

Trading in California's Carbon Market:

A summary of trading activity, products and drivers

Prepared by:

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Prepared for:

Northwest Power and Conservation Council

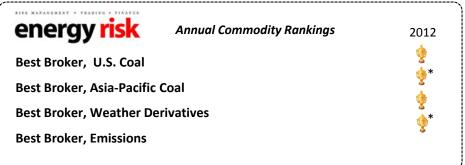
September 5, 2013

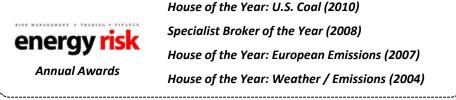


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California Carbon Market Activity

2013 Year to Date Average ICE CCA Daily Volume for Allowances

226,000 Futures:

Options: 142,000

Total: 368,000

2013 Spot Market Pricing

2013 Vintage \$12.80

2015 Vintage \$12.10

2016 Vintage \$12.00

2013 Offsets: \$9 - \$11 range depending on offset type and delivery period

Market Psychology

- Recent market activity reflective of sentiment that CA Cap & Trade program is here to stay
- First retirements to take place in Nov '14 which likely means increased liquidity next year



Carbon Price Drivers

Hedging Behavior

- Many power entities hedge carbon when they sell wholesale power providing price support
- Will Transportation fuels begin hedging significant volumes in 2014?

Structural

- \$10 price floor + 5% escalator and CPI provides price support
- IPP's and Refiners Transportation Fuels receive no allocations
- Other sectors receiving on average 90% allocations
- Holding limits could adversely impact liquidity
- Auction/ICE/Bilateral Markets

Events

- Quebec Linkage
- November 2013 Auction
- First Offset issuances



Carbon/Power Relationship

- 1H 2013: Average CCA Price: \$14.57/mtCO2e (CAL ISO DMM August 2013 p 41)
- Cal ISO's Department of Market Monitoring estimates that the average wholesale electricity
 price impact is about \$6.00/MWh for 1H 2013. This is consistent with the emissions costs
 for gas units typically setting prices in the ISO market.
- Given the importers unspecified emissions default rate as established by CARB of 0.428 tonnes/MWh, the above numbers make sense.

Benchmark California Carbon Contract: *ICE CCA V13 Dec '13*

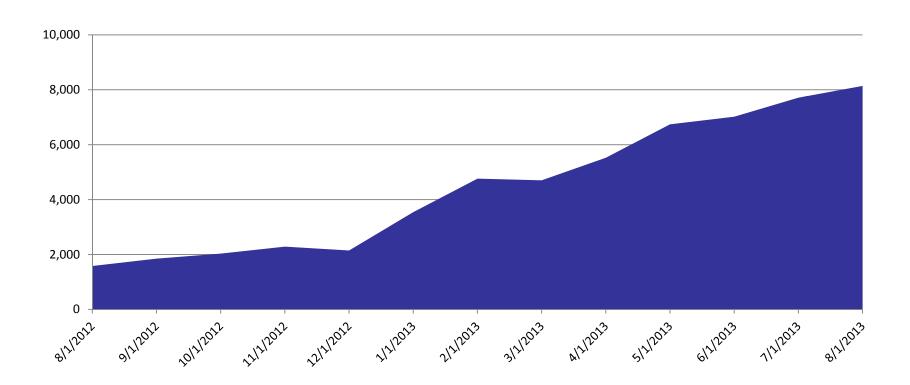






Open Interest (millions)

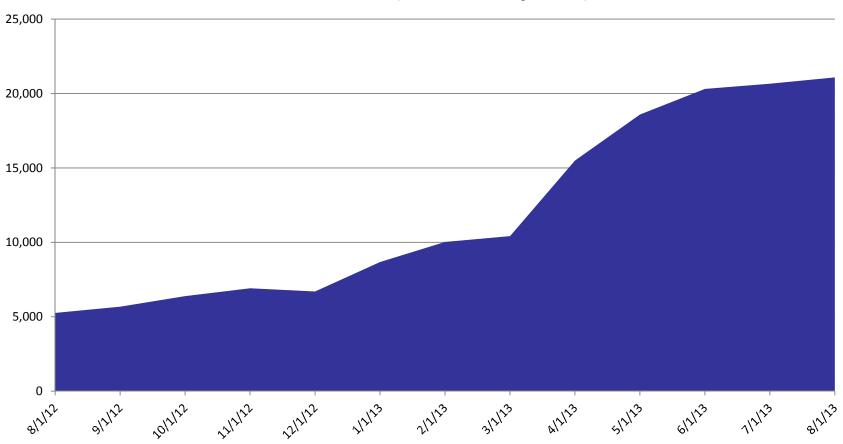
V13 CCA Open Interest (Futures)





Open Interest (millions)

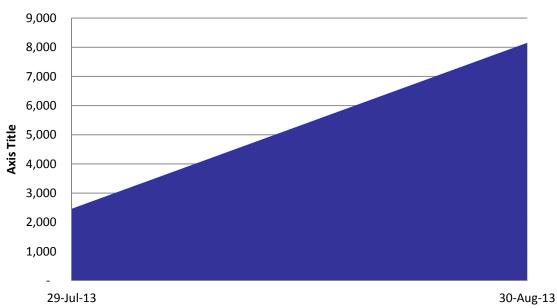
Total V13 OI (Futures & Options)





Open Interest V16 CCA Futures

Open Interest V16 CCA Futures





Closing Comments

- All types of compliance entities and liquidity providers are actively transacting in the California Carbon markets today
- Volumes and liquidity are relatively healthy w/ more participants trading since the start of compliance this year
- Pricing appears to be reflective of the fundamentals
- The offset market is moving forward slowly and will likely increase activity once the first CARB approved offsets are issued



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