



# QUÉBEC: AN EMISSIONS TRADING CASE STUDY



# Québec

## The World's Carbon Markets: A Case Study Guide to Emissions Trading

Last Updated: April 2015

Second Compliance Period (2015)	
Target	20% below 1990 levels by 2020
Cap	65.3 million tCO <sub>2</sub> e (2015)
Carbon price	\$15.14 (Q1 2015)
Greenhouse Gases covered	carbon dioxide (CO <sub>2</sub> ); methane (CH <sub>4</sub> ); nitrous oxide (N <sub>2</sub> O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); sulfur hexafluoride (SF <sub>6</sub> ); and nitrogen trifluoride (NF <sub>3</sub> ).
Number of Entities Covered	93
Sectors Covered	Electricity, industry, distribution and import of fossil fuels notably for transportation building and small business sectors.
Threshold	>25,000 tCO <sub>2</sub> e/year
% Total emissions covered	~85%
Compliance tools & Flexibility Mechanisms	Auctioning, free allowance allocation, offsets, Price Containment Reserve banking, 3 year compliance period beginning 2015

**Table 1: Program Overview**

## Brief History & Key Dates

Year	Event
2006	First Climate Action Plan covering 2006-12
2008	Québec joins the Western Climate Initiative (WCI)
2009	The Québec National Assembly grants the Government enabling powers to implement a cap-and-trade program through regulation
2009	Government adopts 2020 emissions target (20% below 1990 levels)
2011	Québec, California, Ontario and British Columbia create WCI Inc.
2011	Adoption of cap-and-trade regulation
2011	Regulation on mandatory reporting of GHG emissions amended to harmonize with WCI rules
2012	Cap-and-trade regulation amended to allow for linking with other systems and set operating rules for offset system
2012	Order in council establishing annual allowance caps for the 2013-2020 period
2012	Québec achieved an 8% reduction in GHG emissions compared to 1990 levels, thus exceeding its 2012 target of 6% below 1990
2013	First compliance period begins
2013	Québec signs linking agreement with California
2014	Québec officially links with California's cap-and-trade system
2014	First Joint Auction in November
2015	Second compliance period begins
2015	Program expanded to include fuel, notably for transportation, building and small business sectors

**Table 2: Key Dates**

*Source: Government of Québec, 2014. Available at: [mddelcc.gouv.qc.ca](http://mddelcc.gouv.qc.ca)*

The province of Québec has one of the lowest carbon footprints in North America. This is largely due to early investments in renewable energy sources, namely hydroelectric and wind, which provide for 50% of total energy usage and 98% of electricity in Québec.<sup>1</sup> Québec's emissions patterns have been stable and decreasing over time since 2005.<sup>2</sup> In 2013 Québec emitted 82.6 million tonnes of CO<sub>2</sub> equivalent (tCO<sub>2</sub>e).<sup>3</sup> Québec accounted for 11.4% of Canada's overall emissions (726 million tCO<sub>2</sub>e).<sup>4</sup> In view of this, Québec has focused its greenhouse gas (GHG) emission reduction strategy on its highest-polluting sectors. In 2011, the transport sector was responsible for 44.7% of Québec's emissions, closely followed by the industrial sector with a 31.6% share of total GHG emissions.<sup>5</sup> In order to reduce emissions in these sectors, in 2006 Québec developed the *Climate Change Action Plan* (CCAP) covering 2006-12. In order to finance the Plan, Québec implemented a levy based on the carbon content of fossil fuels, making it the first jurisdiction in Canada to send a carbon price signal to its economy.<sup>6</sup>

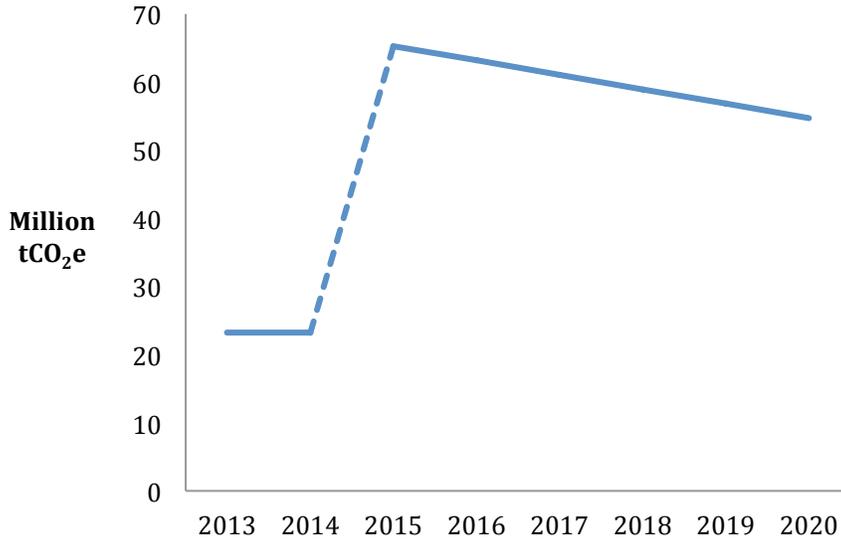
In April 2008, Québec joined the Western Climate Initiative (WCI) — a sub-national policy collaborative of independent jurisdictions in Canada and the United States (British Columbia, Manitoba, Ontario, Québec and California) working together to reduce regional GHG emissions. The design published in 2010, provided a roadmap to inform the WCI Partner jurisdictions as they implement the cap-and-trade program in their jurisdictions. Under WCI, member states were responsible for establishing a climate action plan outlining their strategy to help achieve the overall WCI target. To date the only WCI members that have established emissions trading systems (ETS) are California and Québec, although Ontario recently announced its intention to launch an ETS (13 April 2015).<sup>7</sup> The main purpose of the WCI Inc., the program's Regional Administrative Organization launched in 2013, is to provide administrative and technical services to support the implementation of cap-and-trade programs. WCI Inc.'s Board currently includes officials from California, Québec and British Columbia.

In June 2009, Québec unanimously adopted an amendment to its *Environmental Quality Act* and other legislative provisions in relation to climate change<sup>8</sup> which gave the government the power to implement an ETS. The province exercised these powers when it released draft cap-and-trade rules in July 2011 for public comment, and finalized rules in December 2011.<sup>9</sup> In December 2012, Québec amended its cap-and-trade program rules in preparation for the potential linking to other systems in 2014.<sup>10</sup> These amended rules also introduced the operating procedure for the offset credit system. In December 2012, the government set the cap for the ETS for the 2013-20 at a level to achieve Québec's GHG emission reduction target of 20% below 1990 levels by 2020 (defined in November 2009).<sup>11</sup>

Québec's cap-and-trade program officially began its first compliance period on 1 January, 2013.<sup>12</sup> In September 2013, the government signed an agreement with the California Air Resources Board (ARB) to link their respective systems. This followed a determination by the State of California that Québec's system was as stringent and comprehensive as theirs. On 1 January 2014, Québec officially linked its system with California's ETS. The joint programs, together, create the largest carbon market in North America and the first ETS designed to be operated by subnational jurisdictions of different countries. All compliance units are fully fungible for compliance across either jurisdiction. The first joint auction was held in November, 2014 for both 2014 vintage allowances and 2017 vintage allowances.<sup>13</sup> The second joint auction, held in February 2015, was the first since the second Compliance Period coverage expanded to include fuels, notably for the transport, building and small business sectors.

## Summary of Key Policy Features

**CAP:** The initial **cap** for the first compliance period, spanning 2013 and 2014, was set at 23.20 million tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e) per year.<sup>14</sup> In 2015, the cap was increased to 65.30 million tCO<sub>2</sub>e to accommodate the expansion of the program's scope. After 2015, the cap is set to decrease annually at an average rate of nearly 4% a year to help Quebec achieve its 2020 GHG emission reduction target (when the cap is set at 54.74 million tCO<sub>2</sub>e).<sup>15</sup>



**Figure 1: Québec Emissions Cap (2013-20)**

Source: *Gazette Officielle du Québec*, 2012. Available at: [publicationsduQuebec.gouv.qc.ca](http://publicationsduQuebec.gouv.qc.ca)

**SCOPE/COVERAGE:** Québec's cap-and-trade program regulates emissions of carbon dioxide (CO<sub>2</sub>) and six other GHGs: methane (CH<sub>4</sub>); nitrous oxide (N<sub>2</sub>O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); sulphur hexafluoride (SF<sub>6</sub>); and nitrogen trifluoride (NF<sub>3</sub>).<sup>16</sup>

The program is composed of three compliance periods with an emissions cap that covers entities that met or exceeded the **emissions threshold** of 25,000 tCO<sub>2</sub>e in 2009, 2010 or 2011<sup>17</sup>.

In 2013, Québec's emissions amounted to 82.6 million tCO<sub>2</sub>e<sup>18</sup> which was 11.3% of Canada's total emissions (726 million tCO<sub>2</sub>e)<sup>19</sup> that year. At the end of 2014, Québec's ETS program covered 72 facilities from the industrial sector, as well as energy producers and importers who are covered in the event that the emissions attributable to that acquired electricity exceed the emissions threshold or if the acquired electricity was not generated in a partner's territory with which Québec has agreed to harmonize and integrate emissions trading systems.<sup>20</sup>

In the **second compliance period** (2015-17), the scope has been extended to fuel for consumption, notably in the transport sector building and small business sectors. Natural gas distributors and suppliers are also covered by the extended scope.<sup>21</sup> Only first distributors of fuel are covered under the cap and are defined as; automotive gasoline, diesel fuel, propane, natural gas and heating fuel. The extended scope covers approximately 85% of Québec's emissions, and 93 entities.<sup>22</sup> The **third compliance period** will commence in 2018 for a three-year period ending in 2020.

Emitters who meet or exceed the emissions threshold for the first time are subject to **compliance** the following year. On the other hand, an emitter that achieves three consecutive annual emissions reports below the emissions threshold will no longer be subject to annual compliance.<sup>23</sup>

Emitters receive **two accounts**:

- a **general account** in which emitters can trade allowances
- A **compliance account** where emitters must record allowances to be retired at the end of the compliance period.<sup>24</sup> To comply with the program, emitters must record a number of allowances equal to its verified emission during a compliance period by 1 November of the year following the end of the compliance period (i.e. so in 2015, 2018 and 2021).<sup>25</sup>

**ALLOWANCE DISTRIBUTION:** Fuel distributors first covered in 2015 are not eligible for free GHG emission allowances. Québec’s system **freely allocates** allowances to emitters in the sectors listed below so as to help ease concerns over competitiveness and potential emissions leakage.

Industrial Emissions Eligible for Free Allocation of Allowances
Production of aluminum lime or cement
Chemical and petrochemical industry
Metallurgy
Mining and pelletizing
Pulp and paper
Petroleum refining
Suppliers of steam and air conditioning for industrial purposes
Emissions associated with electricity imports to Québec from jurisdictions that are covered under a separate cap-and-trade program but have not agreed to link to Québec’s cap-and-trade program pursuant to Québec’s Environmental Quality Act
Electric power generation sold under contract with a fixed sale price, and signed before January 1 2009 that has not been renewed or extended after that date
Other manufacturing and industrial sectors

**Table 3: Industrial Emissions Eligible for Free Allocation of Allowances**

Source: Québec Cap-and-trade Technical Overview, 2013. Available at: [mddep.gouv.qc.ca](http://mddep.gouv.qc.ca) page 5 & Québec Cap-and-trade Regulation, 2011. Title III Chapter II Division II and Table A in Appendix C

Québec’s Minister of Sustainable Development, Environment, and the Fight against climate change (hereafter referred to as “the Minister”) annually determines the number of freely allocated allowances to each eligible emitter based on intensity factors and production output. Between 2013 and 2014, allowances were freely allocated based on an entity’s average historic emissions intensity between 2007 and 2010 and adjusted for production output. In those years, free allocation was generally, based on 100% allocation for fixed process emissions, 80% combustion emissions, and 100% for emissions from other sources. From 2015 to 2020, the number of free allowances per unit of production generally decreases by 1% to 2% per year to provide emitters with an additional incentive to reduce their GHG emissions.<sup>26</sup> Different industrial activities will see different rates of decrease.

**AUCTION OVERVIEW:** Allowances remaining after free allocation are **auctioned** to emitters and participants, up to four times annually.<sup>27</sup> The amount of auctioned allowances is increased over time, as freely allocated allowances decrease. Québec delegates many auction responsibilities — including registration, management of financial guarantees and collection of revenue — to WCI Inc.<sup>28</sup>

Auctions began in 2013 with a CAD \$10.75/tCO<sub>2</sub>e **price floor** (reserve price), which increases by 5% each year thereafter (not including inflation).<sup>29</sup> In 2015, the annual price floor is set at US\$12.10 for California and CAD\$ 12.08 for Québec. For joint auctions with California, the price floor equals the highest of the two based on the prevailing exchange rate on the eve of the auction. For the February 18, 2015 auction, the highest floor price was that of California and the Canadian price was set at CAD \$15,01. Floor prices for future auctions, once converted in Canadian or American currency, may vary depending on the exchange rate of the moment and on whose floor price, Québec or California, is retained.

Auctions consist of a **single round of bidding, using sealed bids**. Allowances are auctioned in lots of 1,000 of the same vintage, where each allowance is equal to one tCO<sub>2</sub>e. The Minister awards allowances from the auction, starting with the bidders that submitted the highest bids, until all available allowances have been sold at or above the reserve price is reached. Successful bidders have seven days to pay, at which point the Minister puts the allowances into the bidder's general account. Unsold allowances are retained and may be sold at future sales if two consecutive auctions have been held and the final sale price has been set above the reserve price.<sup>30</sup>

**Emission Trading Proceeds** from the auctions are transferred to the [Green Fund](#), which was established in 2006 and helps to support and implement the 2013-20 Climate Change Action Plan (CCAP). The Green Fund is expected to finance measures towards creating a greener economy with spending estimated at up to CAD \$3.3 billion by 2020.<sup>31</sup> Investments are directed pursuant to Québec's Environmental Quality Act, and are to be used for the financing GHG reduction; limitation or avoidance measures; mitigation of the economic and social impact of GHG reduction efforts; public awareness campaigns; adaptation to climate change; or to finance the development of and Québec's participation in related regional and international partnerships.<sup>32</sup>

At auction, there is a **purchase limit for each bidder** in proportion to the total number of offered allowances. No single emitter can buy more than 25% of available allowances, while, bidders classified as non-emitter participants are limited to 4% of available allowances.<sup>33</sup> Purchase limits are calculated and assessed at each auction, while holding limits are calculated and assessed at the end of each compliance period.<sup>34</sup>

**FLEXIBILITY PROVISIONS:** In addition to emissions allowances, offset credits (including early reduction credits) may be used for compliance, provided they are sourced from projects that meet the requirements within the regulation. The rules also state that emissions credits issued by partners with whom Québec has an official agreement may be exchanged and accepted for compliance. This allows Québec to accept allowances from California pursuant to their linking agreement.

**Early reduction credits** were awarded to emitters covered in the first compliance period who had chosen to voluntarily reduce their emissions between 1 January 2008 and 31 December 2011.<sup>35</sup> These emitters were responsible for adhering to strict criteria and had to submit a request to the Minister for early action credits before 31 May 2013. (These credits have only been issued once thus far, on 14 January 2014).<sup>36</sup>

**Offset credits** must represent actual, verified, additional, permanent and enforceable emission reductions. Covered entities can use offsets only to fulfil up to of 8% of their compliance obligation.<sup>37</sup> The program does not include international offset protocols. Québec's December 2012 amendments introduced the first offset rules and protocols, for projects in:<sup>38</sup>

- Agricultural Methane Destruction,
- Small Landfill Site Methane Destruction, and
- Ozone Depleting Substance (ODS) Destruction (foam and refrigerants)

The first two protocols require that projects take place within Québec. The ODS protocol allows for projects to take place across all of Canada or the US, except that the ODS may be destroyed either in Canada or in the U.S.<sup>39</sup> Québec intends to develop additional protocols.

**Invalidation:** The Minister can require offset project owners to replace offset credits in three cases:<sup>40</sup>

- if GHG emissions reductions for a project’s offset credits are not eligible because of false information or miscalculations;
- where a project owner applied for offset credits under a different program for the same emissions reductions; or
- where the project was not carried out in accordance with the provisions stipulated in the associated legislation.

In each of these cases, the offset project owner has 30 days to replace the invalid offset credits. If they do not replace invalid credits, the Minister has the authority to withdraw and retire credits from the **Environmental Integrity Account** (EIA). The EIA contains a pool of offset credits that the Minister accumulates by withholding 3% of the offset credits awarded to successful projects. In the event that the offset project owner fails to replace invalid credits within 30 days, the project is removed from the offset registry.<sup>41</sup>

The EIA provides a **safety valve** that allows the Québec government to avoid the stricter “*buyer liability*” clause that California’s Air Resources Board has instituted in its system.<sup>42</sup> While in Québec, offset projects themselves must surrender a small portion of credits to the EIA, in California it is the offset purchaser who takes on the invalidation risk. This difference in liability coverage between the two systems could create a price differential based on the perceived risk profiles between Québec and California offsets.

## **COST CONTAINMENT & VOLATILITY MANAGEMENT:**

### *Volatility management provisions*

Québec’s system contains two main provisions to deal with price volatility: a floor price and an allowance price containment reserve (APCR).

The **APCR** is similar to the reserve in California. Reserve allowances are held by the Minister in a **reserve account** in which unsold emission allowances are placed and can be auctioned at most four times a year.<sup>43</sup> The reserve account holds:<sup>44</sup>

- 1% of allowances under the cap for 2013 and 2014;
- 4% of allowances under the cap set for 2015 to 2017;
- 7% of allowances under the cap set for 2018 to 2020;
- 4% of allowances under the cap set for 2021 and beyond.

The allowance reserve is used as a **soft price ceiling**; if allowance prices rise to a pre-determined level, these reserve allowances will be made available via a “*sale by mutual agreement*”, which will be administered by WCI Inc. Alternatively, the Minister may choose to use these reserve allowances to adjust the amount of free allowances allocated to emitters.<sup>45</sup> In the case of a sale by mutual agreement, the Minister will divide the allowances in the reserve account equally into three categories to be sold when prices reach the following levels:

Reserve Category	Price per unit 2015 (CAD\$)
Tier A	44.96
Tier B	50.58
Tier C	56.20

**Table 4: APCR Allowance Bands, April 2015**

Source: California Air Resources Board, 2015. Available at: [arb.ca.gov](http://arb.ca.gov)

\*From 2014 these prices are increased annually by 5% plus inflation in the years leading to 2020.<sup>46</sup>

The numeric values for the prices at which reserve allowances become available are set by California accounting for California’s inflation rate, thereafter the values are converted to CAD using the most recent date’s exchange rate published in its Daily Memorandum of Exchange Rates.<sup>47</sup>

Only covered entities established in Québec that are not holding emissions units in their general account are entitled to purchase allowances from the APCR.<sup>48</sup> This ensures that only the respective allowance reserves created under each system are available to the respective industries. The WCI Inc. is responsible for administrative processes and applications as well as the transfer of payments due to the Minister into the Green Fund.<sup>49</sup>

#### *Other flexible mechanisms*

An emitter’s general account is subject to **holding limits**. For current or prior vintage year allowances, the holding limit is calculated by the equation below:

$$\text{Holding Limit (current year)} = 0.1 * \text{base} + 0.025 * (\text{annual allowance budget} - \text{base})$$

Where “base” equals 25 million tCO<sub>2e</sub> and “annual allowance budget” equals the number of allowances budgeted for the current year. It equals the sum of Québec’s compliance budget and the budget of all cap-and-trade programs Québec is linked to.

For future vintage year allowances, the holding limit is calculated by a similar formula, the only difference being that the “annual allowance budget” equals the sum of Québec’s compliance budget and the budget of all linked cap-and-trade programs for that future vintage year.<sup>50</sup>

**MARKET REGULATION & OVERSIGHT:** It is expected that the Québec Securities Commission will oversee primary market activities relating to entities operating within the province. The Minister can suspend, withdraw, or cancel any allowance for the following infractions:

- Use of false or inaccurate information to attain compliance instruments;
- Violations of the regulation; or
- Any other reason determined by government regulation.

#### *Monitoring, Reporting & Verification*

Every establishment that emits more than 10,000 million tCO<sub>2e</sub> of the GHGs listed in the *Regulation Respecting Mandatory Reporting of Certain Emissions of Contaminants into the Atmosphere*<sup>51</sup> must report their previous year’s emissions to the Minister by 1 June of each year.<sup>52</sup> These reports must be verified by an organization that is a member of the International Accreditation Forum.<sup>53</sup>

## *Enforcement*

Emitters must comply by no later than 1 November of the year following the end of the compliance period (i.e. in 2015, 2018 and 2021) by holding enough allowances in their compliance account to cover their verified emissions. If the general account does not have sufficient allowances, the emitter is given a 30-day notice to obtain them.<sup>54</sup> The entity will have its general account suspended and be required to pay a penalty of three emissions allowances for each missing allowance.<sup>55</sup> If after the 30 days' notice, the emitter cannot produce the required allowances, the Minister will subtract the owed allowances from the emitter's next free allowance allocation — if one exists.<sup>56</sup> The Minister will take the requisite number of allowances from each emitter's compliance account and transfer them to the retirement account.<sup>57</sup> The December 2012 amendments to the regulation contain several financial and legal penalties of varying degrees of severity for contraventions and transgressions regarding the rules, including:<sup>58</sup>

- CAD \$3,000-500,000 penalty and up to 18-month jail time in the case of non-compliance for a “natural person” (or individual).
- CAD \$10,000-3 million in the case of non-compliance for a “legal person” (e.g. CEO, President, etc.).
- Financial penalties double in the case of a second offence.
- The Minister may suspend allocation to any emitter in case of non-compliance.

## **COMPLEMENTARY POLICIES:**

### *Strategic Investments*

The Green Fund aids Québec in funding initiatives that support sustainable development as well as environmental measures. The Green fund focuses on four main programs:<sup>59</sup> CCAP (CAD\$220.8 million 2013-14); waste and recycling (CAD\$117.1 million 2013-14); water protection (CAD \$3.1million 2013-14) and other environmental issues (administrative costs, environmental permits, dams -CAD\$15.9 million).

The 2013-20 CCAP intends to invest its budget of over CAD\$3 billion dollars to implement 30 priorities which include both climate change mitigation and adaptation measures. While the majority of the revenue will be sourced from Québec's cap-and-trade auctions, more than 10 different government ministries partner with the MDDELCC under this plan.<sup>60</sup> Initiatives under the CCAP focus specifically on:<sup>61</sup>

- Land-use planning and risk management,
- Innovation and the development of knowledge, know-how and technology,
- Awareness-raising and training, and
- Integrating concern for climate change into the public administration and exemplarity.

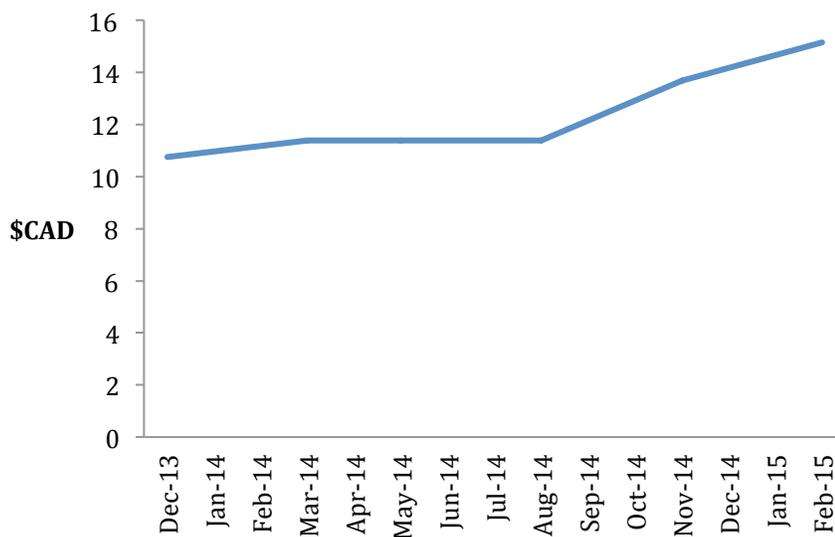
### *Energy Efficiency*

The Ministry of Transport of Québec established the *Government Assistance Program for Improving Energy Efficiency in Road, Rail and Marine Transportation* as part of Measure 9 of Québec's 2006-12 CCAP. The objective of the program was to promote the use of equipment and technologies aimed at improving energy efficiency and reducing GHG emissions in transportation.<sup>62</sup> Québec has also instituted a fuel economy standard for light duty vehicles which is expected to reduce GHG emissions from new vehicles by about 35% between 2010 and 2016.<sup>63</sup>

## PROGRAM RESULTS:

### Carbon Price Evolution

Before the first California and Québec joint auction in November 2014, the price of carbon in the Québec ETS remained close to the price floor. Between December 2013 and August 2014, the average price for allowances sold at auction was CAD\$11.23. The incline in price beginning in November 2014 coincides with Québec's first joint auction with California (CAD\$13.68) and could be the result of linkage, as California entities gained access to Québec allowances, combined with the depreciation of the Canadian currency.



**Figure 2: Québec Cap-and-Trade: Carbon Price Development**

Source: Québec MMDELCC, 2015. Available at: [mddelcc.gouv.qc.ca](http://mddelcc.gouv.qc.ca)

### Holding Breakdown

By the first quarter of 2015, Californian and Québécois entities had mainly used allowances (99.95%) to comply with their cap-and-trade obligations. However, since the first quarter of 2014, when no offsets were used, the share of offsets has been slowly increasing.<sup>64</sup> The use of offsets may continue to grow in view of the inclusion of fuel producers and importers which are not allocated free allowances. It's worth noting that, as of 2 April, more than 14 million offset credits were held in holding accounts – which can therefore still be traded in the secondary market or used for compliance at a later date.

Vintage	Entity Compliance Account	Entity General Account	Total Allowances held
2013	77,718,344	62,453,405	140,171,749
2014	63,403,031	110,897,576	174,300,607
2015	76,745,629	133,664,332	210,409,961
2016	0	32,783,000	32,783,000
2017	1,742,100	32,852,900	34,595,000
2018	0	10,431,500	10,431,500
2019	0	0	0
2020	0	0	0
<b>Non-Vintage Québec Early Action Allowances (QC)</b>	360,000	1,680,026	2,040,026
<b>Non-Vintage Price Containment Reserve Allowances</b>	0	0	0
<b>Allowances Subtotal</b>	<b>219,969,104</b>	<b>384,762,739</b>	<b>604,731,843</b>
US Forest Project Offset Credits (CA) <sup>+</sup>	39,368	5,743,764	5,783,132
Urban Forest Project Offset Credits (CA)	0	0	0
Ozone Depleting Substances Offset Credits	66,784	7,655,887	7,722,671
Livestock Manure Digesters Offset Credits	0	697,223	697,223
Mine Methane Capture Offset Credits (CA)	0	278,177	278,177
Landfill Site Methane Destruction Offset Credits (QC)	0	0	0
<b>Offset Credits Subtotal</b>	<b>106,752</b>	<b>14,375,051</b>	<b>14,481,803</b>
<b>TOTAL</b>	<b>220,075,856</b>	<b>399,137,790</b>	<b>619,213,646</b>

**Table 5: Holding of Allowances April 2015**

Source: ARB, 2015. Available at: [mddelcc.gouv.qc.ca](http://mddelcc.gouv.qc.ca)

## What Distinguishes this Policy?

### UNIQUE ASPECTS:

1. In Québec, **renewable generation** from hydroelectric power is by far the largest generation source on the grid.
2. The linking plan with California brings about unique challenges and opportunities, particularly with **joint allowance auctions**. For example, setting consistent price collars, including price floors and trigger prices for reserve sales, in different currencies (USD and CAD) over time is one necessary aspect of a successful linkage.
3. Québec has developed its program while taking into consideration the potential **future harmonization** of its regulations with California and other WCI jurisdictional partners, Ontario and British Columbia. Future linkage has been at the heart of the Québec cap-and-trade project under WCI from the beginning.
4. In 2012 figures show an 8.5% (70.3 million tCO<sub>2</sub>) decrease of CO<sub>2</sub> emissions from 2005 levels, indicating that the program is on track to meet its established CCAP target.<sup>65</sup>

### CHALLENGES:

1. There are minimal reduction opportunities in the electricity and manufacturing sectors. Approximately 96% of the available electric power in Québec comes from renewable sources of energy, mainly hydropower. As a result, Québec is prioritizing GHG emission reductions in the transportation sector. This motivates the carbon levy on fuel, the fuel efficiency standards, and the inclusion of fuel distributors in the cap-and-trade program.
2. The future development of Québec's cap-and-trade system will depend on its government's ability to find new linkage partners. In the US, willingness to take action on climate change and the Clean Power Plan could drive some US States (e.g., Washington State, Oregon and others) to implement their own emissions trading systems. Indeed, this EPA regulation notes that if states are working alone, they have until June 2017 to get a plan approved. If states are working together — say, by joining a regional cap-and-trade system — then they have until June 2018. Beyond the WCI, the Québec and the Regional Greenhouse Gases Initiatives have begun discussions to examine the potential linking of their cap-and-trades systems; in this case, the two partners would need to harmonize their institutional designs.
3. On 13 April, 2015, on the eve of the provincial and territorial Summit on climate change convened by the Québec government, Ontario announced its intention to implement a cap-and-trade system and to link it with the WCI carbon market. Once linked, the two Canadian systems will cover more than 60% of the Canadian population and 55% of the country's GDP.

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The authors would like to thank Emilie Alberola, Ruben Lubowski, Erica Moorehouse, for very helpful comments and information for this case study. We take full responsibility for any remaining errors.

**Disclaimer:** The authors encourage readers to please contact the CDC Climat Research, EDF and IETA Contacts with any corrections, additions, revisions, or any other comments, including any relevant citations. This will be invaluable in strengthening and updating the case studies and ensuring they are as correct and informative as possible.

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