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Book

A guide to emissions trading under the Western Climate Initiative

Centre for International
Governance Innovation

SPECIAL REPORT

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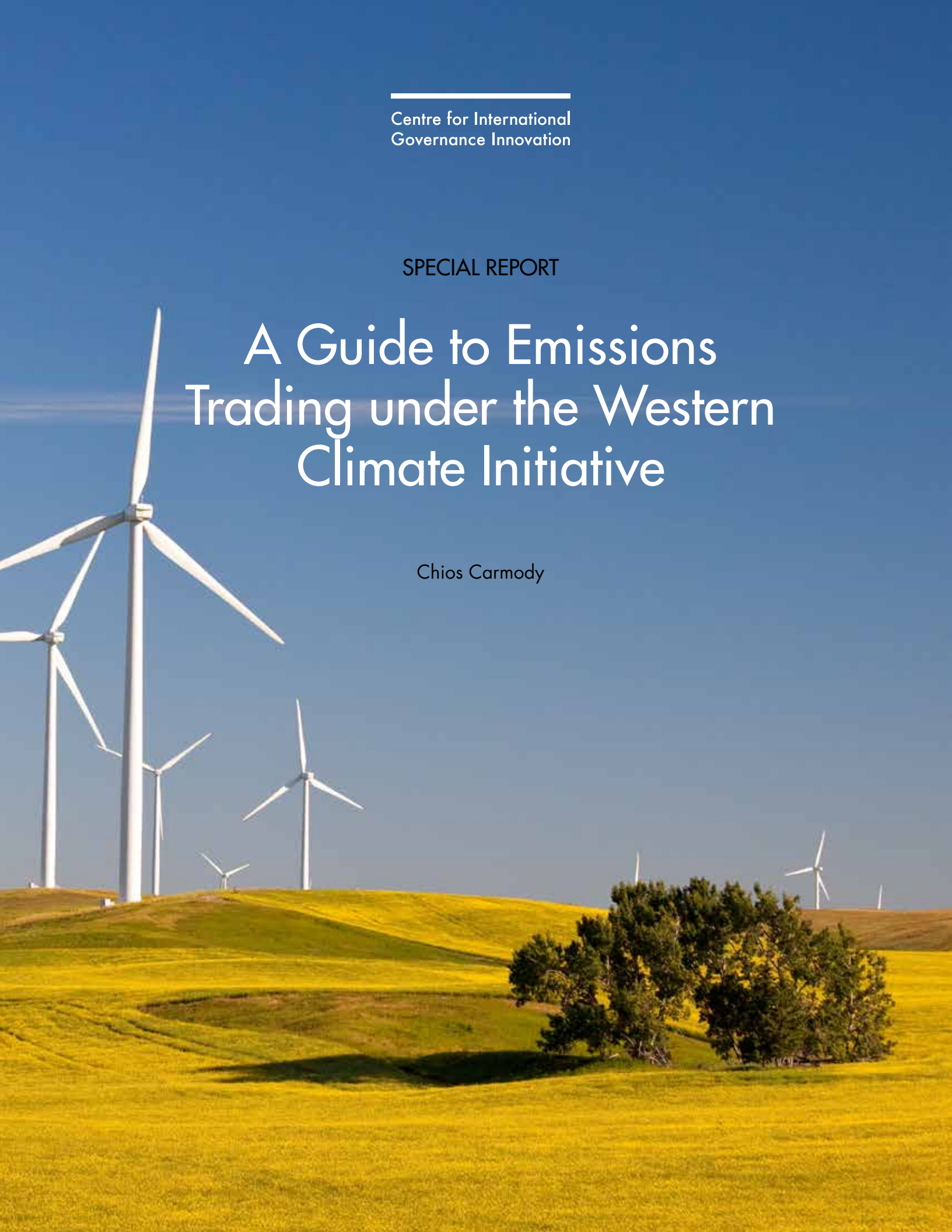
Chios Carmody



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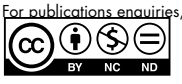

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Chios Carmody is a CIGI senior fellow and associate professor at Western Law, Western University, where he teaches courses in public international law, international trade law, international business transactions and contracts. Since 2002, he has been Canadian national director of the Canada-United States Law Institute. His current research focuses on developing a general theory of World Trade Organization (WTO) law, which is the subject of his forthcoming monograph, *A Theory of WTO Law: a theory of law* (Cambridge University Press).

Chios is currently principal investigator on a CIGI-sponsored grant examining the operation and effectiveness of the cap-and-trade scheme under the Western Climate Initiative between Ontario, Quebec and California.

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ABBREVIATIONS AND ACRONYMS

AAR	alternate account representative
AB	Assembly Bill
APCR	allowance price containment reserve
CAR	Climate Action Reserve
CARB	California Air Resources Board
CEMS	continuous emissions monitoring system
CEPA	Canadian Environmental Protection Act
CEPA-ARB	California Environmental Protection Agency Air Resources Board
CITSS	Compliance Instrument Tracking System Service
CO_2	carbon dioxide
CO_2eq	carbon dioxide equivalent
ECO	Environmental Commissioner of Ontario
ECSP	exchange clearing service provider
EPA	US Environmental Protection Agency
EU ETS	European Union Emissions Trading System
FEMA	Federal Emergency Management Agency
FIT	feed-in tariff
GEGEA	Green Energy and Green Economy Act
GHGs	greenhouse gases
GHGRP	Greenhouse Gas Reporting Program
GST	Goods and Services Tax
HFCs	hydrofluorocarbons
HST	Harmonized Sales Tax
IAF	industry assistance factor
ICAP	International Carbon Action Partnership
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organization for Standardization
MMC	mine methane capture
MRR	Regulation for the Mandatory Reporting of Greenhouse Gas Emissions
NDCs	nationally determined contributions
O. Reg.	Ontario Regulation
PAR	primary account representative
PFC	perfluorocarbon
RAA	recognition as an account agent
RGGI	Regional Greenhouse Gas Initiative
UNFCCC	United Nations Framework Convention on Climate Change
WCI	Western Climate Initiative

EXECUTIVE SUMMARY

This is a guide to the legal framework for emissions trading under the cap-and-trade system created and adhered to under the Western Climate Initiative (WCI). This guide is intended to serve three aims. First, the guide is an overview of the WCI cap-and-trade system for emissions trading by current users of the system; potential industry participants; state, provincial and municipal governments; academic institutions; and members of civil society. Second, the guide's aim is to foster learning among domestic and international actors interested in North America's collective response to climate change and highlights one attempt to combat climate change through a subnational cap-and-trade system on the continent. Third, during the course of research for this guide in 2018, the province of Ontario linked its WCI-inspired cap-and-trade system with that of California and Quebec and six months later delinked its system, eventually terminating it altogether and announcing its intention to withdraw from the WCI. A third purpose of this guide is therefore to serve as an account of Ontario's short-lived cap-and-trade system and its brief experience with linkage.

INTRODUCTION

This is a guide to the legal framework for emissions trading under the cap-and-trade system created and adhered to under the WCI. Cap-and-trade systems have been written about extensively, often from the perspective of *public* participants in the system, that is, the governments involved. By contrast, the focus of this study is on *private* behaviour, that is, the private actors — cap-and-trade market experts, cap-and-trade participant entities, and cap-and-trade offset project developers and advisers — who are directly engaged in emissions trading, who advise such actors, or who develop cap-and-trade offset projects. The author's research focuses on this topic because it is less studied and because it appears to be pivotal in debate about the pros and cons of emissions trading.

At the outset, the author was interested in determining whether private actors believe that emissions trading under the WCI is an efficient market-based response to climate change. The author's general conclusions, based on a very limited survey of private actors, is that they do concur in this belief. The two-step approach to regulatory harmonization of emissions allowance markets pursued under the WCI — involving separate phases of program design and linkage — is useful in allowing jurisdictions to accommodate certain necessary political realities in establishing emissions trading markets. At the same time, the research reveals that linkage under the WCI does not involve "plug-and-play" (i.e., unthinking transposition of cap-and-trade regulation from one jurisdiction to another). Instead, the introduction of cap-and-trade programming in a jurisdiction requires commitment and an authentic investment of administrative resources, as well as difficult political choices. Later, in the linkage

phase, a common platform and continuing dialogue between jurisdiction partners are necessary. Dialogue evidences how harmonization and linkage are not static but rather dynamic and adaptive processes. The market(s) created out of this process are also dynamic and require continuing intervention to regulate and discipline.

The author's specific findings with respect to private behaviour are as follows:

- Participants agree that WCI cap-and-trade is cost-effective and efficient. WCI cap-and-trade allows entities to achieve environmental goals more optimally.
- The market for carbon allowances under the WCI is currently small and highly technical. It is dominated by a few major players, with the market for carbon allowances being little understood beyond them. The technicality of the market demands specialization, yet specialization limits participation to those who can afford to do so.
- The acquisition by Ontario market participants of some $2.8 billion worth of allowances in 2017-2018, at a time of free allowance distribution in the province, suggests that eligible participants were using the emissions trading market under the WCI to hedge (i.e., to limit their exposure to future emission price increases).
- The possibility of excessive banking of emission credits and the threat of market domination and manipulation in the future cannot be discounted. Both of these potential developments raise serious issues about the equity of the emissions trading system and could make the public in WCI jurisdictions skeptical about the use of market-based mechanisms to combat climate change in years to come. In response to these concerns, regulators may consider developing a code of conduct for WCI market participants and others going forward.
- The survey conducted as part of this research involved only a very small set of market participants. The author contacted 61 participants; only four agreed to respond. The survey questions and results are contained in the "Survey" section of this guide. The author surmises that events during the course of the research may have depressed sample size. Consequently, the conclusions put forward here merit confirmation — or denial — in a wider sampling of market participants and others.

These findings lead the author to conclude that the vital threads running through the successful emissions trading system are trust and fairness. There must be trust and fairness if emissions trading schemes are to continue to function as intended. Those values can only be instilled if allowances are equitably allotted, if ethical standards are adhered to in all phases of market operation, if continuing efforts are made toward achieving transparency, and if the public can be made to see tangible evidence of fair and efficient markets contributing to climate change goals.

HOW THIS GUIDE WORKS

This guide is divided into five sections. This introduction provides readers with an overview of a cap-and-trade system of emission permits, including how cap-and-trade systems work, a comparison of cap-and-trade systems versus a carbon tax, and comparative experience with cap-and-trade systems in the European Union and China.

The second section, entitled "North America and the WCI," explains the constitutional background to cap-and-trade schemes in the United States and Canada. It also provides a factual background to cap-and-trade legislation in three North American subnational jurisdictions (California, Quebec, Ontario), a description of the effort to harmonize cap-and-trade legislation in each jurisdiction, and an overview of the framework for doing so under the WCI and its corporate form, the WCI, Inc. The section then examines the linkage of cap-and-trade systems in California and Quebec in 2014 and the addition (and subsequent withdrawal) of Ontario to/from the link in 2018.

The third section, entitled "WCI Cap-and-Trade: Overview and Cap," provides an overview of the linked system and a summary of its principal features in each WCI cap-and-trade partner jurisdiction. The summary includes the legislative basis for the cap-and-trade system in each partner jurisdiction, the cap, compliance periods, emissions attribution, allowance distribution, flexibility, registration of participants, reporting, verification and monitoring, and enforcement.

The fourth section, entitled "WCI Cap-and-Trade: Trading," explains how emissions allowances are traded under the WCI. It explains how emissions trading occurs in the WCI by means of auctions, reserve sales and the secondary market, as well as issues of pricing and taxation. The section also contains a summary of comments culled from a survey of market participants, regulators and members of civil society as to the effectiveness of the WCI cap-and-trade system.

The last section provides some concluding observations with respect to WCI cap-and-trade.

Addressing Climate Change

Background

Climate change is defined as "a change in the statistical distribution of weather patterns when that change lasts for an extended period of time."[1] Climate change is thought to be caused by a number of factors, including biodegradation, variations in solar radiation, and seismic and volcanic activity. In recent decades, consensus opinion has centred on human activity through carbon emissions of greenhouse gases (GHGs) as a primary cause of continuing climate change, often termed "global warming."[2] One leading school of thought maintains that without immediate action to address climate change and global warming, the earth could experience massive losses of vegetation, species habitat and biodiversity. In turn, these changes could trigger massive flows of human migration, competition for remaining resources and geopolitical instability.[3]

Both the United States and Canada have historically played leading roles in efforts at a global level to address climate change and have cooperated actively together in the field of international environmental protection.[4] Both countries are signatories to numerous international environmental agreements and subscribe to globally endorsed environmental principles.[5] Both countries have also signed the 2015 Paris Agreement on climate change,[6] negotiated within the United Nations Framework Convention on Climate Change (UNFCCC),[7] in which they committed to setting nationally determined contributions (NDCs) for GHG emissions reductions. The United States initially set an NDC to reduce its emissions by 26 to 28 percent below 2005 levels by 2025.[8] Canada set an NDC to reduce its emissions by 30 percent below 2005 levels by 2030.[9]

In 2017, the United States announced that it would cease participation in the Paris Agreement and withdraw from the agreement at the earliest possible withdrawal date, likely in early 2021. The announcement was prompted by concern about the Paris Agreement's impact on US businesses and workers, as well as the perception that the treaty would not solve climate change and did not impose uniform obligations on all countries.

Action on climate change at the federal level in both countries has been paralleled by actions at the subnational level by states, provinces, municipalities and Indigenous groups. In California, a history of intensive resource extraction, rapid urbanization and loss of wildlife habitat prompted the state government to act promptly in the 1960s to stem environmental degradation. In 1965, California became the first US jurisdiction to regulate vehicle exhaust.[10] Two years later, the newly formed California Air Resources Board (CARB) set the United States' first

1 Joshua Busby, "Warming World: Why Climate Change Matters More Than Anything Else", *Foreign Affairs* (July/August 2018).

2 National Research Council, *America's Climate Choices: Panel on Advancing the Science of Climate Change* (Washington, DC: National Academies Press, 2010) ("[T]here is a strong, credible body of evidence, based on multiple lines of research, documenting that climate is changing and that these changes are in large part caused by human activities" at 1).

3 Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2014 Synthesis Report Summary for Policymakers* (2014) [IPCC, *Synthesis Report*], online: <www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf> ("Continued emission of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of *severe, pervasive and irreversible impacts for people and ecosystems*" at 8 [emphasis added]); ("A large fraction of species faces increased extinction risk due to climate change during and beyond the 21st century, especially as climate change interacts with other stressors" [*ibid* at 13]).

4 Close US-Canada environmental cooperation stems from the fact of a shared border. The US-Canada border includes four of the five Great Lakes, many rivers and lakes, major airsheds and migratory routes for wildlife species. In addition, there are many US Native American tribes and Canadian First Nations residents whose culture spans the border. The US Environmental Protection Agency (EPA) notes that the two federal governments have implemented more than 40 international agreements for the management and protection of environmental quality and ecosystems in the border area, and there are more than 100 additional such agreements between US states and Canadian provinces. The two countries also share policies, programs and goals to prevent and control pollution and to ensure sound policies and practices to protect and restore the many shared ecosystems. Historic bilateral environmental initiatives include the Boundary Waters Treaty of 1909 and the *Trail Smelter Arbitration* of 1940, 3 RIAA 1905.

5 Among these principles are those identified in UN, *Agenda 21: Programme of Action for Sustainable Development* (1994); *Rio Declaration on Environment and Development,* 1992, UN Doc A/CONF.151/26 (vol I), 31 ILM 874 (1992); *Statement of Principles for the Sustainable Management of Forests,* 1992, UN Doc A/CONF.151/26 (vol III). These were adopted at the UN Conference on Environment and Development in June 1992.

6 United Nations Framework Convention on Climate Change (UNFCCC), *Adoption of the Paris Agreement,* 12 December 2015, Dec CP.21, 21st Sess, UN Doc FCCC/CP/2015/L.9.

7 *United Nations Framework Convention on Climate Change*, 9 May 1992, 1771 UNTS 107, 31 ILM 849 (entered into force 21 March 1994).

8 Han Chen, "The Road From Paris: The United States Progress Toward Its Climate Pledge" (2017) Natural Resources Defense Council Issue Brief, online: <www.nrdc.org/sites/default/files/paris-climate-conference-US-IB.pdf>.

9 Environment and Climate Change Canada, *Canadian Environmental Sustainability Indicators: Progress towards Canada's greenhouse gas emissions reduction target* (Gatineau, QC: 2018), online: <www.canada.ca/content/dam/eccc/documents/pdf/cesindicators/progress-towards-canada-greenhouse-gas-reduction-target/2019/progress-towards-ghg-emissions-target-en.pdf>.

10 Charles W Schmidt, "Environment: California Out in Front" (2007) 115:3 Environmental Health Perspectives A144 at A146.

air quality standards.[11] In subsequent decades, these initiatives were accompanied by a number of other efforts to protect the environment, making California an acknowledged leader in environmental standard-setting worldwide.[12]

In pursuit of its environmental goals, California — along with Arizona, New Mexico, Oregon and the state of Washington — created the WCI in 2007 to evaluate and implement ways to reduce their states' GHG emissions and achieve related co-benefits. The WCI was expanded in 2008 to include two more US states (Montana, Utah) and four Canadian provinces (British Columbia, Manitoba, Ontario, Quebec). Together, the 11 jurisdictions developed a design document, released in 2010, that furnishes a template for a comprehensive strategy to reduce regional GHG emissions. The 2010 design document foresaw the creation of cap-and-trade mechanisms on a jurisdiction-by-jurisdiction basis, followed by the possibility of jurisdictional linkage.

The jurisdictions involved in the WCI are all subnational jurisdictions, meaning that, as a formal matter, they have no international personality and, conversely, no ability to conclude binding agreements under international law. As a result, three WCI jurisdictions (British Columbia, California, Quebec) created the WCI, Inc., a non-profit corporation established under Delaware law, in 2011, to provide technical and scientific advisory services to US states and Canadian provinces in the development and implementation of GHG emissions trading programs. Subsequently, with WCI input, two WCI jurisdictions (California and Quebec) developed their own cap-and-trade programs in close alignment, a development that allowed them to fully link their programs with each other in 2014.[13] Ontario joined the link in early 2018 and subsequently withdrew six months later.

Cap-and-Trade Basics

For some time, it has been known that GHG emissions are a large contributor to climate change and, conversely, that reducing GHG emissions can be a significant factor in mitigating the effects of climate change. For this reason, a number of advocates have promoted the idea of a cap-and-trade system for GHG emission credits.[14]

Cap-and-trade is a market-based approach to regulating and reducing GHG emissions and mitigating climate change.[15] Each covered emitter is assigned a specific emissions limit, which it can meet by the receipt of emissions allowances, offset activities, market purchases or any combination of these. The total emissions of all emitters is subject to a "cap," which under a cap-and-trade program sets a numeric ceiling on GHG emissions in a given jurisdiction while providing emissions allowances to participating entities in a quantity consistent with the cap that is set.[16] Over time, the cap is gradually lowered, giving GHG emitters an incentive to reduce emissions through the establishment of a market-based price on GHG emissions measured per tonne of carbon dioxide (CO_2) equivalent (tonne/CO_2eq).[17] By means of an established emissions trading market, emitters are able to buy or sell additional allowances with other cap-and-trade participants.[18] The market provides an incentive to participants to reduce GHG emissions while affording businesses flexibility in terms of how they meet the cap in the course of a given compliance period.[19]

The principal innovation of a cap-and-trade program is its use of the power of the market to achieve environmental goals. Traditionally, environmental regulation has taken place by "command-and-control" methods in which governments establish environmental standards,

11 For total suspended particulates, photochemical oxidants, sulfur dioxide, nitrogen dioxide and other pollutants, see Ellyn Adrienne Hershman, "California Legislation on Air Containment Emissions from Stationary Sources" (1970) 58:6 Cal L Rev 1474 at 1486–88.

12 Schmidt, *supra* note 10 at A146.

13 Both California's and Quebec's cap-and-trade programs began operating within their respective jurisdictions in 2013 after requiring reporting in 2012. For California background information, see California Environmental Protection Agency Air Resources Board (CEPA-ARB), *Overview of ARB Emissions Trading Program* (Sacramento: CEPA-ARB, 2015), online: <www.arb.ca.gov/cc/capandtrade/guidance/cap_trade_overview.pdf>. For Quebec background information, see Quebec, *Québec Cap-and-Trade System for Greenhouse Gas Emission Allowances (C&T): Historical Overview* (2018) at 5–6 [Quebec, *Historical Overview*], online: <www.mddep.gouv.qc.ca/changements/carbone/documents-spede/historical-overview.pdf>.

14 For early experience with cap-and-trade programs in the United States, see A Denny Ellerman, Paul L Joskow & David Harrison, Jr, *Emissions Trading in the U.S.: Experience, Lessons, and Considerations for Greenhouse Gases* (Arlington, VA: Pew Center on Global Climate Change, 2003).

15 Selina Lee-Andersen, *Climate Change Essentials: Navigating Carbon Pricing Mechanisms and Guide to Canadian Federal and Provincial Regulatory Framework* (Vancouver: McCarthy Tétrault, 2015) at 14, online: <www.mccarthy.ca/en/insights/articles/climate-change-essentials-navigating-carbon-pricing-mechanisms-and-guide-canadian-federal-and-provincial-regulatory-framework>.

16 Shaun Fluker & Salimah Janmohamed, "Who Regulates Trading in the Carbon Market?" (2014) 26:2 J Envtl L & Prac at 6.

17 Lee-Andersen, *supra* note 15 at 15.

18 *Ibid*.

19 *Ibid*.

permit certain behaviour, assign liability and penalties for non-compliance, and give regulators wide powers to authorize or prohibit activities or pollution. While these methods have made progress in reducing pollution, command-and-control approaches have been criticized for not achieving various legislative mandates and deadlines in a timely manner, and for being economically inefficient and difficult to enforce.[20] By comparison, in the case of cap-and-trade programs, governments create the programs but allow market forces a degree of involvement in promoting "efficient" pollution and the attainment of environmental targets. In this way, freedom and flexibility are introduced in the regulatory scheme.

An additional benefit of a cap-and-trade system is that the sale of allowances by governments generates funds that are typically reinvested in pollution abatement and clean technology. In many instances, funds are also devoted to related innovation and job creation. Consequently, cap-and-trade helps to promote community goals of economic growth at the same time as it generates a cleaner, more sustainable environment.

Cap-and-Trade versus Carbon Tax

Governments often weigh two policy instruments to price carbon in their efforts to combat climate change: a carbon tax or a cap-and-trade scheme.

Both a carbon tax and cap-and-trade are market-based instruments designed to internalize the cost of negative environmental effects. However, they display some important differences.

In the case of a carbon tax, the policy tool is a tax — a fiscal increment — that increases the price of inputs requiring the use of fossil fuels. The aim of a carbon tax is to discourage fossil fuel emissions. By raising prices and effectively decreasing demand for those commodities, the tax creates an incentive to reduce fossil fuel use and stimulates demand for energy-efficient products. The tax rate must be set at an optimal level. If the tax is too low, fossil fuel users may continue to pollute, despite the cost of the tax. If the tax is too high, fossil fuel users may suffer significant economic losses that could have wider economic repercussions.

A carbon tax is often described as a "simpler" method for GHG reduction than cap-and-trade because the legal relationship put in place by the tax exists only between the government and the taxpayer. A carbon tax is therefore faster and simpler to implement since the government can take advantage of existing administrative frameworks of tax collection. Businesses will know beforehand the costs of the tax that they are expected to pay.

With a cap-and-trade program, by comparison, the policy tool at work is a limit on emissions. The limit is combined with the possibility of participants trading emissions allowances among themselves to achieve some "optimal" level of pollution. In the process, both a regulator and a market for trading emissions must be created.

A cap-and-trade program provides certainty to achieve GHG reduction goals by enforcing a cap on emissions. Nevertheless, there can be uncertainty as to the amount of costs depending on the spot price for emissions credits in the market. In some jurisdictions such as California, cost uncertainty is mitigated with a hybrid cap-and-trade system featuring both a price floor and a "soft" price ceiling. These indicators serve as benchmarks that allow entities subject to the cap-and-trade regulation to buy allowances so they can cover their emissions within certain specified costs. Contemporary cap-and-trade systems also possess features such as the borrowing and banking of credits, as well as extended compliance periods that can allow greater fine-tuning by participants and regulators of their activities over time.

Criticisms of Cap-and-Trade

Both carbon taxes and cap-and-trade programs are questioned by those who believe there is little demonstrable link between human activity and climate change. However, cap-and-trade programs come under particular scrutiny for a number of reasons, as follows.

Complexity

Cap-and-trade programs are criticized for their relative complexity. A cap-and-trade program requires the establishment of baselines for emissions reduction targets and the distribution of allowances.[21] Developing the legislative and administrative framework for the system can

20 Thomas P Sullivan, ed, *Environmental Law Handbook*, 22nd ed (Lanham, MD: Bernan Press, 2014) at 2–3.

21 Reuven S Avi-Yonah & David M Uhlmann, "Combating Global Climate Change: Why a Carbon Tax is a Better Response to Global Warming than Cap and Trade" (2009) 28:1 Stan Envtl LJ 3 at 6.

be time consuming.[22] Effort is also required to create the necessary regulations and to initiate an emissions trading market.[23]

Cost Uncertainty

Because cap-and-trade programs establish a cap — or limit — on emissions, there is a theoretical guarantee that the desired reductions in emissions will follow. This guarantee is referred to as "benefit certainty."[24] However, critics of cap-and-trade emphasize that benefit certainty comes at a cost, specifically that of cost uncertainty.[25] When compared to programs that set penalties for emissions, systems that create a free market and emissions caps have relatively less control over the overall cost of the system to the economy, individual polluters and trade. If caps are lowered without a corresponding lowering of the price of allowances, the cost of compliance with a cap-and-trade program could be a burden to participants in the program. Standard emissions reductions pursued over time could either inflate the overall cost of the scheme or generate political pressure to raise the emissions cap, or both.

Limited Experience

Cap-and-trade programs regulating GHG emissions are relatively new compared to other regulatory schemes. Critics of cap-and-trade therefore claim that there is insufficient evidence for the effectiveness of such programs. Even those who recognize that some cap-and-trade programs have been successful in the past are skeptical about extrapolating from this experience to draw conclusions regarding the effectiveness of cap-and-trade programs generally.[26] However, some commentators have suggested that there is no room for further delay in implementing cap-and-trade systems, given the targeted effectiveness they offer in reducing GHGs and the pressing need to protect local and global environments.[27]

Reduced Incentives to Adopt Sustainable Practices

One criticism of cap-and-trade programs is that they do not encourage research or the deployment of new sustainable technologies.[28] Since the cost of emitting GHGs under a cap-and-trade program is unpredictable, participants may be less inclined to invest in developing more sustainable means of conducting their activities in parallel with the program. It has also been suggested that cap-and-trade programs do not send a clear message to polluters that GHG emissions are costly, both for polluters and for society in general.[29] Instead, it is sometimes suggested that cap-and-trade programs send the message that pollution is permissible, so long as one pays for it. The conceptual difference between a penalty for pollution and a price for a right to pollute discourages polluters that can otherwise afford to pay for allowances (and arguably emit the most) so that they can continue acting in unsustainable ways.[30]

Potential Abuse

The inherent complexity of cap-and-trade programs and the lack of incentives to otherwise reduce emissions can render a cap-and-trade program prone to potential abuse.[31] Depending on how emissions are accounted for, emissions allowances can be distributed in an inequitable manner. For example, major polluters that can afford to purchase emissions allocations may receive and hold a disproportionate amount of allowances and may use political influence to acquire allowances at low or no cost.[32] Further, if the regulatory mechanism is prone to favouritism, then polluters may be able to improperly influence the allocation of allowances.[33]

Market manipulation is another concern. The reliance of cap-and-trade programs on market trading means that market actors may attempt to "stack" the market by intervening in certain ways or at certain times for undue benefit. This concern points to the need for elaborate frameworks of reporting, verification and monitoring, together with enforcement

22 *Ibid*.

23 David Suzuki Foundation, "Carbon tax or cap-and-trade?" (2017), online: <https://davidsuzuki.org/what-you-can-do/carbon-tax-cap-trade/>.

24 Joseph R Mason, *The Economic Policy Risks of Cap and Trade Markets for Carbon Emissions: A Monetary Economist's View of Cap and Trade Market and Carbon Market Efficiency Board Designs* (2009) at 3, online: <www.energy.senate.gov/public/index.cfm/files/serve?File_id=bf03807a-ad55-cf29-d45f-4568be4a735b>.

25 Avi-Yonah & Uhlmann, *supra* note 21 at 42–44.

26 *Ibid* at 6.

27 *Ibid*.

28 Robert Stavins, "A Meaningful U.S. Cap-and-Trade System to Address Climate Change" (2008) 32 Harv Envtl L Rev 293 at 299.

29 Avi-Yonah & Uhlmann, *supra* note 21 at 43.

30 *Ibid*.

31 Stavins, *supra* note 28 at 319–20.

32 *Ibid*.

33 *Ibid*.

procedures, as part of cap-and-trade programs to ensure that markets remain fair to participants.

A Brief History of Cap-and-Trade

The US Environmental Protection Agency's Acid Rain Program

The US Environmental Protection Agency's (EPA's) Acid Rain Program was the first national cap-and-trade program established in the United States and remains in existence today.[34] The program's goal is to reduce emissions of sulfur dioxide and nitrogen oxides — the primary sources of acid rain — generated by the power sector.

Under the program, the EPA places a cap on sulfur dioxide emissions by power plants and allocates emissions allowances based on historical fuel consumption and emissions rates specific to each power plant.[35] Allowances can be bought, banked or sold on the emissions market in the United States. Power sector sources (which must participate) and other private organizations (whose participation is voluntary) are active in the market.[36]

Under the program, each power plant monitors its emissions using an approved monitoring method and reports its emissions on a quarterly basis to the EPA, which tracks the data.[37] The EPA regulates compliance and assigns penalties for non-compliance.[38]

The Acid Rain Program has been highly successful. Between 1990 and 2015, sulfur dioxide and nitric oxide emissions were reduced by 89 percent and 76 percent, respectively.[39] A study by the Massachusetts Institute of Technology notes that the program's positive environmental outcomes are attributable to "the more fundamental characteristics of the program, namely, a flexible, decentralized, property rights system."[40]

The Regional Greenhouse Gas Initiative

The Regional Greenhouse Gas Initiative (RGGI) was established among several US states in 2005 and held its first emissions auction in 2008. Currently, participating states are Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island and Vermont.[41] The program has enjoyed considerable success to date and, by 2020, aims to reduce carbon emissions of covered industries by 45 percent from 2005 base levels.[42] Each participating state has a further jurisdiction-specific goal of reducing emissions by an additional 30 percent by 2030.[43]

The RGGI currently regulates fossil fuel power plants with a capacity of 25 MW or more.[44] Any power plant operating at or above this capacity must obtain allowances for its CO_2 emissions in participating jurisdictions. RGGI-administered auctions of emissions allowances take place four times yearly.[45] To ensure that the auctions run smoothly, a "price floor" is maintained and a "cost containment reserve" is triggered if the trading price exceeds specified levels.[46]

The RGGI establishes three-year compliance periods.[47] At the end of each period, covered entities must submit one allowance for each tonne of carbon generated during the three-year period. Participants are allowed to bank allowances for future use and may meet up to 3.3 percent of their compliance obligations by purchasing offsets.[48]

Proceeds from auctions held under the RGGI are returned to states and invested in consumer and environmental programs related to energy

34 EPA, "Acid Rain Program" (2017), online: <www.epa.gov/airmarkets/acid-rain-program>.

35 *Ibid*.

36 *Ibid*.

37 *Ibid*.

38 *Ibid*.

39 *Ibid*.

40 A Denny Ellerman, "Are Cap-and-Trade Programs More Environmentally Effective than Conventional Regulation?" in Jody Freeman & Charles D Kolstad, eds, *Moving to Markets in Environmental Regulation* (New York: Oxford University Press, 2007) 48 at 50.

41 Regional Greenhouse Gas Initiative (RGGI), "Elements of RGGI" (2018) [RGGI, "Elements"], online: <www.rggi.org/program-overview-and-design/elements>.

42 *Ibid*.

43 *Ibid*.

44 *Ibid*.

45 *Ibid*.

46 *Ibid*.

47 *Ibid*.

48 A carbon offset is a credit for GHG reductions achieved by one party that can be purchased and used to compensate (offset) the emissions of another party: see David Suzuki Foundation, "Carbon offsets" (5 October 2017), online: <davidsuzuki.org/what-you-can-do/carbon-offsets/>.

efficiency, renewable energy, direct energy bill assistance and other GHG reduction initiatives.[49]

Comparative Experience

Cap-and-trade systems are not unique to North America. Currently, 45 national and 25 subnational jurisdictions have policies that use carbon pricing in the form of either carbon taxes or emissions trading schemes.[50] The following is a survey of comparative experience with cap-and-trade systems in the European Union and China.

The European Union Emissions Trading System

The European Union Emissions Trading System (EU ETS) began in 2005 and currently regulates the world's largest carbon market.[51] It operates in the 28 EU member states as well as Iceland, Liechtenstein and Norway.[52] In total, approximately 45 percent of the European Union's GHG emissions are covered by the EU ETS.[53]

The EU ETS applies to some 11,000 installations in the power generation, manufacturing and airline sectors.[54] The scheme aims to reduce CO_2, nitrous oxide and perfluorocarbon (PFC) emissions, with emissions of these types in 2030 projected to be 43 percent lower than in 2005.[55]

The EU ETS has operated in three phases. In Phase 1 (2005–2007) of the program, the scheme did not generate the expected reduction in emissions because the number of allowances, which was based on the estimated needs of emitters, was excessive.[56] As a result, the price of allowances fell to zero in 2007.[57] In Phase 2 (2008–2012) of the program, an economic downturn in Europe depressed emissions as well as the demand for allowances.[58] Currently, in Phase 3 (2013–2020), major reforms have been carried out. An EU-wide cap on emissions amounting to a reduction of 1.74 percent per year has been introduced, and there has been a progressive shift toward the auctioning of allowances in place of cost-free allocation.[59] These reforms have meant that businesses have had to buy an increasing proportion of their allowances through auctions.

The legislative framework of the EU ETS for Phase 4 (2020–2030) has been revised to harmonize the system with the European Union's 2030 climate and energy policy framework and to support the European Union's contribution to the 2015 Paris Agreement. The revision focuses on strengthening the EU ETS by increasing the pace of annual reductions in allowances to 2.2 percent as of 2021 and associated reduction mechanisms; continuing the free allocation of allowances in a manner that is focused and reflects technological progress; and providing interim help to industry to transition to a low-carbon future through a number of funding mechanisms.[60]

China

China's explosive economic growth in the last few decades has taken a substantial toll on its environment, in particular in major Chinese cities where air and water pollution are a significant problem. China is now the world's largest GHG emitter.[61]

China's NDC to the 2015 Paris Agreement contains a commitment to peak CO_2 emissions by 2030 at the latest, lowering the carbon intensity of its GDP by 60 to 65 percent below 2005 levels by 2030, increasing the share of non-fossil energy carriers of the total primary energy supply to around 20 percent by that time, and increasing its forest stock volume by 4.5 billion m^3 compared to 2005 levels.[62] In connection with these reductions, China announced in 2017 the launch

49 RGGI, "Elements", *supra* note 41. As mentioned, proceeds from the auction are distributed to the states to invest in consumer benefit programs. Each state is allocated a number of allowances to be auctioned by the RGGI. The proceeds that are returned to them after auction are based on the number of allowances each state sold at a particular auction. A sample RGGI auction report shows how state proceeds have been distributed based on the allowances each state sold. See RGGI, "Auction 39 State Proceeds and Allowances", online: <www.rggi.org/sites/default/files/Uploads/Auction-Materials/39/Auction_39_State_Proceeds_and_Allowances.pdf>.

50 World Bank Group & Ecofys, *State and Trends of Carbon Pricing 2018* (May 2018) at 17, online: <https://openknowledge.worldbank.org/bitstream/handle/10986/29687/9781464812927.pdf?sequence=5&isAllowed=y>.

51 European Commission, "EU Emissions Trading System (EU ETS)", online: <ec.europa.eu/clima/policies/ets_en>.

52 *Ibid*.

53 *Ibid*.

54 *Ibid*.

55 *Ibid*.

56 *Ibid*.

57 *Ibid*.

58 *Ibid*.

59 *Ibid*.

60 *Ibid*.

61 PBL Netherlands Environmental Assessment Agency, "China now no. 1 in CO2 emissions; USA in second position", online: <www.pbl.nl/en/dossiers/Climatechange/Chinanowno1inCO2emissionsUSAinsecondposition>.

62 NDC Registry, UNFCCC, *China's First NDC Submission* (30 June 2015), online: <www4.unfccc.int/sites/ndcstaging/PublishedDocuments/China%20First/China%27s%20First%20NDC%20Submission.pdf>.

of a national cap-and-trade system involving six of its largest carbon-emitting industrial sectors, beginning with coal-fired power generation.[63]

This announcement follows on the success of earlier pilot municipal cap-and-trade programs in Beijing, Chongqing, Fujian, Guangdong, Hubei, Shanghai, Shenzhen and Tianjin, which have now been folded into the national system.[64] Eight municipal pilot programs, which ran from 2013 to 2017, allowed for the trading of 40.24 million metric tonnes of carbon and saw a reduction of 38.6 percent in carbon intensity.[65] These municipal programs only permitted allowances and offsets to be traded on local emissions exchanges.[66] Localization meant that there were eight different carbon prices depending on the specific pilot. Although there were policy differences between the pilots due to the diversity of China's industrial development, all of the schemes have been successful in subjecting companies within their territorial limits to annual monitoring, reporting and verification (MRV) processes. Compliance with the pilot programs is regarded as fairly successful, although this view is tempered by reports of possible over-allocation of allowances by municipal officials designed to ward off industrial opposition to the pilots.[67]

China formally launched its own national emissions trading market in December 2017.[68] In the first phase of the national program, only coal-fired power generation is covered. Nevertheless, it is believed that this limited coverage will still have major climate benefits since China's power sector generates 65 percent of its electricity from coal and accounts for more than 3.5 Gt of carbon emissions annually.[69] The cap introduced is almost twice as intense as that under the EU ETS.[70] Due to the novelty of the program, little further information is available at present.

63 International Carbon Action Partnership (ICAP), "China National ETS" (5 September 2019), online: <https://icapcarbonaction.com/en/?option=com_etsmap&task=export&format=pdf&layout=list&systems[]=55>.

64 Climate Action, "China has already hit its 2020 target to cut carbon emissions" (27 March 2018), online: <www.climateactionprogramme.org/news/china-has-already-hit-its-2020-target-to-cut-carbon-emissions>.

65 *Ibid*.

66 Jeff Swartz, *China's National Emissions Trading System: Implications for Carbon Markets and Trade* (Geneva: International Centre for Trade and Sustainable Development, 2016) at 12, online: <www.ieta.org/resources/China/Chinas_National_ETS_Implications_for_Carbon_Markets_and_Trade_ICTSD_March2016_Jeff_Swartz.pdf>.

67 Patrick Bayer, "Cap Setting and Strict Compliance Enforcement Will be Critical for Chinese Emissions Trading Scheme", *EuropeNow* (June 2016) ("It hence comes as no surprise that compliance rates in pilot carbon markets, where local authorities tended to overallocate allowances to ease off industrial opposition, were high"), online: <www.europenowjournal.org/2018/06/04/cap-setting-and-strict-compliance-enforcement-will-be-critical-for-chinese-emissions-trading-scheme/>.

68 Environmental Defense Fund, *The Progress of China's Carbon Market* 2017 (23 May 2018), online: <www.edf.org/sites/default/files/documents/The_Progress_of_Chinas_Carbon_Market_Development_English_Version.pdf>.

69 Qian Guoqiang & Huang Xiaochen, "China's National Carbon Market and the Roadmap Ahead" in ICAP, *Emissions Trading Worldwide: Status Report 2018* (Berlin: ICAP, 2018) at 18–19, online: <https://icapcarbonaction.com/en/?option=com_attach&task=download&id=547>.

70 China undertakes its commitments on climate change in terms of emissions intensity instead of the absolute amount of emissions. This is because of persistent uncertainty over the growth of its economy and GHG emissions and the fact that official emissions data are far from complete: Shaozhou Qi & Si Cheng, "China's National Emissions Trading Scheme: integrating cap, coverage and allocation" (2018) 18:1 Climate Policy, DOI: <10.1080/14693062.2017.1415198>.

NORTH AMERICA AND THE WCI

This section explains the background to the WCI cap-and-trade program in the United States and Canada. It also provides the background to cap-and-trade legislation in three North American subnational jurisdictions — California, Quebec and Ontario — and an overview of the framework for harmonizing such legislation under the WCI and the WCI, Inc. The section then examines the linkage of cap-and-trade programs in California and Quebec in 2014, and the addition and withdrawal of Ontario from the link in 2018.

During the course of preparing this guide, many conditions pertaining to cap-and-trade programming under the WCI were in a state of flux. The conditions were brought about by a confluence of domestic and international events. It is therefore necessary to examine several issues as background to fully understand the operation of cap-and-trade under the WCI.

The withdrawal of Ontario from its link with California's and Quebec's cap-and-trade programs in July 2018 occurred late in the preparation of this guide. The guide is therefore drafted, generally speaking, with references to Ontario's participation phrased in the past tense. Any mentions of its participation in the present tense should be understood as referencing conditions prevailing only until the date of Ontario's cancellation of its cap-and-trade program on July 3, 2018, although some limited information has been included to update this guide to the end of 2018.

The Background to Cap-and-Trade in North America

Until July 2018, the cap-and-trade program implemented under the WCI was maintained by three jurisdictions that are subnational units of two countries: the United States and Canada. As a result, cap-and-trade implementation and operation under the WCI need to take account of certain legal and policy considerations prevailing in each country.

The constitutions of the United States and Canada have little to say expressly on the subject of the environment. The environment as a distinct subject of regulation was unknown in early constitutional thinking in both countries, although Indigenous environmental knowledge has a long history, and specific topics that can be assimilated into modern environmental awareness were dealt with and referenced in the foundational instruments, statutes and judicial opinions of each country.[71] The constitutional framework is supplemented by the shared legal heritage of both countries rooted largely in the common law.[72]

The United States

In the United States, the Constitution is the primary document governing the distribution of powers between the federal government and the states. Under the Tenth Amendment, any power not delegated to Congress is reserved to the states.[73] At the same time, because environmental awareness evolved incrementally in US history, different aspects of environmental protection have been the subject of regulation by both levels of government. Dual regulation has given rise to the possibility of jurisdictional overlap, competition and the need for coordination.

US federal environmental law applies to broad subjects of coverage such as natural resource development and protection; and environmental aspects of air, water, land and chemical regulation, as well as general environmental policy. In the *Environmental Law Handbook*, Thomas Sullivan writes, "Major federal environmental statutes define most of the substantial compliance obligations in U.S. law."[74] In addition, "other components of U.S. environmental law supplement or complement standards established by federal environmental statutes,"[75] such as administrative regulations specifying the regulatory obligations of certain industries.

Many federal statutes, such as the Clean Air Act[76] or the Clean Water Act,[77] create "federal/state regulatory programs through which the states are given an opportunity to enact and enforce laws which meet federal criteria to achieve certain regulatory objectives."[78] In most instances, states have taken the opportunity to do so and have enacted corresponding laws and regulations at the state level.[79] For this reason, "states are generally the primary permitting and enforcing authority in U.S. environmental law and are subject to federal intervention only if they do not enforce effectively or rigorously enough."[80]

Moreover, "[s]tates are given considerable leeway to follow state-level enforcement interpretations that may not be fully consistent with those applied at the federal level."[81] In most instances, "states are not precluded from enforcing criteria more stringent than federal laws."[82] For this reason, "the laws and interpretations used to apply and enforce federal environmental laws may vary considerably from state to state."[83]

In addition, "many U.S. states provide their citizens and their environment with protection beyond that generally available under federal statutes."[84] Such

71 In the United States, the roots of environmental protection have been traced to nineteenth-century revulsion over the despoliation of an apparently limitless wilderness: see Frederick Anderson et al, *Environmental Protection: Law and Policy* (Boston: Little, Brown and Company, 1984) at 1–4. For US federalism considerations in relation to environmental protection, see Roger W Findley & Daniel A Farber, *Cases and Materials on Environmental Law,* 4th ed (West Group, 1985) at 169ff; Jamie Benedickson, *Environmental Law in Canada,* 2nd ed (Kluwer Law International, 2016) (in Canada, "[environmental lawmaking] has been described as 'a constitutionally abstruse matter which does not comfortably fit within the existing division of powers without considerable overlap and uncertainty'" at 27), quoting from *Friends of the Oldman River Society v Canada (Minister of Transport)* (1992), 1 SCR 3. For the historical background of environmental protection in Canada, see Benedickson, *supra* note 71 at 41–45.

72 For the US common law to environmental protection background, see Findley & Farber, *supra* note 71 at 697. For the Canadian common law background, see Benedickson, *supra* note 71 at 277.

73 Findley & Farber, *supra* note 71 at 169.

74 Sullivan, *supra* note 20 at 6.

75 *Ibid*.

76 *Congressional findings and declaration of purpose,* 42 USC (1970) at 7401 [42 USC].

77 *Congressional declaration of goals and policy,* 33 USC (1948) at 1251.

78 Sullivan, *supra* note 20 at 6.

79 *Ibid* at 6–7.

80 *Ibid* at 7.

81 *Ibid*.

82 *Ibid* at 6–7.

83 *Ibid* at 7.

84 *Ibid*.

legislation includes toxic waste minimization laws, environmental disclosure law, property transfer law, product stewardship laws and laws regulating GHG emissions.[85] For instance, "[i]n 2006 California became the first U.S. state to enact a comprehensive law requiring mandatory industry-wide GHG reductions."[86] Other state-led environmental initiatives include measures to encourage recycling and groundwater protection laws.[87]

Nevertheless, the federal government retains substantial powers within the US federal structure that effectively limit state behaviour. The Preemption Clause, found in article VI of the US Constitution, provides that in a situation where the federal and state governments pass opposing regulations, federal regulation will pre-empt state regulation.[88] Any state legislation that "stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress" has the potential to be struck down, although in recent decades the doctrine of "cooperative federalism" in US environmental law has tended to temper such action.[89]

Another federal power with the ability to constrain state action is the federal government's power in foreign relations. Article I, section 10 of the US Constitution forbids states from entering into treaties with foreign governments.[90] This prohibition is a significant limit on states' abilities to conclude binding agreements with foreign jurisdictions concerning environmental protection.

Finally, the federal commerce power in article I, section 8, clause 3 of the Constitution gives Congress the power to regulate interstate and foreign commerce.[91] Broad interpretation of this power by the courts means that state regulation must be coordinated with the federal commerce power. "It is well settled that a state regulation validly based on police powers does not impermissibly burden interstate commerce if the regulation does not discriminate against interstate commerce or operate to disrupt the uniformity of commerce."[92] Still, "there have been numerous environmental cases involving the application of the Commerce Clause as a limit on state power."[93]

Limitations aside, in the last few decades, there has also been an emphasis in both US federal and state regulatory jurisdiction on "reinventing" environmental regulations and developing more effective legislative schemes. Traditional command-and-control systems have been widely criticized for not achieving various legislative mandates and deadlines quickly enough or in an efficient manner.[94] Consequently, in recent years, "the U.S. federal government has adopted various economic instruments, such as market-based trading programs for emission of air pollutants and wastewater constituents, in order to introduce more flexibility, efficiency and cost-effectiveness in pollution control."[95] These instruments operate as incentives to polluters to determine the most efficient and cost-effective means for achieving environmental targets, often incorporating "polluter pay" or "user pay" principles.[96]

Many US states have also tried to implement new programs "to gain more control over their environmental affairs and increasingly are being viewed as 'laboratories' for the development of innovative approaches to environmental regulation."[97] The sum of these changes has meant a more flexible and diverse regulatory landscape in US environmental law.

Notwithstanding this pluralism, the overarching enforcement responsibility for most of the United States' federal environmental laws remains

85 *Ibid*.

86 *Ibid*.

87 *Ibid*.

88 According to the Supremacy Clause found in article VI, clause 2 of the US Constitution, "This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the Supreme law of the land; and the Judges in every State shall be bound thereby." The associated doctrine of pre-emption provides that state laws that conflict with federal law are "without effect": *Altria Group v Good, 555* US 70 (2008).

89 Christopher B Power & Robert M Stonestreet, "Cooperative Federalism and Environmental Laws: Coping with Two Masters" (2015) 36:6 Energy & Mineral L Institute. The EPA website observes in relation to "cooperative federalism" that the "EPA is embracing cooperative federalism and working collaboratively with states, local government, and tribes to implement laws that protect human health and the environment, rather than dictating one-size-fits-all mandates from Washington." See EPA, "Cooperative Federalism at EPA" (6 July 2018), online: <www.epa.gov/home/cooperative-federalism-epa>.

90 US Const art I, § 10 ("No State shall enter into any Treaty, Alliance, or Confederation").

91 *Ibid*, art I, § 8, cl 3 ("The Congress shall have Power…To regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes").

92 Sullivan, *supra* note 20 at 29.

93 *Ibid* at 30.

94 *Ibid* at 2–3.

95 *Ibid* at 2.

96 *Ibid*.

97 *Ibid*.

with the EPA.[98] The EPA was established in 1970 to consolidate a variety of federal research, monitoring, standard-setting and enforcement activities for the purposes of environmental protection. Its role in the effort to abate aerial pollution over the last several decades has been substantial. For instance, in 1970, the Clean Air Act was passed, regulating air emissions and giving the EPA the power to set air quality standards.[99] Amendments to the Clean Air Act in 1977 and 1990 raised the standards in order to counter airborne problems such as acid rain and ozone depletion.[100] In 1999, the EPA set new emissions standards for automobiles.[101] In 2004, the EPA informed the governors of 31 states that the air pollution in their states did not meet federal health standards and ordered them to develop new pollution controls to clean up their air.[102] Later, in 2012, the EPA helped finalize still more stringent automobile fuel efficiency standards.[103]

While the US State Department generally retains the lead in developing and projecting US international climate policy, the EPA has also played a major role in international efforts to protect the global environment. Much of this effort has been in relation to the aerial environment, in particular at a time of growing concern about ozone depletion. For example, in 1987, the United States was one of 24 countries to ratify the Montreal Protocol, an agreement to phase out production of chlorofluorocarbons.[104] In 1992, EPA officials participated in the US delegation to the United Nations Conference on Environment and Development in Rio de Janeiro, which brought together 150 nations to set global standards for protecting the earth against global warming and other environmental threats. Out of this effort, in 1997, 38 industrialized nations signed the Kyoto Protocol wherein they agreed to reduce their GHG emissions by about five percent over 15 years.[105] As part of this commitment, the United States, which was at that time the world's largest GHG emitter country, agreed to reduce its emissions by seven percent. However, in 2001, the United States refused to ratify the Kyoto Protocol due to the agreement's limited coverage and the projected expense to US businesses.

Nevertheless, concern about global warming continued to grow. In 2014, the UN's Intergovernmental Panel on Climate Change (IPCC) released a report that predicted dire consequences if the world's leading economies did not start to reduce GHG emissions immediately.[106] This forecast helped to secure the conclusion of the Paris Agreement in 2015.

As mentioned, the Paris Agreement is an international treaty that has been ratified by the United States, Canada and many other countries. The agreement recognizes the imperative of "an effective and progressive response" to the "urgent threat of climate change." It urges countries to engage in a global effort to restrict the increase in the global average temperature to 1.5°C above pre-industrial levels. An important premise underlying the Paris Agreement is that global warming is largely driven by GHG emissions. Therefore, each country is called upon to make an NDC as mentioned in the previous section. The US NDC indicated a target of 26 to 28 percent below 2005 levels by 2030.

However, since the 2016 US federal election, the EPA has moved to change or end a number of US climate-related policies. It has proposed a repeal of the Clean Power Plan, which sought to regulate power plant emissions, and has also announced that the agency would revisit 2022–2025 car fuel economy standards.[107] In addition, the EPA administrator has wanted to revise downward the "social cost of carbon," a key statistic when weighing the costs and benefits of fighting climate change.[108]

98 EPA, "Basic Information on Enforcement", online: <www.epa.gov/enforcement/enforcement-basic-information>.

99 42 USC, *supra* note 76 at 7401.

100 The 1977 amendments to the Clean Air Act authorized provisions related to the prevention of significant deterioration and non-attainment areas. The 1990 amendments to the Clean Air Act authorized programs for acid deposition control, introduced controls for 189 toxic pollutants, established permit program requirements, expanded and modified provisions concerning National Ambient Air Quality Standards, and expanded and modified EPA enforcement authority.

101 *Regulation of Fuels and Fuel Additives,* 40 CFR (2000) at 80, 85, 86.

102 *Regulation of Fuels and Fuel Additives,* 40 CFR (2004) at 81.

103 *Ibid* at 85, 86, 600; *Regulation of Fuels and Fuel Additives,* 49 CFR (2010) at 531, 533, 536.

104 *Montreal Protocol,* 26 August 1987, 1522 UNTS 3, 26 ILM 1550 (entered into force 16 September 1987). The Protocol was concluded under the *Vienna Convention for the Protection of the Ozone Layer,* 22 March 1985, 1513 UNTS 293 (entered into force 22 September 1988).

105 *Ibid* at 3(1).

106 IPCC, *Synthesis Report, supra* note 3.

107 Coral Davenport, "Trump Administration Unveils Its Plan to Relax Car Pollution Rules", *The New York Times* (2 August 2018).

108 For instance, in March 2018, it was reported that the US Federal Emergency Management Agency (FEMA) had removed "climate change" and associated terminology from the FEMA strategic plan.

In 2017, the United States also announced its withdrawal from the 2015 Paris Agreement at the earliest possible opportunity.[109] At the same time, the US administration ordered the cessation of all implementation of the agreement by the United States, stating that compliance with the terms of the agreement could undermine US competitiveness and jobs. Following the announcement, governors of several US states formed the US Climate Alliance to continue to promote the Paris Agreement's objectives at the state level.[110] As of early 2019, 19 states and Puerto Rico were members of the alliance.

At the international level, concern has continued to be voiced about the failure to achieve climate targets underpinning the Paris Agreement's goals and NDCs. In October 2018, the IPCC published *Special Report: Global Warming of 1.5°C*,[111] which found that meeting a 1.5°C reduction target is possible, but would require "deep emissions reductions" and "rapid, far-reaching and unprecedented changes in all aspects of society."[112] Similarly, in November 2018, the World Meteorological Organization released a report stating that 2017 atmospheric CO_2 levels reached 405 parts per million, a level not seen in the last three to five million years.

Canada

In Canada, the Constitution Act, 1867 sets out the division of powers and allocates certain subjects exclusively to federal or provincial jurisdiction. However, within that division, certain subjects of environmental significance such as "navigation and shipping" and "the sea coast and inland fisheries" are allocated to the federal government, while others, such as "management and sale of public lands" and "property and civil rights," are allocated to the provinces.

Judicial decisions in Canada have reaffirmed the existing constitutional allocation of specific subjects of environmental importance to the federal or provincial governments. However, the Supreme Court of Canada considers environmental protection to be an aggregate matter composed of separate elements rather than a single unitary one.[113] Thus, in an environmental dispute, a variety of matters involving federal powers, such as the licensing of toxic substances and criminal offences, can arise and be intertwined with matters involving provincial powers, such as the regulation of local businesses and private property. This being the case, environmental protection cannot be allocated to one level of government alone, but, in many instances, must be a shared responsibility.[114]

As in the United States, if a conflict exists in the operation of Canada's federal and provincial environmental laws dealing with the same matter, then by the doctrine of paramountcy, the federal statute will prevail if the matter can be characterized as falling within federal jurisdiction.[115] Nevertheless, the scope of any potential conflict is often defined narrowly and, in the normal course, governments of both levels are likely to work out their differences or design laws that are capable of operating without apparent conflict.[116] As a result, true "compliance dilemmas" are rare.[117] It may be possible to comply with both federal and provincial laws by simply meeting the higher standard.

Canadian federal and provincial authorities have also concluded agreements and engaged in other harmonization techniques to coordinate action and clarify their respective roles in relation to the environment. Some examples include "intergovernmental agreements under the Canadian Environmental Protection Act, 1999 to accept provincial regulations as equivalent and withdraw federal regulations, agreements for joint federal–provincial environmental

109 Under article 28(1) of the Paris Agreement, a country may withdraw from the agreement at any time after three years from the date on which the agreement entered into force for that country. Under article 28(2) of the Paris Agreement, the withdrawal is to take effect one year from the date of receipt of notice of withdrawal. The United States ratified the Paris Agreement in December 2016 and, with the appropriate notice of withdrawal, would be in a position to withdraw in early 2021.

110 See United States Climate Alliance, online: <www.usclimatealliance.org>.

111 IPCC, *Special Report: Global Warming of 1.5 °C*, online: <www.ipcc.ch/sr15>.

112 *Ibid*.

113 In *Friends of the Oldman River Society v Canada (Minister of Transport)*, 1992, 1 SCC 3, the Supreme Court of Canada made clear that "the environment is not, as such, a subject matter of legislation under the Constitution Act, 1867"; *R v Hydro-Québec*, [1997] 3 SCC 213 at 112, per La Forest J; Benedickson, *supra* note 71 at 27.

114 *R v Crown-Zellerbach Canada Ltd*, [1988] 1 SCC 401.

115 Peter W Hogg, *Constitutional Law of Canada*, 5th ed, Supplemented (Toronto: Thomson Reuters Canada, 2017) at 16–1.

116 *Ibid* at 16–4.

117 *Ibid*. Hogg notes that "[g]iven the overriding force of federal law, a wide definition of inconsistency will result in the defeat of provincial laws in 'fields' which are 'covered' by federal law; a narrow definition, on the other hand, will allow provincial laws to survive so long as they do not 'expressly contradict' federal law. The wide definition is the course of judicial activism in favor of central power; the narrow definition is the course of judicial restraint, leaving all but the irreconcilable conflicts to be resolved in the political arena. We shall see that Canadian courts have followed the course of restraint."

assessment processes, and the Canada-Wide Accord on Environmental Harmonization."[118]

In Canada, the federal Ministry of the Environment and Climate Change is the primary department with responsibility for the environment. Its duties generally encompass environmental matters within the scope of federal authority. These include preservation and enhancement of the natural environment (water, air and soil quality), renewable resources, water and boundary waters between Canada and the United States, meteorology, and coordination of policies and programs on these subjects. The federal ministry is also tasked with providing leadership and coordination to support government consultation and planning in connection with federal sustainable development initiatives.[119]

Provincial and territorial governments have also created ministries or administrative departments to oversee environmental responsibilities arising within their jurisdictions. The wide range of environmental matters potentially falling within the scope of provincial jurisdiction is such that many other ministries that have responsibility for natural resources, energy, forests, wildlife and so forth may be involved in a specific issue.

The principal piece of federal legislation over environmental matters is the Canadian Environmental Protection Act (CEPA).[120] The act entails the formulation of environmental quality objectives, guidelines and codes of practice concerning the environment. CEPA is concerned mainly with systemic threats to the environment. Provincial environmental legislation varies between jurisdictions, but all provinces have at least one general law concerning the subject. These are supplemented by laws related to specific activities such as the protection of water resources, environmental assessment and pesticide use.

Both federal and provincial legislation on the environment contain broad powers that allow the respective level of government to prosecute polluters or others who break environmental laws.

Nevertheless, most actions for environmental damage in Canada can be brought only by government authorities, a legacy of the perception among Canadians that the environment is a public resource.[121] Civil suits are limited to actions for nuisance and/or possibly negligence when legislative standards are not met.[122]

The control that governments have over environmental prosecutions in Canada means that there is an emphasis on uniformity and regularity in environmental enforcement. For instance, in a statement on CEPA compliance and enforcement policy in 2001, the federal government indicated that enforcement officials are to apply the act "in a manner that is fair, predictable and consistent."[123] The same policy statement indicated that officials will aim to "administer the Act with an emphasis on prevention of damage to the environment." For this reason, the regulatory orientation is toward "environmental protection in the public interest,"[124] meaning that while penalties and remedial powers are applied, the general accent in enforcement is placed on the use of other remedial powers such as orders of restoration work.[125]

Canada has also played an active role in international environmental protection efforts in recent decades, although the degree to which it may do so is often constrained by provincial disagreement.[126] A 2017 compendium of Canada's engagement in international environmental agreements indicates Canada's current engagement in 94 international environmental agreements, including 24 Canada-US agreements and

118 Paul Muldoon et al, *An Introduction to Environmental Law and Policy in Canada,* 2nd ed (Toronto: Emond, 2015) at 41.

119 Canada was the first country to legislate the oversight of the performance of government departments against sustainable development goals. The creation of the Office of the Commissioner for Environment and Sustainable Development was an important step in the integration of sustainable development considerations into government decision making: see Benedickson, *supra* note 71 at 52.

120 *Canadian Environmental Protection Act,* SC 1999, c 33.

121 In discussing penalties and remedial powers under Canadian environmental law, Benedickson, *supra* note 71, has observed that "considerable emphasis is placed on the goal of environmental protection in the public interest that underpins the overall regulatory regime" at 268.

122 *Ibid* at 277–78.

123 See Environment Canada, *Compliance and enforcement policy for the Canadian Environmental Protection Act, 1999* (March 2001) at 5. For instance, in order to support "fair, predictable and consistent application of legislation administered by Environment Canada, enforcement functions were reorganized in 2005 to establish an enforcement branch under the direction of the Chief Enforcement Officer": Benedickson, *supra* note 71 at 267.

124 Benedickson, *supra* note 71 at 270.

125 Benedickson, *ibid*, notes that "In addition to prosecutorial action... measures envisaged to promote compliance include education and exchange of technical information, the elaboration of codes of practice and guidelines, inspections, oral and written warnings, increased monitoring, and the use of administrative orders, recalls, ticketing, and directions, as well as support base proceedings to secure injunctions and civil claims for cost recovery" at 273.

126 Annie Chaloux, Stéphane Paquin & Hugo Séguin, "Canada's Multiple Voices Diplomacy in Climate Change Negotiations: A Focus on Québec" (2015) 20 Intl Negotiation 291 at 309.

39 multilateral agreements.[127] Although Canada is the only country to have withdrawn from the Kyoto Protocol, it continues to be actively engaged in implementing the Paris Agreement.

In recent years, the federal government has also taken action to implement its international commitments under the Paris Agreement in the form of the Pan-Canadian Framework on Clean Growth and Climate Change.[128] Such a legislative framework is likely within federal jurisdiction if grounded in the federal taxation power or possibly the peace, order and good government power.[129] However, there could well be a provincial dimension to such regulation, effectively requiring provincial agreement or participation.

The regulation of GHG emissions therefore has the potential to introduce a double layer of regulation in Canada, with both provincial governments and the federal government being empowered to enact relevant legislation. While the overlap has the potential to complicate the regulatory framework in each province, the framework operates as a "backstop" or minimum requirement for provincial GHG plans. The framework establishes a minimum price that must be put on CO_2 emissions, establishing a starting price of $10 per tonne in 2018 and rising to $50 per tonne by 2022.[130]

127 Government of Canada, "Participation in international environmental agreements and instruments", online: <www.canada.ca/en/environment-climate-change/corporate/international-affairs/partnerships-organizations/participation-international-environmental-agreements.html>.

128 Government of Canada, *Pan-Canadian Framework on Clean Growth and Climate Change: Canada's Plan to Address Climate Change and Grow the Economy* (2016) [Government of Canada, *Pan-Canadian Framework*], online: <www.canada.ca/content/dam/themes/environment/documents/weather1/20170125-en.pdf>.

129 Bryan P. Schwartz has observed that a federal tax/levy is likely to be upheld on the basis that section 91(3) of the Constitution accords the federal government broad powers to raise "money by any mode or system of taxation" and furthermore that the federal government has a history of legislation in the area. Schwartz also notes that factors likely to influence a reviewing court's opinion in deciding a challenge of the matter are the particularity of the claim (allowing the court to decide on one particular ground linked to the actual legislation in question and leaving other challenging questions to be worked up by politicians or courts in other cases); the fact that, in controversial cases, the Supreme Court of Canada often prefers to avoid "winner take all outcomes" so that by upholding the legislation, a court would avoid being seen to be obstructing an important political initiative by the national government; and the fact that courts often consider the existence of an international treaty and the desirability of implementing it as a factor that supports a decision in favour of federal jurisdiction. Schwartz also adverts to the possibility of a court overturning the legislation because it, in substance, amounts to a regulatory scheme in an area of provincial jurisdiction; see Bryan P Schwartz, *Legal Opinion on the Constitutionality of the Federal Carbon Pricing Benchmark and Backstop Proposals* (6 October 2017), online: <http://manitoba.ca/asset_library/en/climatechange/federal_carbon_pricing_benchmark_backstop_proposals.pdf>.

130 Government of Canada, *Pan-Canadian Framework*, *supra* note 128, Annex 1. All dollar figures in Canadian dollars unless otherwise noted.

Applied to jurisdictions with a cap-and-trade system, the framework requires provinces to have:

- a 2030 emissions reduction target equal to or greater than Canada's 30 percent Paris Agreement reduction target; and
- a declining annual cap that corresponds, at a minimum, to the projected emissions reductions resulting from the average carbon price that year in price-based systems.[131]

Prior to July 3, 2018, the cap-and-trade systems in Quebec and Ontario met the first of these criteria, with both provinces setting targets of at least 37 percent below 1990 levels by 2030.[132] The second criterion requires the annual cap to decline such that it matches or exceeds the reduction effects of a carbon tax. Both Quebec and Ontario projected four to five percent annual decreases in their respective caps, with exact numbers to be set annually based on forecasts for electricity use, transportation and heating fuels.[133] Quebec's and Ontario's schemes meet the second criteria. As of mid-June 2018, it was therefore not anticipated that either province would be affected by the backstop created by the framework. Action by the Ontario government in early July 2018 altered this conclusion significantly, as outlined below.

At the same time, it is important to note that the framework does not require the cap-and-trade system to set a minimum trading or auction price for emissions, so long as provincial emissions targets continue to exceed the federal target and provincial caps decline sufficiently each year. Furthermore, the framework is a short-term plan that extends only to 2022, at which time Canada's federal government could enact more stringent federal rules or establish a comprehensive, nationwide emissions reduction scheme.

During the fall of 2018, Canada's federal climate policy continued to evolve. In October 2018, the federal government indicated that Alberta, British Columbia, Newfoundland and Labrador, Northwest Territories, Nova Scotia, Nunavut, Prince Edward Island, Quebec and Yukon had met federal standards for pollution pricing either by developing their own systems or choosing to adopt the federal

131 *Ibid* at 50

132 *Ibid* at 67.

133 *Ibid* at 59.

system.[134] At the same time, the federal government indicated that the backstop would be introduced in Ontario, New Brunswick, Manitoba and Saskatchewan in 2019, with one aspect of it being focused on large CO_2 emitters beginning in January 2019 and the second aspect of it being a general fossil-fuel charge to be introduced in April 2019.[135] The federal government emphasized that any direct proceeds collected from such taxes under the federal scheme would be returned to people in the affected provinces. Notwithstanding these efforts, a 2018 end-of-year report by Environment and Climate Change Canada projected that federal and provincial policies then in place would only deliver three-quarters of the emissions reduction target required under Canada's Paris Agreement NDC.[136]

States and Provinces

The preceding section provided an overview of the background to cap-and-trade in the United States and Canada. What follows is an examination of the background to cap-and-trade legislation in California, Quebec and Ontario as a prelude to a more focused examination of the WCI, the WCI, Inc., and the decisions taken by the three jurisdictions to link their cap-and-trade programs.

California

The State of California has been an acknowledged leader in environmental regulation for several decades. California's leadership in environmental legislation has been generated and sustained by a host of factors, notably the state's unique geography and severe air pollution problems.

California was the first US state to enact air pollution legislation in 1947 and, likewise, the first US state to enact auto emissions standards in 1965. CARB was created in 1967 to monitor and address air quality issues, with the greater aim of attaining healthy air quality, protecting the public from exposure to toxic air contaminants, and providing innovative approaches to compliance with air pollution rules and regulations.

In recent decades, CARB has worked with the public, the business sector and local governments to find solutions to the state's continuing air quality problems.[137] In the 1980s and 1990s, CARB mandated rigorous auto emission standards. In addition, it adopted standards for cleaner-burning gasoline as well as initial standards for cleaner diesel fuel. The agency also began work to reduce smog-forming emissions in common household products.

CARB standards attracted widespread interest and were eventually adopted in a number of other US states and foreign jurisdictions. The fact that the California market is so large made it the de facto standard in setting environmental regulations for many products. All of this adherence helped to solidify the state's reputation as a first-mover in the domain of environmental regulation.

CARB's record of success means that its relationship with the California State Legislature is generally a respectful one. The California Legislature has given CARB a wide berth in most of the board's detailed rule making. The legislature legislates; the board regulates. At the same time, the California State Legislature reserves to itself the power to step in to provide guidance where it believes this is necessary. CARB rule making must be "consistent with legislative intent."[138] CARB's assertive role is, however, underpinned by an abiding consensus in favour of air pollution control within the state. Official documentation makes clear that CARB's role and rule making have historically attracted bipartisan support.[139]

In the 2000s, CARB was given responsibility by the California State Legislature for monitoring and reducing GHGs. California Assembly Bill 32, also known as AB 32 and the Global Warming

134 Justin Trudeau, Prime Minister of Canada, News Release, "Government of Canada fighting climate change with price on pollution" (23 October 2018), online: <pm.gc.ca/eng/news/2018/10/23/government-canada-fighting-climate-change-price-pollution>.

135 *Ibid*.

136 Environment and Climate Change Canada, "Clean Canada: protecting the environment and growing our economy" (20 December 2018) at 13; see also Shawn McCarthy, "Transit Funding Key to Hitting Climate Goals: McKenna", *The Globe and Mail* (21 December 2018) B2.

137 Some innovative vehicle emissions control strategies that have led to cleaner air in California include: the United States' first tailpipe emissions standards for hydrocarbons and carbon monoxide (1966), oxides of nitrogen (1971) and particulate matter from diesel-fuelled vehicles (1982); catalytic converters, beginning in the 1970s; on-board diagnostic, or "check engine" light, systems, beginning with 1988 model-year cars; a Zero-Emission Vehicle regulation (1990) that requires manufacturers to produce an increasing number of such vehicles; the United States' first GHG emissions standards for cars mandated by the California State Legislature in 2002 and approved by CARB in 2004; and California's Advanced Clean Cars Program (2012), which reduces both conventional "criteria" and GHG pollutant emissions from automobiles: CARB, "History", online: <ww2.arb.ca.gov/about/history> [CARB, "History"].

138 Mac Taylor, *Cap-and-Trade Extension: Issues for Legislative Oversight* (Sacramento: Legislative Analyst's Office, 2017), online: <lao.ca.gov/Publications/Report/3719>.

139 CARB, "History", *supra* note 137; Miriam Pawel, "What Makes California Politics So Special", *The New York Times* (18 August 2018) SR4.

Solutions Act of 2006, established a first-in-the-world comprehensive program of regulatory and market mechanisms to achieve reductions in GHGs.[140] The act set in place regulations and market mechanisms to lower the state's GHG emissions to 1990 levels by 2020.[141] Pursuant to this mandate, CARB undertook to design implementing regulations and engaged in a multi-year scoping exercise that identified a cap-and-trade program as one of the strategies the state could adopt to reduce GHG emissions. The state's cap-and-trade program began in 2012 and compliance obligations under it began with 2013 GHG emissions.

In the current decade, California has continued to innovate. Its current range of programs to reduce GHG emissions address every major sector of its economy, including zero-emission vehicles, an important point of regulation, given that transportation-related emissions continue to constitute the largest component of the state's emissions. California also linked its cap-and-trade program with Quebec's program in 2014 and Ontario's program in 2018, discussed further below. In addition, California concluded a number of offset agreements with foreign jurisdictions.

In 2016, the California State Legislature approved Assembly Bill 398, also known as AB 398, which required an additional 40 percent cut in GHG emissions below 1990 levels by 2030. The legislature again entrusted CARB with devising the necessary implementing regulations to extend AB 32, but also directed that the new regulations meet specific design features for the period post-2020. These include:

- evaluating and addressing concerns relating to a large number of banked (i.e., pre-existing) emissions allowances that might impair California's ability to meet its GHG targets in the future;
- adopting banking-of-allowance rules that discourage speculation, avoid financial windfalls and consider the impact on complying entities and market volatility;
- establishing a "hard" price ceiling for allowances and considering various factors when setting that ceiling;
- establishing two price containment points (known as "speed bumps") between the allowance price floor and ceiling;
- establishing new, lower offset limits to a maximum of four percent in 2021–2025 and six percent in 2026–2030, with no more than half of offsets retired in either interval coming from projects that do not provide direct environmental benefits in California; and
- establishing whether an industry assistance factor (IAF) of 100 percent for certain critically affected industries in the period 2021–2030 is appropriate in light of the trade-off between leakage risk and incentives for GHG emissions reductions.[142]

Despite these goals, California's progressive policies on the environment present the prospect of divergence and/or conflict with US federal ones. One recent disagreement concerns the US federal air pollution waiver given to the state. The waiver, first granted under section 209 of the US Clean Air Act in 1969 and renewed more than 100 times since, acknowledges the state's severe smog problem and the car emissions regulations California has devised to reduce air pollution by allowing the state to establish more stringent standards than federal ones. Since that time, 13 other US states have agreed to follow California's emissions policies, meaning that about 40 percent of American cars are now covered by California rules.[143] That number is large enough that car manufacturers generally design all their vehicles to meet California standards. The result is that California's policies drive technological change in the transportation sector nationally and internationally.

Automatic extension of the federal air pollution waiver has been questioned by the current US

140 *California Health and Safety Code*, (27 September 2006), ch 488.

141 *Ibid*, s 38550.

142 US, AB 398, *California Global Warming Solutions Act of 2006: market-based compliance mechanisms: fire prevention fees: sales and use tax manufacturing exemption*, Cal, 2006, ch 135 [AB 398]; Taylor, *supra* note 138.

143 Jacques Leslie, "In the Face of a Trump Environmental Rollback, California Stands in Defiance", *YaleEnvironment360* (21 February 2017), online: <https://e360.yale.edu/features/in-the-face-of-trump-environmental-rollback-california-stands-in-defiance>.

administration.[144] If the EPA decides to revoke California's existing waiver, which covers all vehicles manufactured through 2025, the agency would have to argue that California has no need to regulate GHG emissions, a position that could likely trigger a lengthy legal battle. In May 2018, California and 16 other states attempted to forestall such a revocation by suing the EPA and seeking to block the agency from revising vehicle emissions standards.[145]

Nevertheless, the consensus opinion appears to be that California's cap-and-trade program faces little immediate threat from the US federal government since the cap-and-trade scheme does not regulate auto emissions and does not otherwise depend on federal approval.[146] This view must be balanced against the fact that transportation — in particular automobile — emissions continue to be a major source of GHGs in the state, inferring that any meaningful effort to significantly reduce GHG emissions in the future will have to deal with them going forward.

Quebec

The Province of Quebec is Canada's largest province by area, comprising a land territory three times the size of California. The province's majority francophone heritage, its religious history, its system of civil law and its relationship with Indigenous peoples distinguish it from other Canadian jurisdictions. To a notable extent, debate, discussion and outlook in Quebec differ from those in other regions of Canada.[147] A majority of French-speaking Quebeckers also consistently voice opinions distinct from their Canadian counterparts on major political, economic and social issues.

Profound changes in Quebec society since the 1960s have given rise to a contemporary form of Quebec nationalism. This shift has had both internal and external implications. Internally, it has involved a wholesale remaking of the province's political, administrative and economic infrastructure along more explicitly francophone and, at times, corporatist, lines.[148] Externally, the province has attempted to assert itself with the rest of Canada and internationally as an independent actor.

Part of Quebec's self-assertion has involved the province claiming jurisdiction abroad in areas of its exclusive jurisdiction (the "Gérin-Lajoie Doctrine") within Canadian federalism. Another part has been its pursuit of vigorous "paradiplomacy"[149] in sectors such as culture, immigration and the environment, where jurisdiction is justified by Quebec's unique identity or is otherwise unclear under Canada's existing constitutional arrangements. The subject of climate change has given Quebec an issue with which to shape the Canadian federal government's climate policies and international positioning at the same time as it meets the province's own aspirations for international personality.

A consensus developed quickly in Quebec about the threat posed by climate change to the province. In 1992, the Quebec National Assembly unanimously adopted a motion declaring itself bound to the objectives and principles of the UNFCCC.[150] Successive climate events, including a massive rainfall that flooded the Saguenay-Lac-Saint-Jean region in 1995 and the 1998 ice storm in the Montreal area, promoted the idea that sustained

144 Statements by then EPA administrator Scott Pruitt at his confirmation hearing in January 2017 suggested that California's waiver was in jeopardy. Invited by California Senator Kamala Harris to commit to upholding the waiver, Pruitt said instead that he "would not want to presume the outcome" of a review of the policy: see Juan Carlos Rodriguez, "Calif. Waiver On Table, Pruitt Says At Senate Hearing", *Law360* (30 January 2018), online: <www.law360.com/articles/1006798/calif-waiver-on-table-pruitt-says-at-senate-hearing>. Despite later backtracking by Pruitt and his subsequent resignation, the US administration has indicated it will continue to seek revocation: Natasha Geiling, "EPA plans to end California's fuel economy waiver despite Pruitt's claims to the contrary", *ThinkProgress* (27 April 2018), online: <thinkprogress.org/epa-end-california-waiver-freeze-fuel-economy-standards-2020-ea5ac66b8fed/>.

145 Greg Gardner, "California Sues EPA To Preserve Current Greenhouse Gas Emission Standards", *Forbes* (1 May 2018), online: <www.forbes.com/sites/greggardner/2018/05/01/california-sues-epa-to-preserve-current-greenhouse-gas-emission-standards/>.

146 Leslie, *supra* note 143.

147 Quebecers' sense of distinction is often described as being part of a "distinct society," a term invented by Jean Lesage, premier of Quebec (1960–1966), to refer to the province's special collective identity. Quebec remains the only province where most Canadians speak French rather than English and the only jurisdiction in Canada that practises civil law rather than common law. On November 27, 2006, Canada's federal House of Commons voted to recognize the Québécois as a "nation" within Canada. As only a motion of the House, the vote's outcome is not considered legally binding. Advertisers have also long noted that attitudes and tastes in Quebec are different from the "rest of Canada": see Caroline Fortin, "Headspace Says It Knows What Québec Consumers Want" (16 May 2013), online: <http://marketingmag.ca/brands/what-do-quebec-consumers-want-78693/>.

148 John A Dickinson & Brian Young, *A Short History of Québec* (Montreal: McGill-Queen's University Press, 2003) at 305.

149 The term "paradiplomacy" can be found in Chaloux, Paquin & Séguin, *supra* note 126 at 292.

150 Quebec, *Historical Overview*, *supra* note 13 at 3.

action to address climate change was necessary. Later, in 2001, Quebec's National Assembly unanimously adopted a motion of support for the Kyoto Protocol and expressed its willingness "to do its fair share" in meeting the Protocol's targets.[151] The provincial government eventually went so far as to publicly denounce Canada's decision to withdraw from that instrument in 2011.[152]

Since that time, climate change has formed a central part of Quebec's efforts at "green paradiplomacy." These efforts are undertaken in a number of ways.[153] First, Quebec representatives have been integrated into Canadian delegations to intergovernmental conferences, the so-called intra-channels. Inclusion allows Quebec representatives "access to the negotiating forums, press conference rooms and side events."[154] Second, Quebec representatives have been proponents of and participated actively in "extra-channels," that is, "forums and side-events held in parallel to [international] negotiations, and organized bilateral or multilateral meetings at all levels."[155] This activity has been undertaken "to develop or deepen partnerships, and to promote its major goal — the recognition of the role of non-sovereign states in the regulation of global climate change."[156] A third venue for Quebec's climate activism has been subnational multilateral organizations such as the Conference of New England Governors and Eastern Canadian Premiers and the WCI.[157] A fourth channel by which Quebec's climate goals have been promoted is through direct implementation of international commitments. For example, the province declared itself bound by the Kyoto Protocol and committed "to incorporate the provisions of the Protocol in its domestic law."[158]

Nevertheless, Quebec has certain advantages in addressing climate change. Due to early development of its hydroelectric resources, the province has one of the lowest carbon footprints of any jurisdiction in North America. Currently, more than 99 percent of the electricity generated in Quebec and nearly 50 percent of the total energy used in the province come from renewable sources, mainly hydraulic and wind energy.[159] Such an energy profile poses challenges of its own, however, since it means that the province has had to focus attention in recent emissions reductions on sectors where GHG reductions are difficult to achieve.

To fulfill goals under the Kyoto Protocol, the Quebec government put forward its first Climate Change Action Plan covering the period 2006–2012. The plan called for reversing the upward trend in emissions from transportation and buildings — the two major sources of emissions — in a way that would allow the Quebec economy to improve its competitiveness overall and wean itself off fossil fuel dependency. The revised 2006–2012 action plan aimed to reduce Quebec GHG emissions by six percent below 1990 levels by 2012, which it financed via a levy on fossil fuels.[160] By 2012, the province had reduced its emissions by eight percent below 1990 levels as a result of its adherence to the plan.[161]

The Quebec provincial government took additional steps to address climate change by joining the WCI in 2008 and beginning work in close collaboration with WCI partner jurisdictions to develop guidelines and operating rules for a cap-and-trade system. Cap-and-trade would later become the centrepiece of Quebec's 2013–2020 Climate Change Action Plan that was developed with the support and participation of businesses, municipalities and citizens. The 2013–2020 plan also promotes investments in research and innovation, aims to raise public awareness about the consequences of climate change and seeks to further lower the public sector's carbon footprint. Transportation is a prime concern since it continues to be responsible for more than 44 percent of all GHG emissions in the province.[162]

The Quebec cap-and-trade program was inaugurated in 2013. The linkage of Quebec's cap-and-trade program with that of California came into effect at the beginning of 2014, a development that allowed individual participants in the California or Quebec cap-and-trade systems to buy and sell allowances with each other. In addition,

151 *L'Assemblée nationale du Québec appuie à l'unanimité le protocole de Kyoto: Communiqué de presse* (2001), Québec: Assemblée nationale du Québec at *c010410a*.

152 Chaloux, Paquin and Séguin, *supra* note 126, note that "in 2006, Québec sent its Minister of the Environment to Nairobi (COP-12) to present the province's dissenting voice regarding the federal government's position [on the Kyoto Protocol], which it considered unsatisfactory and not audacious enough" at 306.

153 *Ibid* at 308–12.

154 *Ibid* at 308.

155 *Ibid* at 309.

156 *Ibid*.

157 *Ibid* at 310.

158 *Ibid* at 310–11.

159 Quebec, *Historical Overview*, *supra* note 13 at 3.

160 *Ibid*.

161 *Ibid* at 4.

162 *Ibid*.

allowances from either system may now be used by an emitter that is covered by either system to comply with regulatory obligations in the other. The California-Quebec carbon market thus became the largest cap-and-trade system in North America and, so far, the only carbon market in the world to have been designed and operated by subnational governments from two different countries. The first joint auction involving participants from both jurisdictions took place in November 2014, thereby completing the integration process.

Ontario

Ontario is a province of 14.32 million people (2018)[163] with a varied industrial base that, in recent decades, has evolved toward a service economy underpinned by traditional strengths in natural resources and agriculture. Rich in human capital, it continues to attract the majority of immigrants to Canada and is home to the country's largest city, Toronto.

In recent decades, the province has struggled with the challenges of erosion of its historic industries and uneven economic growth. The Greater Toronto Area, Ottawa and parts of southwestern Ontario (Kitchener, Waterloo, Cambridge, Guelph and Oshawa) have enjoyed strong growth while most of the remainder of the province has stagnated.[164] This dual development has led to charges of a "two-track" province.[165]

Ontario's geographic location in central North America and its tie-in with the North American auto and steel industries means that it is often constrained to achieve policy alignment with adjacent US jurisdictions in order to remain competitive. That reality impels it to pursue interchangeability and regulatory harmonization with US standards.

Nevertheless, at the turn of the twenty-first century, there was substantial evidence of climate change as a growing threat to Ontario's economy.[166] At the same time, policy makers grappled with ways to transition the province away from a single, inefficient power generator/transmitter/regulator in the form of a Crown corporation, Ontario Hydro, to a more nimble mix of energy sources while at the same time promoting job creation, regional development and environmental goals.

In 1998, the province passed the Energy Competition Act, 1998,[167] which authorized the establishment of a market in electricity and reorganized Ontario Hydro into five separate companies.[168] However, to prevent newly privatized companies from passing along the full cost of expensive infrastructure upgrades to consumers, the provincial government capped electricity rates until 2004 and thereafter allowed rates to rise only gradually.

In the interim, the province focused preliminary efforts to contain climate change on phasing out the use of coal, a unique policy approach among North American jurisdictions.[169] In 2001, Ontario had five coal-fired generating stations, representing 25 percent of total power generation in the province. In 2003, the provincial government committed to phasing out coal-generated electricity and, over the next 11 years, coal-generating capacity was gradually reduced, after

163 Statistics Canada, "Public Data" (2018), online: <www.google.com/publicdata/explore?ds=z8mqirbqgu9tsm_&met_y=population&idim=territory:CA08:CA02&hl=en&dl=en>.

164 Ben Eisen & Joel Emes, *The Five Solitudes of Ontario: A Regional Analysis of Labour Market Performance in Post-Recession Ontario* (Fraser Institute, 2016).

165 Matt Lundy et al, "Ontario divided: Anger, economics and the fault lines that could decide the election", *The Globe and Mail* (18 May 2018), online: <www.theglobeandmail.com/business/economy/article-ontario-divided-anger-economics-and-the-fault-lines-that-could/> ("Across much of Southern Ontario, cities and towns are grappling with dimmer economic prospects, slammed by decades of jobs lost to factory closings and their ripple effects. The decline has taken on renewed ferocity over the past 10 years as skyrocketing electricity prices, a volatile exchange rate and foreign competition have hit hard at local employers and surrounding communities. Some sectors, however, are thriving. Since 2000, hundreds of thousands of jobs have been created in such sectors as construction, real estate, finance and professional and technical services – a reflection of both the building boom in desirable urban areas and the tech-heavy tasks that underpin the modern economy. The result is an Ontario that can be roughly divided into its boom and bust towns, where wealth and opportunity either pile up or dissipate. The fault line deepened over the past decade as 90 per cent of new jobs went to Toronto and Ottawa, while incomes in former industrial centres grew at anemic rates or declined").

166 Ontario's Ministry of the Environment noted in its 2015 climate change discussion paper that "payouts from extreme weather events have more than doubled every five to 10 years since the 1980s, and in 2013, losses were a historic $3.2 billion as a result of floods in Alberta and Toronto": see Ministry of the Environment and Climate Change, *Ontario's Climate Change Discussion Paper 2015* (2015) at 4, online: <www.downloads.ene.gov.on.ca/envision/env_reg/er/documents/2015/012-3452.pdf>.

167 *Energy Competition Act*, SO 1998, c 15, Schedule A.

168 The five companies were Ontario Power Generation, the Ontario Hydro Services Company (renamed Hydro One), the Independent Electricity Market Operator, the Electrical Safety Authority, and the Ontario Electricity Financial Corporation. Ontario Power Generation and Hydro One were intended to eventually operate as private businesses rather than as Crown corporations.

169 Leah C Stokes, "The politics of renewable energy policies: The case of feed-in-tariffs in Ontario, Canada" (2013) 56 Energy Policy 490 at 493.

which it was eliminated completely.[170] Ontario's coal-fired plant closures remain the largest GHG reduction action in Canada to date. By 2012, total GHG emissions in the province had decreased by 11 percent due to the phase-out of coal-fired electricity, improved energy efficiency and the shifting composition of Ontario's economic base.[171]

The decision to phase out coal as a source of power generation in Ontario spurred a search for alternative sources of renewable energy in the province. While in the short term only nuclear power would fulfill demand, policy makers projected that long-term renewable sources could make up much of the gap. After several years of policy experimentation, Ontario enacted a feed-in tariff (FIT) program in 2009 as part of its Green Energy and Green Economy Act (GEGEA), the first large-scale FIT program in North America. The program offered enhanced government support for wind energy, solar/photovoltaic power, bioenergy and hydropower.[172] The province also encouraged a move to a community power generation model that "would deploy more renewable energy more quickly," as it had in Europe.[173]

In the first phase of GEGEA, the government offered wind energy and hydropower contracts in response to requests for proposals. However, in a second phase, while the government concluded supply contracts with manufacturers who promised "green jobs," opposition to GEGEA began to grow. Some opposition came from citizens protesting against the siting of wind turbines.[174] Another source of opposition came from groups concerned about the FIT price schedule, which appeared too generous. In addition, in 2010, the provincial government had to contend with a complaint about the FIT program's domestic content requirements in the World Trade Organization. The challenge was successful, an outcome that made Ontario's FIT program appear protectionist.[175]

To allay these concerns, the provincial government was forced to make changes. In 2009, the government lowered the tariff paid for photovoltaic production of electricity, but only for small producers. It also announced a moratorium on offshore wind projects in early 2011.[176] These changes, in addition to the fact that the promised green jobs did not fully materialize, left the ensemble of measures contained in Ontario's "green shift" under GEGEA looking disappointing.[177]

Despite these setbacks, Ontario's provincial government pursued discussions with members of civil society on how to deal with climate change in a more broad-based fashion.[178] With the Ontario government's release of its first Climate Change Action Plan in June 2016, the province introduced a number of new policies and programs to reduce GHG emissions from buildings, waste, transportation and land use, much like California had done several years before.[179] An important component of its approach was to put a cap and a price on the province's GHG emissions through a WCI-compatible cap-and-trade program that entered into force in the province in January 2017. Under that program, some 147 major emitters were granted free emissions allowances.

Because long-term predictability of carbon policy is so important, Ontario took the opportunity in late 2016 to announce its cap on future GHG emissions for every year until 2030.[180] The Ontario cap was projected to decline about four percent each year to 2020 and then approximately 2.9 percent each year

170 The percentage share of total power generation by source in Ontario in 2003 was nuclear (42 percent), gas (11 percent), hydro (23 percent) and coal (25 percent). In 2014, the percentage share of total power generation by source was nuclear (60 percent), gas (9 percent), hydro (24 percent) and renewables (7 percent). Ontario, *The End of Coal* (16 July 2018), online: <www.ontario.ca/page/end-coal>. The California-Quebec-Ontario linkage discussion paper noted that "Since 2003, Ontario has significantly reduced GHG emissions through its coal reduction plan and legislation. From 2005 to 2015, GHG emissions in Ontario's electricity sector decreased by approximately 87 percent. Ontario's early action on coal power generation demonstrates strong leadership in reducing GHGs." Partly based on this, the discussion paper concluded that "Ontario's program is at least as stringent as the California Cap-and-Trade Program." See CARB, "Linkage" (7 September 2018) at 5, online: <www.arb.ca.gov/cc/capandtrade/linkage/linkage.htm> [CARB, "Linkage"]; CARB, *Discussion of Findings Required by Government Code section 12894* (January 2017), online: <https://ww3.arb.ca.gov/cc/capandtrade/linkage/sb1018_findings_ontario.pdfHydro> [CARB, *Discussion of Findings*].

171 Ontario, *The End of Coal, supra* note 170.

172 Stokes, *supra* note 169 at 492.

173 *Ibid* at 493.

174 The provincial government was caught unawares when it streamlined the approval process for wind generation, transmission lines and other infrastructure and later faced criticism that this change was "undemocratic" (*ibid* at 495).

175 *Ibid*.

176 *Ibid*.

177 Shawn McCarthy, "Green Shift to Green Slump", *The Globe and Mail* (4 August 2018) B1.

178 Ministry of the Environment and Climate Change, *Ontario's Climate Change Discussion Paper 2015* (2015) at 4, online: <www.downloads.ene.gov.on.ca/envision/env_reg/er/documents/2015/012-3452.pdf>.

179 Environmental Commissioner of Ontario (ECO), *Ontario's Climate Act: From Plan to Progress: Annual Greenhouse Gas Progress Report 2017* (2017) at 46–79 (Chapter 2: Policies and Programs Since the Climate Change Action Plan) [ECO, *Ontario's Climate Act*].

180 O Reg 144/16, s 54, *Climate Change Mitigation and Low-carbon Economy Act*, SO 2016, c 7 [O Reg 144/16].

afterward to 2030. The provincial goal was for GHG emissions to decrease 15 percent below what they were in 1990 by 2020, 37 percent below the 1990 level by 2030 and 80 percent below the 1990 level by 2050.[181] These decreases were roughly consistent with those projected in California and Quebec.

In January 2018, Ontario's carbon market was fully linked with California and Quebec through the WCI. Ontario emitters were able to buy and sell allowances and Ontario-issued allowances that were fully fungible with those issued in those jurisdictions. During 2017-2018, emitters purchased some $2.8 billion worth of Ontario-issued allowances, in addition to those allocated by means of free distribution.[182]

Nevertheless, concerns continued to be expressed about the cap-and-trade program from several sources, including the provincial auditor general,[183] the province's environmental commissioner[184] and the political opposition, suggesting that there was no strong consensus concerning the need to prioritize GHG emissions reduction by means of cap-and-trade, as had happened in California and Quebec.

In June 2018, a provincial election in Ontario led to an abrupt change in government and provincial policy. The new government announced the province's withdrawal from WCI cap-and-trade. In connection with the cancellation, 758 solar and wind projects in the province were terminated.[185] Provincial legislation provided limited compensation.[186] However, the new provincial government indicated that it was committed to developing a new plan to address climate change in fall 2018.[187]

In July 2018, the Ontario government announced its decision to join Saskatchewan in a reference question challenging the constitutionality of the federal government's Pan-Canadian Framework on Clean Growth and Climate Change posed to the Saskatchewan Court of Appeal.[188] Later, the new government also announced a decision to

181 Ontario had legislatively enshrined its major GHG targets in section 6(1) of the *Climate Change Mitigation and Low-carbon Economy Act* (*ibid*).

182 Shawn McCarthy, "California, Québec Close Carbon Market to Ontario", *The Globe and Mail* (18 June 2018) B1.

183 The provincial auditor general, Bonnie Lysyk, indicated in November 2016 that Ontario's cap-and-trade program would not result in the target of 18.7 Mt of GHG reductions being met. At that time, she also noted several concerns related to cap-and-trade and linkage with California and Quebec. Among them were that the Ontario Ministry of the Environment and Climate Change had not inspected approximately 80 percent of approved Ontario GHG emitters; there could be double reporting of GHG emissions between the WCI jurisdictions; and Ontario participants would be contributing financially to the cap-and-trade program, but not necessarily be contributing to any actual GHG emissions reductions. The auditor general also expressed concern that, in the decision to adopt a cap-and-trade, consideration was not given to alternatives that would produce the same GHG emissions reductions at significantly lower cost. Ministry of the Environment and Climate Change, *2016 Annual Report of the Office of the Auditor General of Ontario* (2016) at 165–90 (Climate Change), online: <www.auditor.on.ca/en/content/annualreports/arreports/en16/v1_302en16.pdf>.

184 Since 2008, the ECO has issued an annual review of the province's efforts to reduce GHG emissions to the Ontario legislature. In several such reviews, the commissioner has been highly critical of government action, leaving the impression of government action as inadequate. ECO, *Climate Change* (2018), online: <eco.on.ca/our-reports/climate-change/>.

185 The cancellation also reportedly had an unsettling effect on investment in the province. Shawn McCarthy, "Cancellation of German-owned Ontario wind project prompts warning from Berlin", *The Globe and Mail* (23 July 2018), online: <www.theglobeandmail.com/business/article-cancellation-of-german-owned-ontario-wind-project-prompts-warning-from/>.

186 Section 8 of the *Cap and Trade Cancellation Act*, 2018, SO 2018, c 13 (Bill 4) provides for compensation, but article 8(4) specifies no compensation to a list of key participants, and articles 9-10 otherwise prohibit compensation than by means of the act and deprive most potential claimants of any cause of action against the provincial government for the cancellation. Dennis Mahony et al, "Ontario Government Introduces Bill Repealing Cap and Trade", Torys LLP (26 July 2018), online: <www.torys.com/insights/publications/2018/07/ontario-government-introduces-bill-repealing-cap-and-trade>. It is also curious that the Ontario government decided to halt emissions trading and withdraw from the WCI, but left intact the little-known Ontario Emissions Trading Code. The code, together with O. Reg. 397/01, facilitates the reduction of emissions that create smog and acid rain through industry caps and incentives that reward innovation and voluntary action. See Ontario Emissions Trading Registry, "Frequently Asked Questions", online: <www.oetr.on.ca/oetr/faq/faq.jsp#8>.

187 For an overview of policy options for the Ontario provincial government, see "Ontario's Carbon Tax Conundrum", Editorial, *The Globe and Mail* (26 July 2018) A10. See also Shawn McCarthy, "Ontario government to introduce GHG-emission-reduction plan", *The Globe and Mail* (8 August 2018), online: <www.theglobeandmail.com/canada/article-ontario-government-to-introduce-ghg-emission-reduction-plan/>.

188 Canada's provincial governments, under their respective Constitutional Questions Acts, are able to submit questions for advisory opinions to their provincial superior courts or courts of appeal. In the reference originally posed in April 2018, the Saskatchewan government asks the court the following question: "The Greenhouse Gas Pollution Pricing Act was introduced into Parliament on March 28, 2018 as Part 5 of Bill C-74. If enacted, will this Act be unconstitutional in whole or in part?" Once the provincial court of appeal has given its decision on the reference question, the government or other parties to the reference have the right under the Supreme Court Act to appeal the decision to the Supreme Court of Canada. This same right is not available to federal or state governments in US law. Under the "Case or Controversy" clause of article III of the US Constitution, federal courts are prohibited from issuing advisory opinions in which no actual issue exists, but an opinion is sought.

pose its own reference question challenging the framework to the Ontario Court of Appeal.[189]

In November 2018, the Ontario government announced it would create emissions regulations for industrial emitters, support business investment in environmental innovation and clean technology, and mandate an increase in ethanol content for gasoline sold in the province to 15 percent from 10 percent by 2025.[190] At the same time, the province confirmed that it aimed to reduce provincial GHG emissions by 30 percent below 2005 levels by 2030, the same target adopted by the federal government for the country under Canada's Paris Agreement NDC. Federal authorities responded that the more relaxed approach of the new Ontario government, which would depend on the adoption of new technology and investment in rapid transit, would increase the margin of uncertainty in Canada's attempt to meet its Paris Agreement NDC goal.[191]

The WCI Cap-and-Trade System

The WCI

The WCI is self-described as "a collaboration of independent jurisdictions working together to identify, evaluate, and implement emissions trading policies to tackle climate change at a regional level."[192] As mentioned, the WCI was founded in 2007 by five US states seeking to develop a regional target for reducing GHG emissions, participate in a multi-state registry to track and manage regional GHG emissions, and develop a market-based program to fulfill emissions targets. It was not entirely new, building instead on involvement with two other similar initiatives, as well as the accrued experience of several early emissions trading programs in the United States.[193] Since its founding, two other states and four Canadian provinces have become involved.[194]

From an organizational perspective, the WCI can be classified as an intergovernmental entity.[195] Its founding document is a simple agreement among five governors.[196] The document accords the WCI no legal identity since its members have not constituted the initiative as a formal legal entity under any system of law. WCI decision-making powers are exercised by the government representatives of partner jurisdictions. The WCI can take decisions, but decision making is only possible where the decision in question enjoys the unanimous approval of all members. Otherwise, the WCI seeks to promote collaboration among jurisdictions and is in no way superior to them.

Because the WCI's membership is composed of subnational jurisdictions that lack personality under international law, they are powerless to create the WCI as an independent entity under international law. This reality presents the issue of the legal form by which the WCI's work is to be accomplished.

The WCI, Inc.

To provide a legal form for the WCI's work, several WCI jurisdictions created the WCI, Inc. in 2011 as a non-profit corporation under Delaware law and headquartered in Sacramento, California. WCI, Inc.'s

189 Justin Giovanetti, "Ontario Targets Federal Carbon Tax With Second Legal Challenge", *The Globe and Mail* (4 August 2018) A1. In early May 2019, a 3-2 majority of the Saskatchewan Court of Appeal confirmed that the federal government's Greenhouse Gas Pollution Pricing Act was valid federal legislation. The majority's non-binding ruling confirmed that the charges imposed under the act on GHG-emitting fuels and GHG emissions from designated facilities were constitutional. See *Reference re Greenhouse Gas Pollution Pricing Act*, 2019 SKCA 40 (3 May 2019). In late May 2019, the Government of Saskatchewan confirmed that it would appeal the question of the act's constitutionality to the Supreme Court of Canada. In June 2019, a 4-1 majority of the Ontario Court of Appeal decided that Canada's Parliament has the power to enact a minimum national price on GHG emissions under the Constitution Act, 1867. See *Reference re Greenhouse Gas Pollution Pricing Act,* 2019 ONCA 544 (28 June 2019). In August 2019, the Ontario government indicated that it would be appealing the decision to the Supreme Court of Canada.

190 Shawn McCarthy & Laura Stone, "Ontario to Scale Back Climate Targets", *The Globe and Mail* (29 November 2018).

191 Shawn McCarthy, "Transit Funding Key to Hitting Climate Goals: McKenna", *The Globe and Mail* (21 December 2018) B2.

192 WCI, online: <www.westernclimateinitiative.org>.

193 The early EPA programs included four cap-and-trade programs related by the common objective of providing sources with flexibility to comply with traditional source-specific command-and-control standards while maintaining environmental objectives focused primarily on local air quality. These included netting of emissions, and offsets, bubbles and banking. See Ellerman, Joskow & Harrison, *supra* note 14. The WCI built on existing GHG reduction efforts in the individual states as well as two existing regional efforts. In 2003, California, Oregon and Washington created the West Coast Global Warming Initiative and, in 2006, Arizona and New Mexico launched the Southwest Climate Change Initiative. WCI, "History" (2013), online: <www.westernclimateinitiative.org/history>.

194 Ellerman, Joskow & Harrison, *supra* note 14. The WCI began in February 2007 when the governors of Arizona, California, New Mexico, Oregon and Washington signed an agreement directing their respective states to develop a regional target for reducing GHG emissions. During 2007 and 2008, the premiers of British Columbia, Manitoba, Ontario and Quebec, and the governors of Montana and Utah joined the original five states in committing to tackle climate change at a regional level.

195 Henry G Schermers & Niels M Blokker, *International Institutional Law*, 4th ed (Boston: Martinus Nijhoff, 2003) at 45.

196 WCI, "Western Regional Climate Action Initiative" (26 February 2007), online: <http://westernclimateinitiative.org/index.php?option=com_remository&Itemid=37&func=fileinfo&id=12>. For background to the agreement, see WCI, Press Release, "Five Western Governors Announce Regional Greenhouse Gas Reduction Agreement" (26 February 2007), online: <http://westernclimateinitiative.org/index.php?option=com_remository&Itemid=37&func=fileinfo&id=11>.

purpose is to provide administrative and technical services to support implementation of state and provincial GHG emissions trading programs. Its main activities are to develop a compliance tracking system that monitors allowances and offsets certificates, administers allowance auctions and conducts market monitoring of allowance trading.

WCI, Inc. is structured as a corporation. Its bylaws provide for the appointment of voting and non-voting directors to the WCI, Inc. board of directors, recognize participating jurisdictions (currently California, Nova Scotia, Quebec, and until October 2018, Ontario); and specify the need for regular meetings, quorum, voting rules and so forth. Both voting and non-voting directors are appointed by participating jurisdictions. In 2018, WCI, Inc.'s annual budget was about US$4.6 million, most of which was earned through the provision of services. Participating jurisdictions contract with WCI, Inc. for those services.

WCI, Inc. currently performs a number of functions. Since 2011, WCI, Inc. and its participating jurisdictions have worked with SRA International, Inc. to develop and support the Compliance Instrument Tracking System Service (CITSS). CITSS provides accounts for market participants to hold and retire compliance instruments and to record transactions of compliance instruments with other account holders. The WCI, Inc. help desk provides multi-jurisdictional telephone and online customer assistance for CITSS users. WCI, Inc. also supports participating jurisdictions in the execution of coordinated auctions of GHG emissions allowances as well as the execution of jurisdictions' reserve sales.[197] In connection with this, it also provides financial administrative services, which include evaluation of bid guarantees and conduct of settlement.[198] In addition, WCI, Inc. supports participating jurisdictions by contracting for analyses that support market monitoring and by performing certain cash flow functions.

The general conclusion to be drawn from a survey of these functions is that WCI, Inc. mainly provides administrative and technical support. It does not constitute a supra-jurisdictional authority. Indeed, as will be seen, partner jurisdictions insist on the inviolability of their sovereignty vis-a-vis WCI arrangements. They participate in cap-and-trade under the WCI on a purely voluntary "best efforts" basis, with the tacit prospect of suspension/withdrawal of linkage should non-compliance with basic requirements persist.

Harmonization

The functions of WCI and WCI, Inc. are clearly aimed at facilitating harmonization. Harmonization has been defined as "the process of making different regulations, principles, domestic laws and government policies substantially or effectively the same or similar."[199]

Today, harmonization assumes a number of different forms. One approach involves the introduction of a common standard whereby jurisdictions base their standards on an exact reproduction of that standard or more loosely base their local requirements on international, foreign or generic ones. A second approach offers greater flexibility to participants by using a "mutual recognition" approach, that is, an approach to standard-setting that allows jurisdictions to accept each other's rules in pursuit of certain recognized regulatory goals.[200] The focus in mutual recognition is on different rules achieving a jurisdiction's regulatory goal. A third approach to harmonization is an "equivalence" approach, that is, a process by which a jurisdiction recognizes that its regulatory goals may be fulfilled by the use of different kinds of measures.[201] The chief difference between mutual recognition and equivalence is that the former is *bilateral or multilateral* (that is, jurisdictions recognize each other's processes for achieving regulatory goals) whereas the latter is *unilateral* (that is, a jurisdiction agrees to recognize another entity's processes for achieving its regulatory goals even though it may not have any equivalent processes of its own).[202]

197 In 2013, WCI, Inc. contracted with Markit Group Ltd. to build on Markit's previous work with CARB and develop and implement the auction and reserve sale platform to support auctions and reserve sales among linked programs in California and Quebec. The contract with Markit was amended to provide auction and reserve sale services through December 31, 2016. In June 2016, the board approved a new contract with Markit over the period of June 15, 2016, to January 31, 2021.

198 WCI, Inc. released a request for expression of interest in February 2016 to procure financial administrative services. The result of this procurement was a contract through the end of January 2021 with Deutsche Bank.

199 Graham Mayeda, "Developing Disharmony? The SPS and TBT Agreements and the Impact of Harmonization on Developing Countries" (2004) 7:4 J Intl Econ L 737 at 740.

200 Humberto Zúñiga Schroder, *Harmonization, Equivalence and Mutual Recognition of Standards in WTO Law* (Alphen aan den Rijn, Netherlands: Kluwer Law International, 2011) at 97.

201 Frode Veggeland & Christel Elvestad, *Equivalence and Mutual Recognition in Trade Arrangements: Relevance for the WTO and the Codex Alimentarius Commission* (Oslo: Norwegian Agricultural Economics Research Institute, 2004).

202 Schroder, *supra* note 200, ch 4.

Among the WCI's key achievements regarding harmonization to date are two documents: the 2008 Design Recommendations for the WCI Regional Cap-and-Trade Program[203] and the 2010 Design for the WCI Regional Program.[204] The two documents cover a wide range of topics pertaining to the design and implementation of cap-and-trade programs. Nevertheless, an underlying goal in both documents is linkage, that is, the interconnection and integration of cap-and-trade programs in different jurisdictions in order to benefit from scaling. The process of harmonization under the WCI culminates in the mutual recognition of compliance instruments (i.e., emissions certificates) issued by different jurisdictions. They become fungible — or interchangeable — from jurisdiction to jurisdiction.

At the same time, harmonization imposes certain requirements, among these being uniformity, consistency and trust. A jurisdiction will not engage in harmonization efforts unless it can be reasonably sure that another jurisdiction's standards are either the same as its own or achieve similar (or the same) regulatory goals.[205] A degree of uniformity is necessary because it is the essence of what harmonization involves. Consistency is essential to ensure harmonization is maintained from one moment to the next. The trust required for harmonization is more usually generated among jurisdictions with similar backgrounds and levels of economic development. Even here, however, commentators have observed progress on harmonization can be exceedingly slow.[206]

Because the qualities necessary for the deep harmonization on which WCI arrangements are premised — including trust — must be built, harmonization under WCI arrangements is achieved in two successive phases: program design and linkage.

In the program design phase, the basic features of a cap-and-trade program are identified and examined. Once approved, they are put in place and allowed to operate. Subsequently, when a program has had an opportunity to prove itself, linkage can be considered. As mentioned, the linkage phase involves the interconnection and integration of different programs.

A "bottom-up" approach to developing cap-and-trade programs on a jurisdiction-by-jurisdiction basis might appear cumbersome and inefficient, except that this two-step mode of harmonization was adopted in the 2008 Design Recommendations and the 2010 Design for the WCI Regional Program in recognition of the fact that creating a successful cap-and-trade program requires difficult — and often very detailed — political choices that can only be made at a jurisdiction-specific level. Once these choices have been implemented and a jurisdiction's program is up and running, different cap-and-trade programs can be linked through a process of harmonization. The point to appreciate, therefore, is that cap-and-trade programs in different WCI jurisdictions have come together relatively quickly and seamlessly because of this two-stage method of harmonization.

Program Design

The 2008 Design Recommendations and the 2010 Design for the WCI Regional Program serve slightly different purposes, although an incremental progression can be observed from one document to the next. The recommendations embody the results of a consultative exercise involving extensive stakeholder input. They take a form — recommendations — that are traditionally made to governments.[207] Specific design elements were identified and the ultimate design recommendations summarized. Each recommendation was discussed "in light of stakeholder input, the balancing required between disparate stakeholder positions, and in light of the experience of other cap-and-trade programs, economic analysis, and expert opinion."[208]

In the recommendations, stakeholders referred to the requirement to achieve the "broadest possible coverage of sources and omissions" under the cap-and-trade program. Breadth of coverage was dictated by the need to provide greater certainty that economy-wide emissions reductions would be achieved, the need to reduce compliance costs by covering a broad set of emissions sources

203 WCI, *Design Recommendations for the WCI Regional Cap-and-Trade Program* (13 March 2009), online: <www.environnement.gouv.qc.ca/changements/carbone/documents-WCI/modele-recommande-WCI-en.pdf> [WCI, *Design Recommendations*].

204 WCI, *Design for the WCI Regional Program* (27 July 2010), online: <www.environnement.gouv.qc.ca/changements/carbone/documents-WCI/cadre-mise-en-oeuvre-WCI-en.pdf> [WCI, *WCI Regional Program*].

205 Schroder, *supra* note 200, ch 4.

206 *Ibid* at 149–50.

207 Christoph Schreuer, "Recommendations and the Traditional Sources of International Law" (1977) 20 German YB Intl L 103.

208 WCI, *Design Recommendations, supra* note 203.

with diverse emissions opportunities, creating a level playing field for all fuels, ensuring that carbon was priced throughout the economy and creating a more robust GHG trading market.[209]

Many stakeholders also stressed the importance of having reliable measurement, monitoring and reporting protocols. There was also much discussion of the need to cover different fuel sources, in particular transportation fuels, as well as the need for progressive coverage extension to ensure economy-wide reduction goals could be achieved. Thus, the opinion was expressed that "[i]f transportation fuels were omitted from coverage, then they would enjoy a competitive advantage over electricity as vehicle fuel, since electricity would be covered by the program."[210] It was repeatedly emphasized and recommended that "it is important to internalize the cost of carbon throughout the economy and to ensure a level playing field across all fuels."[211]

At the same time, for ease of administrative convenience, it was recommended that cap-and-trade programming would apply to entities with an emissions limit of 25,000 Mt of CO_2, then projected to cover 90 percent of emissions.

In terms of the cap — the central regulatory element in a cap-and-trade program — the recommendations described the cap to be "[a jurisdiction's] best estimate of expected actual emissions based on population growth, economic growth, voluntary and mandatory emission reductions, and other factors such as reporting data."[212] In connection with this, the recommendations went on to specify an initial compliance period starting in 2012 and expanded coverage of transport fuel, and residential, commercial and industrial fuels in the second compliance period starting in 2015.

In several respects, the recommendations presaged future concerns. For instance, they indicated a fear of over-allocating allowances,[213] double-counting of emissions credits,[214] and the need to take into account "the special or unique circumstances of each state and province."[215] In this vein, on the most sensitive issue — the allocation of allowances — the recommendations note that "[g]enerally, allowance distribution will be done independently by each WCI Partner jurisdiction."[216]

The 2008 recommendations also covered a number of other key topics. These included a regional auction platform, the introduction of a reserve price, early reduction credits, banking, offsets and allowances from other cap-and-trade jurisdictions, monitoring and measurement, and enforcement. Thus, with respect to offsets, WCI partners were urged to have a "rigorous"[217] offset program and, in conjunction with other partners, to "establish standards and processes for issuing offset credits," excepting such credits from other mechanisms and jurisdictions. It was also recommended that a cap of no more than 49 percent be the maximum use of total emissions reductions from offsets.[218] With respect to reporting (i.e., measurement and monitoring), it was recommended that the monitoring of six standard GHGs be undertaken and that this monitoring be done by means of third-party verification. It was foreseen that certain data would "be made available to all WCI partner jurisdictions for review and consideration for possible expansion of the cap-and-trade program."[219] And with respect to enforcement, the design recommendation was that "if a covered entity... does not have sufficient allowances at the end of a compliance period, the entity...shall be required to surrender three allowances for every excess metric tonne of CO_2 to the jurisdiction to which they have the compliance obligation within three months of the end of each compliance period."[220] Additionally, partner jurisdictions might establish additional penalties, "including civil and criminal penalties for intentional violations of program requirements." The recommendations observed that "[s]uch penalties provide an additional level of deterrence to ensure that the financial incentives associated with the cap-and-trade program are not abused and to increase confidence in the integrity of the market in the value of an allowance."[221]

209 *Ibid* at 18.
210 *Ibid*.
211 *Ibid* at 19.
212 *Ibid* at 27.
213 *Ibid*.
214 *Ibid* at 30.
215 *Ibid* at 31.
216 *Ibid* at 32.
217 *Ibid* at 37.
218 *Ibid* at 38.
219 *Ibid* at 48.
220 *Ibid* at 46.
221 *Ibid* at 47.

The 2008 recommendations did not foresee the creation of any supranational authority to oversee the operation of the WCI program. Instead, an entity would be "designed to help the WCI Partner jurisdictions achieve the necessary coordination." The jurisdictions would retain "regulatory authority and enforcement responsibilities."[222]

Importantly, however, the 2008 recommendations recognize that there would be benefits to cap-and-trade systems that are not fully represented in economic modelling. These included heterogeneity,[223] diffuse behavioural change,[224] the inducement of innovation[225] and inherent errors in direct regulation cost estimates.[226]

In addition to specific program recommendations, certain program design principles for a cap-and-trade program were identified in the 2008 recommendations. These principles included the following characteristics to ensure that a program:

- → is equitable and administratively simple;
- → maximizes total benefits in jurisdictions;
- → requires all reductions to be real, verifiable, additional, enforceable and permanent;
- → stimulates investment;
- → covers as many sources as is practical;
- → provides appropriate recognition and incentives for early emissions reductions;
- → assures transparent and robust accounting;
- → minimizes the potential for leakage; and
- → facilitates linkage to similarly rigorous regional and international GHG markets and programs and encourages other jurisdictions to join.

The 2008 recommendations were evidently put together with the grand goal of a regional, linked program in mind. There are a number of references to "regional" caps and targets, the coordination of action across jurisdictions, and other elements of an integrated system.[227] This top-down approach was evidently problematic and has yet to eventuate.

The 2008 recommendations were followed two years later by the 2010 Design for the WCI Regional Program document, which represents a step forward but also a step back. The document goes somewhat beyond the recommendations in that it outlines a jurisdiction-specific cap-and-trade program in general terms. That generality is a function of the need to strike a balance between outlining a framework and the avoidance of dictating particulars. In the process of implementation, there would also be a need to recognize a degree of pluralism. For example, the 2010 design document observes that "variations in jurisdictional authorities, regulatory procedures and administrative requirements inevitably lead to differences in the manner in which rules are written. Consequently, the Detailed Design was prepared with the understanding and expectations that in each jurisdiction's rule language may vary.... The intent, however, is that even with differences in language or approach, the ability to implement the core program design in a compatible manner across jurisdictions is preserved, so that the integrity of the regional effort is assured."[228]

The 2010 design document noted that cap-and-trade would harness the power of the market to achieve environmental goals, encourage emissions reductions throughout the economy, and advance certain core policies and programs,

222 *Ibid*.

223 The WCI 2008 recommendations note that "[i]n direct regulation, all facilities in an industry are required to achieve a given level of performance or emission reduction. Modeling tools typically represent the industry as a single 'model facility'....In reality, industry is actually heterogenous with different facilities facing different costs for reducing emissions" (*ibid* at 62).

224 The WCI 2008 recommendations note that "[t]he price signal from a market program such as cap-and-trade will create consumer price behaviour throughout the economy that is diffuse and not necessarily captured by existing modelling tools" (*ibid*).

225 The WCI 2008 recommendations note that "[t]he price signal from a market program such as cap-and-trade will induce technological innovation in a way that is not adequately included in models" (*ibid*).

226 The WCI 2008 recommendations note that "[w]hen direct regulations are promulgated, the costs of complying with the regulations will likely be estimated incorrectly, either too high or too low....Market programs such as cap-and-trade do not suffer from this problem, as the market starts out who should do what to achieve the total emission reduction needed" (*ibid*).

227 It is to be recalled that the 2008 recommendations were formally denominated the "Design Recommendations for the WCI Regional Cap-and-Trade Program" and that there are repeated references to a regional system throughout the document (for example, the description of the program as "this ambitious effort to design a *regional*, market-based approach for reducing greenhouse gas emissions" [*ibid* at 3] [emphasis added]). The effort to globalize the scheme in order to avoid double-counting of emission credits is also evident in the California-Quebec-Ontario linkage agreement, article 1(c), which references the purpose of "develop[ing] and implement[ing] an accounting mechanism that provides for a transparent and data-driven calculation that attributes to each Party its portion of the total greenhouse gas emission reduction achieved jointly by the Parties' linked cap-and-trade programs, the results of which will be used to avoid double claiming of emission reductions by the Parties"; CARB, "Linkage", *supra* note 170.

228 WCI, *WCI Regional Program, supra* note 204 at 5.

such as energy efficiency, the encouragement of renewable energy sources, tackling transportation emissions and establishing performance benchmarks, that would help to speed the transition to a clean energy economy.[229]

The 2010 design document went on to outline the fundamentals of a cap-and-trade program, but shied away from describing the program as a regional one. Instead, it simply acknowledged that "a broad geographic scope will also reduce overall compliance costs and can help mitigate leakage risks. A large carbon market across a diverse set of emission sources provides a wider range of reduction opportunities. There are multiple paths for achieving the broad geographic and economy-wide coverage that is preferred for a cap-and-trade program. The WCI Partner jurisdictions also recognize alternative schedules for implementation can be accommodated and will continue to encourage additional jurisdictions to join the program."[230]

The 2010 design document identifies the core of a cap-and-trade program as reliance on high-quality emissions data from rigorous reporting. It is on this basis that caps can be established. The 2010 design document specified that in order to minimize the reporting burden for emitters, WCI partner requirements should be harmonized with US EPA regulations and made equivalent to a Canadian version of the reporting requirements. There was also a need identified by the 2010 design document to develop reporting protocols for certain emissions sources that did not then have them.[231]

The need for uniformity is stressed in the requirement that "each jurisdiction develop its allowance budget in the same manner to ensure consistency and transparency through the program."[232] Additionally, the 2010 design document recommends "a common limit on the use of offset certificates be applied uniformly."[233] From these basic premises, the 2010 design document went on to recommend that "each Partner's 2012 allowance budget for emitters covered in 2012 be the best estimate of actual emissions anticipated in 2012,"[234] essentially a recognition of the need to establish a starting point of "business as usual." The 2010 design recommendations went on to note that after a first emissions period, the projected program would be "designed to expand to cover providers of transportation fuels and residential and commercial fuels."[235]

At the same time, there would be a need in any cap-and-trade program establishing a cap to make allowances for flexibilities. Here, once again, the need to accommodate early reductions and offset certificates from other jurisdictions was mentioned. The 49 percent limit on the use of offset certificates and other approved instruments mentioned in the 2008 recommendations was repeated.[236] This led into a general discussion in the 2010 design document of the need to enhance compliance flexibility and program adaptability to manage compliance costs. Adaptability would be required because "combinations of circumstances could result in compliance cost increases that may impact consumers or industry competitiveness and increase emissions leakage risk."[237] For this reason, the 2010 design document referred to the need to establish allowance reserves "from which emission allowances could be released under high-price conditions,"[238] borrowing of allowances from one compliance period to the next might be permitted, and "special purpose allowance pools or other mechanisms could be created that target localized conditions that affect compliance costs locally."[239] Taken together, "[w]hen combined with an auction floor price…these mechanisms would help create boundaries on the range of allowance prices."[240]

Two other areas of flexibility mentioned in the 2010 design document were, first, the need to maintain competitiveness of covered industries by a process of "benchmarking"[241] and the distribution of free allowances and, second, the need to address leakage risk or, in other words, the incentive for covered emitters to leave the jurisdiction to avoid or evade program compliance costs.

229 *Ibid* at 1–2.

230 *Ibid* at 6.

231 *Ibid* at 7.

232 *Ibid* at 8.

233 *Ibid*.

234 *Ibid*.

235 *Ibid*.

236 *Ibid* at 11.

237 *Ibid*.

238 *Ibid*.

239 *Ibid* at 12.

240 *Ibid*.

241 Benchmarking is described in the 2010 design document as "an approach for promoting efficiency by evaluating GHG emissions performance among similar facilities or operations in an industrial sector" and then using this as "a basis for distributing allowances to industrial facilities covered by the [cap-and-trade] program" (*ibid* at 14).

The 2010 design document detailed that "[t]he interconnected nature of the North American electricity grid creates the potential for leakage, and existing practices see considerable quantities of electricity transacted among jurisdictions." However, the need "[t]o maintain a level playing field and a consistent price for carbon, the emissions associated with imports of electricity are included in WCI Partner jurisdiction emissions."[242] In such situations, possibilities for over- (or under-) counting of emissions meant that a common point of regulation needed to be adopted, which the 2010 design document recommended as being "the First Jurisdictional Deliverer (FJD), which is the first entity that delivers electricity over which the consuming WCI Partner jurisdiction has regulatory authority."[243]

A further issue dealt with in the 2010 design document was the design of offsets. Given that there had been much experience with offset design by that point, the 2010 design document simply recommended that offset projects approved by WCI partner jurisdictions would meet criteria described in certain final recommendations on the subject issued by a WCI working group tasked with devising standards on the matter. However, a number of protocols already existed in other cap-and-trade systems at the time the 2010 design document further noted that WCI partners were "continuing to establish key protocol components for each priority project type."[244]

The 2010 design document noted as well that "[t]he WCI Partner jurisdictions plan to auction emission allowances in a regionally coordinated manner to ensure fairness and transparency, maximize efficiency, and ensure consistent application of state and provincial laws."[245] This would require coordinated auction format, timing and frequency; a standard reserve price; the creation of emission "vintages" to further regulate sales; lot sizes; the regulation of guarantees; information sharing and transparency; mitigation of market manipulation and a number of associated criteria that would have to be worked out.[246]

A final concern in the 2010 design document is the need to ensure "a well-functioning market."[247] This subject included "specific policies to ensure fair and equal access to the market, transparent operations and timely public disclosure of critical information to maintain public confidence, and a market free of manipulation so that prices reflect supply and demand conditions."[248] The 2010 design document therefore recommended that partner jurisdictions maintain primary responsibility for the auction and cash markets and that the appropriate jurisdiction-specific authorities (the Commodity Futures Trading Commission in the United States and the provincial regulatory authorities in each Canadian province) be primarily responsible for oversight of the derivatives market as it relates to emissions allowances.

As mentioned above, the 2008 recommendations and 2010 design documents became a common platform on which the basis of cap-and-trade programs would be built in each WCI partner jurisdiction. In California and Quebec, such programs began in 2013 and linkage occurred at the beginning of 2014. In Ontario, the cap-and-trade program began in 2017 and linkage with California and Quebec was achieved at the beginning of 2018, followed by Ontario's withdrawal six months later.

Linkage

Linkage is a subject that is mentioned in both the 2008 recommendations and the 2010 design documents, but not fully detailed. The justification given for the phenomenon of linkage of cap-and-trade programs is that linkage allows:

- the incorporation of more opportunities to reduce GHG emissions, thereby improving a program's cost-effectiveness while achieving greater reductions in emissions;
- reducing the risk of emissions leakage and maintaining competitiveness between actors subject to the same emissions rules;
- improving market liquidity, thereby reducing volatility and the likelihood of market manipulation; and

242 *Ibid* at 15.
243 *Ibid*.
244 *Ibid* at 17.
245 *Ibid* at 18.
246 *Ibid* at 18–19.
247 *Ibid* at 20.
248 *Ibid*.

→ sharing of administrative functions, thereby reducing the costs of program operation and enhancing consistency across jurisdictions.[249]

The 2008 recommendations are particularly noteworthy for the way they identify elements that *must* be harmonized in linking in contrast to those that *may* be harmonized in such a scheme. Thus, the 2008 recommendations note that "some elements of a multi-jurisdictional cap program…must be the same between implementing jurisdictions; these include certain elements of measurement and reporting of emissions, the schedule for distributing allowances to covered entities or facilities, compliance and reconciliation periods, the use of banking and/or borrowing, the acceptance of offsets and allowances from other trading programs, and compliance and enforcement."[250]

By contrast, the 2008 recommendations identify the following features as *not* requiring harmonization: "Other elements of a multi-jurisdictional cap-and-trade program did not need to be the same across implementing jurisdictions: it is not critical that the states and provinces allocate allowances within their jurisdictions in the same manner and jurisdictions may include varying levels of auction in their allowance distribution."[251]

Harmonization under the WCI therefore depends upon a combination of elements, both harmonized and non-harmonized. The exact combination will differ depending on the jurisdictions involved. A review of experience in each linkage achieved under the WCI is instructive.

California-Quebec Linkage (2014)

By virtue of AB 32, California's Legislative Assembly directed CARB to maintain California's leadership in climate change mitigation by developing integrated and cost-effective regional, national and international GHG reduction programs. The idea of linking California's cap-and-trade system with Quebec's was to be a keystone in that effort. No other formal connection maintained by the state to date is nearly as ambitious.

Following the release of the WCI 2010 design document, both California and Quebec adopted and implemented cap-and-trade programs based on it. In California's case, the program was enshrined in CARB's original Cap-and-Trade Regulation. Similarly, Quebec amended its Environment Quality Act to provide for an in-province cap-and-trade program. The fact that both programs were developed from the same template and prepared at about the same time meant that harmonization could proceed, even if the two jurisdictions sit at opposite ends of North America and are in no sense regional.

At the same time, Quebec government documents are clear that even at that stage — and with the prior benefit of the 2008 recommendations and the 2010 design document — harmonization with California's program required substantial staff coordination and alignment due to legal and linguistic differences: "the two systems operated in two very different linguistic and legal environments. French being the official language of Québec, the Québec regulation respecting its CAP-AND-TRADE system was drafted in that language under the Province's civil code; while California's corresponding regulation was written in English according to common law principles. This meant that every word, expression, sentence, article and legal terminology in the regulations, once translated, also had to be scrutinized to achieve agreement on its conceptual and practical meaning."[252]

In addition, different approaches had been taken to implementation, meaning that a sophisticated approach had to be adopted to the question of what needed to be aligned versus that which did not. The same Quebec government document states that "in agreeing on a similar phrasing for the matching provisions in each other's regulations, both sides had to reconcile two different legal approaches to achieve harmonization. And last, the two systems were operating under different broader sets of environmental regulations and public consultation processes, and those had to be respected."[253]

The specific approach to harmonization pursued by the two jurisdictions in linking involved the identification of three specific categories of measures:

1. Those provisions that, for the full linking to occur, had to be identical: for example, the provisions regarding the joint

249 *Ibid* at 22.

250 WCI, *Design Recommendations*, *supra* note 203 at 52.

251 *Ibid*.

252 Quebec, *Historical Overview*, *supra* note 13 at 6.

253 *Ibid* at 6.

auction of allowances and the purchase and holding limits that protect against market manipulation. In addition, since allowances are only created in electronic form, all transfers of allowances between systems had to take place within a common registry and the rules governing such transfers had to be identical.

2. Those provisions that, for the full linking to occur, had to produce similar outcomes but did not need to be identical: for example, the provisions regarding measuring, reporting and verification (MRV) that are needed to make sure that a ton of GHG emitted and verified in a partner jurisdiction equals a ton of GHG emitted and verified everywhere within the partnership;

3. Those provisions that could still be different from one another without impacting the linking process: for instance, California's regulation contains provisions recognizing GHG emission reductions from a voluntary offset program that had started several years before its CAP-AND-TRADE system became operational, while Québec's regulation includes provisions recognizing GHG mitigation efforts made voluntarily by industry prior to the implementation of its CAP-AND-TRADE system.[254]

In California, certain statutes require the state's governor to certify any program to which California is proposed to link before that linkage may take place.[255] The certification involves an assessment by CARB of whether or not the linked program satisfies four requirements:

1) the jurisdiction has adopted program requirements for GHG reductions, including, but not limited to, requirements for offsets, that are equivalent to or stricter than those required by the California program;

2) under the proposed link California must be able to enforce its program against any entity subject to the regulation and against any entity located within the linking jurisdiction;

3) the proposed linkage provides for enforcement of program requirements that are equivalent to or stricter than California's;

4) the proposed link cannot impose any significant liability on the state for any failure associated with the link.[256]

In the California assessment of readiness for linkage, three general questions were articulated to guide the process. These were:

- whether the procedures and systems used to implement the program were compatible and ensure integrity of the program;
- whether the procedures and systems that need to be conducted jointly for linkage were well-defined and in place to support linking; and
- whether the two jurisdictions have in place procedures to work collaboratively and constructively to maintain harmonization.

In practical terms, the assessment was organized to examine three main topics corresponding to the three main groupings of the program activities examined. These pertained to readiness to coordinate programs, readiness to enable cross-jurisdictional transfer of compliance instruments and readiness to join the auction of emissions allowances.

In terms of coordinating the linked programs, the focus was on procedures that both jurisdictions had in place to work collaboratively throughout the implementation of their respective programs. In particular, the focus at this stage was on whether the two jurisdictions had in place a process for review and public input regarding any changes proposed to a linked jurisdictions program, including changes or additions to offset protocols.

In terms of cross-jurisdictional transfer of compliance instruments, the focus was on the program elements that affected the compliance instruments and, consequently, fed into the environmental integrity of each jurisdiction's program. These activities broadly covered the cap-and-trade programs, including management

254 *Ibid.*

255 As provided in *California Government Code,* s 12894(f)–(g). The governor is also to consider advice from the attorney general of California within the 45-day time frame allowed for this review.

256 As contained in *California Government Code,* s 12894(f).

of the mandatory emissions reporting process and data; issuing and tracking emissions allowances; issuing and tracking offset credits; operating the CITSS; registration of participants in the CITSS; monitoring and evaluating instrument transfers in the CITSS; and examining transactions that underlie the instrument transfers in the CITSS and that occur in related markets.

In terms of joint auctions, the focus was on the program elements required for California and Quebec to hold joint auctions of emissions allowances. This included examination of the auction platform, including financial services; auction procedures performed in each jurisdiction, such as approval of auction applicants; and auction procedures performed jointly by the two jurisdictions, such as review and acceptance of the report prepared by the independent market monitor.

To assess readiness for coordination of the two programs, California and Quebec staff focused on putting in place a linkage agreement that would define the manner in which the two jurisdictions would manage their relationship going forward. This became the California-Quebec Linkage Agreement (CA-QC Linkage Agreement).[257] For this purpose, program elements were identified. In addition, several joint procedures were noted that were needed to support linked activities.[258] These were then assessed against criteria of completeness, management control, accuracy, security and auditability.[259]

The application of these criteria was facilitated by the fact that many of the program procedures involved working through the CITSS, a single mechanism with exactly the same procedures for all participants. California and Quebec had worked together for several years to specify the functionality and security built into the CITSS. The governor's review "found that the two jurisdictions conduct many processes in essentially identical ways."[260]

In addition, the Linkage Readiness Report noted that California and Quebec had each adopted regulations for their respective mandatory GHG emissions reporting and cap-and-trade programs. Here, "[t]hrough extensive consultations between the jurisdictions, the regulations have been harmonized in all respects necessary to ensure that they are compatible and ready for linking. Each jurisdiction included in its regulations and the ability to link with the other, including specifying that compliance instruments from the linked program can be used for compliance and allowing for the joint auctioning of emission allowances."[261] The Linkage Readiness Report went on to note that "it is anticipated that the jurisdictions will continue to make adjustments during the implementation of their programs that will affect program operations. To ensure that the California and Québec programs remain harmonized, the jurisdictions must work together to identify and address implementation issues as they arise. Collaboration is also required to ensure that both programs enforce their respective requirements in a consistent manner. Harmonized enforcement helps ensure that the same high standards of compliance are maintained throughout the two programs."[262]

The Linkage Readiness Report's observations on this point are important, given that they envisage adaptive behaviour as part of harmonization. Jurisdictions do not harmonize at one point in time, but *across time*. Hence the need for a common approach to enforcement and system integrity. For this reason, article 4 of the CA-QC Linkage Agreement ultimately provided that "[t]o support the objective of harmonization and integration of the programs, any proposed changes or additions to those programs shall be discussed between the Parties. The Parties acknowledge that sufficient time is required to enable effective public review and comment....The Parties shall consult regarding changes that may affect the harmonization and integration process or have other impacts

257 *Agreement between the California Air Resources Board and the Government of Québec concerning the Harmonization and Integration of Cap-and-Trade Programs for Reducing Greenhouse Gas Emissions*, 27 September 2013 [CA-QC *Linkage Agreement*], online: <www.mddep.gouv.qc.ca/changements/carbone/documentation-en.htm#regulations>.

258 *Ibid* at 8.

259 Completeness: Do the procedures and processes cover the full set of activities needed to implement that element of the program? Are all regulatory requirements met? Management control: Do the procedures provide effective management control? Are roles, responsibilities and approvals clearly defined? Is the responsibility for key activities properly divided? Accuracy: Do the procedures ensure data accuracy through validation and multiple levels of review? Security: Do the procedures protect confidential and market-sensitive information? Auditability: Do the procedures include an audit trail for all decisions and actions?

260 CARB, *Linkage Readiness Report* (1 November 2013) at 9, online: <www.arb.ca.gov/cc/capandtrade/linkage/arb_linkage_readiness_report.pdf> [CA-QC *Linkage Readiness Report*].

261 *Ibid*.

262 *Ibid* at 10.

on either Party. Each Party's public process for making program changes must be respected."[263]

The Linkage Readiness Report also noted that "[s]taff-level collaboration is an important aspect of achieving and maintaining the harmonization and integration of the programs."[264] Three working groups — tracking system, auction and monitoring, and the management working group — demonstrate the ability to maintain the harmonization of their respective programs. Additional working groups could be formed to address specific needs. The Linkage Readiness Report noted that "[t]he track record of successful working group collaboration, combined with the commitments from both California and Québec embodied in the [CA-QC Linkage Agreement], demonstrates the readiness to continue to collaborate effectively following linkage of the two programs."[265]

A second general area of concern in the California-Quebec linkage process was the exchange of compliance instruments, a key focus of mutual recognition. In this respect, the CA-QC Linkage Readiness Report observed that "[t]he primary operational aspect of linking the California and Québec programs is that compliance instruments issued by California can be used to comply with the Québec program, and compliance instruments issued by Québec can be used for compliance in California."[266] Here, the demand was for complete interchangeability, or fungibility. Fungibility was assessed in two respects: the status of the CITSS and the efficacy of compliance instrument issuance.

The CA-QC Linkage Readiness Report notes that the status of the CITSS was reviewed to evaluate whether the system was prepared to enable transfers among participants in the two programs. It was foreseen that CITSS would be used to register entities participating in the California and Quebec programs, track ownership of compliance instruments, enable and record compliance instrument transfers, facilitate the submission of compliance instruments as required for compliance, and support market oversight by providing access to account and transfer data.[267] The CA-QC Linkage Readiness Report observed that both the California and Quebec programs perform the same steps within the CITSS to:

- → issue and transfer allowances into the jurisdictions' accounts;
- → transfer allowances from jurisdiction accounts to participants' accounts;
- → transfer allowances from jurisdiction accounts to the auction holding account;
- → transfer allowances from the auction holding account to successful auction bidders' accounts; and
- → retire allowances from participants' compliance accounts.

For each of these functions, the CITSS was designed to require that individuals authorized to initiate these functions (i.e., transfers) were separate from the individuals authorized to approve the completion of the functions. Consequently, no single individual would be capable of performing all of these functions. In this respect, the CA-QC Linkage Readiness Report found that, "[i]n all cases, the California and Québec procedures [for CITSS functions] were found to be equivalent. For example, in addition to the CITSS audit trail of activities, both programs include paper-based checklists and workflow forms for these CITSS actions, each of which must be signed by senior managers before action is taken. These forms are retained in a secure location for each program, providing an independent audit trail of the work that underlies the action and the management approval that was provided."[268]

On the issue of ensuring equivalent efficacy of compliance instrument issuance, the CA-QC Linkage Readiness Report observed that "the stringency of the two programs was evaluated

263 An example of this respect for jurisdictional rule making is provided in the CA-QC Linkage Readiness Report as follows: "In addition to the demonstrated working relationship between California and Québec, Québec has an established public process for adopting regulations, analogous to those in California. The Québec requirements presented in the Québec Regulations Act, include that any proposed regulation or regulatory amendment be published in the Québec Gazette, followed by a public comment period. Section 124 of the Québec Environment Act requires that the public comment period be 60 days, and also requires that the Minister consider all the written comments received" (*ibid* at 14–15). Importantly, the CA-QC Linkage Readiness Report noted that "[t]his Québec process provides an opportunity for California stakeholders to comment directly on any proposed changes to the Québec regulations. Additionally, any concerns can be raised with California staff during the process, who will also be consulting with Québec staff regarding proposed program changes" (*ibid* at 15).

264 *Ibid* at 11.

265 *Ibid* at 13.

266 *Ibid* at 17.

267 *Ibid* at 17–18.

268 *Ibid* at 19.

and found to be consistent. This finding means that the number of emission allowances being issued by each program, and the number and type of offset credits that can be used in each program, result in similar program stringency."[269] At the same time, in the CA-QC Linkage Readiness Report, CARB staff recommended the introduction of transfer summaries — that is, the obligation to provide a summary report to the other jurisdiction that shows the purpose of the transfer, the total number of allowances to be transferred and the sources of the allowances. Such a summary report would enable each jurisdiction to provide an added check on the other's proposed transfer. In addition, a CITSS monthly balance would be reconciled to ensure that totals of allowances traded matched records of what had been issued and what had been put into circulation.[270]

The CA-QC Linkage Agreement concluded in 2013 embodies many of the points covered in the CA-QC Linkage Readiness Report, confirming that the arrangement between them was to be purely intergovernmental rather than supranational. For instance, it notes that "the Parties further recognize that the present Agreement does not, will not and cannot be interpreted to restrict, limit or otherwise prevail over each Party's sovereign right and authority to adopt, maintain, modify or repeal any of their respective program regulations."[271]

In specific textual terms, the CA-QC Linkage Agreement mandated that the parties "shall consult each other regularly and constructively" and that "the procedural requirements of each Party shall be respected" (article 3). It also provided for ongoing regulatory harmonization of their respective GHG emissions reduction programs and that "[i] n the case where a difference between certain elements of the Parties' programs is identified, the Parties shall determine if such elements need to be harmonized for the proper functioning and integration of the programs" (article 4). Offsets should have the "essential qualities of being real, additional, quantifiable, permanent, verifiable, and enforceable" (article 5). At the same time, parties "may consider making changes to their respective offset protocols, adding additional offset protocols, or changing procedures for issuing offset credits" (article 5). However, to support harmonization and integration, "proposed changes or additions [to offsets] shall be discussed between the Parties" (article 5). The CA-QC Linkage Agreement also expressly provided for mutual recognition of compliance instruments, but noted obligations of notification and respect for voiding actions undertaken by each jurisdiction where it was determined "that a compliance instrument that it has issued should not have been issued or must be voided" (article 6). In addition, the CA-QC Linkage Agreement identified the trading of compliance instruments (article 7), joint auctions (article 8), a common program registry and auction platforms (article 9), and the need for the two jurisdictions to work cooperatively to supervise and enforce their respective programs (article 10).

The CA-QC Linkage Agreement also provided for the creation of a consultation committee composed of one representative from each jurisdiction (article 12). The committee was described as "monitor[ing] the implementation of all measures that are required for the effective harmonization and integration of the Parties' [programs]," reporting the results of the CA-QC Linkage Agreement annually and "address[ing] any other issues at the request of the Parties." Among these is serving as the ultimate forum for the resolution of any differences among the parties.[272]

California-Quebec-Ontario Linkage (2018)

As the preceding section suggests, the California-Quebec-Ontario Linkage of 2018 arose out of a rich background of regulatory harmonization. The province of Ontario had a long history of collaborating with California and Quebec regarding their respective cap-and-trade program regulations and associated regulatory changes. California, Quebec and Ontario were among the 11 jurisdictions that collaborated in the development of the WCI's 2008 recommendations and 2010 design document, and all three jurisdictions were well aware of the regulatory actions that followed

269 *Ibid* at 18.

270 *Ibid* at 20.

271 *Ibid* at 1. Article 13 of the agreement also noted that "[t]his Agreement does not modify any existing laws and regulations, nor may any of its provisions be interpreted as amending any agreement or provision of an agreement entered into or to be entered into by either Party."

272 CA-QC *Linkage Agreement*, *supra* note 257, art 18, entitled "Resolution of Differences," noted that the parties "shall resolve differences by using and building on established working relationships, including enabling staff to work jointly through workgroups to develop proposed harmonized and integrated approaches for consideration by each Party. If approaches for resolving differences that are acceptable to the Parties cannot be developed in a timely manner through staff workgroups, the Parties shall constructively engage through the Consultation Committee, and if needed with additional officials of the Parties, or their designees. The Parties endeavor to resolve differences in a timely manner, so that the harmonization and integration of the programs can be maintained."

in each jurisdiction to give shape and form to these. In addition, the Ontario cap-and-trade program was designed with advice and support from California and Quebec. Likewise, Ontario, together with Quebec, had participated in regulatory discussions with CARB when California's cap-and-trade program was revised in 2016 following the passage of AB 398. At that time, it was noted that "the constructive engagement of the jurisdictions [was] instrumental for ensuring that key aspects of all three programs will continue to align."[273]

There were clear benefits projected from Ontario's inclusion in the link. Although the three jurisdictions are not regional, they together constitute the three largest jurisdictions (by population size) involved in the WCI. Ontario's entry would result in the extension of coverage to approximately 150 new entities. It could be expected that, consistent with considerations of economic theory underlying cap-and-trade design, the inclusion of Ontario would materially expand the market for emissions allowance trading at the same time as signalling a progressive extension of cap-and-trade in North America.

Certain drawbacks could be foreseen as well. The "trilateralization" of the California-Quebec relationship to include Ontario would necessarily render harmonization more complex. A further partner would have to be consulted. Another set of program priorities and objectives would have to be accommodated. The extension of the link to another jurisdiction raised the possibility of a more complicated relationship among the partner jurisdictions and the need to address this complexity through a certain "genericization," or objectivization, of the overall arrangement. This step would be reflected in the ultimate shape of the CA-QC-ON Linkage Agreement.

Once again, requirements of California law triggered the need for a review by CARB of Ontario's program prior to certification of readiness, as had happened in the case of Quebec in 2013. The first finding required by the California Government Code, section 12894(f) focused on the strength of the proposed linking partner's program. The linked program needed to be "equivalent to or stricter than" that of California. To determine equivalence, CARB examined the jurisdiction's emissions reduction goal, the role of cap-and-trade in achieving the jurisdiction's reduction goal, and the rules and requirements incorporated in Ontario's cap-and-trade program legislation. First, on the subject of Ontario's reduction goal, CARB staff noted that Ontario's 2020 goal was to reduce emissions to 15 percent below 1990 levels by 2020, which is more stringent than California's goal (to reduce emissions to 1990 levels by 2020). At the same time, staff noted that both California's and Ontario's reduction goals were codified in legislation. CARB staff also noted that while Ontario's per capita emissions (17.65 Mt) were higher than California's (14.48 Mt) in 1990, Ontario had succeeded in lowering its per capita emissions as of 2014 to 12.43 Mt per capita, mostly through the phase-out of coal generation in electricity production, mentioned above. Casting a somewhat wider eye at Ontario's reduction goals in decades to come, CARB staff noted that Ontario's goals were very similar or equivalent to those of California.[274]

Second, on the role of the cap-and-trade program in achieving Ontario's reduction goals, CARB staff noted that, like California, Ontario supported "the attainment of their emission reduction goals in concert with other programs."[275] In addition, the amount of emissions allowances in both the California and Ontario programs for the period 2017–2020 was developed using the same methodology originally recommended by the WCI. For this reason, California and Ontario were deemed to have "equivalent roles in each jurisdiction's overall emissions reduction program."[276]

Third, with respect to the rules and requirements incorporated in Ontario's cap-and-trade program legislation, it was noted that "[d]ue to extensive collaboration as California and Ontario participated in WCI, the two Cap-and-Trade Programs share many identical features."[277] These include identical verified emissions reporting requirements, program coverage of the same GHGs, government control of emissions allowances, compliance instrument surrender, anti-fraud provisions, holding limitations and limited offsets subject to detailed protocols. On a few points, some minor differences were noted. For instance, Ontario (and Quebec) covered all seven GHGs in their cap-and-trade programs, whereas California had opted to regulate certain

273 CARB, "Linkage", *supra* note 170 at 11.

274 CARB, *Discussion of Findings*, *supra* note 170 at 4–5.

275 *Ibid* at 5.

276 *Ibid* at 6.

277 *Ibid*.

gases with high global warming potential by direct regulation.[278] Likewise, on the subject of reserve sales, covered participants in California could have no allowances, whereas in Ontario, reserve sales were limited to participants unable to obtain allowances, a requirement California's program did not include.[279] Finally, with respect to offset invalidation, CARB staff noted that Ontario's legislation provided recourse against the offset developer. "If the offset developer is unable to replace the invalidated offsets, Ontario will withdraw replacement offsets from a buffer account"[280] containing three percent of the offset project's allowances. In California, by contrast, the law employed a different strategy: "If the offset had been used for compliance, the party that surrendered the offset credits is required to obtain and surrender replacements."[281]

From all of the above, CARB staff was able to conclude that "the harmonization of the program regulations results in equivalency in the two programs' environmental integrity, compliance requirements, and market rules."[282]

On three other mandated bases, linkage with Ontario was held to meet California's criteria. Thus, it was determined that "[l]inkage with Ontario will not impede California's ability to enforce its regulations to the maximum constitutionally-permissible extent."[283] It was also determined that Ontario had equivalent or stricter enforcement tools than California.[284] Finally, linkage with Ontario did not impose liability on California. Out of this set of determinations, CARB staff concluded that "[t]he foregoing comparison of California and Ontario's emissions trading programs provides support for making the four findings" required under Government Code section 12894(f).[285]

A close examination of differences in the CA-QC-ON Linkage Readiness Report versus that of the CA-QC Linkage Readiness Report concluded four years before also reveals little change. The texts differ only in minor respects.[286] Much of the template for linkage appears to have been set. The general impression is one of an extension of mutual recognition of compliance instruments as opposed to their wholesale modification.

Where differences become more pronounced is in the scheme of the Linkage Agreement. Under the provisions of the CA-QC-ON Linkage Agreement, California and Quebec agreed to terminate their 2013 agreement and to substitute a new one in its place. This change demonstrates an important weakness of the original CA-QC Linkage Agreement. Although a third-party provision had been included in that agreement, its "contractual" structure made it highly peculiar to the parties involved and required amendment each time a third party joined.[287] This shortcoming made the original cumbersome and unwieldly to modify.

To overcome that difficulty, the CA-QC-ON Linkage Agreement projected a more permanent arrangement. In essence, third jurisdictions were invited to join a concrete agreement rather than fundamentally renegotiate its terms. Article 20 of the new agreement contains an accession clause in the following terms:

> Recognizing that the Parties welcome effective, timely, and meaningful action to reduce greenhouse gas emissions by other jurisdictions, a candidate Party may be added as a Party to the Agreement if the candidate Party has adopted a program that is harmonized and can be integrated with each of the Parties' programs, if all of the Parties to the Agreement agree to add the candidate Party by signing an Accession Amending Agreement and then the candidate Party agrees to become a party to the Agreement by signing an Instrument of Accession.

278 *Ibid* at 7.

279 *Ibid* at 8.

280 *Ibid* at 10.

281 *Ibid*.

282 *Ibid*.

283 *Ibid*.

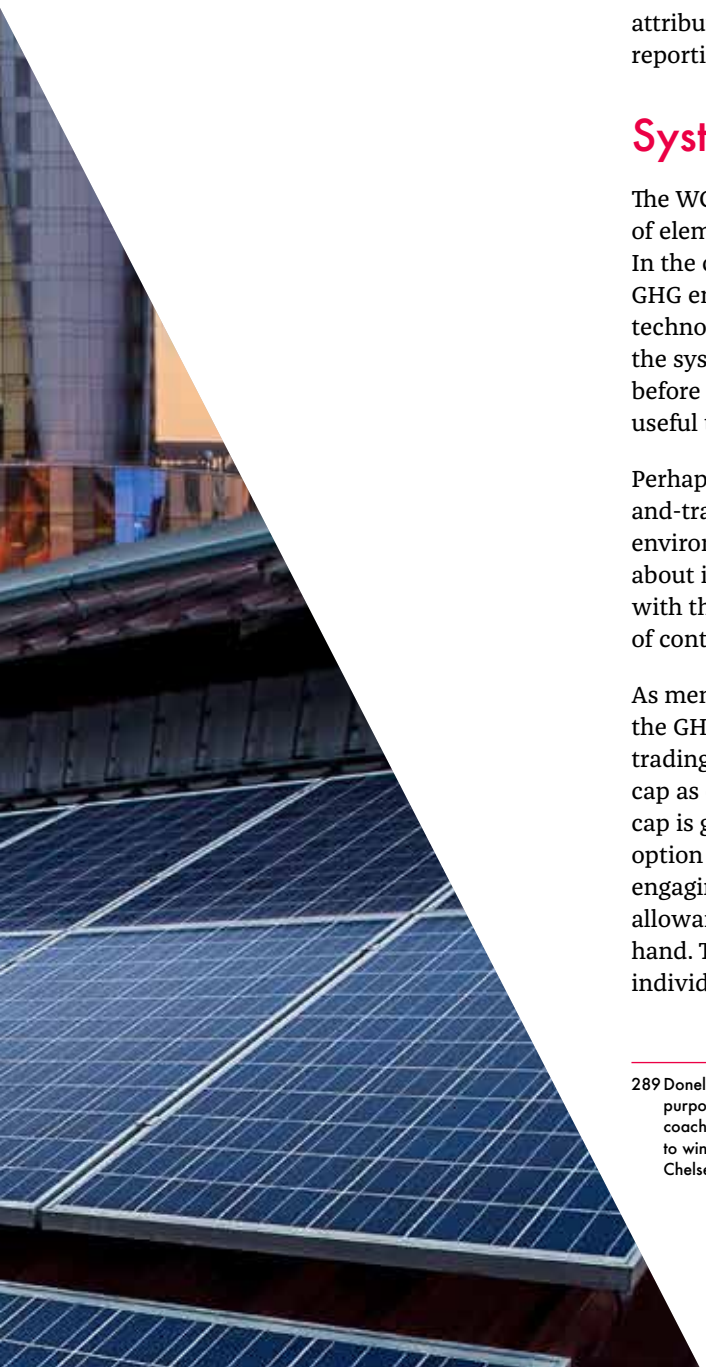
284 *Ibid* at 11–13.

285 *Ibid*.

286 For example, the CA-QC-ON Linkage Agreement appears to be slightly more sovereignty-conscious in the sense that its recitals note that "the present Agreement does not, will not and cannot be interpreted to restrict, limit or otherwise prevail over relevant national obligations of each Party." In addition, it mentions the aim of "develop[ing] and implement[ing] an accounting mechanism that provides for a transparent and data-driven calculation that attributes to each Party its portion of the total greenhouse gas emission reduction achieved jointly by the Parties' linked cap-and-trade programs." CARB, "Linkage", *supra* note 170, art 1(c).

287 *Ibid*, art 17 ("Recognizing that the Parties welcome effective, timely, and meaningful action to reduce GHG emissions by states, provinces and territories, this Agreement *may be amended* to include additional parties that have adopted programs that are harmonized with each of the Parties' programs" [emphasis added]).

WCI CAP-AND-TRADE: OVERVIEW AND CAP



The preceding section examined the legal and policy background to the WCI cap-and-trade. In this section, a closer look is taken at specific components of the system on a jurisdiction-by-jurisdiction basis. It examines 12 subjects: system overview, legislation, the cap, compliance periods, emissions attribution, emissions allocation, flexibility, registration, reporting, verification, monitoring and enforcement.

System Overview

The WCI cap-and-trade functions as a system, that is, an assembly of elements operating together to achieve a common purpose.[289] In the case of WCI cap-and-trade, that purpose is to reduce GHG emissions while providing a mix of incentives to foster technological innovation. The exact requirements to implement the system differ from jurisdiction to jurisdiction. Consequently, before examining specific components of the system, it is useful to gain some idea of how the system works overall.

Perhaps the most innovative and salient aspect of a cap-and-trade system is harnessing the power of markets for environmental protection. Markets are traditionally thought about in economic terms. They appear to have little in common with the integrity and sustainability that are characteristic of contemporary understandings of the environment.

As mentioned, a cap-and-trade system operates by capping the GHG emissions of certain emitters and then permitting the trading of allowances that these emitters require to satisfy the cap as calculated at the end of a defined compliance period. The cap is gradually lowered over time; therefore, emitters have the option of either lowering their own emissions at a certain cost, engaging in offset activities to generate allowances, or purchasing allowances from other emitters who have surplus allowances on hand. The possibility of purchasing allowances in order to meet individual emitter ceilings gives rise to the idea of a "market."

289 Donella H. Meadows defines systems as consisting of elements, interconnections and a function or purpose. She gives as an example a football team, which "is a system with elements such as players, coach, field, and ball. Its interconnections are the rules of the game....The purpose of the team is to win games." See Donella H Meadows, *Thinking in Systems: A Primer* (White River Junction, VT: Chelsea Green, 2008) at 11.

A market for carbon emissions under the WCI requires an appreciation of markets themselves. Markets are a response to a very common dilemma. When too many actors share a single resource, the resource tends to be overused. Consider overfishing in the oceans or air pollution. This wasteful overuse is occasionally termed the "tragedy of the commons."[290] Such failures are often addressed by creating private property out of a commons resource. Property "owners tend to avoid overuse because they benefit directly from conserving resources they control."[291] Markets are places where these private rights can be exchanged. Markets are usually considered to be efficient in the sense that transactions within them take place at a certain price that signals the latest value assigned by actors to the resources involved. Markets also serve a valuable communication function by indicating the relative value of those rights in transactions and by socializing behaviour so as to allow for participation in the market.

The trading of emissions allowances under the WCI cap-and-trade takes place in a market, but like many markets, the market created by the WCI cap-and-trade is not unconstrained or completely free. A judicious mix of public and private incentives is introduced to achieve the goals of the market. First, as this guide will demonstrate, WCI partner governments introduce caps on GHG emissions that meet (or exceed) national commitments and are key to establishing what baselines individual emitters in a jurisdiction must meet in order to satisfy their own entity-specific emissions requirements and meet broader climate goals. Second, the setting of caps presupposes an extensive administrative framework of governments, regulators and other actors (such as verification agents) that can determine emissions attributions and allocations as well as allowances, offsets and participant registration, and ensure market integrity. Third, once each WCI partner's cap is established, emissions allocations have been made, and allowances, credits and offsets distributed or determined, trading must be facilitated. Here, governments play a role in helping to establish and maintain active markets for trading allocations among registered participants. Regulation includes the conduct of auctions, pricing, sales, transfer of allowances, taxation and other issues. Fourth, there is the issue of linkage, or the harmonization and interconnection of emissions trading systems among partner jurisdictions to create a consolidated market for allowances, thereby promoting goals of transferability and efficiency. A substantial degree of uniformity is required in order to promote systemic integrity and minimize the phenomenon of "carbon leakage," that is, the decision of emitters to conduct operations in non-WCI jurisdictions in order to circumvent cap-and-trade disciplines and costs.

All of these incentives rely on pre-existing administrative structures that regulate and facilitate coordination among government and non-governmental actors, hence the need to explain and analyze the WCI and its components before examining the operation of the emissions trading market in detail.

Legislation

The legislative basis for cap-and-trade in each WCI jurisdiction has already been previewed in previous sections. That legislative basis is essential since it provides the foundation upon which each cap-and-trade program is based. It is doubly important in a scheme such as the WCI cap-and-trade since beyond certain technical requirements and common features, there are few higher-level norms. Jurisdictions commit to participating in the WCI on a "best efforts" basis, but always maintain their own laws. There is no external set of disciplines that can be enforced, apart, perhaps, from the implicit threat of delinking.

The lack of a formal framework means that from a structural point of view, the feature of the WCI must be understood through the law of the separate jurisdictions in which they operate.

California

The legislative basis for cap-and-trade in California originates in AB 32. AB 32 established the goal of decreasing GHG emissions in the state to 1990 levels by 2020, a reduction of 15 percent. Pursuant to AB 32, CARB was required to adopt regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions. AB 32 also required CARB to develop "scoping plans" that lay out California's strategy for meeting its climate-related goals. The scoping plan was required to be updated every five years. In December 2008,

290 A term originally coined by ecologist Garrett Hardin in 1968. See Michael Heller, *The Gridlock Economy: How Too Much Ownership Wrecks Markets, Stops Innovation, and Costs Lives* (New York: Basic Books, 2008) at 17.

291 *Ibid.*

CARB approved the initial scoping plan, which included a suite of measures to sharply cut GHG emissions. One of these measures was cap-and-trade. Initially, CARB was not given the authority to implement cap-and-trade beyond 2020.

In 2016, the California State Legislature enacted State Bill 32, which established an additional target of reducing GHG emissions by at least 40 percent by 2030. Under State Bill 32, CARB was given wide discretion over how to design the cap-and-trade program. Subsequently, AB 398 extended CARB's authority to operate cap-and-trade from 2020 to 2030 and provided additional legislative direction regarding certain design features of the post-2020 program. AB 398 also included new reporting and oversight requirements.

The existing CARB cap-and-trade program was modified by AB 398 in at least six important ways. First, whereas the current regulations established the number of allowances issued each year through 2030, AB 398 indicated that, when setting post-2020 caps, CARB was to evaluate and address concerns relating to a large number of pre-existing banked allowances. Second, the current regulations set no expiration date for allowances, whereas AB 398 directs CARB to adopt banking rules that "discourage speculation, avoid financial windfalls, and consider impact on complying entities and market volatility."[292] Third, the current regulations set a "soft" price ceiling of about US$60 per allowance in 2017 and increasing gradually in future years, whereas AB 398 directs CARB to establish a "hard" price ceiling and consider various factors when setting that ceiling. Fourth, the current regulations feature no price containment points, whereas AB 398 directs CARB to establish two price containment points (known as "speed bumps") between the price floor and the price ceiling to moderate price increases. Fifth, current regulations establish an offset limit maximum of eight percent of a covered entity's emissions, whereas AB 398 sets this maximum at four percent in the period 2021–2025 and six percent in the period 2026–2030, with no more than half coming from projects that do not provide direct environmental benefits in California. Sixth, current regulations set three different IAFs for high-, medium- and low-risk industries to receive free allowances in the period 2018–2020. AB 398 mandates 100 percent IAFs from 2021–2025.

In addition to the above amendments, California's regulatory framework for GHG emissions is buttressed by the following regulations:

- California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation, California Code of Regulations, Title 17, sections 95800-96023.
- CARB's Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (MRR), California Code of Regulations, Title 17, sections 95100-95163. The regulation was originally approved in 2007 and revised in 2010, 2012, 2013 and 2014. The most recent amendments to the MRR were approved and became effective on January 1, 2018.

California's emissions trading system covers approximately 85 percent of GHGs in its GHG emissions inventory. The system covers CO_2, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons (HFCs), PFCs, nitrogen trifluoride and other fluorinated GHGs. The number of liable entities in the state was estimated at 700 in 2013.[293] Sectors covered in the first compliance period (2013–2014) include those that have one or more of the following processes or operations: large industrial facilities (including cement production, glass production, hydrogen production, iron and steel production, lead production, lime manufacturing, nitric acid production, petroleum and natural gas systems, petroleum refining, and pulp and paper manufacturing, including cogeneration facilities co-owned/operated at any of these facilities), electricity generation, electricity imports, other stationary combustion and CO_2 suppliers. Sector coverage in the second compliance period (2015–2017) and beyond was extended to suppliers of natural gas, suppliers of reformulated blendstock for oxygenate blending and distillation fuel oil, suppliers of liquid petroleum gas in California and suppliers of liquefied natural gas. The inclusion threshold was for facilities in the above sectors emitting 25,000 t CO_2 per year.

292 See US, AB 32, *California Global Warming Solutions Act of 2006*, Cal, 2006, ch 135, s 4.

293 The CA-QC Linkage Readiness Report indicates that California had approximately 700 facilities in November 2013. A "covered entity" under the California legislation means an entity within California that has one or more of the processes or operations described above; has a compliance obligation, as specified in sub-article 7 of the Cap-and-Trade Regulation; and has emitted, produced, imported, manufactured, or delivered in 2008 or any subsequent year more than the applicable threshold level specified in section 95812(a) of the regulation. See CA-QC *Linkage Readiness Report, supra* note 260 at 22.

Quebec

In June 2009, the Quebec National Assembly unanimously adopted the Act to amend the Environment Quality Act and Other Legislative Provisions in Relation to Climate Change, which grants the government the enabling powers to implement, by regulation, a cap-and-trade system for GHG emissions allowances.[294] In November 2009, after a National Assembly committee hearing, the Government of Quebec adopted a new GHG emissions reduction target of 20 percent below 1990 levels by 2020, which was essential for the establishment of annual GHG emissions caps under the cap-and-trade system. This target, adopted by Order in Council, has force of law.[295] In December 2011, the Government of Quebec adopted the Regulation Respecting a Cap-and-Trade System for Greenhouse Gas Emission Allowances. This regulation describes the operating rules of Quebec's cap-and-trade system.[296] In December 2012, the Government of Quebec adopted the Regulation to amend the Regulation Respecting a Cap-and-Trade System for Greenhouse Gas Emission Allowances.[297] This new regulation aimed at harmonizing Quebec's and California's cap-and-trade systems and enabling them to be linked. It also introduced the operating rules of Quebec's offset credit system. Moreover, in December 2012, the Government of Quebec adopted Order in Council 1185-2012 regarding the determination of the annual cap on GHG emissions allowances under the cap-and-trade system for 2013–2020.[298] The caps were set based on the most recent GHG emissions data in order to enable Quebec's GHG emissions to be reduced to 20 percent below 1990 levels by 2020.

Quebec's emissions trading system covers approximately 85 percent of GHGs in its GHG emissions inventory. The system covers CO_2, methane, nitrous oxide, sulfur hexaflouride, HFCs, PFCs, nitrate nitrogen and other fluorinated GHGs. The number of liable entities in the province was estimated at 132 in 2017. Sectors covered in the first compliance period (2013–2014) were electrical generation and industries emitting 25,000 t CO_2 per year or more. Sector coverage in the second compliance period (2015–2017) and third compliance period (2018–2020) included those in the first compliance period alongside the distribution and importation of fuels used for consumption in the transport and building sectors as well as certain small and medium-sized businesses. The general inclusion threshold was 25,000 t CO_2 per year or more. As of 2016, fuel distributors that had distributed 200 L or more of fuel (in 2015 and onwards) were also subject to inclusion, even if combustion of the fuel they sold had resulted in emissions of less than 25,000 t CO_2 per year. Starting in 2019, emitters from capped sectors that reported emissions between 10,000 and 25,000 t CO_2 per year will be able to voluntarily register as covered entities in the system.

Ontario

The Ontario Climate Change Mitigation and Low-carbon Economy Act, 2016, provided the legal foundation for the cap-and-trade program in the province. The act was supplemented by the following four regulations:

- Ontario's Cap-and-trade Program Regulation (O. Reg. 144/17) took effect July 1, 2016. It defined the key elements (for example, caps, allocations) and program rules (i.e., auctions, market requirements).
- Ontario's Quantification, Reporting and Verification of Greenhouse Gas Emissions Regulation (O. Reg. 143/17) took effect January 1, 2017, and provided for opting in, lowered the reporting threshold and aligned with cap-and-trade regulation.
- Ontario's Offset Regulation (O. Reg. 539/17) took effect January 1, 2018, and provided for the registration of offset initiatives, Ontario offset credits, offset reversals, and offset reporting and verification in the province.
- Ontario's Administrative Penalties Regulation (O. Reg. 540/17) took effect January 1, 2018, and provided for a series of administrative penalties to ensure compliance with the act or its regulations and to prevent individuals or entities from deriving economic benefits as a result of a contravention thereof.

294 Draft Bill 42-2009, *An Act to amend the Environment Quality Act and other legislative provisions in relation to climate change*, 26 August 2009, (2009) GOQ II, 34 at 4387.

295 OC 1187-2009, 9 December 2009, (2009) GOQ II, 49 at 5871 (French only).

296 OC 1297-2011, *Regulation respecting a cap-and-trade system for greenhouse gas emission allowances*, 14 December 2011, (2011) GOQ II, 50B at 5519B, online: <www2.publicationsduQuébec.gouv.qc.ca/dynamicSearch/telecharge.php?type=3&file=/Q_2/Q2R46_1_A.HTM>.

297 OC 1184-2012, 19 December 2012, (2012) GOQ II, 51 at 5480.

298 OC 1185-2012, 19 December 2012, (2012) GOQ II, 51 at 5613.

The first three regulations were revoked July 3, 2018, due to the provincial government's cancellation of cap-and-trade effective that date.[299]

Ontario's emissions trading system covered approximately 82 percent of GHGs in its GHG emissions inventory.[300] The system covered CO_2, methane, nitrous oxide, sulfur hexaflouride, HFCs, PFCs and nitrogen triflouride. The number of liable entities in the province was estimated at 148 in 2016.[301] Sectors covered in the first compliance period (2017–2020) were industrial and large commercial operations (such as manufacturing, base metal processing, steel, pulp and paper, and food processing); institutions (for example, universities); transportation fuel processors and distributors, including propane and fuel oil; businesses that generate, import (for consumption in Ontario), or distribute electricity; and natural gas generators and distributors.[302] The inclusion threshold was 25,000 t CO_2 or above for mandatory participants, 200 L of petroleum product supply for fuel distributors, and reported emissions between 10,000 and 25,000 t CO_2 per year for voluntary participants.

The Cap

As mentioned, the three WCI cap-and-trade jurisdictions (California, Quebec, Ontario) exist within national jurisdictions that have set NDCs for emissions reductions under the Paris Agreement. These NDC targets might be regarded as serving as a baseline for WCI-led reductions, except that WCI-led GHG reduction efforts have been in place somewhat longer and are, in most instances, more ambitious. Moreover, as pointed out above, a pivotal factor in the decision to link WCI jurisdictions was the degree of ambition demonstrated by each jurisdiction's cap.

The following are the caps indicated for each WCI partner jurisdiction.

299 O Reg 386/18, *Prohibition against the purchase, sale and other dealings with emission allowances and credits* (2018), made under the *Climate Change Mitigation and Low-carbon Economy Act*, *supra* note 180, c 17, s 2.

300 ECO, *Ontario's Climate Act*, *supra* note 179 at 106.

301 ECO, *Introduction to Cap and Trade in Ontario: Appendix A to the ECO's Greenhouse Gas Progress Report 2016* (2016) [ECO, *Introduction to Cap and Trade in Ontario*] at 10, online: <https://media.assets.eco.on.ca/web/2016/11/Appendix-A-Introduction-to-Cap-and-Trade-in-Ontario.pdf> .

302 *Ibid* at 12.

California

In California, overall GHG emissions were 440.4 Mt CO_2 in 2015. The overall California reduction target by 2020 is a return to 1990 levels, by 2030 a 40 percent reduction from 1990 levels, and by 2050 an 80 percent reduction from 1990 levels. Beyond 2020, compliance periods will be two to three years long (2021–2022, 2023–2024, 2025–2027, 2028–2029 and 2030–2031) if the EPA approves California's plan for compliance with the federal Clean Power Plan by January 1, 2019. Otherwise, the fourth compliance period will start on January 1, 2021, and end on December 31, 2023, and each subsequent compliance period will be three years long.[303]

Table 1: California Emissions Cap

Year	Cap (in million allowances of CO_2)
First Compliance Period	
2013	162.8
2014	159.7
Second Compliance Period	
2015	394.5
2016	382.4
2017	370.4
Third Compliance Period	
2018	358.3
2019	346.3
2020	334.2
After Third Compliance Period: 2021–2031	
2021	320.8
2022	307.5
2023	294.1
2024	280.7
2025	267.4
2026	254.0
2027	240.6
2028	227.3
2029	213.9
2030	200.5
2031	193.8

Source: 17 *California Code of Regulations*, s 95841, Tables 6-1, 6-2.

303 ICAP, "USA-California Cap-and-Trade Program" (9 March 2018), online: <https://icapcarbonaction.com/en/?option=com_etsmap&task=export&format=pdf&layout=list&systems[]=45>.

Quebec

In Quebec, overall GHG emissions were 82.1 Mt CO_2 in 2014. The province's overall GHG reduction target by 2020 is a 20 percent reduction from 1990 levels, by 2030 a 37.5 percent reduction from 1990 levels, and by 2050 an 80 to 95 percent reduction from 1990 levels. The cap projected is absolute and aims to proceed along the trajectory as found in Table 2. After a slight increase in the cap in 2021 (due to an adjustment of the global warming potential of different GHGs), the cap will decrease by about 1.24 million allowances per year. This will result in a cap of 44.14 million allowances in 2030.[304]

Table 2: Quebec Emissions Cap

Year	Cap (in million allowances of CO_2)
First Compliance Period	
2013	23.20
2014	23.20
Second Compliance Period	
2015	65.30
2016	63.19
2017	61.08
Third Compliance Period	
2018	58.96
2019	56.85
2020	54.74
Fourth Compliance Period	
2021	55.26
2022	54.02
2023	52.79
Fifth Compliance Period	
2024	51.55
2025	50.31
2026	49.08
Sixth Compliance Period	
2027	47.84
2028	46.61
2029	45.37
2030	44.14

Source: Regulation respecting environmental impact assessment and review, CQLR c Q-2, r 15.2–15.3.

304 ICAP, "Canada-Québec Cap-and-Trade System" (9 March 2018), online: <https://icapcarbonaction.com/en/?option=com_etsmap&task=export&format=pdf&layout=list&systems[]=73>.

Ontario

In Ontario, overall GHG emissions were 170 Mt CO_2 in 2014.[305] In the province, the overall GHG reduction target by 2020 was a 15 percent reduction from 1990 levels, by 2030 a 37 percent reduction from 1990 levels, and by 2050 an 80 percent reduction from 1990 levels, as provided in the Climate Change Mitigation and Low-carbon Economy Act, 2016 (suspended July 3, 2018). The cap projected was absolute and aimed to proceed along the trajectory as outlined in Table 3.[306]

Table 3: Ontario Emissions Cap

Year	Cap (allowances of CO_2)
2017	142,300,000
2018	136,400,000
2019	130,600,000
2020	124,700,000
2021	121,058,000
2022	117,438,000
2023	113,818,000
2024	110,198,000
2025	106,578,000
2026	102,958,000
2027	99,339,000
2028	95,719,000
2029	92,099,000
2030	88,479,000

Source: O Reg 144/16, *supra* note 180, s 54; ECO, *Introduction to Cap and Trade in Ontario: Appendix A to the ECO's Greenhouse Gas Progress Report 2016* (Toronto: 2016) at 10 ("Table 2: Ontario's cap and trade program overview").

Compliance Periods

In all three WCI jurisdictions, a trading period is referred to as a "compliance period." At the end of this period, covered participants must have allowances on hand adequate to cover their individual emissions limits. Allowances are allocated and auctioned within calendar year vintages. Some allowances from future vintages are offered for sale at each auction and may be traded, but not used for compliance, until the compliance date for the vintage year.[307]

California

In California, the compliance period is three years (after the initial two-year compliance period from 2013 to 2014). Allowances for emissions of the whole compliance period must be surrendered by November 1 (or the first business day thereafter) of the year following the last year of a compliance period.[308] It is important to note that California's trading period is referred to as a compliance period, although a portion (30 percent) of allowances must be submitted for each year's emissions, depending on the year of the trading/compliance period. The compliance periods are as follows:

- first compliance period: 2013–2014;
- second compliance period: 2015–2017;
- third compliance period: 2018–2020; and
- fourth compliance period and following: usually two-year periods, with one three-year period (either 2021–2023 or 2025–2027, depending on the EPA's decision under the Clean Power Plan.[309] If the EPA has not approved California's plan for compliance with the Clean Power Plan by January 1, 2019, then California's fourth compliance period will start on January 1, 2021, and end on December 31, 2023, and each subsequent compliance period will be three years long)[310]

305 Environment and Climate Change Canada, *National Inventory Report 1990-2014: Greenhouse Gas Sources and Sinks in Canada, Part 3* (2016) at 55.

306 *Climate Change Mitigation and Low-carbon Economy Act*, *supra* note 180, c 7.

307 One-quarter of California future vintage allowances will be auctioned three years prior to the vintage date: 17 *California Code of Regulations*, s 95910(c)(2)(B).

308 ICAP, *Emissions Trading Worldwide: Status Report 2018* (2018) at 46–47 [ICAP, *Status Report*].

309 *Ibid*.

310 *Ibid*.

Quebec

Similar to California, in Quebec, the compliance period is three years, and allowances must be surrendered by November 1 (or the first business day thereafter) of the year following the last year of a compliance period.[311] The compliance periods are as follows:

- first compliance period: 2013–2014;
- second compliance period: 2015–2017;
- third compliance period: 2018–2020;
- fourth compliance period: 2021–2023;
- fifth compliance period: 2024–2026; and
- sixth compliance period: 2027–2029.

Ontario

Following the same format as the other WCI jurisdictions, Ontario's compliance periods were three years, and allowances had to be surrendered by November 1 (or the first business day thereafter) of the year following the last year of a compliance period.[312] However, the first Ontario compliance period was in fact four years, allowing one year for the province to hold its own auctions prior to linking with the other WCI jurisdictions. The compliance periods are as follows:

- first compliance period: 2017–2020; and
- second compliance period: 2021–2023.

Coverage

An emissions allowance is a generic term that can represent an emissions unit, an offset credit or an Early Reduction Credit. An emissions unit is an authorization to emit one tonne of GHGs. The number of available GHG emissions units is limited, and the total for all emitters covered by the cap-and-trade system is equivalent to the annual published cap of GHG emissions units set by the government.

There are many different sources of GHG emissions. Under WCI cap-and-trade as currently constituted, emissions are attributed only to certain categories of emitter and vary by jurisdiction. For example, in California, agricultural emissions, high global warming potential gases and select fugitive emissions are not captured under current regulations, whereas Quebec has been developing offsets for methane produced through agricultural use.

California

In California, the MRR requires annual reporting of GHGs from sources that emit greater than 10,000 t CO_2, transportation and natural gas fuel suppliers, and imported electricity.[313] In 2016, this was estimated to capture approximately 80 percent of GHG emissions included in California's GHG inventory. If reported emissions by an emitter are less than 10,000 t CO_2 per year for three consecutive years, the covered operator or supplier may cease reporting after submitting an emissions data report for the third consecutive year of less than 10,000 t CO_2 emissions.[314]

Quebec

In Quebec, participants are considered emitters and therefore required to participate if they are a person or municipality and operate in a sector of activity covered by the relevant regulation, and if they meet or exceed certain emissions thresholds. In practical terms, this included persons and/or municipalities that operate any facility whose annual GHG emissions (excluding CO_2 emissions related to the combustion of biomass) are greater than or equal to 25,000 t. In addition, any person or municipality that distributes in Quebec electricity produced outside Quebec, whose associated GHG emissions equal or exceed the annual threshold of 25 kt CO_2eq, is also subject to the system. During the first compliance period, these limits covered approximately 80 facilities from the industrial and power generation sectors. As of January 1, 2015 (that is, the beginning of Quebec's second compliance period), any person or municipality that distributed in Quebec fossil fuels whose combustion meets or exceeds the annual GHG emissions threshold of 25,000 t was also covered by the cap-and-trade system. This encompassed almost 85 percent of GHG emissions in Quebec's GHG inventory. With respect to initiators and cessation obligations, emitters regulated by the cap-and-trade program

311 *Ibid* at 49.

312 *Ibid* at 51.

313 17 *California Code of Regulations*, ss 95100–95157.

314 CEPA-ARB, "Cessation of Reporting for California's 2012 Mandatory Greenhouse Gas Reporting Regulation" (4 October 2013), online: <www.arb.ca.gov/cc/reporting/ghg-rep/guidance/ghg-cessation.pdf>.

are required to cover their GHG emissions until at least 2020 or until December 31, following their third consecutive GHG emissions report when they fall below the 25,000 t CO_2 threshold. Conversely, an unregulated emitter becomes subject to the system on January 1, following its first annual report showing GHG emissions that are equal to or exceed the threshold of 25 kt CO_2eq.

Ontario

In Ontario, participants were required to participate if they were an electricity importer, a facility or natural gas distributor that emits 25,000 t or more of GHGs annually, or a fuel supplier that sold more than 200 L of fuel annually. In addition, participation in the Ontario scheme was voluntary for facilities that generate between 10,000 and 25,000 t of GHG emissions per year and for those participants that opted into the program on a voluntary basis.

Determining Emissions Attribution

Emissions allowances are allocated to participating entities based on the GHG emissions attributed to each participating entity.

California

California's cap-and-trade program covers 85 percent of its total GHG emissions and covers about 700 entities.[315] Under subsection 7430 of the US Code Title 42, California's GHG emissions are recorded annually by the EPA.[316] The EPA administrator is responsible for evaluating and improving the emissions-estimating techniques used to record GHG emissions in the state.[317] The EPA currently monitors the GHG emissions in six sectors: electricity, transportation, industry, commercial, residential and agriculture.[318] Emissions in the electricity sector are determined by examining the fuel source used to create electricity, as well as the amount of electricity consumed by end-use sectors.[319] Transportation sector GHG emissions are monitored by assessing the emissions from each mode of transportation, including cars, trucks, trains, ships, airplanes, pipelines and lubricants.[320] Industry sector GHG emissions are assessed by examining the emissions produced through industry activities, such as burning fossil fuels, and the emissions associated with the energy used in the operation of industrial buildings and equipment.[321] Similarly, emissions in the commercial and residential sectors are assessed by determining the emissions directly produced through activities occurring within the commercial or residential property, as well as the emissions attributed to the use of electricity to operate these properties.[322] The EPA's Greenhouse Gas Reporting Program (GHGRP) requires all facilities and suppliers to install and operate a continuous emissions monitoring system (CEMS).[323] A CEMS is considered the most accurate method of determining GHG emissions. The CEMS continuously gathers information about the quantity of gases being emitted.[324] Emissions from fuel combustion are calculated with a combination of the CEMS, fuel composition data and default emission factors,[325] while process emissions are calculated with a combination of the CEMS, mass balance approach and site-specific or default emission factors.[326] A mass balance approach is the difference between the carbon entering and exiting the process.[327] In the mass balance approach, any unaccounted-for carbon is assumed to have been released as GHG emissions.[328] Site-specific emission factors consist of performing periodic measurements of carbon emissions in feedstocks or stacks.[329] Default emission factors are based on average GHG emissions and these values are provided by the GHGRP.[330]

315 ICAP, *Status Report, supra* note 308 at 45–46.

316 EPA, "Sources of Greenhouse Gas Emissions" (11 April 2018) [EPA, "Sources of GHG Emissions"], online: <www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>; 42 USC § 7430.

317 *Ibid*.

318 EPA, "Sources of GHG Emissions", *supra* note 316.

319 *Ibid*.

320 *Ibid*.

321 *Ibid*.

322 *Ibid*.

323 EPA, "Greenhouse Gas Reporting Program: Best Available Monitoring Methods (BAMM)" (October 2018), online: <www.epa.gov/sites/production/files/2017-12/documents/ghgrp_bamm_factsheet.pdf>.

324 EPA, "Greenhouse Gas Reporting Program: Emission Calculation Methodologies" [EPA, "GHG Reporting Program"], online: <www.epa.gov/sites/production/files/2017-12/documents/ghgrp_methodology_factsheet.pdf>.

325 *Ibid*.

326 *Ibid*.

327 *Ibid*.

328 *Ibid*.

329 *Ibid*.

330 *Ibid*.

Quebec

Quebec's cap-and-trade program covers 85 percent of its total GHG emissions and covers about 132 entities.[331] Quebec attributes GHG emissions to participant entities through a self-reporting system. Under sections 4 and 5 of the regulation, respecting mandatory reporting of certain emissions of contaminants into the atmosphere, all entities subject to the Environment Quality Act are required to report their annual GHG emissions using an online form that is submitted to the Ministry of Sustainable Development, Environment and Parks.[332] The mandatory reporting requirements found in this regulation were amended in December 2011 and December 2012 in order to integrate Quebec's reporting system with California's reporting system to allow for linkage.[333]

Ontario

Ontario's cap-and-trade program covered 80 to 85 percent of Ontario's total GHG emissions and covered about 148 entities.[334] Under section 72 of the Climate Change Mitigation and Low-carbon Economy Act, the minister of the Environment and Climate Change appointed a public servant as director under the act. The director was responsible for the attribution of emissions to participating entities. Under section 6 of O. Reg. 144/16, the director was to determine the attribution of GHG emissions based on four considerations, including verification statements or reports made available to the ministry, information obtained by the director and information obtained about similar GHG-emitting activities.[335] Upon determination of the amount of GHG emissions attributed to a participating entity, the director was obligated to provide each participating entity with written notice.[336] This written notice had to include the proposed amount of GHG emissions attributed to the participant, along with an explanation detailing how the proposed amount was determined.[337]

Emissions Allocation

Under cap-and-trade schemes, emissions allowances are distributed either freely by the government, attributed through offset activities, or can be purchased privately on the market.

California

In California, allowances are distributed either via auctions held four times annually or by free allocation. Allocations differ according to sector.

In California, electrical distribution utilities and natural gas suppliers are utilities that receive allowances on behalf of their ratepayers (these are known as "consigning entities" and "consignment allowances").[338] Consigning entities are required to place all consignment allowances received for sale at the allowance auctions.[339] All natural gas and electric utilities must use the allowance value for ratepayer benefit and for emissions reductions.

Industrial facilities receive allowances for transition assistance and to prevent carbon leakage. The amount of free allocation is determined by carbon leakage risk (which is measured through emissions intensity and trade exposure and is used to define assistance factors), sector-specific benchmarks and production volumes, as well as a general cap-adjustment factor. In the third compliance period (2018–2020), the assistance factor is differentiated across sectors based on leakage risk. For the post-2020 compliance periods, assistance factors for allocation will be part of the new rule making to reflect the direction provided in AB 398 that specifies an assistance factor of 100 percent.

The majority of industrial allocation is based on production benchmarks and is updated annually based on verified production data. There is no cap on the amount of industrial allocation.

Other categories of transition assistance are provided for public wholesale water entities, legacy contract generators, universities and public-service facilities. The remainder of allowances is auctioned. In 2017, almost 70 percent of allowances were available through auction, including allowances from CARB, as well as consignment allowances to utilities.

331 ICAP, *Status Report, supra* note 308 at 48–49.

332 Quebec, *Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere*, Q-2, r 15, Division II at 4–5.

333 Quebec, *Québec's cap-and-trade system for greenhouse gas emission allowances (C&T): Technical Overview* (2018) at 12, online: <www.mddep.gouv.qc.ca/changements/carbone/documents-spede/technical-overview.pdf>.

334 ICAP, *Status Report, supra* note 308 at 50–51.

335 O Reg 144/16, *supra* note 180, c 7, s 6(1).

336 *Ibid*, s 6(2).

337 *Ibid*.

338 CARB, "California Cap-and-Trade Program Guidance for Allowance Consignment to Auction" (September 2017), online: <ww3.arb.ca.gov/cc/capandtrade/auction/consignment_guidance.pdf>.

339 *Ibid*.

Quebec

In Quebec, electricity and fuel distributors have to buy 100 percent of their allowances at auction (or on the market). Auctions are held quarterly. As of January 2018, Quebec held a total of 17 auctions, 13 jointly held with California. All auction revenues go to the Quebec Green Fund, mentioned above. Unsold allowances in past auctions are removed and gradually released for sale at auction after two consecutive auctions are held in which the sale price is higher than the minimum price. In Quebec, as of 2019, the allocation of free allowances will be made available to voluntary emitters in alignment with what has been established for regulated entities.

In Quebec, a percentage of free allocation is accorded to emission-intensive sectors subject to international competition. These include aluminum, lime, cement, chemical and petrochemical industry, metallurgy, mining and pelletizing, pulp and paper, petroleum refinement and certain other sectors (manufacturing of glassware, electrodes, gypsum products and certain agro-foods). During Quebec's first compliance period (2013–2014), the historical emission intensity was adjusted for production level and by type of emission (100 percent for process emissions, 80 percent for combustion emissions and 100 percent for emissions from other sources). In the second compliance period (2015–2017) and subsequent periods, allocation of free allowances is based on increasingly strict intensity targets (i.e., declining emissions intensity productivity) and on production levels. Since production volumes can vary, increasing intensity targets do not guarantee an absolute reduction in free allocation.

Ontario

In Ontario, fuel suppliers and distributors, electricity importers and most electricity generators needed to purchase allowances at auction or on the secondary market. Under the Ontario cap-and-trade legislation, participants were required to participate if they were an electricity importer, a facility or natural gas distributor that emitted 25,000 t or more of CO_2 annually, or a fuel supplier that sold more than 200 L of fuel annually. In addition, participation in the Ontario scheme was voluntary for facilities that generate between 10,000 and 25,000 t GHG emissions per year and for those participants who opted into the program on a voluntary basis.

In Ontario's first compliance period (2017–2020), eligible capped emitters were to receive emissions allowances free of charge, but the rate of free allowances was expected to decrease over time. The rate of allowances being distributed free of charge to eligible capped emitters for the first compliance period was projected to decline over time at a rate of 4.57 percent per year for combustion emissions starting in 2018.

Initiation of Activity

An emissions allowance is an instrument created by a government and used to represent one metric tonne of CO_2eq.[340] An allowance is distributed either by initial allocation by the government, through auctions, or sales.

The government of each WCI jurisdiction has provided certain participants with free emissions allowances. These allowances are given to large industry participants in an attempt to ease these participants into a market where GHG emissions are capped and priced. Specifically, larger participants are afforded the opportunity to slowly adjust to the new system by using free allowances to cover their GHG emissions. Participants are then able to focus on reducing their GHG emissions and begin transitioning to more environmentally clean technologies. Each WCI jurisdiction has created a set of mathematical formulas to calculate the initial emissions allowances due to each industry participant. This reliance on mathematical formulas is an attempt to provide a data-driven, transparent view of how GHG reductions are counted toward each participant's individual emissions reduction target.

California

In California, initial emissions allocation is determined for each participating entity using one of these calculation methods: product-based allocation[341] or energy-based allocation.[342] The government allocates a pre-determined number of emissions allowances to participating entities free of charge. Entities are provided these free allowances based on the industry they are part of and how efficient their facility is in comparison to the efficiency standards found

340 ECO, *Introduction to Cap and Trade in Ontario*, *supra* note 301 at 4 (Glossary).

341 17 *California Code of Regulations*, s 95891 at 138.

342 17 *California Code of Regulations*, s 95891 at 148.

in the rest of the industry.[343] Title 17, subsection 95870 of the California Code of Regulations outlines the distribution of allowances under the cap-and-trade program.[344] Entities involved in electric utilities, natural gas utilities, or industrial facilities are provided free allowances to meet their compliance obligations.[345] These compliance obligations are calculated using a complex formula found in Title 17, subsection 95852 of the California Code of Regulations.[346] Based on these compliance obligations, emissions are allocated to electricity participant entities, based on their long-term procurement plans,[347] while allowances are distributed to industry participants based on their GHG output in comparison to the industry benchmark standards for GHG emissions.[348] Participant entities in the natural gas sector are given allowances based on their 2011 sales.[349] To be eligible for direct allowances, industrial facilities and electrical utility participants are required to comply with the MRR and must have received a positive verification statement under the MRR the previous year.[350]

Quebec

In Quebec, participant entities required to participate in cap-and-trade may be eligible for free allowances. Entities identified in Table A of Part I of Appendix C of the Regulation Respecting a Cap-and-Trade System for Greenhouse Gas Emission Allowances are provided with free allowances annually to meet their GHG reduction obligations based on their sector of work.[351] These sectors include aluminum, lime, cement, chemical and petrochemical industry, metallurgy, mining and pelletizing, pulp and paper, petroleum refining, glass containers, electrodes, gypsum products and some agri-food establishments.[352] Appendix C, Part II of the same regulation dictates the calculations to be used in determining the amount of free allowances each participating entity shall be provided.[353] On January 14 of each year, the minister will allocate 75 percent of the free allowances calculated to be provided to each entity.[354] Once the annual emissions report is filed by the participating entity, the remaining 25 percent of free allowances is adjusted and the minister provides the participating entity with any remaining free allowances on September 14 of that year.[355]

Ontario

Similarly, in Ontario, participant entities were eligible for free allowances to meet their GHG emissions reduction obligations. The amount of allowances to be distributed by the minister each year was outlined in section 54 of O. Reg. 144/16.[356] Of these allowances, the minister was permitted to distribute a certain undetermined number of these allowances to participant entities free of charge.[357] Any participant entities that were not involved in the following sectors could apply to receive free allowances: electricity (generation, transportation, importation); petroleum (production, supply); or natural gas distribution.[358] The amount of free allowances distributed was projected to decrease each year by 4.57 percent, thereby requiring participant entities to implement new technologies to reduce their GHG emissions.[359]

Permanent Cessation of Activity

In California, when a participating entity ceases its activities permanently, the participant must comply with subsection 95835 of the California Code of Regulations.[360] This section describes the sequence of steps that must be followed in the event of a cessation of activities. First, the participant must return the total amount of distributed allowances to the executive officer of CARB by November 1 of the year following the year in which the participant ceased activities.[361] Allowances are considered to have been returned the day after the allowances

343 Center for Climate and Energy Solutions, "California Cap and Trade", online: <www.c2es.org/content/california-cap-and-trade/>.

344 17 *California Code of Regulations*, s 95870.

345 Center for Climate and Energy Solutions, *supra* note 343.

346 17 *California Code of Regulations*, s 95852.

347 Center for Climate and Energy Solutions, *supra* note 343.

348 *Ibid*.

349 *Ibid*.

350 17 *California Code of Regulations*, s 95890 at 136.

351 *Regulation respecting a cap-and-trade system for greenhouse gas emission allowances*, Q-2, r 46.1 at 39 [*Cap-and-trade Regulation*].

352 *Ibid* at Part II, Appendix C.

353 *Cap-and-trade Regulation*, *supra* note 351 at 40, Part II, Appendix C.

354 *Ibid* at 40.

355 *Ibid* at 41.

356 O Reg 144/16, *supra* note 180 at 54.

357 *Climate Change Mitigation and Low-carbon Economy Act*, *supra* note 180, c 7, s 31(2).

358 Ontario, "Cap and trade: program overview" (25 July 2018), online: <www.ontario.ca/page/cap-and-trade-program-overview#section-0>.

359 *Ibid*.

360 17 *California Code of Regulations*, s 95835.

361 17 *California Code of Regulations*, s 95890(k).

were removed from the compliance accounts.[362] Second, the participant must ensure all compliance instruments have been transferred from its accounts prior to submitting a request that CARB close its CITSS accounts.[363] After the completion of the previous two steps, the participant's accounts will be permanently closed.[364]

In Quebec, if a participating entity ceases its activities, the participant must surrender to the minister all free allowances received within 45 days of the last filed emissions report.[365]

Similarly, in Ontario, participants who permanently ceased activities had to return all allowances and credits to the director by 8 p.m. on November 1 of the year in which the last GHG report was filed.[366]

Flexibility

Banking and Borrowing of Allowances

Banking allowances entails retaining unused emissions allowances for a future year, whereas borrowing allowances consists of using allowances from a future year in the current year.[367] The banking of allowances provides participating entities with greater flexibility in managing future business needs or investments by retaining extra unused allowances for use in future years when additional allowances may be required.[368] While banking is common in cap-and-trade, borrowing is not common because borrowing involves a deferral of emissions reductions that is contrary to the purpose of cap-and-trade.[369]

All three WCI jurisdictions (California, Quebec, Ontario) follow the same rules for banking and borrowing of allowances. All three jurisdictions permit the banking of emissions allowances but restrict the emitter to a general holding limit, and all WCI jurisdictions do not allow borrowing.[370] The holding limit for banking means that only a certain percentage of the total allowances can be banked.[371] The holding limit for entities in all three WCI jurisdictions is calculated using the following formula:

> Holding Limit = 0.1 * Base + 0.025 * (Annual Allowances Budget – Base)
>
> Where "base" is 25 Mt of CO_2eq.
>
> Where "annual allowances budget" equals the total sum of all allowances issued by all WCI jurisdictions for the current year.[372]

It is important to note that since reserve allowances do not have a vintage year, they cannot be banked or borrowed.[373]

Offsets and Credits

A carbon offset is a reduction in emissions of GHGs made in order to compensate for or to offset an emission made elsewhere. A common project type generating offsets is renewable energy such as wind farms, biomass energy or hydroelectric dams. Other offset projects include energy efficiency projects, the destruction of industrial pollutants or agricultural byproducts, destruction of landfill methane and forestry projects.

California

In California, a quantitative limit of up to eight percent of each entity's compliance obligation may be made up of offsets.[374] In addition, a qualitative limit is observed on the types of offsets that may be claimed. Currently, six offset types from the following offset protocols are accepted as compliance units:[375]

362 *Ibid*.

363 *Ibid* at s 95835.

364 *Ibid*.

365 *Cap-and-trade Regulation*, *supra* note 351; *Environment Quality Act*, Q-2, r 46.1 at 18.

366 O Reg 144/16, *supra* note 180 at 12.

367 ICAP, "Flexibility Provisions", online: <https://icapcarbonaction.com/en/flexibility-provisions>.

368 Erik Haites, "Allowance Banking in Emissions Trading Schemes: Theory and Practice" (2006) at 2, online: <www.margaree.ca/papers/Allowance%20Banking.pdf>.

369 *Ibid*.

370 ICAP, "Canada – Québec Cap-and-Trade System" (9 March 2018) at 3, online: <https://icapcarbonaction.com/en/?option=com_etsmap&task=export&format=pdf&layout=list&systems[]=73>; ECO, *Introduction to Cap and Trade in Ontario*, *supra* note 301 at 14.

371 *Ibid*.

372 CARB, "Facts About Holding Limit for Linked Cap-and-Trade Programs" (14 September 2018) at 1, online: <https://ww3.arb.ca.gov/cc/capandtrade/holding_limit.pdf>.

373 CARB, "Chapter 5: How Do I Buy, Sell, and Trade Compliance Instruments?" (December 2012) at 21, online: <ww3.arb.ca.gov/cc/capandtrade/guidance/chapter5.pdf> [CARB, "Chapter 5"].

374 ICAP, "USA – California Cap-and-Trade Program" (9 March 2018) at 3, online: <https://icapcarbonaction.com/en/?option=com_etsmap&task=export&format=pdf&layout=list&systems[]=45>.

375 *Ibid*.

- → US forest projects;
- → urban forest projects;
- → livestock projects (i.e., methane management);
- → ozone-depleting substances projects;
- → mine methane capture (MMC) projects; and
- → rice cultivation projects.

According to AB 398, between 2021 and 2025, only four percent of an entity's compliance obligations can be met with offsets, and the maximum portion of a compliance obligation that can be met using offsets will increase to no higher than six percent thereafter. In addition, in those two intervals, 50 percent of the offsets used to meet compliance obligations must be offsets that create a direct environmental benefit for the state of California.[376]

Quebec

In Quebec, a quantitative limit of up to eight percent of each entity's compliance obligation may be made up of offsets.[377] In addition, a qualitative limit is observed on the types of offsets that may be claimed. Currently, the following five types of offsets are accepted as compliance units originating from projects carried out according to five protocols adopted by the province:[378]

- → methane destruction as part of products to cover manure storage facilities;
- → capture of gas from specified landfill sites;
- → destruction of certain ozone-depleting substances contained in insulating foam and of certain refrigerant gases recovered from domestic appliances in Canada;
- → capture and destruction of methane from a methane drainage system at an active underground or surface coal mine, except a mountaintop removal mine; and
- → capture and destruction of methane from the ventilation system of an active underground coal mine.

Quebec is in the process of developing several new offset protocols. In addition to offsets developed by the province of Quebec, offset protocols developed in jurisdictions linked with Quebec will also be accepted to fulfill compliance obligations in Quebec.[379] When issuing offset credits, the minister will take three percent of the issued offset credits as a contingency, which is then used as a reserve to keep the minister's Environmental Integrity Account filled.[380] There are two situations in which the minister may require a replacement of previously issued offset credits: in the event that the documents completed for the receipt of offsets contain false, inaccurate or missing information, making the GHG emissions ineligible for the offset; or the GHG emissions reductions for which the offset application was approved are found to have been used to apply for offsets under another program.[381] In these two situations, if the offset credits cannot be recovered, the equivalent of the unrecovered offset credits will be retired from the minister's Environmental Integrity Account.

Ontario

Similar to the other WCI jurisdictions, in Ontario, there was a quantitative limit of up to eight percent of each participant's compliance obligation that could be made up of offsets.[382] In addition, a qualitative limit was observed on the types of offsets that could be claimed. Three offset types were created in Ontario via the following offset protocols:[383]

- → GHG reductions at eligible landfills;
- → GHG reductions at coal mines; and
- → the collection and destruction of ozone-depleting substances.

At the time of the cancellation of Ontario's cap-and-trade program in July 2018, the province was working on 10 additional

376 *Ibid*.

377 *Ibid*.

378 *Ibid*.

379 *Ibid*.

380 *Ibid*.

381 *Ibid*.

382 O Reg 539/17: *Ontario offset credits*, under *Climate Change Mitigation and Low-carbon Economy Act*, *supra* note 180, c 7.

383 Ontario, "Ontario's carbon offsets programs" (25 July 2018), online: <www.ontario.ca/page/ontarios-carbon-offsets-programs>.

protocols, with the goal of November 1, 2021, for completing these offset protocols.[384]

Price Management

A carbon price is a monetary cost put on the emission of carbon dioxide into the atmosphere. Regulators need to take care in ensuring that the market price is not unduly high or low. Too high a price may retard growth and innovation, whereas too low a price may discourage the attainment of climate change goals.

Price Containment Reserves

Price containment reserves act as a soft ceiling for allowance prices and are used to prevent spikes in allowance prices.[385] Allowance price containment reserves refer to the setting aside of a certain percentage of allowances per year, for use in the event that the price of allowances reaches a set price ceiling.[386] Once set aside, these allowances are sorted into three tiers and assigned a selling price based on the tier. These assigned prices increase annually by five percent plus inflation.[387] In 2018, the tiers in California were priced at US$54.26, $61.06 and $67.83.[388] However, as of 2021, California will no longer use price containment reserves as a soft ceiling but instead will implement a hard ceiling where these reserve allowances will be available at a maximum price.[389]

Price Ceilings and Price Floors

Price ceilings and price floors are containment mechanisms intended to limit prices within an emissions trading system, thereby stabilizing the market.[390] A price ceiling "[limits] the risk that carbon prices exceed acceptable levels if constraining emission turns out to be more expensive than expected."[391] Price ceilings also provide greater cost certainty to emitters.[392] A price floor sets a price below which carbon permits cannot be sold (a minimum selling price).[393] A price floor also provides greater certainty and ensures that prices will not collapse to near zero.[394] This price floor should also reflect the full costs imposed on society by carbon pollution.[395] Overall, a combined system of price ceilings and price floors can reduce the risk and price volatility in carbon markets, which has been a point of concern in other cap-and-trade markets, specifically the EU ETS.[396]

The WCI has implemented both a price ceiling and price floor. The price ceiling is created in the form of a reserve account. A percentage of allowances within each jurisdiction's cap is placed in the reserve account annually where these allowances are given a substantially higher sale price and are not available at auction.[397] Allowances in the reserve account are organized into tiers with increasing prices.[398] When the price of allowances at auction approaches that of the reserve price, the government can decide to auction the reserve allowances at the stated tier reserve price, thereby flooding the market and dampening price increases.[399]

The three WCI partner jurisdictions agreed to a soft price floor in the sale of allowances at auction. The agreed-upon price floor started at (CDN and US) $10 per tonne in 2012, and the price floor increased annually by five percent, plus an adjustment for inflation until 2020.[400] Each WCI jurisdiction was to implement its own hard price floors and ceilings.

California

In California, recent amendments to section 38562 of the California Health and Safety Code require the state to have a price ceiling from January 1, 2021, to

384 The province's website pertaining to the cancelled program noted that "Ontario is working with the Climate Action Reserve (CAR) to develop protocols for use in creating offset credits for Ontario's carbon market. As part of that work, CAR is coordinating significant stakeholder consultations" (*ibid*).

385 Environmental Defense Fund & IETA Climate Challenges Market Solutions, "California: An Emissions Trading Case Study" (January 2018) at 2–6, online: <www.ieta.org/resources/Resources/Case_Studies_Worlds_Carbon_Markets/2018/California-Case-Study-Jan2018.pdf>.

386 *Ibid* at 3.

387 *Ibid*.

388 *Ibid*.

389 *Ibid*.

390 ICF Consulting Canada, "Long-Term Carbon Price Forecast Report", EB-2016-0359 (2017) at 10, online: <www.oeb.ca/sites/default/files/uploads/OEB-LTCPF-Report-20170531.pdf>.

391 Peter John Wood & Frank Jotzo, "Price Floors for Emissions Trading" (2011) 39:3 Energy Policy 1746 at 1747.

392 *Ibid*.

393 ICF Consulting Canada, *supra* note 390.

394 Wood & Jotzo, *supra* note 391.

395 *Ibid*.

396 *Ibid*.

397 ICF Consulting Canada, *supra* note 390 at 10–11.

398 *Ibid* at 11.

399 *Ibid*.

400 *Ibid*; Quebec, "Québec cap-and-trade system for greenhouse gas emission allowances (C&T): Strengths and Advantages" (2018) at 6, online: <www.mddelcc.gouv.qc.ca/changements/carbone/documents-spede/strengths-advantages.pdf> [Quebec, "Cap-and-trade Strengths and Advantages"].

December 31, 2030.[401] The price ceiling will be the equivalent of the selling price for allowances in the allowance price containment reserve (APCR) and any additional allowances that are sold by CARB when the APCR is exhausted.[402] California's 2018 current auction reserve floor price was US$14.53.[403]

Quebec

In Quebec, the ceiling price is created by the minister of sustainable development, who is permitted to hold a reserve sale in the event that the demand for allowances far exceeds the supply.[404] Only four reserve sales may be held each year.[405] These reserve sales are restricted to covered participants by virtue of the Regulation Respecting a Cap-and-trade System for Greenhouse Gas Emission Allowances under the Environment Quality Act.[406] In order to hold a reserve sale, each year a percentage of the distributed allowances is placed in the reserve and is broken down into different tiers.[407] The allowances are assigned a selling price based on the tier in which they are held. In 2013, the tier prices were $30, $45 and $50.[408] Since then, these prices have increased annually by five percent plus inflation.[409] In joint auctions between Quebec and California, the price floor is to be the higher of the Quebec and California price floors, taking into account the exchange rate and comparing the prices in US dollars.[410] Quebec's 2018 current auction reserve floor price was $14.35.[411]

Ontario

Ontario's price floor and ceiling were consistent with the WCI approach. Ontario placed five percent of its total annual allowances in a cost containment reserve where reserve prices were assigned to three tiers, with prices consistent with the California and Quebec reserve prices.[412] Ontario's reserve prices were significantly higher than auction prices, aligned with WCI reserve prices and increased by five percent plus inflation annually.[413] Similar to the other WCI jurisdictions, if the auction price for allowances approached the reserve price, the Ontario government could choose to hold a reserve sale, selling allowances at the reserve price.[414] Ontario's 2018 current auction reserve floor price was $14.68.[415] Taking into account the exchange rate between US and Canadian dollars, in 2018, Ontario had the highest floor price of all three WCI jurisdictions.[416]

Registration

Registration is a key feature of emissions trading under WCI-linked emissions trading schemes. Registration helps to verify the identity of participants and instill security and discipline in trading arrangements.

California

All entities participating in the WCI cap-and-trade program are required to have a CITSS account in order to participate in auctions and hold or transfer compliance instruments. There are two steps to registration under CITSS: user registration and opening an account. To register for an account, both a primary account representative (PAR) and an alternate account representative (AAR) must be registered with CITSS for that entity.[417] Both of these individuals must first complete the user registration for CITSS by submitting an online form and providing hard copies of supporting documents to CITSS. The online application form requires the submission of general personal information such as the individual's name, address and employer. The supporting documents include the completion of the user registration checklist, user registration form and proof of

401 *California Health and Safety Code*, s 38562.

402 ECO, "Ontario's Climate Act: From Plan to Progress" (2018), Appendix A ("Changes to California's Cap and Trade System under AB 398") at 2, online: <http://docs.assets.eco.on.ca/reports/climate-change/2017/From-Plan-to-Progress-Appendix-A.pdf>.

403 Ontario, "California Cap-and-Trade Program, Québec Cap-and-Trade System, and Ontario Cap-and-Trade Program: 2018 Annual Auction Reserve Price Notice Issued on December 1, 2017" [Ontario, "2018 Reserve Price Notice"], online: <https://files.ontario.ca/ct-annual_notice_english_2017-12-01.pdf>.

404 Quebec, "Cap-and-trade Strengths and Advantages", *supra* note 400 at 7.

405 *Ibid*.

406 *Ibid*.

407 *Ibid*.

408 *Ibid*.

409 *Ibid*.

410 *Ibid* at 6.

411 Ontario, "2018 Reserve Price Notice", *supra* note 403.

412 ICF Consulting Canada, *supra* note 390 at 13.

413 *Ibid*.

414 *Ibid*.

415 Ontario, "2018 Reserve Price Notice", *supra* note 403.

416 ICF Consulting Canada, *supra* note 390 at 13.

417 California EPA, "User Guide – Volume I User Registration and Profile Management: Compliance Instrument Tracking System Service (CITSS)" (December 2012) at 4, online: <ww3.arb.ca.gov/cc/capandtrade/markettrackingsystem/vol1citssguide-7-21-16.pdf> [California EPA, "User Guide"].

identity form.[418] The proof of identity form must be accompanied by a notarized copy of a government-issued identity document, proof of employment and proof of having an open bank account.[419]

Once both of these representatives are approved by CARB, they will receive their user ID, which allows them to complete the application for the creation of accounts for an entity. This application process also requires the submission of an electronic application form in addition to providing hard copies mailed to the California Registrar. The structure of the corporation will need to be disclosed through the completion of the Corporate Associations and Structure Form.[420] Forms must be signed by the PAR, the AAR and an officer or director of the entity for which the accounts are being created.[421] Each person being registered for the CITSS program can have only one role. For instance, the PAR cannot also be the AAR.[422]

Quebec

All covered GHG emitters are required to register in CITSS as an emitter. In addition, any person who is domiciled or owns an establishment in Canada may voluntarily register as a participant in the cap-and-trade system in order to purchase, hold, sell or voluntarily withdraw emissions allowances.

Any emitter that owns an establishment covered by regulations in both jurisdictions will have to open a CITSS account in each one. It should be noted, however, that already-registered emitters may not also register as simple participants. Non-emitting participants may elect to register either in Quebec or California in order to participate in the linked carbon market.

Quebec follows a similar registration process to that used in California. There are two steps to registration: user registration and opening an account.[423] Each account must have both a PAR and an AAR.[424] These individuals must both be registered as users in CITSS. User registration requires the completion of an online application form on the CITSS website in addition to the completion of the following documents to be mailed to the Carbon Market Division of the Quebec Ministry of the Environment: user registration checklist, user registration form including user ID, attestation of verification of identity and designation.[425] The attestation of verification of identity form must be notarized and submitted along with proof of identity and proof of a deposit bank account.[426]

Once the users are registered with CITSS, one of the users may submit a completed account application form on behalf of the entity they are representing.[427] This involves completing an online application form found on the CITSS website in addition to completing the account application checklist and account application with attestations form, which are both generated on the CITSS website. These forms must be signed by both the PAR, the AAR and an officer or director of the entity being represented.[428] The structure and business relationship disclosure form must also be completed, signed and submitted. All documents must be mailed to the Carbon Market Division of the Quebec Ministry of the Environment.[429]

Ontario

In Ontario, all covered emitters had to be registered in CITSS, and any entity with at least one facility producing 10,000 to 25,000 t of GHG emissions annually could register as a voluntary participant.[430]

The deadline for mandatory participants to register in the program in 2017 and onward was set out in O. Reg. 144/16, section 24(1).[431] Generally speaking, a person required to have a GHG report verified was required to register as a mandatory participant by September 1 of the year following specified GHG activities at a facility.[432] Certain categories of mandatory participants, electricity importers, natural gas distributors, or petroleum product suppliers were also subject to more detailed reporting requirements. Specifically, they were

418 *Ibid* at 7–8.

419 *Ibid*.

420 CARB, "Compliance Instrument Tracking System Service" (27 April 2018), online: <ww3.arb.ca.gov/cc/capandtrade/markettrackingsystem/markettrackingsystem.htm>.

421 California EPA, "User Guide", *supra* note 417 at 4.

422 *Ibid* at 7–8.

423 Quebec, "The Carbon Market: Cap-and-Trade System Registration" (2018), online: <www.environnement.gouv.qc.ca/changements/carbone/inscription-spede-en.htm>.

424 *Ibid*.

425 *Ibid*.

426 *Ibid*.

427 *Ibid*.

428 *Ibid*.

429 *Ibid*.

430 Ontario, "Cap and trade: register as a voluntary participant" (25 July 2018) [Ontario, "Cap and trade"], online: <www.ontario.ca/page/cap-and-trade-register-voluntary-participant>.

431 O Reg 144/16, *supra* note 180 at 21–27.

432 *Ibid*.

required to report activity prior to September 1 of the same year or prior to March 31 if the activity occurred after September 1 of that year.[433]

All mandatory participants were required to have begun the registration process and submitted the completed hard copy of their registration for ministry review prior to November 30, 2016, in order to comply with requirements for registration in the cap-and-trade program.[434]

Voluntary participants in the Ontario cap-and-trade program had to register in CITSS no later than September 1 in order to become a voluntary participant for the following year.[435] Market participants could apply any time after 2017 for CITSS registration.[436]

All mandatory participants, voluntary participants and market participants in Ontario were required to register for a CITSS account in order to participate in auctions and the transfer of compliance instruments.[437] The CITSS registration process in Ontario was very similar to the California and Quebec CITSS registration processes. Ontario used the same two-step process: recognition as an account agent (user registration) (RAA) and participant registration (the account application). Entities had to have both a PAR and at least one AAR registered as users in CITSS prior to applying for participant registration.[438] RAA required the completion of an online application form and the completion of the following forms in hard copy: RAA registration checklist, RAA registration form, proof of identity form, identity verification and attestation form (including two copies of government identification documents and a letter of attestation), and a letter of attestation of identity from a bank.[439] Once the users were approved, one user could complete the application for participant registration, which included the completion of an online form as well as the completion of the following documents in hard copy: participant registration checklist, participant registration form, voluntary participant registration form, business relationship disclosure form and a letter of authorization (if not submitted during user registration).[440] Once the users and participants had their registration approved, they were able to participate in WCI auctions and the transfer of compliance instruments.

Reporting

Reporting in an accurate and timely manner is required to maintain an effective cap-and-trade program. Reporting requirements were an important part of the discussions surrounding the creation of the WCI. Therefore, the reporting mechanisms used in all three WCI jurisdictions are very similar.

California

In California, participants use a web-based reporting tool known as the California Electronic Greenhouse Gas Reporting Tool. This tool manages the reporting, certification, submission and verification of GHG emissions data. All emitters must register as users in this tool and create an electronic signature that permits them to certify and submit their emissions data without a written signature. The submitted emissions report is then automatically sent to the regulatory agency. This tool is completely secure, with many firewall security systems for protection, as well as to prevent access to the information disclosed in the account by those without a registered user account. To ensure security, the third-party verifier must also be registered in the reporting system for read-only access to the emissions data reports.

California's reporting requirements are set out in AB 32. The MRR was updated on September 1, 2017, and was effective beginning January 1, 2018.[441] This amended regulation requires that all participants submit their GHG emissions reports annually no later than April 10.[442] However, electric supply entities have until June 1 to submit their GHG emissions reports.[443] For entities that emit less than 25,000 Mt of CO_2 emissions, there is the option of completing an abbreviated GHG emissions reporting form if they do not have a compliance obligation for the current year,

433 *Ibid* at 24.

434 *Ibid* at 22.

435 Ontario, "Cap and trade", *supra* note 430.

436 *Ibid*.

437 *Ibid*.

438 *Ibid*.

439 *Ibid*.

440 *Ibid*.

441 CARB, "Mandatory Greenhouse Gas Reporting Regulation" (2018), online: <ww2.arb.ca.gov/mrr-regulation>.

442 17 *California Code of Regulations*, s 95103(e).

443 *Ibid*.

are not subject to the reporting provisions and they are an electric power entity.[444]

Quebec

In Quebec, participants use a web-based tool similar to that used in California, known as the Québec Air Emissions Inventory (*Inventaire québécois des émissions atmosphériques*). This reporting system serves the same function as the California system in that it manages the reporting, certification, submission and verification of GHG emissions data. The Quebec system also requires participants to register as users and create their own electronic signature to certify and submit their emissions data. The data is then automatically sent to the regulatory agency. Similar to the California system, Quebec has strong firewall features to protect the security of the reporting system, as well as a requirement for the third-party verifier to register in the reporting system in order to have read-only access to emissions data reports.

Quebec's reporting requirements are set out in the Environment Quality Act and specifically the Regulation Respecting Mandatory Reporting of Certain Emissions of Contaminants into the Atmosphere. Reports must be completed annually on June 1.[445] This report must include the use of any offset protocols and the emitter's total GHG emissions in metric tonnes of CO_2, in accordance with the calculation identified in section 6.2 of the regulation. Quebec and California compared their regulations surrounding reporting several times to ensure harmonization of the reporting requirements, with the final amended Quebec regulations being enacted in December 2016.[446]

Ontario

Ontario's GHG emissions reporting requirements were set out in O. Reg. 143/16; however, specific rules for reporting were identified in the following legislation and associated regulations: Environmental Protection Act; Climate Change Mitigation and Low-carbon Economy Act; O. Reg. 143/16; O. Reg. 452/09; and the Guideline for Quantification, Reporting and Verification of Greenhouse Gas Emissions 2017. Table 4 below can be used to determine which documents were to be consulted for quantifying the entity's annual GHG emissions.

A GHG report had to be submitted every year by June 1, for the previous year's reporting period (for example, June 1, 2018, for the reporting year 2017). A GHG emissions report had to be submitted using Environment and Climate Change Canada's Single Window System. This system allowed a user to submit, view and update their information using Environment and Climate Change Canada applications.

In Ontario, the following entities were required to report their GHG emissions annually: fuel suppliers placing more than 200 L on the Ontario market, electricity importers, natural gas distributors emitting more than 25,000 t of GHG emissions annually, and facilities generating 25,000 t or more of GHG emissions annually.[447]

Verification

Third-party verifiers are used by California and Quebec to ensure consistent quality of GHG emissions reports. Operators must implement internal audit, quality assurance and control systems for the reporting program and the data reported.

The International Organization for Standardization (ISO) provides standards accepted worldwide for a variety of industries. All three WCI jurisdictions require that the verification of GHG emissions reports meet the ISO 14064 standards. ISO 14064 is the standard for programs aimed at reducing GHG emissions and emissions trading. The 14064 standard consists of three verification and validation standards, as follows:

- ISO 14064-1 are standards set for the organizational level of GHG emissions reporting.
- ISO 14064-2 are standards set for the project level of GHG emissions reporting.
- ISO 14064-3 are standards set for the validation and verification of GHG assertions.

In addition, ISO 14065 complements ISO 14064 because it sets standards for the accreditation

444 *Ibid*, s 95103(a).

445 Quebec, "Mandatory Reporting of Certain Emissions of Contaminants into the Atmosphere" (2018) [Quebec, "Mandatory Reporting"], online: <www.environnement.gouv.qc.ca/air/declar_contaminants/index-en.htm>.

446 *Ibid*.

447 O Reg 143/16: *Quantification, reporting and verification of greenhouse gas emissions*, Table 2, under the *Climate Change Mitigation and Low-carbon Economy Act*, *supra* note 180, c 7 [O Reg 143/16].

of recognized GHG validation and verification bodies. These ISO 14064 standards are used by California and Quebec in their verification of GHG reports, and these standards were intended to be used by Ontario as well, until the cancellation of Ontario's cap-and-trade program.

California

In California, the following entities are required to have their GHG emissions reports verified: entities emitting more than 25,000 Mt CO_2eq annually, electricity importers or exporters, entities with a compliance obligation in the current compliance period, and entities that do not meet the requirements for cessation of verification.[448] These entities are required to obtain annual verification from a recognized verification body and must submit this verification information to CARB's executive officer annually prior to August 10.[449] Entities must ensure that they do not use the same verification body for more than six consecutive years, beginning on the date in which the verification body was contacted for the use of their services.[450]

Quebec

In Quebec, all mandatory and voluntary emitters must obtain verification from an ISO-14065-accredited body and file a verification report prior to June 1.[451] The verification process requires that the verifier or a representative for the verifier must visit each of the emitter's facilities at least once.[452] However, for emitters that transport or distribute electricity or natural gas, the verifier is only required to visit a representative sampling of their facilities.[453]

Ontario

In Ontario, GHG emissions reports were required to be verified for all entities that emitted 25,000 t or more of GHG emissions annually. Verification reports had to comply with ISO 14064 and 14065 and had to be submitted prior to September 1.[454] Lists of eligible organizations that could verify emissions reports were available from the Standards Council of Canada and the American National Standards Institute. A GHG report had to be reviewed impartially. If a conflict of interest existed related to the GHG report being verified, a mitigation plan had to be submitted to the Ministry of the Environment and Climate Change.[455]

A verification statement confirms that there is no material discrepancy in the completed GHG emissions reports.[456] The third-party verifier would evaluate reports to determine that any errors in emissions due to measurements or calculations are fewer than five percent, any errors in production data are fewer than 0.1 percent (starting in 2017), and that the report was prepared according to the rules and guidelines under the law.[457]

An accredited verification body had to provide their clients with a verification statement and verification report to confirm the review of the client's GHG report.[458] To properly complete a verification statement, the applicable verification statement template had to be used. For the 2017 reporting year and onward, there were two different templates based on activity type. However, there was no template for the verification report.

Monitoring

Well-functioning markets for allowances and offset credits are fundamental to the implementation of a cap-and-trade program. To ensure that these markets are free of abuse and disruptive activity, and that they appropriately reflect the supply and demand for compliance instruments, all three programs conducted market surveillance and analysis. In the creation of WCI, Inc., the WCI jurisdictions created a shared market monitoring system to be implemented by WCI, Inc.[459] To ensure compliance with the WCI market practices and to avoid abuse or unlawful activities within the WCI system, Monitoring Analytics, a private company in Eagleville, Pennsylvania, has been retained by WCI, Inc. as the WCI market monitor.[460] In addition, the two continuing WCI jurisdictions

448 17 *California Code of Regulations*, ss 95103(f), 95130.

449 *Ibid*.

450 *Ibid*, s 95130(a)(2).

451 ICAP, "Canada: Québec Cap-and-Trade System" (9 March 2018) at 4, online: <https://icapcarbonaction.com/en/?option=com_etsmap&task=export&format=pdf&layout=list&systems[]=73>.

452 Quebec, "Mandatory Reporting", *supra* note 445 at 6.8.

453 *Ibid*.

454 O Reg 143/16, *supra* note 447 at 27.

455 *Ibid* at 31.

456 *Ibid* at 32.

457 *Ibid*.

458 *Ibid* at 32–33.

459 Quebec, *Historical Overview*, *supra* note 13 at 5.

460 CARB, "Market Program Monitoring" (5 December 2017), online: <ww3.arb.ca.gov/cc/capandtrade/marketmonitoring/marketmonitoring.htm>.

work with Monitoring Analytics to track and analyze the operation and transactions within the WCI allowance auctions.[461] Monitoring Analytics is an independent third party that is responsible for reviewing auction procedures for fairness, auditing and monitoring to ensure compliance with procedures and auction protocols, detecting flaws in the auction process, preparing reports on market trends, and advising on ways to improve the market and auctions.[462] If manipulative or anti-competitive behaviour is detected in the bidding process, Monitoring Analytics will communicate this concern to the relevant WCI jurisdiction, and the jurisdiction will be responsible for conducting a further investigation as well as prosecuting the offence when required.[463] The offence will be prosecuted in accordance with the laws of the relevant jurisdiction.

Enforcement

Each WCI jurisdiction has the authority to enforce compliance for any violations that arise within that jurisdiction. However, similar enforcement strategies and penalties are shared among all the WCI jurisdictions.

California

When a participating entity does not provide sufficient compliance instruments to meet its compliance obligations, California imposes a three-for-one penalty. Specifically, the participating entity must surrender four compliance instruments for each compliance instrument the entity failed to present at the required time: one is permanently retired and three are made available at the next auction.[464] No more than 25 percent of the four compliance instruments surrendered can be offsets.[465]

If the participating entity refuses to comply with the above three-for-one penalty, the next penalties imposed are set out in section 38580 of the California Health and Safety Code. Penalties for violation of the Health and Safety Code can include convictions of a misdemeanor, fines and imprisonment. The penalties associated with submitting incorrect information or omitting information under the Mandatory Greenhouse Gas Reporting Regulation are a finding of guilt of a misdemeanor and a fine of no more than US$75,000.[466] In determining the fine to impose for a violation of the Health and Safety Code, CARB will consider the following: extent of harm, nature and continuation of the violation, duration of time of the violation, frequency of violations, record of maintenance, the nature of the equipment, actions taken to mitigate the violation, financial burden and other circumstances.[467] Each metric tonne of carbon dioxide emitted but not reported is a separate violation, as is each day that a reporting violation continues.[468]

CARB can impose civil or criminal penalties for manipulating the market, cornering the market, fraud, attempted fraud, and for false or inaccurate reports.[469] The maximum administrative civil penalties CARB can impose is up to US$500 per violation.[470] The penalty scheme for civil penalties, shown below, has an escalating set of steps based on intent, or lack thereof, from strict liability with the lowest maximum fines to wilful and intentional actions carrying the highest maximum fines, as outlined in Table 6.[471]

461 *Ibid*.

462 CEPA-ARB, "Cap and Trade: Market Oversight and Enforcement" (20 October 2011), online: <ww3.arb.ca.gov/cc/capandtrade/market_oversight.pdf>.

463 CARB, Minister of Sustainable Development, Environment and the Fight Against Climate Change & Ontario Ministry of the Environment and Climate Change, "California-Québec Joint Auction Participant Training Presentation (Ontario Version)" (January 2018) at 91, online: <ww3.arb.ca.gov/cc/capandtrade/auction/2018_trainingpresentation.pdf>.

464 ICAP, *Emissions Trading in Practice: A Handbook on Design and Implementation* (Washington, DC: World Bank, 2016) [ICAP, *Emissions Trading*] at 132.

465 *Ibid*.

466 *California Health and Safety Code*, s 42400.3.

467 *Ibid*, s 42400.8.

468 17 *California Code of Regulations*, s 95107(a)–(c).

469 CEPA-ARB, "Facts About Cap and Trade: Market Oversight and Enforcement" (20 October 2011), online: <www.arb.ca.gov/cc/capandtrade/market_oversight.pdf>.

470 *California Health and Safety Code*, s 42402.5.

471 *Ibid*, s 42402.

Table 4: California Health and Safety Code, s 42402

Type of Violation/Level of Intent	Maximum Civil Penalty
Knowing violation of rule, law, permit, etc.[472]	US$40,000
Knowing false statement or document[473]	US$35,000
Wilful and intentional violation[474]	US$75,000
Failure to take corrective action after known emission[475]	US$40,000
Negligent violation[476]	US$25,000
Strict liability violation[477]	US$1,000 (for section 42402(a)) or US$10,000 (for section 42402(b)(1))

Source: CARB, "Enforcement Policy" (October 2017), Appendix B, Item 6, online: <ww3.arb.ca.gov/enf/policy2017/final_enforcement_policy_october2017.pdf>.

Quebec

In Quebec, when a participating entity fails to remit the adequate number of compliance instruments for its compliance obligation, it will be notified of the infraction and may be subject to the three-for-one penalty.[478] Similar to California's three-for-one penalty, the entity will be required to surrender each missing compliance instrument plus an additional three compliance instruments per missing compliance instrument.[479] For example, if one compliance instrument is not appropriately submitted prior to the November 1 deadline, the entity will then be required to submit four compliance instruments according to the three-for-one penalty.

In addition to the above penalty, a participating entity can be subject to a fine between $3,000 and $50,000 for a natural person, or between $10,000 and $3 million for corporations.[480] A natural person may also be subject to a maximum of 18 months in jail.[481] In the event that the entity has committed a previous offence, the fine may be doubled, and the minister may restrict distribution of allowances to that entity.482 It is important to note that the offence, if committed for more than one day, is considered a new offence each day the offence continues.[483] A participating entity may also be suspended from participating in auctions, or have emissions allowances distributed by the minister either suspended, withdrawn or cancelled.[484]

In determining whether to impose an administrative or penal sanction, the minister shall take into consideration that the intentions behind imposing such sanctions are to remedy the current infraction and deter future infractions.[485] In addition, the determination of whether to impose such a sanction shall consider the positions held by individuals who impose sanctions, the requirements for appointing such individuals, the guidance used in making the decision to impose sanctions, priority of the circumstances and procedures involved in imposing sanctions.[486] When imposing a monetary sanction, the minister shall consider the following criteria: consequences (real or possible), vulnerability of the location affected, nature of the infraction, frequency of the infraction, mitigation of damages,

472 *Ibid*, s 42402.2(a).

473 *Ibid*, s 42402.4.

474 *Ibid*, s 42402.3(a).

475 *Ibid*, s 42402.2(a).

476 *Ibid*, s 42402.1(a).

477 *Ibid*, s 42402(a)-(b); Alison B Torbitt, Jessica E Intrator & Elaine Enfonde, "Now + Next: Nixon Peabody Environmental Law Alert" (15 April 2014).

478 *Environment Quality Act*, Q-2, s 115.15 [EQA].

479 ICAP, *Emissions Trading*, *supra* note 464 at 132; ICAP, *Status Report*, *supra* note 308 at 49.

480 ICAP, *Emissions Trading*, *supra* note 464 at 132.

481 *Ibid*.

482 ICAP, *Status Report*, *supra* note 308 at 49.

483 EQA, *supra* note 478, s 115.22.

484 *Ibid*, s 46.12.

485 *Ibid*, s 115.13.

486 *Ibid*.

consequences to the ministry or government, and unacceptable conduct by the offender.[487]

In the event that a monetary administrative penalty is imposed on a participating entity, the penalty may be sent for review within 30 days after the participating entity receives the notice of claim.[488] The participating entity then has the opportunity to present their reasoning for appeal, and the person reviewing has the authority to confirm, quash, or vary the original decision.[489] If the decision is confirmed, the participant has the right to appeal the decision to the Administrative Tribunal of Québec.[490]

Ontario

In Ontario, when a participating entity failed to surrender sufficient compliance instruments to satisfy their compliance obligation, the participant would be subject to the three-for-one penalty.[491] Similar to California and Quebec, the three-for-one penalty in Ontario required the participant to submit three compliance instruments for each compliance instrument that was not surrendered, in addition to the quantity of compliance instruments that were required to be surrendered.

In addition to the three-for-one penalty, an entity that was a corporation could be subject to a fine between $25,000 and $6 million, where $25,000 would be fined each day the compliance instruments were missing until they were surrendered or the fine reached $6 million.[492] An individual who was an entity could be subject to a fine of between $5,000 and $4 million, as well as a maximum of five years' imprisonment.[493] When the violating entity had committed previous offences, the value of the imposed fine could be increased.[494]

The severity of the penalty in Ontario would reflect the existence of aggravating factors and the severity of those factors. Specifically, the court was to consider the following: intention, recklessness, purpose of increasing revenue or decreasing costs, previous warnings, endeavour to hide the offence, failure to cooperate with the ministry, failure to mitigate consequences or damages, action to limit the risk of future offences and any other circumstances.[495] Restitution orders could also be imposed in circumstances where harm was caused to another person.[496] Administrative penalties of less than $1 million could be imposed to motivate continued compliance with Ontario acts and regulations, as well as ensuring the individual or entity that committed the offence did not receive any benefit from the offence.[497] If an imposed fine was not paid, the director had the authority to suspend the entity's auction account or impose other penalties.[498]

Cap-and-Trade Litigation

The WCI cap-and-trade program has been the subject of only limited litigation in WCI jurisdictions since its inception. So far, all of this litigation has arisen in California. The first action brought against CARB with respect to cap-and-trade was the matter of *Association of Irritated Residents v California Air Resources Board* in June 2009.[499] In that case, the Association of Irritated Residents argued that the scoping plan outlined by CARB to reduce carbon emissions was not strict enough and should be viewed merely as a minimum standard and not as a final goal. The argument was also made that CARB failed to consider alternatives to the cap-and-trade program prior to the program's initiation. On December 6, 2011, the California Superior Court "approved an expanded environmental analysis of alternatives to a cap-and-trade program for implementing AB 32."[500]

In 2012, the matter of *Coalition for a Safe Environment v California Air Resources Board* was brought before the EPA. The dispute involved a complaint that federal civil rights regulations were being violated by the cap-and-trade program.[501] Specifically, the Coalition for a Safe Environment argued that "a

487 *Ibid*, s 115.

488 *Ibid*, s 115.17.

489 *Ibid*, s 115.19.

490 *Ibid*, s 115.20.

491 ICAP, *Status Report*, *supra* note 308 at 51.

492 *Ibid*; *Climate Change Mitigation and Low-carbon Economy Act*, *supra* note 180, c 7, s 51(4).

493 *Ibid*.

494 ICAP, *Status Report*, *supra* note 308 at 51.

495 *Climate Change Mitigation and Low-carbon Economy Act*, *supra* note 180, c 7, s 53(1).

496 *Ibid*, s 54(1).

497 *Ibid*, ss 57(1), 57(8).

498 *Ibid*, s 57(16).

499 Alice Kaswan, "Climate Change and Environmental Justice: Lessons from the California Lawsuits" (2014) 5:1 San Diego J Climate & Energy L at 10, online: <http://digital.sandiego.edu/jcel/vol5/iss1/2/>.

500 *Association of Irritated Residents v California Air Resources Board*, (Cal Sup Ct 2011), online: <http://climatecasechart.com/case/assoc-of-irritated-residents-v-cal-air-resources-board/>.

501 Kaswan, *supra* note 499 at 14.

cap-and-trade program's potential adverse co-pollutant impacts on communities constitute discrimination in violation of Title VI of the federal Civil Rights Act."[502] On July 12, 2012, the complaint was rejected by the EPA "as not ripe for review."[503]

In March 2012, the matter of *Citizens Climate Lobby v California Air Resources Board* was brought before the California Superior Court by two environmental groups.[504] Citizens Climate Lobby opposed the use of offsets in the cap-and-trade program, stating that offsets would not result in additional reductions of GHG emissions.[505] The California Superior Court denied the petition, stating that "the Global Warming Solutions Act gave the California Air Resources Board vast discretion to develop regulations to curb greenhouse gas emissions and that the evidence demonstrated that the agency's use of the standards-based approach in developing the carbon offset protocol was consistent with the law."[506]

In June 2017, in *Morning Star Packing Company v California Air Resources Board* (decided jointly with *California Chamber of Commerce v California Air Resources Board*), the California Supreme Court upheld the cap-and-trade system by refusing to hear an appeal by business groups who argued the system was an unconstitutional tax.[507] There were essentially two possible outcomes in the dispute: "If judges view the auction revenue as a fee, the Air Resources Board should only be able to raise enough revenue to cover the costs of managing the program";[508] or "If it's a tax, Proposition 13 requires that the auctions win the blessing of two-thirds of the Legislature." In response, California's Deputy Attorney General argued that the cap-and-trade revenue was distinct from both a fee and a tax.[509] These legal challenges created uncertainty in the future of the cap-and-trade program, which may have contributed to hesitation among participants purchasing allowances.[510] However, with this legal matter now resolved in favour of the cap-and-trade program, and the program having been extended to 2030, the cap-and-trade program has proven its strength and permanence in California.[511]

To date, there has not been any litigation surrounding cap-and-trade in Quebec or Ontario.

502 *Ibid*.

503 *Coalition for a Safe Environment v California Air Resources Board,* (EPA 2012), online: <http://climatecasechart.com/case/coalition-for-a-safe-environment-v-california-air-resources-board/>.

504 Kaswan, *supra* note 499 at 15.

505 *Citizens Climate Lobby v California Air Resources Board,* (Cal Sup Ct 2013), online: <http://climatecasechart.com/case/citizens-climate-lobby-v-california-air-resources-board/>.

506 *Ibid*.

507 Dan Whitcomb, "California Supreme Court upholds cap-and-trade law", *Reuters* (28 June 2017), online: <www.reuters.com/article/us-california-capandtrade-idUSKBN19K05D>; Chris Megerian, "California Supreme Court leaves in place decision upholding cap-and-trade system", *Los Angeles Times* (28 June 2017), online: <www.latimes.com/politics/essential/la-pol-ca-essential-politics-updates-cap-and-trade-supreme-1498684764-htmlstory.html>; Theodore McDowell, "The Case for Cap-and-Trade: California's Battle for Market-Based Environmentalism" (2017) VJEL, online: <http://vjel.vermontlaw.edu/case-cap-trade-californias-battle-market-based-environmentalism/>.

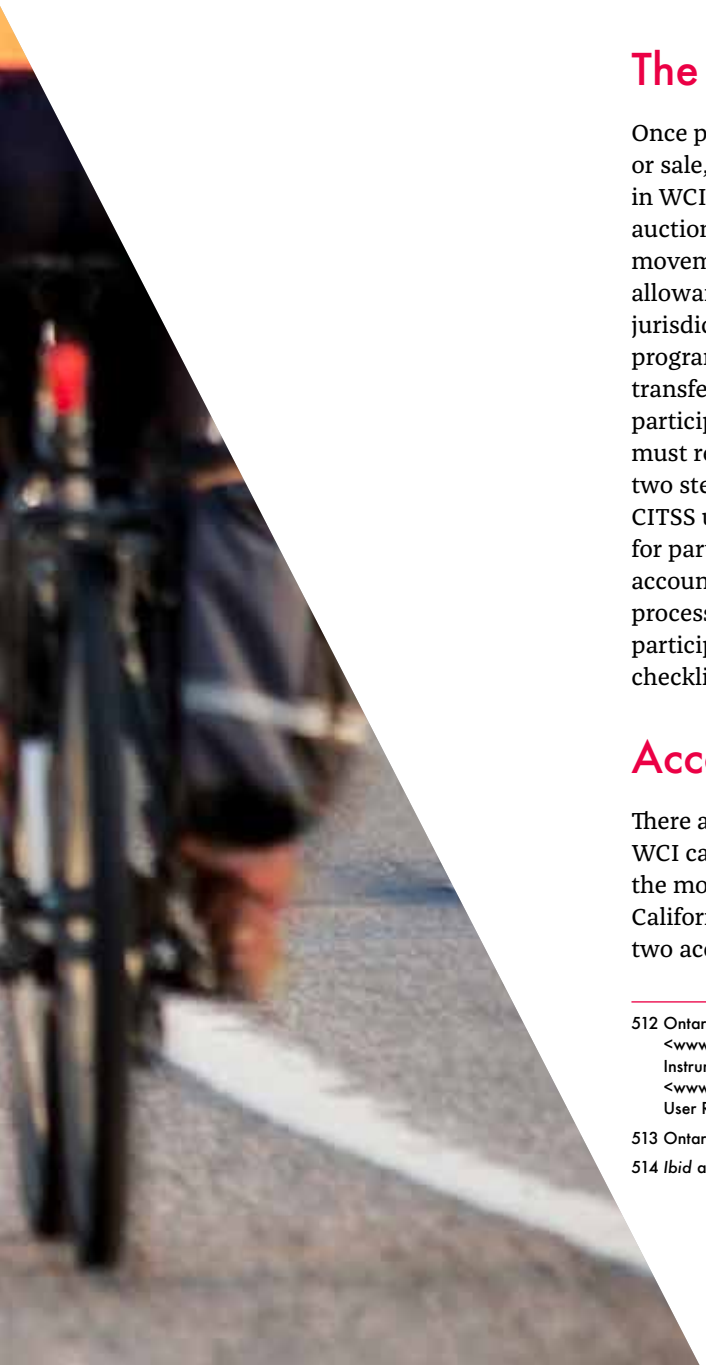
508 Adam Ashton, "Is it a fee or a tax? California's cap-and-trade faces tough questions", *The Sacramento Bee* (24 January 2017), online: <www.sacbee.com/news/politics-government/capitol-alert/article128494604.html>.

509 *Ibid*.

510 Mikayla Wujec, "California Cap-and-Trade: Waiting for Clarity" (3 March 2017), online: <https://environmentaldefence.ca/2017/03/03/california-cap-trade-waiting-clarity/>.

511 Katy Steinmetz, "California Challenges President Trump With Cap-and-Trade Law: 'We Do Not Have to Wait for Washington'", *TIME* (25 July 2017), online: <http://time.com/4871996/california-cap-trade-bill-signing-brown-schwarzenegger/>.

WCI CAP-AND-TRADE: TRADING



The preceding section examined the specific components of the cap-and-trade system. This section examines the trading aspect of cap-and-trade. It examines seven subjects: the nature of the WCI markets, account types, the transfer process, auctions, reserve sales, secondary markets and taxation.

The Nature of WCI Markets

Once participants obtain allowances through distribution, auction or sale, they are able to trade allowances with other participants in WCI-linked jurisdictions. Allowances can be traded through auctions or sale. The WCI uses the term "transfer" to refer to the movement or trading of emissions allowances. Transfers of emissions allowances between participating entities in any participating jurisdiction occur through CITSS. CITSS is an online, web-based program used to register participating entities and track the holding, transfer and retirement of emissions allowances and credits.[512] All participants who want to engage in the auction or trading markets must register for a CITSS account. This engagement involves two steps: an individual must submit an application to receive a CITSS user ID and RAA, and the RAA must submit an application for participant registration, which will allow the RAA to open an account for the entity that wants to participate.[513] The application process includes completing an online or hard copy of the CITSS participant registration form, CITSS participant registration checklist form and business relationship disclosure form.[514]

Account Types

There are several different types of accounts involved in the WCI cap-and-trade program. Each account is used to facilitate the movement of allowances through auction, trade and sales. California has a multitude of accounts, while Quebec provides for two accounts only. Accounts are managed in each jurisdiction by a

512 Ontario Climate Change Action Plan, "Cap and trade: register and participate in CITSS" at 3, online: <www.ontario.ca/page/cap-and-trade-register-and-participate-citss>; CEPA-ARB, "Compliance Instrument Tracking System Service: User Reference CITSS Version 5.0" (January 2015) at 1, online: <www.arb.ca.gov/cc/capandtrade/markettrackingsystem/vers5_reference.pdf> [CEPA-ARB, "CITSS User Reference"].

513 Ontario Climate Change Action Plan, *supra* note 512 at 3.

514 *Ibid* at 12.

PAR, an AAR and account viewing agents. Each of these positions has similar roles and privileges within each jurisdiction. Further, when opening accounts, participants are obligated to disclose their corporate and business relationships with entities participating in other WCI jurisdictions.

California

In California, there are five accounts that can be created for a registered entity. The CARB executive officer will create one of each of the following types of account for each entity:

- holding account;
- limited use holding account;
- compliance account;
- annual allocation holding account; and
- exchange clearing holding account.[515]

A holding account can be used to transfer emissions allowances and credits. Within this category of account, there are also "limited use holding accounts" that can be used when an entity qualifies for a direct allocation.[516] However, entities cannot transfer compliance instruments into the limited use holding account and can only transfer compliance instruments out of the limited use holding account and into an auction holding account.[517]

Compliance accounts can have compliance instruments transferred into them by the entity for which the account was made. However, the entity cannot remove compliance instruments from this account. Only the CARB executive officer has the authority to transfer compliance instruments into or out of a compliance account for the purposes of satisfying compliance obligations or closing the account.[518]

Exchange clearing holding accounts are used only for the purpose of transferring control of compliance instruments to the clearing entity, and those compliance instruments can only be transferred out of the exchange clearing holding account by the clearing entity to the specific account identified by the entity receiving the compliance instruments from the transaction being cleared.[519]

Annual allocation holding accounts are used when an entity qualifies for direct allocation under subarticle 9 of the California Code of Regulations, section 95831.[520] Any allowances for a future vintage that are received by an entity will be placed by the CARB executive officer into the annual allocation holding account. Allowances in the annual allocation holding account can only be transferred into the entity's compliance account, and these allowances must not exceed the holding limit as determined in section 95920(c) of the California Code of Regulations.

In addition to the above accounts, there are seven accounts that can be created but remain under the control of the CARB executive officer. These accounts are described below.

The allocation holding account is used to register the serial numbers of compliance instruments upon their creation.[521]

Allowances are transferred into an auction holding account prior to the auction at which the allowances will be sold.[522] These allowances for sale may be transferred into the auction holding account from an allocation holding account, holding account, limited use holding account, or compliance account.

Allowances will be transferred into the retirement account for the purpose of retiring those allowances permanently.[523] Allowances that are retired cannot be returned after retirement. All linked WCI jurisdictions are notified of all retirements, and all retirements will be recorded by the executive officer on the public Permanent Retirement Registry.

An allowance price containment reserve account contains the serial numbers of all allowances directly placed in the allowance price containment reserve.[524]

The forest buffer account contains the offset credits associated with the California forest

515 17 *California Code of Regulations*, s 95831(a).
516 *Ibid*, s 95831(a)(2).
517 *Ibid*, s 95831(a)(3).
518 *Ibid*, s 95831(a)(4).
519 *Ibid*, s 95831(a)(5).
520 *Ibid*, s 95831(a)(6).
521 *Ibid*, s 95831(b)(1).
522 *Ibid*, s 95831(b)(2).
523 *Ibid*, s 95831(b)(3).
524 *Ibid*, s 95831(b)(4).

buffer offset protocol and is the account from which these offset credits may be retired.[525]

The voluntary renewable electricity reserve account is a type of holding account that contains originally allocated allowances, and once these allowances are all transferred or retired, this account will be closed.[526]

The external GHG program holding account processes voluntary retirements under the Retirement-Only Agreements in section 95943(d) of the California Code of Regulations. Compliance instruments are transferred into this account for retirement by entities that are involved in external GHG programs. The CARB will review transfers to this account, and if the transfers are approved, the allowances will be transferred to the retirement account for permanent retirement.[527]

Quebec

In Quebec, when registration requirements are met and an entity is approved as an emitter, the minister creates a general account and a compliance account for the emitter. The general account is used to record the transfer and trading of allowances, while the compliance account is used for recording emissions allowances.[528] Upon the creation of these accounts, emitters are permitted to participate in WCI auctions and participate in allowances transfers between emitters.[529]

Ontario

Similar to Quebec, in Ontario, once the registration requirements were met and registration was approved, the director would create a holding account and a compliance account for the emitter.[530] The holding account was used to transfer compliance instruments, while the compliance account was used to record trades of emissions allowances between jurisdictions.

The Transfer Process

Participants with a CITSS account can use their account to transfer emissions allowances in four ways:

- transfer to another registered participant's general holding account;
- transfer to the registered participant's own compliance account;
- an exchange agreement to an exchange clearing service provider's (ECSP's) exchange clearing holding account; or
- voluntary retirement.

There is a three-step process when transferring to another participating entity's general holding account: propose, approve and accept.[531] First, the PAR or AAR of the entity making the transfer must propose the transfer in CITSS by submitting a transfer request.[532] Once submitted, all representatives for that transferring account will receive an email notifying them of the proposed transfer.[533] Second, a different PAR or AAR from the transferring entity must approve the proposed transfer by selecting the "process transfer" option in CITSS prior to midnight two days after the transfer is proposed.[534] Once again, all representatives of this transferring account will receive a notification email detailing this action.[535] Third, the receiving entity's PAR or AAR must accept the transfer in CITSS by selecting "process transfer" prior to midnight of the third day after the transfer was proposed.[536] Once complete, all representatives for both the transferring and receiving accounts will receive an email notification that the transfer is complete.[537]

While the process described above is the standard transfer process, transfers to a compliance account or an exchange agreement to an ECSP's exchange clearing holding account only require the completion of the first two steps as detailed

525 *Ibid*, s 95831(b)(5).

526 *Ibid*, s 95831(b)(6).

527 *Ibid*, s 95831.

528 OC 1184-2012, 19 December 2012, (2012) GOQ II, 3485, ss 10–14.

529 CEPA-ARB, *User Guide – Volume II Account Application and Account Management* (2012) at 32, s 3.3 ("General Market Participant – Individual Account Application"), online: <www.arb.ca.gov/cc/capandtrade/markettrackingsystem/vol2citssguide-12-20.pdf>.

530 O Reg 144/16, *supra* note 180 at 39.

531 CEPA-ARB, "CITSS User Reference", *supra* note 512 at 2.

532 *Ibid*.

533 *Ibid*.

534 *Ibid*.

535 *Ibid*.

536 *Ibid*.

537 *Ibid*.

above.[538] Transfers to a compliance account can only be completed by participants who have compliance obligations under the cap-and-trade program or a linked program.[539] The transfer is made from a participant's general holding account to their compliance account and the transfer is irreversible.[540] On the other hand, an exchange agreement to an ECSP's exchange clearing holding account is a transfer from a participant's general account to an entity registered in CITSS as providing clearing exchange services.[541] An ECSP temporarily takes possession of compliance instruments that are in the process of being transferred between two CITSS participants.[542]

Compliance instruments can also be retired. To retire a compliance instrument, a participant registered in CITSS can voluntarily transfer the compliance instrument for retirement from their participant account to the jurisdiction's retirement account.[543] This process is irrevocable and requires the same three-step process used for transfers to another entity's general holding account.[544] However, retiring compliance instruments will not fulfill any compliance obligations.[545]

Auctions

Format

Joint auctions are held for California and Quebec and are conducted on the Markit Auction and Reserve Sale Platform (auction platform).[546] Auctions are completed with sealed bids, with only one round of bidding for participants, where the lowest bid wins the auction. Any bid lower than the auction reserve price will not be considered.[547] The auction reserve price will be the highest reserve price of the WCI jurisdictions after taking into account exchange rates.[548] The exchange rate for Canadian to US dollars will be as specified by the Bank of Canada and set at that rate the day before the auction.[549] Quebec participating entities have the option of participating in auctions using either Canadian or US dollars, but once the currency is chosen, the entire auction process must be completed in the same currency.[550] Each participant bid must include the bid price, the number of lots being bid on (each lot equals 1,000 emissions allowances), the vintage of the allowances being bid on and the currency to be used for payment.[551]

Administration and Participant Application

Participants are required to have a CITSS account to participate in the auction.[552] In addition to an auction application form, a bid guarantee must be submitted by the PAR or AAR for each participating entity, and notice of approval to participate in the auction must be received.[553] As part of this application form, the entity permits the release of their contact information, their representative's contact information and their account number to the auction administrator for the purposes of participating in the auction.[554] The auction administrator will then send an account activation email to the PAR or AAR, who must then activate the auction platform account, creating a username and password as well as creating three security questions.[555] A participating entity who has previously participated in auctions can simply login to their auction platform account and update their password if required.[556]

In order to participate in auctions, participants must keep all their bidding information, including intent to bid, bidding strategy and bidding price, completely confidential.[557] In addition, all participants are required to employ a consultant or adviser for the bidding process.[558] The

538 *Ibid* at 3.

539 *Ibid* at 20.

540 *Ibid*.

541 *Ibid* at 22.

542 *Ibid*.

543 *Ibid* at 26.

544 *Ibid*.

545 *Ibid*.

546 WCI, Inc., "Welcome to the GHG Allowance Auction & Reserve Sale Platform" (August 2017) at 4 [WCI, Inc., "Auction & Reserve Sale Platform"], online: <wci-auction.org>.

547 CARB, Minister of Sustainable Development, Environment and the Fight Against Climate Change & Ontario Ministry of the Environment and Climate Change, *supra* note 463 at 12.

548 *Ibid*.

549 *Ibid*.

550 *Ibid* at 14.

551 *Ibid* at 66.

552 WCI, Inc., "Auction & Reserve Sale Platform", *supra* note 546.

553 *Ibid*; CARB, Minister of Sustainable Development, Environment and the Fight Against Climate Change & Ontario Ministry of the Environment and Climate Change, *supra* note 463 at 12.

554 WCI, Inc., "Auction & Reserve Sale Platform", *supra* note 546.

555 *Ibid* at 4–9.

556 *Ibid* at 15.

557 17 *California Code of Regulations*, s 95914(c); *Ontario Climate Change and Low-carbon Economy Act*, *supra* note 180, c 7, s 32.

558 CARB, Minister of Sustainable Development, Environment and the Fight Against Climate Change & Ontario Ministry of the Environment and Climate Change, *supra* note 463 at 89–90.

participating entity must inform its jurisdiction and complete the appropriate forms to notify their jurisdiction of the appointment of a consultant or adviser.[559] Further, the participant must inform their consultant or adviser of the confidentiality requirement observed in the bidding process.[560]

There are three main limitations to auction bidding. First, a bid is rejected if the bid is greater than the bidder's purchase limit.[561] A purchase limit is the maximum amount of allowances the participant is permitted to purchase.[562] Second, a bid is rejected if it is greater than the purchaser's holding limit.[563] A holding limit is the maximum number of allowances the participant is permitted to hold.[564] Third, a bid is rejected if the value of the bid is valued at greater than the value of the bid guarantee made prior to the auction.[565] A bid guarantee is an amount of money paid in advance of the auction that must cover the cost of all bids made during the auction.[566] The bid guarantee must cover all bids made for both the current and advance auctions.[567]

It is possible that a tie arises in the auction process. A tie occurs where the quantity of allowances bid on exceeds the quantity of allowances available.[568] Each tied bidder receives a share of the remaining allowances based on the quantity of allowances that can be granted at the settlement price.[569] This share is then multiplied by the quantity of allowances that have not yet been sold.[570] The result is the quantity of allowances the participant receives due to the tie.[571] Any allowances that remain after this tie-breaking process are assigned to participants in the tie by randomly allocating numbers to the participants and distributing the remaining allowances from lowest to highest number.[572]

Upon completion of the auction, a joint auction summary results report will be accessible on the websites of all three jurisdictions within five business days after the auction.[573] The report will consist of results of the auction, as well as statistics of the auction, and will be published in both English and French.[574]

Auction Results

The WCI auctions have been successful thus far. One hundred and twenty qualified bidders submitted auction applications and bid guarantees and were approved by CARB, the Ministry of the Environment and Climate Change, or the Ministère de l'Environnement et de la Lutte contre les changements climatiques to participate in the February 21, 2018, auction, the first in which all three jurisdictions participated.[575] The auction, which cleared and complied with the regulations of each jurisdiction, provided for the sale of 14,894,520 2016 vintage allowances; 83,321,400 2018 vintage allowances ("current allowances"); and an advance auction of 12,427,950 2021 vintage allowances ("advance allowances").[576] With an average of 1.21 bids per sale, qualified bidders purchased 100 percent of the 98,215,920 current allowances available, 92.1 percent of which were purchased by compliance entities.[577] With an average of .69 bids per sale, qualified bidders purchased 69 percent of the advance allowances, with compliance entities purchasing 89 percent of the allowances.[578] Bidding prices for both the current and advance allowances began at US$14.53 ($18.34). However, current allowances sold at a mean price of US$15.90 ($20.07), and advance allowances sold at a mean price of US$15.32 ($19.34).[579] The highest price a current allowance sold for was US$54.27 ($68.50).[580]

The most recent auction with all three WCI participant jurisdictions was held on May 15,

559 *Ibid*.
560 *Ibid*.
561 *Ibid* at 76.
562 *Ibid* at 79.
563 *Ibid* at 76.
564 *Ibid* at 89.
565 *Ibid* at 76.
566 *Ibid* at 77.
567 *Ibid* at 78.
568 *Ibid* at 88.
569 *Ibid*.
570 *Ibid*.
571 *Ibid*.
572 *Ibid*.

573 *Ibid* at 92.
574 *Ibid*.
575 *California Cap-and-Trade Program, Ontario Cap-and-Trade Program, and Québec Cap-and-Trade System February 2018 Joint Auction #14 Summary Results Report* (28 February 2018) at 1–7, online: <https://files.ontario.ca/joint_summary_results_report_english_2018-02-28.pdf>.
576 *Ibid* at 1.
577 *Ibid* at 4.
578 *Ibid* at 2.
579 *Ibid* at 3.
580 *Ibid*.

2018.[581] The auction consisted of the sale of 2016 and 2018 current auction vintage allowances, as well as the sale of 2021 advance auction vintage allowances.[582] The market monitor assessed the auction and recommended the approval of the May 15, 2018, auction results.[583] During this auction, all available current auction vintage allowances were sold, totalling 13,368,884 2016 vintage allowances and 77,218,854 2018 vintage allowances.[584] In addition, 6,057,000 2021 advance auction vintage allowances were sold out of 12,427,950 2021 advance auction vintage allowances that were available.[585] Compliance entities purchased the majority of the allowances, specifically 95.6 percent of the current auction vintage allowances, and 77.7 percent of the advance auction vintage allowances.[586]

Reserve Sales

Reserve sales refer to the sale of reserve allowances from the price containment reserve in order to manage prices. As previously discussed, a percentage of allowances is placed in the price containment reserve annually and divided into three tiers with increasingly higher sale prices.[587] These reserve tiers are only sold when the auction price nears the reserve price. The purpose of a reserve sale is to limit allowance prices in both the auction and secondary markets.[588]

California

In California, participation in a reserve sale requires the production of all corporate structuring information of the participating entity, the participant must be registered with an approved CITSS account and the participant must have a CITSS representative.[589] All possible dates for reserve sales from 2015 to 2031 have been identified in Appendix C of the California Code of Regulations.[590] Pursuant to section 95913 of the California Code of Regulations, a reserve sale will be held annually in the third quarter of the year prior to November 1. In addition, reserve sales will be held up to three additional times per year only when the previous allowance auction had a settlement price of 60 percent or more of the lowest reserve tier price.[591]

A reserve sale notice will be posted approximately 30 days prior to the sale date, providing information about eligibility for participation in the sale, the sale format and what allowances will be for sale.[592] An application for participation must be completed and submitted to CITSS for each participating entity.[593] Applications will only be accepted starting 30 days prior to the sale and ending 20 days prior to the sale.[594] Once the application is submitted, the financial services administrator will either create or verify the existence of the applicant's financial services account. The participating entity must then submit a bid guarantee that will cover the cost of any bids made by that entity.[595] The financial services administrator will review the bid guarantee, and once it is approved, the participant's status will change from "applicant" to "qualified applicant," meaning the participant is prepared for the auction.[596]

At the reserve sale, each reserve tier has a different fixed price that is significantly higher than the allowance auction price. This difference allows the WCI to determine supply and demand for allowances.[597] For instance, if the first tier of reserve allowances is purchased quickly and purchases are made for higher-tier allowances, this pattern may indicate an imbalance requiring adjustments

581 *Auction Notice, California Cap-and-Trade Program, Québec Cap-and-Trade System, and Ontario Cap-and-Trade Program Joint Auction of Greenhouse Gas Allowances on May 15, 2018* (16 March 2018) at 1–2, online: <https://files.ontario.ca/may_2018_joint_auction_notice_en.pdf>.

582 *Ibid*.

583 *Ibid*.

584 *Ibid*.

585 *Ibid*.

586 *Ibid*.

587 CARB & WCI, Inc., "Detailed Reserve Sale Requirements and Instructions: California Cap-and-Trade Program Sale of Greenhouse Gas Allowances from the Allowance Price Containment Reserve" (16 March 2018) at 1, online: <ww3.arb.ca.gov/cc/capandtrade/reservesale/rs_requirements.pdf>.

588 CARB, "Chapter 5", *supra* note 373.

589 17 *California Code of Regulations*, s 95913(c); see CARB, "Attachment A: Detailed Reserve Sale Requirements and Instructions" (4 September 2015), online: <https://ww3.arb.ca.gov/cc/capandtrade/auction/oct-2015/attachment_a.pdf> [CARB, "Attachment A"].

590 CARB, "Greenhouse Gas Allowance Price Containment Reserve Sales" (2018) [CARB, "Price Containment"], online: <www.arb.ca.gov/cc/capandtrade/reservesale/reservesale.htm>.

591 CARB, "Reserve Sale Information" (6 September 2019) at 1, online: <www.arb.ca.gov/cc/capandtrade/reservesale/reservesale.htm> [CARB, "Reserve Sale"].

592 CARB, "Price Containment", *supra* note 590.

593 CARB, "Attachment A", *supra* note 589 at 4.

594 *Ibid* at 8.

595 CARB, *Detailed Reserve Sale Requirements and Instructions* (2018) at 12 ("Bid Guarantee Submittal Process"), online: <https://ww3.arb.ca.gov/cc/capandtrade/reservesale/rs_requirements.pdf> [CARB, *Requirements and Instructions*]; 17 *California Code of Regulations*, s 95913(g).

596 CARB, *Requirements and Instructions*, *supra* note 595 at 19 ("Receipt of Bid Guarantee").

597 CARB, "Reserve Sale", *supra* note 591.

to the cap-and-trade program.[598] The fixed prices are adjusted every year for inflation.[599] In 2013, the tiers from lowest to highest had fixed prices of US$40, $45 and $50.[600] Sales will begin from the lowest- to the highest-priced tier.[601] The account representative or a qualified bidder can submit as many bids as they wish and edit or withdraw bids at any time during the bidding window.[602]

Allowances in a reserve tier will be sold to an entity who submits a bid for those allowances as long as the number of allowance bundles (1,000 allowances per bundle) that are bid on does not exceed the number of allowances available.[603] If there are allowances remaining in the first or second tier, the reserve sale administrator will assign random numbers to each bundle of allowances purchased by participants, and the remaining allowances will be distributed to those participants based on the randomly allocated numbers from lowest to highest number.[604] If the number of allowances bid on exceeds the number of allowances available in a tier, the reserve sale administrator must comply with the procedure set out in section 95913(h)(5) of the California Code of Regulations in order to determine how allowances will be distributed.[605] After confirming that the payment for allowances has been received, the CARB executive officer will transfer the allowances purchased into each winning bidder's compliance account.[606]

Quebec

In Quebec, reserve sales take place at most four times a year.[607] In order to participate in reserve sales, purchasing entities must be registered in accordance with the Regulation Respecting a Cap-and-Trade System for GHG Emission Allowances, the purchasing entity must be an emitter covered by the cap-and-trade program in Quebec, and the purchasing entity must not have any allowances in its general account that could cover its GHG emissions for the current compliance period.[608] Participation in a reserve sale requires that all buyers be registered with the minister at least 30 days prior to the reserve sale date.[609] To register, the purchasing entity must provide the minister with their name, contact information, compliance account number, information for account representatives and a financial guarantee in Canadian dollars.[610] In addition, at least 40 days prior to the reserve sale, all purchasing entities must provide the minister with an update of the entity's identity, ownership, corporate structure, any business relationships and the entity's holding limits.[611] A purchasing entity may be refused participation in the reserve sale if any of the information provided to the minister changes less than 30 days prior to the reserve sale, or if false or misleading information is provided, information is omitted, or rules of procedure were not complied with.[612]

At the reserve sale, emissions allowances are sold in lots of 1,000 allowances.[613] There are three tiers of emissions allowances (A, B and C) with fixed sale prices.[614] The fixed prices in 2014 were $40, $45 and $50, respectively, and these prices increase by five percent plus inflation each year.[615] There is only one bidding round and all bids are sealed.[616] Once the reserve sale is complete, the reserve allowances are distributed in the order tier A, tier B, tier C.[617]

When the offers made for allowances do not exceed the amount of allowances available for sale, the allowances will be distributed according to the offers received.[618] Any allowances that are not sold are retained for sale at a later date.[619] However, if the offers made exceed the amount of allowances available for sale, each purchaser's offer will be divided by the total amount of offers

598 EU ETS, "Allowance Price Containment Reserve – the mechanism for managing the risks of the California carbon market or the risk in itself?" (6 March 2013), online: <www.emissions-euets.com/component/content/article/909-california-cap-and-trade/247-allowance-price-containment-reserve-the-mechanism-for-managing-the-risks-of-the-california-carbon-market-or-risk-in-itself>.

599 *Ibid*.

600 17 *California Code of Regulations*, s 95913(f)(3).

601 *Ibid*, s 95913(h)(1).

602 CARB, *Requirements and Instructions*, *supra* note 595 at 24–25 ("Bidding in the Reserve Sale").

603 17 *California Code of Regulations*, s 95913(h)(4)(A).

604 17 *California Code of Regulations*, s 95913(h)(4)(B).

605 17 *California Code of Regulations*, s 95913(h)(5).

606 17 *California Code of Regulations*, s 95913(i)(4).

607 OC 1297-2011, (2011) GOQ II, 3655B at 57.

608 *Cap-and-trade Regulation*, *supra* note 351 at 56.

609 *Ibid* at 59.

610 *Ibid*.

611 *Ibid*.

612 *Ibid* at 59–60.

613 *Ibid* at 60.1.

614 *Ibid* at 58.

615 *Ibid*.

616 *Ibid* at 60.1.

617 *Ibid* at 61.

618 *Ibid*.

619 *Ibid* at 64.

made for the same allowances.[620] This value is then multiplied by the amount of allowances available for purchase, rounding the value down to the nearest whole number.[621] This calculation will determine the amount of available allowances each purchasing entity is owed. In the event that these calculations result in extra unaccounted-for allowances, a random number will be assigned to each purchasing entity and distribute one allowance to each purchasing entity in order of lowest to highest number until all allowances are distributed.[622] In the event that the purchasing entity submits bids that exceed the amount of allowances available for sale, exceed the entity's holding limit, or exceed the financial guarantee submitted by the entity, excess allowances may be removed from a purchasing entity's bids, beginning by removing the lowest bids to the highest bids.[623]

Purchasing entities have seven days after the results of the reserve sale are released to submit full payment for their purchased allowances.[624] If payment is not received during these seven days, the amount due will be held back by the minister from the bid guarantee provided prior to the reserve sale.[625] Once payment is received, the amount of allowances purchased is recorded in the purchasing entity's compliance account. All funds raised from the sale of reserve allowances is placed in Quebec's Green Fund, which is used to finance climate change efforts in the province.[626]

Ontario

Ontario reserve sales were very similar to the reserve sale format and procedure in Quebec. Participation in an Ontario reserve sale required that the purchasing entity be a capped participant and had been a capped participant for at least 40 days prior to the reserve sale; the participant had received permission from the minister to bid in a sale; at least 12 days prior to the reserve sale, financial assurance was provided to the minister; and on the reserve sale date, the purchasing entity could hold any allowances in its holding account that could be used to meet its then-current compliance period obligations.[627] Similar to Quebec requirements, to receive permission to bid in a sale, Ontario entities had to update the minister with information about any entity changes at least 40 days prior to the sale; at least 30 days prior to the sale, participants had to provide the minister with their compliance account number, contact information and holding account number for the participating entity; identification numbers and names of all account representatives; names and contact information for any consultants used; social insurance number if the participant was an individual; and the type of financial assurance that would be provided during the sale.[628] In addition, financial assurance had to be provided to the minister at least 12 days prior to the sale.[629] The minister would refuse an application to bid in a sale or suspend a participant's ability to participate in a sale if false or misleading information was provided by the participant, the participant refused to disclose required information, or the participant's compliance account was prohibited from participating in transfers of compliance instruments due to the cap-and-trade regulations or an imposition from the director.[630]

Similar to California and Quebec reserve sales, Ontario emissions allowances were sold in lots of 1,000 allowances from the same category.[631] Before accepting any bids, the minister would compare the participant's actual maximum bid value and the participant's financial assurance.[632] If the maximum bid value was greater than the participant's financial assurance, the excess bids would be removed to ensure the bid value did not exceed the financial assurance provided.[633] In addition, bids could be rejected by the minister in order of lowest to highest bid in the event that allowing the bid would cause the participant to exceed their holding limit.[634] Accepted bids would be completed beginning with tier A, followed by tiers B and C.[635] If the amount of allowances available was sufficient to fulfill the number of allowances bid on, then allowances were distributed based

620 *Ibid* at 61.

621 *Ibid*.

622 *Ibid*.

623 *Ibid* at 60.1.

624 *Ibid* at 62.

625 *Ibid*.

626 *Ibid*.

627 O Reg 144/16, *supra* note 180, ss 76–78.

628 *Ibid*, s 67(1).

629 *Ibid*, s 76(1).

630 *Ibid*, s 76(3).

631 *Ibid*, s 79.

632 *Ibid*, s 82(1).

633 *Ibid*, s 83.

634 Holding limit in Ontario is calculated using the following formula: $L = 2{,}500{,}000 + 0.025 * (C - 25{,}000{,}000)$: *ibid*, ss 40, 81.

635 *Ibid*, s 84(1).

on the bids received.[636] However, if the amount of allowances available was not sufficient to fulfill the number of allowances bid on, then the allowances were distributed following the same protocol as in Quebec. Specifically, the number of allowances bid on by each participant was individually divided by the total number of allowances available for that category.[637] This value represented that participant's share of the available allowances, and this value was then multiplied by the total value of emissions allowances available for sale.[638] This value was then rounded down to the nearest whole number and that was the number of emissions allowances to be distributed to that participant.[639] In the event that there were remaining allowances, random numbers would be assigned to each participant and the remaining allowances would be distributed from lowest to highest assigned number.[640]

Secondary Markets

In addition to auctions and reserve sales, there is the secondary market in which participants in California and Quebec can buy or sell compliance instruments from each other.[641] The secondary market allows for the sale of emissions allowances previously distributed to a capped emitter, early reduction and offset credits, and any derivative financial products.[642] These transactions occur between market participants (non-capped participants) and capped participants, and the revenue generated from secondary market sales stays with the seller of the compliance instruments and is not given to the government.[643] All secondary market transactions are registered in the same CITSS system used for auctions.[644] All prices at the secondary market are left to the discretion of the parties involved in the sale; therefore, compliance instruments may be sold for higher or lower prices than they are sold at auction.[645] Compliance instruments may also be traded or exchanged as agreed upon by the parties.[646]

California

In California, secondary market transactions can occur through Intercontinental Exchange, Inc., a trading corporation that lists compliance instruments available for trade, swap or exchange. The Intercontinental Exchange is a large market that is heavily regulated by global financial standards, local regulations and internal market supervision policies.[647] Generally, the secondary market price for allowances is higher than the auction price. However, beginning in May 2016, the secondary market price was below the auction price, likely due to the ongoing cap-and-trade litigation in California.[648] Once the litigation resolved in favour of cap-and-trade, the secondary market prices once again were higher than auction prices.[649] The conduct required by parties in conducting any trade is detailed in section 95921 of the California Code of Regulations.[650] In California, secondary market transactions only have to be reported when there is a change in control of the compliance instrument, meaning the compliance instruments are physically transferred to a new owner.[651] As of August 17, 2018, there were many California allowances and options available for trade on Intercontinental Exchange, Inc.

Quebec

In Quebec, all trades involving allowances must be completed following the procedure set out in section 26 of the Regulation Respecting a Cap-and-Trade System for Greenhouse Gas Emission Allowances.[652] This includes the requirement for the seller to submit a transaction request to the minister, including the buyer's and seller's information, the type and quantity of

636 *Ibid*, s 84(2).

637 *Ibid*, s 84(3).

638 *Ibid*.

639 *Ibid*.

640 *Ibid*, s 84(3).

641 CARB, "California Cap-and-Trade Program: Facts About the Linked Cap-and-Trade Programs" (1 December 2017), online: <ww3.arb.ca.gov/cc/capandtrade/linkage/linkage_fact_sheet.pdf>.

642 ECO, *Introduction to Cap and Trade in Ontario*, *supra* note 301 at 5.

643 *Ibid* at 15.

644 *Ibid* at 14.

645 ECO, *Facing Climate Change: Greenhouse Gas Progress Report 2016* (2016) at 69 [ECO, *Facing Climate Change*], online: <http://docs.assets.eco.on.ca/reports/climate-change/2016/2016-Annual-GHG-Report-EN.pdf>.

646 CARB, "Chapter 5", *supra* note 373 at 28.

647 Intercontinental Exchange, "ICE", online: <theice.com>.

648 ECO, *Facing Climate Change*, *supra* note 645 at 72.

649 Chris Busch, *Oversupply Grows in the Western Climate Initiative Carbon Market: An adjustment for current oversupply is needed to ensure the program will achieve its 2030 target* (San Francisco: Energy Innovation, 2017) at 18, online: <https://energyinnovation.org/wp-content/uploads/2018/02/WCI-oversupply-grows-February-update.pdf>.

650 17 *California Code of Regulations*, s 95921.

651 CARB, "Chapter 5", *supra* note 373 at 28.

652 *Cap-and-trade Regulation*, *supra* note 351 at 25.

the allowances being sold, the settlement price, and date of agreement and date of trading.[653] The transaction request must be approved by another of the seller's account representatives within two days of submission.[654] The request must then be sent to the buyer's representatives to be accepted within three days of the request being sent.[655] Upon acceptance by the buyer, the request will be completed and the transfer will occur unless the minister believes an offence under the Environment Quality Act is being committed.[656] As of August 17, 2018, there were no Quebec compliance instruments available for trade on Intercontinental Exchange, Inc.

Ontario

In January 2017, Intercontinental Exchange, Inc. began listing Ontario compliance instruments as available for trade.[657] During its operation, the Ontario secondary market was not very active. That was likely due to the novelty of the Ontario program and the fact that, at its inauguration in 2017, linkage with California and Quebec was not yet confirmed. As of August 17, 2018, there were no Ontario compliance instruments available for trade on Intercontinental Exchange, Inc.

Taxation

Given the value associated with compliance instruments in the cap-and-trade program, it is important to assess any potential tax consequences arising from the acquisition of compliance instruments.

United States

In the United States, there is a tax imposed on emissions allowances. This tax is based either on the value of the emissions allowances when received through government allocation or based on the cost paid for the allowances in a market transaction.[658] However, emissions allowances received free of charge from the federal government are not subject to taxation.[659] Emissions allowances may be characterized as "inventory, materials or supplies, ordinary business expenses, amortizable intangible property [or] intangible property with an indefinite life."[660] Depending on the characterization, certain emissions allowance taxes may be recoverable or deductible.[661] An emissions allowance becomes taxable in the tax year the emissions allowance is used to meet compliance obligations, sold or exchanged.[662]

A participant may purchase emissions allowances to meet compliance obligations or as an investment.[663] When a participant owns allowances as commodities for the purpose of selling them, the tax obligations that arise would be characterized as ordinary gains or losses.[664] However, when allowances are used in any way other than as a commodity, then when sold the participant will have a capital gain or capital loss, since the allowances are not depreciable property according to the US Internal Revenue Service.[665]

Canada

The Canadian federal government imposes a five percent value-added Goods and Services Tax (GST). In addition, most provinces have a provincial sales tax. Four provinces have eliminated the provincial sales tax and harmonized it with the federal GST.[666] In these provinces, this harmonized GST is known as the Harmonized Sales Tax (HST). Most property and services supplied in Canada or imported into Canada are subject to GST or HST.[667] Ontario imposes an HST rate of 13 percent while Quebec imposes a five percent GST and a 9.975 percent Quebec Sales Tax.[668]

653 *Ibid*.

654 *Ibid* at 26.

655 *Ibid*.

656 *Ibid*.

657 Tyson Dyck & Henry Ren, "Canada: Ontario Joins Linked North American Carbon Market", Torys LLP (January 2018), online: <www.mondaq.com/canada/x/667526/Climate+Change/Ontario+Joins+Linked+North+American+Carbon+Market>.

658 Ernst & Young Global Limited, "Tax Aspects of Cap-and-Trade System Operation" (2018), online: <www.ey.com/us/>; 26 USC § 1012.

659 Mark Price, "Climate Change Legislation: Tax Considerations" (Testimony delivered at hearing before US Senate Committee on Finance, Washington, DC, 16 June 2009) at 2, online: <www.finance.senate.gov/hearings/climate-change-legislation-tax-considerations>.

660 Ernst & Young Global Limited, *supra* note 658.

661 *Ibid*.

662 *Ibid*.

663 *Ibid*.

664 *Ibid*.

665 *Ibid*.

666 The provinces that impose an HST and their corresponding taxation rates are New Brunswick (15 percent), Newfoundland and Labrador (15 percent), Nova Scotia (15 percent) and Ontario (13 percent).

667 Government of Canada, "Who charges the GST/HST?", online: <www.canada.ca/en/revenue-agency/services/forms-publications/publications/rc4022/general-information-gst-hst-registrants.html#H2_203>.

668 Revenu Québec, "Tables of GST and QST Rates" (2018), online: <www.revenuquebec.ca/en/businesses/consumption-taxes/gsthst-and-qst/basic-rules-for-applying-the-gsthst-and-qst/tables-of-gst-and-qst-rates/>.

Legislative Scheme

Initially, Canada had no taxation scheme specific to cap-and-trade compliance instruments.[669] The lack of a specific taxation scheme created confusion and resulted in issues of double taxation for free allowances.[670] In January 2017, Canada's federal Income Tax Act[671] was amended to include a new taxation scheme governing the use and sale of emissions allowances by regulated emitters who are Canadian taxpayers.[672] The amendments govern the acquisition of emissions allowances in taxation years beginning after 2016. A taxpayer can also elect to have this new set of rules apply to emissions allowances acquired in taxation years ending after 2012.[673] For the purposes of taxation, Canada's federal government has created definitions for emissions allowances and emissions obligations. An emissions allowance is "an allowance, credit or similar instrument that represents a unit of emissions that can be used to satisfy a requirement under the laws of Canada or a province governing emissions of a regulated substance, such as greenhouse gas emissions,"[674] while an emissions obligation is "an obligation to surrender an emissions allowance, or an obligation that can otherwise be satisfied through the use of an emissions allowance, under a law of Canada or a province governing emissions of a regulated substance."[675]

Value of Emissions Allowances

For tax purposes, emissions allowances are treated as inventory.[676] The value of an emissions allowance is the cost paid by the taxpayer to acquire the allowance.[677] This cost-paid valuation method is used in order to account for the potential volatility of emissions allowance value.[678]

If a registered emitter who already holds one or more emissions allowances acquires additional identical emissions allowances, then the cost of each identical allowance is held to be the average cost of all the identical emissions allowances of the taxpayer.[679] This averaging allows taxpayers to calculate gain on identical emissions allowances in a simple manner, even if particular emissions allowances are later disposed of.[680] For tax purposes, emissions allowances are identical when they can be used to settle the same emissions obligation.[681] For example, if one emissions allowance can only be used in one province and the other emissions allowance can only be used in another province, they are not identical. Further, for two emissions allowances to be considered identical, it must be possible to use them for the same time periods. If one can be used to settle emissions obligations for several years, but the other can only be used to settle emissions obligations in one specific year, then the two are not considered identical.[682]

GST/HST Collection

As previously discussed, there are several ways in which an emissions allowance can be allocated. Prior to June 27, 2018, emissions allowances provided directly from the government to participating entities were not taxable, but secondary market acquisitions of allowances were taxable.[683] However, effective June 27, 2018, new taxation rules were instituted in which a self-assessment of emissions allowances purchases is required by all Canadian residents or GST-registered entities.[684] A new tax credit was also created that allows tax-paying entities to claim back the GST/HST taxes they self-assess.[685] This new taxation

669 House of Commons, Department of Finance Canada, "Tax Measures: Supplementary Information" (March 2016) at 24, online: <www.budget.gc.ca/2016/docs/tm-mf/tax-measures-mesures-fiscales-2016-en.pdf>

670 *Ibid*.

671 *Income Tax Act*, RSC 1985, c 1 (5th Supp).

672 *Ibid*, s 27.1(1)–(6). See also House of Commons, Department of Finance Canada, *Growing the Middle Class* (March 2016) at 160, online: <www.budget.gc.ca/2016/docs/plan/budget2016-en.pdf> .

673 Bill C-29, *A second Act to implement certain provisions of the budget tabled in Parliament on March 22, 2016 and other measures*, 1st Sess, 42nd Parl, 2016, SC 2016, c 12. See also *Budget Implementation Act*, 2016, No 2, SC 2016, c 12, s 10.

674 *Income Tax Act*, *supra* note 671, s 248.

675 *Ibid*.

676 Julie D'Avignon, "Federal Budget addresses the taxation of Emissions Allowances", Stikeman Elliott (24 March 2016) , online: <www.stikeman.com/en-ca/kh/canadian-energy-law/federal-budget-addresses-the-taxation-of-emissions-allowances>; *Income Tax Act, supra* note 671 ("inventory means a description of property the cost or value of which is relevant in computing a taxpayer's income from a business for a taxation year or would have been so relevant if the income from the business had not been computed in accordance with the cash method and includes…an emissions allowance" at 248).

677 *Income Tax Act*, *supra* note 671, s 27.1(1).

678 D'Avignon, *supra* note 676; *Income Tax Act*, *supra* note 671, s 27.1(1).

679 *Income Tax Act*, *supra* note 671, s 27.1(2).

680 William Francis Morneau, Department of Finance Canada, "Explanatory Notes Relating to the Income Tax Act, Excise Tax Act, Excise Act, 2001 and Related Legislation" (2016) at 15 [Morneau, "Explanatory Notes 2016"], online: <www.fin.gc.ca/drleg-apl/2016/ita-lir-0716-n-eng.pdf>.

681 *Income Tax Act*, *supra* note 671, s 27.1(2).

682 Morneau, "Explanatory Notes 2016", *supra* note 680 at 16.

683 Alan Kenigsberg, "New GST/HST rules for carbon emission allowances", Osler (27 June 2018), online: <www.osler.com/en/resources/regulations/2018/new-gst-hst-rules-for-carbon-emission-allowances>.

684 *Ibid*.

685 *Ibid*.

scheme applies retroactively, meaning that if GST/HST taxes have not already been collected for emissions allowances purchases prior to June 27, 2018, then the new taxation scheme will apply and the purchaser must complete a GST/HST self-assessment.[686] In the event that GST/HST had been charged but not collected prior to the new legislation, the vendor may issue a credit under section 232 of the Excise Tax Act for the tax the GST/HST charged.[687]

One identified concern with the new taxation scheme is the lack of a self-reporting requirement when the vendor of emissions allowances is neither a Canadian resident nor a GST/HST-registered entity and the emissions allowances are used in commercial activities.[688] Specifically, purchasers who exclusively use emissions allowances for commercial activities will be required under this new legislation to determine if the vendor of their purchased emissions allowances is a GST/HST-registered entity.[689] If the vendor is a registered entity, a self-assessment of GST/HST is required by the purchaser. However, when the vendor is not a registered entity, no such self-assessment is required.[690]

Tax Deductions

In certain circumstances, a registered emitter can deduct the cost of emissions obligations when calculating their income for a given taxation year. However, the total amount deductible is limited to the cost of emissions allowances that are, or could be, used to satisfy the outstanding emissions obligations.[691]

A tax deduction is available for emissions obligations but must not exceed the amount calculated with the following formula: A + B x C.[692] In this equation, "A" represents the total cost of emissions allowances either used by the participant to fulfill their compliance obligations, or the total cost of emissions allowances held by the participant at the end of the year that can be used to meet that year's compliance obligations.[693] The value for "B" is calculated by the formula D – (E + F).[694] In this calculation, "D" is the amount of emissions allowances required to fulfill the current year's emissions allowances, "E" is the amount of emissions allowances used by the participant to fulfill the current year's emissions allowances, and "F" is the amount of emissions allowances that could be used to fulfill the current year's compliance obligations that are still held by the participant at the end of the year.[695] The value for "C" is the fair market value of the emissions allowances that can be used for the current year's compliance obligations remaining in the participant's possession at the end of the taxation year.[696]

If the taxpayer deducts an amount from their income based on an emissions obligation but does not settle the obligation in the taxation year that immediately follows, then the taxpayer must include the amount deducted in the previous year as business income for income tax purposes.[697]

Disposal of Emissions Allowances

If a taxpayer uses an emissions allowance to settle an emissions obligation, there is no income to declare for tax purposes. The proceeds of disposing the emissions allowance are deemed to be equal to the cost of the emissions allowance used to settle the obligation, so there is no net gain or loss to declare.[698]

If a taxpayer sells an emissions allowance outside of an emissions allowance regime, then the net proceeds must be included as income for tax purposes.[699] An emissions allowance must be valued at the lower of its cost and its fair market value at the end of that year. After that time, that lower amount is deemed to be the cost at which the property was acquired by the taxpayer."[700]

686 *Ibid*.

687 *Ibid*.

688 *Ibid*.

689 *Ibid*.

690 *Ibid*.

691 *Income Tax Act*, *supra* note 671, s 27.1(3).

692 *Ibid*.

693 *Ibid*.

694 *Ibid*.

695 *Ibid*.

696 *Ibid*.

697 *Ibid*, s 27.1(4); William Francis Morneau, Department of Finance Canada, "Explanatory Notes Relating to the Excise Tax Act" (June 2018) [Morneau, "Explanatory Notes 2018"], online: <www.fin.gc.ca/drleg-apl/2018/eta-lta-0618-n-eng.asp>.

698 *Income Tax Act*, *supra* note 671, s 27.1(5). Morneau, "Explanatory Notes 2018", *supra* note 697.

699 William Francis Morneau, Department of Finance Canada, "Legislative Proposals Relating to the Excise Tax Act" (June 2018) at 5, online: <www.fin.gc.ca/drleg-apl/2018/eta-lta-0618-l-eng.pdf>.

700 Morneau, "Explanatory Notes 2018", *supra* note 697.

Appendix

For further reading on CITSS, the author recommends the following sources.

California Guide to CITSS

CEPA-ARB, *User Guide – Volume I: User Registration and Profile Management* (December 2012), online: <ww3.arb.ca.gov/cc/capandtrade/markettrackingsystem/vol1citssguide-7-21-16.pdf>.

CEPA-ARB, *User Guide – Volume II: Account Application and Account Management* (December 2012), online: <ww3.arb.ca.gov/cc/capandtrade/markettrackingsystem/vol2citssguide-12-20.pdf>.

CEPA-ARB, *User Guide – Volume III: Conducting Transfers in the CITSS* (December 2012), online: <ww3.arb.ca.gov/cc/capandtrade/markettrackingsystem/vol3citssguide-12-20.pdf>.

Quebec Guide to CITSS (in English)

Quebec, *The Québec Cap-and-Trade System for Greenhouse Gas Emission Allowances, User Manual – Volume 1: User Registration* (November 2018), online: <www.environnement.gouv.qc.ca/changements/carbone/ventes-encheres/GuideCITSS-vol1-en.pdf>.

Quebec, *The Québec Cap-and-Trade System for Greenhouse Gas Emission Allowances, User Manual – Volume 2: User Profile Management* (November 2018), online: <www.environnement.gouv.qc.ca/changements/carbone/ventes-encheres/GuideCITSS-vol2-en.pdf>.

Quebec, *The Québec Cap-and-Trade System for Greenhouse Gas Emission Allowances, User Manual – Volume 3: Opening an Account* (December 2018), online: <www.environnement.gouv.qc.ca/changements/carbone/ventes-encheres/GuideCITSS-vol3-en.pdf>.

Quebec, *The Québec Cap-and-Trade System for Greenhouse Gas Emission Allowances, User Manual – Volume 4: Account Management* (December 2018), online: <www.environnement.gouv.qc.ca/changements/carbone/ventes-encheres/GuideCITSS-vol4-en.pdf>.

Quebec, *The Québec Cap-and-Trade System for Greenhouse Gas Emission Allowances, User Manual – Volume 5: Emission Allowance Transfers* (January 2019), online: <www.environnement.gouv.qc.ca/changements/carbone/ventes-encheres/GuideCITSS-vol5-en.pdf>.

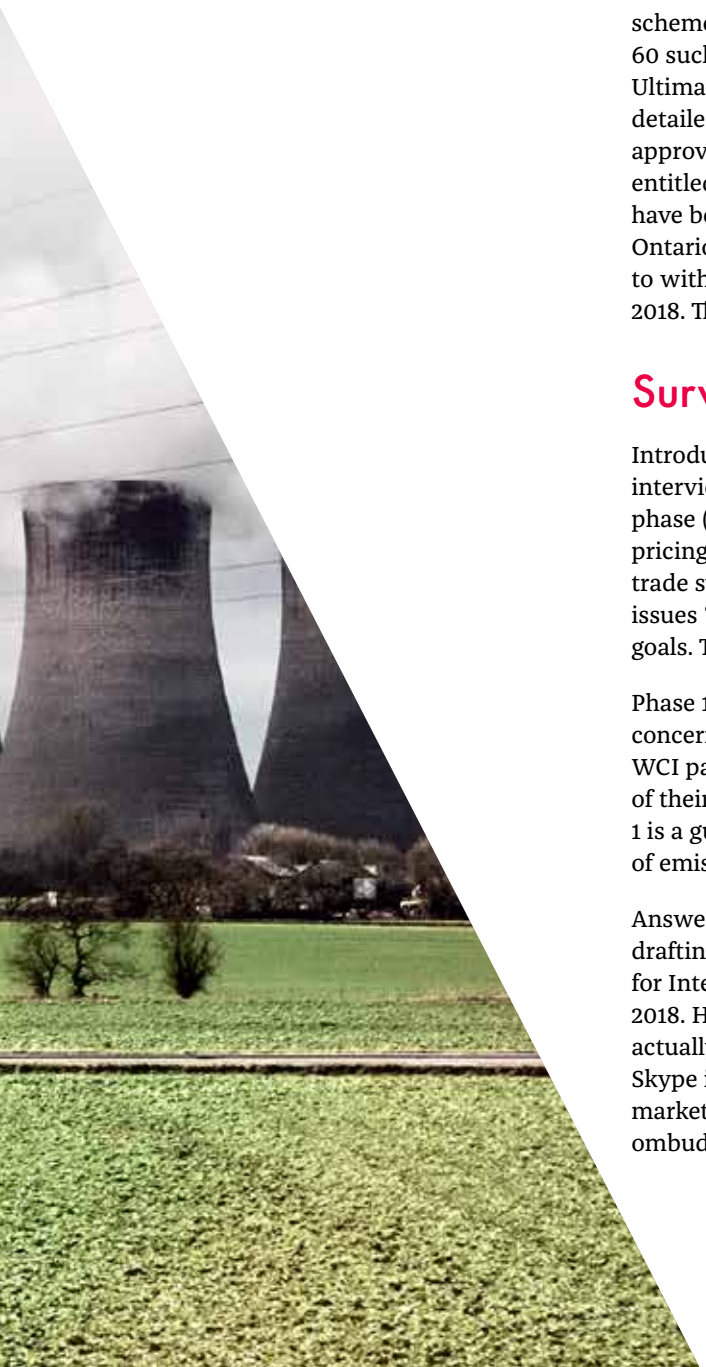
Quebec, *The Québec Cap-and-Trade System for Greenhouse Gas Emission Allowances, User Manual – Volume 6: Compliance Management* (January 2019), online: <www.environnement.gouv.qc.ca/changements/carbone/ventes-encheres/GuideCITSS-vol6-en.pdf>.

Quebec, *The Québec Cap-and-Trade System for Greenhouse Gas Emission Allowances, User Manual – Volume 7: Registration for Government Sales* (June 2019), online: <www.environnement.gouv.qc.ca/changements/carbone/ventes-encheres/GuideCITSS-vol7-en.pdf>.

Ontario Guide to CITSS

Ontario, *Ontario's Cap and Trade Program Participant Training Guide: Auction Registration in the Compliance Instrument Tracking System Service (CITSS)* (January 2018), online: <www.ontario.ca/page/auction-registration-compliance-instrument-tracking-system-service-citss>.

SURVEY AND SURVEY QUESTIONS



As part of assembling this guide, a telephone survey was conducted in June and August 2018 with government, regulators and market participants as well as other stakeholders (ombudspersons, non-governmental organizations, consumers, academics and researchers) in an effort to elicit details about how the WCI cap-and-trade scheme actually functions. The original plan was to interview 30 to 60 such individuals. Initial contact was made with 61 individuals. Ultimately, four persons agreed on an anonymous basis to provide detailed answers to a list of questions prepared by researchers and approved by Western University's Research Ethics Board (see section entitled "Survey Questions" below). The number of responses may have been low due to uncertainty about the scheme following the Ontario provincial election in June 2018 and the province's decision to withdraw from the WCI's cap-and-trade scheme effective July 3, 2018. The responses below are a synopsis of the answers received.

Survey Background

Introductory description [to be read at the beginning of each interview]: This interview is being conducted as part of the first phase (Phase 1) of a mapping of the legal framework of carbon pricing under the Western Climate Initiative (WCI). Under a cap-and-trade system, a jurisdiction implementing a cap-and-trade program issues "emission allowances" to meet jurisdiction-specific emissions goals. The WCI is one scheme promoting a cap-and-trade system.

Phase 1 of this project is being conducted by assembling material concerning regulatory design as well as arrangements within the three WCI partner jurisdictions relevant to the creation and administration of their cap-and-trade programs. The final work product in Phase 1 is a guide to the legal framework for the cap-and-trade system of emission permits created and adhered to under the WCI.

Answers to the questions below will be contained in the drafting of a guide to be submitted to the sponsor, the Centre for International Governance Innovation (CIGI), in November 2018. However, details about how the WCI cap-and-trade scheme actually works in practice will be elicited through telephone/Skype interviews conducted with government, regulators and market participants, as well as other stakeholders (such as ombudspersons, non-governmental organizations, consumers, other

academics and researchers) in Ontario, Quebec and California, as well as in the northeastern United States and the European Union.

Questions for Cap-and-Trade Market Participants

Identification

1. What entity do you work for?

2. Why is your entity involved with the Western Climate Initiative (WCI)? Does your entity trade in emission permits under the WCI? In which WCI jurisdictions?

3. Please explain why your entity needs emissions permits.

4. When did your entity become associated with the WCI? Did it formally register? In your view, was the registration process relatively straightforward? If your entity is a voluntary participant, what convinced you to join the scheme?

5. Did your entity use any cap-and-trade consultants or advisers at any point? For what purposes?

6. How many individuals oversee your accounts (i.e., account representatives and account viewing agents)? How did you find the process for registering agents? Have you had to switch agents on accounts? Was this process difficult?

Allowances

7. How many emission credits does your entity produce or need each year? Do you foresee those numbers increasing or decreasing in the future?

8. How has emission allowance pricing affected your business decisions? Has your business reduced emissions to avoid purchasing allowances?

9. Has your organization been involved in the secondary market for allowances (i.e., buying and selling allowances outside of auctions)?

10. Has your entity received free allowances in any WCI jurisdictions? How did it obtain these allowances?

Auctions

11. Has your entity been directly or indirectly involved in cap-and-trade auctions? Please explain exactly how.

12. How easily has your entity been able to purchase allowances at WCI auctions?

13. Did your entity encounter any participation restrictions or limitations in the auction process?

14. [If Ontario participant:] How did linkage of the Ontario market to the Quebec-California market impact how you approached the auctions?

15. Have differences in compliance periods between the jurisdictions created any difficulties for your entity?

16. Have you had any issues with the compliance obligations under the WCI cap-and-trade of any subsidiary or parent company that you may have? Have the rules surrounding corporate disclosure under legislation in your jurisdiction been clear?

Offsets

17. Has your entity been engaged in any offset programs to meet your entity's compliance obligations? If so, please describe.

18. Do you fully understand the offset program and what options may be available to your entity in this respect?

19. If offsets were cost-comparable to purchasing allowances at auction, would you feel comfortable pursuing the offset option?

Assessment

20. In your view, is the WCI cap-and-trade cost-effective and efficient?

21. Does the WCI cap-and-trade allow your entity to function more optimally? If so, how? If not, please specify.

22. In your view, how could the WCI cap-and-trade be improved in the future? What would you like to see?

23. Is price volatility a concern for your entity going forward?

24. Does your entity have a GHG reduction plan in place? If so, when was this initiated?

25. Is your entity involved with any other emissions trading scheme? If so, which ones? Is it contemplating any such involvement in the future?

26. Is there anything else you would like to comment on about the WCI's cap-and-trade scheme at present?

Background Questions for Market Participants

1. How is the money raised from the cap-and-trade auctions divided among the jurisdictions and how is it being spent?

2. What are the legal requirements for spending money raised from cap-and-trade? Is cap-and-trade revenue neutral in your jurisdiction?

3. What are the WCI jurisdictions in Canada doing to develop offset credit programs?

4. How can Canadian companies be prevented from purchasing disproportionately more Californian offsets than vice-versa?

5. Is there potential for a Canada-wide offset program that would counterbalance California's offset requirement?

6. In your view, how might the current WCI scheme be enhanced?

Questions for Regulators, Administrators and Civil Society

1. What entity do you work for?

2. Why is your entity involved with the Western Climate Initiative (WCI)?

3. How is the money raised from the cap-and-trade auctions divided among the jurisdictions and how is it being spent?

4. What are the legal requirements for spending money raised from cap-and-trade? Is cap-and-trade revenue neutral in your jurisdiction?

5. What are the WCI jurisdictions in Canada doing to develop offset credit programs?

6. How can Canadian companies be prevented from purchasing disproportionately more Californian offsets than vice-versa?

7. Is there potential for a Canada-wide offset program that would counterbalance California's offset requirement?

8. In your view, how might the current WCI scheme be enhanced?

Background Questions for Regulators, Administrators and Civil Society

Identification

1. Please explain why an entity might need emission permits.

2. When did your entity become associated with the WCI? Did it formally register? In your view, was the registration process relatively straightforward? Why should entities voluntarily participate in the WCI cap-and-trade?

3. Did your entity use any cap-and-trade consultants or advisers at any point? For what purposes?

4. Are you familiar with the process for registering account viewing agents? In your view, is this process difficult?

Allowances

5. How many emission credits does an entity produce or need each year? Do you foresee those numbers increasing or decreasing in the future?

6. How has emission allowance pricing affected business decisions? Has business reduced emissions to avoid purchasing allowances?

7. Are you aware of any secondary market for allowances (i.e., buying and selling allowances outside of auctions)?

8. What about the receipt of free allowances in any WCI jurisdictions? In your view, have these free allowances distorted the market?

Auctions

9. Has your entity been directly or indirectly involved in cap-and-trade auctions? Please explain exactly how.

10. How easily is it to purchase allowances at WCI auctions?

11. [If Ontario regulator or administrator:] In your view, how did linkage of the Ontario market to the Quebec-California market impact how you approached the auctions?

12 Have differences in compliance periods between the jurisdictions created any difficulties in your view?

13. Have you noted any issues with the compliance obligations under the WCI cap-and-trade of subsidiaries? In your view, have the rules surrounding corporate disclosure under legislation in your jurisdiction been clear?

Offsets

14. Have you been engaged in any offset programs to meet your compliance obligations? If so, please describe.

15. Do you fully understand the offset program and what options may be available to entities in this respect?

16. If offsets were cost-comparable to purchasing allowances at auction, would you feel comfortable pursuing the offset option?

Assessment

17. In your view, is the WCI cap-and-trade cost-effective and efficient? How would you assess the WCI cap-and-trade versus other similar emission trading schemes elsewhere?

18. Does the WCI cap-and-trade allow your entity to function more optimally? If so, how? If not, please specify.

19. In your view, how could the WCI cap-and-trade be improved in the future? What would you like to see?

20. Is price volatility of emission credits a concern going forward?

21. Is there anything else you would like to comment on about the WCI's cap-and-trade scheme at present?

SUMMARY OF SURVEY RESULTS

Introduction

What entities do you work for?

Survey participants work for a variety of government funding organizations, cap-and-trade market experts, cap-and-trade participating entities and cap-and-trade offset project developers.

Why is your entity involved with the WCI?

Participants include offset project developers working in the various WCI jurisdictions as well as cap-and-trade jurisdictions outside the WCI, funding organizations that invest in clean technology projects and advisers in the cap-and-trade market. One participant was a mandatory participant in the WCI cap-and-trade program. The nature of their work is intimately connected to ETS programs in North America and elsewhere.

Why do entities need emissions permits?

Most survey participants indicated that they did not need emissions permits since they are not emitters per se. However, their clients are emitters and so require emissions permits to cover GHG emissions. One survey participant required emissions permits to comply with O. Reg. 144/16.

Was the registration process for the WCI relatively straightforward?

Most survey participants indicated that they registered as market participants under the WCI CITSS. There was a difference of opinion expressed about whether the CITSS registration process was straightforward, but all participants agreed that it is burdensome. The many necessary steps and requirements to register — especially those related to the registration of complex corporate structures — mean that CITSS registration becomes quite difficult for companies with many subsidiaries. One particular difficulty some participants have experienced is the requirement to get proof of identity from a bank or financial institution. The sense expressed by participants was that a bank is not an appropriate authority from which to get this proof, and many banks did not understand what was required of them.

When are cap-and-trade consultants or advisers used?

Two participants indicated that they are cap-and-trade consultants or advisers themselves and therefore did not use external consultants or advisers. However, one participant indicated that they have internal audit requirements to consult with third parties for verification of their clean technology projects. Verification takes place to ensure the GHG reductions are related to the project under review. Further, market consultants are used to engage in discussions to identify changes in the market and their client needs to meet individual corporate compliance and GHG reduction goals. One participant used advisers to assist in tracking their risk position, monitoring the market, trading in secondary markets, preparing bids, and informing their clients of new developments in the program and the US/Canadian dollar exchange rate.

Do you use agents to oversee their accounts?

Most WCI cap-and-trade market participants use agents to register, purchase and sell allowances. While the process to register agents is clear, participants said they generally found the registration process to be burdensome. One participant has one PAR and several AARs and account viewing agents.

Allowances

Do you anticipate your entity's needs and/or production of surplus emissions credits will increase or decrease in the future?

Two survey respondents said their largest participants anticipated the volumes of emissions credits they dealt with would increase year-to-year. However, one participant was less sure. While participants in this category anticipate that volumes will increase, much would depend on what happens to Ontario's cap-and-trade program and whether they are able to obtain new clients, given the recent changes in Ontario's cap-and-trade program.

How has emissions allowance pricing affected your business decisions?

While emissions allowance pricing does not directly affect the guide's small sample of survey participants, changes in allowance pricing directly impact their clients. Speaking for their clients, market experts and project developers said emissions allowance pricing creates a real and tangible incentive for participants to reduce their carbon emissions outside the cap-and-trade market. Emissions allowance pricing directly impacts the commercial attractiveness of undertaking emissions reduction actions. Allowance pricing also reduces the return on investments made with capital funds. When returns on investments are low, participants may be less likely to undertake further clean technology investments. Allowance pricing directly affects auction prices and the amount of funding the government dedicates to clean technology projects. Industrial emitters have begun to consider emissions allowances as having a direct financial value, which has led companies to include not only environmental managers but also energy managers and financial departments in decisions related to emissions allowances and their acquisition. Many larger companies are investing in energy-saving projects to compensate for the price on carbon emissions. In reducing their own carbon emissions, companies are able to sell surplus allowances, an additional incentive to reduce their carbon emissions.

Has your organization been involved in the secondary market for allowances?

One survey participant has been involved in the secondary market for allowances, while an additional participant has been involved in the secondary markets for offsets.

Has your entity received free allowances in any WCI jurisdictions?

Three survey participants have not received free allowances since they are not emitters. Two of those participants support their clients in advocating for free allowances and in conforming with government guidelines. One participant has received free allowances.

Auction

Has your entity been directly or indirectly involved in cap-and-trade auctions?

Two survey participants have been indirectly involved in cap-and-trade auctions, either in a confidential advisory role or in assisting their clients with the initial set-up to participate in auctions. These survey participants are registered as participants in cap-and-trade auctions. However,

they do not actively participate. Instead, they closely monitor the auctions and advise their clients on developing bidding strategies, registering for auctions and participating in auctions.

How easy is it to purchase allowances at WCI auctions?

Two survey participants felt that purchasing allowances at WCI auctions is generally straightforward. However, there is a learning curve to understanding the overall auction process and how it works. Becoming a qualified bidder can be a bureaucratic process, but once registered, it is a clear process. It is important to note that many participants in Ontario's trial with the WCI cap-and-trade were provided with free allowances. For this reason, they were not required to purchase allowances through auctions. These participants generally only participate in secondary markets and auctions for futures. One of the main criticisms of the WCI auctions is that too many entities were given emissions-intensive trade-exposed sector status. These participants did not need to purchase allowances at auction, meaning that many allowances sold at auction were sold at a profit.

Did your entity encounter any participation restrictions or limitations in the auction process?

None of the survey participants or their clients experienced restrictions or limitations in the auction process. The one issue that did arise was the result of Ontario selling vintage allowances with an incorrect year. Specifically, Ontario had an initial compliance period of four years while the compliance period in California and Quebec is three years. When Ontario created its auction documents, they accidentally stated that their future vintage would be for 2020, only a three-year compliance period. Therefore, Ontario future vintages were incorrectly sold at auction for the year 2020. This mistake skewed the auction because many participants in the auction did not understand that an error had occurred.

How did linkage of the Ontario market to the California-Quebec market impact how your entity approached the auctions?

The larger the cap-and-trade market is, the more concentrated the demand is for allowances. This is an important consideration in developing a bidding strategy for auctions. The linkage effected between Ontario and California-Quebec in 2017 and activated in 2018 increased the volume of allowances in auctions, but also increased the number of sophisticated participants in auctions as well. The linkage meant that knowledge about cap-and-trade was diffused, and there was greater understanding of the auctions and auction process among participants.

Some survey participants stated that linkage could have had a significant impact on how entities approached auctions due to the lack of an established offset protocol system in Ontario. Specifically, this shortcoming left open the possibility for participants to buy offsets in California and Quebec to meet their compliance obligations and fulfill their eight percent offset maximum. Since offsets sold for approximately $2 less per tonne than allowances, a participant's compliance obligations could be met with a lower cost to the participant. However, it is unknown whether any participants actually took advantage of this option.

Have differences in compliance periods between jurisdictions created any difficulties for your entity?

Survey participants indicated that the only issue that seems to have arisen with respect to compliance periods was the first Ontario auction where vintage allowances were incorrectly sold with a three-year compliance period instead of Ontario's four-year compliance period.

Have you had any issues with the compliance obligations under the WCI cap-and-trade of any subsidiary or parent company? Have the rules of corporate disclosure under legislation in your jurisdiction been clear?

None of the survey participants experienced any issues with compliance obligations of a subsidiary or parent company. Neither did they experience any issues with the rules of corporate disclosure under the WCI cap-and-trade scheme. As a result, survey participants were of the opinion that the rules of corporate disclosure were clear, but at the same time very bureaucratic. For example, there is already significant paperwork to complete for CITSS registration. However, when linkage occurred between California, Quebec and Ontario, every participant was required to adjust their CITSS account to reflect the linkage.

Offsets

Has your entity been engaged in any offset programs to meet your entity's compliance obligations?

None of the survey participants had compliance obligations requiring the use of offsets. However, all survey participants are heavily involved in offset programs through work with project sponsors, offset discussions, or stakeholder development. This involvement includes assessing a client's potential opportunity to engage in offset programs, the development of offsets, the approval of offsets and the monetization of offsets in the cap-and-trade program.

One issue with offsets that many survey participants mentioned was the fact that the Ontario government did not develop its offset protocols in a timely manner. This delay meant that the only offsets available for purchase were those from California or Quebec. In two years of operation, the Government of Ontario only finalized three offset protocols (landfill gas, MMC and ozone-depleting substances), and there was a long list of offsets that had yet to be reviewed. Generally speaking, in the case of Ontario, entities were not aware that if they kept accurate records of their emissions as the WCI cap-and-trade program evolved, they could have been eligible for offsets in the future. This is because as offset protocols were finalized by the Government of Ontario, new offset protocols could be retroactively applied through careful record keeping.

Some survey participants also indicated that GHG intensity was not factored into the offset review and approval process in Ontario, meaning that the immediate benefits for climate change were delayed or lost. For example, there was a protocol in review that provides offsets to corporations that capture and destroy leaked refrigerant gases. These gases have substantial GHG potential. However, the offset would not be provided to a corporation that captured and recycled refrigerant gases. The recycling, as opposed to the destruction, of refrigerant gases would be significantly better for the environment. However, the recycling of refrigerant gases was not included in the proposed offset protocol. Therefore, a new protocol would have to be proposed for the recycling of refrigerant gases that would then be placed at the end of the list of offsets to review.

Do you fully understand the offset program and what options may be available to your entity in this respect?

All survey participants considered themselves well versed in the offset program and what options are (or were) available, since many are offset experts. However, one of the survey participants felt that most industrial participants did not have a good understanding of offsets and identified a misunderstanding among many participants with respect to the difference between offsets and allowances. A further, common misunderstanding in the view of survey participants was about who owns and develops offsets.

If offsets were cost-comparable to purchasing allowances at auction, would you feel comfortable pursuing the offset option?

All survey participants agreed that offsets were only a viable option if they could be generated at a discount to allowances. Offsets inherently hold more risk associated with delivery or the lack of delivery of GHG emissions, which is why offsets are typically sold at a discount. In the view of survey participants, the risk with offsets is greater in California than in Quebec and Ontario, and this difference is due to how offsets are treated in each jurisdiction. In California, there is an invalidation risk, where offsets can be removed from a CITSS account even after the participant has purchased them. In Quebec and Ontario, an insurance account protects against potential invalidation. Therefore, the difference between allowances and offsets is not just due to cost but also involves the inherent associated regulatory risks. One participant stated that "golden offsets" (i.e., offsets with no invalidation risks) would be a good option, regardless of the additional cost required to purchase them.

Assessment

In your view, is WCI cap-and-trade i) cost-effective and ii) efficient?

All survey participants agreed that the WCI cap-and-trade system is cost-effective and efficient. They expressed the view that a cap-and-trade system is significantly better than a carbon tax because, notwithstanding popular perceptions to the contrary, there is a certain level of complexity that would be required in order to ensure a carbon

tax is fair and not destructive to industry sectors. The complexity required by a carbon tax would approach the complexity of a cap-and-trade system. It is also important to note that cap-and-trade programs were created in the infancy of carbon pricing. They are by no means perfect programs. Cap-and-trade programs are being created by jurisdictions that are leaders in environmental protection and, inevitably, there is a learning curve for everyone involved. However, in the long run, having a cap-and-trade program and having worked out all the preliminary issues will serve as a huge advantage as the world shifts its focus to carbon pricing in the struggle against climate change.

Does WCI cap-and-trade allow your entity to function more optimally?

Three survey participants agreed that WCI cap-and-trade allows entities to function more optimally. Specifically, WCI cap-and-trade acts as a revenue engine, generating income for clean technology programs. In most instances, private entities have a finite amount of capital to invest in clean technology projects to reduce their carbon emissions. Therefore, the funding they receive from the cap-and-trade program allows them to continue to reinvest in clean technology when they might not have the capital to do so otherwise. The WCI cap-and-trade program reduces the cost of compliance and offsets, and can create commercial opportunities for corporations through the revenue it generates. One participant stated that the cap-and-trade program does not allow their entity to function more optimally because they are now required to dedicate many additional resources to the administration of the cap-and-trade program in their entity. However, this same participant stated that the cap-and-trade program has promoted long-term thinking and an emphasis on efficiency in their entity.

How could WCI cap-and-trade be improved in the future?

Survey participants identified several changes they would like to see to improve the WCI cap-and-trade program. First, participants agreed that there needs to be more membership involved in cap-and-trade programs such as the WCI and for the programs to be less dependent on the politics of the partner jurisdictions. Second, they would like to see sufficient offsets to supply the market. Third, participants would like to see greater transferability of offsets among the WCI jurisdictions. Specifically, they would like California to change its invalidation approach to offsets and adopt an insurance approach similar to that used in Quebec and Ontario. They believe that the risk in offsets should be on the project sponsor, as in an insurance system, and not on the buyer of the offsets, as in an invalidation system. Fourth, participants would like the limitations on the percentage of offsets that can be used to be removed and offset usage to not be arbitrarily restricted. Fifth, participants would like to see more education about the cap-and-trade program for organizations, within politics and in schools. Overall, there is the general consensus that "the longer the system is around, the better it will function," according to one participant.

Is price volatility a concern for your entity going forward?

Three survey participants indicated that price volatility is always a potential concern. However, this has generated price stability in the current market. There has not been much price volatility in the WCI market, but there is a concern that Ontario's departure from the WCI and the uncertainty with regard to the post-2020 WCI may create more price volatility in the future. Survey participants indicated concern that if prices were to increase significantly over a short period, there is a chance that some entities might not be able to absorb the carbon price and the failure to absorb could promote carbon leakage.

Does your entity have a GHG-reduction plan in place?

Three survey participants indicated that they have a GHG-reduction plan in place. Two of these participants, as advisers and funding organizations, have GHG-reduction plans that involve assisting other entities in reducing their GHG emissions, or meeting certain funding targets in certain markets or for certain projects. However, the view was expressed that WCI cap-and-trade itself had motivated corporations to conduct internal reviews of their GHG emissions and to create internal plans to reduce GHG emissions.

Is your entity involved with any other emissions trading scheme?

Survey participants are involved in, or are working on becoming involved in, various other emissions trading schemes. This includes provincial and state schemes across Canada and the United States, the EU ETS, China's ETS and Mexico's ETS.

Is there anything else you would like to comment on about the WCI's cap-and-trade scheme at present?

Participants commented on the uniqueness and importance of linkage between markets in the WCI and the power of those linkages. These linkages create a liquid market that allows for a significant reduction in the compliance cost per tonne of GHG emissions. This is an incentive for more jurisdictions to link to the WCI scheme, something that would also help in standardizing the WCI scheme and reduce leakage. One participant mentioned the significant support of industrial participants for the cap-and-trade program. While large emitters seem to have a good understanding of the cap-and-trade program, there remains significant confusion about how a cap-and-trade is different from a carbon tax. One criticism is that there could have been better education of the participants and the public about what a cap-and-trade program is and its component parts.

The WCI cap-and-trade program provides a level of certainty for industry participants. Through it, participants are able to identify what they are facing in the world of GHG emissions and carbon pricing while also creating plans about how to work with these. Without this certainty, survey participants voiced concern that new investors will choose other, more secure jurisdictions to grow their business, and stop or hinder their investments in jurisdictions of uncertainty.

According to one participant, "The WCI is a model for the rest of the world in terms of how you link systems and should serve to help other jurisdictions make commitments and create linkages between cap-and-trade systems."

Background Questions

How can Canadian companies be prevented from purchasing disproportionately more Californian offsets than vice versa?

Survey participants agreed that disproportionate purchases of offsets from outside the jurisdiction was not an issue in Ontario's cap-and-trade program. In their view, this abuse was a misconception and a fear among many people that had, so far, proven to be false. In Ontario, there was a limit of eight percent use of offsets to meet compliance obligations, which raised the question of how much of an impact there would be if disproportionately more offsets were bought in one jurisdiction when compared to another. In addition, the potential flow of money from one jurisdiction to another is a risk that must be accepted when deciding to link with other jurisdictions. Money could flow either way, so the real concern should be ensuring that caps and reduction levels are similar across linked jurisdictions and are appropriate for the industries in each jurisdiction. Regulatory parity will ensure additional support for local development and local industries and result in direct emissions reductions in each jurisdiction. Another way to prevent money outflows would be to have a very robust market where market prices closely track the value of allowances and offsets in a market. Such a market would assist in achieving emissions reductions locally by investing cap-and-trade revenue in local clean technology projects.

Is there potential for a Canada-wide offset program that would counterbalance California's offset requirement?

One survey participant asserted that there is a necessity for a federal offset program in Canada where offsets are approved by the federal government. This federal offset program would help other provinces in developing their own carbon pricing system and, specifically, the offset component of the system. There is a concern that if a federal offset program is created, a provincial program would be required in all provinces to protect against double accounting. Other survey participants asserted that one issue that needs attention is ensuring that Ontario has sufficient offset protocols in place so that if a federal program is introduced, Ontario's experience might serve as a "tool kit" for regulatory design.

How might the current WCI scheme be enhanced?

There was a general consensus among survey participants that the WCI cap-and-trade program is valuable and has benefited from the concerns and issues raised in other countries' cap-and-trade programs. However, there is always room for improvement. One area of improvement would be to increase the amount of linkages with other jurisdictions. This could include cross-border linkages between Canada and the United States, but also linkages between Canadian provinces and between US states. In addition, increasing the membership of the WCI will assist in achieving the lowest possible market pricing as well as preventing leakage. Another way to

enhance the WCI scheme would be to ensure continuity of the program and long-term certainty. A "2030 framework," as adopted by California, provides more certainty than the current three-year compliance period framework. In addition, a better understanding of the California offset market, and modifying the California offset market to make it more fungible with the Quebec offset market, would assist in creating more certainty in the WCI cap-and-trade scheme.

CONCLUSION

The sections of this guide reveal divergent motivations and regulatory environments underlying the introduction of cap-and-trade schemes within jurisdictions pursuant to the WCI. The general experience with it has been mixed, although a very limited survey of market participants suggests that carbon markets are working well and that cap-and-trade schemes in California and Quebec are robust and entrenched. Viable emissions trading continues and linkage must be acknowledged to be a success.

Nevertheless, recent experience reveals that cap-and-trade raises sensitive political and legal questions. As Leah Stokes and others have pointed out, renewable energy policies must remain politically viable over long periods, given the scale of transformation necessary to address climate change.[701] That political support is not always sustainable or forthcoming.

The author's conclusions are different for different actors.

For Federal Governments

For federal governments in North America, the experience of linkage under the WCI emphasizes how, given the constitutional division of powers, subnational actors will continue to be important agents in policy concerning climate change. Federal, state and provincial governments may not necessarily see eye to eye on environmental policy, but will have to continue to work at harmonization. Harmonization may be achieved through alignment of federal and subnational standards, but it may also be achieved through mechanisms of cooperative federalism in both the United States and Canada. Federal governments also have significant power to encourage and shape such cooperation.

701 Stokes, *supra* note 169 at 491.

For States and Provinces

With respect to the subnational role of states and provinces, the two-step approach to harmonization undertaken pursuant to the WCI — of separate program design and linkage phases — has been useful in allowing jurisdictions to accommodate certain necessary political realities (competitiveness, attracting investment, leakage and so forth) in the program design phase, while moving in the direction of deeper harmonization and integration in the linkage phase. That one jurisdiction has decided to withdraw illustrates that withdrawal is still possible, but is ultimately a political question. Partner jurisdictions retain sovereignty under the WCI.

It is also clear to the author that the linkage of cap-and-trade programs pursuant to the WCI does not involve "plug-and-play," that is, a simple transposition of existing regulation into WCI-acceding jurisdictions. The author's research reveals that the initial introduction of cap-and-trade programming in a jurisdiction requires indigenous commitment and an authentic investment of administrative resources, as well as difficult political choices, all in the belief that doing something about climate change is worthwhile. Linkage is also a demanding process. It requires a shift in policy thinking and an assurance of ongoing dialogue with cap-and-trade partners. California, Quebec and Ontario implemented their programming relatively quickly and seamlessly and were able to link, in part, because each worked from a common template provided by the WCI's 2008 recommendations and the 2010 program design document. Another factor in their favour was the high degree of competence and trust among staff in all three jurisdictions. The same cannot be presumed of all jurisdictions that might be interested in participating in such a scheme in the future.

In connection with the previous observation, the author notes that the experience of harmonization and linkage pursuant to the WCI is not static but dynamic and adaptive. In other words, jurisdictions do not link and then simply return to thinking about regulation of cap-and-trade in the narrow, parochial way they might have done beforehand. Jurisdictions need to be constantly aware of program requirements in their own domains and elsewhere. They participate and have input into the design of their own programming and that of others. Experience with offset design provides an illustrative example. In other words, linkage requires an expanded horizon.

Another — and remarkable — observation with respect to the subnational role of states and provinces is that virtually all of the above developments have taken place with very little in the way of an overarching supervisory machinery, apart perhaps from the commitment to meet or communicate regularly and share information. The motivation for this undertaking is, in a broad sense, an abstract one. There is a degree of idealism about the WCI scheme, which sits in tension with the realism of unfolding events, including varying perceptions of mitigation and adaptation costs and who will bear them.

For Producers, Regulators, Exchanges and the Public Interest

With respect to producers, regulators, exchanges and the public interest, the author's research reveals that a market for emissions trading between subnational jurisdictions in two separate countries is possible and can work — and according to the evidence, works well. Emissions trading pursuant to the WCI is successful. While the presence (or absence) of a jurisdiction is relevant to the market's efficiency and liquidity, too much should not be made of a single jurisdiction's withdrawal. The market for emissions allowances pursuant to the WCI continues to operate successfully, largely, it appears, due to a common design framework, cooperation, efficient markets and similar legal, administrative and professional traditions.

At the same time, although large in absolute economic terms, the market created by linkage pursuant to the WCI is relatively small. The author's research reveals that less than 1,000 entities across North America are actively involved. The very limited size of the author's sample of responses (four individuals) suggests that the market is dominated by a few key players (usually agents acting for and advising participants), implying that regulators need to exercise high vigilance to ensure market integrity. Opportunities for market manipulation and conflict of interest could easily present themselves, a point already made by the California State Legislature in its 2017 directions to CARB on regulatory design.

A further opportunity to confirm — or deny — these preliminary findings by conducting a wider survey of participants would be useful. The author surmises that events during the course of their study may have depressed the sample size.

Emissions trading market participants generally spoke favourably of the trading system introduced pursuant to the WCI and extended through linkage. However, involvement requires sophistication, something not all participants (or potential participants) may have. Market sophistication limits participation to those with the resources to specialize.

The need for market integrity under the WCI is obviously linked to cap-and-trade's political sustainability. To the extent that the market now functions effectively, allowing for emissions reductions by the most efficient emitter, market behaviour is to be encouraged. At the same time, since the emissions cap is lowered annually, the option of banking allowances gives participants an incentive to obtain extra allowances in the present for use prospectively because purchases serve as a hedge against higher prices going forward. A by-product of early acquisition of allowances is that a jurisdiction may be unable to meet its emissions targets down the road. In Ontario's case, for example, participants' acquisition of some $2.8 billion worth of emission credits issued by the province during a time of free allowance distribution implies that participants were not unaware of this option.

These developments suggest to the author that there is a need for careful surveillance of emissions markets by regulators, for enforcement action in appropriate instances, as well as the need for reinforcement through enhanced ethical standards — such as a proposed code of conduct for WCI market participants. The code could set out ethical standards, define prohibited trading practices, required information disclosure and documentation, training, and monitoring and investigation. Similar standards are already being implemented by some energy traders and suppliers.[702]

Final Considerations

The lessons of the WCI experience for other jurisdictions are varied. As mentioned, an international emissions trading scheme at the subnational level can work well if a common design platform is adopted, if parties are prepared to work together closely, and if common values help achieve linkage and operational interchange over time. But neutral standards are also required for the sustainability necessary to achieve long-term climate goals.

It is also true that the WCI cap-and-trade does not regulate or eliminate all GHG emissions in WCI jurisdictions. Coverage stands at about 85 percent in the two continuing jurisdictions of California and Quebec. As has been pointed out elsewhere, there remain other major sources of carbon emissions (vehicles, buildings and so forth), and these are harder to get at than the 830 or so major emitters currently covered by the WCI (approximately 700 in California, 130 in Quebec). For all of the optimism about "decarbonizing" the North American economy, much still needs to be done to successfully deal with climate change by addressing GHGs from other sources.

These considerations lead the author to conclude that the vital thread running through carbon markets — and true of all markets — is trust and fairness. There must be trust and fairness if carbon markets are to continue to function as intended. That can only be instilled if ethical standards are adhered to, if greater efforts are made at transparency, and if the public can be made to see tangible evidence of fair and efficient markets contributing to climate change goals. These concerns are not new. They simply assume greater prominence at a time when the phenomenon of functioning carbon markets is a present reality.

702 See e.g. Powerex Corp, "Trading Code of Conduct" (31 October 2017), online: <www2.powerex.com/docs/default-source/policies/trading-code-of-conduct.pdf?sfvrsn=4>. Powerex is a wholly owned energy marketing subsidiary of BC Hydro. Powerex buys and sells wholesale electricity, natural gas, and environmental energy products and services in western North America.

Author's Note

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