U.S. Carbon Market:
Regulatory landscape and carbon trading activity

Presented by:
John P. Battaglia

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Questions to Answer

- Who is Evolution Markets?
- What is the State of Cap and Trade Regulation in the U.S.?
- Is There Liquidity and What is the Pricing? What Credits are Trading?
- What is the Outlook on U.S. Cap and Trade?
Who is Evolution Markets?
Background and overview
Evolution Markets Overview

Evolution Markets provides financial advisory and introductory brokerage services to participants in the global environmental and energy commodity markets.

- Founded in 2000
- Headquarters: White Plains, NY
- Offices: New York - London - San Francisco - Beijing
- World’s Largest Environmental Brokerage Firm
  - More than 80 Professionals Worldwide
  - Structured $85 billion in energy & environmental transactions
- Merchant Banking: Evolution Markets Financial Services LLC
Evolution Markets is a market leading commodities brokerage firm focused on all environmental and clean energy markets.

**ENVIRONMENTAL MARKETS**
- Carbon Credits & Allowances
- Renewable Energy Credits
- SO₂ Emissions Allowances
- NOₓ Emissions Allowances
  - Houston/Galveston NOₓ
  - RECLAIM (L.A. NOₓ & SO₂)
- Emission Reduction Credits
- Weather Derivatives
- Catastrophic Risk Derivatives

**ENERGY MARKETS**
- Green Power Transactions
- Biofuels
  - Ethanol
  - Biodiesel
- OTC Physical Coal
- OTC Coal Derivatives
- Natural Gas
- Nuclear Fuels

- Merchant Banking, Carbon and Renewable Energy teams work together to provide complementary services to project developers; enhance market insight and leverage; “EvoFinance”
- Integrated services create a seamless transaction process
## Leadership in the Markets We Serve

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<td>Best Broker, U.S. Weather Swaps Brokerage</td>
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*category runner-up
Leadership in the Markets We Serve

Since Evolution Markets was founded in 2000, we have received 109 awards for excellence in brokerage from Environmental Finance and Energy Risk Magazines. Below you will find a sample of our most recent awards from 2009. For the full list of our awards, please visit [www.evomarkets.com](http://www.evomarkets.com).

**Magazine Customer Survey 2009**
- Best Broker, Options
- Best Broker, Secondary Market (i.e. issued CERS/ERUs)
- Best Broker, North American Mandatory Markets (e.g. RGGI)
- Best Broker, Offsets
- Best Broker, SO2
- Best Broker, NOx (Reclaim)
- Best Broker ERCs
- Best Broker, Renewable Energy Markets
- Best Broker, Weather Risk Management, North America
- Best Broker, Catastrophe Risk
- Best Broker, NOx
- Best Broker, Weather Risk Management, Europe
- Best Broker, Weather Risk Management, Asia

**Magazine Annual Ranking 2009**
- Best Broker, Voluntary Emission Reduction (US)
- Best Broker, Voluntary Emission Reductions (Europe)
- Best Broker, U.S. Renewable Energy Certificates
- Best Broker, U.S. Regional Greenhouse Gas Initiative (RGGI)
- Best Broker EUA Options
- Best Broker, ERUs – Primary (JI)
- Best Broker, CERs - Primary (CDM)
- Best Broker, US SO2 & NOx

**Specialist Broker of the Year (2008)**
- House of the Year: European Emissions (2007)

**Carbon Market Awards 2005: Best Broker**
- *category runner-up
Evolution Markets has 25 carbon team members located in San Francisco, New York, London and Beijing originating and brokering every global carbon commodity

- Global origination of carbon offset projects, including India, China, Africa and the Middle East, and several Latin American countries, including Mexico
- Structure and execute the sale of credits via New York, London and San Francisco GHG brokerage desks
- Markets and product groups:
  - **North America:** VERs, RGGI Allowances, Alberta-based offsets, CCX, California/WCI pre-compliance offsets, Options
  - **Europe:** Primary CERs, gCERs, ERUs, AAUs, EUAs, VERs, Options and other financial products
What is the State of Cap and Trade Regulation in the U.S.?
Emerging policy and markets
Market Segments

Carbon markets in North America:

- **COMPLIANCE** – regulation establishing mandatory cap on greenhouse gas emissions and a market for trading carbon allowances and offsets (i.e. RGGI)

  **PRE-COMPLIANCE** – emerging regulations proposing mandatory caps and ensuing speculative markets for carbon offsets (i.e. California, WCI and Federal)

- **VOLUNTARY** – no regulations; market for carbon credits driven by voluntary corporate social responsibility / green business decisions (i.e. Gold Standard)

Current Senate Energy Bill introduced by Senate Majority Leader Harry Reid (D-Nevada) last month excludes cap and trade and a federal renewable energy standard.

Midterm elections in November could change the political party mix in both houses of Congress (# of Democrats to Republicans) making 60 votes for cap and trade more difficult in the Senate.

Cap and trade remains anticipated by U.S. market participants but there is no clear timeline. In the absence of federal legislation, we expect continued expansion of regional and state-level programs such as the WCI, California’s AB 32 and other programs.

Growth in state-level renewable energy markets in U.S. in absence of federal renewable energy policy (i.e. today U.S. has roughly 25 states that have adopted renewable portfolio standards).
Regulatory Patchwork

Note: Manitoba is a partner in the WCI and Midwestern Accord. Kansas is a partner in the Midwestern Accord and observer of the WCI. Ontario is a partner in the WCI and observer of the Midwestern Accord.
Western Climate Initiative

**Partner Status**
- California and New Mexico are the only U.S. states in position to move forward with the WCI. In conjunction with Quebec, Ontario and B.C., these states/provinces cover approximately 70% of the WCI regions emissions.

**Latest**
- Final design document released July 27th provides further clarification on the WCI’s direction 2010 through 2012.
- The jurisdictions will engage in a review process to qualify emissions from outside programs and parties.
- WCI clearly states that Offsets from programs in Canada, U.S. and Mexico will be eligible for phase I upon review.
- Emissions reporting will take place through January 1st, 2012 at which point phase I shall begin and continue through Jan. 2015.
California

**September 2006:** A.B.32 – California’s Global Warming Solutions Act
- Mandate to reduce emission to 1990 levels by 2020
- 2020 Target: 365 MMt CO₂e (for capped sectors)

**December 2008:** California Air Resources Board Approves Climate Change Scoping Plan
- Cap and trade system covering 85% of emissions

**Scoping Plan Measures:**
- Energy efficiency program, including building and appliance standards
- Clean vehicle standards, including the Low Carbon Fuel Standard
- Increase renewable energy to 33% of mix
- Cap and trade program

**Cap and Trade:**
- Preliminary Draft Regulation (PDR) released in November 2009
- Final Regulation expected to be Approved Fall 2010
- Phase I expected to start January 2012
- Linkage with other systems, i.e. CDM, WCI and CAR
California

Capped Sectors:
• Starting 2012 (Narrow Scope):
  • Large industrial facilities emitting 25,000+ mtCO2E/yr
  • Electricity generation, including electricity imports
  • First entity to place power onto the California grid is covered
• Starting in 2015 (Broad Scope):
  • Transportation fuel
  • Upstream industrial fuel below 25,000 mtCO2E/yr, and residential and commercial fuel combustion

Compliance Pathways:
California Carbon Allowances
• Permit distributed by California

California Compliance Offsets
• ARB-approved External Offsets, i.e. CRT
• ARB-issued Offsets
• 4% of a facilities compliance obligation allowance (Demand: 122M offsets from 2012-2020)
• October 2007, September 2008*: Board-approves Climate Action Reserve (CAR) forestry and livestock protocols

Facility-level Investments
• Fuel switching (coal → nat gas or biomass)
• Renewable energy
• Energy efficiency
• New technology

*Observed increase in trading of pre-compliance offsets
Offsets Status Update

**Early Action Credit (current thinking)**
- Location: California
- Type: Livestock (v.2.0) and Forestry (v.2.1 and v.3.1)
- Product: CRTs
- Vintage: 2005-2014
- Accepted on 1:1 basis, no discount for compliance

**Transitioning**
- ARB transitioning four CAR protocols to compliance protocols
  - Domestic Ozone Depleting Substances (ODS)
  - Forestry
  - Urban Forestry
  - Livestock
- Adoption of ARB protocols expected later this year

**Criteria for ARB Offsets**
- U.S., Mexico, Canada
- Start date: December 31, 2006
- Crediting period: 5-10 years for non-sequestration (1 renewal); 10-30 years for sequestration (unlimited renewal)
- No strict financial additionality requirements
- Could decide to link with CDM
- Looking at sector-based crediting, i.e. REDD
Status: Moving forward despite political uncertainty

**Rulemaking**
- Public stakeholder process ongoing for the remainder of 2010
- Next draft of Regulation expected this month. It is expected to disclose more details about cap and trade design elements, i.e. offsets program, allowance allocation, cost containment, etc.
- Program start date: January 1, 2012
- First compliance period ends December 31, 2013

**Governor’s Race**
- Jerry Brown - supports AB 32
- Meg Whitman – has indicated she would sign executive order to delay cap and trade
- Election day: November 2, 2010

**California Jobs Initiative**
- Registered with Attorney General as “Proposition 23”
- Coins AB 32 a “job killer” and proposes to suspend cap and trade until unemployment falls to 5.5% for one year (current rate: 12.5%)
- Latest polling data by the Public Policy Institute of California: more than 60% oppose Prop 23 (support AB 32)
Is There Liquidity and What is the Pricing? What Credits are Trading?
The U.S. pre-compliance carbon market
Traded Credits

**U.S. Pre-compliance Offsets**

- Climate Reserve Tonnes (CRTs) – leading offset standard for California. CAR-approved project types include:
  - Landfill Gas (U.S. and Mexico)
  - Livestock Methane (U.S. and Mexico)
  - Forestry
  - Organic Waste Digestion
  - Coal Mine Methane
  - Nitric Acid Production
  - Ozone Depleting Substances (ODS)

- Voluntary Carbon Units (VCUs)

- Chicago Climate Exchange (CCX) Offsets
Climate Action Reserve

Climate Reserve Tonnes (CRTs)

- **Trading began Fall 2008**
  - Priority pre-compliance offset for California and potentially WCI
  - Dairy, forestry and ozone depleting substances (ODS) quantification protocols will be “transitioned” into the compliance system, according to the ARB

- **10 million spot and forward CRTs have traded at Evolution Markets since Fall 2008**

- **Market participants:**
  - Financials – banks, hedge funds, commodity trading firms
  - Project developers – CDM project developers, public/private landfill owners, landowners, etc.
  - Retailers – green marketing firms
  - Compliance buyers – utilities, generators, refining, etc.
Pricing and Liquidity

Wholesale CRT Pricing

- CA-based CRTs attract a premium to non-CA CRTs; price convergence across vintages for California CRTs
- Not commoditized yet; most trades executed in primary over-the-counter market, limited open interest on exchange
- Pricing reflects project cost, commercial/credit, regulatory risk

Liquidity

- Thin market, soft pricing with persistent downward pressure
- Issued (spot) landfill gas CRTs are most liquid
- Regulatory volatility and unclear signals restraining demand
- 6,077,612 issued credits
Historical Pricing

Weighted Avg CRT Pricing and Volumes (by month)

- VOLUME
- WEIGHTED AVG PRICE

Oct-08 to Dec-08
Jan-09 to Feb-10
Mar-10 to Dec-09
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<tr>
<th>Project Type</th>
<th>Location</th>
<th>Volume</th>
<th>Vintage</th>
<th>Bid-Ask</th>
<th>Standard</th>
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<td>Forestry</td>
<td>California</td>
<td>100k</td>
<td>2005-2009</td>
<td>$2.00 / $7.50</td>
<td>Climate Action Reserve (CRT's)</td>
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<td>Livestock</td>
<td>California</td>
<td>25k/yr</td>
<td>2009-2010</td>
<td>$3.00 / $7.00</td>
<td>Climate Action Reserve (CRT's)</td>
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<td>Landfill Gas</td>
<td>Non-California</td>
<td>50k/yr</td>
<td>2009</td>
<td>$2.00 / $4.00</td>
<td>Climate Action Reserve (CRT's)</td>
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<td>Ozone Depleting</td>
<td>Domestic</td>
<td>100k/yr</td>
<td>2010-2011</td>
<td>$3.00 / $5.00</td>
<td>Climate Action Reserve (CRT's)</td>
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<td>N2O Abatement</td>
<td>Non-California</td>
<td>100k/yr</td>
<td>2010-2011</td>
<td>$2.50 / $5.25</td>
<td>Climate Action Reserve (CRT's)</td>
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<td>Landfill Gas</td>
<td>Northeast</td>
<td>90k</td>
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<td>$1.00 / $3.50</td>
<td>Voluntary Carbon Standard (VCS)</td>
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What is the Outlook on U.S. Cap and Trade?

Final thoughts
Final Thoughts

- Design of the cap and trade programs continue regionally despite lack of federal program; in response, a pre-compliance carbon offset market has rapidly developed with firms speculating and hedging risk
  
  - Evolution has executed pre-compliance trades of more than 10 spot and forward million CRTs
  
  - North American carbon market value grew 279% in 2009, according to World Bank, to $2.4 billion (represents roughly 880 million tonnes, or a 487% increase in traded volume over 2008)

- California market size expectation (excludes offsets):
  
  - @ a price of $12.54/tonne = $2.5 billion USD
  
  - @ a price of $60.00/tonne = $22 billion USD

- Potential for a U.S. carbon market persists
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