

Developments in climate change policy: Is trade regulation the next step?

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Foreword

My Plan of Study (“POS”) concentrated on the transboundary nature of climate change. In my four years of study in the JD/MES program, I have taken an interest in this aspect of climate change as I see it as an inherent limitation of sovereignty and Canadian law. As an international issue that both exacerbates and ignores global social constructs, it would seem that unprecedented multilateral cooperation and coordination is required. Otherwise, efforts made by individual nation states risk being prone to issues such as the “free rider problem” and leakage.

As such, my Area of Concentration discusses developments such as the *Paris Agreement* and carbon leakage, but until this paper, I have not been able to research these issues in sufficient detail. Instead, I have been able to use summer and an IDS placement to research carbon pricing systems and climate change from a variety of perspectives, including an ENGO, a government agency, and a major bank. Carbon prices have been a significant component of modern climate change policy around the globe and are a central focus in integrating transboundary solutions while maintaining jurisdictional sovereignty. Carbon prices, particularly emissions trading systems, can link multiple countries or subnational jurisdictions without infringing on the constitutional powers of government.

This paper contextualizes the world of carbon pricing from a Canadian perspective and looks forward to trade regulation. Each of these aspects would be impossible to write about without the courses I have completed at Osgoode Hall, which has provided the foundations of all legal themes in this paper, from the constitutional division of powers to the regulation of international trade through the *General Agreement on Trade and Tariffs* and the WTO. Jointly between Osgoode and the Faculty of Environmental Studies, I have come to understand the unique premise of environmental law, as both an ancient and emerging legal field. FES has educated me on the foundations of modern environmental law, beginning with natural conservationism, to the advent of Rachel Carson’s *Silent Spring*, to direct regulation and finally soft law in the form of government policies. Also important was the course on Environmental Economics I took during my first year in the MES program. Osgoode Hall has added to the specialized knowledge I gained at FES by educating on toxic torts, the calls for a Right to a Healthy Environment and demonstrating how activism is present in all areas of environmental

law. Ultimately, this paper attempts to culminate all this learning by bridging the topics of environmental economics with environmental law and international trade regulation.

Abstract

The focus of this paper is to understand the multiplicity of policy tools used to promote climate change mitigation. Specifically, this paper is interested in the trade aspect of climate change policy, now becoming a more prevalent topic of discussion with the heightened adoption of carbon prices. This interest extends to both the already established practices to mitigate emissions and investment leakage, such as free allocation and systems linking, as well as border carbon adjustments, which remain only theoretical at this time.

To ensure a thorough discussion of climate change policy, this paper takes several steps to establish the policy web where theoretical discussions on trade mechanisms are situated. As such the goal of this paper is to demonstrate evolution in policy complexity responding to the climate change crisis. This evolution will describe the current policy landscape with ties to subnational, national and international legal systems. Concluding remarks will emphasize the importance of continued, prudent, environmental policy development.

Section 1 will outline the rise of direct regulations in combating air pollution issues and the limitations of these mechanisms. These limitations will be shown to be caused by increased globalization, which is a weakness of direct regulation, as it is confined by borders. These weaknesses give rise to multilateral agreements outlined in Section 2. These policy tools are also limited by their non-binding nature and by the lack of meaningful-penalties for failures of sovereign states to achieve their environmental commitments. Thus, this paper turns to a more recent development, the use of market mechanisms in combating climate change in Section 3.

Within this section, time will be spent detailing the various forms of carbon prices, their pros and cons and their implementation throughout Canada and its major trading partners. Due to the comparative differences of price attached to greenhouse gas emissions and comprehensiveness of system, calls for trade mechanisms to be utilized as a balancing tool have surfaced. Embodied in section 4, the effectiveness of these measures is, for the most part, only theoretical. There is thought; however, that these measures will be the next frontier in carbon policy development. While already used to some extent by way of free allocation of allowances

and by linking carbon pricing systems, there are calls for greater development of trade mechanisms within climate change policy. Significant attention towards border carbon adjustments will be paid, which have yet to be implemented but show potential for reducing emissions and investment leakage caused by market mechanisms. By developing such an overview this paper assesses the demonstrated implementation urgency of trade measures as a means of reducing greenhouse gas emissions. This paper also seeks to show the international and domestic Canadian legal complexities associated with utilizing border carbon adjustments.

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AB: Assembly Bill, 36

ARB: California Air Resources Board, 36

BC: British Columbia, 28

BCAs: Border Carbon Adjustments, 52

Carbon Tax Act: BC Carbon Tax Act, 28

CBDTRRC: Common by Differentiated Responsibilities and Respective Capabilities, 9

CDM: Clean Development Mechanism, 8

CEPA: Canadian Environmental Protection Act, 4

CGM: Computable General Equilibrium Model, 45

Climate Change Action Plan: Ontario's 2016-2020 Climate Change Action Plan, 33

CMA: Meeting of the Parties to the Paris Agreement, 11

COP: Conference of the Parties, 7

EITE: Emissions Intensive and Trade Exposed, 44

ETS: Emissions Trading System, 15

GATT: General Agreement on Trade and Tariffs, 48

GGIRCA: Greenhouse Gas Industrial Reporting and Control Act, 28

GGRA: Greenhouse Gas Reduction Account, 33

Green Fund: Quebec Fonds Vert, 33

GTAP: Global Trade Analysis Project, 45

GWP: Global Warming Potential, 29

IPCC: Intergovernmental Panel on Climate Change, 6

ITMOs: International Transferred Mitigation Outcomes, 18

Jl: Joint Implementation, 8

KAU: Korea Allowance Unit, 42

KCU: Korea Credit Unit, 42

KOC: Korea Offset Credit, 42

LNG: Liquefied natural gas, 28

MFN: Most Favoured Nation Principle, 64

NAFTA: North American Free Trade Agreement. *See*

NDCs: Nationally Determined Contributions, 9

NRTEE: National Round Table on the Environment and Economy, 62

PTAs: Preferential Trade Agreements, 65

Rio Conference: United Nations Conference on Environment and Development, 15

SB: Senate Bill, 37

SERG: Specified Gas Emitters Regulation, 26

UNEP: United Nations Environment Programme, 54

UNFCCC: United Nations Framework Convention on Climate Change, 6

US: United States of America, 34

Vancouver Declaration: Vancouver Declaration on Clean Growth and Climate Change, 20

Waxman-Markey Bill: American Clean Energy and Security Act (11th Congress Session, July 6, 2009) HR 2454, 59

WCI: Western Climate Initiative, 36

Working Group: Working Group on Carbon Pricing Mechanisms, 21

WTO: World Trade Organization, 48

1 SECTION 1: INTRODUCTION

1.1 INTRODUCTION

The underlying proposition in this paper is that climate change, as a global manifestation of air pollution caused by anthropocentric activities, can only be mitigated by advancing environmental policy beyond its traditional reliance on direct regulation and multilateral agreements. It must also incorporate market-based solutions. These market-based solutions are established at a sub-national and national level in various countries. At the same time, market mechanisms in their current forms are an imperfect system, ignoring the global spread of GHGs and the globalized nature of the economy. Jaccard et al. support a multifaceted approach, believing that both carbon pricing and regulation are necessary, but best used in conjunction with each other. Their findings demonstrate that a method which incorporates direct regulation of sectors and a national carbon price is just as an efficient, or more effective means of reducing sectoral emissions in Canada. Combining the two methods of regulation, however, can achieve these reductions at a carbon price, potentially hundreds of dollars cheaper than required if a carbon price is to be implemented as the sole means of mitigating climate change.¹

This paper will outline the global systems already in place. Namely, it will describe how they function, who is subject to the market-based measures, and their goals. It will then move forward to demonstrate that as these systems continue to expand, they are expressing a new dimension and shift in the current economic system. Economic actions both currently taken and those which will be conceptualized, but not implemented, are required. Ultimately, what is affirmed is that environmental thought and policy now transcend in practice beyond the paternal role of the state in prohibiting actions that cause environmental harm. By incorporating penalties into the market, which all individuals interact with on a personal and daily basis, the onus to mitigate impacts is aggregated across all forms of consumption.

¹ Jaccard, Mark, Mikela Hein and Tiffany Vass, "Is win-win possible? Can Canada's government achieve its Paris commitment...and get re-elected?" (Vancouver, Simon Fraser University, 20 September 2016) at 23 – 26. [Jaccard et al.]

These considerations serve to set up the true purpose of this paper, which is to evaluate the policy reasons for including trade mechanisms as an approach to climate change policy. Undertaking this work, mainly from a Canadian perspective, is difficult. Current international trade structures under the *GATT* and WTO, as well as NAFTA, are all geared against the imposition of climate policies as restrictions of free trade. As such, the questions become (1) does Canada need to continue to expand the scope of its climate change policy repertoire to include trade mechanisms and (2) are trade mechanisms required to ensure the global success of climate change mitigation strategies?

This paper will start from the very basics, defining the issue of climate change and all related policy mechanisms before diving into their specific functions. It is intended that a reader with little familiarity with the subject should be able to enhance their knowledge on climate change policy. A key objective of this paper is to try and clarify the issue of climate change and demonstrate how specific policies have come to force. In this vein, depicting the globalized construct of climate change policies may serve to highlight some fundamental differences that have given rise to discussion of trade mechanisms. As a theoretical expansion of current climate change policy, without a thorough basis of existing devices, this paper risks oversimplifying arguments for-and-against the implementation of trade mechanisms

Three trade mechanisms are assessed in this paper: free allocation of carbon allowances²; the linkage of emission trading systems, and border carbon adjustments. The first two mechanisms are commonly implemented in cap-and-trade systems globally. The latter mechanism, border carbon adjustments, have only been considered in academia and by the European Union and United States. Border Carbon Adjustments "are taxes or other prices on imports and rebates on exports based on 'embedded carbon,' the additional emission of carbon dioxide caused by the production of a good."³ They are of interest to this paper as various ex-ante studies of carbon pricing systems have pointed towards their effectiveness in reducing emissions and investment leakage. They are also of interest because of the complexity of law required to

² *Carbon Allowances* for the purpose of this paper may be defined as tradeable allowances under an emissions trading system that represent permission to emit one metric tonne of CO₂e, granted to a covered entity within the emission trading system. See: UNDP, "Carbon Markets" online: <<https://www.undp.org/content/sdfinance/en/home/solutions/carbon-markets.html>> for more information.

³ Kortum, Sam & David Weisbach, "Border Adjustments for Carbon Emissions: Basic Concepts and Design" (Washington, March 2016: Discussion Paper Published by Resource for the Future) at 1.

implement border carbon adjustments. These mechanisms transverse the realm of international trade law and domestic law at the Federal level of the Canadian government. The overall conclusion of this paper is that from a Canadian perspective, border carbon adjustments are particularly complicated to implement due to the subnational nature of Canada's national carbon pricing strategy. From a global perspective, any nation that is willing to apply a border carbon adjustment is subject to varying interpretations of the *GATT* and WTO jurisprudence. In particular, border carbon adjustments could be viewed as highly contestable as a disguised restriction on free trade, but they may be permissible through *GATT* article XX as a general exception.

1.2 METHODOLOGY

Research for this paper has been conducted through several means. The most prominent tool used was a literature review. This work is present throughout the paper. However, it is most evident in sections 3 and 4, when assessing the pros and cons, outcomes and effectiveness of various carbon pricing systems and related trade mechanisms. Secondly, an extensive assessment of Canada's proposed and current carbon pricing systems was conducted by reviewing all proposed and enacted legislation; as well as the systems of Canada's major trading partners. At an international level, further legal analysis was undertaken to understand the various multilateral environmental agreements and the role of the *General Agreement on Tariffs and Trade* and World Trade Organization. Given the nature of climate change policy and the particular focus of this paper, there was little jurisprudence to be assessed. The exception to this limitation was where *GATT* and WTO jurisprudence might have been influential to the development of border carbon adjustments.

The limitations of this study arise from its methodology. In particular, a potential next step would be to model the outcomes of the trade mechanisms discussed in this paper, which required economic analysis that could not be completed within the scope of this research. Section 3 could also be strengthened by assessing the carbon pricing legislation of Mexico, South Korea, and China, which either could not be found or was not available in either English or French.

1.3 WHAT IS CLIMATE CHANGE?

Climate change is defined as the change in climate over time caused by indirect and direct human activities, leading to adverse effects on natural and managed ecosystems, socio-economic systems and human welfare.⁴ These changes are subject to a wide variance in projections. It is currently thought that an average rise in surface air temperature from 1.4 to 5.8 degrees Celsius will take place by 2100 compared to a 1990 baseline.⁵ It has been established, however, that anthropocentric climate change has already occurred since the industrial revolution, with global temperatures rising approximately .6 to .9 degrees Celsius since 1880.⁶ The effects of such climate change, have been cause-for-concern globally and include, a rising of sea levels, increased frequency of severe weather, shifting weather patterns and biodiversity loss.⁷ These impacts will have consequences on human welfare as they will lead to increased flooding, changes in agricultural production, increased instances of drought and food scarcity.⁸ The extent to which the natural and human impacts occur will depend on the scale to which warming occurs, with the most catastrophic consequences happening at the higher end of potential warming.⁹ Following the pattern of disproportionate effects on those of lower-incomes, the most dramatic impacts of climate change, under any scenario, will impact those already suffering from issues such as water and food scarcity.¹⁰

1.4 DIRECT REGULATION MECHANISMS ADDRESSING GLOBAL ISSUES

“Direct regulation” approaches, like those in the US Federal *Clean Air Act*, of 1970 utilize positive and negative covenants to prohibit certain activities, require certain actions by regulated entities and establish certain bodies. Prevention of pollution and contamination by a complex administration is led solely by a governmental body. Direct regulation is evident in modern environmental regulation in Canada, with toxics regulation under Part 5 and Schedule 1 of the

⁴ Adapted from: *United Nations Framework Convention on Climate Change*, (1992) UN at Art 1; Intergovernmental Panel on Climate Change, *Climate Change 2014-Impacts, Adaptation, and Vulnerability: Regional Aspects*, (London: Cambridge University Press, 2014) at 984 -985. [IPCC]

⁵ IPCC, *ibid* at 3.

⁶ Leggett, Jane A, “Climate change: Science and policy implications” (2 May 2007) *CRS Report for Congress* RL33849 at 7-8.

⁷ IPCC, *supra* note 4 at 10-12, 92.

⁸ IPCC, *supra* note 4 at 9,10, 52

⁹ IPCC, *supra* note 4 at 5.

¹⁰ IPCC, *supra* note 4 at 21 – 22.

Canadian Environmental Protection Act, (“CEPA”) being a modern example of such policy. In the context of climate change policy, direct regulation often accompanies carbon pricing systems. Direct regulation can take a number of forms within this context, such as facility-level standards, product standards and industry standards. An example of such regulation would be the *California Zero-Emission Vehicle Standards for 2018 and Subsequent Year Passenger Cars, Light Duty Trucks and Medium-Duty Trucks*, which mandates that automakers deliver for sale a certain minimum proportion of zero-emissions vehicles.¹¹ This has the benefit of potentially reducing emissions from the transportation sector in California, thus complimenting the aims of a carbon price system. Direct regulation, however, does not need be a compliment of a carbon price within the context of climate change. It can operate solely on its own as a means of reducing emissions. An example of this would be the US *Clean Power Plan*, which would have placed a limit on emissions from coal-fired electricity generating stations and mandated a shift towards renewable energy. Unfortunately, under Donald Trump, the US Environmental Protection Agency has now repealed the *Clean Power Plan*.¹² Although Direct Regulation has suffered the critique as being less efficient than a carbon price in reducing climate change emissions, it serves an important function of reducing potential costs of compliance with a carbon price and supporting the price through ancillary means. These areas will be discussed in more detail in Section

2 SECTION 2: INTERNATIONAL CLIMATE CHANGE POLICY

2.1 MODERN INTERNATIONAL CLIMATE CHANGE POLICY

International climate change policy established through the United Nations has been in force since the early 1990s. Criticism of such policies have largely been around their ineffectiveness in achieving climate change mitigation and few consequences for failures to

¹¹ California Air Resources Board, *Zero-Emission Vehicle Standards For 2018 And Subsequent Model Year Passenger Cars, Light-Duty Trucks, And Medium-Duty Vehicles*, 2012, s 1962.2(C)(1)(a).

¹² Popovich, Nadia & Livia Albeck-Ripka, “Environmental Rules on the way out under Trump” (5 October 2017) *New York Times* online: < <https://www.nytimes.com/interactive/2017/10/05/climate/trump-environment-rules-reversed.html?ref=collection%2Fsectioncollection%2Fpolitics>>. [Popvick & Albek-Ripka]

achieve targets.¹³ This section will not add to the academic body assessing the merits and pitfalls of these mechanisms. Instead, it will outline their general ambitions and application to carbon pricing to ensure a comprehensive understanding of the current political climate surrounding the issue.

2.1.1 UNFCCC

The *United Nations Framework Convention on Climate Change* (“UNFCCC”) was adopted during the Rio Earth Summit in 1992 and entered into force on March 21, 1994.¹⁴ It makes important acknowledgments to adverse effects to Earth's climate being a common concern across humanity, that human activities, primarily coming from developed nations, have increased natural climate change and makes calls for “the widest possible cooperation by all countries and their participants in an effective, appropriate international response”.¹⁵ It further begins to set up aspects that have persisted throughout international climate policy since the adoption of the *UNFCCC* including recognition of the precariousness particular to developing nations.¹⁶

The goal of the *UNFCCC* is “the stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system...within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, ensure that food production is not threatened and to enable economic development to proceed sustainably”.¹⁷ This timeline and threshold level of climate change has been studied by the Intergovernmental Panel on Climate Change (“IPCC”) extensively and has been further defined in the *Kyoto Protocol* and *Paris Agreement*, legal instruments made under the *UNFCCC*.

Article 3 of the *UNFCCC* is important to carbon pricing as it permits international cooperation in international economic systems.¹⁸ This article also lays out other important

¹³ Andonova, Liliana B, “International organizations as entrepreneurs of environmental partnerships” in Frank Biermann, Bernd Siebenhuner eds *International Organizations in Global Governance* (London: Routledge, 2009) 193 at 201.

¹⁴ United Nations Climate Change, “First steps to a safer future: Introducing the United Nations Framework Convention on Climate Change” online: < http://unfccc.int/essential_background/convention/items/6036.php>.

¹⁵ *United Nations Framework on Climate Change Convention*, (Rio De Janeiro, Brazil, 1992) online: < http://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf> at preamble. [UNFCCC]

¹⁶ *UNFCCC*, *ibid* at preamble.

¹⁷ *UNFCCC*, *supra* note 15 at Art 2.

¹⁸ *UNFCCC*, *supra* note 15 at Art 3.5.

guiding principles, such as the preservation of the climate for future generations, recognition of the circumstances of developing nations, the precautionary principle and sustainable development.¹⁹ Article 4 outlines the commitments made by adopting Parties including to publish anthropogenic emissions by sources and remove sinks of all GHGs not already covered in the *Montreal Protocol* (regarding Ozone depletion).²⁰ The Article also begins outlining mechanisms that would be further developed in the *Kyoto Protocol* and *Paris Agreement* such as national and regional mitigation contributions and common but different responsibilities and respective capabilities.²¹ There are also calls for nations to consider climate change in its economic policies.²² Article 4.2 of the *UNFCCC* binds developed nations listed in Annex 1 to adopt national policies and corresponding mitigation members, reporting on progress periodically.²³ It also calls for developed nations listed in Annex 2, such as Canada, to provide funding for developing nations complying with their obligations under the *Convention*.²⁴

Article 7 of the *UNFCCC* establishes the Conference of the Parties (“COP”), as the supreme body of the *Convention*.²⁵ The COP has powers to enact legal instruments, as it has done in creating the *Kyoto Protocol* and *Paris Agreement* (according to Article 17 of the *UNFCCC*), and review progress made on climate change mitigation and adaptation.²⁶ There are no explicit powers granted to the COP to penalize non-compliance with the *Convention* or its related legal instruments contained in the *UNFCCC*. There are provisions for dispute settlement between Parties, amendments, voting rights, ratification and withdrawal also contained in the *UNFCCC*.²⁷

¹⁹ *UNFCCC*, *supra* note 15 at Art 3.1 – 3.4.

²⁰ *UNFCCC*, *supra* note 15 at Art 4.1.

²¹ *UNFCCC*, *supra* note 15 at Art 4.1 & 4.2.

²² *UNFCCC*, *supra* note 15 at Art 4.1(f).

²³ *UNFCCC*, *supra* note 15 at Art 4.2(a),(b).

²⁴ *UNFCCC*, *supra* note 15 at Art 4.3.

²⁵ *UNFCCC*, *supra* note 15 at Art 7.1 & 7.2.

²⁶ *UNFCCC*, *supra* note 15 at Art 7.

²⁷ *UNFCCC*, *supra* note 15 at Art 14 – 16, 18, 22 – 25.

2.1.2 Kyoto Protocol

The *Kyoto Protocol* arose in response to the inadequacy of a voluntary aim approach under Article 4.2(d) and 7 of the *UNFCCC*.²⁸ Adopted in 1997, the *Kyoto Protocol* is the first legal instrument under the *UNFCCC* to adopt internationally binding emission reduction targets.²⁹ Within the *Kyoto Protocol* are three mechanisms, International Emissions Trading (“IET”), The Clean Development Mechanism (“CDM”) and Joint Implementation (“JI”).³⁰ The *Kyoto Protocol* also set two compliance periods, the first beginning in 2008 and ending in 2012, and the second being added by the *Doha Amendment*.³¹ The *Doha Amendment* amends Article 3, 4, Annex A and Annex B of the *Kyoto Protocol*. It lays out the second, longer compliance period to the *Kyoto Protocol*, which began in 2013 and will end in 2020.³²

Developing countries were largely exempt from the emissions reduction targets set out in the *Kyoto Protocol*. Developed nations were expected to reduce emissions by at least 5% below their 1990 levels during the first commitment period and at least 18% by the end of the second compliance period.³³ The three mechanisms of the *Kyoto Protocol* were prescribed to achieve these goals. Carbon pricing played a potentially fundamental role in these mechanisms. JI under Article 6, permits emissions trading between nations to meet national emissions reduction targets. The JI works from a baseline of estimated future emissions at the location of a project. A developed country may purchase emission reductions units by carrying out a JI project in another country listed under Annex B of the *Kyoto Protocol*.³⁴ The CDM under Article 12 allows developed countries to buy certified emission reductions from projects in developing nations.³⁵ There are also further provisions under Article 11 putting an onus on developed nations to

²⁸ Oppenheimer, Michael and Annie Petsonk, “Article 2 of the UNFCCC: Historical origins, recent interpretations” (2005) 73 *Climate Change* 195 at 204. [Oppenheimer & Petsonk]

²⁹ United Nations Framework on Climate Change Convention, “Kyoto Protocol” online: <http://unfccc.int/kyoto_protocol/items/2830.php>.

³⁰ *Kyoto Protocol to the United Nations Framework Convention on Climate Change*, United Nations (1997) online: <<http://unfccc.int/resource/docs/convkp/kpeng.pdf>> Art 6, 12, 17. [*Kyoto Protocol*]

³¹ *Kyoto Protocol*, *ibid* at 3.1,

³² *Doha Amendment to the Kyoto Protocol*, Conference of the Parties 8 (Qatar, 2012) online: <http://unfccc.int/files/kyoto_protocol/application/pdf/kp_doha_amendment_english.pdf> at Article 1.C. [Doha Amendment]

³³ *Kyoto Protocol*, *supra* note 29 at Art 3.1; *Doha Amendment*, *ibid* at Article 1.C.

³⁴ Woerdman, Edmin, “Implementing the Kyoto Protocol: why JI and CDM show more promise than international emissions trading” (2000) 28:1 *Energy policy* 29 at 30. [Woerdman]

³⁵ Woerdman, *ibid* at 31.

support developing nations. This was prescribed through sharing of financial resources and transfer of technologies.³⁶ Finally, Article 17 instructs the COP to develop principles, modalities, rules, and guidelines for emissions trading.³⁷ International emissions trading under *Kyoto* is measured from the national commitments of committed nations. These commitments function as an emissions ceiling and do not include developing nations, only those developed nations listed under Annex 1.³⁸

2.1.3 Paris Agreement

The *Paris Agreement* is the most recent international legal instrument that has been created under the *UNFCCC*. It replaces the *Kyoto Protocol* as the guiding framework for international climate change mitigation and adaptation. The importance of the *Paris Agreement* goes beyond its relation to climate change to be "a testimony to the powers of multilateral diplomacy."³⁹ It further remains friendly to utilizing carbon pricing as a mechanism for climate change mitigation by including provisions acknowledging the use of international trading mechanisms.⁴⁰

The *Paris Agreement* seeks to limit the "increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change".⁴¹ Although, as Oppenheimer & Petsonk point out, academic calls for a limit to rising global temperatures have been occurring since the 1970s, with Nordhaus calling for a 2°C limit in 1979.⁴² This demonstrates the lag between early academic recognition of the issue and policy mobilization. To achieve the goals of Article 2.1(a) of the *Paris Agreement*, a variety of mechanisms are established to ensure flexibility for all participating Parties. Of particular importance to carbon pricing are the concepts of Nationally Determined Contributions

³⁶ *Kyoto Protocol*, *supra* note 29 at Art 11.

³⁷ *Kyoto Protocol*, *supra* note 29 at Art 17.

³⁸ Woedman, *supra* note 34 at 30.

³⁹ Rajamani, Lavanya, "Ambition and differentiation in the 2015 Paris Agreement: Interpretative possibilities and underlying politics" (2016) 65:2 *International and Comparative Law Quarterly* 493 at 494. [Rajamani]

⁴⁰ Marcu, Andrei Carbon Market Provisions in the Paris Agreement (Article 6)" (February 2016) *ICGC Reflection No 45* at 4. [Marcu]

⁴¹ United Nations Framework on Climate Change Convention, *Paris Agreement*, (2015) online: <http://unfccc.int/paris_agreement/items/9485.php> at Art 2.1(a). [Paris Agreement]

⁴² Oppenheimer & Petsonk, *supra* note 28 at 197.

(“NDCs”), the incorporation of the principle of Common but Differentiated Responsibilities and Respective Capabilities (“CBDRRC”) and Internationally Transferred Mitigation Outcomes (“ITMOs”).

The *Paris Agreement* features both a "bottom-up" and "top-down" approach to climate change governance. This approach is the key difference between the *Paris Agreement* and *Kyoto Protocol*. The "bottom-up" approach allow nations to develop NDCs to aid the goal of achieving the climate change scenario of less than 2°C.⁴³ These goals may be quantitative, such as absolute emissions targets, or qualitative, such as to "propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation."⁴⁴ They also may be conditional based on the outcome of certain circumstances, such as international support.⁴⁵ Finally, NDCs are to be updated every five years, upon implementation of the *Paris Agreement*, with a view to enhancing climate change mitigation efforts increasingly. This could include more stringent emissions targets or more ambitious commitments.⁴⁶ The ability to self-determine contributions to climate change mitigation and adaptation is important in recognizing CBDRRC as it does not permit developing nations full ability to develop in an unsustainable way but also recognizes the onus on developed nations to curb their emissions before limitations on development. In this sense, the *Paris Agreement* embodies other aspects of the efforts of the United Nations, working in conjunction, rather than against efforts of "equity," "sustainable development" and "poverty eradication."⁴⁷ Simply, the *Paris Agreement* is not intended to halt economic development in developing nations. Instead, it is meant to spare these nations from feeling the worst of effects of climate change while not having the means to adapt to their severity.

One such mechanism that many nations have chosen to utilize as part of their intended NDCs are ITMOs. These tools permit nations to transfer of mitigation outcomes in the form of any mechanism, procedure or protocol between nations, including carbon allowances.⁴⁸ ITMOs are not limited to market-based approaches, due to some party resistance during the negotiation

⁴³ *Paris Agreement*, *supra* note 41 at Art 4.2.

⁴⁴ Rajamani, *supra* note 39 at 498.

⁴⁵ Rajamani, *supra* note 39 at 498.

⁴⁶ Rajamani, *supra* note 39 at 501.

⁴⁷ Rajamani, *supra* note 39 at 509.

⁴⁸ Marcu, *supra* note 40 at 3.

of the *Paris Agreement*.⁴⁹ This, however, does not exclude market-based approaches such as international carbon allowance transfers from being a voluntary, cooperative approach to mitigation in compliance with Article 6.1.⁵⁰

Finally, the "top-down" aspect of the *Paris Agreement* pertains to its compliance mechanisms. As per *Rajamani*, these aspects are the rules on transparency and stocktake of progress made by NDCs. It is also in the form of reporting NDCs to a central body, the Meeting of the Parties to the Paris Agreement ("CMA").⁵¹ While these contributions are binding, there are no penalties laid forth in the *Paris Agreement* for failure to achieve an NDC or comply with the rules on transparency. These rules are furthermore, relatively undefined by the *Paris Agreement* and will be further fleshed out before its implementation scheduled for later in 2018.

2.1.4 Potential issues with the *Paris Agreement*

The adoption of the *Paris Agreement* was first met with optimism and positivity.⁵² Certain aspects deserve such praise, such as the ending of decades of negotiation between Parties and the near-universal adoption amongst nations and ratification. There is also cause for concern that "the adoption of the *Paris Agreement* is not the end, but the beginning of a process."⁵³ The literature, now two years past the adoption of the *Paris Agreement*, is much less optimistic. The fundamental flaw in the multilateral environmental negotiations at the COP and under the *UNFCCC* may be rooted in the limitations to international processes.⁵⁴ Thus, the literature, now, seems to indicate that *Paris* will likely fail at achieving its climate goals, similarly to *Kyoto*, despite differences in approach and structure to the *Agreement*.⁵⁵

⁴⁹ Marcu, *supra* note 40 at 7.

⁵⁰ *Paris Agreement*, *supra* note 41 at Art 6.1.

⁵¹ *Rajamani*, *supra* note 39 at 500.

⁵² Obergassel, Wolfgang et al., "A phoenix from the ashes – An analysis of the Paris Agreement to the United Nations Framework Convention on Climate Change" (2016) *Wuppertal Institut für Klima, Umwelt, Energie* at 39. [Obergassel et al.]

⁵³ Obergassel, et al., *ibid* at 4.

⁵⁴ Obergassel, et al., *supra* note 52 at 39 – 40.

⁵⁵ Bodansky, Daniel & Sandra Day O'Connor, "The legal character of the Paris Agreement" (2016) 25:2 *Review of European, Comparative & International Environmental Law* 142 at 143.

Bodansky and O'Connor along with Cléménçon and Obergassel et al., all state that the *Paris Agreement* is not legally enforceable.⁵⁶ As it stands, in their view, the *Paris Agreement* cannot be legally enforceable in international or domestic courts. It is voluntary with no obligation to even comply with a nation's self-determined NDC. Thus, the *Paris Agreement* has been critiqued as "essentially a statement of good intentions rather than law".⁵⁷

Cléménçon and Obergassel et al. both highlight the shortfalls of the current NDC pledges, which if perfectly adhered to, would put the world on track for a rise in global average temperatures between 2.7 to at least 3 °C by 2100.⁵⁸ This is far higher than the goal of the *Paris Agreement*, and only marginally better than business as usual, which will place the world on track for 4 °C warming by 2100.⁵⁹ Obergassel et al. also highlight that the transparency mechanisms of the *Paris Agreement* are largely non-intrusive and non-punitive, calling into question their overall effectiveness. Their paper also highlights that the *Paris Agreement* lacks some of the safeguards against overselling of emissions allowances that the *Kyoto Protocol* had embedded.⁶⁰

While these flaws do exist and have not been remedied by subsequent meetings of the COP, it is worth noting that the *Paris Agreement* does have potential to set norms in domestic law. By creating pressure to adhere to its principles at both an international level by "naming and shaming" and at a domestic level by civil society, it may have begun swinging momentum in the public sphere away from fossil fuel-based development. While it is not capable of achieving the goals of Article 2, it may be capable of spurring further domestic legislation that can aid in mitigating climate change.⁶¹ Thus, it remains an important, albeit flawed, step forward.

⁵⁶ Bodansky & O'Connor, *ibid* at 143; Cléménçon, Raymond, "The two sides of the Paris Climate Agreement: Dismal Failure or Historic Breakthrough" (2016) 25:1 *Journal of Environment and Development* 3 at 8; [Cléménçon]; Obergassel et Al, ⁵⁶ Obergassel, et Al, *supra* note 52 at at 39;

⁵⁷" Bodansky & O'Connor, *supra* note 55 at 143.

⁵⁸ Cléménçon, *supra* note 56 at 13; Obergassel et al., *supra* note 52 at 43.

⁵⁹ Cléménçon, *supra* note 56 at 13.

⁶⁰ Obergassel, et al., *supra* note 52 at 46 & 49.

⁶¹ Cléménçon, *supra* note 56 at 8; Falkner, Robert, "The Paris Agreement and the new logic of international climate politics" (2016) 92:5 *International Affairs* 1107 at 1107; Obergassel et al., *supra* note 52 at 42 – 43.

3 SECTION 3: CARBON PRICING

3.1 CARBON PRICING INTRODUCTION

As indicated in the introduction to this paper, climate change policy is not limited to just direct regulation and multilateral environmental agreements. Market mechanisms, distribute the onus of controlling a polluting substance beyond government to include their producers.⁶² These are economic instruments try to incorporate a previous environmental externality into the economic market. These market-based instruments may include "taxes, charges, and incentives to activities that governments want to discourage or encourage, [and] the creation of markets for ecological services like the sequestration and storage of GHG emissions."⁶³ In theory, market-based policy should "allow development of the most innovative and cost-effective form of carbon dioxide reductions, which may be less likely to occur if the government mandates particular types of emissions controls."⁶⁴

These instruments are collectively referred to in this paper as "carbon pricing" mechanisms when they are used to aid in climate change mitigation. This style of regulation, while not without its own challenges, helps to avoid the critiques of direct regulation. Carbon prices complement, but do not replace, the work of direct regulations and multilateral agreements by giving a flexible means of compliance at the production level to achieve the goals and restrictions that they set forth. Emitters of GHGs are forced to make a calculated decision as to whether they wish to incur the costs of producing under a status quo model, where the cost of their emissions could create a competitive disadvantage in the final price of the product. Assuming that the price is high enough to make this cost undesirable, then the industry is forced to self-regulate by implementing more carbon-efficient means of production. Therefore, the government does not bear the full burden of reducing emissions or prohibiting certain conduct. As stated at the beginning of this paper, carbon prices may not be most effective operating on their own as this may result in higher than required prices. Instead, a multifaceted approach of

⁶² Avi-Yonah, Reuven & David M Uhlmann, "Combating global climate change: Why a carbon tax is a better response to global warming than cap and trade" (2009) 28:3 *Stan. Envtl 3 L J 3* at 30-31. [Avi-Yonah, & Uhlmann]

⁶³ Winfield, Mark, "Implementing environmental policy in Canada" (2014) *York University* online: <<http://sei.info.yorku.ca/files/2012/12/Implementing-Environmental-Policy-in-Canada.pdf>> at 2.

⁶⁴ Avi-Yonah & Uhlmann, *supra* note 62 at 29.

direct regulation, MEAs, and carbon pricing may optimize the ratio of carbon emissions reductions against economic cost.⁶⁵

3.2 CLIMATE POLICY SHIFTING THE ECONOMIC STRUCTURE

Carbon prices are usually not developed as a sole mechanism but as part of an integrated approach that utilizes complementary policies to maximize mitigation efforts. These complementary policies help to establish the "low carbon economy" and may include:

- regulations to shift towards a more circular pattern of consumption with heightened recycling of materials,⁶⁶
- shifts towards renewable energy sources and/or those with lower emissions than oil and coal such as nuclear and natural gas,⁶⁷
- cleaner methods of transportation with heightened public transportation use and a shift away from single-occupant vehicles and from fossil fuel use in transportation towards electricity and hydrogen,⁶⁸
- as well as more efficient land-use planning to minimize carbon emissions consequent to daily life and agriculture.⁶⁹

Carbon pricing, often, is a key source of funding for these policies to guide the transition of the economy.⁷⁰ Many of these programs, however, are implemented by way of direct regulations.

⁶⁵ Jaccard et al., *supra* note 1 at 6.

⁶⁶ *Waste-Free Ontario Act*, 2016, SO 2016 c 12.

⁶⁷ Ministry of Energy, "The end of coal: An Ontario Primer on Modernizing Electricity Supply" (2015) online: <<http://www.energy.gov.on.ca/en/files/2015/11/End-of-Coal-EN-web.pdf>>; *Green Energy Act*, 2009, SO 2009, c 12, Sch A at preamble.

⁶⁸ Such policies include: The Electricity Vehicle Incentive Program and High Occupancy Vehicles Lanes established by the Ministry of Transportation in Ontario, as well as increased investments in public transportation to facilitate greater access to rapid transportation and studies looking at alternative fuels. *See*: Metrolinx, "Go Regional Express Rail" online: <<http://www.metrolinx.com/en/regionalplanning/rer/>>; Ministry of Transportation, "High Occupancy Vehicles (HOV) Lanes" (2016) online: <<http://www.mto.gov.on.ca/english/ontario-511/hov-lanes.shtml>>; Ministry of Transportation, "Ontario's Electric Vehicle (EVIP) Program," (2017) online: <<http://www.mto.gov.on.ca/english/vehicles/electric/electric-vehicle-faq.shtml>>; Metrolinx, "Hydrogen Feasibility Study" (2017) online: <http://www.gotransit.com/electrification/en/HydrogenFeasibilityStudy_Handout_EN.pdf>.

⁶⁹ Ministry of Environment and Climate Change, *Ontario's Five-Year Climate Change Action Plan 2016-2020*, (2016), online: <http://www.applications.ene.gov.on.ca/ccap/products/CCAP_ENGLISH.pdf at 30. [CCAP]

⁷⁰ *CCAP*, *ibid* at 60 – 85.

3.3 DEFINING CARBON TAXES, EMISSIONS TRADING SYSTEMS, AND THEIR GENERAL FEATURES

A price on carbon is the commodification of greenhouse gas emissions. These prices are established through a carbon tax or an emissions trading system. The rationale for the commodification of greenhouse gases is to better reflect the actual cost of a product throughout its lifecycle, including its long-term impact on climate change. The ultimate goal of a carbon price is to correct a negative externality to the economy, where polluters can do so without financial repercussions on the whole.⁷¹ In theory, carbon prices contribute to climate change mitigation by shifting production away from carbon-intensive means to those with a lower carbon footprint and by substituting products and services with lower carbon alternatives.⁷²

Carbon taxes directly place a fixed price on a given quantity GHG emissions and in theory will make it desirable to improve efficiency to reduce the burden imposed by the tax. Carbon taxes are attached to specific products, such as fuels. Therefore, a downstream consumer of a taxed product will want to use less of the product or switch to a cleaner alternative. In the case of fuels, for example, this could be incentivizing individuals with personal vehicles to switch to smaller, more fuel-efficient vehicles, to integrate alternative methods of transportation, which use less fuel, into their commuting patterns or to switch to an electric vehicle. The European Union was the first jurisdiction to consider a carbon tax after the United Nations Conference on Environment and Development (“Rio Conference”) in 1992.⁷³

An emissions trading system (“ETS”) can be divided into two camps. The first, a cap-and-trade system, places a limit on GHG emissions and imposes compliance on certain sectors and bodies. The limit referred to as “the cap,” generally lowers as time progresses, forcing entities to reduce their emissions proportionately. Additionally, the cap is broken down into allowances that reflect one tonne of GHG emissions. Every organization subject to the system will need to obtain the number of allowances that corresponds with their emissions within a given timeframe. These allowances can be purchased through a market auction run by an

⁷¹ Sewalk, Stephen, “Carbon Tax with Reinvestment Trumps cap-and-trade” (2013) 30 *Pace Envtl L Rev* 580 at 582-583.

⁷² Carraro, Carlo & Alice Favero, “The Economic and Financial Determinants of Carbon Prices” (2009) 59:5 *Finance a Uver: Czech Journal of Economics & Finance* 396 at 396. [Carraro & Favero]

⁷³ Convery, Frank J, “Origins and Development of the EU ETS” (2009) 43 *Environ Resource Eco* 391 at 392. [Convery]

overseeing body or by directly allocating allowances at no cost. All systems globally use a mix of auctioned and directly allocated allowances. The auction value of an allowance is set by demand. The revenues generated from auctioning allowances are usually required to be re-invested into climate change mitigation efforts in full or to a pre-determined level. The second category of policy tools classified as an ETS is a baseline-and-credit system. A baseline-and-credit system does not place a limit on emissions. Instead, it allows for credits be generated by projects that may then be purchased by voluntary or non-voluntary participants to comply with regulatory emissions targets.⁷⁴ These targets may be applied at both the facility or product levels. To purchase credits, participants may trade with one another.⁷⁵ In Canada, baseline-and-credit systems only exist as an additional means of market-based regulation to compliment a provincial carbon tax or cap-and-trade program. ETSs were first discussed within the *Kyoto Protocol* under Article 17.⁷⁶

What will be established later, however, is that a unifying flaw in both a carbon tax and ETS regimes is their confinement to a given jurisdiction. As only a limited number of domains have implemented a carbon price, their emissions are subject to investment and carbon leakage. This is where either investment in an industrial operation or energy production operation is lost in-full or in-part as some or all of production is shifted to a jurisdiction that has not implemented a price on carbon. As such, the carbon emissions are therefore simply moved to another domain and thus no environmental benefit will occur. Mechanisms have and should be implemented to limit leakage to ensure that creating a carbon price is not a futile endeavour. These mechanisms will be described further in this paper; however, it is the issue of leakage that might demonstrate that the broader opportunity for international cooperation may be the most significant strength of ETSs.

⁷⁴ Carraro & Favero, *supra* note 72 at 397.

⁷⁵ Environment and Climate Change Canada, *Working Group on Carbon Pricing Mechanisms: Final Report*, (2016) online: <<http://publications.gc.ca/site/eng/9.822040/publication.html>> at 9. [Working Group]

⁷⁶ *Kyoto Protocol*, *supra* note 29 at Art 17.

3.4 WHO SHOULD BE SUBJECT TO A PRICE ON CARBON? UPSTREAM VS. DOWNSTREAM IMPLEMENTATION

As part of the decision to implement a carbon price, regardless of its form, regulators must also decide where to apply the price in the production chain. The carbon price may be applied “upstream” at the point of sale for fossil fuel production or “downstream” at the point of sale for the final consumer.⁷⁷ Most academics prefer upstream implementation to limit the complexity of a given system and to ensure that the carbon price “may permeate throughout the whole economy”.⁷⁸ A consideration in where a price should be implemented may relate to the issue of fairness and socio-economic class. Significant concern has been raised by the non-profit sector when considering the impact of a carbon price on the cost of household goods, energy, and fuel on low-income sections of the population.⁷⁹ This can, however, be combatted by allocating revenue from the carbon tax or ETS to alleviate additional financial strain, as done in California and Ontario.⁸⁰

3.5 GLOBAL IMPLEMENTATION OF CARBON PRICING

3.5.1 The International Carbon Market

The United Nations has proposed an international carbon market since the Kyoto Protocol in 1997.⁸¹ Article 17 permitted a list of industrialized nations to utilize emissions trading as a means achieving their targeted emissions reduction level during the 2008 – 2012

⁷⁷ Hobbs, Benjamin F, Jason Bushnell & Frank A Wolack, "Upstream vs. downstream CO₂ trading: A comparison for the electricity context" (2010) 38:7 *Energy Policy* 3632 at 3632.

⁷⁸ Avi-Yonah & Uhlmann, *supra* note 62 at 31; DiPeso, "Carbon Tax vs. cap-and-trade" (2009) *Environmental Quality Management* 95 at 97. [DiPeso]; Hobbs, Bushnell & Wolack, *ibid* at 3640.

⁷⁹ Canadian Environmental Law Association, “Fair and equitable carbon pricing: Comments on Ontario’s cap and trade program” (2 February 2016) *Briefing Note* online: <<http://www.cela.ca/sites/cela.ca/files/Briefing-Note-Cap-and-Trade-Vulnerable-Communities.pdf>>; Marc Lee, Fair and Effective Carbon Pricing: Lessons from BC (Vancouver: Canadian Centre for Policy Alternatives, February 2011) [Fair and Effective Carbon Pricing] Online: CCPA <http://www.policyalternatives.ca/sites/default/files/uploads/publications/BC%20Office/2011/02/CCPA-BC_Fair_Effective_Carbon.pdf> at 4.

⁸⁰ In California, *Senate Bill 535* ensures that 25% of auction revenue is distributed to climate change mitigation activities that benefit low-income communities. In Ontario, the *Climate Change Action Plan* outlines protections for low-income households. See *California global warming solutions act of 2006: Greenhouse gas reduction fund*, Senate Bill 535, at s 39713 [SB 535]; *CCAP*, *supra* note 69 at 10.

⁸¹ Carraro & Favero, *supra* note 72 at 396.

period.⁸² This largely did not take place after the implementation of the *Kyoto Protocol* in 2005, with only a handful of transactions of this nature being recorded.⁸³

A fresh start for an international carbon market has been outlined in the *Paris Agreement*, which largely replaces the *Kyoto Protocol*. Article 6.2 of the *Paris Agreement* permits parties to meet their emissions reductions targets by utilizing ITMOs, which includes international recognition and linkage of national and sub-national carbon pricing mechanisms.⁸⁴

Throughout their *State and Trends of Carbon Pricing 2017*, the World Bank made repeated calls for an international carbon pricing scheme. In their view, a global system would boost international investment into the low-carbon economy and lead to an increased chance of achieving the ultimate goal of the *Paris Agreement* – limiting the growth in average temperature to well below 2°C.⁸⁵

As will be demonstrated below, the linking of carbon pricing systems to create an international carbon market has yet to happen, nor has substantial work being done to create a higher-order global carbon market. What this has established is a large variance in the carbon price when comparing systems and in covered sectors. These inequalities will demonstrate the need for a more level playing field in order to establish actual reductions in GHG emissions and to prevent activities that result in carbon market failures.

3.5.2 The scope of carbon prices outlined by this paper

As of December 2017, there are 67 national and sub-national carbon pricing mechanisms implemented, being considered or scheduled to be executed globally.⁸⁶ Those systems implemented cover 8 GtCO₂e or about 15% of global annual emissions.⁸⁷ Furthermore, 81 nations so far have indicated that they are considering utilizing a carbon price to achieve their

⁸² *Kyoto Protocol*, *supra* note 29 at Art 3, 17.

⁸³ Ranson, Matthew & Robert N Stavins, "Linkage of greenhouse gas emissions trading systems: Learning from experience." (2016) 16:3 *Climate Policy* 284 at 307.

⁸⁴ *Paris Agreement*, *supra* note 41 at Art 6.2 World Bank Group, Ecofys, and Vivid Economics, *State and Trends of Carbon Pricing 2017* (Washington DC: November 2017) online: <https://openknowledge.worldbank.org/bitstream/handle/10986/28510/wb_report_171027.pdf?sequence=5&isAlloved=y> at 38. [World Bank]

⁸⁵ *World Bank*, *supra* note *ibid* at 66.

⁸⁶ World Bank Group, *supra* note 84 at 10.

⁸⁷ World Bank Group, *supra* note 84 at 10 -11.

Nationally Intended Contribution to the *Paris Agreement*, not including any of the European Union member states.⁸⁸ With the vast array of carbon pricing systems and the limited scope of this paper, it has been elected to limit this section's analysis of national and sub-national carbon prices based on their importance to Canadian trade.

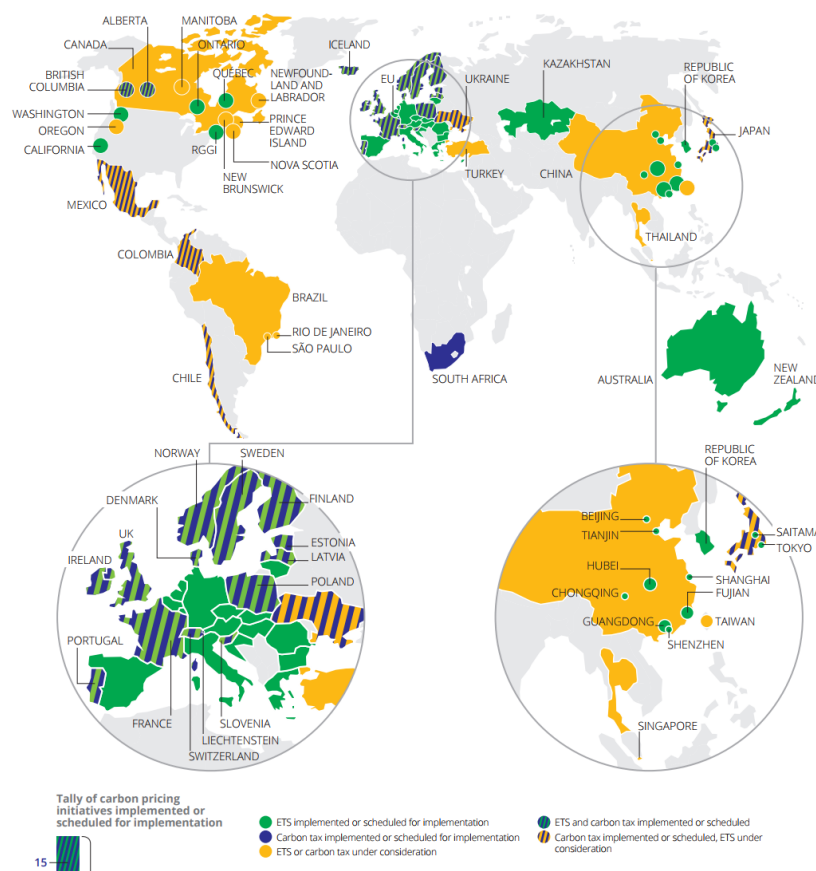
This decision has been made for two reasons. The first derives from the World Bank who emphasizes the importance of a global carbon pricing system. Thus to solely focus on the carbon pricing scheme of one jurisdiction would ignore this international push for a globalized approach to carbon pricing. Furthermore, later analysis will take place on the subject of escaped emissions from carbon pricing jurisdictions and possible solutions will benefit from a multinational foundation.

Figure 1

Carbon Pricing Mechanisms Implemented and in the process of being Implemented as of November 2017⁸⁹

⁸⁸ World Bank Group, *supra* note 84 at 22.

⁸⁹ World Bank Group, *supra* note 84 at 10.



3.5.3 Canada's trading partners

Canada's economy is still one based mainly on the export of goods, rather than services. In 2016, \$521 Trillion worth of products were exported from Canada to its global trading partners.⁹⁰ In contrast, only \$107 Billion of service-based exports were traded in 2016.⁹¹ Canada's major trading partners, across goods and services, however, are consistent. The United States and European Union are Canada's two largest trading partners across all exports and imports in both products and services. China, Japan, India, Mexico and South Korea round out Canada's top trading partners in terms of goods exports and imports.⁹²

In terms of carbon pricing, all the above nations, with the exception of the United States, have implemented, are in the process of or considering a national carbon pricing scheme. The United States, however, has multiple sub-national carbon pricing schemes that are of importance

⁹⁰ Global Affairs Canada, *Canada's State of Trade: Trade and Investment Update, 2017*, (2017) online: at 49. [Global Affairs]

⁹¹ Global Affairs, *ibid* at 58.

⁹² Global Affairs. *Supra* note 90 at 50 – 59.

to Canada. As such, this section will examine the carbon pricing schemes implemented, to be performed or considered in the above-listed jurisdictions in order to demonstrate the variances in structures that would need to be remedied or accommodated in an international carbon pricing system.

3.5.4 National and Subnational Carbon Pricing Systems

3.5.4.1 Canada

Canada's federal action on climate change has been relatively limited until 2015, with the signing of the *Paris Agreement*. After this point, there has been much discussion of carbon pricing, with a federally-chaired system coming online in 2018. Prior to 2015, it is relevant to note that the previous government under the leadership of Stephen Harper set Canada's 2030 climate goal, which was adhered to in Canada's commitments under the *Paris Agreement* and the development of its domestic climate policy, the *Pan-Canadian Framework on Clean Growth and Climate Change*. This goal sets a target of a 30% reduction relative to 2005 levels. This would limit Canada's emissions in 2030 to 524 Mt CO₂e.⁹³

3.5.4.1.1 Vancouver Declaration on Clean Growth and Climate Change

The *Vancouver Declaration on Clean Growth and Climate Change* ("Vancouver Declaration") was delivered on March 3, 2016. It built on the "momentum of the *Paris Agreement* by developing a concrete plan to achieve Canada's international commitments through a pan-Canadian framework for clean growth and climate change.⁹⁴ To that end, it recognizes Article 2 of the *Paris Agreement*, going forward to incorporate the realities asserted by academia – achieving a less than 2°C scenario by 2100 requires net zero emissions by the latter half of the 21st century.⁹⁵ The *Vancouver Declaration* commits to Canada's 2030 target outlined above, but also discusses the need for a greater level of ambition to be developed in time.⁹⁶ It also makes commitments to promote clean growth and clean jobs, deliver mitigation

⁹³ Boothe, Paul, "How Canada can live up to its commitment to emissions" (27 September 2016) *Macleans* online <<http://www.macleans.ca/economy/economicanalysis/getting-to-2030-a-practical-approach/>>.

⁹⁴ Canada's First Ministers, *Vancouver declaration on clean growth and climate change* (3 March 2016) online: <http://www.itk.ca/wp-content/uploads/2016/04/Vancouver_Declaration_clean_Growth_Climate_Change.pdf> at preamble. [Vancouver Declaration]

⁹⁵ Clémentçon, *supra* note 56 at 9.

⁹⁶ *Vancouver Declaration*, *supra* note 94 at 2.

actions, increase action on climate adaptation and climate resilience and enhance cooperation.⁹⁷ Of particular interest to the development of carbon pricing in Canada is the delivery of mitigation acts and enhanced cooperation.

The *Vancouver Declaration* recognizes the use of carbon pricing across the globe to address climate change and drive the transition to a low-carbon economy and the actions of the provinces in implementing carbon prices ahead of the Federal government. The *Vancouver Declaration* promises that there will be a transition to a low-carbon economy accomplished through "adopting a broad range of domestic measures, including carbon pricing mechanisms, adapted to each province's and territories' specific circumstances."⁹⁸ Thus, carbon pricing had officially received federal endorsement with the additional promise of provincial flexibility.

At the end of the *Vancouver Declaration* is a list of actions. These actions include early efforts for the Federal government and the development of working groups on specific topics within the *Vancouver Declaration*. One such group was the Working Group on Carbon Pricing, which analyzed the effects of implementing carbon pricing across Canada. This work would go on to inform of the *Pan-Canadian Framework's* development.

3.5.4.1.2 Final Report of the Working Group on Carbon Pricing Mechanisms

Subsequent to the *Vancouver Declaration* the Working Group on Carbon Pricing Mechanisms ("Working Group") released its final report. Guided by the *Vancouver Declaration*, it describes in detail what carbon prices are, their possible structures, revenue usage and issues with carbon prices.⁹⁹ Ultimately, the Working Group offered three potential carbon pricing schemes. The first, called the "15/30 option", would have a \$15/tonne CO₂e beginning in 2018, which rises to \$30/tonne CO₂e by 2030. This option would result in a reduction of 38 Mt CO₂e from a business-as-usual scenario. The second option, called the "30/40" option, would begin in 2018 at \$30/tonne CO₂e and rise to \$40/tonne CO₂e by 2030. This option would result in 51 Mt CO₂e reduction from a business-as-usual case. The third and final option, described by the Working Group is the "30/90 option", which would see prices set at \$30/ tonne CO₂e in 2018,

⁹⁷ *Vancouver Declaration*, *supra* note 94 at 2-5.

⁹⁸ *Vancouver Declaration*, *supra* note 94 at 3.

⁹⁹ Environment and Climate Change Canada, *Working Group on Carbon Pricing Mechanisms: Final Report*, (2016) online: <<http://publications.gc.ca/site/eng/9.822040/publication.html>> at 6. [Working Group]

rising to \$90/tonne CO₂e by 2030. This option would result in a 95 Mt CO₂e reduction over a business-as-usual projection.¹⁰⁰ The Working Group did not take sides as to which option was their preference.

Each option was also assessed for their impact on GDP. Continuous growth of the GDP was possible under each scenario, but the GDP would not surpass a business-as-usual project of \$2.6 Trillion in 2030. Each situation would result in a slight decline in the projected GDP in 2030, from .03 - .08%.¹⁰¹ Thus, even under a \$90/tonne CO₂e scenario, growth of approximately \$400 Billion in the next 12 years is possible.¹⁰²

The Working Group also provides three options for how any of the above carbon pricing scenarios could be implemented. The first, is a single-form, broad-based carbon pricing mechanism applied across the nation unilaterally (“option 1”), the second is broad-based carbon pricing mechanisms in all jurisdictions but allow for flexibility of instrument choice (“option 2”), and finally a range of broad-based carbon pricing mechanisms in some jurisdictions and others using other mechanisms to meet GHG reduction targets at the provincial/territorial level (“option 3”).¹⁰³ Option 3, where the provinces could avoid having to place or comply with a carbon price seemed to be the least effective. The national carbon price, without allowing for provincial and territorial flexibility on the mechanism (option 1) appeared to be the most effective in reducing emissions. The promises of the *Vancouver Declaration*; however, regarding flexibility would need to be forgotten. Subsequent to work done by the Working Group, Canada seems to have adopted Option 2, permitting Provinces to choose their own framework or maintain systems already in place.

3.5.4.1.3 Pan-Canadian Framework

The *Pan-Canadian Framework on Clean Growth and Climate Change* (hereon referred to as the “*Pan-Canadian Framework*”) is an inter-provincial and federal-to-provincial agreement

¹⁰⁰ Working Group, *supra* note 99 at 23.

¹⁰¹ Working Group, *supra* note 99 at 26.

¹⁰² This is compared to Q3 GDP in 2017, as per Statistics Canada, “Canada: Economic and Financial Data” online: <<http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/dsbccan-eng.htm>> and includes the approximately \$24 B decline from the BAU scenario of \$2.6 Trillion.

¹⁰³ Working Group, *supra* note 99 at 44.

that builds on the *Vancouver Declaration* and the reports published by its Working Groups.¹⁰⁴ Its four pillars also conform with the *Vancouver Declaration* and are 1) carbon pricing with a recognition that Canada's 2030 target would require a high price on carbon, 2) Complimentary climate actions where carbon pricing alone is insufficient, 3) Cleaner technology, innovation and jobs and 4) regular reporting and transparency.¹⁰⁵

The *Pan-Canadian Framework* projects Canada's emissions in 2030 as being 742 Mt CO₂e, (218 Mt above Canada's emissions goal), although this does not include emissions reductions from federal measures for increasing energy efficiency of equipment in buildings, Ontario's commitment to join the Western Climate Initiative (discussed below), policies in Alberta such as its proposed coal phase-out and carbon levy on oil sands emissions, Québec's regulations on high rise building standards and BC's low carbon fuel standard.¹⁰⁶ The *Pan-Canadian Framework* does not adopt any of the Working Group's suggested prices, instead opting for \$10/tonne CO₂e in 2018, ratcheting up by \$10/year to \$50/tonne CO₂e by 2022.¹⁰⁷ This option is projected to reduce Canada's GHG emissions by 86 Mt when combined with complementary measures outlined in the *Pan-Canadian Framework*.¹⁰⁸ Also notable is that this price only applies to jurisdictions with a carbon tax, in a carbon levy with a baseline-and-credit system or to those provinces that do not implement a carbon price and thus will rely on the "Federal backstop". Those with a cap-and-trade system, such as Ontario and Québec will need to assign a cap in line or greater than their share of Canada's national 2030 emissions. It must also decline as of 2022 in line with projected emissions reductions in a carbon tax and carbon levy with baseline-and-credit options.¹⁰⁹

It places carbon pricing at the centre of the agreement, providing a federal benchmark, which includes timelines for implementation, price, and review as well protections for provincial interests such as structural flexibility and ability to retain funds generated through the imposed

¹⁰⁴ Environment and Climate Change Canada, *Pan-Canadian Framework on Clean Growth and Climate Change*, (9 December 2016) online: < <http://publications.gc.ca/site/eng/9.828774/publication.html> > at 2. [*Pan-Canadian Framework*]

¹⁰⁵ *Pan-Canadian Framework*, *supra note* 104 at 2-3.

¹⁰⁶ *Pan-Canadian Framework*, *supra note* 104 at 5.

¹⁰⁷ *Pan-Canadian Framework*, *supra note* 104 at 49.

¹⁰⁸ *Pan-Canadian Framework*, *supra note* 104 at 44.

¹⁰⁹ *Pan-Canadian Framework*, *supra note* 104 at 49.

carbon price.¹¹⁰ Emphasis is also placed that the carbon pricing solution implemented "should minimize competitiveness impacts and carbon leakage [and] including revenue recycling to avoid a disproportionate burden on vulnerable groups and Indigenous Peoples."¹¹¹ Thus, revenue generated by each province will remain in the province, regardless of whether they implement a province-wide carbon pricing system or rely on the Federal backstop.¹¹²

3.5.4.1.4 Proposed Federal Backstop

In early 2018, the Federal government released a draft proposal for the Federal Backstop, taking a step towards solidifying the *Pan-Canadian Framework*. It follows the direction of the *Pan-Canadian Framework* by maintaining that it will only apply to jurisdictions that need a top-up to meet the federal standards or where the province/territory does not apply their own system. The draft backstop bifurcates its approach by applying a carbon tax to fossil fuels and an "output-based pricing system" for industrial facilities.¹¹³ The carbon tax aspect of the Federal Backstop will apply upstream at the distributor and importer level. There are several exemptions to the carbon tax proposed including when fuels are exported outside of a backstop jurisdiction.¹¹⁴ This is important as it may allude to the presence of a border carbon adjustment by way of an export rebate. These concepts will be discussed in detail in section 4. Aviation fuels will only be subject to the carbon tax when the flight takes place within a backstop jurisdiction.¹¹⁵ This choice was likely influenced by the issues the EU ETS has endured in including aviation fuels, also discussed in section 4. Finally, perhaps the most significant exemption is for fuels that would be subject to the second component of the federal backstop, the output-based pricing system.

The output-based pricing systems is a baseline-and-credit system discussed earlier in this section. It will apply to all industrial facilities that emit 50,000 t CO_{2e} per year, with some exemptions for institutional buildings and waste treatment facilities.¹¹⁶ If a facility emits less

¹¹⁰ *Pan-Canadian Framework*, *supra* note 104 at 49.

¹¹¹ *Pan-Canadian Framework*, *supra* note 104 at 7.

¹¹² *Pan-Canadian Framework*, *supra* note 104 at 49.

¹¹³ The government of Canada, Ministry of Environment and Climate Change, *Technical Paper on the Federal Carbon Pricing Backstop*, (Ottawa, 2017) at 5.[Federal Backstop Technical Paper]

¹¹⁴ Federal Backstop Technical Paper, *ibid* at 12.

¹¹⁵ Federal Backstop Technical Paper, *supra* note 113 At 15.

¹¹⁶ Federal Backstop Technical Paper, *supra* note 113 At 17.

than the industry baseline established, they will be awarded a surplus credit from the Government of Canada. If they exceed the baseline, the company will be required to procure allowances at a rate equal to the federal backstop price or offset credits.¹¹⁷

3.5.4.1.5 Provincial Actions

Some of Canada's provinces have adopted sub-national carbon prices as of 2010. It is reasonable that the *Pan-Canadian Framework* decided to preserve systems. This allows for the lessons learned and momentum built into these systems to be maintained. This section will outline the main features of these provincial carbon prices and those discussed subsequent to the inception of the *Pan-Canadian Framework* at a high-level to permit comparison between domestic and international jurisdictions.

3.5.4.1.6 Alberta

3.5.4.1.6.1 *Climate Leadership Plan*

Alberta's *Climate Leadership Plan* is a multi-faceted strategy to reduce GHG emissions from Canada's largest producer of emissions. The approach relies on three means of carbon pricing, incorporating both carbon taxes and baseline-and-credit schemes to reduce emissions. There are also commitments to phase out coal-fired electricity and phasing-in renewable energy. Below are the carbon pricing mechanisms that are aiding Alberta in reducing its carbon emissions, perhaps even peaking early in the coming decade.¹¹⁸

3.5.4.1.6.1.1 *Carbon Tax (Also called Alberta's "Carbon Levy")*

Alberta's *Climate Leadership Plan* introduced a carbon tax on the purchase of fuels beginning in 2017.¹¹⁹ Thus, the carbon tax takes place relatively downstream. The carbon tax is set at \$20/tonne CO_{2e} in 2017 and \$30/tonne CO_{2e} beginning in 2018. The Alberta government recently announced that it would be raising its carbon tax to \$40/tonne CO_{2e} in 2021 and \$50/tonne CO_{2e} in 2022 in compliance with the *Pan-Canadian Framework*.¹²⁰ The *Climate*

¹¹⁷ Federal Backstop Technical Paper, *supra* note 113 At 17-18.

¹¹⁸ Cryderman, Kelly, "Alberta forecasts greenhouse gas emissions will peak in the early 2020s" (16 March 2017) *Globe and Mail* online: < <https://www.theglobeandmail.com/news/alberta/alberta-forecasts-greenhouse-gas-emissions-will-peak-in-early-2020s/article34332917/>>.

¹¹⁹ *Climate Leadership Act*, [SA 2016] c 16.9 at s 3(1). [Climate Leadership Act]

¹²⁰ Woods, James "Carbon tax set to increase to \$30 per tonne in 2018; no further increases until 2021" (15 December 2017) *Calgary Herald* online: < <http://calgaryherald.com/news/politics/carbon-tax-set-to-increase-to-30-per-tonne-in-2018-no-further-increases-until-2021>> at 2. [Woods]

Leadership Act, [SA 2016] c 16.9, places tighter restrictions on what the revenue from the carbon tax may be used for than the carbon tax in British Columbia. Under the *Climate Leadership Act*, revenue generated from the carbon tax may only be used for climate change mitigation and adaptation activities, rebates and adjustments to create revenue neutrality for Albertan consumers, business, and communities and to make payments, reimbursements or adjustments to electricity prices.¹²¹

3.5.4.1.6.1.2 *Specified Gas Emitters Regulation*

Alberta also has a baseline-and-credit system for large emitters under the *Specified Gas Emitters Regulation*, AB 139/2007 (“SERG”) made under the *Climate Change and Emissions Management Act* [SA 2003] C c-16.7. This system applies to voluntary participants and to mandated facilities that have emitted more than 100,000 t CO₂e of a limited list of GHGs contained in the Schedule, as of 2003 or any subsequent year.¹²² As per s 4, facilities captured by the *SERG* operating for 4+ years were assigned baselines of their emissions intensity. These baselines translated into limits beginning in 2015, the limit is then dropped for each subsequent year. Limits were more restrictive on older facilities and more permissive for newer facilities.¹²³ The Minister, however, can customize the limit for specific facilities if he/she so chooses.¹²⁴ In the case that a facility is unable to make changes to their means of production to comply with their limit, it may choose to purchase offsets or credits from the Climate Change and Emissions Management Fund established by s 10 of the *Climate Change and Emissions Management Act*.¹²⁵ In the case that a facility can perform under their baseline, achieving more significant reductions in emissions than required, it may receive emission performance credits issued by the Director.¹²⁶ These credits may then be used in a subsequent year to comply with the facility's limit or be traded to another facility for use that year or in the following year.¹²⁷ This regulation was replaced by the *Carbon Competitiveness Regulation* as of January 1, 2018. The differences

¹²¹ *Climate Leadership Act*, *supra* note 119 at s 3(2).

¹²² *Specified Gas Emitters Regulation*, AB 139/2007 at s 2. [*Specified Gas Emitters Regulation*]

¹²³ *Specified Gas Emitters Regulation*, *ibid* at s 4(1), s 4(2), s 4(3).

¹²⁴ *Specified Gas Emitters Regulation*, *supra* note 122 at s 4(4).

¹²⁵ *Specified Gas Emitters Regulation*, *supra* note 122 note at s 7 & s 8; *Climate Change and Emissions Management Act* [SA 2003] C c-16.7 at s 10.

¹²⁶ *Specified Gas Emitters Regulation*, *supra* note 122 note at s 9(1).

¹²⁷ *Specified Gas Emitters Regulation*, *supra* note 122 note at s 9(2)(a).

between the regulations include an expanded list of GHGs covered by the regulation to align with those recognized by the UNFCCC.¹²⁸

3.5.4.1.6.1.3 *The cap on Oil Sands Emission*

While no legislation currently enforces a cap on Canada's oil sands emissions, there is a limit of 100 Mt CO₂e imposed by the *Climate Leadership Plan*.¹²⁹ This will change beginning with the inception of the *Carbon Competitiveness System*.¹³⁰ For the time being, the *Climate Leadership Plan* outlines an oil sands specific output-based allocation approach where all facilities will face a \$30/t CO₂e carbon price on emissions.¹³¹ While the *Climate Leadership Plan* carefully does not call the system a cap-and-trade system it inevitably does fall into the above description.

3.5.4.1.6.1.4 *Revenue from Alberta's carbon pricing systems*

The Government of Alberta estimates that the above-described carbon pricing mechanisms will result in \$5.4 billion of revenue from 2017 to 2020.¹³² This revenue will fund a variety of tax deductions, including those for small businesses, households, and Indigenous communities. Carbon pricing mechanisms will also support renewable energy, aid in the transition away from coal-fired electricity generation and help to create capital grants and investment in green infrastructure.¹³³ These initiatives, however, do not take up the full total of revenue generated by the carbon pricing mechanisms. Thus, the Alberta carbon tax, oil sands cap, and large emitter baseline-and-credit will contribute to the general revenue stream of the province.

¹²⁸ The government of Alberta, *Carbon Competitiveness Incentive: Fact Sheet* online: < <https://www.alberta.ca/assets/documents/cci-fact-sheet.pdf>>.

¹²⁹ The government of Alberta, "Capping oil sands emissions," *Climate Leadership Plan*, online: < <https://www.alberta.ca/climate-oilsands-emissions.aspx>>. [Climate Leadership Plan]

¹³⁰ Climate Change Office Government of Alberta, "Output-based Allocation System Engagement" online: < <https://www.alberta.ca/output-based-allocation-engagement.aspx>>.

¹³¹ *Climate Leadership Act*, *supra* note 119.

¹³² The government of Alberta, *Budget 2017: Fiscal Plan- Climate Leadership Plan*, (2017) at 55. [Climate Leadership Fiscal Plan]

¹³³ *Climate Leadership Fiscal Plan*, *ibid* at 61.

3.5.4.1.6.2 British Columbia

3.5.4.1.6.2.1 Greenhouse Gas Industrial Reporting and Control Act

The *Greenhouse Gas Industrial Reporting and Control Act*, [SBC 2014] c 29 (“GGIRCA”) create a baseline-and-credit system for liquified natural gas (“LNG”) operations in British Columbia (“BC”). The *GGIRCA* places a limit of .16 t CO₂e/t of LNG produced.¹³⁴ The act provides exemptions for emissions that are subject to carbon capture processes.¹³⁵ Compliance unit transactions within the baseline-and-credit scheme may take place between regulated bodies or another registry authorized by statute.¹³⁶ They are purchased to comply with the limit on emissions and avoid penalties of up to \$1.5 million or imprisonment of up to 2 years.¹³⁷

3.5.4.1.6.2.2 BC Carbon Tax

The centre of the BC carbon pricing plan is a carbon tax, defined by the *Carbon Tax Act*, [SBC 2008] c 40 (“Carbon Tax Act”). BC's carbon tax applies to the sale of fuels of various kinds listed in *Schedule 1* and the burning of peat and tires as per *Schedule 2*.¹³⁸ Thus, the BC Carbon tax applies relatively downstream. Currently, the BC Carbon tax prices emissions at \$30/tonne CO₂e, but this price will rise as of 2018 to comply with the *Pan-Canadian Framework*. BC is raising its price to \$35/tonne CO₂e in 2018, rising by \$5/tonne CO₂e until 2021 when it hits \$50/tonne CO₂e.¹³⁹

The BC government has maintained that the carbon tax has been revenue neutral since 2008. The BC carbon tax utilizes personal and business tax rebates to remain revenue neutral.¹⁴⁰ As of 2018, the carbon tax will no longer be revenue neutral as it begins to rise to meet Canada's national carbon price of \$50.¹⁴¹ This does not mean that the BC carbon price will not fund

¹³⁴ *Greenhouse Gas Industrial Reporting and Control Act*, [SBC 2014] c 29 at Sch 1. [Greenhouse Gas Industrial Reporting and Control Act]

¹³⁵ *Greenhouse Gas Industrial Reporting and Control Act*, *ibid* at s 4(1).

¹³⁶ *Greenhouse Gas Industrial Reporting and Control Act*, *supra* note 134 at s 20(1).

¹³⁷ *Greenhouse Gas Industrial Reporting and Control Act*, *supra* note 134 at s 6(1), s 30.

¹³⁸ *Carbon Tax Act*, [SBC 2008] c 40 at s 8 – 13.1, Sch 1, Sch 2. [Carbon Tax Act]

¹³⁹ Ministry of Finance, *Budget 2017* (Victoria, September 2017) at 67. [BC Budget 2017]

¹⁴⁰ *BC Budget 2017*, *ibid* at 69.

¹⁴¹ Ministry of Finance, *Building a better BC: Budget 2017 update*, (September 2017) at 4.

complementary measures, such as the low-income climate action tax credit.¹⁴² As of 2018, the BC Carbon tax is projected still to be revenue negative until at least the 2019/2020 tax year.¹⁴³

BC and Alberta are the only two implemented carbon tax regimes in Canada currently. For a brief period in 2018, both systems will have an equal carbon tax at \$30/tonne CO₂e. The Federal Backstop will reach \$30/tonne CO₂e in 2020. It would seem that the math converting the Global Warming Potential ("GWP") of each fuel covered by the systems varies. While each system does cover different gases than the other, there are also overlapping fuels. As is seen in Figure 2 in almost all cases these overlapping fuels are not identically priced. Thus, one may speculate that the variances in calculation methods create inconsistencies in the tax paid across jurisdictions.

Figure 2

Comparison of Federal Backstop, BC and Alberta taxation levels at \$30/t CO₂e¹⁴⁴

Fuel Type	BC 2012-2018	AB 2018	Fed 2020
Aviation gas	7.38 ¢/L	7.47 ¢/L	7.47¢/L
Aviation jet fuel	7.38 ¢/L	7.75 ¢/L	7.75¢/L
Butane	5.28 ¢/L	5.34 ¢/L	5.34¢/L
Coke oven gas	4.83 ¢/m ³	2.10 ¢/m ³	2.10¢/m ³
Ethane	2.94 ¢/L	3.06¢/L	3.06¢/L
Gas Liquids	4.95 ¢/L	4.99 ¢/L	4.99¢/L
Gasoline	6.67 ¢/L	6.73 ¢/L	6.98¢/L
Heavy Fuel oil	9.45 ¢/L	9.53¢/L	9.56¢/L
High heat value coal	\$62.31/tonne	\$66.56/tonne	\$67.55/tonne
Low heat value coal	\$53.31/tonne	\$53.09/tonne	\$53.17/tonne
Methanol	3.27 ¢/L	3.26 ¢/L	3.29¢/L
Naphtha	7.65 ¢/L	6.73 ¢/L	6.76¢/L
Natural Gas	5.70 ¢/m ³	\$1.517/ GJ	5.87¢/m ³
Pentanes/plus condensate	5.28 ¢/L	5.73 ¢/L	5.34¢/L

¹⁴² BC Budget 2017, *supra* note 141 at 68.

¹⁴³ BC Budget 2017, *supra* note 141 at 69.

¹⁴⁴ Carbon Tax Act, *supra* note 138 at Sch 1; Climate Leadership Act, *supra* note 119 at Table; Federal Backstop Technical Paper, *supra* note 113 at p 6.

Propane	4.62 ¢/L	4.62 ¢/L	4.64¢/L
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3.5.4.1.7 Manitoba, Saskatchewan, New Brunswick, Newfoundland, Nunavut, PEI, Yukon

Several provinces have yet to formalize the carbon pricing schemes compliant with the *Pan-Canadian Framework*. Much development on this issue will take place during 2018. Currently, Manitoba and Saskatchewan have not signed on to the *Pan-Canadian Framework*. Manitoba has proposed a \$25/t CO₂e carbon tax that will not rise as a "made-in-Manitoba" solution; however, this does not comply with the Federal commitment of \$50/t CO₂e by 2022.¹⁴⁵ Saskatchewan has vehemently objected to the imposition of any carbon price.¹⁴⁶ The province's newly unveiled climate change strategy does not commit to pricing carbon.¹⁴⁷ As such, the Federal government has threatened to reallocate funds promised to the two provinces under the \$1.4 B "Clean Energy Fund".¹⁴⁸

New Brunswick has proposed to reallocate its existing gas tax to become a carbon tax.¹⁴⁹ It is unclear at this time if this would equal to a \$50/t CO₂e carbon price by 2022. The province has stated that it would use such revenue to reduce carbon emissions, however, no further details are public as of December 21, 2017. New Brunswick has also proposed in its climate Bill to have the federal government deliver an output-based performance standard for large emitters.¹⁵⁰

¹⁴⁵ Manitoba Sustainable Development, *A made-in-Manitoba climate and green plan: Hearing from Manitobans*, (2017) at 15. [Manitoba Sustainable Development]

¹⁴⁶ Baxter, David, "Sask. Premier describes the federal carbon tax plan as a 'ransom note'" (18 May 2017) *Global News* online: < <https://globalnews.ca/news/3462367/sask-premier-describes-federal-carbon-tax-plan-as-a-ransom-note/>>.

¹⁴⁷ The government of Saskatchewan, *Prairies Resilience: A made-in-Saskatchewan climate change strategy*, (October 2017) at 2.

¹⁴⁸ Geary, Aidan, "Feds give provinces February 2018 deadline to sign climate plan or forfeit \$66M" (21 December 2017) online: < <http://www.cbc.ca/news/canada/manitoba/federal-climate-plan-manitoba-1.4460353>>.

¹⁴⁹ Politras, Jaques, "Liberals' sleight-of-hand carbon tax formally proposed in climate bill" (14 December 2017) *CBC News* online: < <http://www.cbc.ca/news/canada/new-brunswick/carbon-tax-brian-gallant-1.4448137>>.

¹⁵⁰ Environment and Local Government New Brunswick, "Climate change legislation introduced" (14 December 2017) online: < http://www2.gnb.ca/content/gnb/en/news/news_release.2017.12.1601.html>.

Newfoundland has committed to unveiling its carbon pricing legislation in 2018.¹⁵¹ Few details exist at this time. Prince Edward Island has also decided to abstain from announcing their carbon pricing plans until 2018.¹⁵² There are similarly few details on whether Nunavut will implement its own carbon price or merely allocate revenue generated by the federal carbon price. Finally, the Government of Yukon will just defer to the federal carbon tax and will allocate revenues in the form of a rebate.¹⁵³

3.5.4.1.7.1 Northwest Territories

The Northwest Territories published a discussion paper in July 2017 that proposed a revenue-neutral, point-of-sale carbon tax as its best option.¹⁵⁴ The carbon tax would be on fuels, as is currently done in Alberta and BC.¹⁵⁵ No legislation has been introduced to confirm that this is the approach that the Northwest Territories will proceed with as of December 21, 2017. The proposed carbon tax would generate about \$63.1 million at the \$50/t CO₂e mark beginning in 2022.¹⁵⁶

3.5.4.1.7.2 Nova Scotia

Nova Scotia is currently considering amendments to the Nova Scotia *Environment Act*, 1994, c 1, to establish a cap-and-trade system within the province. At the moment, there is no indication of possible linking with the cap-and-trade systems in Ontario, Québec, and California under the Western Climate Initiative. The proposed cap-and-trade system is upstream and would cover industrial facilities with 100,000 t CO₂e emissions at the point of emission, the electricity sector, petroleum product suppliers who supply more than 200 L of petroleum products and natural gas distributors.¹⁵⁷ Few other details exist as of 21 December 2017.

¹⁵¹ The Telegram, “Newfoundland and Labrador’s carbon pricing plan to be unveiled next spring: Ball” (30 October 2017) online: < <http://www.thetelegram.com/business/newfoundlands-carbon-pricing-plan-to-be-unveiled-next-spring-ball-158276/>>.

¹⁵² Yarr, Kevin, “No carbon pricing announcement for PEI this year” (15 November 2017) *CBC News* online: <<http://www.cbc.ca/news/canada/prince-edward-island/pei-carbon-pricing-1.4402867>>.

¹⁵³ The government of Yukon, “Government of Yukon wants your input on carbon rebate” (16 August 2017) online: <<http://www.gov.yk.ca/news/17-166.html>>.

¹⁵⁴ The government of Northwest Territories, *Implementing Pan-Canadian Carbon Pricing in the Northwest Territories: Discussion Paper* (July 2017) at 3-7. [NWT Carbon Pricing Discussion Paper]

¹⁵⁵ *NWT Carbon Pricing Discussion Paper*, *ibid* at 4.

¹⁵⁶ *NWT Carbon Pricing Discussion Paper*, *supra* note 154 at 6.

¹⁵⁷ Climate Change Nova Scotia, “Nova Scotia’s Proposed Cap and Trade Program” online: <<https://climatechange.novascotia.ca/proposed-cap-and-trade-program>>.

3.5.4.1.7.3 Ontario and Québec

Ontario and Québec run cap-and-trade programs and are members of the Western Climate Initiative. The structure of their cap-and-trade systems is similar. The same carbon price applies in both jurisdictions and capped businesses may purchase allowances originating from any jurisdiction under the Western Climate Initiative.

3.5.4.1.7.3.1 Ontario

Ontario is the most recent province to implement a carbon price, with its cap-and-trade system implemented in January 2017.¹⁵⁸ The province has run its first year of the cap-and-trade system independent of the Western Climate Initiative allowance auctions but will join their joint auctions beginning in February 2018.¹⁵⁹ Ontario's system applies to facilities with emissions greater than 25,000t CO₂e, electricity importers if such electricity is produced using fossil fuels, natural gas distributors, petroleum product suppliers and voluntary participants who have a facility that produces between 10,000 – 25,000 t CO₂e.¹⁶⁰ The Ontario system uses both free allocation and allocation by auction as a means of distributing allowances. Free allocation is decided by the potential for leakage, although natural gas distributors and electricity generation and distribution do not receive any freely allocated allowances.¹⁶¹ Ontario also auctions a combination of current and future vintage allowances. The average price in the final independent auction (before Ontario joins the Western Climate Initiative auctions in February 2018) resulted in current vintages sold at \$17.38 CAD and future vintages being traded at \$18.89 CDN.¹⁶²

Ontario's cap-and-trade system is fiscally neutral, with all funds entering the Greenhouse Gas Reduction Account ("GGRA"), rather than the general revenue stream.¹⁶³ The GGRA funds the initiatives in *Ontario's 2016-2020 Climate Change Action Plan* ("Climate Change Action

¹⁵⁸ *The Cap and trade Program*, (2017) O Reg 144/16 at s 3.

¹⁵⁹ Ministry of Environment and Climate Change, "Auction Notice: California cap-and-trade program, Québec cap-and-trade system, and Ontario cap-and-trade program joint auction of greenhouse gas allowance on February 21, 2018" (21 December 2017) online: <https://files.ontario.ca/joint_auction_notice_english_2018-02-21.pdf>. [Auction Notice]

¹⁶⁰ *Climate Change Mitigation and Low Carbon Economy Act*, 2016, SO 2016 c 7 at s 9(3); *The Cap and trade Program*, (2017) O Reg 144/16 at s 22; *Greenhouse Gas Emissions Reporting*, (2016) O Reg 452/09 at Table 2.

¹⁶¹ *The Cap and trade Program*, (2017) O Reg 144/16 at s 85(4); *Reporting and Verification of Greenhouse Gas Emissions*, (2017) O Reg 143/16 at Sch 2.

¹⁶² Ministry of Environment and Climate Change, "Auction 4 – November 29, 2017" (21 December 2017) online: <<https://www.ontario.ca/page/past-auction-information-and-results#section-4>>.

¹⁶³ *Climate Change Mitigation and Low Carbon Economy Act*, *supra* note 160 at s 71.

Plan”).¹⁶⁴ This plan utilizes the projected \$1.8 - \$1.9 billion of annual revenue for the province to fund a number of complementary measures to the cap-and-trade system in order to produce further GHG emission reductions.¹⁶⁵

3.5.4.1.7.3.2 Québec

Québec’s cap-and-trade system was the first ETS aimed at reducing GHG emissions in Canada. Beginning in 2013, the Québec cap-and-trade system applies to facilities that generate more than 25,000 t CO₂e, electricity importers, and to those who distribute more than 200 L automotive gasoline, diesel, fuels propane, natural gas and heating fuels.¹⁶⁶ As of 2014, the Québec cap-and-trade system has held joint allowance auctions with California as part of the Western Climate Initiative.¹⁶⁷ Not all participants are required to purchase auction allowances, with trade-exposed industries receiving free allocation to mitigate the potential for leakage.¹⁶⁸

Québec’s revenue generated from the cap-and-trade system is deposited into the Fonds Vert (“Green Fund”), which funds Québec’s 2013 – 2020 *Climate Change Action Plan*.¹⁶⁹ Specific dollar allocations, which can be found in Ontario’s *Climate Change Action Plan* are not part of Québec’s 2013-2020 *Climate Change Action Plan*. Rather, the Ministry of the Environment partners with other government ministries, municipalities, businesses and non-profit organizations to allocate funds.¹⁷⁰ Furthermore, Québec’s cap-and-trade system is not fiscally neutral.¹⁷¹

3.5.4.2 The United States

The political climate of the United States (“US”) following the election of Donald Trump, has been hostile towards climate action. At the federal level, the US has backtracked

¹⁶⁴ CCAP, *supra* note 69 at 60.

¹⁶⁵ CCAP, *supra* note 69 at 14.

¹⁶⁶ *Regulation respecting a cap-and-trade system for greenhouse gas emission allowances*, c Q-2, r 46.1 at s 2, 3(12). [*Regulation respecting a cap-and-trade system for greenhouse gas emission allowances*]

¹⁶⁷ MDDELCC Québec, “A brief look at the Québec cap-and-trade system for emission allowances” online: <<http://www.mddelcc.gouv.qc.ca/changements/carbone/documents-spede/in-brief.pdf>> at 1.

¹⁶⁸ *Regulation respecting a cap-and-trade system for greenhouse gas emission allowances*, *ibid* at s 39 & Appendix C, Part 1, Table A.

¹⁶⁹ *Regulation respecting a cap-and-trade system for greenhouse gas emission allowances*, *supra* note 167 at s 53.

¹⁷⁰ The government of Quebec, *Budget de Dépenses: 2015-2016*, online <https://www.tresor.gouv.qc.ca/fileadmin/PDF/budget_depenses/15-16/budgetFondsSpeciaux.pdf> at 36. [Québec 2015-2016 Special Budget]

¹⁷¹ *Québec 2015 – 2016 Special Budget*, *ibid* at 38.

significantly from climate action. On an international front, the US has decided to withdraw from the *Paris Agreement*, which as of 21 December 2017 makes it the only country in the world not to recognize the *Agreement*.¹⁷² On a domestic front, the US has removed climate change as a national security issue.¹⁷³ Under the Trump administration, however, the US has engaged in a systemic rollback and repeal of environmental regulations. As reported by the *New York Times* as of December 21, 2017, a total of 60 environmental decisions have been reversed, are in review, the midst of litigation or have been repealed only to be reinstated by the judiciary.¹⁷⁴ In sum, the focus of this deregulation can be categorized into three buckets, those that are in opposition to climate change mitigation, those that will adversely affect biodiversity, and those that will increase pollution. For the purposes of this paper, all decisions as of December 21, 2017, which have a direct link to GHG emissions are listed in Figure 3.¹⁷⁵ As will be noted by the reader, deregulation has particularly focused on the Arctic region, methane gas regulations, the safety of off-shore drilling and pipeline approvals.

Figure 3

US Federal Environmental regulations with impacts on GHG emissions in overturned or in the process of being overturned¹⁷⁶

Overtured rules	Rollbacks in progress	Rollbacks in Limbo
Freeze on new coal leases on public lands	<i>Clean Power Plan</i>	Methane emission limits at new oil & gas wells
Methane reporting requirement	<i>Paris Agreement</i>	Limits on landfill emissions
The anti-dumping rule for coal companies	<i>Car and Truck Fuel-Efficiency Standards</i>	Energy efficiency standards for federal buildings
A decision on the Keystone XL pipeline	Limits on toxic discharge from power plants	Rule helping consumers buy fuel-efficient tires
The decision on the Dakota Access pipeline	Coal ash discharge regulations	
Offshore drilling ban in the Atlantic and Arctic	Emissions standards for new, modified and reconstructed power plants	
Northern Bearing Sea Climate Resilience Plan	Emissions rules for power plant start-up & shutdown	
Royalty regulations for oil, gas, and coal	Fracking regulations on public lands	

¹⁷² Meyer, Robinson, "Syria is joining the Paris Agreement. Now what?" (8 November 2017) *The Atlantic* online: <<https://www.theatlantic.com/science/archive/2017/11/syria-is-joining-the-paris-agreement-now-what/545261/>>.

¹⁷³ Colvin, Jill, "Under Trump, climate change not a national security threat" (18 December 2017) *Chicago Tribune* online: <<http://www.chicagotribune.com/news/nationworld/ct-trump-climate-change-national-security-20171218-story.html>>.

¹⁷⁴ Popovich & Albeck-Ripka, *supra* note 12.

¹⁷⁵ Popovich & Albeck-Ripka, *supra* note 12.

¹⁷⁶ Popovich & Albeck-Ripka, *supra* note 12.

The inclusion of GHG emissions in environmental reviews	Regulations on oil and gas drilling in some National Parks
Green Climate Fund contributions	Oil rig safety regulations
National parks climate order	Regulations for offshore oil & gas exploration by floating vessels
Environmental mitigation for federal projects	Drilling in the Arctic Wildlife Refuge
Calculation of the social cost of carbon	Requirements for tracking emissions on federal highways
	Emissions standards for trailer and glider kits
	Limits on methane emissions on public lands
	Permitting process for air-polluting plants
	Offshore oil & gas leasing
	Coal dust rules

The private actions against climate change mitigation that has been occurring under the Trump administration have consequences that go beyond borders. Setting aside the issue of domestic GHG emissions and their effect on global climate change, two political topics relevant to the following areas explored in this paper are directly tied to the decisions outlined in Figure 3.

These are:

- 1) The implications of the US withdrawing from climate-related, international efforts at the United Nations.
- 2) The implications of these withdrawals to trade negotiations between Canada and the US.

Thus, while the work of the Federal US government has been egregious towards climate change and environmentalism as a whole, further discussion will take place when this paper shifts to discuss leakage and trade.

The Federal US government, however, does not represent the whole nation's outlook on climate change. Like Canadian provincial leadership taking place during the Canadian federal government's conservative period from 2008 – 2015, many US states have sub-national carbon pricing mechanisms in place. Thus, in terms of outlining positive action towards pricing carbon in the US, this paper will describe the four present subnational systems and potential for further development.

3.5.4.2.1 The Western Climate Initiative

The Western Climate Initiative (“WCI”) is perhaps the most influential on Canadian carbon pricing. Originally designed as a joint initiative and partnership of multiple states and provinces (Arizona, California, Montana, New Mexico, Oregon, Utah, Washington, BC, Manitoba, Ontario, Québec), only Ontario, Québec, and California have implemented the system.¹⁷⁷ These allowances are auctioned as current allowances and futures. The auction taking place on November 21, 2017, resulted in a mean auction price of \$20.77 CAD for current vintages and \$18.78 for 2020 future vintage allowances.¹⁷⁸ While the Ontario and Québec cap-and-trade systems have been previously outlined in this paper, California has not. Thus, the remainder of this section is devoted to how the California ETS operates.

3.5.4.2.1.1 California

The California cap-and-trade system is a result of Assembly Bill (“AB”) 32, known as the *Global Warming Solutions Act*, 2006. AB 32 required the state of California to reduce its GHG emissions back to 1990 levels by 2020. To achieve this goal, it required the California Air Resources Board (“ARB”) to “achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions.”¹⁷⁹ This resulted in a cap-and-trade system that was adopted in 2012, with its first auction taking place in November 2012.¹⁸⁰ Outlined by the *California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms*, the cap-and-trade system covers industrial facilities, electricity generating facilities and electricity importers, carbon dioxide suppliers, petroleum and natural gas facilities and fuel suppliers where an individual facility emits more than 25,000 t CO_{2e} annually.¹⁸¹

Revenue generated by California’s share of WCI auction allowances are deposited into the Greenhouse Gas Reduction Fund, with the intention for the funds to remain fiscally

¹⁷⁷ Western Climate Initiative, *Detailed Design* (26 July 2010) Accessed Online:

<<http://www.westernclimateinitiative.org/component/repository/general/program-design/Detailed-Design/>> at s 1.1.

¹⁷⁸ WCI Inc, “November 2017 Joint Auction #13 Summary Results Report” online: < <https://www.wci-auction.org/>>.

¹⁷⁹ *Global Warming Solutions Act*, 2006, AB 32 at 90. [AB 32]

¹⁸⁰ California Air Resources Board, “What is the timeline for implementing AB 32?” online: <<https://www.arb.ca.gov/cc/ab32/ab32.htm>>.

¹⁸¹ *California cap on greenhouse gas emissions and market-based compliance mechanisms*, (20 October 2011) Sub Chap 10 *Climate Change*, Art 5, S 95811 – 95812.

neutral.¹⁸² This funding was originally allocated to broad goals, such as maximizing economic, environmental and public health benefits to the state, job creation, improved air quality and to low-income communities.¹⁸³ Since the inception of the California cap-and-trade program, these allocations have been redefined by AB 1550, which requires 25% of cap-and-trade proceeds to fund projects within low-income communities, 5% towards projects that benefit low-income communities and another 5% to help households on the periphery of geographically defined low-income communities.¹⁸⁴ Previously, Senate Bill (“SB”) 862 had also further defined where Greenhouse Gas Reduction Funds can be allocated, with 60% being directed towards public transportation and housing initiatives, as well as energy efficiency, renewable energy, natural resource and waste diversion.¹⁸⁵

Given that the original of AB 32 was to achieve California's 2020 target, the cap-and-trade system has recently been extended until January 1, 2031, by AB 398.¹⁸⁶ While this legislation does make significant changes to the California cap-and-trade system, for the purposes of this paper, the main potential change of consequence is contained in s 38562(2)(a)(iv). This section permits the state to adopt a regulation for the cap reduction of emissions and the "reserve price" for auctioned credits.¹⁸⁷ This price is the lowest price that auctioned credits may be purchased at in an auction. This is important as it will have an effect of

¹⁸² *California Global Warming Solutions Act of 2006: Greenhouse Gas Reduction Fund*, (30 September 2012) AB 1532. [AB 532]

¹⁸³ AB 153, *ibid* at 39712(b).

¹⁸⁴ *An act to amend s 39713 of the health and safety code, relating to greenhouse gases*, (14 September 2016) ab 1550 at s 39713.

¹⁸⁵ *An act to amend Section 16428.9 of, and to add Sections 12087.5 and 19602.8 to, the Government Code, to amend Sections 39711, 39715, and 44091.1 of, and to add Sections 39719 and 39719.1 to, the Health and Safety Code, to amend Sections 4475, 25470, 25472, 25474, and 75121 of, to amend the heading of Chapter 5.7 (commencing with Section 25470) of Division 15 of, to add Sections 25471.5 and 25474.5 to, to add Article 7.8 (commencing with Section 4598) to Chapter 8 of Part 2 of Division 4 of, to add Chapter 22 (commencing with Section 42995) to Part 3 of Division 30 of, to add Division 44 (commencing with Section 75200) to, and to repeal Section 12292 of, the Public Resources Code, to amend Section 2827 of the Public Utilities Code, to repeal Section 2 of Chapter 657 of the Statutes of 2007, and to amend Section 1 of Chapter 415 of the Statutes of 2013, relating to greenhouse gases, and making an appropriation therefor, to take effect immediately, bill related to the budget.* (20 June 2014) SB 862 at s 1(a)(6).

¹⁸⁶ *An act to amend, repeal and add sections 38501, 38562, and 38594 of and to add and repeal Sections 38505.5, 38590.1, 38591.1, 38591.2, 38591.3, 38592.5, and 38592.6 of, the Health and Safety Code, to add Section 4213.05 to, to add Article 3 (commencing with Section 4229) to Chapter 1.5 of Part 2 of Division 4 of, and to repeal Chapter 1.5 (commencing with Section 4210) of Part 2 of Division 4 of, the Public Resources Code, and to amend Section 6377.1 of the Revenue and Taxation Code, relating to public resources, and declaring the urgency thereof, to take effect immediately,* (25 July 2017) AB 398 at 92. [AB 398]

¹⁸⁷ AB 398, *ibid* at s 38562(2)(a)(iv).

the reserve price observed in Québec and Ontario, who will be subject to the *Pan-Canadian Framework*. While no such regulation has been published by California as of December 26, 2017, Rana et al., have estimated that the reserve price is likely to be \$30.77 USD (approximately \$38 CAD at the current exchange rate of \$1 USD: \$1:27 CAD) by 2030.¹⁸⁸ Assuming that average auction prices of current vintage allowances stay close to the reserve, one can see why the *Pan-Canadian Framework* requires that ETS systems leverage their benefit certainty in achieving emissions reductions, rather than trying to create a flexible “top-off” mechanism to reach the desired \$50/t CO₂e reductions.

3.5.4.2.2 The Regional Greenhouse Gas Initiative

The Regional Greenhouse Gas Initiative (“RGGI”) is a multi-state ETS between Connecticut, Maine, Delaware, New York, Massachusetts, Maryland, New Hampshire, Rhode Island and Vermont. Previously, New Jersey participated in the RGGI but left in 2012 due to political backlash at the program.¹⁸⁹ The RGGI is a subnational cap-and-trade program amongst participating jurisdiction's electricity generators, which are larger than 25 MW.¹⁹⁰ As the first carbon pricing initiative in the United States, it has undergone several improvements since its first model rule in 2013, with the latest taking place in 2017.¹⁹¹ In particular, a drastically reduced cap as of 2021 has been instated by the updated 2016 *Model Rule*, which will see the cap reduce to 57.6% of the cap in 2014 by 2031.¹⁹² The system is also one of the few cap-and-trade systems globally to rely on auctioned allowances almost entirely, rather than having significant reliance on free allowances, such as in Ontario.¹⁹³ The RGGI, however, does utilize a low minimum (reserve) price for auctioned allowances, with the minimum price of \$2.21 USD in

¹⁸⁸ Rana, Rahul et al., "An impact analysis of AB 398 on California's Cap-and-Trade Market" (July 2017) *American Carbon Registry* at 3.

¹⁸⁹ Mireya Navarro, “Christie pulls New Jersey from 10-State climate initiative” (26 May 2011) *New York Times* online: http://www.nytimes.com/2011/05/27/nyregion/christie-pulls-nj-from-greenhouse-gas-coalition.html?_r=0. the First auction not participated in by New Jersey" "Auction 15 Results", *RGGI* online: < [4667wttp://www.rggi.org/docs/Auction_15_State_Proceeds_and_Allowances.pdf](http://www.rggi.org/docs/Auction_15_State_Proceeds_and_Allowances.pdf)>

¹⁹⁰ RGGI, *Model Rule Part XX CO₂ Budget Trading Program*, (23 December 2013) at s XX-1.4 online: http://www.rggi.org/docs/ProgramReview/_FinalProgramReviewMaterials/Model_Rule_FINAL.pdf>, RGGI, *About the Regional Greenhouse Gas Initiative*, online: < http://www.rggi.org/docs/Documents/RGGI_Fact_Sheet.pdf>.

¹⁹¹ Regional Greenhouse Gas Initiative “Summary of RGGI Model Rule Updates” (19 December 2017) at 1. [RGGI Model Rule Summary 2017]

¹⁹² RGGI Model Rule Summary 2013, *ibid* at 1, RGGI Model Rule Summary 2017, *ibid* at 1.

¹⁹³ Regional Greenhouse Gas Initiative, "Factsheet: RGGI CO₂ Allowance Auctions" online:< https://www.rggi.org/docs/RGGI_Auctions_in_Brief.pdf> at 1.

2018 (approximately \$2.80 CAD using a conversion factor of \$1 USD to \$1.27 CAD).¹⁹⁴ The average price of purchase from 2014-2017 traded slightly higher, ranging from \$3.42 USD to \$6.10 USD.¹⁹⁵

3.5.4.2.3 Massachusetts ETS

Although also part of the RGGI, Massachusetts has recently instated an additional baseline-and-credit system to drive down its emissions from electricity generation further. The program will begin in 2018, with the goal of achieving an 80% reduction of emissions from participants by 2050.¹⁹⁶ Its part of a larger policy of the state, which also published an additional *Clean Energy Standard* which calls for 80% of the state's power to be generated through plants utilizing fossil fuels with carbon capture, nuclear and renewable energy.¹⁹⁷

3.5.4.2.4 Developments in Virginia and Oregon

Two possible new carbon pricing systems could be instated in 2018 within the US. Virginia has approved a draft rule to join the RGGI in 2021.¹⁹⁸ Whereas Oregon has approved a draft Senate Bill that would establish a cap-and-trade system beginning January 1, 2021.¹⁹⁹ As neither system has been passed into law or implemented no further analysis will take place on price or revenue allocation.

3.5.4.3 Mexico

In 2016, Mexico announced an ETS pilot intended to aid in achieving the country's *Paris Agreement* NDC.²⁰⁰ Details on this ETS have not been published as of December 2017; however,

¹⁹⁴ Regional Greenhouse Gas Initiative, *Model Rule Part XX CO2 Budget Trading Program*, at s XX-1.2(bc). [RGGI Model Rule]

¹⁹⁵ Regional Greenhouse Gas Initiative "Auction Results: Allowance prices and volumes (by auction)" online: <https://www.rggi.org/market/co2_auctions/results>.

¹⁹⁶ Massachusetts legislature, *310 CMR 7.74(5)* at ss (5).

¹⁹⁷ iCap, "Massachusetts introduces additional cap-and-trade system" (11 August 2017) online: <<https://icapcarbonaction.com/en/news-archive/483-massachusetts-introduces-additional-cap-and-trade-system>>.

¹⁹⁸ Virginia state air pollution control board, "Tentative agenda and mini-book state air pollution control board meeting," (Capitol building house room 1, State Capitol, Richmond, Virginia, 16 November 2017) online: <http://www.townhall.virginia.gov/L/GetFile.cfm?File=C:%5CTownHall%5Cdocroot%5CMeeting%5C1%5C26694%5CAgenda_DEQ_26694_v1.pdf> at 25 – 26.

¹⁹⁹ *Senate Bill 1070*, (79th Oregon Legislative Assembly 2017 Regular Session) online:<<https://olis.leg.state.or.us/liz/2017R1/Downloads/MeasureDocument/SB1070>> at 1

²⁰⁰ SEMARNAT, Mexican Stock Exchange & Mexico₂, "The Ministry of Environment and Natural Resources (Semarnat), the Mexican Stock Exchange and Mexico₂ sign agreement to develop an Emissions Trading Scheme Pilot" (Announcement made 15 August 2016, Mexico) at 1.

the nation has had a progressive history of carbon pricing. Since 2013, the nation has had a carbon tax on fuels. The carbon tax in 2017 equated to approximately \$2.81 CAD/t CO₂e.²⁰¹ As part of this carbon tax, Mexico₂ was established as a voluntary carbon trading market, where credits could be purchased to comply with the carbon tax.²⁰² This voluntary market has a legal basis through Mexico's *General Law on Climate Change Law*. There is a questionable basis, as to whether the *General Law on Climate Change Law* could provide the legal basis for the proposed ETS pilot, which could mandate participation of certain sectors.²⁰³

3.5.4.4 European Union

The European Union Emissions Trading System (“EU-ETS”) is a cap-and-trade system participated in by the 28 European Union countries as well as Iceland, Liechtenstein and Norway. The EU-ETS program was the world's first cap-and-trade program and presently covers about 45% of the participants' greenhouse gas emissions.²⁰⁴ Currently, in its third phase, the EU ETS applies its cap to power generation and industrial facilities. 43% of allowances are presently allocated freely to industrial facilities deemed to be highly at risk for leakage.²⁰⁵ Auctioned allowances have had a storied history, being the first market to experience a crash after the surplus of allowances was announced during the first phase.²⁰⁶ In 2017, the average price of allowances auctioned was \$6.35CAD.²⁰⁷ Being an international carbon pricing system, the EU ETS has several provisions built in to allow for individual autonomy for nation states and benefits for lower-income nation states. Flexibility is exemplified in enabling nations to choose how to allocate their revenue, although it is emphasized that revenue should be directed at

²⁰¹ Mexico₂, Environmental Defence Fund & IETA, *Mexico: A market-based climate policy case study*, (2016) at 5. [Mexico₂ et al.]

²⁰² Mexico₂ et al., *ibid* at 4.

²⁰³ Mexico₂ et al., *supra* note 201 at 6.

²⁰⁴ European Commission, *The EU Emissions Trading System (EU ETS)*, (October 2013) at 2 online: <http://ec.europa.eu/clima/publications/docs/factsheet_ets_en.pdf>.

²⁰⁵ European Commission, *EU ETS Handbook*, online: <https://ec.europa.eu/clima/sites/clima/files/docs/ets_handbook_en.pdf> at 25. [EU-ETS Handbook]

²⁰⁶ Erbach, Gregor, “Post-2020 reform of the EU Emissions Trading System”, (Briefing: EU Legislation in Progress, June 2016) PE 579.092 European Parliamentary Research Service at 4.

²⁰⁷ World Bank Group, *supra* note 84 at 14.

complimentary measures. Further, 10% of revenue is allocated to lower-income EU nations to help guide a transition to electricity generation from lower-carbon facilities.²⁰⁸

The fourth phase, beginning in 2021, is currently being drafted, with some preliminary documents published. Changes to the EU ETS currently suggested for phase 4 include more aggressive annual cap reductions, and continued free allocation of 43% of allowances.²⁰⁹

3.5.4.5 China

China announced the start of their national emissions trading system on December 19, 2017, after several years of pilot programs running in multiple provinces. Unfortunately, no resources depicting the details of the national system seem to be available in English. Thus, an analysis is not possible at this time, and the inclusion of the scheme will be limited.

3.5.4.6 Japan

Japan has a nationwide carbon tax, known as the “Tax for Climate Change Mitigation” since October 2012.²¹⁰ The tax equated to \$3 USD/t CO₂e (approximately \$3.81 CAD based on a conversion rate of \$1 USD: \$1.27 CAD) and added to previously imposed petroleum and coal taxes²¹¹ and applies to petroleum and oil products, liquid petroleum gas, liquid natural gas, and coal.²¹² The Ministry of Environment expects the carbon tax, implemented in 2016 to avoid 6 – 24 million t CO₂e of GHG emissions by 2020.²¹³ The carbon tax is also expected to generate \$2.3 billion USD annually to be invested into renewable energy and conservation efforts.²¹⁴

3.5.4.7 South Korea

South Korea has an ETS that utilizes three kinds of allowances. The goal of this ETS contributes to achieving the nation's 2030 GHG emissions reduction target of 37% below business-as-usual levels of emissions by 2030. This business- as-usual scenario is based on a

²⁰⁸ European Council, “European Council (23 and 24 October 2014) Conclusions, (Brussels 24 October 2014) EUCO 169/14 CO EUR 13 CONCL 5 at s 2.8

²⁰⁹ Erbach, *supra* note 206 at 5.

²¹⁰ Ministry of the Environment, "Greening of the whole tax system and carbon tax in Japan" (Presentation delivered in Japan: January 2017) online: <https://www.env.go.jp/en/policy/tax/20170130_greening.pdf> at 7 & 12. [Japanese Ministry of Environment]

²¹¹ World Bank Group, *supra* note 84 at 28.

²¹² Japanese Ministry of the Environment, *supra* note 210 at 7.

²¹³ Japanese Ministry of the Environment, *supra* note 210 at 17.

²¹⁴ Japanese Ministry of the Environment, *supra* note 210 at 12.

projection of emissions in 2030 and thus, does not utilize a previous year as a baseline. The framework to establish this ETS began in 2010 with the *Framework Act on Low Carbon Green Growth* and a presidential decree that created both the national GHG emissions reduction goal and the legal basis for the ETS. Since 2010, the *Act on Allocation and Trading of GHG Emissions Allowances* and another presidential decree introduce the framework of the ETS system, which began in January 2015. The *Master Plan for Emissions Trading Scheme and Phase I National Allowance Allocation Plan* implement the ETS system.²¹⁵ There are three planned phases for the ETS system up until 2025 (2015-2017, 2018-2020 and 2021-2025).²¹⁶ Multiple ministries, including the ministry of trade, industry, and energy, ministry of environment, the ministry of land and infrastructure transport and ministry of agriculture have a role to play in the ETS system, which illustrates the beginning of its complexities.²¹⁷

The ETS covers GHG emissions from CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ from emitters that produce 125,000t CO₂e or more from overall emissions, from emitters who produce 25,000t CO₂e from a single facility, and voluntary participants. The three types of allowances are the Korea Allowance Unit (“KAU”), which are allocated to companies subject to the ETS. Secondly, there are the Korea Offset Credit (“KOC”), which are credits approved from certified emission-reducing activities by the government. These cannot be traded in the ETS and cannot be used for compliance with emission targets. Finally, there is the Korean Credit Unit (“KCU”) which are KOCs that are able to be traded between covered entities and compliant with the ETS. Under the first phase of the Korean ETS, all allowances are freely allocated up to the emissions target of an entity; anything over must be purchased through trading on the Korea Exchange. In 2017, the price of a KAU ranged from approximately \$19 CAD to \$24 CAD, KCUs traded at approximately \$21 CAD.²¹⁸

²¹⁵ Climate Change Research Institute of Korea et al., *Republic of Korea: The World's Carbon Markets: A case study guide for practitioners*, (September 2016) online: <
https://www.google.ca/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwjdiNKP4qjYAhVm_4MKHUjFCsoQFggqMAA&url=http%3A%2F%2Fwww.ietat.org%2Fresources%2F2016%2520Case%2520Studies%2FKorean_Case_Study_2016.pdf&usg=AOvVaw16aRP8aXSsgj4Tm94p7EC> at 2. [Korea ETS Practitioner Guide]

²¹⁶ Korea ETS Practitioner Guide, *ibid* at 4.

²¹⁷ Korea ETS Practitioner Guide, *supra* note 215 at 3.

²¹⁸ Korea ETS Practitioner Guide, *supra* note 215 at 5.

4 SECTION 4: CARBON LEAKAGE & TRADE MECHANISMS

While the ambitions of Canada and its trading partners to implement a price on carbon appear to come from a desire to reduce GHG emissions and comply with their NDCs under the *Paris Agreement*, there are potential flaws in the design of any carbon pricing initiative. One near-universal concern is leakage, which has been mentioned periodically in this paper. Carbon leakage is a multi-dimensional issue that can have negative effects on environmental, economic and social spheres within a given jurisdiction.²¹⁹ At its most base, carbon leakage occurs due to the shift of production or investment caused by the presence of environmental regulation, including carbon pricing. From an environmental perspective, carbon leakage can be defined by the shift of GHG emissions from a carbon pricing jurisdiction to a non-carbon pricing jurisdiction or to a carbon pricing jurisdiction with a lower rate.²²⁰ This shift in emissions can take place by a shift in production (production leakage) to shift part or all production outside the carbon pricing jurisdiction. It may also take place through a shift in investment (known as investment leakage) where a company can choose to establish a new facility over one in the carbon pricing jurisdiction due to its environmental regulations or through other means.²²¹ The related socio-economic impacts of this shift include resulting job losses and the social impacts of such unemployment.²²²

Policies to induce leakage do not have to be directly linked to procuring allowances or paying a carbon tax. It may also be through indirect costs to industry, specifically where upstream regulated sources may pass through costs to a sector, such as an energy company passing through cost to industry.²²³ Factors that may affect the ability for industry to then pass through these direct and indirect costs to consumer include exposure to international competition, market concentration, product differentiation in the market, technological changes to reduce emissions during production, transportation costs associated with the industry (such as

²¹⁹ Marcu, Andrei, et al., "Carbon leakage: An Overview" (2013) 79 CEPS Special Report 1 at 3. [Marcu]

²²⁰ Marcu, *supra* note 219 at 2.

²²¹ Marcu, *supra* note 219 at 4.

²²² Marcu, *supra* note 219 at 3.

²²³ Marcu, *supra* note 219 at 9.

shipping of materials or final products), exchange rate sensitivities and customer tolerance to price increases.²²⁴

Leakage arguments are often advanced by emissions intensive and trade exposed (“EITE”) industries during the development of a carbon pricing scheme. For instance, the Ontario Chamber of Commerce highlighted industry concern with leakage potential in its comments on the province’s cap-and-trade system.²²⁵ In a more recent example, the Canadian Fuels Association made a statement warning Canada against climate leadership in light of the US withdrawal from the *Paris Agreement*.²²⁶ Jaccard et al. note that it is these EITE industries that feel a concentrated effect of GHG reducing policies, and thus have the most to benefit from aggressively campaigning against them.²²⁷ Yet, realized data of leakage occurring is limited. The arguments of industry and their related political concerns are based on ex-ante (forecasting) studies beginning with the carbon market provisions in the *Kyoto Protocol*. These studies have continued through the development of any given carbon pricing scheme. They often declare that leakage would occur as a result of the carbon pricing mechanism.²²⁸

These ex-ante studies make it obvious why leakage concerns have been taken seriously by policymakers. They often state that high rates of leakage are a direct result of the studied carbon pricing scheme. Examples of leakage being considered can be found in the *Pan-Canadian Framework*, which saw the minimization of carbon leakage as one of the guiding principles in its development.²²⁹ Further illustrative is the attention paid to leakage thus far in the development of the fourth phase of the EU ETS, which is discussed later in this paper. Yet, the results of ex-post (results-based) studies have not been able to find evidence of leakage.²³⁰ Figure 4 demonstrates the differences in ex-ante and ex-post studies of the EU ETS as an example of this phenomenon.

²²⁴ Marcu, *supra* note 219 at 10.

²²⁵ O’Dette, Allan, “Cap and trade program design options (EBR Registry Number 012-5666”, (15 December 2015) *Ontario Chamber of Commerce*, online:< <http://www.occ.ca/wp-content/uploads/2013/05/Cap-and-Trade-Submission-December-2015.pdf>>.

²²⁶ Boag, Peter, “Carbon Leakage – A vacuum more than a leak” (June 2017) *Canadian Fuels Association* online: < http://www.canadianfuels.ca/website/media/PDF/Newsletters/June2017_commentary_carbonleakage_EN.pdf>.

²²⁷ Jaccard et al., *supra* note 1 at 6.

²²⁸ Branger & Quirion summarize the findings of these studies at 6.

²²⁹ *Pan-Canadian Framework*, *supra* note 104 at 7.

²³⁰ Branger, Frédéric & Philippe Quirion, "Would border carbon adjustments prevent carbon leakage and heavy industry competitiveness losses? Insights from a meta-analysis of recent economic studies" (2013) 52 CIRE Working Papers at 2. [Branger & Quirion]

Figure 4

Ex-Post Reviews of Carbon Pricing-Induced Leakage in the EU ETS

Paper	Rate of Leakage	Sectors Covered	Period Reviewed
Chan, Li, & Zhang ²³¹	No evidence	Cement, iron, and steel	
Ellerman, Convrey, & Prethius ²³²	No evidence	Oil refining, aluminum, iron, steel, cement	First Phase
Boutabba & Lardic ²³³	Negligible	Cement, Steel	2001-2011
Boutabba & Lardic ²³⁴	Negligible	Aluminum	EU ETS up 2015

The mix of findings between ex-ante and ex-post studies have raised doubts about the true potential for leakage caused by carbon pricing initiatives. There are some potential causes for the discrepancies in results. Firstly, the ex-ante studies almost all use a similar methodology, which is a Computable General Equilibrium Model ("CGM") relying on the Global Trade Analysis Project ("GTAP") 5.0 - 7.1 databases.²³⁵ Secondly, in particular, EU ETS allowances have traded at a low value, which mitigates the potential for leakage. This is somewhat logical - the lower the cost to industry, the lower potential for the carbon pricing scheme to induce leakage as costs can be absorbed or passed-on to consumers. Thirdly, there is also the potential that free allocation, which will be described in detail momentarily, to the industry may be effective at limiting the impact of the carbon pricing scheme on industry. Thus, there is cause to doubt both the findings of the ex-ante and ex-post studies. Further ex-post analysis is needed to come to greater certainty.

With doubt, comes caution, which is apparent in both the academic literature on leakage and in governmental policy. As such, there is a strong body of literature on leakage mitigation tactics. Several options are proposed to limit the potential for leakage. These options include free allocation of emission allowances and rebates to EITE industries, border carbon adjustments and

²³¹ Chan, Hei, Sing Li & Shanjun Zhang, "Firm Competitiveness and the European Union Emissions Trading Scheme," (2013) 63 *Energy Policy* 1056 at 1079.

²³² Ellerman, A Denny et al., *Pricing Carbon: The European Union Emissions Trading Scheme*, (London: Cambridge University Press, 2010) at 202.

²³³ Boutabba, Mohammed Amine & Sandrine Lardic, "EU Emission Trading Scheme, Competitiveness and carbon leakage: new evidence from cement and steel industries" (2017) 255 *Ann Oper Res* 47 at 59.

²³⁴ Boutabba, Mohammed Amine & Sandrine Lardic, "Does European Primary aluminum sector is exposed to carbon leakage? Insights from rolling analysis" (2017) 37:1 *Economic Bulletin* 614 at 617.

²³⁵ Branger & Quirion, *supra* note 230 at 11 demonstrates this well.

the development of international (linked) carbon markets. Each of these options has their own pros and cons. As significant global attention is being paid to issue of leakage, these mechanisms are likely the next frontier of development in carbon pricing systems, and of particular importance if NDC-stated intentions to develop carbon markets continue to prevail. As such, this paper will analyze these options from both a general, academic perspective and from the Canadian national carbon pricing context.

4.1 FREE ALLOCATION

Free allocation and rebates to industry remain the most common way of mitigating leakage. These mechanisms are generally based on the likelihood of leakage in a given sector. Free allocation of carbon emissions allowances occurs in an emissions trading system to prevent leakage on two fronts. The first rationale is to accommodate for the carbon-intensive nature of EITE industries by permitting a greater transition period.²³⁶ Thus, free allocation is not seen as a permanent fixture of the ETS but rather a temporary accommodation subject to reductions over time. Companies should, under this ideology, understand that the temporary measure is there to allow the company to transition to cleaner technologies in its production chain. The second is to limit the impact the ETS will have on the competitiveness of a given product by eliminating all or some of the cost of compliance. Despite its prevalence in many ETSs, free allocation is highly contentious for a number of reasons. For one, it seems counterintuitive to the purpose of the ETS to allow for exemptions based on a company being highly contributory to the jurisdiction's overall GHG emissions. Another issue arises when reductions in the quantity of free allocated allowances do not occur as scheduled due to industry protest. Thus, there could be a lack of incentive for production changes to occur when allowances are given. The third issue is that there is no standard methodology on how to distribute free allowances. For instance, Ontario uses four methods to determine free allocation: product output, energy use, historical based method and the direct method. Product output is used for grey cement, beer, hydrogen, liquid iron, certain types of steel, and coke.²³⁷ Energy use utilizes historical facility emission intensities

²³⁶ The government of Ontario, "Distribution of allowances free of charge" *Cap and Trade: Program Overview* online: <<https://www.ontario.ca/page/cap-and-trade-program-overview#section-2>>.

²³⁷ Ministry of Environment and Climate Change, *Methodology for the Distribution of Ontario Emission Allowances Free of Charge*, (16 May 2016) at s 2., table 1a & table 1b. [Ontario Free Allocation]

for products.²³⁸ The historical based method uses historical absolutes or emissions intensity tied to specific facilities.²³⁹ The direct method allows for free allocation to institutional facilities (such as York University's cogeneration electricity generating station) and facilities that incinerate municipal or hazardous wastes.²⁴⁰ Contrary to this approach, the EU determines whether an industry is EITE and at risk for leakage on a cost-impact basis. This may occur if a company saw an increase in production cost of at least 5% upon implementation of the ETS and the company's trade intensity is above 10% with non-EU countries.²⁴¹ Entire sectors can be deemed to be at risk under this methodology if direct and indirect costs of the ETS are above 30% or non-EU trade intensity for the sector is above 30%.²⁴²

4.2 LINKAGE

Linking carbon pricing systems is only a phenomenon in the cap-and-trade systems analysed in this paper. As demonstrated previously, the WCI, RGGI and EU ETS are all examples of cap-and-trade systems where linkage of independent systems has taken place. What's notable to begin this analysis is that all linkage that has occurred in these systems to date has been contemplated from the outset. While the WCI originally only consisted of California's cap-and-trade system, Ontario and Québec were original drafters of the WCI model rule and had purpose-built their own province-wide cap-and-trade systems to link with the WCI eventually. The RGGI and EU ETS were comprised of state and nation states that either participated in the design and then linked from the beginning of these cap-and-trade systems or later designed their systems to comply with their rules. What has not happened to date is an independent, effective cap-and-trade or carbon tax adjusting to link within another system, or the amalgamation of two systems.

This is an important observation, within the idea of global carbon leakage. While there has not been any proven carbon leakage within linked jurisdictions, it remains to be seen as to

²³⁸ Ontario Free Allocation, *ibid* at s. 2.2 table 2a, table 2b.

²³⁹ Ontario Free Allocation, *supra* note 237 at s 2.3, table 3.

²⁴⁰ Ontario Free Allocation, *supra* note 237 at s 2.4, table 4a, table 4b.

²⁴¹ *Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC* (European Parliament 13 October 2003) at Art 10a at s 15. [2003/87/EC]

²⁴² 20003/87/ec, *ibid* at Art 10a s 16.

whether carbon leakage will eventually occur between carbon pricing jurisdictions. In theory, as carbon pricing becomes more prevalent, it may not be so much of a question as to whether there is or is not a carbon price, but the value, stability, and trajectory of two compared carbon prices. Linking carbon systems may also help to reduce leakage to non-carbon pricing jurisdictions by creating a larger block of similar trading partners.²⁴³ The issue of undervalued or non-valued carbon prices brings into consideration the "free rider" issue, where global emissions reductions are only achieved by a subset of countries, to the benefit of all. Linking systems would help to create consistency and thus reduce the free rider problem. It also sends a political message where a collective of jurisdictions are all addressing climate change in a similar and actual manner.

The World Bank, in particular, is a proponent of linking carbon pricing systems to create an international regime. Global carbon markets could perhaps reduce or compliment the need for multilateral climate change negotiations under the UNFCCC. Instead, these negotiations would change shape, almost to become more similar to trade negotiations under the World Trade Organization ("WTO") and *General Agreement on Tariffs and Trade* ("GATT"). Keohane et al. propose that a "Club of Carbon Markets" would result in "deep reductions in emissions by supporting the development, harmonization and increased ambition of domestic carbon markets, including in fast-growing markets."²⁴⁴ Keohane et al. find this approach to be more effective than UNFCCC led climate commitments, such as *Kyoto* and *Paris*, which they note have not lead to emissions reductions to date.²⁴⁵ Similarly, the Organization for Economic Cooperation and Development ("OECD") found that linking of carbon systems, either by trading emissions allowances between systems or by trading offset credits, reduced a theoretical international carbon price in compared to other leakage countermeasures. Linking systems in this analysis also help to reduce carbon leakage.²⁴⁶

To achieve a global international carbon market or a collective of multinational markets, a number of factors would need to be taken into consideration. First-and-foremost is the method

²⁴³ Lanzi, Elisa et al., "Addressing competitiveness and carbon leakage impacts arising from Multiple carbon markets: A modeling assessment" 58 *OECD Environment Working Papers* at 7. [Lanzi et al.]

²⁴⁴ Keohane, N, A Petsonk & A. Hanafi, "Toward a club of carbon markets" (2017) 144 *Climate Change* 81 at 82. [Keohane et al.]

²⁴⁵ Keohane et al., *ibid* at 82.

²⁴⁶ Lanzi et al., *supra* note 243 at 30.

of linking, which in this paper will be confined to linking of emissions trading allowances; however, as mentioned, offsets are also a possibility. Then the issue becomes the nature of an overarching system. Would this system take place through the UNFCCC or outside of it? Keohane et al. argue that it would likely be more efficient to link outside of the UNFCCC.²⁴⁷ Another consideration would be how to recognize emissions units amongst members. Here, criteria for membership and assessing progress of climate mitigation strategies are considerations.²⁴⁸ Additionally, under this consideration would be the types of allowances accepted. No two emissions trading systems are the same. To illustrate, imagine the RGGI and WCI linking. Beyond the price considerations, RGGI only applies to electricity generators. To link, considerations would include whether to accept the RGGI system breadth as is, and allow linkage for only one of the covered sectors in the WCI, or whether the RGGI would have to expand its scope of coverage, or whether the WCI would need to remove sectors from compliance. Further safety mechanisms would also need to be developed in an international system, in particular, to avoid double counting of emissions reductions where emissions allowances cross borders.²⁴⁹

4.2.1 A Canadian perspective on an international carbon trading system

This analysis will leverage the previous section discussing Canada's major trading partners. From Canada's perspective, a scenario where all major trading partners are linked might be most advantageous to combat leakage based on a volume of trade. Several additional considerations to those generally discussed above is required. First, all of Canada's major trading partners have different national carbon price between \$3.84 and \$21 (Figure 5). These systems were not designed to link into one another. Each nation's climate goals are also different, utilizing different end dates and quantifying emission reductions in different ways. Even which GHGs are recognized vary (Figure 6). Within Canada, subnational systems, even in 2022 when the final proposed national carbon price of \$50/t CO₂e is achieved, will still have variances between carbon tax and cap-and-trade systems. Also notable is that the national carbon price and the federal backstop is a carbon tax. International linkage between tax jurisdictions could likely

²⁴⁷ Keohane et al., *supra* note 247 at 83.

²⁴⁸ Keohane et al., *supra* note 247 at 85.

²⁴⁹ Keohane et al., *supra* note 247 at 85.

not occur; thus only Québec, Ontario and any other province which opts for a cap-and-trade system, will only be able to participate.

Figure 5

Variations in Carbon Prices amongst Canada's Trading Partners at a National and Sub-National Level

National Minimum Carbon Price in 2018		Sub-National Systems Minimum Carbon Price in 2018	
Jurisdiction	Price (\$CAD)	Jurisdiction	Price (\$CAD)
Canada (Minimum)	\$10 Federal Backstop only applicable if no provincial/territorial price	Alberta ²⁵⁰	\$30
		BC ²⁵¹	\$35
		²⁵²	\$25 (Proposed)
		Saskatchewan	Assumed \$10 ²⁵³
		Ontario ²⁵⁴	\$14.35
		Québec ²⁵⁵	\$14.68
		New Brunswick	Assumed \$10
		Nova Scotia	Assumed \$10
		PEI	Assumed \$10
		Newfoundland	Assumed \$10
		Yukon	Assumed \$10
		NWT ²⁵⁶	\$10
US	N/A	California ²⁵⁷	\$18.43
		RGGI States ²⁵⁸	\$2.80
Mexico	\$3.84 (Assumes pilot price) ²⁵⁹	N/A	N/A
EU ETS	\$6.23 ²⁶⁰	N/A	N/A

²⁵⁰ Woods, *supra* note 120 at 2.

²⁵¹ BC Budget 2017, *supra* note 141 at 67.

²⁵² Manitoba Sustainable Development, *supra* note 145 at 15.

²⁵³ (All "Assumed \$10" means that the Federal Backstop carbon price is assumed to be applied in this jurisdiction based on current political developments as of December 26, 2016).

²⁵⁴ Auction Notice, *supra* note 159 at 5.

²⁵⁵ Auction Notice, *supra* note 159 at 5.

²⁵⁶ NWT Carbon Pricing Discussion Paper, *supra* note 154 at 6.

²⁵⁷ Auction Notice, *supra* note 159 at 5.

²⁵⁸ RGGI Model Rule, *supra* note 191 at s XX-1.2(bc).

²⁵⁹ Mexico₂ et Al, *supra* note 201 at 5.

²⁶⁰ World Bank Group, *supra* note 84 at 14.

China	Unknown	Unknown	Unknown
Japan	\$3.84 ²⁶¹	N/A	N/A
South Korea	Approx. Average of \$21 (Based on 2017 results) ²⁶²	N/A	N/A

Figure 6

Variations on Nationally Determined Contributions in Compliance with the *Paris Agreement*²⁶³

	Canada	US	EU	China	Japan	Korea	Mexico
Base Year	2005	2005	1990	2005	2013	2030	2030
End Year	2030	2025	2030	2030	2030	2030	2030
Target Reduction (%)	30	26-28	40	60-65/Unit GDP	26	37	25
Type	Absolute Reduction		Absolute Reduction	Absolute Reduction/Unit GDP	Absolute Reduction	BAU	BAU
Gases Covered	CO2	CO2	CO2	CO2	CO2	CO2	CO2
	CH4	CH4	CH4		CH4	CH4	CH4
	N2O	N2O	N2O		N2O	N2O	N2O
	SF6	SF6	SF6		SF6	SF6	SF6
	PFCs	PFCs	PFCs		PFCs	PFCs	PFCs
	HFCs	HFCs	HFCs		HFCs	HFCs	HFCs
	NF3	NF3	NF3		NF3	NF3	Black Carbon

²⁶¹ World Bank Group, *supra* note 84 at 28.

²⁶² Korea ETS Practitioner Guide, *supra* note 215 at 3 - 5

²⁶³ Government of Canada, *Canada's 2017 Nationally Determined Contribution Submission to the United Nations Framework Convention on Climate Change: Revision*, (11 May 2017) at 8; Government of the United States of America, *USA First NDC Submission*, (3 September 2016) at 3; Latvian Presidency of the Council of the European Union, *Submission by Latvia and the European Commission on Behalf of the European Union and its Member States*, (6 March 2015) at 2; Government of China, *Enhanced Actions on Climate Change: China's Intended Nationally Determined Contributions*, (3 September 2016) at 3; Government of Japan, *Submission of Japan's Intended Nationally Determined Contribution*, (8 November 2016) at 5; Republic of Korea, *Submission by the Republic of Korea: Intended Nationally Determined Contribution*, (3 November 2016) 1 – 3; Government of Mexico, *Intended Nationally Determined Contribution*, (21 September 2016) at 2-3; all online: <<http://www4.unfccc.int/ndcregistry/Pages/All.aspx>>.

In a scenario where only individual provinces link to an international trading system, questions about legality come to the fore. Specifically, what powers have allowed Ontario and Québec to link to California? Would the legality of such linkage change if a province entered a linkage agreement with a nation?

These questions are centered on the concept of Federalism in Canadian law. The basis for federalism is contained within s 91 and 92 of the *Constitution Act, 1867*, which specifies the “Division of Powers” between the provinces and the Federal government.²⁶⁴ Yet it is s 132 of the *Constitution Act*, that limits the powers of provincial government in the international sphere. This provision states that only the Federal government may enter into foreign treaties on behalf of itself or the provinces.²⁶⁵ The *Vienna Convention on the Law of Treaties of 1969*, further prohibits the Provinces from entering into treaties.²⁶⁶ Yet, agreements are permissible under International Law and under Canadian law. These are contracts governed by the national law of one nation, Memoranda of Understanding or arrangements.²⁶⁷ These documents are non-binding and exemplified by the original WCI Design document. If linkages were to be formalized, it would thus have to be at a national level. This is likely a complicated option for Canada in its subnational carbon tax and a cap-and-trade system, having now granted some level of autonomy to the Provinces in developing carbon pricing schemes.

4.3 BORDER CARBON ADJUSTMENTS

Border Carbon Adjustments (“BCAs”) sometimes also referred to as Border Tax Adjustments, are the most complex mechanism proposed to combat leakage; however, the ex-ante studies also indicate that they may be the most effective (Figure 7). BCAs are complicated to impose because of their interactions with international trade law. Their contemplation is not limited to academia, as governments imposing or considering carbon pricing measures have studied the potential for imposing a BCA. Each important consideration will be highlighted below.

²⁶⁴ *Constitution Act, 1867*, 30& 31 Victoria c 3(UK) at s 91 & 92. [*Constitution Act, 1867*].

²⁶⁵ *Constitution Act, 1867*, *supra* note 264 at s 132.

²⁶⁶ Vienna Convention on the Law of Treaties, (May 23, 1969), 1155 U.N.T.S. 331 at Art 2, s 1(a).

²⁶⁷ de Eyre, Steven, “Constitutional and Legislative Authority for Intergovernmental Agreements between US States and Canadian Provinces” (2010) *Canada-US Law Institute & Whatcom Council of Governments* at 1.

What follows in this section is a brief overview of the provisions of the *GATT* and their theoretical implications on BCAs in all forms. This area will also highlight any notable jurisprudence relevant to the application of BCAs at the WTO. Following this will be a listing of previous governmental contemplation of BCAs in Canada, the US and in the EU. Finally, this section will conclude with an overview of considerations for Canada for any future thought of imposing a BCA, including under the current structure of the *North American Free Trade Agreement*, (“*NAFTA*”).

4.3.1 Introduction to *GATT* & WTO Considerations

Several provisions under the *GATT* are triggered by BCAs, which has led to mixed literature on whether such devices would even be legal under international trade regulation. The latter body of work seems to come to consensus that BCAs would likely be legal if carefully crafted, however, with the caution that no practical trial has taken place, and thus one can never be 100% certain. Holmes et al., in particular, goes as far to prove that BCAs have been considered by the WTO in non-legal proceedings and have not been condemned. In fact, they seem to imply that the thought from these two instances is that the WTO is open to the idea of a well-crafted, mindful BCA. His line of reasoning comes from a quote from former Director-General of the WTO, Pascal Lamay, who while still in his role stated:

If we look at the relationship between WTO rules and previous Multilateral Environment Agreements, we see that while there may be theoretical issues here and there, in practice, [Multilateral Environmental Agreements (“MEAs”)] that have a trade limiting component, there have been no problems of interaction between trade and these agreements. If there is an MEA post-Kyoto, I do not think we will have a problem adjusting.²⁶⁸

The MEA referred to by Lamay in this quote was in reference to policy measures which may impact international trade. It refers to *GATT* Article XX (to be discussed momentarily) as being the permissive factor for these mechanisms. Further, Holmes et al. also point to a WTO study conducted with the United Nations Environment Programme (“UNEP”), which more concretely points to the permissibility of environmental border measures.

The general approach under WTO rules has been to acknowledge that some degree of trade restriction may be necessary to achieve policy objectives as long

²⁶⁸ Holmes, Peter, Tom Reilly & Jim Rollo, *Border carbon adjustments and the potential for protectionism* (2011) 11:2 *Climate Policy* 883 at 885. [Holmes et al.]

as a number of carefully crafted conditions are respected. WTO case law has confirmed that WTO rules do not trump environmental requirements. If...a border measure related to climate change was found to be inconsistent with one of the core provisions of the *GATT*, justification might nonetheless be sought under the general exceptions to the *GATT* provided that two key conditions are met.²⁶⁹

Holmes et al. point out that the two conditions are that any such BCA would have to be justifiable under Article XX and that the BCA does not invoke arbitrary discrimination or disguised restrictions on trade.²⁷⁰ Before examining the legalities of BCAs through the lens of relevant *GATT* provisions and WTO jurisprudence, it is necessary to explain the various forms that BCAs could take.

4.3.2 Types of BCAs & their potential effectiveness

BCAs are generally divided into three categories: export rebates, import charges and full BCAs. Export rebates would allow for a subsidy on products which are subject to a carbon price in its home jurisdiction to be applied upon export to remove, in-part or in-full, negative effects on competitiveness.²⁷¹ Thus only products made and consumed domestically would incur the cost of compliance with the carbon price. This will not address the issue of competitiveness in the domestic market. Thus, the effectiveness of this policy would hinge on whether the displaced foreign emissions exceed additional home emissions.²⁷² Export rebates also need to be carefully balanced not to remove the incentive for production changes to be made.²⁷³ To reduce foreign emissions related to the consumption of a product, the carbon price would still need to be sufficient to incentivize production changes at the facility level. Fischer & Fox suggest that this would be best done by pricing the rebate based on sector-wide emission intensity rather than by firm-level emissions.²⁷⁴ Yet, this may be a flawed tactic as if sector-wide emissions intensity is quantified at its actual level, only those facilities with above-average emissions would retain an incentive to reduce their emissions. In this scenario, the above-average facilities only receive a partial rebate on their exported product. There would be no incentive for facilities with average

²⁶⁹ Holmes et al., *supra* note 268 at 885.

²⁷⁰ Holmes et al., *supra* note 268 at 885.

²⁷¹ Fischer, Carolyn, Alan K Fox, "Comparing policies to combat emissions leakage: Border carbon adjustments versus rebates" (2012) 64 *Journal of Environmental Economics and Management* 199 at 206 [Fischer & Fox]

²⁷² Fischer & Fox, *ibid* at 206

²⁷³ Fischer & Fox, *supra* note 271 at 214.

²⁷⁴ Fischer & Fox, *supra* note 271 at 214.

or below-average emissions to reduce their emissions caused by their exported goods. Thus, it might be preferable to establish either a moving facility average, which falls below industry average emissions and may reduce over time, or to base the rebate on facility performance against industry average emissions, with the top performers receiving the largest rebate. An export rebate could be applied through free allocation mechanisms or in the form of tax subsidies.²⁷⁵

Import charges would work oppositely to export rebates, as they would only apply to imported goods in a carbon pricing jurisdiction. They attempt to level the playing field for domestic consumption and do not try to reduce the impact of a carbon price on the international market for domestic exporters.²⁷⁶ Import charges could be incurred by either requiring importers to purchase emission allowances at the border based on the emissions of their facility, by product, or by applying a tariff on goods imported. As with export rebates, there are several difficulties that will arise from this approach.

The first hurdle will be how to measure emissions of international facilities where reporting standards in their home country may not exist or have different methodology. The methodology is crucial to consider, as an analysis of the same product under different methodology can produce drastically different results. Holmes et al. utilize cement studies to illustrate this point which varies between 700 – 1,200 kg of CO₂ per tonne cement produced.²⁷⁷ Two potential solutions for this issue have been proposed by past attempts at establishing a BCA. The *Waxman-Markey Bill* proposed requiring importers to purchase allowances to be based on foreign national energy intensity within that sector. It also allowed for the quantity of allowance needed to be purchased to be based on the share of emissions covered by free allocation in the US home market.²⁷⁸ The *Low Carbon Economy Act*, required importers to have emission permits when sectoral emissions were above an established baseline level.²⁷⁹ Secondly, and equally important, would be how to have such facilities disclose emissions to a governing

²⁷⁵ Bohinger, Cristoph, Knut Einar Rosendahl & Halvor Briseid Storrosten, "Robust policies to mitigate carbon leakage" (2017) 149 *Journal of Public Economics* 35 at 35. [Bohinger et al.]

²⁷⁶ Fischer & Fox, *supra* note 271 at 200.

²⁷⁷ Holmes et al., *supra* note 268 at 890.

²⁷⁸ *American Clean Energy & Security Act*, (2009) ACES HR 2454 at s 766. [Waxman-Markey Bill]

²⁷⁹ Fischer & Fox, *supra* note 271 at 200.

authority in the carbon pricing jurisdiction. Thirdly, there would also have to be a methodology employed by the carbon pricing jurisdiction that decides how upstream emissions embodied in a product may factor into consideration. The further upstream, the more difficult the calculation will become.²⁸⁰ Fourth, the polluter pays versus the consumption principle come ahead in the application of an import charge. Should the importer pay the cost of import charge or should the exporter pay?²⁸¹

Full BCAs combine export rebates and import charges and thus also come with all of their concerns. A full BCA would subsidize exported goods to remove, in-full or in-part the burden of the carbon price to international competitiveness as well as apply a charge on imported goods to level the playing field in its domestic market. Given that full BCAs apply both tactics, it should not be shocking that the literature has identified it as having the greatest potential to reduce GHG emissions.²⁸²

Overall BCAs are considered to be an effective leakage reduction tool when modeled on ex-ante studies. Several academics have undertaken modelling the effect of carbon prices and potential BCA options under the Kyoto Protocol commitments, the EU ETS and the US. To date, little academic work on leakage potential in Canada and the effect of a BCA can be found. An example of the findings of the aforementioned studies are summarized in Figure 7. Note that a sample of these studies was elected to be taken as many studies depict their findings on leakage and the impact of BCAs in graph form only. Rather than guess at the approximate impact, a sample was taken. Thus, while incomplete, one can see that there have been findings that BCAs do reduce the potential for leakage and have some capacity for protectionism as well. The latter point should heavily resonate with the later discussion on free trade & legality of BCAs through the *GATT*.

²⁸⁰ Monjon, Stéphanie & Philippe Quirion, “A border adjustment for the EU ETS: reconciling WTO rules and capacity to tackle carbon leakage” (2011) 11:5 *Climate Policy* 1212 at 1214. [Monjon & Quirion]

²⁸¹ Holmes et al., *supra* note 268 at 890-891.

²⁸² Fischer & Fox, *supra* note 271 at 326;

Figure 7

4.3.2.1 EU-ETS Based Studies

Study	Jurisdiction	Sectors	Sectoral Leakage Potential	Trade Mechanism Applied	Leakage Post BCA	
					Steel	Minerals
Kuik & Hofkes ²⁸³	EU ETS	Steel	35%		29%	~14%
		Minerals (Incl Cement)		19%	Full BCA, foreign baseline	2%

4.3.2.2 US Based Study Findings

Study	Carbon Price Applied (Import Jurisdiction)	Jurisdiction	Sectors	Emissions Changes Caused by Carbon Price	Sectoral Leakage Potential	Trade Mechanism Applied	Effect on Sector Leakage - Production Loss Avoided		Effect on Sector Leakage - Net Export Loss Avoided	
							Electricity	Petroleum	Electricity	Petroleum
Fischer & Fox ²⁸⁴	\$50 USD	US National	Electricity	-20.10%	5%		4%	14	61%	148%
						Import Charge (Foreign Carbon Intensity)				
			Petroleum	-10.60%	10%	Import Charge (Home Carbon Intensity)	3%	10%	53%	102%
						Export Rebate	5%	12%	71%	107%
Full BCA (Foreign Carbon Intensity)	8%	25%	132%	255%						

²⁸³ Kuik, Onno & Marjan Hofkes, "Border adjustment for European Emissions Trading: Competitiveness and carbon leakage" (2010) 38:4 *Energy Policy* 1741 at 1744-1746.

²⁸⁴ Fischer & Fox, *supra* note 271 at 208-209.

Of course, the caution is that these ex-ante studies could end up not reflecting the practical reality as seems to be the case with leakage. Yet, given that BCAs have not been implemented to date this is the best information available. In terms of emissions reduction, Winchester states that there would be a minor impact on global emissions and thus, there is an environmental impetus to implement such measures.²⁸⁵ Like carbon pricing, emissions will not drop quickly because they have been fiscally quantified within a product. What matters is the level of penalty for emitters, which drives motivation to switch to cleaner methods of production, and the investment of proceeds from the carbon price into complementary measures.

Each of these options for a BCA will run into conflict with *GATT* provisions, which are outlined in depth below. For instance, export rebates may contravene anti-dumping provisions if an importing nation of such good feels that they are being subsidized in a manner that makes the price of the good artificially low. Import charges could run afoul Most Favoured Nation (“MFN”) provision under Article I, Article II:2(b) and National Treatment provision under Article III. Full BCAs will need to take into consideration all provisions considered by export rebate and import charges.

4.3.3 Case Studies on BCAs: The US & EU-ETS

This section will outline the attempts in both the US and, more recently, in the EU to establish a BCA. No attempt to date has been successful. In the US, it is apparent been internal politics that has prohibited a BCA from being established, rather than the influence of international markets. While this is also true in the case of the EU, its experience with including the Aviation Sector as part of the EU-ETS is indicative at the potential for international politics to prohibit the implementation of a BCA, even prior to considerations of the *GATT* and WTO.

4.3.3.1 The US Experience

4.3.3.1.1 Low Carbon Economy Act of 2007, S 1766

The *Low Carbon Economy Act of 2007*, (“*Bingaman/Specter Bill*”) is the first instance of a BCA being proposed as part of a national carbon pricing scheme in the US. If enacted, the

²⁸⁵ Winchester, Niven, “The impact of border carbon adjustments under alternative producer responses” (2011) 192 MIT Joint Program on the Science and Policy of Global Change at 8.

Bingaman/Specter Bill would have established an International Reserve of Allowances.²⁸⁶ Importers would be required to purchase these allowances for energy-intensive goods.²⁸⁷ The number of allowances required would be determined against a sectoral baseline. Importers would have been required to begin purchasing allowances as of 2020.²⁸⁸ An importer would be allowed to utilize foreign allowances from a comparable cap-and-trade system already applied to the product in its exporting nation instead of acquiring allowances from the US International Reserve.²⁸⁹ The *Bingaman/Specter Bill* was introduced to the US Federal Senate but did not proceed further.

4.3.3.1.2 American Clean Energy and Security Act of 2009

The second attempt to establish a BCA came in the more well-known, *American Clean Energy and Security Act of 2009*, ("Waxman-Markey Bill"). This document proposed a national climate registry, reporting registry, ETS, and BCA. The *Waxman-Markey Bill* covered facilities producing over 25,000 t CO₂e GHG, vehicle fleets producing more than 25,000 t CO₂e GHG and electricity delivered to EITE sectors.²⁹⁰ The ETS proposed by the bill was a cap-and-trade system that would have seen a 26.4% reduction in cap-size from 2012 to 2031 and an 88% reduction in cap-size by 2050.²⁹¹ The BCA was created by way of an international emission allowance reserve.²⁹² This system would have required US importers of emissions intensive products to purchase additional allowances in the cap-and-trade system to cover the emissions produced by those products where their exporting nation had yet to implement "GHG compliance obligations commensurate with those that would apply in the US."²⁹³ The *Waxman-Markey Bill*, however, did not come into force, and thus many details about its implementation were not developed. The *Bill's* failure is thought to be a result of politics: a US Republican Senate that opposed the Democrat-initiated Bill, there were allegations that the messaging of the *Bill* was too focused on green jobs, rather than climate change itself, and that there were too

²⁸⁶ *Low Carbon Economy Act of 2007*, (110th Congress, August 2, 2007) s 1766 at s 502(A)(11). [*Bingaman/Specter*]

²⁸⁷ *Bingaman/Specter*, *ibid* at s 502(E)(2).

²⁸⁸ *Bingaman/Specter*, *supra* note 286 at s 502(F)(1)(a).

²⁸⁹ *Bingaman/Specter*, *supra* note 286 at s 502(F)(4)(b).

²⁹⁰ *American Clean Energy and Security Act*, (11th Congress, 1 Sess., 2009) HR 2454 at s 713. [*Waxman-Markey*]

²⁹¹ *Waxman-Markey*, *ibid* at s 725(1)(e).

²⁹² *Waxman-Markey*, *supra* note 290 at s 755(3).

²⁹³ Zhang, Zhong Xiang, "The US proposed carbon tariffs and China's response" (2010) 38:5 *Energy Policy* 2168 at 2170 ft nt 1.

many concessions to industry that prevented wide acceptance by environmental groups as well as that the public was not fully engaged in the adoption.²⁹⁴

4.3.3.2 *The European Experience*

4.3.3.2.1 The EU Experience with the Aviation Sector

While not a BCA, the EU experience in implementing allowance requirements for international flights originating or landing within the European Economic Area is indicative of the potential for political backlash.²⁹⁵ It also may have some bearing on why consideration of BCAs within the fourth-phase of the EU ETS has been dropped. Aviation was to be included in the third phase of the EU ETS as of 2012, with legislation being adopted to do so in 2008.²⁹⁶ This announcement, despite the European Court of Justice declaring that the aviation sector's inclusion in the EU-ETS would be justified as an Article XX exception to the *GATT* in all but limited circumstances, was met with global hostility.²⁹⁷ China and the US were the most hostile nations to the inclusion of the aviation sector. China, threatened to prohibit Hong Kong Airlines from purchasing an order of 10 Airbus A380 aircraft. Airbus is a subsidiary of the EU Aerospace and Defence Group.²⁹⁸ China also announced that it would refuse to allow its airlines to pay any charges from the EU-ETS.²⁹⁹ The US Senate passed the *European Union Emissions Trading Scheme Prohibition Act of 2011*, (“*Thune Bill*”), which prohibited operators of civil aircraft from participating in the EU ETS.³⁰⁰

²⁹⁴ Walsh, Bryan, “Cap and Trade is Dead (Really, Truly, I’m not Kidding). Who’s to Blame?” (22 July 2010) *Time Magazine* online: < <http://science.time.com/2010/07/22/cap-and-trade-is-dead-really-truly-im-not-kidding-whos-to-blame/>>; Wasserman, Lee, “Four ways to kill a climate bill” (25 July 2010) *The New York Times*, online: < http://www.nytimes.com/2010/07/26/opinion/26wasserman.html?_r=1&hp>.

²⁹⁵ EU-ETS Handbook, *supra* note 205 at 89.

²⁹⁶ EU-ETS Handbook, *supra* note 205 at 89; European Commission, *Directive 2008/101/EC amending Directive 2003/87/EC so as to include aviation activities in the scheme for greenhouse gas emission allowance trading within the community*, (2009) 13.1.2009; Moore, Michael O. “Carbon Safeguard? Managing the Friction between trade rules and climate policy” (2017) 51:1 *Journal of World Trade* 43 at 54. [Moore]

²⁹⁷ Bartels, Lorand, “The WTO Legality of the Application of the EU’s Emission Trading System to Aviation” (2012) 23:2 *European Journal of International Law* 429 at 466.

²⁹⁸ Moore, *ibid* at 54.

²⁹⁹ Moore, *supra* note 296 at 54; Helm, Dieter, Cameron Kepburn & Giovanni Ruta, “Trade, climate change and the political game theory of border carbon adjustments” (2012) 92 Centre for climate change economics and policy working paper at 23. [Helm]

³⁰⁰ *European Union Emission Trading Scheme Prohibition Act of 2011*, (112th Congress: November 27, 2012) s 1956 at s 2(a).

The strength of this backlash is extraordinary in the sense that Moore estimates that the additional cost to a long-haul flight resulting from inclusion in the EU-ETS was between \$4-24 Euros.³⁰¹ Its effects, however, did result in the EU backing down, to a certain extent, from including aviation within the EU-ETS. In 2013, the EU announced that only flights originating and landing within the European Economic Area would be subject inclusion in the EU-ETS until 2016. After which the International Civil Aviation Organization ("ICAO") would need to develop a global, market-based mechanism for implementation by 2020.³⁰² In 2016 the ICAO developed an offset system known as the *Carbon Offsetting and Reduction Scheme for Aviation* ("CORSA"), which caps emissions at 2020 levels. Any additional levels will require the purchase of offsets. This scheme will be voluntary for the aviation sector from 2021-2026 and mandatory as of 2027.³⁰³ The EU's experience with incorporating international aviation could be a significant indicator for the trajectory of any BCA that is passed into law. Notable is that no challenge under the *GATT* was made. Instead, nations with significant market power in the aviation sector were able to apply non-judicial means to significantly reduce the burden of the proposed climate change mitigation mechanisms, as well as its timeline for full implementation.

4.3.3.2 BCAs considered in the legislative drafting of the 4th Phase EU-ETS

The EU-ETS is currently drafting its next phase. A December 2016 report of proposals for the next phase published by the Committee on the Environment, Public Health and Food Safety (hereinafter referred to as the "ENVI Report") recommended an Import Inclusion Scheme "fully compliant with WTO rules" that focused on low-trade intensity and high emission-intensity sectors, such as cement.³⁰⁴ These sectors would already be covered by the EU ETS and proposes that by June 30, 2019, the European Commission adopt design-based legislation.³⁰⁵ This was considered by the European Parliament in February 2017.³⁰⁶ In April 2017, most of the

³⁰¹ Moore, *supra* note 296 at 54.

³⁰² EU-ETS Handbook, *supra* note 205 at 89.

³⁰³ ICAO, "Report of the Executive Committee on Agenda Item 22" (39th Session, 7 October 2016) at 22-9.

³⁰⁴ Duncan, Ian, "I Report on the proposal for a directive of the European and Council amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments" (13 2017) (COM(2015)0337-C8-0190/2015/2015/0148(COD) at Am 12, p 15. [ENVI Report]

³⁰⁵ *ENVI Report*, *ibid* at Amend. 84 at s 1(a).

³⁰⁶ Erbach, Gregor, "Post-2020 reform of the EU Emissions Trading System" (Briefing: EU Legislation in Progress, February 2017) PE 593.498 European Parliamentary Research Service at 7.

ENVI Report was adopted; however, the BCA proposal was not.³⁰⁷ There was little academic speculation as to why the proposed BCA was not considered further.

4.3.3.3 Canadian Considerations

While Canada has not considered a BCA to the same legislative extent as the US and the EU, some academic work has been done within government. The most notable work was done by the National Round Table on the Environment and Economy (“NRTEE”) within its *Climate Prosperity* series. The third report in this series, titled *Parallel Paths: Canada-US Climate Policy Choices*, focused on climate policy from the perspective of the trade relationship between Canada and the US.³⁰⁸ The report considered three scenarios in light of the *Waxman-Markey Bill*, the first examined where Canada trailed the US in developing climate policy, the second studied a scenario where Canada leads the US in climate policy, and the third looked at a harmonized development of climate policy between the two nations. All scenarios look to 2020 and hope to achieve Canada’s national climate target of 17% below 2005 levels.³⁰⁹ As the report was researched in 2009 and published in 2011, time has largely narrowed reality.³¹⁰ With the election of Trump, the repeal of environmental policy and laws regarding climate change, and the death of the *Waxman-Markey Bill* with no substantial replacement for it, it is largely true that reality lies in the second study, where Canada is emerging as the climate leader. This is not set in stone, as Canada’s federal carbon price is not a guarantee, nor is it comprehensive enough to address the vast array of requirements caused by climate change. The current political hostility towards the environment in the US is also not necessarily a permanent fixture.

The NRTEE identifies that a national carbon price of \$74/t CO₂e would be required to meet Canada’s 2020 target. They also identify that in a scenario that Canada leads the US, Canadian companies would have some competitiveness issues caused by the imposed cost of compliance with the \$74/t CO₂e carbon price.³¹¹ Yet, even so, national economic growth would persist under

³⁰⁷ Erbach, Gregor, “Post-2020 reform of the EU Emissions Trading System” (Briefing: EU Legislation in Progress, April 2017) PE 595.926 European Parliamentary Research Service

³⁰⁸ National Round Table on the Environment and the Economy, *Parallel Paths: Climate Policy Choices* (Ottawa, January 25, 2011) online: < <http://collectionsCanada.gc.ca/webarchives2/20130322142840/http://nrtee-trnee.ca/climate/climate-prosperity/parallel-paths>> at 20. [NRTEE]

³⁰⁹ NRTEE, *ibid* at 54-83.

³¹⁰ NRTEE, *supra* note 308 at 50.

³¹¹ NRTEE, *supra* note 308 at 66.

these conditions at an annual rate of 1.9%. Although, this is lower than the growth under the reference case of 2.0% annually.³¹² To manage this risk, the NRTEE considered several options for Canada: creating a joint carbon allowance market between the US and Canada as a whole, aligning national carbon prices, free allocation, and a flexible BCA.³¹³ The only consideration that at the present time is not relevant to this paper is aligning national carbon prices, as no such price in the US is proposed.

Creating a US-Canada carbon allowance market was thought to have the same potential pros as discussed prior, most resting on greater efficiency. The NRTEE highlights that creating an international carbon market between two nations would be at the expense of some independence and some funds transferring from Canada to the US to acquire allowances.³¹⁴ Free allocation was based on output-based allocation using value-added benchmarks and emission intensity benchmarks. Both options resulted in 1.9% annual growth in Canada's GDP.³¹⁵

The NRTEE's consideration of BCAs was not explicitly titled as such in *Parallel Paths*, however, instead opting to call this approach "Cost Containment Measures." The general idea they propose, however, is of an import charge, where Canada would add a tariff, by way of a "technology fund" to equal its carbon price in the scenario where the US does not have a carbon price or is lower than Canada.³¹⁶ The NRTEE also explicitly calls this option a BCA in another report within the *Climate Prosperity Series*.³¹⁷ The brief analysis of this option indicates that revenue generated by the technology fund would be recycled to low carbon technologies and that the US could react by compensating American industries within their own national carbon pricing system.³¹⁸

More recently, the Working Group on Carbon Pricing Mechanisms also noted the potential for BCAs, albeit in a more cursory manner. Despite the brevity of analysis, the report does touch

³¹² NRTEE, *supra* note 308 at 67.

³¹³ NRTEE, *supra* note 308 at 85-86.

³¹⁴ NRTEE, *supra* note 308 at 87-88.

³¹⁵ NRTEE, *supra* note 308 at 100.

³¹⁶ NRTEE, *supra* note 308 at 92.

³¹⁷ NRTEE, *Framing the Future: Embracing the Low Carbon Economy*, (Ottawa, 2012) online:<<http://collectionscanada.gc.ca/webarchives/2/20130322185857/http://nrtee-trnee.ca/wp-content/uploads/2012/10/framing-the-future-report-eng.pdf>> at 60.

³¹⁸ NRTEE, *supra* note 308 at 94.

on the complications brought by the GATT and WTO, such as the National Treatment provisions in the GATT (to be described below).³¹⁹

4.3.4 *GATT provisions and WTO case law in-depth*

The relevant *GATT* provisions can be divided into two categories: those that place restrictions on the ability to impose a BCA, namely Article I and Article III, and those that may provide useful exceptions to those restrictions, such as the Anti-Dumping provisions under Article VI and environmental exception provisions under Article XX. To understand these, a brief description will be undertaken, followed by an overview of the literature theorizing their application to BCAs.

4.3.4.1 *Most-Favoured-Nation Principle*

The Most Favoured Nation Principle (“MFN”) is a keystone provision within the *GATT*.³²⁰ The clause requires that a nation, subject to a few exceptions, treat exports, imports, and related regulations from every nation that it has signed an MFN agreement with equally.³²¹ It prevents discrimination by generalizing concessions made to specific trading partners.³²² Specifically, the MFN principle under *GATT* Article I:1 states,

With respect to customs duties and charges of any kind imposed on or in connection with importation or exportation or imposed on the international transfer of payments for imports or exports, and with respect to the method of levying such duties and charges, and with respect to all rules and formalities in connection with importation and exportation, and with respect to all matters referred to in paragraphs 2 and 4 of Article III,* any advantage, favour, privilege or immunity granted by any contracting party to any product originating in or destined for any other country shall be accorded immediately and unconditionally to the like product originating in or destined for the territories of all other contracting parties.³²³

³¹⁹ Working Group, *supra* note 99 at 36 & 45.

³²⁰ The Most Favoured Nation Obligation, Executive Branch GATT Studies, No. 9, The Most-Favored-Nation Provision, p. 133, Subcomm. on Intl'l. Trade, Senate Comm. on Finance, 93rd Cong., 2nd sess. (1974).

³²¹ McCalman, Phillip, “Multi-lateral trade negotiations and the most favored nation clause” (2002) 57 *Journal of International Economics* 151 at 152.

³²² Trebilcock, Michael, Robert Howse and Antonia Eliason, *The Regulation of International Trade*, (2013: New York, 4th Ed) at 54. [Trebilcock, Howse & Eliason]

³²³ *General Agreement on Tariffs and Trade*, July 1986, (Coming into force 1994) at Article I:1. [*GATT*]

Two exceptions that will be important to the discussion of BCAs are those for Preferential Trade Agreements (“PTAs”), such as NAFTA and the EU, and Article XX of the *GATT*. These will be discussed further below. The purpose of the MFN clause in the *GATT* is to avoid animosity from discriminatory trade policies and to promote longer-term policies that might escape short-term political thinking. The MFN clause also helps to facilitate economic cooperation by reducing transaction costs by generalizing trade concessions without the need for negotiation between individual nations and add enhanced security to cooperation between trading partners.³²⁴

4.3.4.2 Schedules of Concessions

Article II:1(b) prohibits duties from being added to agreed upon MFN duties in the Schedule of Concessions.³²⁵ These duties include:

- *Ad Valorem* duties, which are based on the value of an import,
- specific duties requiring importers to pay amounts based on importer goods characteristics, units, weights etc, compound duties based on both value and characteristics of the imported goods,
- alternative and mixed duties, which are calculated on an alternative basis to more conventional means such as *ad valorem* and specific duties, and finally,
- technical duties that are based on product-specific factors.³²⁶

An import charge or Full BCA would likely be categorized as a specific or technical duty depending on its design. Specific duties would apply to the category of products that would be subject to the BCA, such as gasoline; whereas a BCA categorized as a technical duty would apply to gasoline produced under certain circumstances at a given facility. Article II:1(b) specifically prohibits,

(b) The products described in Part I of the Schedule relating to any contracting party, which are the products of territories of other contracting parties, shall, on their importation into the territory to which the Schedule relates, and subject to the terms, conditions or qualifications set forth in that Schedule, be exempt from ordinary customs duties in excess of those set forth and provided therein. Such products shall also be exempt from all other duties or charges of any kind imposed on or in connection with the importation in excess of those imposed on the date of this Agreement or those directly

³²⁴ Trebilcock, Howse & Eliason, *supra* note 322 at 58.

³²⁵ Trebilcock, Howse & Eliason, *supra* note 322 at 686.

³²⁶ Trebilcock, Howse & Eliason, *supra* note 322 267.

and mandatorily required to be imposed thereafter by legislation in force in the importing territory on that date.³²⁷

Article II:2(a) does, however, does make an important exemption to Article II:1(b) for the purposes of applying a BCA. As seen below:

2. Nothing in this Article shall prevent any contracting party from imposing at any time on the importation of any product:

(a) a charge equivalent to an internal tax imposed consistently with the provisions of paragraph 2 of Article III* in respect of the like domestic product or in respect of an article from which the imported product has been manufactured or produced in whole or in part;³²⁸

Thus, as per Article II:2(a), a BCA that is enacted to impose an equalizing effect to a domestic carbon price is not subject to the prohibition of duties under Article II:1(b). In the Canadian context, where prices will vary between the provinces and territories, demonstrating that a BCA that only has an equalizing effect, would be difficult. The difficult arises based on which of the various prices Canada imposes on imports. This scenario is especially relevant where certain provinces refuse to implement any price, as the lowest common denominator, which is assumed to be the least offensive price to implement would be \$0. Thus, justification under Article XX(b) or (g) discussed below would be required.,

4.3.4.3 National Treatment on Internal Tax and Regulation

Article III of the *GATT* provides for protections against policies that are designed to favour domestic producers of a product.³²⁹ This could be done by imposing additional burdens on exports after tariffs are charged including internal sales taxes and differential forms of regulation.³³⁰ Those specific provisions that are applicable to BCAs are Article III:2 and Article III:4 Article III:2 states,

The products of the territory of any contracting party imported into the territory of any other contracting party shall not be subject, directly or indirectly, to internal taxes or other internal charges of any kind in excess of those applied, directly or indirectly, to like domestic products. Moreover, no contracting party shall

³²⁷ *GATT*, *supra* note 323 at Article II:1(b).

³²⁸ *GATT*, *supra* note 323 at Article II:2(a),(b).

³²⁹ Trebilcock, Howse & Eliason, *supra* note 322 at 136.

³³⁰ Trebilcock, Howse & Eliason, *supra* note 322 at 32.

otherwise apply internal taxes or other internal charges to imported or domestic products in a manner contrary to the principles set forth in paragraph 1.³³¹

Thus, Article III:2 is primarily concerned with the later issue described above, where additional tax burdens are imposed on an imported good that is not imposed on a domestic good.³³² The wording of Article III:2 is important as the first and second sentences of the provision provide two avenues in which to bring a claim. To bring a claim under Article III:2, first sentence, a complainant must allege that 1) the domestic and imported products are like and 2) the latter is taxed in excess of the former.³³³ To bring a claim under the second sentence, a claim must be brought in conjunction with Article III:1 and the interpretive note to Article III. This process requires that 1) the two products are directly competitive or substitutable 2) The two products are dissimilarly taxed; 3) the dissimilar taxation operates to afford protection to domestic production.³³⁴ The burden of proof under each test is different, with the first sentence being more straightforward of the two tests. Under the first sentence, determining whether two products are like should be based on the products' end-uses in a market, consumers tastes, and habits in the importing nation and product properties, nature and quality.³³⁵ Under the second sentence, the Appellate Board under the WTO established that test is as follows:

- 1) Whether the two products are directly competitive or substitutable by way of their common end uses shown by their elasticity in the market
- 2) Dissimilar taxation must be more than *de minimis*; and
- 3) That the *de minimis* dissimilar taxation applies for the purposes of protecting domestic production.³³⁶

Thus, Article III:2 would apply narrowly to import charges that impose a tariff burden to a good that is either not captured in a domestic carbon pricing scheme, or that is dissimilarly taxed in relation to a carbon pricing scheme. Whether emissions allowance purchases are considered a method of taxation would fall within the ambit of Article III:2 would depend on whether it could be shown that mandatory emissions purchases constitute a tax. If proven yes, then the same

³³¹ *GATT*, *supra* note 323 at Article III:2.

³³² Trebilcock, Howse & Eliason, *supra* note 322 at 138.

³³³ Trebilcock, Howse & Eliason, *supra* note 322 at 139.

³³⁴ Trebilcock, Howse & Eliason, *supra* note 322 at 139.

³³⁵ Trebilcock, Howse & Eliason, *supra* note 322 at 139.

³³⁶ Trebilcock, Howse & Eliason, *supra* note 322 at 146-147.

design cautions would need to be considered as with a tariff. Yet, it may be easier for mandatory emissions allowances to be argued under Article III:4 to avoid needing to answer that question.

Article III:4 differs from Article III:2 in the sense that it catches the broader regulatory tools that may discriminate beyond taxation.³³⁷

The products of the territory of any contracting party imported into the territory of any other contracting party shall be accorded treatment no less favourable than that accorded to like products of national origin in respect of all laws, regulations, and requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use. The provisions of this paragraph shall not prevent the application of differential internal transportation charges which are based exclusively on the economic operation of the means of transport and not on the nationality of the product.³³⁸

To make a successful claim under Article III:4 a complainant must show that:

- 1) the complained-of measure is a law, regulation or requirement that need not be mandatory;
- 2) It affects the internal sale offer for sale, purchase, transportation, or use of domestic and imported products, where affects is defined as “Assisting the definition of types of measure that must conform to the obligations not to accord less favourable treatment to like imported products”³³⁹
- 3) The imported product is like a domestic product sold in the domestic marketplace; and
- 4) Less-favourable treatment has been afforded to the imported product than to the like domestic product.³⁴⁰

Less favourable treatment indicates that Article III:4 is not as strict of a prohibition against differential treatment than Article III:2 as it allows for a greater margin of differential treatment.³⁴¹ It also will only apply where a group of foreign producers are discriminated against as whole and may not apply where one foreign supplier receives less favourable treatment.³⁴²

Finally "like products" under Article III:4 must be determined to be so under the Border Tax Adjustment criteria, which assesses the product's end-users in a given market, consumer tastes and habits and the product's properties, nature and quality.³⁴³ As stated in the scoping exercise of Article III:2, it is likely that a BCA utilizing emissions trading of some kind would be

³³⁷ Trebilcock, Howse & Eliason, *supra* note 322 at 138.

³³⁸ *GATT*, *supra* note 323 at Article III:2.

³³⁹ *US-Tax Treatment for Foreign Sales Corporations 'FSC'* at ss 208-10.

³⁴⁰ Trebilcock, Howse & Eliason, *supra* note 322 at 154-155.

³⁴¹ Trebilcock, Howse & Eliason, *supra* note 322 at 156.

³⁴² Trebilcock, Howse & Eliason, *supra* note 322 at 159.

³⁴³ Hudec, Robert E, “Like product: The differences in meaning in GATT Article I and III” in Thomas Cottier & Petro Mavroidis eds, *Regulatory Barriers and the Principle of Non-Discrimination in World Trade Law* (2000: University of Michigan Press) 101 at 113.

challenged under Article III:4 as all that is needed is for a requirement to impose the discrimination, rather than a "tax."

Similar to the discussions in subsection 4.3.4.2, Article III:2 and III:4 would likely be infringed by a Canadian BCA under the current national structure. With provincial differences being fairly drastic, even in a case where all provinces do impose a carbon price of some sort, it would be difficult to define what national treatment of certain goods is. As likely no universal answer would be apparent to that question, saving the BCA through an Article XX(b) or (g) exception would be required.

4.3.4.4 Anti-Dumping

Dumping is a concern in international trade caused by the flooding of a foreign market with imported goods that are artificially inexpensive. These goods may be internationally discriminatory in the sense that an identical good is exported at a loss to the company or its export is heavily subsidized so that its price is lower in the importing nation than in its domestic market.³⁴⁴ Dumping may also occur where there is predatory pricing to intimidate or eliminate competition to gain market dominance in a foreign nation. This may be done by pricing below cost and only rarely occurs.³⁴⁵ Finally dumping may take place sporadically, where the goods exported below cost compared to its domestic market may take place for a non-permanent period of time. This timeframe is still long enough to cause market volatility by fluctuating prices and may cause a loss of competition.³⁴⁶

The *GATT* has built-in anti-dumping provisions to low countries to protect their markets from these tactics. These protections are grounded in Article VI:1 which states,

The contracting parties recognize that dumping, by which products of one country are introduced into the commerce of another country at less than the normal value of the products, is to be condemned if it causes or threatens material injury to an established industry in the territory of a contracting party or materially retards the establishment of a domestic industry. For the purposes of this Article, a product is to be considered as being introduced into the commerce of an importing country at less than its normal value, if the price of the product exported from one country to another

³⁴⁴ Trebilcock, Howse & Eliason, *supra* note 322 at 352.

³⁴⁵ Trebilcock, Howse & Eliason, *supra* note 322 at 355.

³⁴⁶ Trebilcock, Howse & Eliason, *supra* note 322 at 358.

- (a) is less than the comparable price, in the ordinary course of trade, for the like product when destined for consumption in the exporting country, or,
- (b) in the absence of such domestic price, is less than either
 - (i) the highest comparable price for the like product for export to any third country in the ordinary course of trade, or
 - (ii) the cost of production of the product in the country of origin plus a reasonable addition for selling cost and profit.

Due allowance shall be made in each case for differences in conditions and terms of sale, for differences in taxation, and for other differences affecting price comparability.³⁴⁷

Article VI:1, however, only defines dumping. It is the *Uruguay Round Antidumping Agreement* that lays out various structures to investigate and remedy instances of dumping. As stated prior, because dumping is at its most base form the exportation of artificially priced goods that are sold lower than in its domestic market and/or comparable to other similar exports from similar nations, it is only of concern to export rebates.

Admittedly, Article VI is likely a lesser concern for implementing a BCA than Articles I, II or III. In an effort, however, to provide with a thorough analysis of the *GATT* considerations associated with BCAs, this background information has been included.

4.3.4.5 General Exceptions under Article XX

Article XX of the *GATT* allows for certain discriminatory policies to be enacted for the sake of environmental protection under Article XX(b) and Article XX(g).³⁴⁸ These provisions read as follows:

Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures:

- (b) necessary to protect human, animal or plant life or health;
- (g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption; of this Agreement.³⁴⁹

The language in Article XX(b) and XX(g) indicates that the two provisions cover different concerns and that their application warrants different tests. As such, this analysis will start with

³⁴⁷ *GATT*, *supra* note 323 at Article VI:1.

³⁴⁸ Trebilcock, Howse & Eliason, *supra* note 322 at 664.

³⁴⁹ *GATT*, *supra* note 323 at Article XX(b), XX(g).

Article XX(b) and then proceed to Article XX(g). Article XX(b) hinges on the "necessity" of the challenged action. Necessity can be established by either demonstrating that in balancing the contribution made by the measure to the law at issue, the importance of the common interests, values protected by that law and the impact of the law on export, that the action is "indispensable" in protecting human, animal or plant life or health, or necessary within a margin of appreciation in making regulatory choices to achieve an environmental goal.³⁵⁰

Article XX(g) is somewhat more flexible in its protection of natural, exhaustible resources, allowing for a wider nexus between the measure and the environmental objective.³⁵¹ Of particular importance to BCAs is that clean air has already been found to be an "exhaustible natural resource" in *US-Reformulated Gasoline*.³⁵² The "chapeau" or preamble within Article XX has been interpreted in *US-Reformulated Gasoline* to protect against "abuse or illegitimate use" of Article XX for the purposes of arbitrary discrimination, unjustifiable discrimination or disguised restrictions on trade.³⁵³ It also does not exclude from unilateral trade measures, as it once thought. The WTO Appellate Body in *US-Shrimp I* found that this thinking would inherently prohibit most actions that Article XX had been enacted to protect.³⁵⁴ The "chapeau" is to be applied after a finding of what exception a measure may fall into in order to determine whether one has abused said exception.³⁵⁵ To find discrimination, one must look at the measure as a whole and not just the specific provision within it that has been contested as *GATT* discriminatory.³⁵⁶

Article XX will likely be a crucial, if not necessary to justifying any form of BCA as it will be shown that it is likely that no matter how carefully designed, BCAs are inherently discriminatory and thus contrary to the *GATT*. Relying on Article XX, which permits certain exceptions for domestic measures that would otherwise infringe on one or more provisions, has been successful for other environmental causes outlined below.

³⁵⁰ Trebilcock, Howse & Eliason, *supra* note 322 at 682.

³⁵¹ Trebilcock, Howse & Eliason, *supra* note 322 at 674.

³⁵² Trebilcock, Howse & Eliason, *supra* note 322 at 669.

³⁵³ Trebilcock, Howse & Eliason, *supra* note 322 at 670.

³⁵⁴ Trebilcock, Howse & Eliason, *supra* note 322 at 672.

³⁵⁵ Trebilcock, Howse & Eliason, *supra* note 322 at 674.

³⁵⁶ Trebilcock, Howse & Eliason, *supra* note 322 at 669.

4.3.5 Considerations for BCAs Under the GATT

With the previously disclosed *GATT* provisions in mind, what conditions would that set for a BCA generally? By generally, it is meant to be general purpose BCA that does not take into account any specific nation, its carbon price, and any further complicating factors. A specific national case study will be included in the next section. To establish, BCAs are likely allowed as a duty subsequent to Article II:2(a) of the *GATT*, if they are imposed to equalize the effects of domestic carbon pricing. Yet, this does not mean that BCAs are undeniably justified under the *GATT*, as specific considerations for Article I, III, VI would still need to be considered. These considerations are outlined below.

As much of the literature has pointed out, any BCA with some requirements for imported goods, (either import charges or full BCAs) will almost certainly run afoul to both Articles I and III of the *GATT*. By requiring imported goods by way of their importers or exporters to cover their emissions by purchasing allowances or paying a carbon tax, equal treatment of goods is impossible. This impossibility arises in a scenario where there is a uniform baseline applies to the specific goods ignorant of the exporting nation's carbon pricing strategy or where the number of allowances or cost of the carbon tax would depend on the carbon price in the exporting nation.

The first scenario, where a uniform import charge is applied as part of the BCA would likely give further incentive to the exporting nation to impose its own import charge on the nation on the carbon pricing importing nation and to also apply an export rebate equivalent to the imposed cost by the importing nation. Thus, one can see how once the presence of an import charge is established, it is likely to lead to an eventual full BCA, as the importing nation would want to apply an exporting rebate for its domestic producers on the costs of complying with the exporting nation's import charge. See Figure 8 for an illustration as to why this scenario would arise in a simplistic depiction. Assume 3 nations, Country A, Country B, and Country C, all produce cement at the same domestic cost, but each have various carbon prices. Country B and C export some of their cement to Country A, who then applies an import charge. Country B with the higher carbon price will have incentive to create an export rebate to maintain its competitive position against Countries A and C.

Figure 8

Simplified Depiction of a Uniform Import Charge

	Cost to produce cement(\$CAD/t cement)	Cost of domestic carbon price(\$CAD/t CO ₂ e)	Final cost with domestic carbon price (\$CAD/t cement)	Import Charge Applied by Country A (\$CAD/t cement)	Total cost after import charge (\$CAD/t cement)	Export Rebate Applied to goods exported to Country A	Total cost after import charge & export rebate (\$CAD/t cement)
Country A	\$20	\$20	\$24	N/A	\$24	N/A	\$24
Country B	\$20	\$25	\$25	\$3	\$27	\$3	\$24
Country C	\$20	\$5	\$21	\$3	\$24	\$0	\$24

In the second scenario, the presence of a carbon price would diminish the burden of the import charge, theoretically, by the ratio of importing nation's carbon price to that of the exporting country. For example, Country A has a national carbon price that equates to \$20/t CO₂e which adds \$4 to the cost of 1t cement produced in the country. Country B has a carbon price of \$15/t CO₂e, which adds \$3 to the cost of 1t cement produced in the country. Country C does not have a carbon price and can produce cement at the cost of \$20/t, which is the same as the before-carbon price cost of Country B. Country B exports its cement at the cost of \$23/t of cement and Country A, who requires it to pay a \$1/t carbon tariff. Country C exports its cement at the cost of \$20/t of cement to Country A, who requires it to pay a \$4/t cement carbon tariff (See Figure 9 for an illustration of this scenario)

Figure 9

Simple Import Charge with Flexible Tariffs

	Cost to produce cement(\$CAD/t cement)	Cost of domestic carbon price(\$CAD/t CO ₂ e)	Final cost with domestic carbon price (\$CAD/t cement)	Import Charge Applied by Country A (\$CAD/t cement)	Total cost after import charge (\$CAD/t cement)
Country A	N/A	\$20	N/A	N/A	N/A
Country B	\$20	\$15	\$23	\$1	\$24
Country C	\$20	\$0	\$20	\$4	\$24

To be sure, Article II:2(b) may provide some assurances that a BCA on imports that equates to a carbon price should be permissible, it does not mean that Article I does not apply. Instead, this paper theorizes that the MFN principle would need to be observed within the context of BCAs in the trade regime separate from other duties.

Regarding import charges, intersecting with Article III, both Article III:2 and Article III:4 need to be considered separately due to their application. Article III:2 would be triggered in a scenario where an import charge is enacted that is either disproportionate in burden to like domestic products under a carbon pricing regime, or where no carbon price is imposed on a domestic product (or on any product), and an import charge is applied. Even a de minimis burden that is heavier on foreign producers would violate Article III:2.³⁵⁷

Export rebates may be compliant with *GATT* so long as there is a carbon price in the exporting jurisdiction that applies universally to the good being exported and that the rebate does not exceed the cost of compliance with the domestic carbon price. Export rebates, however, will still need to take into consideration Article I and thus would need to apply universally despite the destined importing nation. This complicates the application of the rebate as a nation will not be able to target carbon pricing laggards. While this may not be so much an issue in the perspective of leakage, which is motivated primarily by fiscal concerns rather than a desire to continue polluting, it may be a greater issue of the export rebate is trying to incentivize nations to apply a carbon price or raise their already-imposed price. Thus, some of the environmental incentives may be removed. The other concerns, regarding the intersection of export rebates and Article I is what happens when there is a carbon price in the importing jurisdiction on like goods? If under the MFN principle, the export rebate is to be evenly applied, there may be some issue with the dumping of products that could be seen as internationally discriminatory.

For instance, consider a scenario where Country X and Country Y produce equal quality cement, both at a rate of \$100/t cement before the application of a carbon tax. If Country X has a carbon tax that equates to \$20/t cement produced and Country Y has a carbon tax that equates to \$18/t cement produced and where Country X applies a \$20/t cement export rebate to cement being imported Country Y, the cement from Country X would enjoy a significant competitive

³⁵⁷ Monjon & Quirion, *supra* note 280 at 1214.

advantage over the domestically produced cement in Country Y (Scenario A). Thus, to avoid dumping, Country X would need to assess the rebate on a case-by-case basis, where instead of applying the full rebate of \$20 to cement exported to Country Y, it would only apply a \$2 rebate to level out the playing field (Scenario B). See Figure 10 for an illustration of these scenarios. This, of course, is subject to further complication as the prices before the application of a carbon price are likely not the same for two like goods from different nations. Thus, consideration would need to focus on whether the purpose of the export rebate is to maintain the current status in the competitive market, allowing for factors outside the carbon price and export rebate to allow for continued changes in the market or to try and incentivize market dominance of carbon priced-goods. The latter consideration is likely wholly contrary to the Anti-Dumping Regime under the *GATT*.

Figure 10

Simple Illustration of an Export Rebate and Its Effects

		Cost to Produce 1t Cement prior to Carbon Tax (\$CAD)	Cost of 1t Cement after Carbon Tax Applied (\$CAD)	Export Rebate Applied (\$CAD)	Cost in Market of Country Y after Export Rebate (\$CAD)
Scenario A	Country X (Exporting)	\$100	\$120	\$20	\$100
	Country Y (Importing)	\$100	\$118	N/A (Importing)	\$118
Scenario B	Country X (Exporting)	\$100	\$120	\$2	\$118
	Country Y (Importing)	\$100	\$118	N/A (importing)	\$118

Furthermore, there is also the scenario that even if a case-by-case rebate were applied, the export rebating nation would still be subject to anti-dumping provisions by merely exporting goods at a rate lower than what the same product could be purchased in the domestic market. Thus, Article XX(b) or (g) would still be needed to justify the application of the export rebate. There may be some precedence for a climate change-based export rebate, as the *Agreement Governing Subsidies and Countervailing Measures* allows for export rebates for indirect taxes on

goods and services consumed during the production of a product, which includes energy sources such as fuels.³⁵⁸

Further, Holmes et al. make an interesting argument that Article VI could be seen from the reverse perspective. Where instead of nations importing goods with an export rebating, a carbon pricing nation should enact anti-dumping or countervailing duties. The argument that they propose is that by allowing nations to flood the market with goods that do not adequately account for the cost of carbon.³⁵⁹ This argument is unique amongst the literature reviewed in this paper. No other academic has proposed to flip the dumping argument on its head to state that it is the non-inclusion of the cost of carbon that requires an anti-dumping duty. It could be speculated that while this argument is bold, it is more complicated to achieve its validation in a *GATT* panel hearing or an Appellate Body hearing at the WTO. This argument would require that these bodies accept, at least on a case-by-case basis, that the cost of carbon should be internalized in certain products. Rather, than utilizing an already open path to state that clean air is an exhaustible resource under Article XX(g) and thus certain trade restrictions are justifiable.

As alluded to in the previous section, Article XX(g) would likely be the safer provision to try and justify a BCA found to violate any of provision of the *GATT*. As clean air has already been defined to be an exhaustible resource, the matter would need to resolve whether the BCA is sufficiently linked to the goal of achieving conservation of this resource and whether there are domestic restrictions that can be conjoined with the BCA. Looking at the BCA, on the whole, it would be necessary to demonstrate that the BCA intends to combat any environmental effects of leakage and perhaps, more importantly, to mitigate global GHG emissions. If so, then as per *US-Reformulated Gasoline*, the BCA should pass the first step in an Article XX(g) assessment. It is assumed for this analysis that a BCA would be designed to mirror the effects of a carbon price on domestic production of captured goods. This is important as it is explicitly required by Article XX(g). Relatedly, the second stage of an Article XX(g) assessment is to assess whether the measure is a disguised trade restriction as per the *Chapeau* of Article XX. If the measure is merely implemented to level the playing field at home or in the international market, then it should be theoretically sufficient the entire test. An important caveat to this provision is that any

³⁵⁸ Fischer & Fox, *supra* note 271 at 214.

³⁵⁹ Holmes et al., *supra* note 268 at 887-889.

free allowances distributed to certain sectors would necessarily need to be allocated to imported goods at the same rate.³⁶⁰ Furthermore, as per the *chapeau* of Article XX, to demonstrate an exemption under Article XX(b) or (g) an implementing nation of a BCA would need to undertake serious negotiations with affected nations before its enactment or build in flexibility within the mechanism that the circumstances of each country be accounted for.³⁶¹ Monjon & Quirion propose that this element of an Article XX(g) exemption would lead to a more successful outcome if the negotiations take into account climate change mitigation strategies already implemented by exporting nations and to allow for exclusions where there are adequate climate policies and for the accommodation of least developed nations.³⁶²

4.3.6 Thoughts for a Canadian BCA

While the previous section outlines the provisions that must be considered for any *GATT* or *WTO* signatory, which is most of the world, applying these learnings to any one nation or situation will inherently bring further complications. In the case of Canada, this can be divided into two categories: its preferential trade agreements, such as NAFTA, and the bifurcated system of carbon prices which are both subnational and national and include both carbon taxes and ETSs.

4.3.6.1 NAFTA

The *NAFTA* is currently being re-negotiated by its members (Canada, the US, and Mexico). There is heavy speculation that the United States could withdraw entirely from the *Agreement*; however, at the time of this paper's writing its dominant authority over many trade aspects between Canada and two of its largest trading partners is still valid. Thus, this paper will undertake a limited review of its applicability to BCAs through its much-publicized NAFTA Chapter 11.

Chapter 11 is one of the provisions that Canada has reportedly sought to change. It is an "Investor-State Clause" that applies to investors of another party, investments of these investors

³⁶⁰ Trebilcock, Howse & Eliason, *supra* note 322 at 690.

³⁶¹ Howse, Robert, "The Appellate Body Rulings in the Shrimp/Turtle Case: A new Legal Baseline for the trade and Environment Debate" (2002) 27 Colum J Envtl L 491 at 509.

³⁶² Monjon & Quirion, *supra* note 280 at 1215-1216.

in the territory of the party and all investments made in the territory of the party.³⁶³ Chapter 11 also contains National Treatment and MFN articles, that look much the same as under Article III and Article I:1 of the *GATT*, respectively. These provisions state

Article 1102: National Treatment³⁶⁴

1. Each Party shall accord to investors of another Party treatment no less favorable than that it accords, in like circumstances, to its investors concerning the establishment, acquisition, expansion, management, conduct, operation, and sale or other disposition of investments.
2. Each Party shall accord to investments of investors of another Party treatment no less favorable than that it accords, in like circumstances, to investments of its investors concerning the establishment, acquisition, expansion, management, conduct, operation, and sale or other disposition of investments.
3. The treatment accorded by a Party under paragraphs 1 and two means, concerning a state or province, treatment no less favorable than the most favorable treatment accorded, in like circumstances, by that state or province to investors, and to investments of investors, of the Party of which it forms a part.
4. For greater certainty, no Party may:
 - (a) impose on an investor of another Party a requirement that a minimum level of equity in an enterprise in the territory of the Party be held by its nationals, other than nominal qualifying shares for directors or incorporators of corporations; or
 - (b) require an investor of another Party, by reason of its nationality, to sell or otherwise dispose of an investment in the territory of the Party.

Article 1103: Most-Favored-Nation Treatment³⁶⁵

1. Each Party shall accord to investors of another Party treatment no less favorable than that it accords, in like circumstances, to investors of any other Party or of a non-Party concerning the establishment, acquisition, expansion, management, conduct, operation, and sale or other disposition of investments.
2. Each Party shall accord to investments of investors of another Party treatment no less favorable than that it accords, in like circumstances, to investments of investors of any other Party or of a non-Party concerning the establishment, acquisition, expansion, management, conduct, operation, and sale or other disposition of investments.

³⁶³ *North American Free Trade Agreement*, (17 December 1992, Can Mex US ILM 605, entered into force 1 Jan 1994) at pt 5, C 11, s A, Art 1101(1). [*NAFTA*]

³⁶⁴ *NAFTA*, *ibid* at pt 5, C 11, s A Art 1102.

³⁶⁵ *NAFTA*, *supra* note 363 at Art 1103.

Thus, *NAFTA* chapter 11 extends rights of fairness in trade that were previously reserved only for nation states under the *GATT* to corporations. This has been viewed as highly problematic by some, who believe that it has permitted abuse of the environment, at the cost of promoting trade, and intimidated all levels of government from enacting environmental legislation and policies.³⁶⁶ It also allows corporations from taking action retroactively and prospectively to certain government action.³⁶⁷ Counter to these arguments is that Art 1114 exempts environmental protections from the protective principles, such as National Treatment and the MFN principle, of Chapter 11. This provision states

Nothing in this Chapter shall be construed to prevent a Party from adopting, maintaining or enforcing any measure otherwise consistent with this Chapter that it considers appropriate to ensure that investment activity in its territory is undertaken in a manner sensitive to environmental concerns.³⁶⁸

Art 1114, however, does not completely protect environmental measures. As DiMento & Doughman point out, enforcement of a given environmental measure is not discussed.³⁶⁹

NAFTA Panel decisions regarding disputes arising out of Chapter 11 have given cause to the sentiment that it places a much higher burden of protection to free trade than the environment. The distrust for *NAFTA*'s protection of the environment can be exemplified by the out in *SD Myers v Canada*, which saw a successful claim that SD Myers, a US company was discriminated against by Canada where it prohibited SD Myers to transport Polychlorinated biphenyl ("PCB") waste for remediation to the US.³⁷⁰ PCBs are persistent in living tissue and in the environment and have "obvious signs of environmental harm" in aquatic ecosystems.³⁷¹ Canada's position was that PCBs were toxic as per *CEPA* and were subsequently regulated by the *PCB Waste Export Regulation* 1990. This regulation banned the export of PCB waste from

³⁶⁶ Stone, Madeleine, "NAFTA Article 1110: Environmental Friend or Foe?" (2003) 15 *GEO Int'l Env'tl. L. Review* 763 at 763. [Stone]

³⁶⁷ Stone, *ibid* at 764.

³⁶⁸ *NAFTA*, *supra* note 363 at Art 1114(1).

³⁶⁹ DiMento, Joseph F & Pamela, Doughman, "Soft Teeth in the Back of the Mouth: The *NAFTA* Environmental Side Agreement Implemented" (1998) 10 *Geo Int'l Env'tl. L. Rev* 651 at 661.

³⁷⁰ *SD Myers Inc v Government of Canada*, Arbitration under the UNCITRAL Arbitration Rules, Partial Award (13 November 2000) at para 92. [*SD Myers*]

³⁷¹ *Health Canada*, "Polychlorinated Biphenyls (PCBs)" (17 September 2010) online: <
<https://www.canada.ca/en/health-canada/services/chemical-substances/fact-sheets/chemicals-glance/polychlorinated-biphenyls.html>>.

Canada to all countries other than the US.³⁷² It further added that PCBs were not included in the *Transboundary Agreement* regulating the transboundary transport of hazardous waste as it had not been designated by the US as a hazardous substance.³⁷³ In reaction to an increased period of activity of such transboundary shipping, the Federal Minister of Environment signed an Interim Order banning the export of PCBs from Canada.³⁷⁴ This was made a Final Order by Order in Council of the Governor General amending the *PCB Waste Export Regulations*.³⁷⁵ This thus closed the border to the US for transboundary shipping. *SD Myers* argued that this was a violation of Article 1102, Article 1105, which governs the Minimum Standard of Treatment, Article 1106, governing performance requirements, and Article 1110, governing expropriations, under the *NAFTA*.³⁷⁶ They claimed that they lost sales, profits and investment and the cost of their subsequent reducing operations in Canada.³⁷⁷ The *NAFTA* Tribunal found a violation under Article 1102, 1105, 1106 and 1110.³⁷⁸ Thus, Canada's protection of its aquatic ecosystems was found to be in contravention to free trade, which the Tribunal saw took precedence in this matter.

Beyond Chapter 11, Article 2005 requires that any environmental matter disputed between the members of *NAFTA* must be disputed under the agreement, and cannot be disputed under *GATT* or WTO proceedings.³⁷⁹ Article 2101, however, adopts Article XX of the *GATT*.³⁸⁰ Under Article 2101, there is no mention of adhering to *GATT* jurisprudence. Thus, the Tribunals can interpret Article XX(b) and Article XX(g) distinctly. The impact of such is that much of the hope for the legality of BCAs under the *GATT* come from two, more recent decisions at the WTO level, *US-Reformulated Gasoline*, and *US-Shrimp I*. These decisions reversed previous thought under *US-Tuna I* that would have barred unilateral environmental measures almost entirely.³⁸¹ BCAs would have been much more difficult to implement under this interpretation. Thus, there is a risk that a BCA implemented by Canada would be found to be non-*NAFTA*

³⁷² *SD Myers, ibid* at para 100.

³⁷³ *SD Myers, supra* note 370 at para 101.

³⁷⁴ *SD Myers, supra* note 370 at para 123.

³⁷⁵ *SD Myers, supra* note 370 at para 125.

³⁷⁶ *SD Myers, supra* note 370 at para 130-143.

³⁷⁷ *SD Myers, supra* note 370 at para 144.

³⁷⁸ *SD Myers, supra* note 370 at para 320 – 324.

³⁷⁹ *NAFTA, supra* note 363 at Art 2005(3), 2005(4).

³⁸⁰ *NAFTA, supra* note 363 at Art 2101(1).

³⁸¹ Trebilcock, Howse & Eliason, *supra* note 322 at 672.

compliant for reasons of National Treatment and the MFN principle (as discussed above in the *GATT* interpretation) without the benefit of exemption under Article XX(b) or Article XX(g).

4.3.6.2 The Sub-National Nature of the Canadian Carbon Pricing Scheme

Canada's carbon pricing scheme further complicates the picture by allowing a province-by-province approach. The complications can be likened to two groups. The first is what form would a BCA take when there are both provincial and territorial cap-and-trade and carbon tax schemes. The second is what goods should the BCA apply to when each provincial and territorial system, as well as the Federal backstop, apply to different goods.

4.3.6.2.1 What form would a National BCA take?

The form of the BCA offers two initial questions, whether it should be based on exports or imports, and if it includes imports, should it be allowances based or tariff-based. The first question would be based on what Canada's goals for the BCA are. If the main goal of the BCA is to limit leakage, then an export rebate may be sufficient to allow for domestic emissions to reduce while protecting industry. All considerations previously discussed under the general analysis, such as effectiveness in driving down emissions, are at play in a Canadian context. If the goal is to spur its major trading partners to implement a National carbon price, namely applicable to the US, or to increase the cost of complying with an already-implemented carbon price to be closer or parallel to Canada, then applying an import charge may be of additional utility. The second question whether it should be allowance or tax-based can perhaps be ignorant of the multiplicity of forms Canadian carbon pricing takes. As the Federal government, has sole power to regulate trade under s 91.2 of the *Constitution Act*, it may be able to choose a uniform approach to BCAs. As demonstrated by the ongoing politics of Canada's carbon price, where provinces such as Saskatchewan and Manitoba are opposed to carbon pricing, this may be a more difficult task that legislatively mandated.

The real issue in form would come down to price. While as of 2022 there would, in theory, be a uniform carbon price in Canada's carbon tax jurisdictions of \$50/t CO₂e, there is no guarantee that the cap-and-trade provinces will reach this price. Thus, to be as respectful of Article III, the federal government would likely need to pick the lowest price out of all carbon pricing systems. Otherwise, it may risk offending Article III:2 of the *GATT* in a manner that cannot be justified by Article XX. Complicating this further is the potential for volatility in

allowance markets, the use of rebates and free allowances. The volatility of allowance markets would require that the BCA be subject to any significant upswings to allow for the carbon price of the carbon tax jurisdictions to be utilized where allowances are sold for more than the scheduled cost of the carbon tax. It is assumed that the safest way to assign the lowest possible price of a carbon price in Canada is to use the reserve price in the cap-and-trade markets. Thus, industry in Canada will not receive full leakage protection from the import charge, as the carbon tax is almost always likely to be higher than the cap-and-trade systems as currently conceived and that the lowest price allowance reserve price will likely be lower than the average purchase price for allowances.

The second and third concerns regarding free allocation and tax rebates begin to cross into the second outlined issue to consider in designing a Canadian BCA, the variances in carbon price coverage. In all three concerns (tax rebates, free allocation and the differences in carbon price coverage) the least trade restrictive method of applying a BCA would have the scope of the BCA limited. To ensure that the BCA applies in a manner that is the as consistent with the National Treatment of certain goods and sectors as possible, it could only apply to those sectors and products common amongst all provincial, territorial and federal carbon prices. This would limit the BCA to certain fuels only, based on the currently accessible designs of the carbon prices. It would also likely require that free allocation and tax rebates be converted to give the greatest benefit to imports. Thus if any province applies 100% free allowances to these fuels for a given period, it would essentially prohibit the applicability of a BCA.

Of course, there are other avenues for trying to implement a BCA. The federal government could try to use its carbon pricing plan to be the basis of the entire BCA scheme and forgo the differences in sub-national conceptions. This would likely not be the least trade restrictive method, as it would risk a non-uniform price and non-uniform application when looking from a practical standpoint. It would be arguable that a Federal carbon price applies either in price or inequivalence in GHG emissions reductions and thus is a uniform is uniformly applied. It would be up to a *NAFTA* panel, or in the case of *NAFTA* withdrawals, a *GATT* panel to decide whether GHG emissions reductions equivalence could be seen as uniform in considering the price of carbon allowances in cap-and-trade regimes. There would also need to

be a consideration that any effect by provincial free allowances or tax rebates would have a *de minimis* effect on imported goods.

5 CONCLUSION

The premise of this paper was to identify the intersections between direct regulation, multilateral environmental agreements and market mechanisms in current climate change policy. Many areas of overlap emerge between the categorical distinctions that are often used to characterize these different approaches. These areas include the implementation and ratification of MEAs, the permissions created in MEAs for national and international carbon pricing systems and the use of complementary measures for such systems to generate co-benefits. Overall, this matrix establishes the lion's share of what is Canadian climate change policy. Trade measures, however, play a role in current carbon pricing systems through linkages and the free allocation of allowances. The "next step" of utilizing border carbon adjustments to account for emissions taking produced outside one's nation but consumed within it has not yet been undertaken by any nation. Are trade mechanisms legal in an international context? If yes, trade mechanisms are likely legal within international law stemming from the *GATT*, even the most contentious proposition, BCAs can be justified under *GATT* Art XX. That is not to say that BCAs are easily implementable. Any nation will likely face a challenge to the imposition of a BCA. *GATT* Article I, Article III and Article VI all may be infringed by the imposition of a BCA. Thus, *GATT* Article XX(b) and XX(g) become crucial to the presentation of a theoretical BCA. It is by exception that a BCA will likely be accepted by a *GATT* panel or WTO Appellate Body panel as a valid restriction on trade. It would likely be naïve to believe that a BCA could exist otherwise, as its main impetus for existence is adjust trade flows.

Are trade mechanisms needed to enhance climate change mitigation efforts? The answer on this front is that while stronger carbon policies are required to achieve the goals of the *Paris Agreement*, trade mechanisms have not been proven to be a required remedy. They are being proposed due to a fear of leakage that has not yet been demonstrated as an actual consequence of climate change policies. As such, it is best to hold off on moving ahead with trade measures related to climate change policy. Instead, better progress will likely be made by focusing efforts to improve consistency between carbon prices as they continue to arise. This focus may pave the

path to systems linkage, reductions in global GHG emissions and reduced GHG and investment leakage.

The results of section 4 focus on one simple question: how necessary is an advancement towards trade mechanisms in climate change policy? From the perspective of ex-ante studies, it would seem that there is a strong argument to include leakage protection mechanisms, from free allocations to linkage of systems and BCAs. The more recent emergence of ex-post studies, with leakage being largely insignificant in the EU ETS, offer a contradictory view. If there is negligible or non-existent leakage, there does not appear to be much incentive to go through the difficulty of instituting trade mechanisms.

Ex-post studies, however, are few in number for the time being, and more work will need to be done in both the EU and in the more recently-implemented carbon pricing systems to gain an accurate picture of resulting leakage. Thus, the leakage argument for trade mechanisms is not dead but should be viewed with some skepticism. In particular, free allocation of allowances does not make much sense if leakage has not occurred, unless, it can be demonstrated that the presence of free allocation has been a major deterrent against leakage where present. The linkage of systems, however, does not need to rely on the leakage argument solely. An Economies of Scale argument is almost common sense. The fewer carbon pricing systems that are globally present can mean less administration, development of greater knowledge bases on particular systems and overall efficiency gains. BCAs, without the impetus of leakage, can be justified as a means of penalizing jurisdictions that refuse to implement a carbon price or one sufficient to result in emissions reductions.

Of course, the latter argument for BCAs rests upon the effectiveness of carbon prices. While the effectiveness of carbon pricing is taken for granted as being a tool with positive effects on climate change mitigation by this paper, more work must be done to ensure that this assumption is correct. This includes ex-post studies on carbon priced jurisdictions and the presence of emissions reductions. Many ex-ante studies indicated that prices over \$100/t CO₂e are required to result in quantifiable emissions reductions.³⁸² With only one jurisdiction, Sweden,

³⁸² NRTEE, *Achieving 2050: A Carbon Pricing Policy for Canada*, (2009) online:<
<http://collectionsCanada.gc.ca/webarchives2/20130322143051/http://nrtee-trnee.ca/climate/achieving-2050-a-carbon-pricing-policy-for-canada-report>> at 30.

at or above that price, it will be necessary for systems to adequately recycle the revenue they generate to produce additional emissions reductions through complementary measures.³⁸³

It is the opinion of this paper that carbon prices will continue to be adopted by jurisdictions at both a national and subnational level. It is also the opinion of this paper that ETS will continue to be the dominant method of choice, as it provides for greater flexibility to link and create a global market. What cannot be understated, however, is the importance of complementary measures, implemented through direct regulation. A carbon price without complementary measures would have disproportionate effects on lower income and low-to-middle income families due to their extraordinary cost. Some view it necessary for prices to be upwards of \$250/tonne CO₂e by 2030 (\$2015).³⁸⁴ But, stringent regulation can mitigate the need for prices to rise this high.

This study should not end with an overview of concerns and the status in the world of a carbon price and climate change related trade mechanisms. Instead, future steps could address the above-highlighted concerns. Modeling from a Canadian perspective on the impacts of the already-implemented BC Carbon Tax, Alberta Tax and WCI cap-and-trade systems in Ontario and Québec could produce the earliest indications of effectiveness and presence of leakage. A longer-term approach would be to model the impact of the national carbon price. However, as the more uniform price will not be available until 2022 at the earliest, this take some time. As a major fossil producer, however, attention is merited by the application of carbon prices in Canada. Canada will face additional complexities due to its participation in *NAFTA* and other PTAs. In its province-by-province approach to implementing carbon pricing, there remains an additional risk that Canada's system will not be seen as the least trade restrictive approach. There will be issues where uneven effects on competitiveness will take place due to provincial system differences. Coverage of sectors is not universal under the subnational structure of Canada's national carbon price. The price itself will vary between carbon tax and cap-and-trade systems. Further, international linkage between Ontario, Québec and California further complicates the ability to consistently apply an import charge. Export rebates, while perhaps easier to administer as they apply to domestic production and thus can selectively apply based on the nature of a

³⁸³ World Bank Group, *supra* note 84 at 13.

³⁸⁴ Jaccard et al., *supra* note 1 at 22.

provincial carbon pricing system, may be administratively complicated given the output based production regulations in the proposed Federal backstop. As such, it is less likely that Canada would want to take the risk of being the first jurisdiction to enact a BCA, despite growing trade issues with the United States. It would not only be a risk for Canada to waste time and taxpayer dollars in establishing a BCA but also a disservice to the international community, potentially setting a precedent against BCAs that would need to be overcome by another nation and another *GATT* challenge. Thus, the immediate future of climate policy is best served by a system where a price funded complementary measures ranging from investments in technology to regulation that ensure industry have adequate incentive to reduce emissions in its production.

6 TABLE OF AUTHORITIES

6.1 PRIMARY SOURCES

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