



Balancing Supply and Demand in an ETS

November 29, 2019

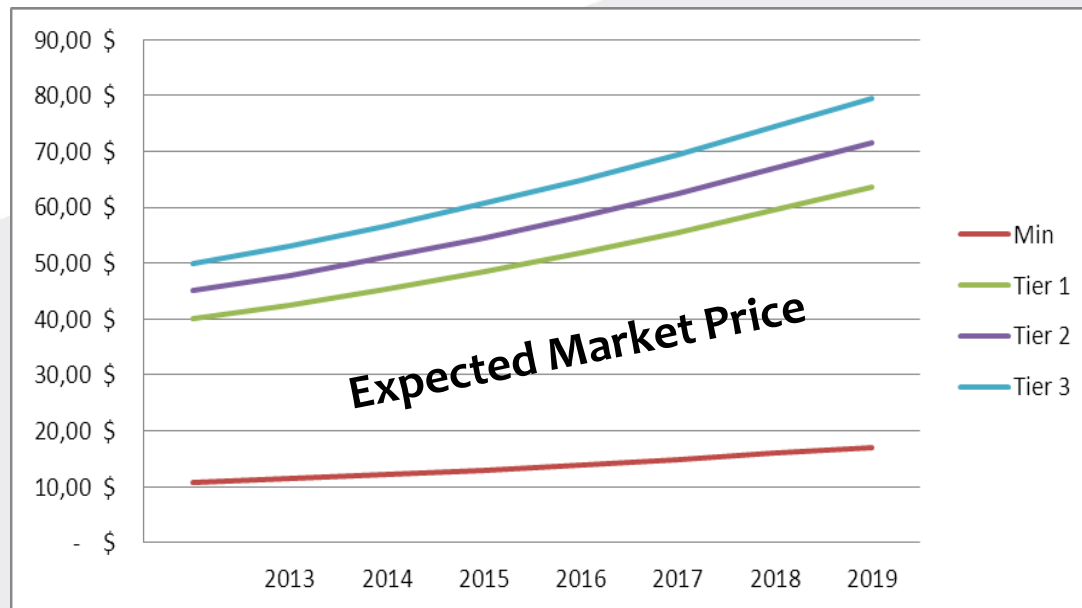
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Why Balancing Supply and Demand ?

To assure short, medium and long term stability to the price of allowances in order to drive investments from the private sector





Flexibility Mechanism

- Most ETS's allow for "Banking" as a flexibility mechanism:
 - PRO : Allows for actual/past vintages to keep a market value
 - CON : If the ETS is over allocated (caps are too high due lack of ambition or due to greater mitigation effort from covered sources than expected), then Banking will drive the long term price of allowance towards zero



Options for Balancing S&D

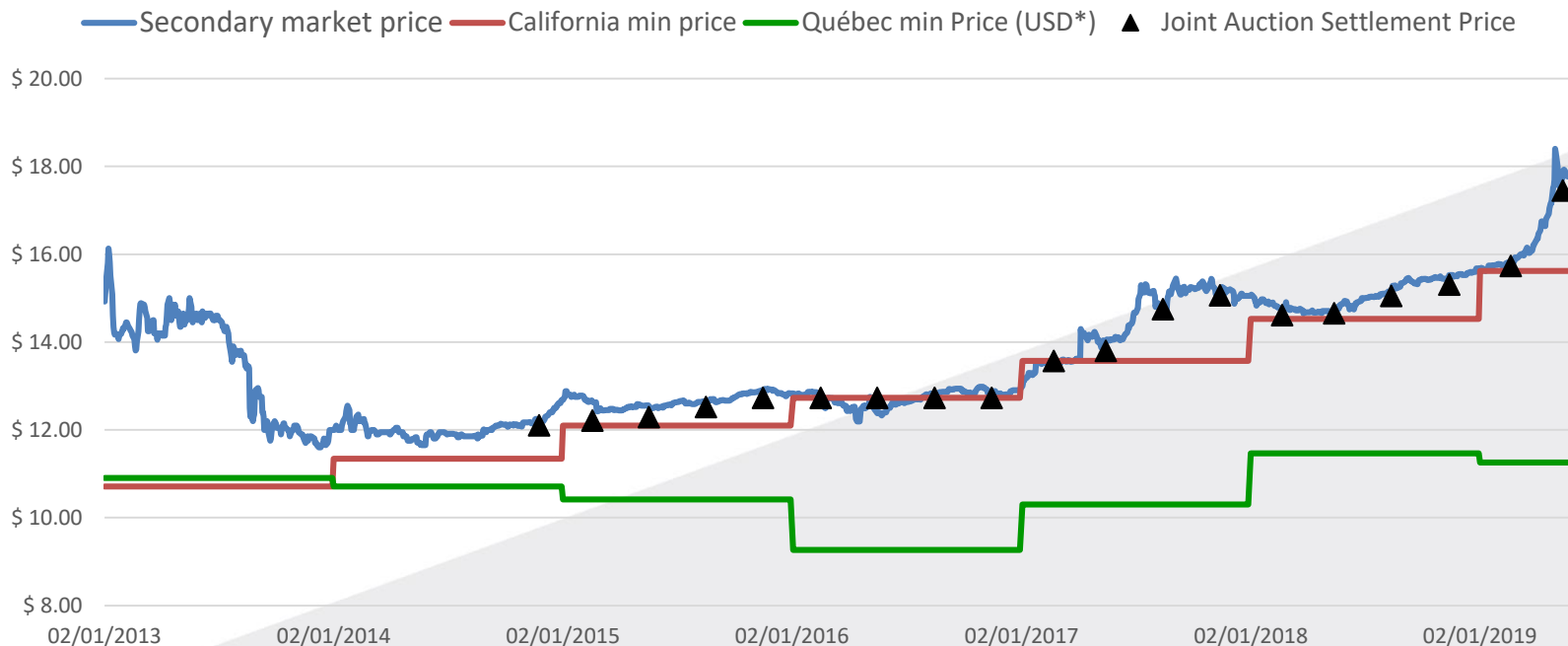
- *A priori* :
 - Include design features in the regulation that will prevent any “excessive” shift in market price
 - PRO : automatic
 - CON : restrict “free” market
- *A posteriori* :
 - Human intervention to balance supply and demand after an “excessive” shift in market price have been observed
 - PRO : does not restrict “free” market
 - CON : once a human intervention is required, it is very hard to agree on what to do and how to do it



Supply and Demand Balance Features of the Quebec and California ETS

- *Auction Reserve Price* (market floor price) :
 - Joint Auctions : Maximum of QC and CA reserve price based on the most recent exchange rate
 - Each jurisdictions' regulation define an annual minimum price
 - Annual minimum prices increase yearly by 5% plus inflation (inflation rates differ)
- Unsold allowances are removed from the market (set aside)
- Unsold allowances can be put back at auction after two consecutive auctions close above the Auction Reserve Price
- Option : unsold allowances could be definitely removed from the market if they are not brought back to be sold at auctions after a certain period of time

Floor price and Market price



	2013	2014	2015	2016	2017	2018	2019
CA annual min price (USD)	10,71	11,34	12,10	12,73	13,57	14,53	15,62
QC annual min price (CAD)	10,75	11,39	12,08	12,82	13,56	14,35	15,31
QC annual min price* (USD)	10,90	10,71	10,41	9,26	10,30	11,46	11,26

* Based on the exchange rate on the first open day of the year

USD – CAD Exchange rate



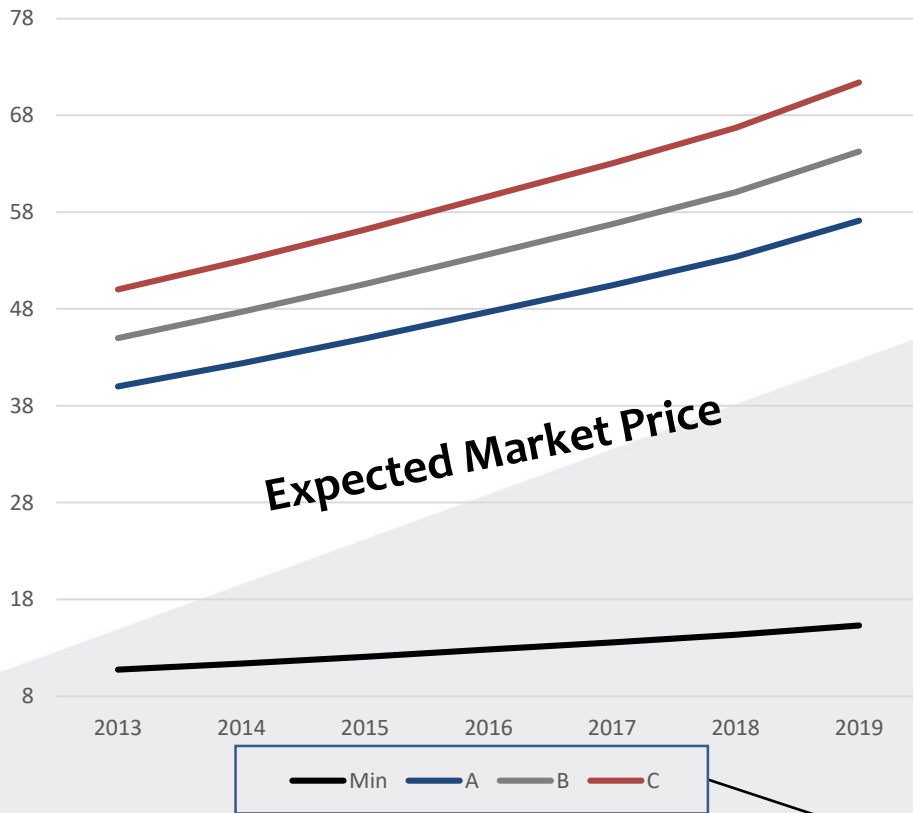


Supply and Demand Balance Features of the Quebec and California ETS

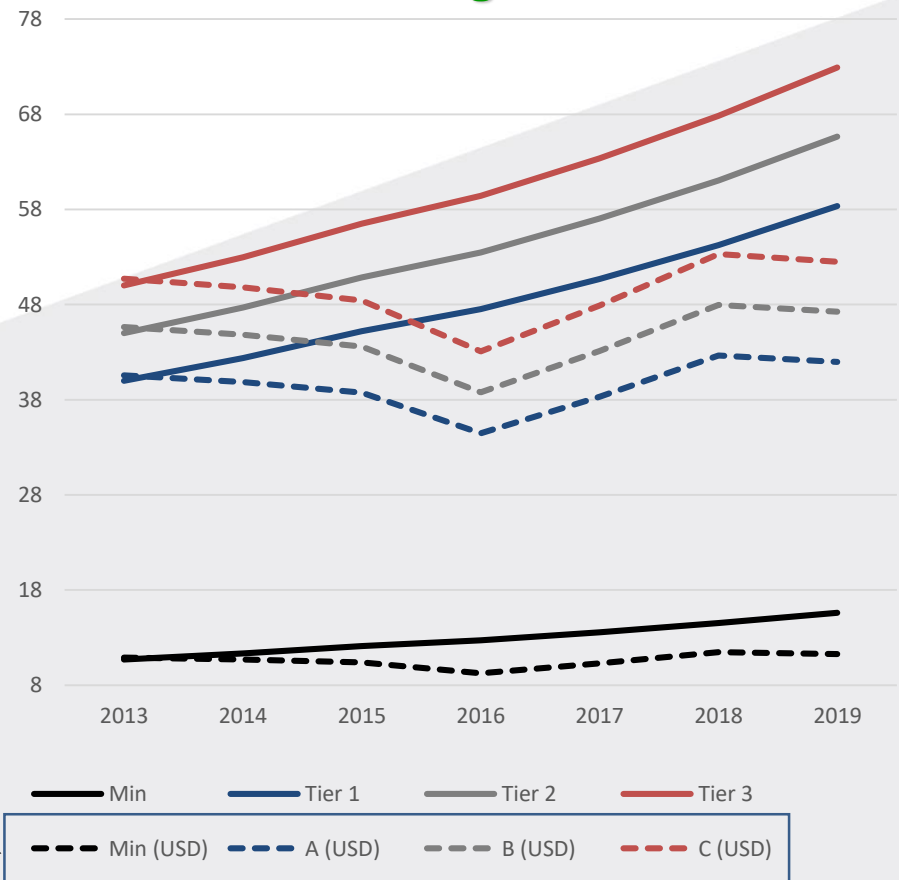
- *Cost Containment Reserve (market ceiling price)* :
 - Made of: 1% of 2013-2014 Caps, 4% of 2015-2017 Caps and 7% of 2018-2020 Caps
 - About 20 million allowances for Québec and only available to Québec covered entities
 - About 120 million allowances for California and only available to California covered entities
 - Allowances divided in 3 equal tiers:
 - Tier 1: available at \$40 in 2013, price increasing at 5% plus inflation per year
 - Tier 2: available at \$45 in 2013, price increasing at 5% plus inflation per year
 - Tier 3: available at \$50 in 2013, price increasing at 5% plus inflation per year
 - 4 quarterly Cost Containment Reserve Sales per year
 - For Québec, up to 4 sales per year
 - QC and CA : allowances are transferred in the entity's compliance account (not tradeable on the market)



Québec reserve prices in CAD



California reserve prices in USD in comparison of Québec reserve prices affected by the USD/CAD exchange rate





Supply and Demand Balance Features of the Quebec and California ETS

Price control mechanisms 2021-2030 in USD (Hard ceiling price)

- California introduced price ceiling units (PCU)
 - Exclusive to California covered emitters
 - At the top tier price level, the demand would be fulfilled with PCU, units that are additional to the annual caps on emissions
 - PCU are transferred to compliance accounts
 - Engagement to achieve an equivalent amount of reduction
- Québec considers a similar approach and price harmonization
 - Prevents capital flow from QC to CA if market price reach the PCU price
 - Avoids arbitrage

Thanks!

