California Carbon Cap And Trade Overview

Prepared by
BGC Environmental Brokerage Services

June 2013
BGC Partners, Inc. (NASDAQ: BGCP) is a leading global intermediary to the wholesale financial markets

Originally part of Cantor Fitzgerald, BGC split off in 2004

On April 1, 2008, BGC merged with eSpeed and became BGC Partners, Inc.

With 1,800 brokers, 24 offices worldwide, BGC conducts over $200 trillion in notional transactions annually

Revenue in 2010 was just over $1.3B

Currently investment grade credit rating

Recently acquired real estate brokerage firms Newmark Knight Frank and Grubb & Ellis.
BGC Environmental Brokerage Services (BGC EBS)

- BGC launches Environmental Brokerage Services division in July 2011
- BGC EBS Acquires CantorCO2e’s North American business & grows to a dozen employees with offices in New York, San Francisco, Los Angeles
- BGC EBS focuses on emissions, alternative energy and emerging environmental product markets
- Named Top ERC Broker in Environmental Finance Survey in 2011

- Environmental markets
  - BGC EBS brokers:
    - Carbon (compliance & voluntary, US & International)
    - Renewable Energy Markets
    - EPA NOx & SO2 markets
    - Regional Cap & Trade Programs (i.e. RECLAIM & HGB)
    - US ERC Markets
    - Mobile Source Markets (EPAct, MSERCs, Rule 2202 & ZEVs/PZEVs)
    - US Water Markets
BGC Scope of Services

- We introduce buyers and sellers and provide clearing and settlement services.
  - Including Bilateral Contracts
  - Exchange Cleared Products

- We assist our clients throughout the transactional process making sure everything is properly taken care of from introduction to negotiation to ensure quick and successful trade completion.

- We provide our clients with accurate and timely information about the regulatory happenings, market prices, trends and potential future prices.

- We require all of our customers to submit a W-9 prior to execution of a transaction to run our “Know Your Customer” checks.

- We do not take principal positions.
Who’s in & When?

- **Phases:**

- **Compliance Periods:**
  - CP1: 2013–2014
  - CP2: 2015–2017
  - CP3: 2018–2020

- **Threshold for Covered Entities:**
  - For covered sectors as of 2013:
    - No Threshold for Electricity–Importers from Unspecified Sources
    - +25K metric tons in any year 2008–2012 inclusion starting 2013
    - +25K metric tons in any year 2013 and beyond inclusion in that year
  - For covered sectors as of 2015:
    - No Threshold for Electricity–Importers from Specified Sources
    - +25K metric tons in any year 2011–2014 inclusion starting in 2015
    - +25K metric tons in any year 2015 and beyond inclusion in that year

- **Registration Deadlines:**
  - Future Covered Entities: Facility must register within 30 calendar days of the reporting deadline contained in MRR (registration deadline: 5/10/12 for Facility Operator/Fuel Supplier & 7/1/12 for Electric Power)
  - Voluntary Opt-In 11/30
Compliance Obligations for Covered

- Annual Compliance Obligation by Nov 1 of the following year = 30% of emissions from previous data year
- 100% compliance obligation in the Year following close of the compliance period by Nov 1

Quantitative Usage Limit on Designated Compliance Instruments (+ Offsets)
  - 8% Offset usage limit (of compliance obligation) over a compliance period
  - Less than 25% of the Offsets can be Sector–based credits in 1st and 2nd compliance periods and no more than 50% for the 3rd period

Timely Surrender of Compliance Instruments
  - OK to use current and past vintage allowances/offsets (banking)
  - Can’t use or ‘borrow’ future vintage allowances/offsets for compliance
  - Transferred from holding account to compliance account by Nov 1 following the compliance year

Untimely Surrender of Compliance Instruments
  - Offset invalidation doesn’t trigger (up to 6 month buffer)
  - 4:1 penalty; due within 5 days following the first ARB auction
  - 3 extra credits: (75% to Auction Holding Acct; 25% retired), 75% allowances & 25% offsets

Compliance Obligation for Under–Reporting in a Previous Compliance Period
  - Under reporting <5% protected, >5%, then 5% penalty on emissions
  - Entity has 6 months before penalty kicks in
AB32: Visually

- **Net Cap**: The amount of allowances that CARB will remove from each year’s cap and set aside for the Allowance Price Containment Reserve.
- **Offset forecast**: BAU emissions forecast.

The chart illustrates the net cap and offset forecast from 2012 to 2020.
# Allowance Budgets

- **California and Quebec Greenhouse Gas Allowance Budgets**

<table>
<thead>
<tr>
<th>Year</th>
<th>California</th>
<th>Quebec</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>162.8m</td>
<td>23.7</td>
</tr>
<tr>
<td>2014</td>
<td>159.7m</td>
<td>23.3</td>
</tr>
<tr>
<td>2015</td>
<td>394.5m</td>
<td>63.6</td>
</tr>
<tr>
<td>2016</td>
<td>382.4m</td>
<td>61.0</td>
</tr>
<tr>
<td>2017</td>
<td>370.4m</td>
<td>58.5</td>
</tr>
<tr>
<td>2018</td>
<td>358.3m</td>
<td>56.0</td>
</tr>
<tr>
<td>2019</td>
<td>346.3m</td>
<td>53.4</td>
</tr>
<tr>
<td>2020</td>
<td>334.2m</td>
<td>50.9</td>
</tr>
</tbody>
</table>
Direct Allocations

- 10% average shortfall in CARB allowance allocation

Allocation to Industrial Covered Entities
- Electric Distribution Utility Sector by September 2012
- Transferred to entity holding account on/before November 1 of each CY
- Allowance formulas with leakage accounted

Allocation for Industry Assistance
- Product Output–based allocation calculation methodology vs Energy–based allocation calculation methodology
  - Energy–based methodology modeling allocations shall not exceed 110% of max annual GHG emissions for an entity
- New Facilities post 2011: Free Allocation under energy–based methodology
- Facility Closures: not eligible for allowances
- Cap Adjustment Factors decreases over time

Allocation to Natural Gas Distribution Utilities for Protection of Natural Gas Ratepayers: TBD
Trading Guidelines

- **Conduct of Trade**
  - Both parties submit a request for transfer within 3 calendar days (push+push+pull)
  - Must inform the accounts administrator:
    - Serial number of compliance instrument
    - Date of transaction agreement
    - Price of the instrument
    - Holding Account number and representative of an entity that instrument is being held for

- **Trading Holding Limit**
  - Excludes allowances in limited use holding accounts
  - Includes: Past Vintage, Current Vintage, Containment Reserve, and Auctioned Allowances
  - Includes compliance accounts

- **Banking, Expiration and Voluntary Retirement**
  - Allowances may be held by approved entities
  - An allowance must be used in a particular compliance period. Offsets will not expire.
Designation of Authorized Account Representative:
- A compliance entity may have between 1 and 4 alternative authorized account representatives
- Up to 5 account viewing agents.
- Helpful for the push + push + pull

Trading Violations
- The Executive Office shall not approve the transfer request if the transfer violates the accounts balance within the holding limits
- If an entity purchases allowances over their holding limit, and the violation is not caught prior to the transfer, the violator will have five business days to bring the account balance within the holding limits.
What’s Trading?

- California Carbon Allowances (CCAs)
  - Auctions
  - Exchange Cleared
  - California Allowance Forward Trade Agreement (CAFTA)
  - Bilateral

- CARB Carbon Offsets (CCOs)
  - California Offset Forward Trade Agreement (COFTA)
  - Bilateral

- Non-Guaranteed Offsets (existing and potential CARB protocols)
  - Bilateral
Fourth Auction: August 16th

2013 and on:
- 12th Business day of the 2nd month of each calendar quarter
- 25% of allowances designated for annual at each auction
- Will include allowances consigned to auction
- Allowances unsold at auction will be returned to auction for 2 consecutive auctions and then sent to reserve

Auction of Allowances from Future Budget Years
- For 2012 Auctions, 50% of the allowances designated for advance auction will be offered from the 2015 budget
- Beginning in 2013, 25% of allowances designated for advance auction (from the budget year 3 years subsequent to current) will be auctioned

Auction of Consigned Allowances
- Each consigning entity agrees to accept the auction settlement price
- Allowances must be transferred to Auction Holding Account 10 days before each auction
- In 2013, transfer 75 days prior to the quarterly auctions into the Auction Holding Account
Auctions (cont.)

- **Auction Bidding Format**
  - Single round of sealed bids, in multiples of 1,000 allowances, Multiple bids allowed

- **Auction Reserve Price Schedule**
  - Auctions occurring in 2012: $10; Post-2012: 5% + CPI adjustment (2013=$10.71)

- **Auction Purchase Limit**
  - Per quarterly auction
  - Current Vintage
    - 15% for covered and opt-in
    - 40% for electrical distribution utilities
    - 4% purchase limit for all other auction participants
  - Future Vintages: 25% purchase limit

- **Determination of Winning bidders**
  - Highest bids in order by price
  - Entities will be sold allowances until
    - Next price is less than auction reserve price
    - Next bid quantity exceeds what is left, that bid becomes settlement price
  - Resolution of tie bids:
    - Random number to each allowance

- **Disposition of Consigned Allowances Remaining Unsold**
  - Auction Holding Account
<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consignment</td>
<td>at least 75 days prior to auction</td>
<td>November 5</td>
<td>March 4</td>
<td>June 3</td>
<td>September 5</td>
</tr>
<tr>
<td>Auction Notice</td>
<td>at least 60 days prior to auction</td>
<td>September 14</td>
<td>March 18</td>
<td>June 17</td>
<td>September 20</td>
</tr>
<tr>
<td>Application Deadline</td>
<td>At least 30 days prior to auction</td>
<td>October 15</td>
<td>April 16</td>
<td>July 17</td>
<td>October 21</td>
</tr>
<tr>
<td>Bid guarantee due</td>
<td>At least 12 days before auction</td>
<td>February 7</td>
<td>May 4</td>
<td>August 4</td>
<td>November 7</td>
</tr>
<tr>
<td>Auction</td>
<td>12th business day of 2nd month of each calendar quarter</td>
<td>February 19</td>
<td>May 16</td>
<td>August 16</td>
<td>November 19</td>
</tr>
</tbody>
</table>
# ARB: Auction Data Per Auction

<table>
<thead>
<tr>
<th></th>
<th>November Data</th>
<th>February Data</th>
<th>May Data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total 2013 Allowances</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available for Sale</td>
<td>23,126,110</td>
<td>12,924,822</td>
<td>14,522,048</td>
</tr>
<tr>
<td><strong>Total 2013 Allowances</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sold at Auction</td>
<td>23,126,110</td>
<td>12,924,822</td>
<td>14,522,048</td>
</tr>
<tr>
<td><strong>Total Submitted Bids</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divided by Total 2013</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allowances Available for Sale</td>
<td>1.06</td>
<td>2.47</td>
<td>1.78</td>
</tr>
<tr>
<td><strong>Auction Reserve Price</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$10.00</td>
<td>$10.71</td>
<td>$10.71</td>
</tr>
<tr>
<td><strong>Settlement Price Per Allowance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$10.09</td>
<td>$13.62</td>
<td>$14.00</td>
</tr>
<tr>
<td><strong>Allowances Purchased by Compliance Entities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>97.00%</td>
<td>88.15%</td>
<td>90.22%</td>
</tr>
</tbody>
</table>
## ARB: Auction Data Per Auction

<table>
<thead>
<tr>
<th>Bid Price Summary Statistics</th>
<th>November Data</th>
<th>February Data</th>
<th>May Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Price</td>
<td>$91.13</td>
<td>$50.01</td>
<td>$50.01</td>
</tr>
<tr>
<td>Minimum Price</td>
<td>$10.00</td>
<td>$10.71</td>
<td>$10.71</td>
</tr>
<tr>
<td>Mean Price</td>
<td>$15.60</td>
<td>$14.71</td>
<td>$16.67</td>
</tr>
<tr>
<td>Median Price</td>
<td>$12.95</td>
<td>$12.56</td>
<td>$13.49</td>
</tr>
</tbody>
</table>
# ARB: 2016 Vintage Auction Results

<table>
<thead>
<tr>
<th></th>
<th>February</th>
<th>May</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total 2016 Allowances Available for Sale</td>
<td>9,560,000</td>
<td>9,560,000</td>
</tr>
<tr>
<td>Total 2016 Allowances Sold at Auction</td>
<td>4,440,000</td>
<td>7,515,000</td>
</tr>
<tr>
<td>Total Submitted Bids Divided by Total 2016 Allowances Available for Sale</td>
<td>0.46</td>
<td>0.79</td>
</tr>
<tr>
<td>Auction Reserve Price</td>
<td>$10.71</td>
<td>$10.71</td>
</tr>
<tr>
<td>Settlement Price Per Allowance</td>
<td>$10.71</td>
<td>$10.71</td>
</tr>
<tr>
<td>Allowances Purchased by Compliance Entities</td>
<td>100.00%</td>
<td>86.49%</td>
</tr>
<tr>
<td>Bid Price Summary Statistics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Price</td>
<td>$40.00</td>
<td>$35.00</td>
</tr>
<tr>
<td>Minimum Price</td>
<td>$10.71</td>
<td>$10.71</td>
</tr>
<tr>
<td><strong>Mean Price</strong></td>
<td><strong>$12.40</strong></td>
<td><strong>$12.19</strong></td>
</tr>
<tr>
<td>Median Price</td>
<td>$11.12</td>
<td>$11.19</td>
</tr>
</tbody>
</table>
Allowance Price Containment Reserve

- Allowance Price Containment Reserve
  - 1% of allowances from 2013–2014
  - 4% of allowances from 2015–2017
  - 7% of allowances from 2018–2020

- Eligible Participants: covered entities

- The first reserve sale: March 8, 2013 (cancelled); then 6 weeks after each quarterly auction – First Reserve Sale was Cancelled

- Subject to holding limits

- Reserve Tiers
  - 3 equally sized tiers: $40, $45, $50
  - Increase Yearly by 5% + CPI
  - Fill from lower tier to higher tier until depletion
  - Tie Resolution / Depletion
CCA Contracts

CCA (California Carbon Allowance) Futures:
- Instrument: California Greenhouse Gas Allowances deliverable through CITSS.
- CY 2012 contracts will be rolled one year ahead if MTS is not operational.
- CY 2013 or later contracts -- if the MTS is not operational -- will settle at the Auction Reserve Price ($10).
- OTC execution both with central counterparty clearing.

CAFTA (California Allowance Forward Trade Agreement)
- Barclays Capital sanctioned by International Swaps and Derivatives Association (ISDA)
- Vintage 2013, delivery December 2013
- Program delay: one year roll
- Tear up provision in the event the program abandoned

CCA Spot & Forwards:
- Bilateral Negotiated Contracts subject to PSA & Credit
- Specifications are negotiable
Allowance Price Projections (excluding Quebec demand)

Barclays Capital:
- CP 1: $14/t
- CP 2: $36/t -> $26/t
- CP 3: $68/t -> $49/t

Chart Source: Thompson Reuters/Point Carbon graphic 10/2011
Carbon Offset Rules

- Real, additional, quantifiable, permanent, verifiable and enforceable
- 8% Limit
- Credit Periods:
  - Non Sequestration 7–10 years
  - Sequestration 10–30 years
  - Must be within US (plus territories, Canada, or Mexico)
- Offset Projects Using ARB Compliance Offset Protocols
  - Commencement after December 31, 2006
  - ODS, Livestock, Urban Forest, US Forest Projects
    - Early Action Offset Project Crediting 1/1/2005 to 12/31/2014, listed or registered pre 1/1/2014
- Potential new offset credits
  - Coal Mine Methane
  - Fertilizer Management
  - Rice Management
<table>
<thead>
<tr>
<th>Compliance Period</th>
<th>Year</th>
<th>Allowance Budget (mt CO\textsubscript{2}e)</th>
<th>Potential Total Offset Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Narrow Scope</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>162,800,000</td>
<td>26,800,000</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>159,700,000</td>
<td></td>
</tr>
<tr>
<td>Second Broad Scope</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td>394,500,000</td>
<td>91,784,000</td>
</tr>
<tr>
<td></td>
<td>2016</td>
<td>382,400,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2017</td>
<td>370,400,000</td>
<td></td>
</tr>
<tr>
<td>Third</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>358,300,000</td>
<td>83,104,000</td>
</tr>
<tr>
<td></td>
<td>2019</td>
<td>346,300,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2020</td>
<td>334,200,000</td>
<td></td>
</tr>
</tbody>
</table>

*Data from Climate Action Reserve*
Offset Contracts

- Guaranteed CARB Offset at delivery
  - CCO Forward
    - Buyer assumes liability
    - Program Delay: one year roll
    - Tear up provision in the event the program abandoned
    - Buyer liability at time of delivery
  - CCO with Additional Guarantee
    - Seller assumes liability until November 1, 2015
  - CCO (3)
    - Seller double verifies credits and limits invalidation to risk 3 years
  - CCO Guaranteed with a CCA
    - Seller will deliver a CCA if the underlying Offset if invalidated
  - Bilateral Negotiated Contracts
    - CRT/CCO – Prepayment Contract

- Non-Guaranteed Offsets/Bilateral Negotiated Contracts
  - Specifications are negotiable
Compliance Structures

- Finished Fuel and Carbon Reimbursement–
  - Carbon Reimbursement marked to Index
- Crude bundled with Carbon
  - Allowances and Offsets Linked to Index
- Carbon Neutral Gas –
  - Natural Gas bundled with CCAs and Golden CCOs
- Power Reimbursement Contracts–
  - Carbon Linked to Auction Index
- Carbon Neutral Power –
  - Power bundled with CCAs and Golden CCOs
Market Pricing as of 6/12/13

- **CCAs:**
  - V13 Spot: $14.70–$14.80/CCA
  - V13 DEC13 Futures: $14.55–$14.65/CCA
  - V14 DEC14 Futures: $14.40–$15.00/CCA
  - V15 DEC13 Futures: $11.80–$12.50/CCA

- **Guaranteed CCOs:**
  - CCO backed by CCA (Dec 13): −22% vs. −12% (Index Based)
  - CCO backed by CCA (Dec 13): $11.75–$12.25/CCO
  - CCO backed by CCO: $9.75–$11.45/CCO
  - CCO (Dec 13): $9.50–$10.65/CCO

- **Non-Guaranteed Offset Credits:**
  - ODS CRT: $7.25–$8.85/CRT
  - AG CRT: $7.25–$8.85/CRT
  - CAR v3.x FRST: $7.00–$8.75/CRT
BGC Contact Info

Dusty Granet
VP California Emissions Markets
Office: 646–346–6899
Cell: 415–316–8400
Email: dgranet@bgcpartners.com
Website: www.bgcebs.com