



Trading in California's Carbon Market:

A summary of trading activity, products and drivers

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Prepared for:

American Carbon Registry and Marten Law –
California's Cap-and-Trade: Strategies for effective market participation

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Tools for Managing Carbon Price Risk

Active Participants

- Commodity Traders
- Banks
- Hedge Funds
- Power generators
- Industrials
- Offset Project Developers

California Carbon Allowances (CCAs)

Primary: auctions/free allocations. **Secondary:** exchange-cleared (ICE) futures/options & OTC bilateral spot and forwards. Vintages: '13, '15, '16

California Compliance Instruments (CCIs)

Bundled allowance and offsets product. Trades OTC bilateral under bilateral contracts. Indexed or Fixed price

California Carbon Offsets (CCOs)

Primary: project-specific. **Secondary:** non-project specific. Dec '13 or later forwards, no spot yet. CCOs trade w/ 3, 8 or no invalidation risk

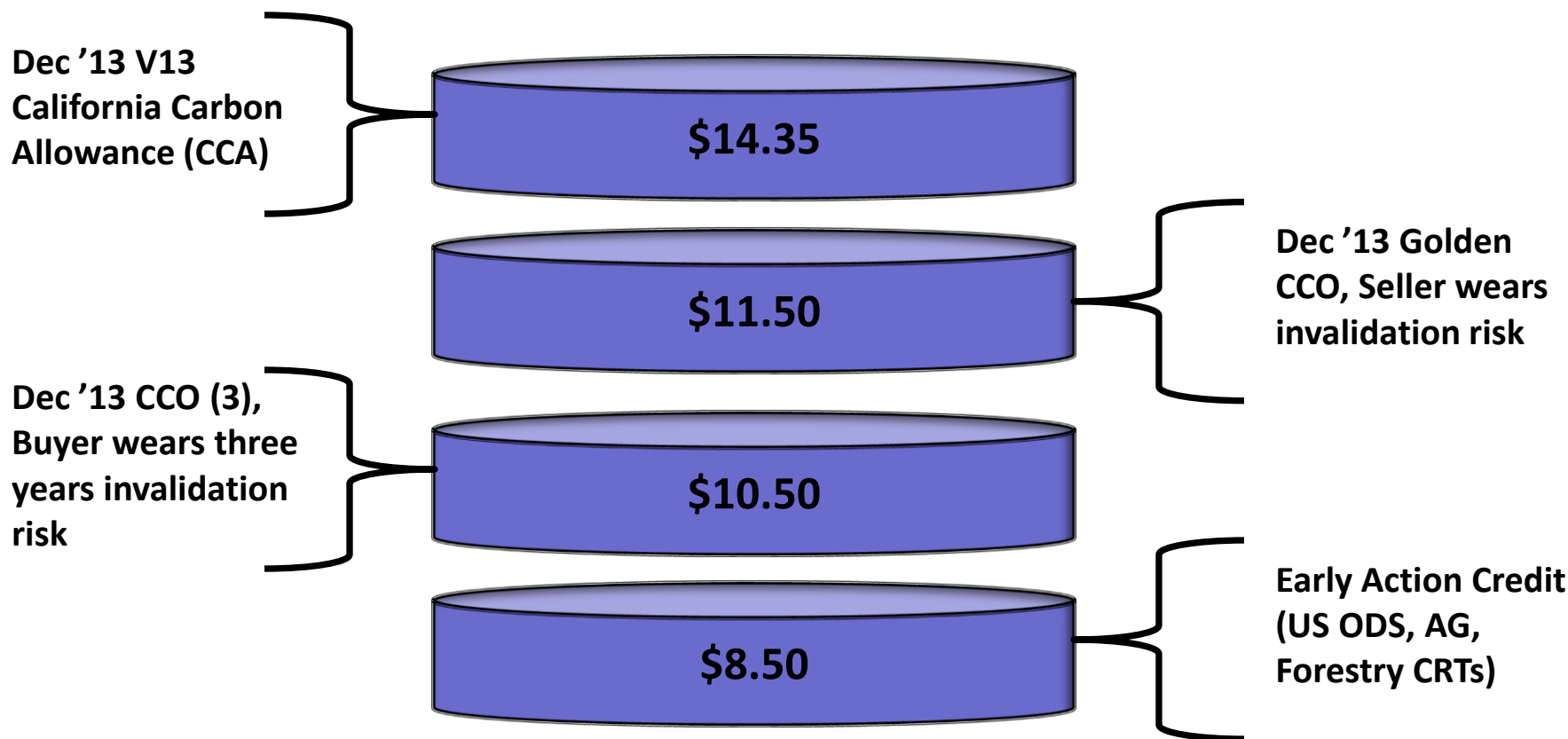
Early Action Credits (AB32-eligible CRTs)

Trades OTC bilateral (relatively inactive). Spot/forward/options contracts. CRTs that are eligible to be converted into CCOs under AB 32, i.e. US ODS

Prices

Note: prices are indicative based on current market conditions and are subject to change.

Date: 7/16/2013



Exchange-Cleared CCA Contracts

Intercontinental Exchange (ICE)

- Most liquid contracts: V13 Dec '13, V13 Jul '13, V16 Dec '15
- Settlement: physical if CITSS is operational* Seller delivers CCAs into Buyer's CITSS Account (or FCM Holding Account) on last business day of the month
- If CITSS isn't operational at settlement, the parties financially settle against the Reserve Price for that CY
- 1 contract = 1,000 CCAs
- Minimum price tick: \$0.01 per CCA, \$10.00 per contract
- Minimum margin: \$2,000 per contract (\$2 per ton) + variation margin posting is 100% of market price change
- Futures, spreads, calls & puts
- **In 2013, Average Monthly Volume for Dec '13 V13 CCA: 3M tons**
- **End of June Total Open Interest in all V13 Futures and Options: 18.5M tons**
- **Most active Option contracts (all v13, mostly Dec '13 expiration):**
 - Calls: \$15, \$17, \$17.50, \$20
 - Puts: \$11.50, \$12, \$12.25, \$12.50, \$14

* It is conceivable, like in other emissions markets, CITSS remains intact after a legal challenge/order, i.e. stay, vacate, etc., resulting in trading below the Price Reserve on ICE

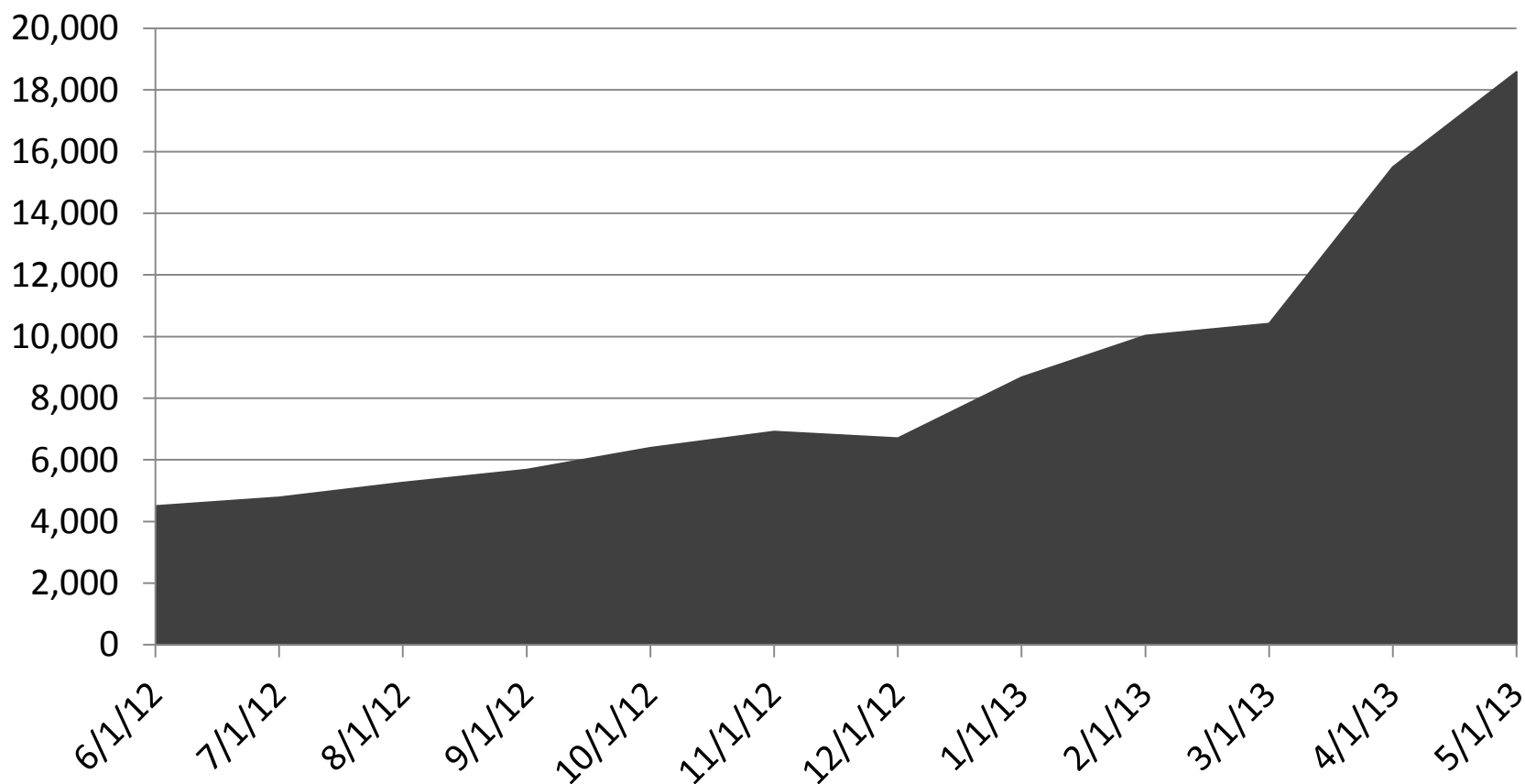
Auction – Highlights

Auction	V13 Volume	V15 Volume	V16 Volume	Reserve Price	V13 Price	V15 Price	V16 Price	# of Qualified Bidders	ICE V13 Dec '13 CCA Auction Day Settle
Nov '12	23,126,110 (100% sold)	39,450,000 (14% sold)	-	\$10.00	\$10.09	\$10.00	-	73	\$12.05/ton
Feb '13	12,924,822 (100% sold)	-	9,560,000 (46% sold)	\$10.71	\$13.62	-	\$10.71	91	\$13.45/ton
May '13	14,522,048 (100% sold)	-	9,560,000 (79% sold)	\$10.71	\$14.00	-	\$10.71	81	\$14.80/ton
Aug '13	13,865,422	-	9,560,000	\$10.71	?	-	?	-	-

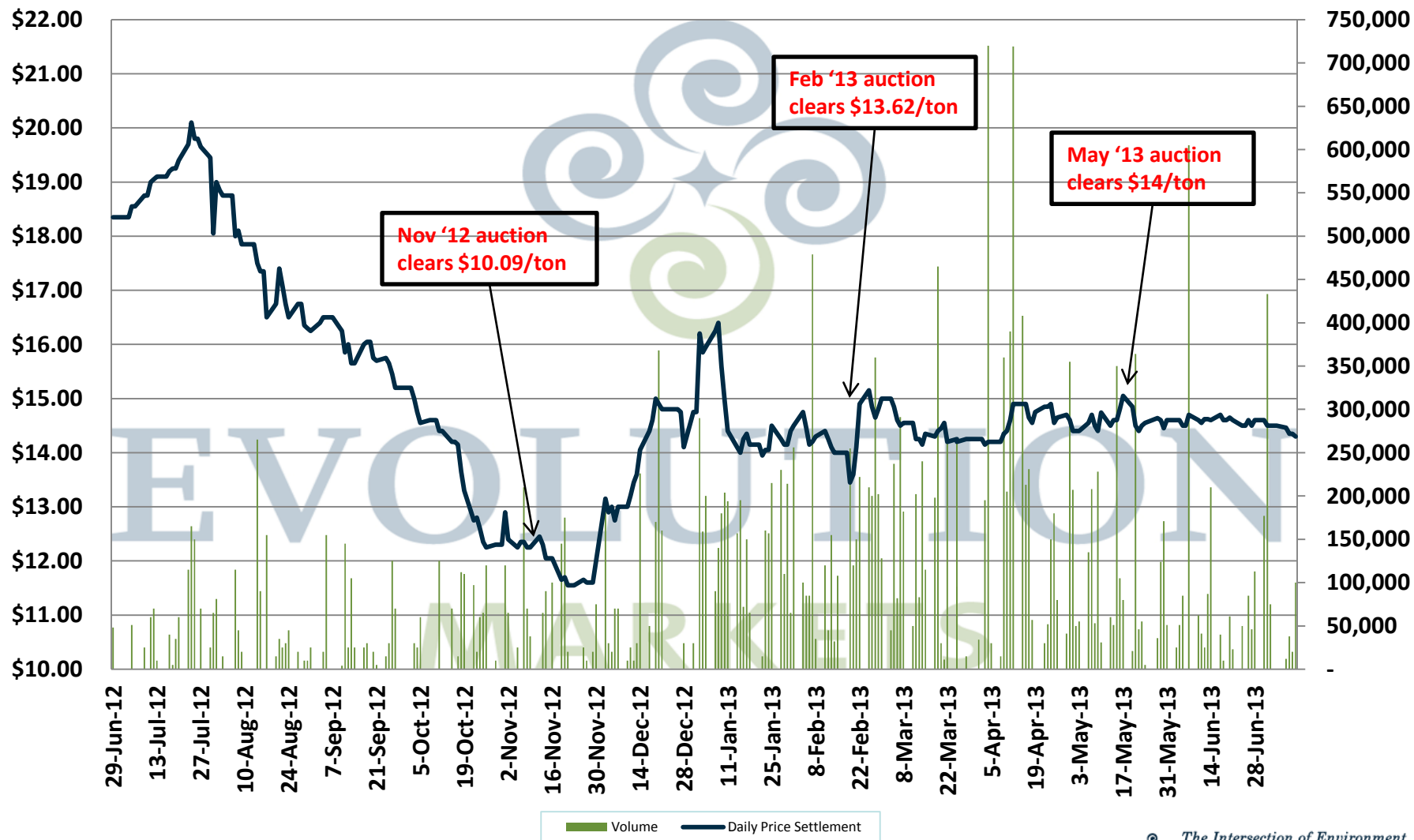
- Stable carbon price(\$14-\$15/ton for the past 5 months), levels forecasted by most analysts. Relatively liquid CCA market w/ most (78%) volume trading OTC via clearing brokers.
- Prompt vintage allowance (V13) trading over future vintage (V15, 16) due to program risk and regulated entity hedging programs. However, future vintages are trending towards higher demand/pricing.
- Relatively stable now, but volatility a real possibility the balance of '13 → lawsuits, Quebec link, weather, etc.

Open Interest (millions)

Total V13 OI (Futures & Options)



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



Source: Intercontinental Exchange

Closing Comments

- **All sectors are actively hedging carbon risk today but power generators/marketers and speculators are most active in secondary market trading**
- **Volumes and liquidity are relatively healthy; participation is growing**
- **Pricing is stable right now, but regulatory changes, lawsuits, etc. could mean price volatility**
- **Despite relative thinness, the offset market is growing each month w/ new compliance entities starting to procure**
- **Future vintage allowance markets (v15, v16) remain nascent. Despite clearing at the Price Reserve each auction, demand is trending higher for future vintage allowances**

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