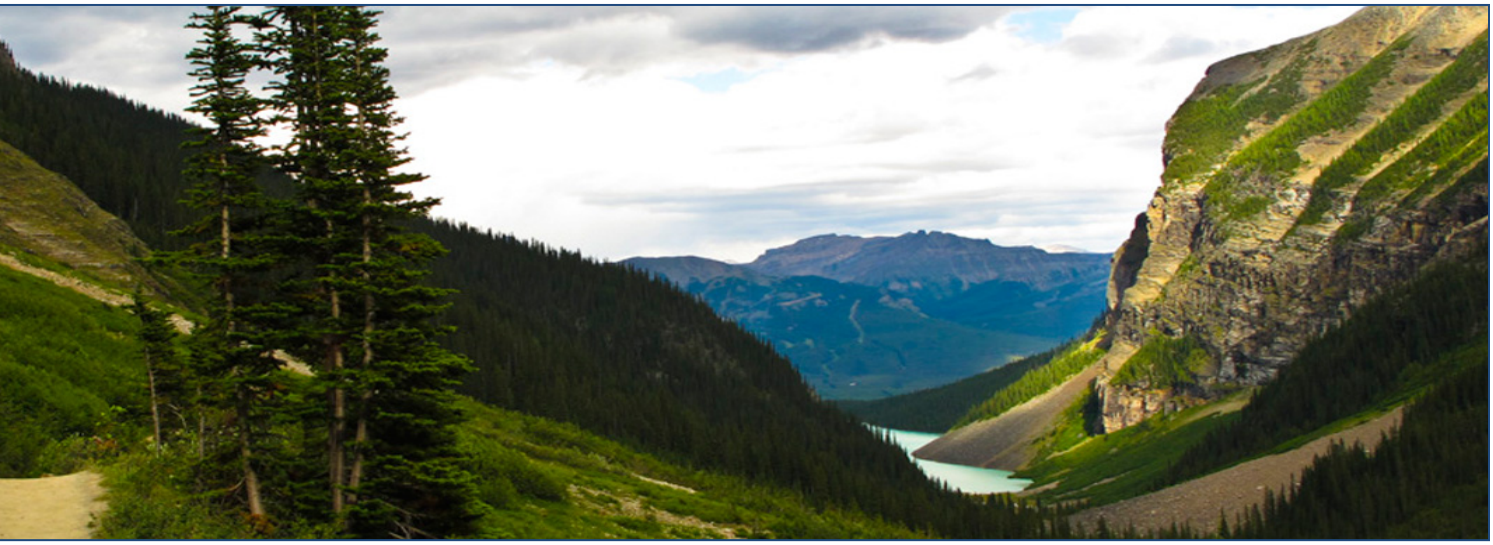
Climate Change Legal Roadmap: Carbon Pricing Recommendations for Alberta: Lessons from the Latest Developments in WCI Jurisdictions



Prepared By
Astrid Kalkbrenner
Environmental Law Centre (Alberta)

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The Environmental Law Centre (Alberta) Society

The Environmental Law Centre (ELC) is Alberta's oldest and most active public interest environmental law organization and believes that law is the most powerful tool to protect the environment. Since it was founded in 1982, the ELC has been and continues to be Alberta's only registered charity dedicated to providing credible, comprehensive and objective legal information regarding natural resources, energy and environmental law, policy and regulation in the Province of Alberta. The ELC's mission is to educate and champion for strong laws and rights so all Albertans can enjoy clean water, clean air and a healthy environment.

Environmental Law Centre
410, 10115 – 100A Street
Edmonton, AB T5J 2W2

Telephone: (780) 424-5099
Fax: (780) 424-5133
Toll-free: 1-800-661-4238
Email: elc@elc.ab.ca

Website: www.elc.ab.ca

Blog: http://environmentallawcentre.wordpress.com

Facebook: http://www.facebook.com/environmentallawcentre

Twitter: https://twitter.com/ELC_Alberta

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Executive Summary

In November 2015, the Alberta Government released the Climate Leadership Plan (the "Climate Leadership Plan") which is a high-level policy document outlining the government's vision for combating climate change in Alberta. The Climate Leadership Plan targets four strategies to impact the effects of climate change, one of which is to implement a new carbon price on greenhouse gas (GHG) pollution.

Alberta's new carbon pricing regime is composed of the *Specified Gas Emitters Regulation* (SGER) and a newly implemented carbon tax. Alberta's SGER, originates from 2007 and is now undergoing amendment. The current SGER regime has been critiqued for, among other things, its minimal emissions reductions and too low price on carbon (currently $20 per tonne). The general design issue of the SGER regime is its focus on emissions intensity. Critics correctly argue that this approach generally generates lower emission reductions than absolute emissions caps. Since Alberta has no absolute emissions cap, it is not surprising that actual emissions have risen since the SGER was introduced. The SGER offers several methods for compliance with the emission limits. One option to achieve compliance is through a payment into the Climate Change and Emissions Management Fund (CCEMF). Critics argue that this levy is too low and consequently, for many large final emitters, it is more economical to let their emissions rise, even in excess of their net emission intensity limit, because the payment into the CCEMF is cheaper than improving their technology.

As announced in the Climate Leadership Plan, Alberta has started to implement a new carbon tax, with a design similar to the BC carbon tax. The government claims that Alberta's carbon tax is designed in such a way that it is revenue neutral. From a perspective of emission reductions, Alberta's carbon tax includes the transportation sector which, due to the high emission threshold level, is not subject to the SGER regime. The Alberta government has not released any projections as to expected emission reductions due to the carbon tax. Only time will tell the actual impact it has on the objective of emission reductions in the province.

This paper looks outside of Alberta at other jurisdictions such as British Columbia, Ontario, Quebec and California (all are partners with the Western Climate Initiative (WCI)) with regard to

their latest trends in carbon pricing. From the trends in these jurisdictions, we identify recommendations for Alberta's amended carbon pricing regime.

- Recommendation #1: Alberta should strengthen its overall reduction target. Alberta's current regime is well short of reaching its climate goal and, in fact, provides for increased emissions.
- Recommendation #2: In order to meet its emission reduction targets and to make real reductions, Alberta's amended SGER should apply an absolute emission cap.
- Recommendation #3: The amended SGER should lower its threshold from 100,000 to 25,000 tonnes of CO_2e with a resulting dramatic increase in industry coverage.
- Recommendation #4: In order to provide for real emission reductions, Alberta should limit or abolish the use of the fund payment option. The price per tonne for the fund payment has historically been too low at only $15, the increase to $20 may still be too low. An alternative and/or additional option is to introduce a limit on the use of the other compliance methods namely, performance credits and offset credits.
- Recommendation #5: In order to seriously pursue a linkage of the Alberta carbon market with that of Quebec and California, Alberta must first become a partner of the WCI. In addition, the SGER regime needs significant modification by adoption of the suggested WCI ETS design features which allow harmonization and linkage of ETS regimes of different jurisdictions.

While this paper does not provide a deep level analysis of the very complex issues of carbon pricing, comparison with selected WCI partners (British Columbia, Ontario, Quebec and California) provides useful conclusions which can provide guidance for Alberta's evolving carbon pricing regime.

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Part One: Introduction

With the change in Alberta's provincial government in 2015, a fresh and different approach to environmental and energy matters has been occurring in the province. In November 2015, the Alberta Government released the Climate Leadership Plan (the "Climate Leadership Plan") which is a high-level policy document outlining the government's vision for combating climate change in Alberta.[1] The Climate Leadership Plan targets four main areas that impact the effects of climate change:

- implementing a new carbon price on greenhouse gas (GHG) pollution,
- phasing out coal-generated electricity and developing more renewable energy,
- capping oil-sands emissions, and
- reducing methane emissions.[2]

Alberta's new approach to carbon pricing in the province is of central interest to industry, academics, environmentalists and the public at large. Alberta's amended carbon pricing regime carries changes for all Albertans and even those outside Alberta. This paper looks outside of Alberta at other jurisdictions (British Columbia, Ontario, Quebec and California) with regard to their latest trends in carbon pricing. From the trends in these jurisdictions, we identify recommendations for Alberta's evolving carbon pricing regime.

So what is carbon pricing? Carbon pricing refers to the use of policy tools designed to lower carbon emissions. Typically, there are two carbon pricing tools: (1) application of a carbon tax which is a fixed charge per tonne of emitted carbon and (2) establishment of a cap and trade system, also called emissions trading. A cap and trade scheme does two things. First, it introduces GHG emission limits or caps for specific industrial activities and facilities. Second, in case the industrial activity exceeds the emission limit, the scheme allows purchase of compliance

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[1] Alberta Government, *Climate Leadership – Report to Minister* (Edmonton: Alberta Government, 2015), online: <http://www.alberta.ca/climate-leadership-plan.cfm>.

[2] The ELC has published a report that provides the most recent updates and discusses climate change law in Alberta. See Brenda Heelan Powell, *Climate Change Legal Roadmap: A Snapshot of Alberta's Climate Change Law & Policy* (Edmonton: Environmental Law Centre, 2016), online: ELC <http://www.elc.ab.ca/media/105520/ClimateChangeLegalRoadmap.pdf>.

units in order to achieve compliance with the emission limit. Generally, there are several options for complying with the caps, including using clean and efficient technology, burning less fossil fuels, and purchasing compliance units/emission allowances. If emitters cannot reduce their emissions below the applicable limit, they must submit one emission allowance for one tonne of carbon dioxide equivalent (CO_2e) emitted in excess of the limit.

The main rationale of emission trading schemes (ETS) is described by Professor Fluker as follows:

> to assign a price to the externality of carbon emissions and generate financial incentives for emissions reduction. The general theory underlying carbon emissions trading systems is that the cost to emit will rise as overall emissions accumulate in the atmosphere and encourage abatement. Those emitters with a high marginal cost of implementing abatement technology will have the option to acquire entitlements to emit from others with a lower marginal cost of emissions. As such, the overall reduction in carbon emissions will occur at the lowest possible cost to society.[3]

In order to analyze and make recommendations for Alberta's new carbon pricing developments, this paper takes a look the latest trends in carbon pricing in British Columbia, Quebec, Ontario and California. These jurisdictions, along with others, are members of the Western Climate Initiative (WCI). The WCI is an association of several North American jurisdictions working together to identify, evaluate, and implement emissions trading policies to tackle climate change.[4] Currently, British Columbia, California, Manitoba, Ontario and Quebec are partner members in the WCI.[5] One of the key working areas of the WCI is to support regional GHG emission reduction through the establishment of a regional cap and trade program among its partners. A common framework with harmonized design features enables WCI partners to link

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[3] Shaun Fluker, "A Comparison of Carbon Emission Trading Systems in New Zealand and Canada: Diversity is not a Virtue in Carbon Law and Policy" (2016) at 48, online: SSRN <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2605911>.

[4] Western Climate Initiative (WCI), "Organization", online: WCI <http://www.westernclimateinitiative.org/organization>.

[5] For the history of the WCI, "History", online: WCI <http://www.westernclimateinitiative.org/history>.

their trading schemes to a regional carbon market.[6] The harmonised ETS design features of WCI partners allow for interjurisdictional trading. To date, only California and Québec have linked their carbon trading markets (since 2013).

Climate change law and policy is rapidly changing in Alberta and elsewhere. This paper reflects information current to **July 2016**. In some cases, aspects of the climate change regimes under discussion are incomplete or even non-existent because they are still being developed by the government. As a result, the information and commentary provided in this paper is necessarily limited.

Furthermore, carbon pricing is a comprehensive and complex topic, and this paper does not provide a deep analysis of carbon pricing in general. There is a wealth of academic commentary on this topic and, where possible and appropriate, further reading suggestions are made in this paper. This paper provides brief overviews on the carbon pricing tools of British Columbia, Ontario, Quebec and California. The last parts canvass Alberta's current carbon pricing approach and make recommendations based on the experiences of the other jurisdictions.

Part Two: British Columbia

2.1 Introduction

In the beginning of 2016, British Columbia amended and augmented its existing legislation with the aim of reducing GHG emissions using a price on emissions. This section presents an overview of BC's current legal regime in carbon pricing. BC has a variety of legislation dealing with different aspects of climate change and clean energy.[7] However, the focus here is only on the carbon pricing legislation. BC's carbon pricing approach uses a combination of both a carbon

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[6] For the WCI design recommendations see WCI, "Design Recommendations", online: <http://www.westernclimateinitiative.org/the-wci-cap-and-trade-program/design-recommendations>.

[7] For a list of BC's climate action legislation see BC, "Climate Action Legislation", online: <http://www2.gov.bc.ca/gov/content/environment/climate-change/policy-legislation-programs/legislation-regulations> [BC climate action legislation].

tax and a cap and trade regime.[8] Its carbon tax was introduced in July 2008. Its cap and trade regime, while still a work in progress, has received new impetus through both amended and new legislation.

BC's current legislative carbon pricing framework consists of the following acts and regulations:

- *Greenhouse Gas Reduction Targets Act*[9] (BC GHGTA),
- the *Carbon Tax Act*,[10]
- *Greenhouse Gas Industrial Reporting and Control Act*[11] (BC GHG IRCA),
- *Greenhouse Gas Emission Reporting Regulation*[12] (BC Reporting Reg),
- *Greenhouse Gas Emission Control Regulation*[13] (BC Emission Control Reg), and
- *Greenhouse Gas Emission Administrative Penalties and Appeals Regulation*[14] (BC EAPA Reg).[15]

2.2 BC's Emission Reduction Target

BC's emission reduction target aims to reduce GHG emissions by at least 33% compared to 2007 levels by 2020 and by 80% compared to 2007 levels by 2050.[16] Interim reduction targets will be to decrease emissions by 6% below 2007 levels by 2012 and by 18% below 2007 levels by 2016. This section continues with a brief introduction of the carbon tax and then presents the framework of the cap and trade regime.

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[8] BC, Ministry of Environment, *Consultation Backgrounder – Carbon Pricing*, at 2, online: <http://www2.gov.bc.ca/assets/gov/environment/climate-change/policy-legislation-and-responses/climate-action-legislation/carbon-pricing-bg.pdf> [BC Carbon Pricing].
[9] *Greenhouse Gas Reduction Target Act*, SBC 2007, c 42 [BC GHG TA].
[10] *Carbon Tax Act*, SBC 2008, c 40.
[11] *Greenhouse Gas Industrial Reporting and Control Act*, SBC 2014, c 29 [BC GHG IRCA].
[12] *Greenhouse Gas Emission Reporting Regulation*, BC Reg 272/2009 [BC Reporting Reg].
[13] *Greenhouse Gas Emission Control Regulation*, BC Reg 250/2015 [BC Emission Control Reg].
[14] *Greenhouse Gas Emission Administrative Penalties and Appeals Regulation*, BC Reg 248/2015 [BC EAPA Reg].
[15] For a complete overview of all GHG/carbon related BC legislation see BC climate action legislation, *supra* note 7.
[16] BC GHG TA, *supra* note 9, s 2. BC's 2007 emissions level was at 68,019 kt CO_2e. BC Carbon Pricing, *supra* note 8, at 1.

2.3 Carbon Tax

The carbon tax applies broadly to the purchase or use of fuels (such as gasoline, diesel, natural gas, heating oil, propane and coal) and the use of combustibles (such as peat and tires) when used to produce heat or energy.[17] Each fuel type is taxed depending on its anticipated carbon emissions.[18] The taxation rate for each fuel type is applied consistently throughout the province. Estimates predict that BC's carbon tax could reduce emissions by 3 million tonnes of carbon dioxide equivalent (CO_2e) annually by 2020.[19] The carbon tax started on July 1, 2008 at $10[20] per tonne and rose by $5 per tonne each year to its current price of $30 per tonne commencing July 1, 2012.[21]

The key element of the tax is its revenue-neutrality which means that "every dollar generated by the tax is returned to British Columbians through reductions in other taxes."[22] For 2013/14, the BC government announced it had achieved revenue neutrality.[23]

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[17] BC, Ministry of Finance, *Tax Bulletin 2015* (July 2015; Bulletin MFT-CT 005) at 2, online: <http://www.sbr.gov.bc.ca/documents_library/bulletins/mft-ct_005.pdf> [BC Tax Bulletin]. The carbon tax is a different tax than the motor fuel tax. Both taxes are applied on fuel purchase, consumption and combustion. For exemptions from the carbon tax see BC, "Motor Fuel Tax and Carbon Tax Exemptions", online: <http://www2.gov.bc.ca/gov/content/taxes/sales-taxes/motor-fuel-carbon-tax/business/exemptions>.

[18] BC Tax Bulletin, *ibid* at 2.

[19] This is equivalent to take 800,000 cars of the streets in BC. BC, Ministry of Finance, "Tax Reductions, Funded by a Revenue Neutral Carbon Tax", online at <http://www.fin.gov.bc.ca/tbs/tp/climate/tax_cuts.htm>.

[20] Throughout the paper the reference to $ means the Canadian Dollar unless otherwise stated such as in the section on California.

[21] BC, Ministry of Finance, "Greener Choices Can Save You Money" <http://www.fin.gov.bc.ca/tbs/tp/climate/A7.htm>.

[22] BC, Ministry of Finance, "Tax Cuts Funded by the Carbon Tax", online at <http://www.fin.gov.bc.ca/tbs/tp/climate/A2.htm>. BC's understanding of revenue neutrality refers to the total carbon tax revenues collected. The amount collected will be recycled into society. That does not mean each individual or business receives back the taxes they have paid. It means that "[s]ome individuals, businesses, or sectors will pay more than they receive through recycling measures and some will pay less, but the carbon tax as a whole is revenue neutral. All carbon tax revenue is returned to taxpayers through tax reductions." BC, Ministry of Finance, "Myths and Facts about the Carbon Tax", online: <http://www.fin.gov.bc.ca/tbs/tp/climate/A6.htm>.

[23] BC, Ministry of Finance, "Carbon Tax", online: <http://www.fin.gov.bc.ca/tbs/tp/climate/carbon_tax.htm>.

2.4 BC's Cap and Trade System

In the beginning of 2016, BC introduced new cap and trade legislation. The process is not finalized yet and some sections of acts and regulations still have to be specified and brought into force.[24] The central piece of the cap and trade regime is the *Greenhouse Gas Industrial Reporting and Control Act* (BC GHG IRCA) and its regulations.

2.4.1 Objective

None of BC's legislation regulating GHG contains a purpose section or preamble that explains the province's intentions.

2.4.2 Coverage

2.4.2.1 Gases

BC's legislative carbon framework applies to carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulphur hexafluoride and any other substance prescribed by regulation.[25]

2.4.2.2 Sector/Industry

An operator of a regulated operation is subject to certain obligations, such as compliance with the emissions cap under the BC GHG IRCA.[26] Currently, only liquefied natural gas operations are listed as regulated operations. However, the following industries/activities must report GHG emissions under the BC Reporting Reg:

- general stationary combustion of waste,
- fuel combustion by mobile equipment,
- aluminium production, ammonia production,
- cement production,
- underground coal mining, coal storage and coal combustion,

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[24] See BC's climate change legislation, *supra* note 7.
[25] BC GHG TA, *supra* note 9, s 1; BC GHG IRCA, *supra* note 11, s 1.
[26] "Regulated operation" means a reporting operation that is in a class set out in column 1 of the schedule, BC GHG IRCA, *ibid*, s 1.

- copper/nickel melting or refining,
- electricity generation,
- manufacturing,
- hydrogen production,
- industrial operations,
- petroleum refining,
- pulp and paper production,
- oil and gas activities,
- electricity transmission, and
- natural gas transmission, - distribution, - storage and LNG activities.

It is possible that in the future operators of these activities/facilities will be covered by the BC ETS, when the list of regulated operations is completed.

2.4.3 Emission Cap

As of the end of July 2016, the BC legislature has so far only determined the emission limit for liquefied natural gas operation to be at 0.16 CO_2e tonnes for each tonne of liquefied natural gas produced.[27] The emission limits of the other reporting operations remain to be determined.

2.4.4 Main Actors/Participants

The BC ETS is not comprehensive at this stage. There are no provisions on who is a mandatory or a voluntary participant in the ETS. It is clear, however, that the above listed reporting operations will be required to comply with the emission cap when exceeding the determined threshold level of emissions.

[27] BC GHG IRCA, *ibid,* Schedule.

2.4.5 Main Obligations

The BC GHG IRCA obliges "reporting operations" to issue emission reports, verify emission reports and to comply with applicable emission limits.[28]

The term "reporting operations" is specified in the BC Reporting Reg.[29] The Schedule to the BC Reporting Reg lists facilities and activities, emission source types and emitted GHG types which in combination create the obligation to report emissions.

Reporting operations must report their emissions if they are greater than or equal to 10,000 tonnes of CO_2e annually.[30] Regardless of this threshold of 10,000 tonnes, electricity import operation and coal storage activities are mandatory reporting operations.[31] If the emissions are equal or greater than 25,000 tonnes CO_2e, a verification body must verify the emissions report.[32] For all reporting operations, the reporting period is the calendar year.[33]

For each compliance period, the operator of a regulated operation must ensure compliance with the applicable emission limit.[34] If a regulated operation exceeds the applicable emission limit, it may achieve compliance through the use of compliance units.[35] In addition to abiding by emission limits, regulated operations also must issue compliance reports for each compliance period.[36]

2.4.6 Non-Compliance

Non-compliance with the obligations established under the BC GHG IRCA, such as reporting, verification and submission of compliance units, are penalized and additionally may qualify as

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[28] BC GHG IRCA, *ibid*, ss 3, 5, 6, Schedule.
[29] BC GHG IRCA, *ibid*, s 1: reporting operations means industrial operations of one or more facilities or of a prescribed activity, to which GHG emissions are attributable.
[30] BC Reporting Reg, *supra* note 12, s 8(1).
[31] BC Reporting Reg, *ibid*, s 8(2)(3).
[32] BC Reporting Reg, *ibid*, Part 5.
[33] BC Reporting Reg, *ibid*, s 10.
[34] BC GHG IRCA, *supra* note 11, s 6.
[35] BC GHG IRCA, *ibid*, s 1, at "compliance unit".
[36] BC GHG IRCA, *ibid*, s 7.

an offence.[37] For example, if an operator fails to meet the compliance obligation the penalty can amount up to the triple amount of the required but not submitted compliance units.[38]

2.4.7 Types of Compliance Units

Compliance units can be offset units (ss 8, 9), funded units (s 11), earned[39] credits (s 12) or recognized units.[40] The GHG Emission Control Reg sets out the details for emission offset projects dealing with measuring and reporting GHG amounts, project plans, and their validation and verification.[41] Funded units are compliance units purchased by operators of regulated operations. Currently, the GHG Emission Control Reg determines the price for a funded unit (equals one tonne of CO_2e) at $25.[42]

2.4.8 Transactions of Compliance Units

Another main element of the BC GHG IRCA is the creation of a carbon registry.[43] The BC carbon registry is further dealt with in the GHG Emission Control Reg.[44] Operators of regulated operations that need to use compliance units in order to achieve compliance with emission limits must establish a compliance account and a holding account in the registry. Also, project proponents for offset projects must establish an account in the registry. Compliance with the emission limits can be achieved through the transfer and trade of compliance units with other account holders.

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[37] See BC GHG IRCA, *ibid*, ss 23-35 in conjunction with the BC EAPA Reg, *supra* note 14.
[38] BC EAPA Reg, *ibid*, s 5.
[39] If a regulated operation manages to decrease its emissions below applicable limit in the compliance period the operator of this operation may receive one credit for each reduced tonne of CO_2e to his holding account. BC GHG IRCA, *supra* note 11, s 12.
[40] BC GHG IRCA, *ibid*, s 1. Recognized units are units of another jurisdiction that through regulation deemed to be equivalent to an offset unit for the purpose of meeting compliance obligations. BC GHG IRCA, *ibid*, s 1, at "recognized unit".
[41] BC Emission Control Reg, *supra* note 13, ss 11-27.
[42] BC Emission Control Reg, *ibid*, s 28. The payments will be transferred into the so called "technology fund" under BC GHG IRCA, *supra* note 11, s 1.
[43] BC GHG IRCA, *ibid*, part 3, division 5.
[44] BC Emission Control Reg, *supra* note 13, ss 2-10.

The carbon registry must make publicly available certain information such as the legal name of each account holder, types of accounts held, number of compliance units retired for each compliance period, information on emission offset projects, types of compliance units and information on funded, earned and retired units.[45] A transaction, i.e. transfer of units, between different account holders requires the consent of involved account holders.[46]

Compliance units can also be traded through carbon registries outside of BC. This creates the option to participate in inter-jurisdictional carbon trading, for example, with its partners in the Western Climate Initiative (WCI).[47]

2.5 Comments

BC is still in the process of designing an additional carbon pricing tool aside from the established carbon tax. Its cap and trade scheme lacks a comprehensive design when compared with other ETS, such as those in Ontario and Quebec. Parts that are missing relate to the actors/participants in the carbon trading, classes of emission allowances and allocation of compliance units. Most importantly, the BC legislator still has to determine emission limits for other industry than liquefied natural gas operations. If BC intends to join the WCI carbon market, then more specific regulations must be enacted.

Part Three: Ontario

3.1 Introduction

Ontario has officially declared its commitment to fight climate change.[48] In 2015, Ontario announced that a cap and trade regime will be part of the climate change strategy. For that

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[45] BC Emission Control Reg, *ibid*, ss 7, 8.
[46] BC Emission Control Reg, *ibid*, s 9.
[47] BC GHG IRCA, supra note 11, s 20. For more information on the Western Climate Initiative see: online: WCI <http://www.westernclimateinitiative.org/>.
[48] Ontario, "Climate Change Strategy", online: Ontario <https://www.ontario.ca/page/climate-change-strategy>.

purpose, Ontario and Quebec entered a Memorandum of Understanding (MOU) allowing both provinces to link their cap and trade regimes in the future.

On February 24, 2016, the Ontario legislature introduced Bill 172 - *Climate Change Mitigation and Low-carbon Economy Act, 2016*[49] [CCMLEA] which received royal assent on May 18, 2016. The CCMLEA establishes a framework for a cap and trade regime. The framework is specified in the ON *Cap and Trade Program*[50] [ON CTP Reg] and the ON *Quantification, Reporting and Verification of Greenhouse Gas Emissions* Regulation[51] [ON Rep Reg]. This part canvasses the current (status: July 2016) cap and trade framework as it is laid out in the CCMLEA and its regulations.

3.2 Ontario's Emission Reduction Targets

Ontario aims to reduce GHG emissions by 15% by the end of 2020, 37% by the end of 2030 and 80% by the end of 2050 compared to 1990 level.[52] In addition, the Government of Ontario is mandated to prepare a climate change action plan that demonstrates how to further achieve its GHG reduction targets.[53] Ontario has just recently released its detailed five-year action plan with specific commitments to meet near-term 2020 emissions reduction target, and future targets for 2030 and 2050.[54]

3.3 Ontario's Cap and Trade System

3.3.1 Objective

The central piece of legislation regulating Ontario's cap and trade regime is the CCMLEA. The CCMLEA sets the tone in its preamble targeting GHG reduction and points out, among other things that one of the main objectives of the act is to introduce a "broad carbon price through a

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[49] *Climate Change Mitigation and Low-carbon Economy Act*, SO 2016, c 7 [CCMLEA].
[50] *The Cap and Trade Program*, Ontario Regulation 144/16 [ON CTP Reg].
[51] *Quantification, Reporting and Verification of Greenhouse Gas Emissions* Regulation, Ontario Regulation 143/16 [ON Rep Reg].
[52] CCMLEA, *supra* note 49, s 6.
[53] CCMLEA, *ibid*, s 7(1).
[54] Ontario, *Climate Change Action Plan 2016-2020* (June 2016), online: <https://www.ontario.ca/page/climate-change-action-plan>.

cap and trade program that will change the behaviour of everyone across the Province, including spurring low-carbon innovation." Another objective is to link Ontario's cap and trade regime with other regional and international carbon markets.

These objectives are reiterated in the purpose section. The CCMLEA creates a regulatory scheme "(a) to reduce greenhouse gas in order to respond to climate change, to protect the environment and to assist Ontarians to transition to a low-carbon economy; and (b) to enable Ontario to collaborate and coordinate its actions with similar actions in other jurisdictions in order to ensure the efficacy of its regulatory scheme in the context of a broader international effort to respond to climate change."[55] In addition, the Act indicates that the cap and trade program intends to encourage Ontarians to change their behaviour by influencing their economic decisions that directly or indirectly contribute to the emission of greenhouse gas.[56]

3.3.2 Coverage

3.3.2.1 Gases

What emissions are covered? The CCMLEA applies to all GHG that are also covered by the *Kyoto Protocol*[57] and other contaminants as prescribed by the regulations: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulphur hexafluoride and nitrogen trifluoride.[58]

3.3.2.2 Sector/Industry

What activities and facilities are covered by the regime? The cap and trade regime targets owners or operators of prescribed facilities and prescribed activities. These include electricity imports into Ontario, distribution of natural gas in Ontario, supply of petroleum products for

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[55] CCMLEA, *supra* note 49, s 2(1).
[56] CCMLEA, *ibid*, s 2(2).
[57] *Kyoto Protocol*, UN Doc FCCC/CP/1997/7/Add. 1, Dec. 10, 1997; 37 ILM 22 (1998), online: <http://unfccc.int/resource/docs/convkp/kpeng.pdf>.
[58] CCMLEA, *supra* note 49, s 5.

consumption in Ontario, and activities and facilities that are specified in the ON Rep Reg.[59] The ON Rep Reg designates the following activities as being subject to the cap and trade regime:[60]

- production and manufacture of chemicals,
- coal storage and combustion,
- electricity generation,
- general stationary combustion,
- pulp and paper production,
- petrochemical production,
- petroleum refining,
- natural gas activities such as onshore natural gas transmission compression, natural gas storage, LNG import and export, transport of natural gas in a pipeline transportation system.

3.3.3 Emission Cap

Ontario has set the economy-wide emission cap at 142 megatonnes CO_2e for 2017 and will lower the cap to 125 megatonnes CO_2e per year by 2020.[61] Under the ON ETS the main obligation is to comply with the applicable emission limit by submitting emission allowances. The ON CTP Reg imposes an overall limit on the amount of emission allowances that can be created per year.[62]

Table 1: Ontario Emission Cap

Year	Number of Allowances	Total Emission Cap
2017	142,332,000	142,3 Mt CO_2e
2018	136,440,000	136,4 Mt CO_2e
2019	130,556,000	130,5 Mt CO_2e
2020	124,668,000	124,6 Mt CO_2e

[59] CCMLEA, *ibid*, s 9(3); ON CTP Reg, *supra* note 50, s 4; ON Rep Reg, *supra* note 51, Schedule 2.
[60] ON Rep Reg, *ibid*, Schedule 2.
[61] Ontario, "Cap and Trade" (2016) online: Ontario < https://www.ontario.ca/page/how-cap-and-trade-works>.
[62] ON CTP Reg, *supra* note 50, s 54.

Thus, the obligation to submit emission allowances and the limit of created emission allowances result in the total limit of emissions (this is "the cap").

3.3.4 Main Actors/Participants

In order to participate in the cap and trade, persons must register as participants. A participant in the cap and trade scheme may be a mandatory participant, voluntary participant, capped participant (which include both mandatory and voluntary participants), or market participant. A mandatory participant in the cap and trade program is a person who fulfills certain criteria as set out in the regulations and is required to register as a mandatory participant.[63] A person can chose to become a voluntary participant provided he fulfills certain criteria as prescribed in the regulations.[64] A person may register as a voluntary participant if that person is not a mandatory participant, has emissions are at least 10,000 but below 25,000 tonnes CO_2e, and has submitted a verified emissions report.[65] The scheme allows a person conducting multiple activities at multiple facilities who is a mandatory participant with respect to some activities to also register as a voluntary participant with respect to other activities or facilities.[66] Persons who are not an owner, operator or employees of a mandatory or voluntary participant can apply for registration as a market participant in the cap and trade scheme.[67]

3.3.5 Main Obligations

There are four basic obligations for emitters: to quantify, report emissions, verify emissions, and to comply with the applicable emission limit by submitting emission allowances.

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[63] CCMLEA, *supra* note 49, s 15(1); ON CTP Reg, *ibid*, ss 21-27. Although operators of electricity imports are mandatory participants in the ON ETS some facilities are exempted from the status as a mandatory participant if they meet the following conditions cumulatively: their primary activity is electricity generation; no products are used at the facility other than electricity and any heat, steam or by-product gas; the facility does not receive natural gas directly from an international or interprovincial natural gas transmission pipeline; and no electricity is generated at the facility from the incineration of waste. ON CTP Reg, *ibid*, s 21.
[64] CCMLEA, *ibid*, s 16(1); ON CTP Reg, *ibid*, ss 28-35.
[65] CCMLEA, *ibid*, s 16(1), ON CTP Reg, *ibid*, s 29.
[66] CCMLEA, *ibid*, s 16(2).
[67] CCMLEA, *ibid*, s 17(1); ON CTP Reg, *supra* note 50, s 36(1).

Operators of covered activities must quantify GHG emissions and keep records during the compliance periods.[68] Covered activities and facilities must report[69] their emissions when reaching a specified threshold. Currently, Schedule 2 activities must report when emissions are greater than or equal to 10,000 tonnes of CO_2e per year.[70] Electricity importation must report if the electricity imported is greater than zero megawatt hours per year.[71] Natural gas distribution activities that are greater or equal to 10,000 tonnes of CO_2e per year must report their emissions.[72] The reporting threshold for petroleum product supply activities is the supply of 200 litres or more of petroleum products per year.[73]

Covered activities and facilities are obliged to obtain verification of the reports by accredited verification bodies if their emissions are greater than or equal to 25,000 tonnes of CO_2e per year.[74]

Mandatory and voluntary participants must submit emission allowances and credits in an amount equal to the amount of GHG emissions attributed to them for a compliance period.[75]

3.3.6 Non-Compliance

If a participant fails to comply with the emission limit by submitting emission allowances or credits by the applicable deadline the participant will be, among other things, prohibited from transferring emission allowances or credits from the participant's holding accounts into other participants' accounts.[76] Further, participants are penalized and must submit additional emission

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[68] CCMLEA, *ibid*, s 9; ON Rep Reg, *ibid*, s 4. Compliance periods are: January 1, 2017 to December 31, 2020; January 1, 2021 to December 31, 2023 and each subsequent three-year period. ON CTP Reg, *ibid*, s 3.
[69] CCMLEA, *ibid*, s 10.
[70] ON Rep Reg, *supra* note 51, s 5.
[71] ON Rep Reg, *ibid*, s 13, Table Duty to Report and Verify.
[72] ON Rep Reg, *ibid*, s 13, Table Duty to Report and Verify.
[73] ON Rep Reg, *ibid*, s 13, Table Duty to Report and Verify.
[74] CCMLEA, *supra* note 49, s 11; ON Rep Reg, *ibid*, s 10.
[75] CCMLEA, *ibid*, s 14; for detailed information on submission of emission allowances, restrictions etc. see ON Rep Reg, *ibid*, ss 10-20.
[76] CCMLEA, *ibid*, s 14(7), ON CTP Reg, *supra* note 50, s 17.

allowances in an amount equal to three times the shortfall.[77] The Minister is entitled to remove emission allowances and credits held in, or subsequently transferred into, the participant's cap and trade accounts equal to the amount of GHG emissions required to be submitted by the participant for the compliance period, and in an amount sufficient to satisfy the shortfall.[78] However, there is an overall limit on the removal of credits from the cap and trade accounts for both cases (failed compliance and penalty). The limit is 8% of the GHG emissions attributed to the participant for the compliance period.[79]

3.3.7 Compliance Units

There are four types of compliance units in Ontario's cap and trade scheme are: Ontario emission allowances,[80] Ontario offset credits,[81] Ontario credits[82] and early reduction credits (ERCs).[83] Regardless of type, one compliance unit is equivalent to one tonne of CO_2e.[84] The number of Ontario emission allowances available for a compliance period is limited and will decrease over the years.[85] The ON ETS determines the maximum amount of emission allowances for 2017 to 2020 (see Table 1, above).[86]

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[77] CCMLEA, *ibid*, s 14(7)2. See s 14(7)-(8) for the full consequences.
[78] CCMLEA, *ibid*, s 14(7)(3); ON CTP Reg, *supra* note 50, s 18.
[79] ON CTP Reg, *ibid*, s 18(2).
[80] CCMLEA, *supra* note 49, s 30(1). The Act does not provide a detailed definition of what an emission allowance is. Generally, an emission allowance is a permit, license or some sort of legal authorization to emit specified gases. Some jurisdictions make a clear reference in their legislation with regard to the legal nature of an emission allowance. The paper will make reference to these jurisdictions in the respective parts.
[81] CCMLEA, *ibid*, s 35(2). The generic term offset credit means "a credit for greenhouse gas reductions achieved by one party that can be purchased and used to compensate (offset) the emissions of another party." David Suzuki Foundation, "What is a Carbon Offset?", online: <http://www.davidsuzuki.org/issues/climate-change/science/climate-change-basics/carbon-offsets/>.
[82] CCMLEA, *ibid*, s 35(1). In general, the term credit means "a reduction in pollution that is equal to one emission unit. A company that reduces its pollution can sell its emission credits to companies that fail to reduce their pollution: If a company fails to meet its emission-reduction target, it will need to buy additional emission credits to cover its excess emissions." Cambridge Dictionary, "emission credit", online <http://dictionary.cambridge.org/dictionary/english/emission-credit>.
[83] CCMLEA, *ibid*, s 35(3). Early reduction credit means a credit issued for actions taken by prescribed persons during a prescribed period before the CCMLEA has received royal assent to reduce greenhouse gas.
[84] ON CTP Reg, *supra* note 50, s 10.
[85] CCMLEA, *supra* note 49, s 30(2).
[86] ON CTP Reg, *supra* note 50, s 54.

The Minister distributes Ontario emission allowances to registered participants for valuable consideration.[87] Under the cap and trade scheme emission allowances are also available by sale and auction.[88] For a transitional period only Ontario emission allowances will be distributed to registered participants free of charge.[89] The regulations will establish a method for determining the amounts of Ontario emission allowances that are to be distributed for valuable consideration or free of charge, respectively, and a method for determining the amounts that are to be distributed by selling them at auction, by direct sale and in other prescribed ways.[90]

Ontario credits are classified into: credits, offset credits[91] and early reduction credits.[92] Offset credits derive from registered offset projects. The CCMLEA authorises the Minister to designate recognized offset registries. Offset initiatives/projects can apply for registration to such recognized offset registries. The previous draft ON ETP Reg contained comprehensive sections on early reduction credits. The regulations that were finalized in June 2016 do not provide details on the ERCs. Since the entire ON ETS framework is not completely finalised, we expect separate regulations on these outstanding matters - such as ERCs – are still to come.

3.3.8 Allocation of Emission Allowances

3.3.8.1 Distribution Free of Charge

A person has to be eligible to apply for free allocation of emission allowances. Only certain capped participants (mandatory and voluntary participants) can apply to receive these allowances.[93] The Minister determines the number of emission allowances that the eligible

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[87] CCMLEA, *supra* note 49, s 31(1).
[88] CCMLEA, *ibid*, s 32.
[89] CCMLEA, *ibid*, s 31(2). For the first compliance period (2017-2020) many allowances will be distributed free of charge. This is only a temporary measure for a smoother transition to decarbonization and to protect against carbon leakage.
[90] CCMLEA, *ibid*, s 31(3).
[91] Separate offset regulations will be issued later in 2016.
[92] CCMLEA, *supra* note 49, s 35(1)-(3). Early reduction credits are credits created by the Minister in respect of actions taken by prescribed persons during any prescribed period before this Act receives royal assent to reduce greenhouse gas.
[93] ON CTP Reg, *supra* note 50, s 85. Some persons are not eligible to receive allowances free of charge, see ON CTP Reg, s 85(4): operation of equipment for a transmission system or a distribution system (electricity), operation of equipment related to the transmission, storage and transportation of natural gas, electricity generation, and receipt of natural gas directly from an international or inter-provincial natural gas transmission pipeline.

person receives free of charge.[94] The allocation of the emission allowances is determined according to the methodology that is set out in a separate document.[95] There are four different methods to allocate allowances for free: product output benchmark method, energy use-based method, history method and direct method.[96]

3.3.8.2 Sale

The scheme limits the number of emission allowances that may be purchased or auctioned by a person.[97] Out of the total number of emission allowances, 5% of them are reserved for sale.[98] Emission allowances that are subject to sale are divided into three categories (A, B and C) with each category consisting of an equal number of emission allowances.[99] Emission allowances are offered in lots, each lot consisting of 1,000 Ontario emission allowances.[100] The ON ETS provides a formula which determines the sales price for each class of emission allowance.[101] Participants are subject to an individual maximum bid value as calculated by a formula.[102]

3.3.8.3 Auctions

Emission allowances can be purchased at auctions on four separate occasions each year starting in 2017.[103] There are purchase limits at auctions. Capped participants are not allowed to purchase more than 25% of Ontario emission allowances available at an auction.[104] For market participants the purchase limit is 4%.[105] Emission allowances will be auctioned in lots, each lot consisting of 1,000 Ontario emission allowances.[106] There is a minimum price for an emission

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[94] ON CTP Reg, *ibid*, s 88.
[95] ON CTP Reg, *ibid*, s 88(2) in conjunction with the document Ontario, *Methodology for the Distribution of Ontario Emission Allowances Free of Charge* (16 May 2016), online: <http://www.downloads.ene.gov.on.ca/envision/env_reg/er/documents/2016/012-6837_Final%20Methodology.pdf> [ON Methodology].
[96] See ON *Methodology*, *ibid*.
[97] CCMLEA, *supra* note 49, s 32(4).
[98] ON CTP Reg, *supra* note 50, s 55(1).
[99] ON CTP Reg, *ibid*, s 55(2).
[100] ON CTP Reg, *ibid*, s 79.
[101] ON CTP Reg, *ibid*, s 80.
[102] ON CTP Reg, *ibid*, s 82.
[103] ON CTP Reg, *ibid*, s 58(1). For more information on the bidding in auctions process see *ibid*, ss 65-69.
[104] ON CTP Reg, *ibid*, s 69(1).
[105] ON CTP Reg, *ibid*, s 69(3).
[106] ON CTP Reg, *ibid*, s 70.

allowance which is "the higher of the annual auction reserve prices most recently established, as of the day of the auction, for each of Quebec and California."[107] Each participant is subject to an individual maximum bid value and thus is not allowed to bid higher than this maximum value.[108] Registered participants need to provide financial assurance for the purpose of bidding in an auction or a sale.[109]

3.3.9 Transactions of Compliance Units

Only registered participants and eligible persons from prescribed jurisdictions can purchase, sell, trade or otherwise deal with emission allowances and credits.[110] Upon registration the Director of the cap and trade scheme establishes one or more accounts for the participants.[111] All registered participants in the scheme receive holding accounts from which they can transfer emission allowances and credits.[112] Each capped participant also receives a compliance account to which allowances and credits are submitted.[113] Capped participants must submit emission allowances and credits equal to the amount of GHG attributed to them for a compliance period.[114]

The ON ETS imposes holding limits on the various types of emission allowances and credits.[115] This means that an ETS participant is not allowed to hold more units than the limit at any time in a year.

The CCMLEA authorizes the Minister to enter into one or more agreements with representatives of other jurisdictions for the harmonization and integration of the Ontario cap and trade program with corresponding programs of those jurisdictions.[116] The recognition of cap and trade schemes

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[107] ON CTP Reg, *ibid*, s 71(1).
[108] ON CTP Reg, *ibid*, s 73(1).
[109] ON CTP Reg, *ibid*, s 61.
[110] CCMLEA, *supra* note 49, s 21(1)-(5).
[111] CCMLEA, *ibid*, s 22(1).
[112] ON CTP Reg, *supra* note 50, s 39.
[113] ON CTP Reg, *ibid*, s 39.
[114] CCMLEA, *supra* note 49, s 14(1).
[115] CCMLEA, *ibid*, ss 22(2), 14(5); ON CTP Reg, *ibid*, ss 40, 42. The limits are calculated through formulas as set out in ss 40, 42.
[116] CCMLEA, *ibid*, s 76(1).

of other jurisdictions enables Ontario participants to trade emission allowances and credits from these jurisdictions.[117]

3.3.10 Greenhouse Gas Reduction Account

The CCMLEA establishes the "Greenhouse Gas Reduction Account" in the public accounts.[118] Proceeds from the distribution of Ontario emission allowances, penalty payments and fees will be paid into this account.[119] The proceeds of this account are to be used for projects and initiatives that reduce or support the reduction of GHG.[120] Examples of these initiatives include:

- the reduction of GHG emissions via the use of renewable and alternative energy sources;
- reduction of GHG emissions from land use and buildings;
- reduction of GHG emissions from transportation;
- reduction of GHG emissions from industry;
- reduction of GHG emissions from agriculture, forestry and natural systems;
- the reduction of GHG emissions from the waste system; and
- reduction of GHG emissions through the use of financial models and services.[121]

3.4 Comments

Ontario's emission reduction target is supplemented by a new ON ETS. Ontario's newly drafted ETS comprehensively covers relevant areas of a cap and trade regime. Generally, the ON ETS is very much aligned with the design features of that of Quebec and California so that a linkage with these WCI partners seems very likely and successful in the future.

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[117] CCMLEA, *ibid*, ss 38(1), 76.
[118] CCMLEA, *ibid*, s 68.
[119] Ontario expects to derive CAD 1.8 to 1.9 billion per year from the ON ETS. See news release Ontario, "Ontario Releases New Climate Change Action Plan" (8 June 2016), online: <https://news.ontario.ca/opo/en/2016/06/ontario-releases-new-climate-change-action-plan.html>.
[120] CCMLEA, *supra* note 49, s 68, Schedule 1.
[121] CCMLEA, *ibid*, Schedule 1.

Part Four: Quebec

4.1 Introduction

Québec's carbon pricing framework is based on the following acts and regulations: *Environment Quality Act,*[122] *Regulation respecting a Cap-and-Trade System for Greenhouse Gas Emission Allowances*[123] (QB ETS Reg), *Regulation respecting Mandatory Reporting of certain Emissions of Contaminants into the Atmosphere*[124] (QB Reporting Reg), *Regulation respecting the Delegation of Management of certain Parts of a Cap-and-Trade System for Greenhouse Gas Emission Allowances*[125] (QB Reg 15.1), *Regulation respecting the Determination of Annual Caps on Greenhouse Gas Emission Units relating to the Cap-and-Trade System for Greenhouse Gas Emission Allowances for the 2013-2020 Period*[126] (QB Reg 15.2).

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[122] *Environment Quality Act*, CQLR, c Q-2 [EQA].

[123] *Regulation respecting a Cap-and-Trade System for Greenhouse Gas Emission Allowances*, CQLR c Q-2, r 46.1 [QB ETS Reg].

[124] *Regulation respecting Mandatory Reporting of certain Emissions of Contaminants into the Atmosphere*, CQLR c Q-2, r 15 [QB Rep Reg]. The QB Rep Reg applies to every operator whose enterprise, facility or establishment emits a contaminant listed in Schedules A and A.1 into the atmosphere at a level that is equal to or greater than the reporting threshold prescribed for the contaminant (s 1). The purpose of the QB Reporting Reg is to determine the thresholds over which enterprises, facilities or establishments are required to report their emissions in relation to the contaminants that are for example responsible for climate change, acid rain etc. The QB Reporting Reg "determines the information to be provided, including confidential information that is necessary to calculate the quantity of the contaminants emitted, such as data pertaining to production, fuels, raw materials, equipment and processes." (s 2).

[125] *Regulation respecting the Delegation of Management of certain Parts of a Cap-and-Trade System for Greenhouse Gas Emission Allowances*, CQLR c Q-2, r 15.1 [QB Reg 15.1]. In accordance with the QB ETS Reg, *supra* note 123, specific aspects of the ETS elements are delegated to the Western Climate Initiative Inc. The elements that are delegated to the WCI are: (1) the development, housing, management and maintenance of the electronic system; (2) regarding auctions and sales by mutual agreement of emission units, such as (a) the reception of registrations for those auctions or sales; (b) the management of financial guarantees submitted; (c) the administration of those auctions or sales, their supervision and the determination of their results; (d) the collection of sums owed to the Minister of Sustainable Development, Environment, Wildlife and Parks, for payment into the Green Fund in accordance with section 46.16 of the QB EQA, in payment of emission units sold; (3) the supervision of transactions of emission allowances and any other system operation. QB Reg 15.1, s 1.

[126] *Regulation respecting the Determination of Annual Caps on Greenhouse Gas Emission Units relating to the Cap-and-Trade System for Greenhouse Gas Emission Allowances for the 2013-2020 Period*, CQLR c Q-2, r 15.2 [QB Reg 15.2].

4.2 QB Emission Reduction Targets

Pursuant to section 46.4 of the *Environment Quality Act*, the Québec government has set the overall GHG reduction target at 20% below 1990 emission[127] and according to a new plan it aims for an ambitious 37.5% below 1990 levels by 2030.[128]

Also, the Minister of the Environment has to submit a multiyear climate change action plan to the Quebec government, including measures aimed at reducing greenhouse gas emissions.[129] The Minister is responsible for the implementation and coordination of the action plan. In April 2016, Québec has presented its long awaited climate change action plan called "The 2030 Energy Policy".[130]

As one method of achieving its GHG reduction targets and mitigating the costs of reducing or limiting GHG emissions, Quebec has implemented a cap and trade scheme.[131] The following sections canvass Québec's approach to its emissions trading scheme (ETS).

4.3 Quebec's Emissions Trading Scheme (QB ETS)

4.3.1 Objective

The overall aim of Quebec's *Environmental Quality Act* is to ensure every person's "right to a healthy environment and to its protection, and to the protection of the living species inhabiting it."[132] "No one may emit, deposit, issue or discharge or allow the emission, deposit, issuance or discharge into the environment of a contaminant in a greater quantity or concentration than that provided for by regulation of the Government."[133] QB ETS specifically states that the QB ETS

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[127] EQA, *supra* note 122, s 46.4, Quebec, Order in Council 1187-2009.
[128] CBC News, "Quebec sets bold new greenhouse gas reduction targets" (17 September 2015), online: <http://www.cbc.ca/news/canada/montreal/quebec-greenhouse-gas-reduction-1.3231951>.
[129] EQA, *supra* note 122, s 46.3.
[130] For further information see Government of Québec, *The 2030 Energy Policy* (2016) online <https://politiqueenergetique.gouv.qc.ca/wp-content/uploads/Energy-Policy-2030.pdf>.
[131] EQA, *supra* note 122, s 46.5.
[132] EQA, *ibid*, s 19.1.
[133] EQA, *ibid*, s 20.

Reg's mandate is, among other things, to set the rules for the cap and trade system, to determine which emitters are covered by the scheme, the registration for the ETS and the use of emission allowances.

4.3.2 Coverage

4.3.2.1 Covered Gases

Québec's cap and trade scheme covers the following greenhouse gases: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6) and any other gas designated by regulation.[134]

4.3.2.2 Sector/Industry

The cap and trade scheme applies to a variety of emitters. A regulated "Appendix A Activities Emitter" is a person who generates 25,000 tonnes of CO_2e or more per year[135] and engages in an activity listed in Appendix A of the QB ETS Reg. The regulated industry sectors listed in Appendix A are:

- mining, quarrying and oil and natural gas extraction;
- electric power generation, transmission and distribution;
- natural gas distribution, natural gas regasification or liquefaction;
- steam and air conditioning production for industrial purposes;
- manufacturing; and
- pipeline transportation.

The cap and trade scheme also applies to any emitter who generates electricity outside Québec for its own consumption or for sale in Québec (except electricity produced in the territory of a

[134] EQA, *ibid*, s 46.1.
[135] QB ETS Reg, *supra* note 123, s 2.

partner entity (e.g. WCI)), if the greenhouse gas emissions are 25,000 tonnes CO_2e or more.[136] In addition, the ETS scheme applies to the distribution of 200 litres or more of fuel.[137]

4.3.3 Emission Cap

Québec's emission cap results from the statutory limit on the number of emission allowances issued by Québec and the statutory obligation to submit emission allowances for emitted carbon.[138]

Regulated emitters must cover their GHG emissions with an equivalent number of emission allowances.[139] Emission allowances include emission units, offset credits, early reduction credits and any other emission allowances determined by regulation. Each emission allowance is equal to one metric tonne of greenhouse gas expressed in CO_2 equivalents (CO_2e).[140]

The caps on the emission units are determined for each year covering the 2013-2020 period:[141]

Table 2: Quebec Emission Cap

Year	Number of Emission Units in Million
2013	23.20
2014	23.20
2015	65.30
2016	63.19
2017	61.08
2018	58.96
2019	56.85
2020	54.74

[136] QB ETS Reg, *ibid*, s 2(1).
[137] QB ETS Reg, *ibid*, s 2(2) in conjunction with QB Rep Reg, *supra* note 124, QC.30 of Schedule A.2.
[138] EQA, *supra* note 122, s 46.7.
[139] EQA, *ibid*, s 46.6; QB ETS Reg, *supra* note 123, ss 19, 21.
[140] EQA, *ibid*, s 46.6.
[141] QB Reg 15.2, *supra* note 126, s 1. Quebec, Order in Council, 1185-2012, <http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=1&file=2389.pdf>.

The overall amount of emission allowances issued per year decreases over the following years in order to achieve the emission reduction targets.

4.3.4 Main Actors/Participants

The QB ETS regulates emissions trading for three groups of actors: emitters, participants and clearing houses.[142] Unfortunately, the terms used for these groups are not legally defined. However, from the QB ETS Reg it follows that emitters must carry out an Appendix A activity and emit equal or more than 25,000 metric tonnes CO_2e.[143] Participants who want to acquire emission allowances must be registered in the ETS. A registered participant must be a natural person with a Canadian domicile or an entity with an establishment in Canada.[144]

4.3.5 Main Obligations

The main obligations under the QB ETS are to report and verify emissions and to comply with the emission caps. Persons and municipalities that emit GHG in a quantity equal to or greater than 10,000 metric tonnes CO_2e annually must report those emissions.[145] Also, persons and municipalities that distribute more than 200 litres of fuel[146] per year must report their emissions attributable to the combustion or use.[147]

In addition to their reporting requirements, the emitters listed in QB ETS Reg Appendix A and electricity import that produce emissions of at least 25,000 metric tonnes CO_2e and fuel

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[142] See QB ETS Reg, *supra* note 123, s 24. For clearing houses see QB ETS Reg, ss 18.1 - 18.5.
[143] QB ETS Reg, *ibid*, s 2.
[144] QB ETS Reg, *ibid*, s 8.
[145] QB Rep Reg, *supra* note 124, s 6.1.
[146] Fuel means automotive gasoline, diesel fuels, propane, natural gas and heating fuel, except aviation fuel and fuel oil for ships; hydrocarbons used as raw material by industries that transform hydrocarbon molecules through chemical or petrochemical processes; the biomass and biomass fuel component of such fuel; and fuel where the emitter is covered already otherwise by the obligation to cover emissions. See QB ETS Reg, *supra* note 123, s 2(2).
[147] QB Rep Reg, *supra* note 124, s 6.1.

distribution of at least 200 litres must also submit a verification report on their emissions conducted by an accredited organization.[148]

Among the most crucial responsibilities under the QB ETS is the obligation of every emitter to cover its GHG emissions with an equivalent number of emission allowances.[149] Emission allowances include emission units, offset credits, early reduction credits and any other emission allowance determined by regulation. Every emitter must cover each tonne CO_2e of the verified emissions from an establishment or an enterprise when its GHG emissions are equal to or exceed the applicable emissions threshold, which is 25,000 tonnes CO_2e or for fuel distribution 200 litres or more.[150]

4.3.6 Non-Compliance

Non-compliance on the expiry of the compliance deadline (each year on November 1, at 8 pm) results in the suspension of the emitter's general account and the imposition of an administrative sanction equal to three emission units or early reduction credits for each missing emission allowance needed for the coverage of all its emissions.[151] In addition, the QB ETS Reg shortens the quantity of emission allowances that are allocated for free of charge to the emitter.[152]

4.3.7 Compliance Instruments/ Account Types

The QB ETS uses eight different account types for the purpose of administrating emission allowances. These accounts are an issuance account, allocation account, auction account, reserve account, retirement account, environmental integrity account, invalidation account, and cancellation account.[153]

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[148] QB Rep Reg, *ibid*, s 6.6. Some activities are excluded from the obligation to verify emission reports, see full list in s 6.6.
[149] EQA, *supra* note 122, s 46.6.
[150] QB ETS Reg, *supra* note 123, s 19.
[151] QB ETS Reg, *ibid*, ss 22, 21. See s 22 also determining the order in which the Minister recovers emission units and early reduction credits for the administrative penalty.
[152] QB ETS Reg, *ibid*, s 22.
[153] QB ETS Reg, *ibid*, s 6. See for the definitions of these accounts see s 6.

The following emission allowances can be traded and used for compliance purposes: emission units and early reduction credits,[154] offset credits[155] and emission allowances issued by a partner entity.[156]

4.3.7.1 Issuance of Emission Allowances

The total amount of emission allowances in the province is limited per compliance period (cap). In addition, the government is authorized to break the cap down into specific caps for specific sectors of activity, classes of business, facilities and establishments.[157] The Minister determines the quantity of emission allowances that will be allocated free of charge or that will be sold by mutual agreement.[158]

4.3.7.2 Allocation of Emission Allowances

Emission allowance units can be allocated to emitters free of charge, by auction or by agreement.[159] Regulated emitters that are covered by Table A of Part I of Appendix C are eligible for an allocation free of charge.[160] In accordance with a specific formula, the Minister estimates annually the total quantity of emission units that may be allocated without charge to an eligible emitter.[161] Another method of distributing emission allowances is by auction.[162] Auctions may take place up to four times a year.[163] Emitters and participants in the ETS are eligible to participate in an auction but they must register as a bidder at least 30 days before the date of the auction.[164] Auctions are held with a single round of bidding, using sealed bids.[165]

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[154] See QB ETS Reg, *ibid*, ss 65-70.
[155] See QB ETS Reg, *ibid*, ss 70.1-70.22. The QB ETS imposes overall limits on the use of offset credits for compliance purposes. The use of offset credits per emitter is capped at 8% of his GHG emissions per compliance period (QB ETS Reg, s 20).
[156] QB ETS Reg, *ibid*, s 37. The following emission allowances must not be traded and used for compliance purposes: suspended, cancelled or extinguished emission allowances, and emission allowances that have been used for compliance under another ETS or GHG emission reduction program.
[157] EQA, *supra* note 122, s 46.7.
[158] QB ETS Reg, *supra* note 123, s 38.
[159] EQA, *supra* note 122, s 46.8(1).
[160] QB ETS Reg, *supra* note 123, s 39.
[161] QB ETS Reg, *ibid*, s 40. For more information on allocation free of charge see QB ETS Reg, ss 39 – 44.
[162] See for detailed information on auctions QB ETS Reg, *ibid*, ss 45-55.
[163] QB ETS Reg, *ibid*, s 45.
[164] QB ETS Reg, *ibid*, s 46.
[165] QB ETS Reg, *ibid*, s 49.

Emission allowances are auctioned in lots of 1,000 emission units.[166] The QB ETS Reg provides for a mechanism that determines a minimum price of emission units for various years.[167] A bidder is restricted in the maximum amount of all his bids according to a specific formula.[168] In addition, there is a limit on the quantity of emission units a bidder is allowed to purchase at each auction. That means that per auction emitters can purchase a maximum 25% of the units to be auctioned in the case of an emitter and 4% of the units to be auctioned in the case of a participant.[169]

The third allocation method is by sale by mutual agreement.[170] Only emitters registered in the ETS with an establishment in Québec that do not hold emission units in their general account and thus cannot be used for compliance purposes are eligible for a sale of emission units by mutual agreement.[171] The sale of emission units by mutual agreement takes place up to four times per year.[172] Emitters who intend to purchase emission units at a sale by mutual agreement must register at least 30 days before the sale.[173] Sale by mutual agreement takes place in a single round, using sealed offers.[174] The emission units are sold in lots of 1,000 units of the same category.[175]

4.3.8 Transactions of Emission Allowances

Emission allowances can be traded only between emitters, participants and clearing houses registered with the Minister or a partner entity.[176] Emitters and participants may only hold emission allowances for their own use and not on behalf of another person having an interest in

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[166] QB ETS Reg, *ibid*, s 49.
[167] QB ETS Reg, *ibid*, s 49. In 2012, the starting minimum price was CAD 10 per emission unit. After 2012, the minimum price was adjusted by an increase of 5%.
[168] QB ETS Reg, *ibid*, s 50.
[169] QB ETS Reg, *ibid*, s 50.
[170] See QB ETS Reg, *ibid*, ss 56-64.1.
[171] QB ETS Reg, *ibid*, s 56.
[172] QB ETS Reg, *ibid*, s 57. The price of emission units ranged from CAD 40 to CAD 50. As of 2014, the price increased annually by 5% and adjusted according to a specific method. See QB ETS Reg, s 58.
[173] QB ETS Reg, *ibid*, s 59.
[174] QB ETS Reg, *ibid*, s 60.1.
[175] QB ETS Reg, *ibid*, s 60.1.
[176] QB ETS Reg, *ibid*, s 24.

or control the emission allowances.[177] Only emission allowances recorded in a general account may be traded.[178] As soon as emission allowances are recorded in a compliance account they can only be used to cover GHG emissions.[179]

The QB ETS provides for a mandatory trade procedure between emitters and participants.[180] This includes trade restrictions and holding limits.[181] The emitter or participant who reaches or exceeds one-half of its holding limit may provide reasons for his holding strategy upon the request of the Minister.[182] The Minister will refuse transactions that would result in the excess of the buyer's holding limit.

4.3.9 Interjurisdictional Trading

The Minister authorised to enter into an agreement with other jurisdictions or international organizations for to purpose of harmonizing and integrating a cap and trade scheme.[183] In 2008, Québec joined the Western Climate Initiate (WCI). In addition, Quebec and California cooperated for over two years to harmonize their ETS regimes to allow for a common trading market. On January 1, 2014, both jurisdictions officially linked their ETS regimes and held their first joint auction on November 25, 2014.[184]

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[177] QB ETS Reg, *ibid*, s 24.
[178] QB ETS Reg, *ibid*, s 24.
[179] QB ETS Reg, *ibid*, s 24.
[180] QB ETS Reg, *ibid*, ss 25, 26.
[181] For example, "[t]he total number of emission units of the current or prior vintage, of emission units from the reserve account and of early reduction credits that an emitter or a participant may hold in its general account and, where applicable, its compliance account is subject to the holding limit calculated using equation 32-1." QB ETS Reg, *ibid*, s 32.
[182] QB ETS Reg, *ibid*, s 32. See also s 32 for the procedure in case the holding limit is exceeded.
[183] EQA, *supra* note 122, s 46.14.
[184] For more information on the process of linking and the challenges that Quebec and California had to overcome to successfully establish a common carbon trading market, see Quebec, *The Quebec Cap-and-Trade System and the WCI Regional Carbon Market: A Historical Overview*, online: <http://www.mddelcc.gouv.qc.ca/changements/carbone/documents-spede/historical-overview.pdf>.

4.3.10 Green Fund

All proceeds generated under the QB ETS are collected and credited to the Green Fund.[185] The money is used for GHG reduction, limitation or avoidance measures, the mitigation of the economic and social impact of emission reduction efforts, public awareness campaigns, adaptation to global warming and climate change, and to finance the development of and Québec's participation in related regional and international

Part Five: California

5.1 Introduction

California is putting a price on carbon emission through its emissions trading scheme (CA ETS). The CA ETS is governed by the *California Global Warming Solutions Act of 2006*[186] [CA AB 32] and the R*egulation for the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms*[187] and *Regulation for the Mandatory Reporting of Greenhouse Gas Emissions* [CA Rep Reg].[188]

5.2 California's Emission Reduction Targets

The California State Air Resources Board is the responsible agency for monitoring and regulating GHG emissions.[189] California's GHG emission reduction target requires a return to 1990 emission levels by 2020, which equals 427 million metric tons CO_2e annually (business-as-usual would be 507 MMT).[190]

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[185] EQA, *supra* note 122, s 46.16.
[186] *California Global Warming Solutions Act of 2006*, online: <http://www.leginfo.ca.gov/pub/05-06/bill/asm/ab_0001-0050/ab_32_bill_20060927_chaptered.pdf> [CA AB 32].
[187] *Regulation for the California cap on greenhouse gas emissions and market-based compliance mechanisms*, [17 CCR].
[188] *Regulation for the Mandatory Reporting of Greenhouse Gas Emissions* [CA Rep Reg].
[189] CA AB 32, *supra* note 186, §38510.
[190] CA AB 32, *ibid*, §38550.

5.3 California's Cap and Trade Scheme

5.3.1 Objective

The purpose section of the "California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms" highlights the aim to "reduce emissions of greenhouse gases associated with entities identified in this article through the establishment, administration, and enforcement of the California Greenhouse Gas Cap-and-Trade Program by applying an aggregate greenhouse gas allowance budget on covered entities and providing a trading mechanism for compliance instruments."[191]

5.3.2 Coverage

5.3.2.1 Gases

The CA ETS applies to carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), sulfur hexafluoride (SF6). hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), nitrogen trifluoride (NF3), and other fluorinated greenhouse gases.[192]

5.3.2.2 Sector/Industry

The CA ETS applies to the following GHG emitting entities which emit equal to or exceed 25,000 metric tonnes of GHG (measured in CO_2e):[193]

- production facilities (e.g. cement, glass, hydrogen, iron, steel, lead, petroleum and natural gas systems, petroleum refining, pulp and paper);
- electricity generation; electricity imports;
- supply of natural gas;
- supply of liquefied petroleum gas and LNG;
- supply of RBOB (reformulated gasoline blendstock for oxygenate blending);
- supply of carbon dioxide.

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[191] 17 CCR, *supra* note 187, §95801.
[192] 17 CCR, *ibid*, §95810.
[193] 17 CCR, *ibid*, §§95811, 95812.

5.3.3 Emission Cap

California's emission cap follows from the combination of the obligation to comply and submit compliance units in the amount of actual emissions and the annual emission allowance budget. The CA ETS is implemented over three compliance periods:

- first compliance period: January 1, 2013 to December 31, 2014;
- second compliance period: January 1, 2015 to December 31, 2017; and
- third compliance period: January 1, 2018 to December 31, 2020.[194]

The annual allowance budget for the three compliance periods is shown in Table 3.[195]

Table 3: California Annual Allowance Budget

	Budget Year	**Annual Allowance Budget (millions of CA GHG Allowances)**	**Decrease of CA GHG Allowances**
First Compliance Period	2013	162.8	
	2014	159.7	1.9 %
Second Compliance Period	2015	394.5	
	2016	382.4	
	2017	370.4	6.11 %
Third Compliance Period	2018	358.3	
	2019	346.3	
	2020	334.2	6.73 %

5.3.4 Main Actors/Participants

The CA ETS regulates covered entities, entities that opt-in (opt-in covered entities), voluntarily associated entities and other registered participants. An entity that falls within the scope of the

[194] 17 CCR, *ibid*, §95840.
[195] 17 CCR, *ibid*, §95841.

CA ETS but generates GHG emissions below the 25,000 tonnes CO_2e threshold can chose to opt in into the ETS.[196] Opt-in participants must obtain an approval from the Executive Officer to participate in the ETS. As a voluntary participant, the entity is subject to all reporting, verification, enforcement and compliance obligations that apply to mandatorily covered entities.[197] In addition, opt-in entities might be eligible to receive emission allowances free of charge.[198]

Another category of ETS actors are **voluntarily associated entities** (VAE). An entity not identified as a covered entity or opt-in covered entity that intends to hold California compliance instruments may apply to the Executive Officer for approval as a voluntarily associated entity.[199]

5.3.5 Main Obligations

Covered entities are subject to mandatory reporting as set out in the CA Rep Reg.[200] They must keep records and submit verification reports in accordance with the regulation. Covered entities have a compliance obligation for every metric tonne of CO_2e that they emit, provided they meet the emission threshold of at least 25,000 metric tonne of CO_2e.[201]

The CA Rep Reg requires that listed facilities report their emissions if they are equal to or exceed 10,000 metric tonnes of CO_2e.[202] If the emissions are equal to or exceed 25,000 metric

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[196] 17 CCR, *ibid*, §95813.
[197] 17 CCR, *ibid*, §95813(d).
[198] 17 CCR, *ibid*, §95813(e).
[199] 17 CCR, *ibid*, §95814. The regulations lists entities that might qualify as voluntarily associated entities:
• an individual, or an entity that does not meet the requirements of a covered entity or an opt-in entity, that intends to purchase, hold, sell, or voluntarily retire compliance instruments;
• an entity operating an offset project or early action offset project; or
• an entity providing clearing services in which it takes only temporary possession of compliance instruments for the purpose of clearing transactions between two entities registered with the Cap-and-Trade Program. 17 CCR § 95814(1). See § 95814(2)-(7) with further conditions to become a VAE.
[200] 17 CCR, *ibid*, §95850(a).
[201] 17 CCR, *ibid*, §§95850(b), 95812.
[202] See for example 17 CCR, *ibid*, §§95103, 95101.

tonnes of CO2e, the emission report must be verified by an accredited third-party verification body.[203]

The CA ETS determines which covered sources must comply starting within the compliance periods in order to phase-in various industry sectors into the ETS regime.[204] For example, operators of facilities (cement, glass production), first deliverers of electricity and suppliers of CO_2 who exceed the emission threshold must comply beginning with the first compliance period. Other emission sources - such as suppliers of natural gas, suppliers of RBOB, natural gas liquids and blended fuels - must comply beginning with the second compliance period. In other words, the CA ETS phases-in various industry sectors in the different compliance periods.[205] This phased-in approach explains the increase in the annual emission allowance budget from the end of the first compliance period to the first year of the second compliance period. In 2015, the ETS covered a larger number of emission sources as compared to 2013.

The CA ETS imposes restrictions on covered entities with regard to the amounts of specific compliance instruments they can use to fulfil their compliance obligations. A covered entity may only surrender less than 8% offset credits for compliance purposes.[206] There are also restrictions on the usage of sector-based offset credits: 25% for the first and second compliance periods and 50% for subsequent compliance periods.[207]

5.3.6 Non-Compliance

An entity that does not surrender compliance instruments in time is subject to a penalty consisting of four times the entity's excess emission.[208] The penalty must be submitted by at

[203] 17 CCR, *ibid*, §95103(f).
[204] 17 CCR, *ibid*, §95851.
[205] 17 CCR, *ibid*, §95851.
[206] 17 CCR, *ibid*, §95854.
[207] 17 CCR, *ibid*, §95854.
[208] 17 CCR, *ibid*, §95857(b)(2).

least three-fourths of CA GHG allowances or allowances issued by a GHG ETS. Up to one-fourths can be submitted by ARB offset credits or other compliance instruments.[209]

5.3.7 Compliance Instruments/ Account Types

Under the CA ETS there are two general categories of compliance instruments: the California Greenhouse Gas Emission Allowances and offset credits.[210] Each compliance instrument presents a limited authorization to emit up to one metric tonne in CO_2e.[211]

The CA ETS works with 5 different account types. Each entity can have only one of each accounts: holding account, limited use holding account, compliance account, annual allocation holding account, exchange clearing holding account.[212] In addition, there are allocation holding accounts, auction holding accounts, retirement accounts, allowance price containment reserve accounts and forest buffer accounts.[213]

5.3.8 Allocation of Allowances

Under the CA ETS allowances are distributed free of charge and can be auctioned. Electrical distribution utilities receive allowances free of charge. In 2012, they received 97.7 million allowances with the annual cap adjustment factor declining by roughly 2% per budget year from 2013 to 2020.[214] Other industry sectors receive free allowances based on calculations set out in the regulations.[215] The free allocation takes into consideration the carbon leakage risk and assigns respective assistance factors to the industry sectors.[216]

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[209] 17 CCR, *ibid*, §95857(b)(4).
[210] 17 CCR, *ibid*, §95820(a)-(b).
[211] 17 CCR, *ibid*, §95820(c) explicitly makes clear that a compliance instrument does not constitute property or a property right.
[212] 17 CCR, *ibid*, §95831.
[213] For detailed information see 17 CCR, *ibid*, §95831.
[214] 17 CCR, *ibid*, §95870(d).
[215] 17 CCR, *ibid*, §95870.
[216] 17 CCR, *ibid*, §95870, Table 8-1. Leakage risk refers to the risk that the affected industry relocates its business to other jurisdictions to avoid GHG regulations.

Emission allowances can be auctioned. Each auction consists of a single round of sealed bidding.[217] A reserve price for allowances establishes a minimum price per allowance. In 2012 and 2013, the reserve price was at USD 10 tonne CO_2e. In the following years, the reserve price was increased annually by 5% plus inflation.[218]

Participants in auctions are bound by a purchase limit. For the time period January 1, 2015 through December 31, 2020, the auction purchase limit is 25% of the allowances offered in the Current Auction and 25% of the allowances offered in the Advance Auction for covered entities, opt-in entities, and electrical distribution utilities.[219] For the time period January 1, 2015 through December 31, 2020, the auction purchase limit is 4% of the allowances offered in the Current Auction and 4% of the allowances offered in the Advance Auction for voluntarily associated entities or group of voluntarily associated entities with a direct corporate association.[220]

The CA ETS imposes a holding limit according to which a participant can hold only a maximum number of allowances per calendar year.[221]

The CA ETS allows for the linkage with an external GHG ETS. After the linkage is approved compliance instruments from the approved ETS may be used for compliance obligations.[222] So far, only Quebec's ETS linkage is approved (as of January 1, 2014).[223]

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[217] 17 CCR, *ibid*, §95911.
[218] 17 CCR, *ibid*, §95911.
[219] 17 CCR, *ibid*, §95911(d)(5).
[220] 17 CCR, *ibid*, §95911(d)(6).
[221] 17 CCR, *ibid*, §95920.
[222] 17 CCR, *ibid*, §§95941, 95942.
[223] 17 CCR, *ibid*, §§95943.

Part Six: Alberta

6.1 Introduction

Alberta applies a hybrid carbon pricing structure to tackle climate change and achieve provincial GHG reduction targets. The hybrid structure is new and currently in the process of evolution. Since 2007, Alberta has regulated GHG emissions through the *Climate Change and Emissions Management Act*[224] [CCEMA] and the *Specified Gas Emitters Regulation*[225] [SGER]. In its Climate Leadership Plan[226], Alberta announced the introduction of a carbon tax which was implemented in summer 2016. Consequently, Alberta now relies on the regulation of large final emitters under the SGER and on a widely applied carbon tax. Amendments to the SGER regime are anticipated for later in 2016. As of the date of this paper (July 2016), no amendments to the SGER have been officially published. This part briefly canvasses the two tracks as they exist in July 2016: the SGER regime and the carbon tax.

Currently, Alberta puts a price on carbon through the CCEMA, SGER, the *Specified Gas Reporting Regulation*[227] [SGRR], the *Climate Change and Emissions Management Fund Administration Regulation,*[228] the *Administrative Penalty Regulation,*[229] the *Climate Leadership Act,*[230] and the *Energy Efficiency Alberta Act.*[231]

6.2 Alberta's Emission Reduction Target

In the CCEMA, the GHG reduction target is set to achieve a decrease "by December 31, 2020 of specified gas emissions relative to Gross Domestic Product to an amount that is equal to or less than 50% of 1990 levels."[232]

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[224] *Climate Change and Emissions Management Act*, SA 2003, c C-16.7 [CCEMA].
[225] *Specified Gas Emitters Regulation*, Alta Reg 139/2007 [SGER].
[226] Climate Leadership Plan, *supra* note 1.
[227] *Specified Gas Reporting Regulation*, Alta Reg 251/2004.
[228] *Climate Change and Emissions Management Fund Administration Regulation*, Alta Reg 120/2009.
[229] *Administrative Penalty Regulation*, Alta Reg 140/2007.
[230] *Climate Leadership Act*, SA 2016, c C-16.9.
[231] *Energy Efficiency Alberta Act*, SA 2016, c E-9.7.
[232] CCEMA, *supra* note 224, s 3(1).

6.3 SGER – Regime

6.3.1 Objective

The only hint towards the objective of the CCEMA or SGER is found in the preamble to the CCEMA. In CCEMA's preamble, reference is made towards: the commitment to protect Alberta's environment for future generations; the recognition that emissions' management of CO_2, CH_4 and other specified gases serves environmental protection; the intention to cooperate with other jurisdictions to harmonise efforts and reduce emissions but without impairing economic growth; the commitment to provide certainty through the establishment of clear emission reduction targets for specified gases.

6.3.2 Coverage

6.3.2.1 Gases

The Schedule (column 1) to the SGER comprehensively lists all specified gases: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), HFC-23 (CHF_3), HFC-32 (CH_2F_2), HFC-41 (CH_3F), HFC-43-10mee ($C_5H_2F_{10}$), HFC-125 (C_2HF_5), HFC-134 ($C_2H_2F_4$), HFC-134a (CH_2FCF_3), HFC-152a ($C_2H_4F_2$), HFC-143 ($C_2H_3F_3$), HFC-143a ($C_2H_3F_3$), HFC-227ea (C_3HF_7), HFC-236fa ($C_3H_2F_6$), HFC-245ca ($C_3H_3F_5$), sulphur hexafluoride (SF_6), perfluoromethane (CF_4), perfluoroethane (C_2F_6), perfluoropropane (C_3F_8), perfluorobutane (C_4F_{10}), perfluorocyclobutane (c-C_4F_8), perfluoropentane (C_5F_{12}), perfluorohexane (C_6F_{14}). The SGER covers not only the six *Kyoto Protocol* GHGs but extends its scope to a significantly wider range of GHGs.

6.3.2.2 Sectors/Industry

Only facilities that release direct emissions totalling 100,000 tonnes of specified gas or more are covered under the SGER.[233] A "facility" means a plant, structure or thing where an activity listed in section 2 of the Schedule of Activities to the *Environmental Protection and Enhancement*

[233] SGER, *supra* note 225, s 2.

Act[234] occurs, and a site or 2 or more contiguous or adjacent sites that are operated and function in an integrated fashion where an activity listed in any of sections 3 to 11 of the Schedule of Activities to the *Environmental Protection and Enhancement Act* occurs. Examples of listed activities include: the construction, operation or reclamation of a plant, structure or thing for manufacturing or processing of various products (e.g. petroleum products, natural gas, cement, pulp and paper, coal, heavy oil, oil sands), the generation of thermal electric power or steam, and the generation of hydroelectric power.

SGER covers about 50% of Alberta's GHG emissions.[235] Until recently, combustion of transportation fuels was not covered under the SGER.[236] However, this has changed with the introduction of the Alberta carbon tax (see below).

6.3.3 Emission Cap

Alberta's SGER regime does not impose absolute emission caps. Instead, it works with an "intensity baseline-and-credit system" and uses the term "net emissions intensity limit."

Net emissions intensity limits are determined for the years 2015, 2016 and 2017 as follows:

> (2) Commencing with the year 2016, the net emissions intensity limit for a year for a facility is
> (a) 85% of the facility's baseline emissions intensity, in the case of a facility in its 9th or subsequent year of commercial operation,
> (b) 87% of the facility's baseline emissions intensity, in the case of a facility in its 8th year of commercial operation,
> (c) 90% of the facility's baseline emissions intensity, in the case of a facility in its 7th year of commercial operation,
> (d) 92% of the facility's baseline emissions intensity, in the case of a facility in its 6th year of commercial operation,
> (e) 95% of the facility's baseline emissions intensity, in the case of a facility in its 5th year of commercial operation, and
> (f) 97% of the facility's baseline emissions intensity, in the case of a facility in its 4th year of commercial operation.

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[234] *Environmental Protection and Enhancement Act*, RSA 2000, c E-12 [EPEA].
[235] For a detailed view on the percentage by sector see: Sarah Dobson & Jennifer Winter, *The Case for a Carbon Tax in Alberta* (Calgary: University of Calgary, The School of Public Policy, November 2015) at 10, online: <http://www.policyschool.ucalgary.ca/sites/default/files/research/gas-emitters-regulation-winter-dobson.pdf>.
[236] Fluker, *supra* note 3 at 31; Dobson & Winter, *ibid* at 11.

(3) Commencing with the year 2017, the net emissions intensity limit for a year for a facility is
(a) 80% of the facility's baseline emissions intensity, in the case of a facility in its 9th or subsequent year of commercial operation,
(b) 83% of the facility's baseline emissions intensity, in the case of a facility in its 8th year of commercial operation,
(c) 87% of the facility's baseline emissions intensity, in the case of a facility in its 7th year of commercial operation,
(d) 90% of the facility's baseline emissions intensity, in the case of a facility in its 6th year of commercial operation,
(e) 93% of the facility's baseline emissions intensity, in the case of a facility in its 5th year of commercial operation, and
(f) 97% of the facility's baseline emissions intensity, in the case of a facility in its 4th year of commercial operation.[237]

The baseline emission intensity and the net emissions intensity limit provide a facility with a reduction target and an overall emissions limit relative to production. For example, starting in 2016, the net emissions intensity limit for a year for a facility in its 9th or subsequent year of commercial operation is 85% of the facility's baseline. That means the facility may emit only up 85% emissions relative to the emissions baseline (this is the net emissions intensity limit). This requires an emissions reduction of 15%. Facilities have to undertake compliance measures to reduce their emissions by 15%.

6.3.4 Main Actors/Participants

The main actors in the SGER regime are facilities that emit 100,000 tonnes CO_2e. In addition, facilities without any emission reduction obligation may participate under the SGER offset protocol and create emission offset credits for sale.

6.3.5 Main Obligation

The main obligations under the SGER regime are the retention of records, reporting and verification of emissions, compliance with the net emissions intensity limit and submission of compliance reports. The SGER requires subject persons to retain records, information and data

[237] SGER, *supra* note 225, s 4.

with regard to the emission intensity of a facility for at least seven years from the creation of the records, information and data.[238]

A person who releases specified gases in excess of the determined threshold must report these emissions.[239] Facilities that release emissions of 100,000 tonnes of specified gases or more must apply for the establishment of a baseline emissions intensity for that facility.[240] SGER imposes the obligation for facilities meeting this threshold to reduce emissions by 15% relative to the established baseline. The SGER imposes a levy on each unit of production that exceeds the emissions baseline intensity.

The SGER requires a facility to comply with the applicable net emissions intensity limit for the year.[241] A certified and third party-verified compliance report has to be submitted for a facility by March 31 of the following year.[242] Emitters have four options to comply with SGER:

- make improvements to their operations;
- use emission performance credits;
- purchase Alberta-based carbon offset credits; or
- contribute to the Climate Change and Emissions Management Fund.

Unlike the other ETS based carbon pricing regimes in Ontario, Quebec and California, the SGER regime does not impose a limit on the total number of offsets a facility can use to achieve compliance.

6.3.6 Non-Compliance

The SGER provides several provisions dealing with infringements of the act and regulations. Among other things, non-compliance with the net emission intensity limit is an offence and penalised with a fine of up to $200 for every tonne of specified gas expressed on a CO_2e basis

[238] SGER, *ibid*, s 15(1).
[239] CCEMA, *supra* note 224, s 6(1). For details on the reporting requirements see the SGRR, *supra* note 227.
[240] SGER, *supra* note 225, ss 20, 21.
[241] SGER, *ibid*, s 6(2).
[242] SGER, *ibid*, s 11.

per unit of production by which the net emissions intensity of the facility exceeds the net emissions intensity limit for the facility, multiplied by production.[243]

6.3.7 Compliance Units

The SGER regime uses emission offsets, fund credits and emission performance credits.[244] Any of these units may be subtracted from the total annual emissions of a facility.[245] In order to qualify as an emission offsets, certain requirements must be met:

- reduce specified emissions in Alberta,
- the reduction must result from an action that was not otherwise required by law, and
- the reductions must be real, demonstrable, quantifiable and measurable.[246]

Another compliance option is to obtain fund credits through payments into the Climate Change and Emissions Management Fund.[247] The price of carbon for facilities choosing to pay into the fund is currently $20 for every tonne over a facility's reduction target. The carbon price will increase to $30 in 2017.

Alberta Environment has published statistics on SGER compliance. The statistics show that the most popular compliance method is the payment into the Climate Change and Emissions Management Fund (CCEMF) with $740 million being paid into the fund between 2007 and 2015.[248]

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[243] SGER, *ibid*, ss 27, 28, 6.
[244] SGER explicitly determines the legal nature of the compliance units (emission offsets, fund credits and emission performance credits) as revocable licenses authorizing persons responsible to use them in meeting the net emissions intensity limits. SGER, *ibid*, s 10(1). See for more information on the performance credits and offset credits, Alberta Carbon Registry, online: <http://www.csaregistries.ca/albertacarbonregistries/home.cfm>.
[245] SGER, *ibid*, s 5.
[246] SGER, *ibid*, s 7.
[247] SGER, *ibid*, s 8.
[248] Alberta Environment and Parks, "Industrial Emissions Management", online: <http://aep.alberta.ca/climate-change/programs-and-services/industrial-emissions-management.aspx>.

Table 4: Specified Gas Emitters Regulation Results[249]

Compliance Year	Emissions Reductions at Facility (Mt CO2e)		Offset Credits Submitted (Mt CO2e)	Total Reductions (Mt CO2e)	Fund Payment ($Million)
	Facility Improvements	Cogeneration Recognition			
2007 (half year)	1.6	1.3	0.9	3.8	41.3
2008	1.4	2.6	2.7	6.6	83.4
2009	1.3	2.7	3.8	7.7	66.2
2010	0.4	2.6	3.9	6.8	78.9
2011	2.1	2.5	5.4	10.0	62.9
2012	1.3	3.4	3.0	7.7	93.5
2013	2.0	3.3	2.0	7.3	94.5
2014	5.2	3.1	2.3	10.6	83.8
2015	5.3	3.2	0.0	8.5	135.6
Total	**20.5**	**24.6**	**23.9**	**69.0**	**740.1**

Emission performance credits are created in the event that the actual emissions intensity of a facility is less than the applicable net emissions intensity limit for the facility for that year.[250] The Director will only issue a maximum amount of emission performance credits per facility per year as calculated by a specified formula.

6.3.8 Fund

The CCEMA establishes the CCEMF.[251] As indicated above, one option to achieve compliance with the net intensity emission limit is to pay the charge per tonne into the CCEMF. The fund's

[249] Note to table 2: Mt = Million Tonnes; Figures are subject to change as a result of auditing and are rounded for presentation purposes. Updated Jun 22, 2016. See Industrial Emissions Management, supra note 248.
[250] SGER, *supra* note 225, s 9.
[251] CCEMA, *supra* note 224, s 10.

revenue is used to support initiatives and projects that reduce greenhouse gas emissions or improve Alberta's ability to adapt to climate change.[252]

6.4 Carbon Tax

Alberta Government's Climate Leadership Plan recommended the carbon tax as one of several tools to reduce GHG by putting a price on carbon emissions.[253] In April 2016, the Alberta Government announced its fiscal plan for 2016 to 2019 (*Budget 2016*) and there provided the first information on the carbon tax.[254]

On May 24, 2016, Alberta's Minister of the Environment introduced *Bill 20*[255] which comes into force January 1, 2017 and enacts both the *Climate Leadership Act*[256] and the *Energy Efficiency Alberta Act*.[257] With the *Climate Leadership Act*, Alberta's controversial new carbon tax will be implemented.

The purpose of the *Climate Leadership Act* (CLA) is to implement a carbon tax (officially referred to as carbon **levy**) on fuel consumption throughout the fuel supply chain. The CLA stipulates that the revenues from the carbon tax are to be used for GHG reduction initiatives in Alberta and to provide tax credits or tax rate reductions to carbon tax affected consumers, businesses and communities.

The CLA defines a "consumer" as "a person that produces or purchases fuel in, or imports fuel into, Alberta (i) for use by that person, (ii) for use by another person at the first person's expense,

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[252] CCEMA, *ibid*, s 10(3).
[253] Brenda Heelan Powell, "Alberta releases its new Climate Leadership Plan" (ELC, 23 November 2015), online: < <http://elc.ab.ca/alberta-releases-its-new-climate-leadership-plan/>.
[254] Alberta, *Fiscal Plan 2016-19* (14 April 2016) online: <http://finance.alberta.ca/publications/budget/budget2016/fiscal-plan-complete.pdf>. Astrid Kalkbrenner, "A Preliminary View on Alberta's New Carbon Tax" (19 May 2016), online: <http://elc.ab.ca/a-preliminary-view-on-albertas-new-carbon-tax/>.
[255] Bill 20 – *Climate Leadership Implementation Act*, online: <http://www.assembly.ab.ca/ISYS/LADDAR_files/docs/bills/bill/legislature_29/session_2/20160308_bill-020.pdf>.
[256] *Climate Leadership Act*, SA 2016, c C-16.9 [CLA].
[257] *Energy Efficiency Alberta Act*, SA 2016, c E-9.7.

or (iii) on behalf of, or as agent for, a principal for use by the principal or by another person at the principal's expense."[258]

The CLA imposes a carbon tax on different types of fuel. There are special provisions on some fuel types such as locomotive diesel,[259] natural gas,[260] and miscellaneous fuels,[261] such as coke oven gas, refinery gas, low and high heat value coal, refinery petroleum coke, upgrader petroleum coke, and coal coke. Some fuel types are exempted from the application of the carbon tax by regulations. Recipients of fuel must pay the carbon tax to the Crown. The tax rate is determined according to the fuel type (Table of Schedule 1).

The following activities trigger the imposition of the carbon tax:

- purchase of fuel,
- import of fuel into Alberta,
- sale or removal of fuel from a variety of industrial facilities such as oil production site or oil sands processing plant or from a specified gas emitter;
- flaring and venting of fuel.[262]

But not all these activities will be immediately taxed. Section 4(3) of the CLA stipulates when the carbon tax is not payable. For example, the carbon tax is not payable at the time when the fuel is imported into Alberta for delivery to a refinery or terminal; or fuel is exported from Alberta in bulk.

There are exemptions from paying the carbon tax in the following cases:

- the consumer holds at the time of purchase a valid carbon tax exemption certificate or other prescribed evidence of exemption and the fuel is intended for a prescribed purpose or use;
- the fuel is marked fuel that is used for farming operations; or

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[258] CLA, *supra* note 256, s 1(1)(e).
[259] CLA, *ibid*, s 6.
[260] CLA, *ibid*, s 8.
[261] CLA, *ibid*, s 9.
[262] For the full list see CLA, *ibid*, s 4(2).

- the fuel is not put into a fuel system that produces heat or energy, and is not flared or vented.[263]

If a consumer is exempted from the payment of the carbon tax, he can file an application to the Minister to receive a carbon tax exemption certificate that identifies the consumer as a person exempt from the carbon tax.

The CLA requires specified and listed activities to register prior to being carried out. For example, the production, processing or refining of fuel, sale or removal of fuel from a gas fractionation plant, sale or removal of fuel from a specified gas emitter, flaring and venting of fuel, sale or removal of natural gas from a transmission pipeline, sale or removal of natural gas from a natural gas distribution system, importation of fuel into Alberta for sale or resale; exportation of fuel from Alberta in bulk, and the use of locomotive diesel in Alberta.[264]

6.5 Comments

The SGER regime is critiqued for its minimal emissions reductions and a too low price on a tonne of carbon (currently $20).

From 2007 to 2014, Alberta's total emissions amounted to 2,019 Mt.[265] For the same period, Alberta reduced emissions under the SGER by 61 million tonnes.[266] In the absence of SGER total emissions would have amounted to 2,080 Mt which means the SGER achieved emissions reduction of three percent. As indicated by Dobson and Winter, this is a very small achievement because "emissions keep growing steadily, up by nearly 11 per cent between 2007 and 2014, with the SGER only slowing that growth by a marginal one percentage point. Alberta's carbon-pricing policy simply fails to combat emissions growth; the province needs a new one." [267]
The general design issue of the SGER regime is its focus on emissions intensity. Critics correctly argue that this approach generally generates lower emission reductions than absolute emissions

[263] CLA, *ibid*, s 15.
[264] CLA, *ibid*, s 27.
[265] Dobson & Winter, *supra* note 235 at 13.
[266] Industrial Emissions Management, *supra* note 248.
[267] Dobson & Winter, *supra* note 235 at 13.

caps.[268] SGER provides the majority of emission allowances free of charge to a facility, based on its production levels. This can create an incentive to increase production but undermines incentives to reduce emissions.[269] Dobson and Winter argue that SGER implicitly subsidizes output/production because "costs of production are lower than under an explicit tax on emissions, especially subsidizing production; the implicitness of the subsidy is due to there being no payment to producers."[270] On the other hand, this subsidy has beneficial effects for the competitiveness of firms.

Since Alberta has no absolute emissions cap, it is not surprising that actual emissions have risen since the SGER was introduced.[271] Additionally - unlike Quebec, Ontario and California - Alberta does not restrict the number of offsets, emission performance credits and payments into the Climate Change and Emissions Management Fund. This also weakens the overall emission reductions Alberta can achieve.[272]

Fluker points out that the carbon levy for the CCEMF is too low at $20 per tonne. The levy is determined by ministerial order on a discretionary basis and thus subject to political considerations.[273] For many large final emitters, it is more economical to let their emissions rise, even in excess of their net emission intensity limit, because the payment into the CCEMF is cheaper than improving their technology.[274]

Fluker argues and concludes that Alberta's SGER does not constitute a cap and trade regime and that there is no carbon market in Alberta:

> The most transparent indicator of a carbon price in Alberta is the $15 per ton payment made by regulated emitters into the Climate Change and Emissions

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[268] Andrew Leach, "Alberta's Specified Gas Emitters Regulation" (2012) 60:4 Canadian Tax Journal 881 at 882; Dobsen & Winter, *supra* note 235 at 9.
[269] Leach, *ibid*, 882.
[270] Dobson & Winter, *supra* note 235 at 9.
[271] Fluker, *supra* note 3 at 40. See for detailed critique of SGER: Matthew Bramley et al, *Responsible Action? An Assessment of Alberta's Greenhouse Gas Policies* (Drayton Valley: Pembina Institute, 2011), online: <https://www.pembina.org/reports/responsible-action.pdf>.
[272] Fluker, *ibid*, 44.
[273] Fluker, *ibid*, 35, 36.
[274] Dobson & Winter, *supra* note 235 at 1.

> Management Fund to cover emissions above their baseline intensity limit. However this does not represent a market price agreed to between a buyer and seller of emissions units, but rather operates more like a carbon tax levied by the Alberta government on emissions above a threshold level. Alberta does not allocate entitlements into the market, so there is no auction or other mechanism upon which to assess prices.[275]

Fluker considers the "fact that payments into the Climate Change and Emissions Management Fund represent a significant portion of how regulated emitters achieve compliance places considerable doubt on whether Alberta even has a carbon emissions trading system."[276] With respect to the question whether Alberta could or should link its "cap and trade scheme" to other ETS in the WCI, Fluker points out that the current design features in Alberta's regime would not allow for a linking. The main barriers are Alberta's baseline-and-credit system with no absolute emissions caps and also the recognition of Alberta's emission performance credits.[277]

Part Seven: Recommendations for Alberta

7.1 Emission Reductions

When looking at the actual emissions reductions that Alberta, British Columbia, California, Quebec and Ontario have achieved, the question arises whether the carbon pricing approaches in the respective jurisdictions will really lead them to achieve their individual emissions reduction targets. Table 4 shows the historic emission reductions and projections for these jurisdictions. It should be noted that each jurisdiction has data available for different years.[278]

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[275] Fluker, *supra* note 3 at 42.
[276] Fluker, *ibid*, 48.
[277] Fluker, *ibid*, 47, 48.
[278] Government of Canada, *Canada's Second Biennial Report on Climate Change* (2016) at 38, online: <https://www.ec.gc.ca/GES-GHG/02D095CB-BAB0-40D6-B7F0-828145249AF5/3001%20UNFCCC%202nd%20Biennial%20Report_e_v7_lowRes.pdf>; California Environmental Protection Agency, *California Greenhouse Gas Inventory for 2000-2014 - by Category as defined in the 2008 Scoping Plan*, at 4, online: <http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_2000-14.pdf>.

Table 5: Historic and Projected Emission Reductions

Total Emissions in Mt CO_2e	2005	2010	2011	2012	2013	2020	2030	Change 2005 to 2020	Change 2005 to 2030
Alberta	234	-	-	-	267	297	320	63	86
BC[279]	64	62	62	63	64	72	83	7	18
California	479.8	445	441.7	448.3	444.3	2014: 441.5	-	-	-
Ontario	211				171	171	181	-40	-30
Quebec	90				83	85	90	-6	0

Overall, it appears that only California, Ontario and Quebec will be able to reduce emissions over the years. In particular, Alberta will fall short of its own emission reduction target unless the province adopts significant amendments to the SGER and the introduction of the carbon tax provides substantial reductions (which remains to be seen).

7.2 Analysis of Carbon Pricing Approaches

The previous parts in this paper have provided an overview on the recent developments in select jurisdictions in Canada and the USA. In general, jurisdictions tend to choose between a carbon tax, a cap and trade scheme or a hybrid model. This paper's objective is not to continue the discussion focusing on the advantages and disadvantages of each method compared to the other.[280] Instead, this paper aims to draw lessons for Alberta from the other regimes in BC,

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[279] BC, "British Columbia Greenhouse Gas Inventory", online: <http://www2.gov.bc.ca/gov/content/environment/climate-change/reports-data/provincial-ghg-inventory-report-bc-s-pir>.

[280] Elsewhere there is ample literature discussing the pros and cons of a carbon tax and cap and trade regimes: Marc Lee, *Fair and Effective Carbon Pricing Lessons from BC* (Canadian Centre for Policy Alternatives & Sierra Club BC, 2011/revised 2013) online: <https://www.policyalternatives.ca/sites/default/files/uploads/publications/BC%20Office/2011/02/CCPA-BC_Fair_Effective_Carbon_FULL_2.pdf>; Elizabeth Beale, *Provincial Carbon Pricing and Competitiveness*

Quebec, Ontario and California. This section briefly compares and analyses Alberta's regime with other jurisdictions. So far the paper tried to maintain a uniform structure in order to facilitate an easier comparison. The same structure is repeated here in the comparative analysis.

7.2.1 Emission Reduction Targets

All jurisdictions have developed more or less stringent emission reduction targets. Alberta aims to reduce by 2020 emissions reduction relative to Gross Domestic Product to an amount that is equal to or less than 50% of 1990 levels. BC's emission reduction target aims to reduce GHG emissions by 2020 by at least 33% compared to 2007 levels and by 2050 by 80% compared to 2007 levels. Interim reduction targets will be to decrease emissions by 2012 by 6% below 2007 levels and by 2016 by 18% below 2007 levels. Ontario envisions a GHG reduction by 15% by the end of 2020, 37% by the end of 2030 and 80% by the end of 2050 compared to 1990 level.[281] Quebec's new climate action plan targets an ambitious reduction of 37.5% below 1990 levels by 2030. California's GHG emission reduction target requires a return to 1990 emission levels by 2020, which equals 427 million metric tons CO_2e (business-as-usual would be 507 MMT).

- Recommendation #1: Alberta could strengthen its overall reduction target. Alberta's current regime is far away from reaching its climate goal and instead provides for increased emissions.

7.2.2 Emission Trading Schemes

Quebec and California both have an established ETS in place and operate in a common carbon trading market. Ontario has just officially implemented its ETS but it remains a work in progress with plans to link with the carbon markets of Quebec and California. The ON ETS design features are therefore starkly aligned with those of Quebec and California. The ON ETS is

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Pressures - Guidelines for Business and Policymakers (November 2015), online: <http://ecofiscal.ca/wp-content/uploads/2015/11/Ecofiscal-Commission-Carbon-Pricing-Competitiveness-Report-November-2015.pdf>; Lawrence H. Goulder, "Carbon Taxes vs. Cap and Trade: A Critical Review" (2013), online: <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2308219>.

[281] CCMLEA, *supra* note 49, s 6.

supposed to start in 2017, but a common trading market with Quebec and California will not be in place before 2020.[282]

BC also amended its existing legislation which now appears to implement an ETS in addition to its carbon tax. However, the legislation is not very detailed and specific so that a carbon trading will not likely happen any time soon.

Some critics argue that Alberta's SGER is not an ETS mainly because of the option to make a payment into the CCEMF. However, the SGER has features of an ETS in theory.

There are various perspectives and parameters that can assist in analysing a cap and trade regime's true environmental potential.[283] Ecofiscal has offered a meaningful approach to assess the environmental integrity of emissions trading schemes by using the following criteria: policy stringency, coverage of policy, allocation of emission allowances and the possibility to link schemes.[284]

7.2.2.1 ETS Policy Stringency

Policy stringency refers to the strength of emission caps and whether they provide for meaningful GHG emission reductions. Lowering the cap over time will result in significant emission reductions. Another aspect of policy stringency is the existence of enforceable strong non-compliance penalties. This means there is a need for policies to be clearly enforceable and to result in meaningful penalties for non-compliance.

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[282] Ontario, "Cap and Trade Program Design Options" (November 2015) at 6, online: <http://www.downloads.ene.gov.on.ca/envision/env_reg/er/documents/2015/012-5666_Options.pdf>.

[283] See for example Ana Maria Radu, *Alberta's CO_2 Reduction Strategy – Assessing the Environmental Integrity of Emissions Trading Schemes* (Calgary: Canadian Institute of Resources Law, 2014), online: <http://dspace.ucalgary.ca/bitstream/1880/50352/1/EmissionsOP45w.pdf> suggesting effectiveness; comprehensiveness; transparency and fairness; and offset eligibility as suitable parameters to assess emissions trading schemes.

[284] Ecofiscal, *The Way Forward for Ontario - Design Principles for Ontario's New Cap-and-Trade System* (2015), online: <http://ecofiscal.ca/wp-content/uploads/2015/06/Ecofiscal-Commission-Report-Brief-The-Way-Forward-for-Ontario-Cap-and-Trade-June-2015.pdf>.

Ontario, Quebec and California all apply absolute emission caps. In contrast, Alberta uses a much criticised intensity based approach which has so far only increased overall emissions. Fluker points out "[A] system of tradeable entitlements to emit carbon does not, in itself, lead to a reduction in carbon emissions. ….The decision to prescribe a limit on carbon emissions is a policy decision subject to the usual suite of political maneuvering and power struggles in modern government."[285] An absolute emission cap is crucial for the reduction of emissions.
This paper cannot go into each detail of the various ETS. However, it is sufficient to note that all here presented jurisdictions have enforceable non-compliance mechanisms in place.

- Recommendation #2: In order to meet its emission reduction targets and to make real reductions, Alberta's amended SGER should apply an absolute cap like that of the WCI partners.

7.2.2.2 ETS Coverage

The coverage of an ETS is a key determinant in its success or failure because "[b]road coverage creates incentives for emissions reductions throughout the economy. Coverage also matters for minimizing the costs of any given level of emissions reduction. The more emitters (and emissions) covered by the policy, the more incentives exist to realize all available low-cost reductions."[286]

Ontario, Quebec and California have a similar scope of industry coverage and thresholds for requiring compliance (25,000 tonnes CO_2e). Alberta sticks out with industry coverage of approximately 50% given its much higher threshold of 100,000 tonnes CO_2e per facility. However, the introduction of the carbon tax will now also cover the transportation sector. On the bright side, Alberta's SGER covers significantly more GHG gases than the other jurisdictions.

[285] Fluker, *supra* note 3 at 49.
[286] Ecofiscal, *supra* note 284 at 6.

- Recommendation #3: The amended SGER should lower its threshold from 100,000 to 25,000 tonnes of CO_2e to dramatically increase the industry coverage.

7.2.2.3 Allocation of Emission Allowances

Ontario, Quebec and California have different allocation methods in place. All of them distribute a portion of the allowances for free or via auction and sale. The topic of allocation is broad and discussed in depth elsewhere.[287] In the Alberta context, the only method of allocation used is the one for free of charge. There are no auctions. However, emitters can purchase performance and offset credits. The main difference between Alberta and the other jurisdictions is the option to make a payment into the CCEMF in order to achieve compliance. In Alberta, emitters have extensively used the payment option instead of contributing to real emission reductions at their facilities. The reason for this is the cheap price for the fund payment compared to the cost of abatement technology, retrofitting or reduced production. Another important difference is that the other jurisdictions have imposed limits on the use of various compliance units to comply with the emission cap. Alberta has no such limit and consequently emitters are allowed to use as many other compliance methods such as the fund payment, performance credits and offset credits (as opposed to real reductions in emissions).

- Recommendation #4: In order to provide for real emission reductions, Alberta should limit or abolish the use of the fund payment option. Although the price of per tonne for the fund payment was too low in the past at only $15, the new increased price of $20 may still be too low. Alternatively or in addition, a limit on the use of the other compliance methods (namely, performance credits and offset credits) could be introduced.

[287] See e.g. Fitsum G. Tiche, Stefan E. Weishaar & Oscar Couwenberg, *Carbon Leakage, Free Allocation and Linking Emissions Trading Schemes* (University of Groening, 2013), online: <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2354235>.

7.2.2.4 ETS Linking

Linking refers to the enabling process that allows the trade of emission allowances between two or more jurisdictions.[288] As previously discussed, Quebec and California have linked their respective ETS regimes to a global carbon trading market. In addition, Ontario is preparing its ETS for a linkage with Quebec and California by 2020/21. So far, there are no indications that the Alberta government intends to link its regime with that of the WCI jurisdictions. Furthermore, the current SGER regime is too different compared to the ETS of Quebec, California and Ontario for linkage. One of the main barriers for linkage is the absence of an absolute emission cap (see Comments on Alberta above).

- Recommendation #5: In order to seriously pursue a linkage of the Alberta carbon market with that of Quebec and California, Alberta first has to become a partner of the WCI. In addition, significant modifications to the existing SGER regime are needed. This requires adoption of the suggested WCI ETS design features which allows harmonization and linkage of ETS regimes in different jurisdictions.

7.2.3 Carbon Tax

In Canada, only British Columbia and Alberta make use of a carbon tax. British Columbia became famous around the world for being one of the first jurisdictions to introduce a carbon tax. One of the key features of BC's carbon tax is its revenue-neutrality. Generally, BC's carbon tax is celebrated as a success. However, the actual number of emissions in BC (see Table 5 above) hint towards an increase in emissions.

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[288] For detailed information on linking of ETS see: Daniel Bodansky et al, *Facilitating Linkage of Heterogeneous Regional, National, and Sub-National Climate Policies Through a Future International Agreement* (Harvard: 2014) Working Paper - Harvard Project on Climate Agreements, online: <https://research.hks.harvard.edu/publications/getFile.aspx?Id=1123>; Matthew Bramley, P.J. Partington & Dave Sawyer, *Linking National Cap-and-Trade Systems in North America* (December 2009), online: <https://www.iisd.org/pdf/2009/linking_nat_cap_north_america.pdf>; Rolandas Vaiciulis, *Linking Emissions Trading Schemes: Analysis and Recommendations for EU-Australia and Quebec-California Linkages* (Calgary: Canadian Institute of Resources Law, 2015), online: <http://prism.ucalgary.ca/bitstream/1880/51027/1/LinkingOP50w.pdf>.

Alberta has only recently implemented a carbon tax in addition to the SGER regime. The government claims that Alberta's carbon tax is designed in such a way that it is revenue neutral.[289] From a perspective of emission reductions, Alberta's carbon tax includes the transportation sector which, due to the high emission threshold level, is not subject to the SGER regime. The Alberta government has not released any projections as to expected emission reductions due to the carbon tax. Only time will tell the actual impact it has on the objective of emission reductions in the province.

Part Eight: Summary

Alberta is in the process of restructuring and amending its carbon pricing regime. It adopted a new carbon tax and is in the process of modifying the existing SGER regime.

Alberta is not the only jurisdiction taking actions on the issue of climate change. In particular BC and Ontario are also in the process to implement an ETS in their provinces. This paper has briefly highlighted the recent trends in select jurisdictions like BC, Ontario, Quebec, Ontario and Alberta. The comparative review of the existing and already operating carbon markets in Quebec and California and the latest trends in BC and Ontario have assisted in better understanding and putting Alberta's approach into perspective. While this paper did not provide a deep level analysis of the very complex issues of carbon pricing, some conclusions can be drawn from this comparison.

- Recommendation #1: Alberta should strengthen its overall reduction target. On the other hand, an improved emissions reduction target may only be lip service. Alberta's current regime is far away from reaching its climate goal and, in fact, provides for increased emissions.

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[289] For a critical evaluation of the Alberta carbon tax see, Preston Manning, "How not to Institute a Carbon Price in Alberta" (17 June 2016), online: <http://www.theglobeandmail.com/opinion/how-not-to-institute-a-carbon-price/article30513338/?utm_content=buffer5dd97&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer>.

- Recommendation #2: In order to meet its emission reduction targets and to make real reductions, Alberta's amended SGER should apply an absolute emission cap.
- Recommendation #3: The amended SGER should lower its threshold from 100,000 to 25,000 tonnes of CO_2e with a resulting dramatic increase in industry coverage.
- Recommendation #4: In order to provide for real emission reductions, Alberta should limit or abolish the use of the fund payment option. The price per tonne for the fund payment has historically been too low at only $15, the increase to $20 may still be too low. An alternative and/or additional option is to introduce a limit on the use of the other compliance methods namely, performance credits and offset credits.
- Recommendation #5: In order to seriously pursue a linkage of the Alberta carbon market with that of Quebec and California, Alberta must first become a partner of the WCI. In addition, the SGER regime needs significant modification by adoption of the suggested WCI ETS design features which allow harmonization and linkage of ETS regimes of different jurisdictions.

While the *Climate Leadership Plan* sets policy guidance for climate change legislative action in Alberta, it is a very high-level document. There is not a great amount of detail on the tools and mechanisms that will be used to achieve the policy goals set in the *Climate Leadership Plan*. In response to this dearth of policy detail, the ELC is publishing a series of reports – the **Climate Change Legal Roadmap** – outlining climate change actions taken in other jurisdictions and making recommendations for Alberta. This is the second report in the series. Subsequent reports in the series will address coal phase-out, oil-sands emissions limits, and methane emissions reductions.