that are leading Canadian companies to shift to low-carbon business models:

- Carbon pricing
- Complementary policies and regulations to carbon pricing
- Trends in climate-disclosure
- Funding opportunities
- Technology and innovation

While the CPLC is formed around the central notion that carbon pricing is a critical policy in the transition to the low-carbon economy, it recognizes that pricing alone is not sufficient to achieve a low-carbon transition. The Canadian experience has and continues to be that other factors are key in determining the success of a carbon pricing program.

There are also several internal factors leading Canadian companies to pay close attention to the low-carbon transition. These are:

- Cost impacts
- Growth of new markets
- Changing consumer preferences

They will be explored in Section 4.0, Individual Company Perspectives.

3.1

GLOBAL CONTEXT

The Paris Agreement signaled for the first time that almost every country in the world was committing to climate action. The Agreement is a broad blueprint for the global transition to a low-carbon economy, and as such, gives businesses clear signals for how they will have to adapt to compete in the low-carbon marketplace of the future.

The foundational goals of the Paris Agreement are to:

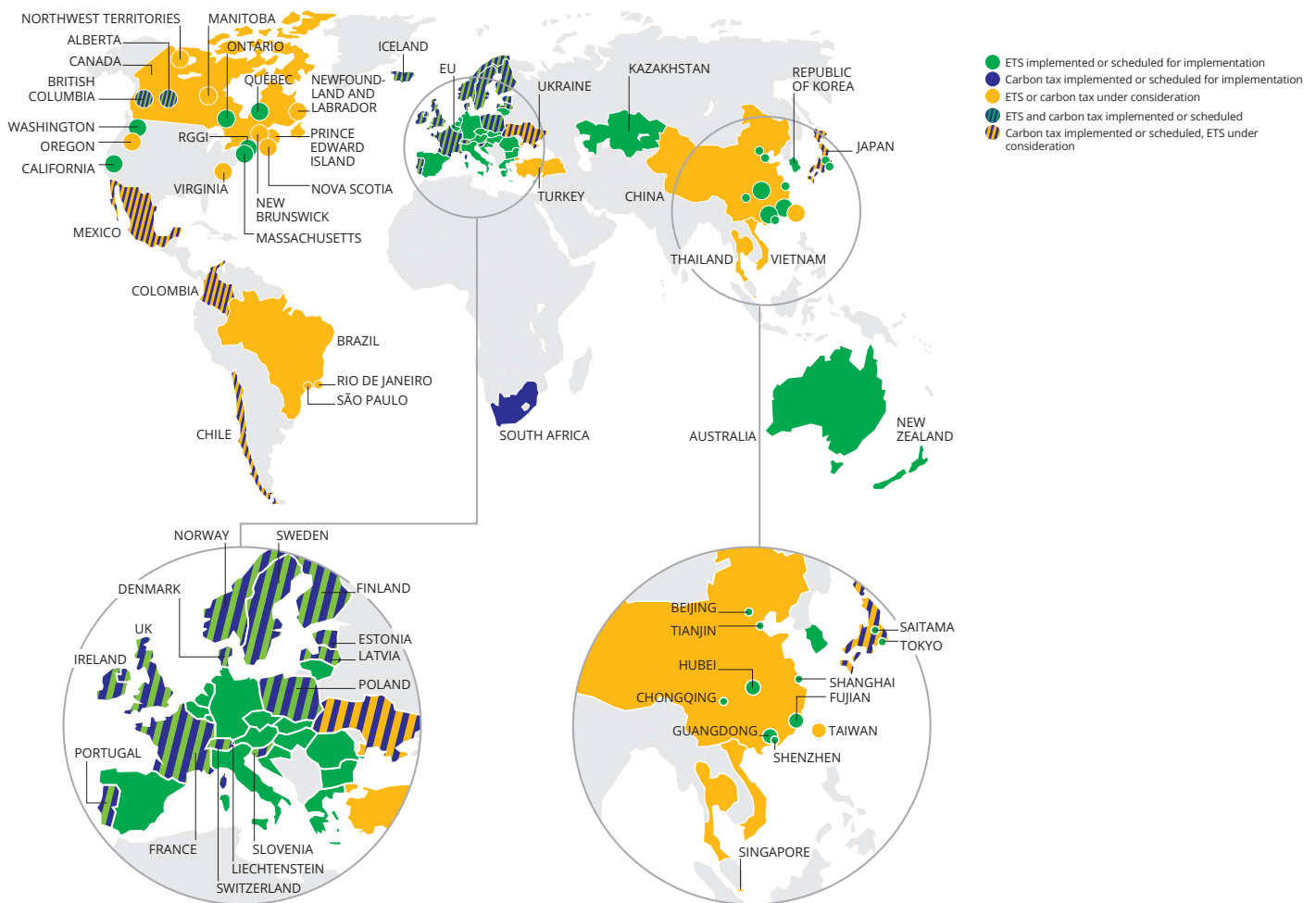
- Limit global average temperature increase to below 2 °C; and,
- Move toward net carbon neutrality, a balance between GHGs emitted by sources and removed by sinks, by the second half of this century.

The structure of the Paris Agreement is flexible, allowing countries to determine the mix of policies, regulations and/or markets they wish to use to meet their given targets. Putting a price on carbon is one of the most widespread policy options, as it is considered to be the most cost-effective way to drive reductions in GHG emissions and promote investments into alternative technologies. This option is enshrined in Article 6 of the Paris Agreement, which forms the legal framework to allow the use of market-based climate change mitigation mechanisms. More than half of the signatories of the Agreement referenced carbon pricing as a tool to achieve their national climate commitments in their NDCs. Globally harmonized or linked markets can enhance carbon price stability and reduce competitive distortions. In a pricing regime that is stable and can be forecasted several years into the future, companies can start planning today to ensure they can meet their compliance obligations in the most cost-effective way possible. The world is likely to see a continued growth in carbon pricing mechanisms in other jurisdictions as implementation grows towards 2030 and beyond.

Carbon pricing can take several forms, with a carbon tax or a cap and trade system being the two most prevalent examples of explicit pricing. Cap and trade and more broadly defined ‘emissions trading systems’ (ETS) have emerged around the globe. There are currently 19 unique multi-national, national, regional and local systems that are operating or under development. As summarized in Figure 1 below, they include the European Union Emissions Trading System (EU ETS), China’s regional pilot markets (with expected national implementation in 2018), and programs in the Republic of Korea, Japan, Brazil and New Zealand. Carbon tax and ETS have been implemented or are planned in 16 countries.

According to the 2017 World Bank Group report *State and Trends of Carbon Pricing*, the Americas have been at the forefront of carbon pricing developments, with reference to a few key countries, including Canada. Six of the eight new carbon pricing initiatives that have emerged over the last two years have been implemented in the Americas.¹ At the recent One Planet Summit in Paris, the Carbon Pricing in the Americas Declaration was signed by leaders of 12 national and subnational governments indicating further harmonization of markets is underway.

FIGURE 1: CARBON PRICING AROUND THE WORLD



Source: World Bank

While the Paris Agreement provides long-term policy certainty to address climate change, it does not guarantee that there will be a smooth transition to a policy environment that ensures low-carbon growth.

As regions adopt carbon pricing and climate change regulations at different times and in different ways, economic risks such as carbon leakage, resulting in unemployment and reduced economic growth, will present themselves. Carbon leakage refers to when, due to the costs associated with climate policies, businesses relocate their operations to other jurisdictions with lower, or non-existent, emission constraints. The risk of carbon leakage is higher in trade-exposed, emissions-intensive industries, and can lead to an overall increase in total emissions in a jurisdiction with lower constraints. With the staggered implementation of carbon pricing globally, there is a chance that firms operating in countries with a price on carbon may lose business, profits, or market share to competitors in other jurisdictions that don't have to account for the same carbon compliance obligations.

This increased risk of uneven exposure to carbon liability obligations particularly affects countries that are natural resource-dependent and unable to relocate operations, such as Canada. When firms which have significant carbon compliance liabilities under a carbon pricing framework compete with international firms that are not subject to the same constraints, they are typically unable to raise product prices or recoup compliance costs and are forced to relocate outside of a carbon pricing jurisdiction to remain competitive. For example, natural gas producers in the Canadian province of British Columbia (B.C.) are subject to carbon liability obligations under the province's carbon tax mechanism, which producers in other jurisdictions are not. As a result, producers in B.C. may not be as competitive as some natural gas producers in the US who are not covered by a carbon price, particularly considering low commodity prices.



Canada, however, can take proactive measures, such as designing predictable carbon pricing schemes and protecting trade exposed industries, as outlined in this report, to protect its economy during the low-carbon transition. If these measures are successful, Canada can serve as an example to the world of how resource-based economies with heavy-emitting sectors can successfully reduce emissions without a high negative impact. The Center for International Environment and Resource Policy found in its 2017 report, *Carbon Pricing in Practice: A Review of the Evidence* that each new carbon pricing policy implemented somewhere in the world shows evidence of learning from the prior experience of other countries.² Hence each step that Canada takes towards constructing and implementing an effective national carbon pricing framework is a step that other jurisdictions can follow.

3.2

CANADIAN CONTEXT

The profile of climate change issues within Canada is arguably higher than it has ever been. Since the early 2000s, provinces have moved forward to establish their own emissions reduction targets, and, in many cases, implemented carbon pricing systems to help achieve these goals. British Columbia, Alberta, Ontario, and Quebec each have existing pricing mechanisms in place. After the 2015 election, mandate letters were sent to nearly all federal Ministries requiring that climate change and

environmental issues were to be addressed taking a ‘whole of government’ approach. The federal government also aimed to achieve a ‘whole of Canada’ approach to reducing emissions. This goal was manifested in the “Pan-Canadian Framework on Clean Growth and Climate Change”, the federal, provincial, and territorial plan to address climate change and grow the economy.³ Some key elements of the strategy include those summarized in Table 1 below.

TABLE 1: PAN-CANADIAN FRAMEWORK SUMMARY

KEY AREA	KEY ELEMENTS
Clean Technology, Innovation and Jobs	<ul style="list-style-type: none"> • Sustainable Development Technology Canada (SDTC) recapitalized, as Part of Budget 2017, to support companies develop, demonstrate, and deploy innovative new clean technologies • Launch of a \$135 million⁴ venture capital fund through Business Development Canada (BDC) to support Canadian energy and clean technology start-ups
Carbon Pricing Mechanisms	<ul style="list-style-type: none"> • A federal carbon price benchmark that will either be applied directly, or equivalent carbon pricing system in the form of a tax, cap and trade framework or hybrid approach in each province and territory • Minimum floor price of \$20/t CO₂e in 2019, increase \$10 a year to \$50/t CO₂e by 2022 • An output-based allocation (OBA) system to limit the impacts of carbon pricing on international competitiveness
Specific Mitigation Opportunities	<ul style="list-style-type: none"> • Federal, provincial, and territorial governments will work together to accelerate the phase out of traditional coal units across Canada by 2030. • Goal for provinces and territories to adopt a “net-zero energy ready” model building code by 2030.
Adaptation and Climate Resilience	<ul style="list-style-type: none"> • Federal, provincial and territorial partnership to invest in infrastructure projects that strengthen climate resilience • Integrate climate resilience into building design guides and codes for residential, institutional, commercial and industrial facilities

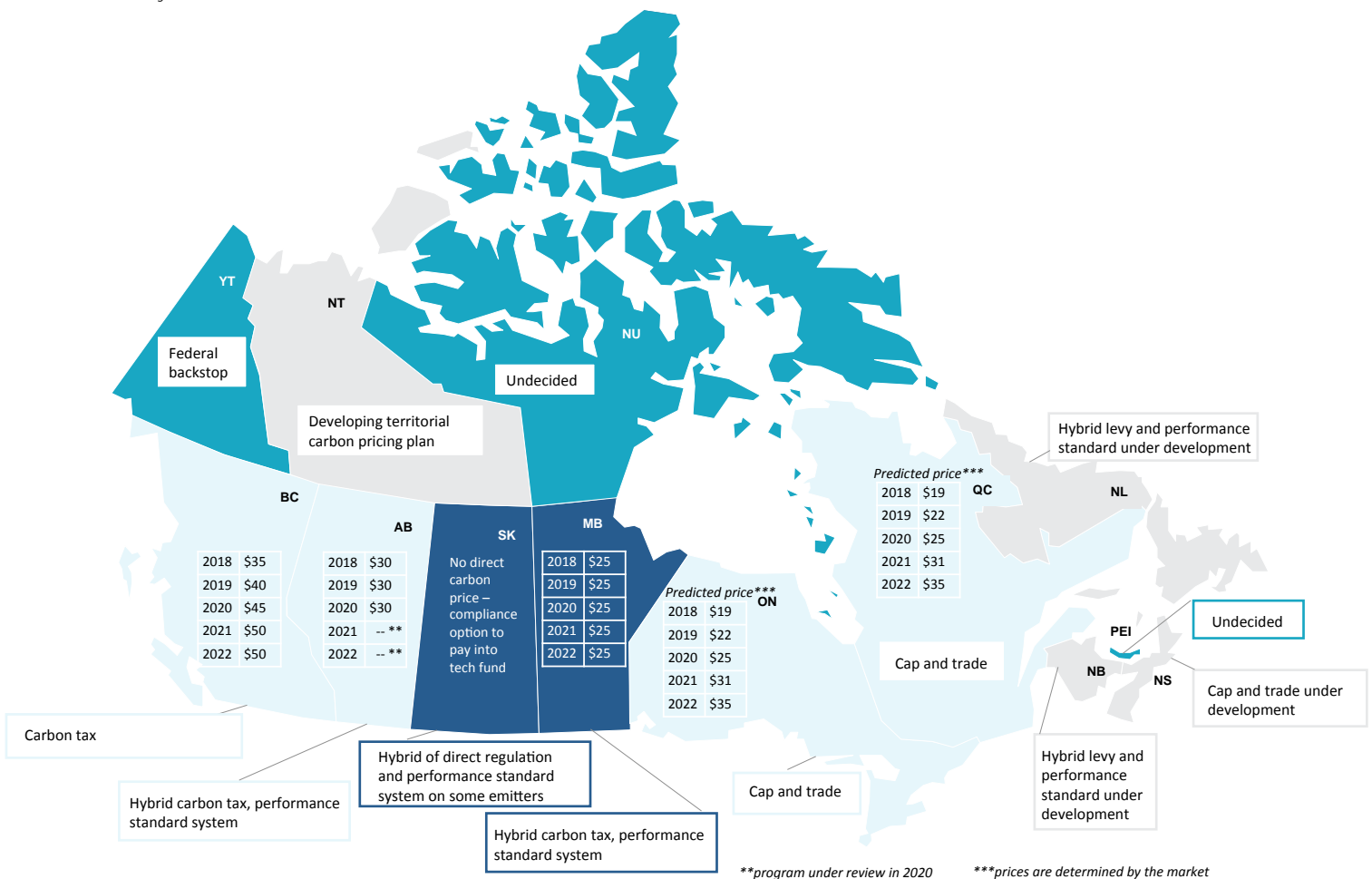
3 Pan-Canadian Framework on Clean Growth and Climate Change

4 All prices in CAD unless otherwise stated.

FIGURE 2: CARBON PRICING IN CANADA

- Developing a carbon pricing plan with the aim to meet the federal benchmark
- Undecided or likely to use the federal backstop*
- Has established pricing system
- Proposed pricing plan does not appear to meet the federal benchmark to 2022

* The federal government committed to implement a federal carbon pricing backstop system to apply in any province or territory that does not have a carbon pricing system in place that aligns with the benchmark



Sources: Technical Paper: Federal Carbon Pricing Backstop (May 2017); Yukon Government; Government of Northwest Territories; for NU - CBC News (Jan 15, 2018); Government of British Columbia; Alberta Government; Government of Saskatchewan; Manitoba Government; for ON and QC projections adapted from - ClearBlue Markets (CAD, converted from USD using Apr 3, 2018 exchange rate); for NL - The Telegram (October 30, 2017), quoting Premier Dwight Ball; for PEI - CBC News (November 15, 2017); Government of Nova Scotia; for NB - CBC News (December 12, 2017), quoting Environment and Local Government Minister Serge Rouselle



“Investments in clean technology are also a necessity for traditionally heavy-emitting sectors such as oil and gas, chemicals, or cement to remain competitive on both carbon and cost in a world transitioning to a low carbon future.”

Part of the impetus for a federal carbon pricing benchmark is to encourage harmonization and ensure that over time, carbon prices are high enough to significantly reduce emissions to support the achievement of Canada’s Nationally Determined Contribution (NDC, or commitment under the Paris Agreement). The proposed approach will retain flexibility for provinces to have their own explicit price-based system (carbon tax, or a hybrid system with a carbon levy and performance-based standards) or cap and trade.

A critical goal of the Pan-Canadian Framework was to ensure that competition and carbon leakage between provinces was not going to be an issue moving forward, by ensuring that a carbon price of similar stringency exists in all provinces across Canada.

Canada is currently supplementing its carbon pricing policies with strategic investments to achieve a transition to a low-carbon economy. The last federal budget included more than \$2.2 billion in new clean-tech spending—this spending is a

first step that can be built on to develop new markets that can support the transition to a low-carbon economy. Investments in clean technology are also a necessity for traditionally heavy-emitting sectors such as oil and gas, chemicals, or cement to remain competitive on both carbon and cost in a world transitioning to a low carbon future. Where and how funding and investment is allocated will be an important factor in the success of Canada’s transition to a low-carbon economy.

While there are many strengths to the approach that the Canadian government is taking to climate policy, the Pan-Canadian Framework has yet to be implemented in its entirety, and Canadian governments at both the federal and provincial levels have many more important decisions to make on how policies need to develop over the coming years to meet existing emission reduction targets. This policy uncertainty can create risks for companies that are developing long-term low-carbon strategies, especially those companies that span multiple jurisdictions.

3.3

CORPORATE CONTEXT

Globally, businesses are aligning themselves with the Paris Agreement through a variety of initiatives. Over 10,000 new climate initiatives were launched on the margins of the Paris Conference in 2015, many of which were driven by the private sector. The CPLC is just one example. Others include We Mean Business, a group of 581 companies in over 40 countries that have committed to setting science based emission reduction targets, and to reporting on those targets. These initiatives, and others like them, are a step towards aligning internal business strategies with climate policies emerging from Paris. They are evidence of the fact that there is more of a case today than ever for companies to invest in their own climate change strategies. While the imperative to do so over the last decade has largely been driven by risk, increasingly companies are engaging with opportunities presented by the transition to a low-carbon economy as well.

One of the key push factors driving companies to engage on climate risk is investor interest. Now, more than ever before, investors are keen to understand how the companies they own are managing the risks and opportunities that the low-carbon transition presents, so much so that companies that do not perform well on issues such as climate risk face the risk of divestment. A report by Massachusetts Institute of Technology (MIT) and Boston Consulting Group (BCG) from 2016 found that 75% of senior executives in management firms agree that a company's good sustainability performance is materially important when making investment decisions. It also found that approximately 60% of investment firm board members say they are willing to divest from companies with a poor sustainability footprint.⁵ Investor pressure is driving enhanced disclosure by companies on their climate change performance through voluntary frameworks such as the CDP, Global Reporting Initiative (GRI) and Sustainability Accounting Standards Board (SASB). In 2015, the G20 formed the Task Force on Climate-related Financial Disclosures (TCFD) to develop voluntary, consistent climate-related financial risk disclosures for use by companies in providing information to investors, lenders, insurers and other stakeholders. The high profile of the Task Force and the final report it released in July 2017 has shed new light on how all companies, including investors, banks and asset managers, can demonstrate responsible management of climate risks and opportunities.

“There is more of a case today than ever for companies to invest in their own climate change strategies.”

Climate disclosure is a quickly evolving tool that can be valuable for companies in communicating the steps they are taking to protect asset value and demonstrate resilience. It can be used to discuss how companies are managing risks and taking advantage of opportunities. These risks and opportunities are identified in Section 4.0, below. The evolution of climate disclosure, and a deeper look on how to use it, will be covered in Section 4.4.

CASE STUDY:**TD and RBC Jointly Pilot TCFD Recommendations with UNEP Finance Initiative (FI)**

RBC and TD are among the banks that are working with the UNEP FI to jointly pilot the TCFD recommendations. As of October 2017, sixteen banks are participating in the project. They will work together to develop analytical tools and indicators to strengthen their assessment and disclosure of climate-related risks and opportunities. At the end of the pilot, the UNEP FI will compile the experiences of the banks, highlighting challenges that the recommendations presented. This compilation will be disseminated and promoted as hands-on guidance for banks and as early practical feedback for the TCFD.

4.0

INDIVIDUAL COMPANY PERSPECTIVES— RISKS AND OPPORTUNITIES

The risks and opportunities driving Canadian companies to participate in the low-carbon transition play key roles in the Canadian business experience of carbon pricing today, and the recommendations that Canadian CPLC members have for carbon pricing moving forward. This section will outline company-identified drivers for change, practical examples, as well as principles for a successful transition to a low-carbon economy and specific lessons for effective carbon pricing.

4.1

KEY DRIVERS FOR A LOW-CARBON TRANSITION

The risks and opportunities identified below include some of the key push and pull factors that are leading Canadian companies to a low-carbon transition, including:

- Climate policy impacts
- Technology and innovation
- Growth of new markets
- Investor interests
- Funding opportunities
- Changing consumer preferences

4.1.1

RISKS

Risks that companies face when transitioning to low-carbon business models are:

Higher Costs:

The risk of high costs presents itself across industries as compliance costs from carbon pricing and other environmental regulations, and then through the trickle down of those costs into higher energy, fuel, and raw material prices. They can become materially significant for large emitting companies, and may lead to competitiveness concerns and ultimately carbon leakage.

Some of the negative effects of carbon pricing regimes can be mitigated by supporting emissions intensive and trade exposed sectors with revenues from pricing programs that support investments in low-carbon technologies that will ultimately lead to emission reductions. In some sectors, the technological advances required to reduce emissions take time and funding to develop. Some companies use internal carbon pricing to predict when in the future they will need to use those technologies, so that they can start research and development early. An internal carbon price is a management technique for incorporating future carbon prices into present-day investment decisions.

Regulatory Burden:

Some regulatory frameworks do not provide the required transparency and certainty that allow companies to understand which facilities or projects will be affected. Certain regulations also risk stranding or under-utilizing assets that could be re-purposed. This risk applies both to companies that are operating assets that could be stranded, and financial institutions that invest in those industries that could see lower returns because of the transition to a low-carbon economy.

A Lack of Public Support and Understanding:

There is a risk in the lack of understanding that the consumer base has of the changes that will be required to transition to a low-carbon economy and how they may be impacted by those changes. It is challenging for a company, or an industry, to make the transition without changing products, services, or increasing costs. These changes can frustrate and alienate customers, especially if the public is unaware of the reason behind the changes that companies are making. Clients that are unwilling to support the move to low-carbon products make it difficult for companies to make that shift.

Reliance on Technological Innovation:

Much of the success of achieving the low-carbon transition in Canada relies on the development of low-carbon technology and innovation, especially for high-emitting industries.

If and when the necessary technologies can be developed to sufficiently support industry's transition to a low-carbon economy is currently unknown, although the chances of success can be improved with targeted funding and recycling carbon pricing revenue into supporting research and development.

4.1.2

OPPORTUNITIES

Many opportunities incentivize companies to begin developing low-carbon business models and can be bolstered by carbon pricing and other supporting policies and regulations:

Changing Consumer Preferences:

Consumers are increasingly interested in purchasing products that have a perceived minimal environmental impact. According to a 2017 study by Unilever, a third of consumers are now buying from brands based on their social and environmental impact. On top of that, more than one in five people surveyed said they would actively choose brands if they made their sustainability credentials clearer on their packaging and their marketing. According to the study, this represents a potential untapped opportunity of \$1.4 trillion CAD on the global market.⁶

Increased Revenues from Low-Carbon Products / Services:

Companies that start making the transition to a low-carbon business model may have access to new and emerging global markets. The clean technology sector produces tools necessary to make the low-carbon transition, but is also a fast-growing market segment that will fill the void left by products and services that will not survive in a low-carbon marketplace. In 2014, Canada's clean technology industry was growing at four times the rate of the country's overall economy. In 2016, the Canadian cleantech industry employed more Canadians than the forestry, pharmaceutical or medical device industries⁷ and there are increasing opportunities in the global market to export made-in-Canada clean technology and know-how. Existing markets are also seeing increased demand for low-carbon products and services. Consumer product companies can cater to the growing market segment of consumers that are looking for products that have a more sustainable footprint.



CASE STUDY:

Teck Anticipates Higher Demand for Low-Carbon Materials

Teck is a diversified resource company with business units focused on steelmaking, coal, copper, zinc and energy. Teck produces metals and minerals that are essential to building the technologies and infrastructure necessary to reduce GHG emissions and adapt to the effects of climate change. For example, renewable energy systems can require up to 12 times more copper compared to traditional energy systems. Continued responsible production of these metals and mineral products is essential to the global effort to combat human-caused climate change, and therefore Teck anticipates an increased demand for some of these materials.

For industry and energy companies, low-carbon products feed a growing demand for lower emission building materials and energy, among other resources. In the financial sector, there are growing opportunities to invest in new low-carbon businesses and technologies, and increasing demand for low-carbon products such as Green Bonds.

Collaboration Opportunities:

The imperative to transition to a low-carbon economy presents new opportunities to collaborate with industry peers, government, and academia for knowledge sharing purposes. Knowledge sharing can accelerate the development of new technologies and emission reduction strategies, in a way that is mutually beneficial for participants.

Opportunities to Access Government Financing:

With the Pan-Canadian Framework comes opportunities to access financing for emission reductions technology – such as through the Federal Budget support for clean technology development. Canada's 2017 Federal Budget outlined \$1.4 billion in new financing available to clean-tech producers, \$400 million for early-stage clean tech companies through the Sustainable Development Technology Fund (SD Tech Fund), and \$15 million to establish an international business development strategy for cleantech. There is also funding available for mature companies that are looking to develop their own technologies. The SD Tech Fund supports the development and pre-commercial demonstration of clean technologies, while the 2017 Federal Budget included \$200 million specifically to reduce emissions in the natural resource sector (which is available to industry).

Reduced Costs:

Although carbon pricing may bring higher compliance costs, from a business perspective one of the biggest opportunities and incentives presented by the transition to a low-carbon economy is reduced operational costs for example, through improved energy efficiency and diversification of energy supply as renewable energy becomes more cost competitive. Early investments in technologies that reduce emissions can also help companies develop a long-term competitive advantage in their industry. Use of an internal carbon shadow price can be instrumental in helping companies identify these potential cost-saving opportunities.

CASE STUDY:

Suncor and Cenovus Collaborate to Advance Cleantech Innovation

Suncor and Cenovus frequently collaborate through consortiums or with third parties to develop and deploy new technologies. The two energy companies lead or participate in many technology studies and projects under Canada's Oil Sands Innovation Alliance (COSIA), an alliance of companies representing 90% of oil sands production. COSIA has globally-recognized processes that allow participating companies to share efforts, resulting technologies, and innovations focused on environmental improvements. Suncor and Cenovus are co-founders of Evok Innovations, along with the BC Cleantech CEO Alliance. Evok brings together British Columbia's cleantech industry and Alberta's oil and gas sector to advance new technologies directed at environmental and economic improvements for the oil and gas value chain. Launched in 2016, Evok is a fund that offers innovators mentorship and access to capital to progress development of pre-commercial technologies.

CASE STUDY:

Enbridge Focuses on the Decarbonization of Natural Gas

Enbridge's natural gas utilities have a carbon reduction plan that includes increased energy efficiency, adoption of cleaner technologies and introduction of renewable natural gas. Examples of clean technology for heating include geothermal and hybrid heating systems that pair gas and electricity from renewable energy to produce affordable low emission energy solutions for home owners. Enbridge is also expanding the use of renewable natural gas (RNG) – energy produced from the decomposition of organic waste – and in partnership with the Canadian tech firm Hydrogenics, has developed the first utility scale power-to-gas (P2G) technology that produces hydrogen from surplus renewable electricity.

Reduced Energy Price Volatility:

The shift to greater energy diversification through low-carbon fuels and improved access to renewable electricity may take out some of the price volatility and security issues that have characterized energy supply issues in the past.⁸ For example, for sectors such as mining, that heavily rely on diesel, the switch to renewable and less carbon intensive fuels may provide more predictable costs. Renewable energy acquired through a long-term power purchase agreement (PPA) also enables a company to hedge the risk of fluctuating electricity prices by 'locking in' at a contracted price.

Long Term Competitive Advantages:

For companies that have competitors in jurisdictions currently without carbon pricing, there could be an advantage in the long term when those entities must adjust to carbon pricing as Canadian counterparts have already reduced their costs and emissions to remain competitive. Plus, if they have developed new clean technologies and solutions they may be able to sell those into new global markets.

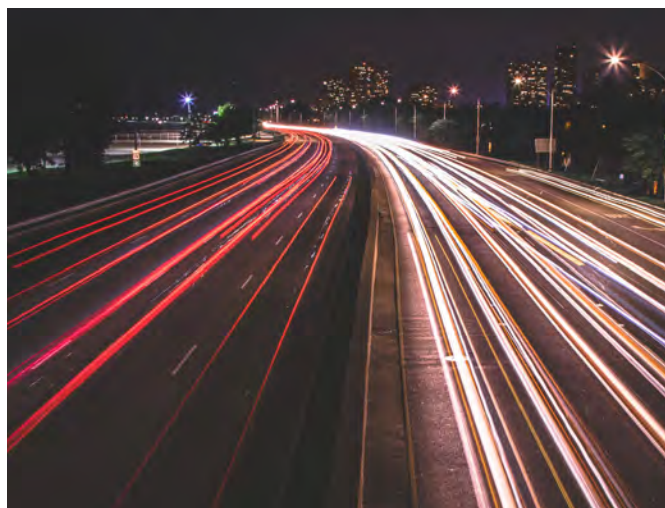
4.2**PRINCIPLES FOR A SUCCESSFUL TRANSITION**

Companies will need a combination of business principles and consistent public policy to support a successful transition to a low-carbon economy.

The business principles can be divided into operational and strategic categories. Operational business principles for the low-carbon transition are often closely associated with reducing costs, such as:

- **Improved Fuel Efficiency and the Use of Low-Carbon or Non-Emitting Fuels:**

Retail sector companies can see a significant portion of their emissions originating from their distribution networks, which, for global firms, are extensive. This is true for Unilever. Unilever is reducing transportation emissions by increasingly shifting logistics transportation away from roads to rail and sea. Intermodal transportation strategies enable companies to reduce costs and carbon intensity by carrying more goods

**CASE STUDY:****LafargeHolcim and Carbon Pricing**

LafargeHolcim has years of experience with carbon pricing regimes in various Canadian jurisdictions. While the company is supportive of carbon pricing, it also finds that some pricing styles and regimes are more effective at transitioning industry to a low carbon economy than others – namely, those that direct revenues towards reducing emissions. For example, LafargeHolcim has paid into the British Columbia carbon tax system since the tax's inception in 2008, at a rate of approximately \$8 million/year. However, as those funds were directed to reducing corporate and income taxes between 2008-2015, industry did not receive financial support to develop lower-carbon technologies that would have helped them reduce their emissions (and reduce costs). In the experience of LafargeHolcim, it is critical that Canadian jurisdictions analyze the impact of carbon pricing regimes on emissions-intensive, trade-exposed sectors before implementing them given the limited levers that the cement sector has to reduce its carbon footprint (low carbon fuels, portland limestone cement). For example, provinces such as Ontario have allocated carbon pricing revenues directly to support industry, some of which LafargeHolcim will access to reduce emissions at specific facilities.

with less fuel, while still using more emissions intensive vehicles (typically trucks) to ensure products reach their final destination. Unilever has also developed initiatives around the world to increase fuel efficiency, such as introducing double-decker trailers and an eco-driving training program.

- **The General Reduction of the Carbon Intensity of Operations:**

Another retail giant, Loblaw, has specific programs to reduce emissions from refrigeration, lighting, heating, ventilation and air conditioning. Loblaw, a Canadian food retailer, has retrofitted refrigeration systems in stores and distribution centres, investing in refrigeration systems that use low global warming potential (GWP) refrigerants such as ammonia, carbon dioxide and hydrofluoroolefin blends. Loblaw has also reduced electricity consumption by converting to LED lighting in grocery store aisles, refrigerated cases, produce departments and parking lots.

A best practice for companies that aim to reduce emissions in their operations is to set targets. Short term targets, such as annual ones, ensure that leadership is more frequently accountable for achieving their goals. To mark progress towards goals, some companies will track emissions performance quarterly, so that if it becomes clear a target is not on track to be met corrective action can be taken.

From a business strategy perspective, participating companies have adopted the following principles:

- **Collaboration with External Stakeholders:**

Working with other companies in the same industry, through cross-sectoral initiatives and multi-stakeholder collaboration can help advance a low-carbon agenda. Continuous engagement with policymakers ensures that policy is reflective of a changing business environment, as does actively monitoring and submitting comments to regulators as new and evolving policies are introduced. Many companies actively advocate for climate action through initiatives such as signing the Paris Pledge, and becoming a member of the CPLC. Finally, NGOs and civic society groups are often key participants in broader engagement, and can provide useful research, analysis, and diverse perspectives.

CASE STUDY:

Air Canada Collaborates with Industry Domestically and Internationally

Air Canada and Canada's three other largest carriers make up the National Airlines Council of Canada (NACC), an industry association which, in 2012, signed Canada's Action Plan to Reduce GHG Emissions from Aviation with the Federal Government and other key aviation stakeholders. This partnership sets an aspirational goal to reduce GHG emissions by improving fuel efficiency by an average rate of 2 per cent annually until 2020, measured against a 2005 baseline. In addition to collaborating with industry and government within Canada, Air Canada also collaborates with the international aviation industry. Air Canada has adopted the collective International Air Transport Association (IATA) reduction targets for GHGs and will benchmark against both the 2 per cent aspirational goal and the 1.5 per cent IATA target.

CASE STUDY:

Ontario Power Generation Collaborates in the Electricity Sector

At the direction of the Province of Ontario, OPG phased-out its use of coal plants by 2014. This was the largest single climate change initiative in North America to date, reducing annual carbon emissions by 35 million tonnes. As a member of the Canadian Electricity Association (CEA) working group on climate change adaptation, OPG collaborates with other electricity utilities across Canada to discuss potential climate change risks to the sector. The working group also supports Natural Resources Canada (NRCan)'s energy sector working group, which is comprised of oil and gas organizations in addition to electricity. One of their key initiatives, in collaboration with Canadian Standards Association (CSA), is the incorporation of climate change considerations into the development of new design and construction codes and standards.

• **Setting an Internal Cost of Carbon:**

An internal cost of carbon is an enterprise management technique whereby current and future carbon prices are incorporated into present-day investment decisions. According to the 2017 CDP report, *Putting a Price on Carbon*, the global number of companies with an internal carbon price has increased from 150 in 2013 to over 1300 in 2017.⁹ This technique can be used both for risk management and identifying the opportunities associated with decarbonization, and can help companies become more resilient to climate change policies. Commonly disclosed applications for carbon pricing include capital expenditure, operational, procurement, R&D, and remuneration decisions.¹⁰

Several Canadian CPLC members use an internal cost of carbon, including:

- Bank of Montreal
- Barrick Gold
- Catalyst Paper
- Cenovus
- The Co-operators Group Ltd
- LafargeHolcim
- OPG
- Suncor
- TD
- Teck

• **Integrating Climate Considerations into Core Business Functions:**

This includes the capital allocation process, company objectives and targets, and other long-term strategic goals and initiatives. To ensure that climate change is effectively integrated, it can be included in the mandate of several executive roles, it can be the responsibility of a specific executive (a Chief Sustainability Officer), and its oversight can be made accountable to the Board. Engaging across the company vertically (to the Board) and horizontally (across departments) also helps ensure that climate change becomes part of business strategy and every day practice.

• **Scenario Analysis:**

Businesses are increasingly assessing long-term corporate resilience in a future low-carbon economy by stress-testing business plans against external low-carbon scenarios (e.g. 2°C scenarios). This helps to provide assurance to investors that businesses are seeking to understand climate change risks and opportunities and to ensure that strategies are robust given the goals of the Paris Agreement.



CASE STUDY:
Resolute Integrates Sustainability Across the Company

At Resolute Forest Products, climate change issues are managed by the Carbon Committee. The Committee reports to the full Board of Directors, as well as senior managers and the executive team. A top-down approach exists to manage risks and opportunities related to climate change, however there is also a structure to ensure climate change is addressed at all facilities. At the mill level, mill managers are responsible for implementing site-specific, climate-related projects. Pulp and paper mills are supported by an energy champion who is responsible for the continuous improvement of operational performance, and all facilities have an environment coordinator.

- **Integrating Climate Change into Company Culture:**

Engaging employees who are involved in different company functions makes it more likely that climate change targets will be achieved. Engagement can be achieved by communicating to employees across product lines from all aspects of the business (sales, site operations, among others) that climate change is a driver for a change in corporate culture. Another means to engage with employees on climate change is to create a group of internal champions who can help drive every day practices that advance energy productivity and carbon performance across the company.

- **Tying Climate Change Performance to Executive Compensation:**

An increasing number of companies tie risk management to executive compensation, including the management of climate change risks. Some companies incorporate the attainment of carbon goals, such as a reduction target, specifically into end of year performance metrics. The Co-operators Group Ltd, for example, gives vice presidents annual bonusable sustainability and climate-related goals.

- **Building Innovation Strategies:**

Integrating sustainability and climate considerations into innovation pipelines can lead to the creation of technologies and processes that will help reduce emissions. Specifically, forecasting future environmental standards and compliance requirements and integrating them into R&D processes helps ensure that companies can meet those requirements once they are implemented. Alternatively, there is an opportunity for large companies to create a channel to market for emerging technologies that hold emission reduction potential through acquisition or investment.

- **Disclosing on Climate Change Risk:**

Disclosing on risk exposure and management helps shape internal strategies to manage climate change-related risks, can be a benchmarking tool relative to competitors and industry peers, and can be a means to communicate to investors, stakeholders and internal staff that climate change-related risk is being managed in a way that will help reduce any associated negative returns or the long-term economic health of the company.

All of the above operating principles can serve as tools to mitigate the economic impacts of a carbon price, and more generally to accelerate the transition to a low-carbon economy.

CASE STUDY:

LafargeHolcim is Investing in Technological Research and Development

LafargeHolcim, in partnership with Solidia Technologies, developed Solidia Cement™, a new binder that can be produced in existing traditional cement rotary kilns with 30% less CO₂ during production. This reduction is achieved due to the lower temperature of production, and through the cement's different chemical composition. Solidia Cement™ is currently being tested in North America and Europe, with positive results. In partnership with Solidia Technologies, LafargeHolcim will bring the product to the global market to offer the complete solution of sustainable cement and CO₂-cured concrete.

CASE STUDY:

Ellis Don's Technology Demonstration Centre

To encourage the adoption of new cleantech and support the transition to a low-carbon economy, EllisDon is creating a technology demonstration centre. This centre will be used as a plug and play space to test and verify innovative cleantech from small and medium sized enterprises, as well as provide training to students and trades on the next generation of building performance. Ellis Don will also be working with Colleges Ontario and Trade Unions to assist with curriculum development and to provide expert training. The facility is currently being designed and is anticipated to be complete by the fall of 2018.

To maximize effectiveness of carbon pricing in supporting the low-carbon transition, the following key strategic principles have been identified:

- **Support to Address Competitiveness for Trade Exposed Industries:**

Well-designed programs offer assistance to industry (particularly for emissions intensive, trade exposed industries, or EITEs) to mitigate any trade disparities that may result from the implementation of a carbon price, either until industry is able to regain competitiveness by adapting their operations to higher prices or trade partners implement a similar level of pricing. Support can take a variety of forms, including free allowance allocations under cap and trade, or additional tax relief under a carbon tax. In a best-case scenario for companies, support for EITEs will be consistent across Canada, and the support will be determined through a process that is transparent and involves industry collaboration. To ensure support mechanisms adapt to changing market conditions and continue to align with Canada's NDC under the Paris Agreement, periodic review processes could be implemented.

- **Increased Stringency over Time:**

To achieve Canada's emission reduction target, carbon pricing systems will necessarily increase over time. A paper from the Harvard Project on Climate Agreements, *The Political Economy of Carbon Pricing Policy Design*, suggests that a carbon pricing policy could be designed with explicit and automatic rules that adjust the stringency of the policy in response to new information (such as emissions levels). According to *Carbon Pricing in Practice: A Review of the Evidence*, a 2017 paper from the Center for International Environment & Resource Policy, an escalating tax rate is necessary for substantial emission reduction outcomes.

- **Communication between Policymakers, Companies and Stakeholders:**

Open communication between policymakers and companies can lead to the most pragmatic and effective policy solutions. It can also help ensure that any unintended consequences are dealt with quickly and effectively. Including participation from companies and other stakeholders in the policy design process will ensure that all perspectives are considered. It is particularly important for policymakers to communicate the development of carbon pricing systems transparently and



CASE STUDY:

The Co-operators Advocate for Fewer Impact Investing Restrictions in Insurance Industry

In 2015, The Co-operators Group Ltd set a goal to direct 6-10% of invested assets into impact investments (investments intended to have beneficial social or environmental impacts as well as a financial returns) by the end of 2018. However, regulatory barriers restrict where The Co-operators and other insurers can pursue impact investing opportunities. These restrictions exist to ensure that insurance companies are well-capitalized to support their clients. The Co-operators is advocating that policymakers adjust regulatory restrictions so that they can more effectively contribute to the low-carbon transition through their investments. Impact investments can provide the capital to intentionally and measurably address the world's most pressing environmental and social challenges. They can also generate an appropriate, risk-adjusted financial return.

proactively. A clear understanding of an emerging or evolving system and its impact to businesses helps companies contextualize information with respect to their operations. If such details are not clearly communicated, it can deter companies from exploring reduction opportunities that would have had a positive impact to their business.

- **Aligning Carbon Pricing Programs and Other Policies:**

Aligning carbon pricing programs refers both to eliminating contradictory policies and coordinating with complementary policies to optimize national carbon markets. In a highly complex multi-jurisdictional and multi-pricing systems landscape like Canada it is critical that different levels of government achieve some level of coordination and avoid sending mixed market signals. Equally importantly, this alignment needs to apply not only to direct carbon pricing systems (such as taxes, levies and trading platforms) but also to complementary policies, such as renewable portfolio standards, fuel standards and energy efficiency programs. Streamlining programs across jurisdictions can increase market stability and fungibility, and helps reduce the regulatory burden and intricacy for companies otherwise complying with multiple programs. Coordinating carbon pricing with complementary policies also supports competitiveness and adds value; by guaranteeing various levers are not conflicting or duplicative in practice, policymakers can reduce redundancies and most efficiently allocate resources within one climate strategy. The paper from the Harvard Project on Climate Agreements, *The Political Economy of Carbon Pricing Policy Design*, highlights how multiple carbon policies that are not well-coordinated can end up shifting where emissions occur within an economy, rather than reducing them.¹¹ For carbon pricing systems that impose both a carbon tax and an emissions trading scheme (ETS), such as Output Based Allocations, across sectors, it is important to identify whether there is overlap of the carbon tax and ETS on the same emissions base and ensure that the overlap does not lead to increased economically-inefficient abatement costs.¹² The intent of carbon pricing frameworks is to drive emissions reductions in the most cost-effective manner.

- **Consistent and Predictable Pricing:**

Carbon pricing is particularly useful when it is consistent. Volatility in a carbon price over time, due to market or political

changes, inhibits long-term planning, which can in turn hamstring scaled investments in transitional and low-carbon alternatives. Managing the level of price caps, the percentage of banking and borrowing between compliance periods, the amount of reserve allowances, and the ability to adjust these levers quickly in the market could ensure a predictable marketplace with stable prices and sufficient liquidity.¹³ The CDP report, *Putting a Price on Carbon*, reviewed the submissions of 1389 companies disclosing their approach to climate risk and carbon pricing, and concluded that the stability and coordination of provincial and federal Canadian climate policy is providing Canadian companies with clarity regarding future increases in the price of carbon in the economy, allowing them to peg internal carbon prices directly to forward-looking policy prices.¹⁴ As Canadian policymakers continue to introduce and expand carbon pricing programs, it will be important to maintain and improve upon the level of stability and coordination that the CDP has highlighted.

- **Economic Impact assessments:**

Detailed economic impact assessments make it easier for companies to integrate the effects of carbon pricing into their risk management strategies. This kind of certainty also allows companies to support and more effectively collaborate with government on their policies. Existing provincial carbon pricing systems have seen varied impacts to date, making it difficult to predict the effects of the Pan-Canadian systems.

- **Revenue Recycling:**

Revenues from carbon pricing programs can be targeted towards emission reduction priorities. These can include incentives to support effective emission reduction outcomes from the industries directly affected by carbon pricing, other broader sector priorities such as energy efficiency and clean technology development and innovation. Alternatively, revenue could be recycled to offset disproportionate socio-economic impacts on vulnerable populations, or to offset other corporate and personal taxes such that the impact on government coffers is neutral. Pricing policies need to be carefully considered in the context of all government rent to ensure that the total government take is competitive and that the jurisdictions who employ these policies remain attractive places to invest. Regardless of the chosen use of revenue, it is helpful to business if government clearly communicates where revenues are going and what their intended impact is.

¹¹ *The Political Economy of Carbon Pricing Policy Design*. Joseph Aldy. 2017.

¹² *Carbon Pricing in Practice: A Review of the Evidence*. Easwaran Narassimhan, Kelly S. Gallagher, Stefan Koester, and Julio Rivera Alejo. 2017.

¹³ *Carbon Pricing in Practice: A Review of the Evidence*. Easwaran Narassimhan, Kelly S. Gallagher, Stefan Koester, and Julio Rivera Alejo. 2017.

¹⁴ *Putting a Price on Carbon – Integrating Climate Risk into Business Planning*. CDP. 2017.

While important, a carbon price should not be implemented in isolation. It is most useful as part of a broader climate change policy that includes targeted regulation and investments in infrastructure and innovation. Complementary policies working in tandem, targeting emission reductions in different sectors are key.

There are a variety of other policy mechanisms and characteristics that can support carbon pricing programs and generally help companies shift to low-carbon business models:

- **Economic Incentive Programs:**

Common economic incentives can target clean technologies or low-carbon processes for business, in the form of production or investment tax credits, R&D tax credits, feed-in tariffs, business support services and loans.

- **Targeted Funding:**

A carbon pricing policy should be supported with targeted funding towards technology development, demonstration, and deployment, especially for EITE industry. Some of these mechanisms were implemented through the 2017 Federal Budget, which included more than \$2.2 billion in new clean-tech spending. Investments in clean technology are also a necessity for traditionally heavy-emitting sectors such as oil and gas, chemicals, or cement to develop the technologies necessary to contribute to addressing climate challenge and ensuring resilience in a lower carbon future.

- **Incentives for Private Sector Funding:**

Some policies and public funding mechanisms can be used to encourage the investment of private funds into clean technology and the low-carbon transition. For example, the Federal Infrastructure Bank will leverage public funds to secure three to four times the amount of private capital towards three focus areas, one of which is green infrastructure. Government can also revise some policies that are currently discouraging private sector investment in clean technologies, including restrictions on insurance companies when it comes to making impact investments.

- **Diverse and Dynamic Policies:**

Policies of different magnitudes, timeframes, across value chains and at different stages of technology development are needed. It is important to mix policies that incent incremental change with more 'step-change' solutions to fully realize a low-carbon economy over time. However, it is important to be mindful of the consequences of integrating a variety of different policies – the financial burden of complying with different regulations can also lead to carbon leakage, as discussed in Section 2 above. Alignment of policy will minimize the risk and help in the low-carbon transition.

4.3

ROLE OF CLIMATE DISCLOSURE

Beyond its use as a tool for companies, climate disclosure can be a key method of communicating with stakeholders, shareholders, and policymakers. Disclosure practices are used by companies to highlight their climate risk management strategies, and strategies to leverage opportunities associated with the low-carbon transition. As climate disclosure frameworks become more consistent and comparable, companies that are not taking actions to protect the resilience of their business strategy and asset value during the transition to a low-carbon economy can expect to receive more scrutiny from the public, investors, customers and partners.

Climate disclosure is often done in alignment with general sustainability reporting frameworks, such as the Global Reporting Initiative (GRI) or the Sustainability Accounting Standards Board (SASB). There are specialized reporting frameworks as well, such as the CDP, which target environmental and climate change risks management. These different frameworks vary by subject, scale, scope and audience, as indicated in Table 2 below:

TABLE 2: DISCLOSURE FRAMEWORKS

	SASB	GRI	IIRC	CDP	TCFD
Subject	Sustainability	Sustainability	Non-financial & financial	Climate Change	Climate Change
Scale	U.S.	International	International	International	International
Scope	Industry-Specific	General / Industry Specific	General	General / Industry Specific	General / Industry Specific
Target Audience	Investors	All Stakeholders	Investors	Investors	Investors

Reporting trends have evolved over time in terms of where disclosure should take place and what should be covered. The International Integrated Reporting Council (IIRC) emerged as the first coordinated framework to shift reporting on sustainability topics to financial filings. That shift was further supported by the TCFD recommendations that were finalized in July 2017. The shift was an effort to make sustainability reporting more easily accessible to investors, by keeping it in the same place as other important company information.

The focus on climate disclosure specifically, as opposed to sustainability disclosure in general, began with the CDP (formerly the Carbon Disclosure Project) after the Kyoto Accord, but emerged on the international stage and in the mainstream with the advent of the TCFD. As an industry-led initiative, one of the TCFD’s self-ascribed purposes was to bring climate-related financial reporting to a mainstream audience. The TCFD was created to enhance how climate-related risks are assessed, priced and managed. Many companies describe the TCFD framework as a significant driver towards the low-carbon transition. The TCFD requests that investors, in addition to corporations, disclose on their climate risk. The assumption being that the need to disclose will trickle down from investors through to banks and asset managers, and ultimately lead to an increase in the number of disclosure requests that companies are facing.

The Task Force on Climate-related Financial Disclosures (TCFD)

The TCFD is a private-sector led initiative under the G20 that crafted a series of recommendations for disclosure on climate change for all industries. The recommendations serve to align existing frameworks that guide climate and other sustainability disclosures, and specifically help firms understand what financial markets want from disclosure to measure and respond to climate change risks. The disclosures have been embraced by many of the existing, leading sustainability disclosure frameworks, including the CDP, GRI, and SASB. In December 2017, over 200 companies publicly committed to support the TCFD recommendations at the One Planet Summit in Paris, an event hosted by France, the World Bank Group and the UN to rally the international community to make commitments towards combating climate change..

Though the TCFD itself recognizes that the development of widely recognized methodologies for assessing the financial implications of climate risk will take some time to emerge, its recommendations are being incorporated into many of the frameworks listed in Table 2, above.

TABLE 3: BENEFITS OF CLIMATE-RELATED DISCLOSURES

STAKEHOLDER GROUP	BENEFITS	
Companies	<ul style="list-style-type: none"> • Helps measure and evaluate risks and those of suppliers and competitors • Helps with investment decisions and informing corporate strategy 	<ul style="list-style-type: none"> • Can be a tool to communicate company initiatives and opportunities in the low-carbon space to investors
Investors	<ul style="list-style-type: none"> • Help make better informed decisions on where to allocate capital 	<ul style="list-style-type: none"> • Help assess existing risks in portfolios
Policymakers	<ul style="list-style-type: none"> • Incentivizes companies to develop climate strategies without needing regulation 	<ul style="list-style-type: none"> • A tool to collect information on the impact of climate regulations

The benefits of climate-related disclosures for three key stakeholder groups are summarized in Table 3 above.

Historically, there have been challenges to both disclosing on climate risks and using climate disclosures:

- With so many frameworks, companies have reporting fatigue in responding to numerous organizations, all of them with slightly different audiences
- With so many companies reporting in different ways, investors spend a significant amount of time searching for comparable information on climate risks from companies

These challenges are being addressed in several ways; the TCFD recommendations are being incorporated into many of the frameworks listed above, in a bid to make disclosures more comparable across frameworks. Regulators, too, are re-assessing their recommendations for disclosures in securities filings. Policies can be helpful in determining what kinds of disclosure should be required for different sectors, such that companies have clear guidelines to follow that align with investor and other stakeholder interests.

Some companies find that the TCFD is too prescriptive, and does not leave any room for companies to disclose in ways that are more meaningful to their particular business. Others see this as one of its strengths. There is also debate over the current applicability of the TCFD framework to a company’s financial reporting versus its sustainability reporting. Aside from a few specific critiques though, the private sector has largely welcomed the TCFD as an important climate disclosure framework and a step in the right direction. Several companies have begun the process of adoption, through an initial approach that is often characterized by reporting that is more qualitative than quantitative in nature.

Ultimately, while climate disclosure practices are not yet consistent enough to provide full transparency on corporate climate action, they are likely to be in the future. The TCFD Framework, or something comparable, may eventually become a regulatory requirement; for example, the Saskatchewan climate strategy will require Saskatchewan-based publicly-traded companies to report on the TCFD. Policymakers should look to the enhanced disclosures under the TCFD to better understand risk and opportunities in different sectors. This information could then be used to inform policymaking. As disclosure becomes standardized and commonplace, it will also be a useful tool for companies to advertise their low-carbon transition strategies and to differentiate themselves from competitors.

5.0

CONCLUSION

There is more momentum today than ever to transition to a low-carbon economy. Canada is in a challenging position as a natural-resource dependent economy that is working to reduce emissions in sectors that are energy-intensive, exposed to trade with regions that do not have carbon pricing in place, and critical for economic growth in the country. The wide breadth of sources that contribute to Canada's emissions profile adds complexity to the challenge of decarbonization. In this regard, Canada – and Canadian businesses that are contributing to the transition to a low-carbon economy – have the unique opportunity to set a global example of how, with a resource-dependent economy and diffuse sources of emissions, to make the leap towards a low-carbon economy without compromising economic prosperity. Taking these lessons learned, the Canadian economy can provide a viable model for how policy, markets and technology can combine to produce the products, services and technologies that will be capable of accelerating the transition to a lower carbon future on a cost-effective basis.

Canada is already making significant progress in developing its low carbon economy, but the challenge is an enormous one. Looking at best policy and business practices across the country, coordinating and amplifying them, will be key to achieving emission reduction goals and fulfilling Canada's commitment to the Paris Agreement and the larger social, environmental and economic benefits that should flow from doing so. The private sector is an important partner in these efforts. Economic activity largely influences Canada's emissions profile, and therefore industry needs to be engaged on how to best address it. Canadian companies also have experience across Canadian jurisdictions experiencing different climate policies, and are valuable informants on what has been effective. This report collects learnings and recommendations based on those experiences. In the wake of new and constantly evolving public policies and market dynamics on carbon and climate issues, it also catalogues business strategies and practices for companies seeking to maximize opportunities in the low-carbon economy, reduce their exposure to climate-related risk while improving their competitive advantage.

“In this regard, Canada – and Canadian businesses that are contributing to the transition to a low-carbon economy – have the unique opportunity to set a global example of how to make the leap towards a low-carbon economy without compromising economic prosperity.”

6.0

APPENDIX

APPENDIX A: LIST OF PARTICIPATING COMPANIES

Air Canada
Barrick Gold
Blackstone Energy
BMO
Carbon Engineering
Catalyst Paper
Cenovus
CIBC
The Co-operators Group Ltd
Daniel's Power, Climate Solutions Group
Desjardins
EllisDon

Enbridge
Kruger Products
LafargeHolcim
Loblaw
OPG
RBC
Resolute
Scotiabank
Suncor
TD
Teck
Unilever

APPENDIX B: SURVEY QUESTIONS

1. What actions is your company taking to ensure resilience in the face of a global imperative to transition to a low-carbon future?

- A.** What are your key drivers? Biggest risks? Biggest Opportunities?
- B.** What is your strategy in the context of a complex, but necessary, transition?
 - i.** i.e. Role of your company and/or sector as a whole
- C.** What are the key components of the strategy?
 - i.** i.e. Timelines/milestones associated? Governance metrics, links to financial incentives?
- D.** Do you have a definition of what 'success' looks (or will look) like?
 - i.** For the company/sector as a whole?
 - ii.** For a given jurisdiction (given the global nature of the transition)?

2. What do you think are the most important principles for your company's success in the transition?

- A.** At a business level?
- B.** From a public policy perspective?
 - i.** i.e. How to make it easier, faster and more cost-effective to achieve reductions
- C.** What role does carbon pricing play in either context?
- D.** What role does competitiveness protection for trade exposed sectors play?

3. What role does climate risk disclosure play?

- A.** In informing corporate strategy, investment decisions?
- B.** In guiding/shifting policy and regulation?
- C.** In shaping the overall trajectory of the transition?

4. For Delphi's research purposes, what is your company's best source(s) for data related to emissions profile, reduction activities, climate/carbon risk management?

- A.** e.g. Public sustainability reports, CDP submissions, etc.

7.0

GLOSSARY

ARTICLE 6 OF THE PARIS AGREEMENT

Article 6 recognizes that parties can voluntarily cooperate in the implementation of their NDCs allowing for higher ambition in mitigation and adaptation actions.¹⁵

CAP-AND-TRADE

Cap-and-trade schemes set a desired maximum ceiling for emissions (or cap) and let the market determine the price for keeping emissions within that cap. To comply with their emission targets at least cost, regulated entities can either opt for internal abatement measures or acquire allowances or emission reductions in the carbon market, depending on the relative costs of these options.¹⁵

CARBON DIOXIDE EQUIVALENT (CO₂E)

The universal unit of measurement used to indicate the global warming potential of each of the six GHGs regulated under the Kyoto Protocol. Carbon dioxide—a naturally occurring gas that is a by-product of burning fossil fuels and biomass, land-use changes, and other industrial processes—is the reference gas against which the other GHG are measured, using their global warming potential.¹⁵

CARBON LEAKAGE

Shift in CO₂ emissions due to GHG mitigation policies from countries or jurisdictions taking stringent actions to those taking less stringent mitigation actions.¹⁵

CARBON PRICING LEADERSHIP COALITION

150+ private sector partners from a range of regions and sectors, and 30+ strategic partners representing NGO's, business organizations and universities that are working to expand the use of carbon pricing policies.

CARBON TAX

A tax that explicitly states a price on carbon or that uses a metric directly based on carbon (that is, price per tCO₂e).¹⁵

CDP

Formerly the Carbon Disclosure Project, the CDP is a not-for-profit charity that runs a global disclosure system for investors, companies, cities, states and regions to manage their environmental impacts.

COMPLEMENTARY POLICIES

Policies such as renewable portfolio standards, fuel standards and energy efficiency programs that reduce emissions without contradicting or hampering carbon pricing regulations.

EMISSION REDUCTION

The measurable reduction of release of GHG into the atmosphere from a specified activity, and a specified period.¹⁵

EMISSIONS INTENSIVE, TRADE EXPOSED (EITE)

Industries with large emissions profiles that, when carbon pricing is introduced, are unable to pass costs downstream due to competition.

EMISSIONS TRADING SCHEME (ETS)

A system where emitters can trade their emission units to meet their compliance obligations. The two main types of ETSs are cap-and-trade and baseline-and-credit.¹⁵

FEDERAL INFRASTRUCTURE BANK

A Crown corporation that acts as a tool that provincial, territorial, municipal and Indigenous partners can use to build infrastructure across Canada. The Bank uses federal support to attract private sector and institutional investment to new revenue-generating infrastructure projects that are in the public interest.

FEED-IN TARIFF

A policy mechanism designed to incentivize renewable electricity by providing long term, typically fixed price payments to producers per unit of renewable electricity supplied to the grid.¹⁵

G20

The Group of 20 is a group of nineteen countries and the European Union representing roughly 85% of global GDP. They are Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, the United Kingdom, the United States and the European Union.¹⁵

GLOBAL REPORTING INITIATIVE (GRI)

GRI Sustainability Reporting Standards are widely adopted global standards for sustainability reporting, initiated in 1997.

GREENHOUSE GAS (GHG)

Both natural and anthropogenic, GHGs trap heat in the Earth's atmosphere, causing the greenhouse effect. Water vapor (H₂O), carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄), and ozone (O₃) are the primary GHGs. The emission of GHG through human activities (such as fossil fuel combustion or deforestation) and their accumulation in the atmosphere is responsible for an additional forcing, contributing to climate change.¹⁵

INTERNAL CARBON PRICE

A price on GHG emissions that an organization uses internally to guide its decision-making process.¹⁵

NATIONALLY DETERMINED CONTRIBUTION (NDC)

The contribution that a Party intends to achieve under the Paris Agreement, covering mitigation and adaptation. Each Party shall communicate an NDC every five years. For Parties ratifying the Agreement that have already submitted an INDC, their INDC will be considered their first NDC, unless the Party decides to revise it. NDCs are governed by Article 4 of the Agreement. Each Party to the UNFCCC that wishes to become a Party to the Agreement will have an obligation to communicate an NDC. The level of prescription attached to these will be determined by the negotiations on the operative elements of Article 4, which mainly take place under the Ad Hoc Working Group on the Paris (APA).¹⁵

OFFSET

An offset designates the emission reductions from project-based activities that can be used to meet compliance or corporate citizenship objectives vis-à-vis GHG mitigation.¹⁵

ONE PLANET SUMMIT

A summit hosted by France, the World Bank Group and the UN in December 12, 2017, with the goal of uniting the international community to make twelve commitments designed to win the battle against climate change.

PAN-CANADIAN FRAMEWORK ON CLEAN GROWTH AND CLIMATE CHANGE

The federal, provincial and territorial plan to meet Canada's emissions reduction targets, grow the economy, and build resilience to a changing climate, adopted in December 2016.

PARIS AGREEMENT

The Paris Agreement was adopted at the 21st Conference of the Parties to the UNFCCC held in Paris, France, in December 2015. The Paris Agreement brings all nations together for the first time to undertake ambitious efforts to combat climate change and adapt to its effects. Its central aim is to “strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. Additionally, the agreement aims to strengthen the ability of countries to deal with the impacts of climate change. The Paris Agreement requires all Parties to put forward their best efforts through NDCs and to strengthen these efforts in the years ahead. This includes requirements that all Parties report regularly on their emissions and on their implementation efforts.”¹⁵

PARIS PLEDGE

The Paris Pledge for Action is a pledge for non-Party stakeholders (businesses, cities, civil society groups, investors, regions, trade unions and others) to welcome the Paris Agreement on climate change - it demonstrates that non-Party stakeholders are ready to play their part to support the objectives of the Paris Agreement.

SUSTAINABILITY ACCOUNTING STANDARDS BOARD (SASB)

SASB is an independent, private-sector standards setting organization based in San Francisco, California, which develops and maintains sustainability accounting standards for 79 industries in 11 sectors.

SUSTAINABLE DEVELOPMENT TECHNOLOGY FUND (SD TECH FUND)

The SD Tech Fund, managed by Sustainable Development Technology Canada (SDTC) supports the development and pre-commercial demonstration of clean technologies.

THE INTERNATIONAL INTEGRATED REPORTING COUNCIL (IIRC)

A global coalition with the mission to mainstream integrated thinking and reporting, and to change the corporate reporting system so that integrated reporting becomes the global norm.

THE TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES (TCFD)

Formed by the G20 in 2015, the Task Force developed a set of voluntary climate related financial risk disclosures for use by companies in providing information to investors, lenders, insurers and other stakeholders.

WE MEAN BUSINESS

A group of 581 companies in over 40 countries that have committed to setting science based emission reduction targets, and to reporting on those targets.

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