Carbon Emissions Markets: *Implications for Canadian Oil and Gas Companies*

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Discussion Points

Carbon Emissions Market Primer

- Cap-and-Trade
- Allowances, Offsets, Permits, Credits . . .
- Carbon Prices

Review of Existing Cap-and-Trade Programs

- EU ETS
- RGGI
- California and Quebec
- Ontario

What is happening in Canada?

- National Carbon Price
- Alberta

Oil and Gas Implications

Carbon Markets: "Cap-and-Trade"

A **market-based** approach to reducing greenhouse gas* emissions

- "Covered" sectors typically include: power generation, oil and gas refining, large industrials, transportation fuels, natural gas

➔ **Cap**: A governmental authority sets the emissions cap for a sector or group of emitters and either auctions or allocates permits under this cap.

➔ **Trade**: If a compliance entity exceeds their emissions cap they can go to the marketplace to purchase the deficit amount. Conversely, if the entity is in excess, they can sell their surplus allowances in the market.

** Covered greenhouse gases typically include: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulphur hexafluoride, nitrogen trifluoride*

Allowances, Permits, Credits, Offsets…

An “**allowance**” is a permit allowing the holder to emit carbon dioxide equivalents (usually one metric tonne) within an emission trading program.

Examples: California Carbon Allowance (CCA), Québec Carbon Allowance (QCA), EU Allowance (EUA), RGGI Allowance, other

An “**offset**” or a “**credit**” is an instrument representing a reduction in GHGs from the atmosphere. Offsets are created through the financial support of a project that reduces GHGs. Usually trade at a discounted price to the allowance.

Examples: California Carbon Offsets, Québec Offsets, Climate Reserve Tonnes (CRTs), Certified Emissions Reductions (CERs), Alberta Offsets, voluntary offsets. There are many offset types throughout the world that vary by program.

Carbon Prices

Description	Price	Product
<u>Market based:</u>		
EU Emission Allowance (EUA)	€5.81 / tonne	Daily futures contract
Certified Emission Reduction (CER)	€0.37 / tonne	Daily futures contract
Regional GHG Initiative Allowance (RGGI)	US$4.66 / ton	Front month futures contract
California (QC) Carbon Allowance (CCA)	US$12.95 / tonne	Front month futures contract
California Carbon Offset (CCO) "Golden"	US$11.50 / tonne	Spot
California Carbon Offset (CCO) "CCO-3"	US$10.50 / tonne	Spot
Climate Reserve Tonnes (CRT)	US$0.35 - 1.50 / tonne	Spot
Alberta Emission Performance Credit	~C$20 / tonne	Bilateral contract
Alberta No till / Low till Offset	~C$19 / tonne	Bilateral contract
<u>Tax:</u>		
British Columbia Carbon Tax	C$30 / tonne	
Alberta Carbon Tax	C$20 / tonne	

- Currently there are 42 carbon pricing initiatives implemented (or scheduled) globally
- 75% of emissions in implemented initiatives are priced under US$10/tCO2e
- Annual value of carbon pricing initiatives is approximately US$50 billion

* Prices as of October 25, 2016, various sources

European Union Emission Trading System

Background

- EU established the first mandatory cap-and-trade program as per the Kyoto Protocol
- Began in 2005 with reduction target of 20% below 1990 levels by 2020
- Covers 12,000+ installations, 43% of EU emissions or ~2.1B tonnes per year
- Sectors: power generation, mining and steel, pulp and paper, cement, glass, aviation

Mechanics

- Currently in Phase 3 (2013-2020) with Phase 4 under development
- Union Registry tracks allowance ownership
- Allowance distribution gradually moved from allocation to auctioning
- Allowed the use of offsets (CERs) with restrictions

Issues

- Current market is projected to be “long”. Back-loading and Market Stability Reserve.
- Phase 4 calls for further reduction targets (43% reductions from 1990 levels by 2030)
- History of stolen allowances, tax fraud, and offset manipulation

Regional Greenhouse Gas Initiative (RGGI)

Background

- Began in 2009 as the first U.S. compliance carbon program
- Nine states in the northeast U.S. (New Jersey left after the first compliance period)
- Covers over 200 power generators of 25MW or above, roughly 22% of emissions

Mechanics

- Current cap (revised in 2014) is 91MM short tons. Declines 2.5% per year
- Three year control periods. Comply on March 1st of the following year
- RGGI CO2 Allowance Tracking System (COATS) records and track allowance data
- Allowances auctioned and allocated. Allocations vary by state
- Quarterly auction #33 was held in September 2016. Auction minimum was $2.10, cleared $4.54/ton
- Auction proceeds to date are over $2.5B

California Cap-and-Trade

Background

- Began in 2013 as the method for fulfilling the AB32 plan to return to 1990 emission levels by 2020. SB 32 now has reduction targets of 40% by 2030.
- Covers power generation and industrials initially, transportation and commercial/residential fuels added to the program in 2015. Covers emitters over 25,000 tonnes CO2e/year
- Represents roughly 85% of the State's CO2e emissions
- First auction of allowances was on November 14, 2012

Mechanics

- Three year compliance periods
- Annual allowance budget: 163MM tonnes per year in 2013, 394MM tonnes in 2015 with inclusion of fuels. Cap reduces over time
- Most allowances allocated early in the program, by the end most will be auctioned.
- Minimum auction price of $10 rising annually at 5% plus inflation - currently US$12.73
- Compliance Instrument Tracking System Service (CITSS) is the market tracking system.
- Allow the use of CARB issued offsets for up to 8% of compliance

Québec Cap-and-Trade

Background

- Québec is a Western Climate Initiative (WCI) member, modeled after California
- Began in 2013, goal to cut Québec's 1990 emissions levels by 20% by 2020
- Covers power generation and industrials in 2013, expanded to include transportation and commercial/residential fuels in 2015
- 25,000 tonnes CO2e/year is the threshold for coverage in the program
- Represents roughly 75% of the Province's emissions

Mechanics

- First auction in December 2013, first joint auction with California was November 2014
- Three compliance periods: First (2013-2014), Second (2015-2017), Third (2018-2020)
- Annual allowance budget: 23MM tonnes per year in 2013, 63MM tonnes in 2015 with inclusion of fuels, reducing over time
- Most allowances allocated early in the program, by the end most will be auctioned.
- Allow the use of QC issued offsets for up to 8% of compliance

Ontario Cap-and-Trade

Background

- Cap-and-Trade established by Ontario Bill 172: *Climate Change and Low-carbon Economy Act , 2016*
- Begins January 1, 2017. Goal to cut Ontario's emissions by 15% below 1990 levels by 2020, 37% by 2030, and 80% by 2050
- Covers power generation, industrials, and natural gas and fuel distributors
- 25,000 tonnes CO2e/year is the threshold for coverage in the program

Mechanics

- Annual cap: 142MM tonnes in 2017 down to 124.7MM in 2020
- Compliance periods: First (2017-2020), Second (2021-2023), Third (2024-2026) and ever three years thereafter
- First auction will be in March 2017. Plan to allocated large industrials initially
- Plan to link to California and Quebec in 2018
- Offset regulation not complete

Carbon Pricing in Canada

- Canada will set minimum carbon prices in order to meet its Paris Agreement targets, 30% carbon emission reduction from 2005 levels by 2030
- Minimum federal price of C$10 per metric tonne set in 2018, rising by C$10/year to C$50 in 2022
- Requires provinces to adopt a carbon tax or cap-and-trade system to meet minimum price
  - Cap-and-trade: Quebec and Ontario
  - Carbon Tax: BC and Alberta
- Policy gaps between Provinces and Federal government

Alberta

Specified Gas Emitter Regulation

- GHG emissions intensity program covering large emitters (>100,000 tonnes/year) which began in 2007
- Reduce intensity by 15% per year by: 1) Reduce emission at facility; 2) Performance credits from other facilities; 3) Purchase Alberta offsets; or 4) Pay into the Climate Change and Emissions Management Fund (currently C$20/tonne, rising to C$30 in 2017)
- In place through 2017 then transitions to product and sector-based performance standards

Climate Leadership Plan

- Phase out coal generation, increase renewables
- Limit overall oil sands emissions - 100 megatons by 2030
- Target a 45% reduction in methane emissions from oil and gas sector
- Implement a carbon levy:
  - Begins January 1, 2017 at C$20/tonne, increasing to C$30 in 2018
  - Tax on fuels that emit GHGs when combusted (transportation and heating fuels and power generation)
- Rebates and tax breaks to offset costs

Oil & Gas Industry Impacts

- Carbon emissions will be priced
- Emissions from production covered in a program
- Emissions from fuel products covered (transportation, heating, and power generation)
- Those already covered (Alberta, California/QC, EU) are sure to face program changes and updates
- Other

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