Western Climate Initiative Market Update

July 20, 2017
A bit of lawyerly caution...

Much of this presentation is based on our understanding of state and provincial cap and trade regulations. As the implementation of the Regulations is the responsibility of the respective governmental agencies, you should be aware that anything presented here may be interpreted or applied differently by those agencies.

Moreover, this presentation does not constitute legal advice. Information presented here should be regarded as guidance and does not have a legally binding effect.

Enjoy!
Western Climate Initiative compliance market
California recap

California

- **Assembly Bill 32 (2006):** adopted 2020 GHG target and authorized action
  - Implemented through development of Scoping Plan, followed by the Regulation, which has been amended several times
  - Authorizes program through 2020
  - Target is 1990 emission levels
- **Senate Bill 32 (2016):** adopted 2030 GHG target of 40% below 1990
- **Assembly Bill 398 (2017):** authorized cap and trade through 2030
California AB 398

- Authorizes the C&T program through 2030
- Calls for updated Scoping Plan by Jan 1, 2018
- Establishes a Compliance Offsets Protocol Task Force
  - Could this spur action on protocol adoption?
- Reduces offset usage limit from 8% to 4% (2021-2025) and then 6% (2026-2030)
- Requires that 50% of offsets used in 2021-2030 must offer environmental benefit to the state of CA
  - Could put a major chill on the market
Quebec cap & trade program

- Linked to CA through CITSS and joint auctions
- GHG budget is ~15% of California
- 2020 target is 20% below 1990 levels
- 2030 target is 37.5% below 1990
- 8% offset usage limit
Ontario cap & trade program [DRAFT]

• Targets related to 1990 emissions
  – 2020: 15%
  – 2030: 37%
  – 2050: 80%

• Will be linked to CA and QC through CITSS and joint auctions

• C&T is operable, but offsets regulation is not final

• Reserve and partners are adapting 13 project protocols

• 8% usage limit on offsets

• Program structure similar to CA with a few exceptions:
  – Aggregation allowed, but only at an administrative level
  – No buyer liability, but risk buffer contribution for all projects
Annual WCI GHG allowance budgets
Cumulative WCI GHG offset budgets

- **276 M tCO₂e**
- **127 M tCO₂e**
Offset project protocols

<table>
<thead>
<tr>
<th>Adopted</th>
<th>In-Progress</th>
<th>California</th>
<th>Quebec</th>
<th>Ontario</th>
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<tbody>
<tr>
<td>Forest*</td>
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<td>Livestock (Manure)</td>
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<td>Livestock (Enteric)</td>
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<td>Rice Cultivation</td>
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<td>Fertilizer Management</td>
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<td>Avoided Grassland Conversion</td>
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<td>Conservation Cropping</td>
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<td>Urban Forest</td>
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<td>ODS Destruction</td>
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<tr>
<td>Landfill Gas Destruction</td>
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<tr>
<td>Mine Methane Capture</td>
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<td>Refrigeration Systems</td>
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<td>Organic Waste Management</td>
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<td>Organic Waste Digestion</td>
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*Note that the CA, QC, and ON forest protocols are not identical in their scope of project activities, and the new ON/QC protocol is likely to be split into multiple protocols*
Compliance offset issuance to date

As of 7/12/17

California: 66.7M tCO2e
- ODS: 14.8
- Livestock: 3.7
- U.S. Forest: 44.0
- MMC: 4.1

Quebec: 0.5M tCO2e
Secondary market activity

- **Floor Price**
- **Cover ratio**

- December

- **Chart details:**
  - Y-axis: $10.00 to $15.00
  - X-axis: Dates from 2/25/2014 to 2/25/2017

- **Legend:**
  - December
  - Floor Price
  - Cover ratio

- **Source:** Iresco Solutions

- **Logo:** ICIS
QUESTIONS & DISCUSSION
Pan Canadian Framework – Geez!

Includes: PCF Offset Harmonization
Framework going on now

BRITISH COLUMBIA
• Offsets (CNG)
• Benchmark ETS (LNG, coal, new entrants?)
Carbon Tax (Fuels) $30/t - Frozen

ALBERTA
• Benchmark ETS (EPC, Offsets) $30/tonne 2017
• Oil Sands Cap (100Mt)
• Coal phase-out 2030
• 30% renewable energy
Carbon Levy (Fuels)
• (2017) $20/t
• (2018) $30/t

MANITOBA
WCI
• No Cap and Trade
• Looking West

SASKATCHEWAN
• CO₂ Purchasing Contracts
• Technology Transfers
• Coal Equivalency Deal

ONTARIO
WCI (link 2018)
Cap and Trade
• 2017: ~$18/t
• LFEs, Power Imports, Fuel Distributors

QUEBEC
WCI
Cap and Trade
• LFEs, Power Imports, Fuel Distributors
By 2030:
• Petroleum consumption 40% below 2013
• No thermal coal
• Renewables 25% above 2013

NFL
• “Carbon tax” (on gasoline)
• SGER-model (>25kt onshore)
(Price not yet listed)
Regional Carbon Trading Program?

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Regional Carbon Trading Program?
Emissions staying under the cap

- 2013:
  - California: 150
  - Quebec: 50
  - Surplus: 10
  - Total cap: 210

- 2014:
  - California: 150
  - Quebec: 50
  - Surplus: 10
  - Total cap: 210

- 2015:
  - California: 250
  - Quebec: 100
  - Surplus: 50
  - Total cap: 400

Millions
AB32 emission reduction measures

AB32 is more than just a price on carbon. The cap works together with other sector-specific measures, serving as a backstop to ensure we meet our legally-mandated reduction requirements.
Allowance proceeds

Allowance Auction Proceeds to State of California (millions USD)

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<thead>
<tr>
<th>Fiscal Year</th>
<th>Proceeds (millions USD)</th>
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<tbody>
<tr>
<td>FY 2012-2013</td>
<td>$257</td>
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<tr>
<td>FY 2013-2014</td>
<td>$477</td>
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<tr>
<td>FY 2014-2015</td>
<td>$1,491</td>
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<tr>
<td>FY 2015-2016</td>
<td>$1,829</td>
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<tr>
<td>FY 2016-2017</td>
<td>$381</td>
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<td>(3 quarters)</td>
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