Climate Action Reserve Overview

Bay Area AQMD
June 9, 2009

CLIMATE ACTION RESERVE

Agenda

9:00 Update on the Climate Action Reserve
10:15 Overview of Federal and Regional Policies
10:45 Overview of the North American Carbon Market
11:15 Break
11:30 Project Case Study
12:00 Update on Climate Action Reserve Protocols
1:00 Adjourn

Climate Action Reserve

- Project offsets registry that sets high quality standards and registers and tracks carbon offset projects throughout the U.S.
- Ensures environmental benefits of offsets while upholding integrity and financial value
- Until now, U.S.-based projects only
  - Expanding to Mexico and Canada
- Successor organization to the California Climate Action Registry

Purpose and Goal

- Offsets are part of the solution to climate change
  - Obtain reductions in uncapped sectors
  - Spur new technologies
  - Support voluntary and regulatory efforts
- Must ensure environmental integrity to be effective
- Reserve reputation for high-quality accounting standards can provide a recognized “organic seal of approval”

Distinguishing the Reserve: *Recognition*

Recognized and supported by:

- California Air Resources Board
- State of Pennsylvania
- Voluntary Carbon Standard (VCS)
- Leading environmental organizations
  - Environmental Defense Fund (EDF)
  - Natural Resources Defense Council (NRDC)
  - Sierra Club

Distinguishing the Reserve: *Transparency*

- Unparalleled transparency makes the Reserve unique
- Public reports include:
  - All protocols
  - List of all account holders
  - List of all projects and all project documents
  - List of all issued CRTs for every project
  - All retired CRTs

Distinguishing the Reserve: *Performance Standards*

- Why a performance standard is different
  - The hard work is upfront
  - Assess industry practice as a whole, rather than individual project activities
- Less subjective determination to qualify
- More certainty in amount of credits
- Lower risk for developers
- Faster project processing

Distinguishing the Reserve: *Separation of Roles*

- Reserve develops protocols but does not fund or develop projects
- Does not take ownership of offsets
- Is not an exchange
- Independent third-party verification
  - Consistent with international standards
  - Accreditation done by ANSI
  - Conflict of interest analysis on every project

Distinguishing the Reserve: *Voluntary and compliance markets*

CLIMATE ACTION RESERVE

- For now, main demand is from the voluntary market
- In the future, projects may be usable for compliance in California, Western Climate Initiative or federally
  - Regulators have yet to make decisions on these questions
  - The Reserve "is considered the premier pre-compliance offset standard." (*State of the Voluntary Carbon Markets 2009)*

Reserve Protocols

- Developed with broad public input
- Goal is to create a uniform standard that is widely recognized and builds on best practice
  - We incorporate the best elements of other protocols
  - We do not accept projects developed under other protocols (i.e. CDM, Gold Standard, VCS)
- Designed as step-by-step instructions on project development

Protocol Development Process

1. Literature review
2. Scoping/kick-off meeting
3. Multi-stakeholder workgroup formation
4. Draft protocol to workgroup
5. Revised draft released for public comment
6. Public workshop
7. Solicit public comments and respond
8. Adoption by Climate Action Reserve Board in public session
9. Possible adoption by California Air Resources Board or other government bodies

Existing Protocols

- Forest
  - Conservation-based forest management
  - Avoided conversion
  - Reforestation
- Landfill gas capture
- Livestock (agricultural methane capture)
- Urban forest

Protocols Under Development

- Forest Update
- Coal Mine Methane
- Landfill and Livestock for Mexico
- Organic Waste Diversion (co-digestion)
- Industrial Gases and Ozone Depleting Substances

Protocols Under Consideration

- **Industrial Processes**
  - Boiler efficiency
- **Transportation**
  - Truck stop electrification
- **Agriculture and Biological Sequestration**
  - Waste diversion: composting
  - Agricultural practices: grassland/rangeland management, soil sequestration, biochar, etc
- **International**
  - Mexico
  - Canada

New potential project areas are evaluated regularly.

Energy Efficiency & Renewable Energy

- Reserve strongly supports energy efficiency and renewable energy
- However, no renewable energy or electrical energy efficiency protocols are planned
  - We are planning a natural gas efficiency protocol
- Why not?
  - Electricity is certain to be a capped sector under any GHG regulation
  - These are indirect sources of emissions that are difficult to verify and establish ownership
  - Other policies are better suited to support these activities
    - RPS requirements, feed-in tariffs, standards, direct financial support, tax incentives, rebates, etc.

Determining Eligibility

- Location – must be in the United States
  - Mexico and Canada coming soon
- Material compliance – must meet all applicable environmental regulations
- Additionality
  - Regulatory screen – not legally required
  - Project started operation after 1/1/2001
    - This will be changing with new protocols
  - Performance standard for additionality

Verification

- The Reserve trains, accredits and oversees verifiers
  - Working with ANSI to ensure compliance with ISO
- Developer selects an accredited verifier
- The Reserve reviews conflict of interest
- Developer hires verifier
  - Verifier makes determination how many tonnes of reduction have taken place
  - Project documents, verification report and verification opinion submitted to and approved by the Reserve

Crediting Reductions

- Developer opens an account on the Reserve
  - Reserve software is operated by APX
- The Reserve credits the project developer's account with the appropriate number of CRTs (Climate Reserve Tonnes, pronounced "carrots")
  - Project documents are visible to the public
- Each CRT has a unique serial number for tracking
  - Includes embedded information about the project, project type, vintage and location

Transferring Credits

- Developer contracts to sell CRTs with an interested buyer
  - Financial transaction is outside of the system
  - Buyer must have an account on the system or seller can retire them on behalf of buyer
- Developer instructs the system to transfer the CRTs into the buyer's account
- Buyer can hold them, retire them or transfer them to someone else

Relationship with VCS

- Voluntary Carbon Standard (VCS) is an international program that links together the highest quality carbon offset programs
- The Reserve is the only U.S. program recognized by VCS
- CRTs can be converted into VCUs – but not the reverse

Reserve Statistics

- Reserve launched: May 2008
- Account holders: 102
- Projects: 65
  - 7 Registered
  - 39 Listed
  - 19 Submitted
  - 26 states
- CRTs issued: 1,271,714
- Recent average price: $6.10/tonne
  - According to ***New Carbon Finance, Voluntary Carbon Index***, May, 2009

Listed & registered projects

CLIMATE ACTION RESERVE

Fee Structure

- Account maintenance: $500/year
- Project listing: $500/project
- CRT issuance: $0.15/tonne
- CRT transfer: $0.03/tonne
- Retirement: Free
- The Reserve is a nonprofit; all fees support its public benefit programs

Reserve Operating System

- System relies on APX, Inc
  - All North American renewable energy markets
  - Leader in voluntary carbon markets
  - Largest provider of hosted wholesale power solutions
- Web-based, enabling use of the system anytime, from anywhere and easy access for all market participants
- Full suite of support services and all infrastructure needed to support operations and users in multiple time zones

System Security

- Supported by two geographically separate data centers (Dallas and San Jose) to ensure continual operations in disaster recovery situations
- Infrastructure ensures highly secure web hosting and connectivity services
- Application login access controls use encryption
- Fully documented audit trail of all activity within system

Scalability and Connectivity

- System architecture is highly scalable
  - Growing numbers of users, protocols, transactions, and projects can be handled without any interruptions
  - Current infrastructure built to manage substantial growth

- APX provides services to VCS, The Gold Standard, and others
  - Automated connectivity to other systems is being developed

Overview of Federal and Regional Policies

Tim O'Connor

Offsets Policy Discussion

Presented by

Timothy J. O'Connor, Attorney

June 9, 2009

ENVIRONMENTAL DEFENSE FUND

finding the ways that work

Introduction to EDF

- National non-profit organization
- Offices in NY, DC, TX, NC, CO, CA
- Sacramento project office opened in 2006 - sponsored AB32
- Have been working on market based emissions reduction programs since SO_2 trading program
- Have been working on GHG issues in the federal government, and internationally for several years

Presentation Overview

1. Framing the offsets conversation
2. Current forums debating offset use
3. Offset protocol, quality and quantity issues
4. Offset projects and implications

1. Framing the Offsets Conversation

Expansive Role in Compliance Market

- Cost-containment for cap and businesses
- Target new sources for reductions and innovation
- Faster reductions

Restrictive Role in Compliance Market

- Ensures emissions reductions at faculties under cap
- Higher allowance price
- Environmental integrity

2. Current Domestic Offset Policy Development

Domestic Policy Forums

- California - MAC, CARB, Air Districts, and state legislature
- Regional programs - WCI and RGGI
- Federal proposals - W / M and US CAP

Market Advisory Committee recommendation on offsets (June 2007)

*The Committee recommends that California's cap and trade program **recognize offsets** generated both within and outside the state's borders. Because of the administrative complexity associated with tracking and verifying offsets, however, the Committee recommends the **use of very stringent criteria** for determining whether activities qualify as offsets.*

CARB Scoping Plan (Dec. 2008)

*The cap-and trade rulemaking will establish **appropriate rules** for use of offsets…*

*ARB will apply the limit on offsets that is within its jurisdiction, such that the allowable offsets in each compliance period is **less than half** of the emissions reductions expected from capped sectors in that compliance period*

**(seeking comments now)

Regional Agreements

- WCI – Recommends max offset amount of 49% of total emission reductions from 2012 to 2020

** (seeking comments now)

- RGGI – less than 50 % total reductions from offsets. 3.3% offsets limit on covered entity's emissions

Federal Proposals

- US CAP Proposal
  - Overall use limit of 2 billion metric tons per year – with ability to increase to 3 billion metric tons.
- Waxman Markey Proposal
  - Overall use limit of about 2 billion metric tons per year. Implemented as a fraction of covered entity's emissions

3. Offsets Issues To Be Resolved

Project **protocol** recognition and development

- Standards based approach (CAR approach)
- Case by case review (CDM)
- Hybrid approach (CARB consideration)
- Recognition of specific project types (RGGI approach)

Side issue: Prioritization of project types (CARB)

Project **qualities** that determine availability in compliance market

- Project type
- Accounting
- Permanence
- Verification
- Environmental Integrity
- Enforcement
- Additionality
- Geographic location
  - Issue: Trade barriers

Offset **quantity** restrictions

- Type of limit
  - Supply, use, hybrid
- Setting the limit
- Enforcement
- Federal preemption
- Multi-jurisdictional issues
- Commerce clause restrictions

4. Offset projects and implications

Potential Domestic Project Types for 2012

- Agriculture (Domestic)
  - Soil Sequestration – Cropland
  - Soil Sequestration – Rangeland
- Terrestrial (non-agriculture)
  - Methane Avoidance from Composting
  - Tidal Wetland Restoration
- Domestic Forestry
- International Forestry
  - REDD
- Landfills and co-digestion
- SF6 reduction (RGGI)
- Material displacement - Blended Cement Production
- Bus Fleet Upgrades
- Bus Rapid Transit
- Industrial Gas – (i.e. N2O Reduction in Acid Plants)
- Truck Stop Electrification
- High GWP material bank reduction
- Lawn mowers and leaf blowers
- Coal Mine methane destruction

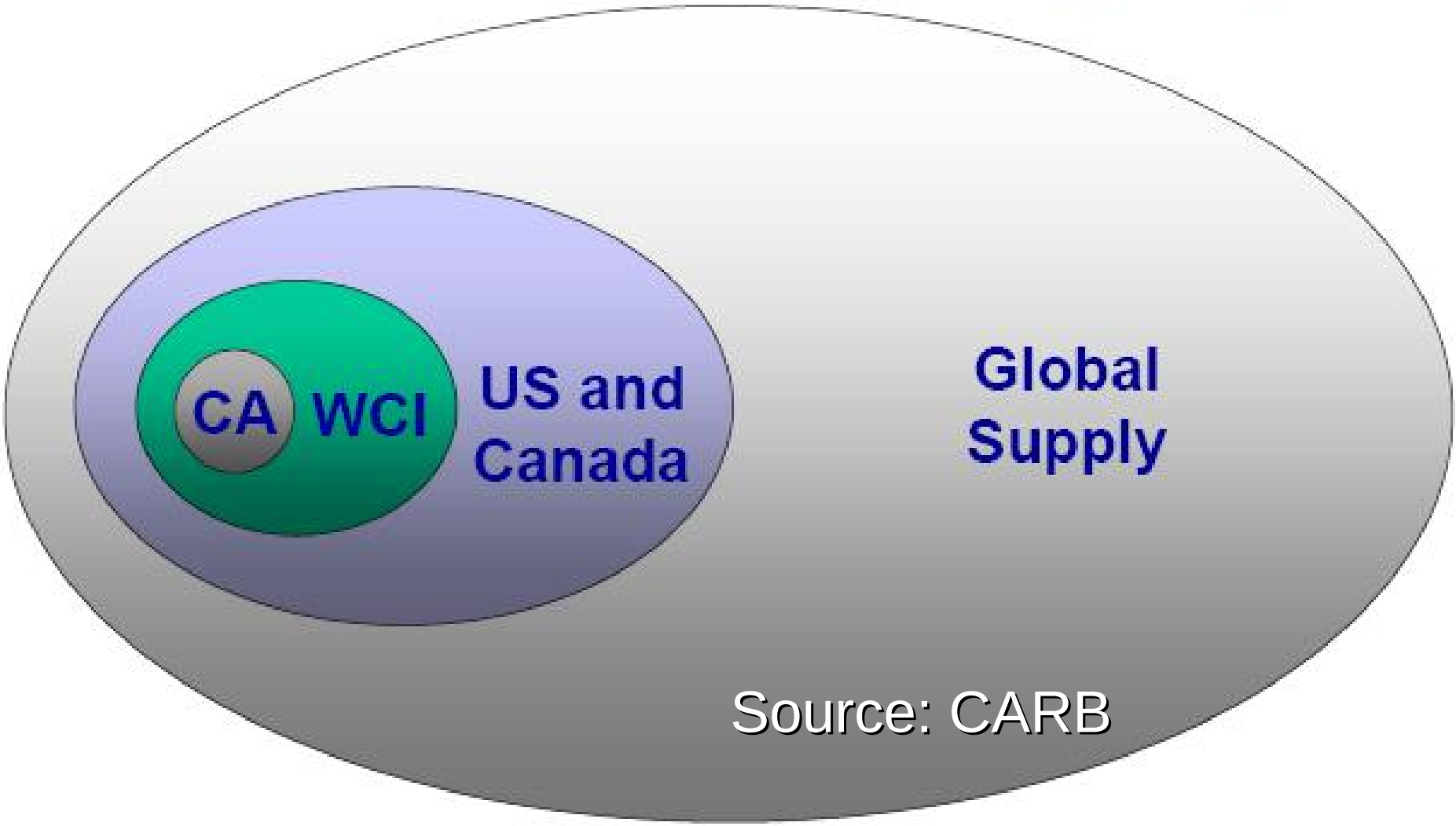
Other project types that may not create offsets but can yield market returns similar to offsets

- Energy Efficiency Improvements
  - Homes and businesses
  - Water efficiency improvements
- Renewable energy generation
- Fuel switching

Implications of offset policy

- Average estimate for CO2 reductions:
  - $23/tCO2 – in 2012
  - 35 - $40/tCO2 (3% discount rate) in 2020
- Cost of offset projects
  - Allowing use of offsets from multiple regions creates search for lowest cost reductions in sectors outside cap

Anticipating Potential Offset Supply by Region



Source: CARB

REDD Scenario

- REDD = Reduced Emissions from Deforestation and Forest Degradation
  - Globally: Due to relative low cost of making large reductions in deforestation emissions, REDD reduces costs of a global 550 CO2 eq stabilization policy by 10 to 25%
  - Domestically: Use of REDD credits for compliance in US lowers the projected price of GHG allowances by roughly 13%.

Thank you

Contact:

Tim O'Connor

Toconnor @ edf.org

Overview of the North American Carbon Market

John Battalgia

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MARKETS

North American Carbon Market:
Overview of an emerging commodity market

Presented by:

John P. Battaglia

CCAR Workshop – San Francisco, CA

June 9, 2009

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EVOLUTION MARKETS

EVOLUTION MARKETS

Introduction

Evolution Markets Overview

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

- **Founded in 2000**
- **Headquarters: White Plains, NY**
- **Offices in New York – London – San Francisco – Buenos Aires – Beijing – Mumbai**
- **World's Largest Environmental Brokerage**

  - More than 80 Professionals Worldwide

  - Structured over $65 billion in energy & environmental transactions
- **Merchant Banking: *Evolution Markets Financial Services LLC***

Market Coverage

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Evolution covers all core environmental and energy markets

ENVIRONMENTAL MARKETS

- Carbon Credits & Allowances
- Renewable Energy Credits
- SO_2 Emissions Allowances
- NO_X Emissions Allowances
  - Houston/Galveston NO_X
  - RECLAIM (L.A. NO_X & SO_x)
- 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

Market Honors

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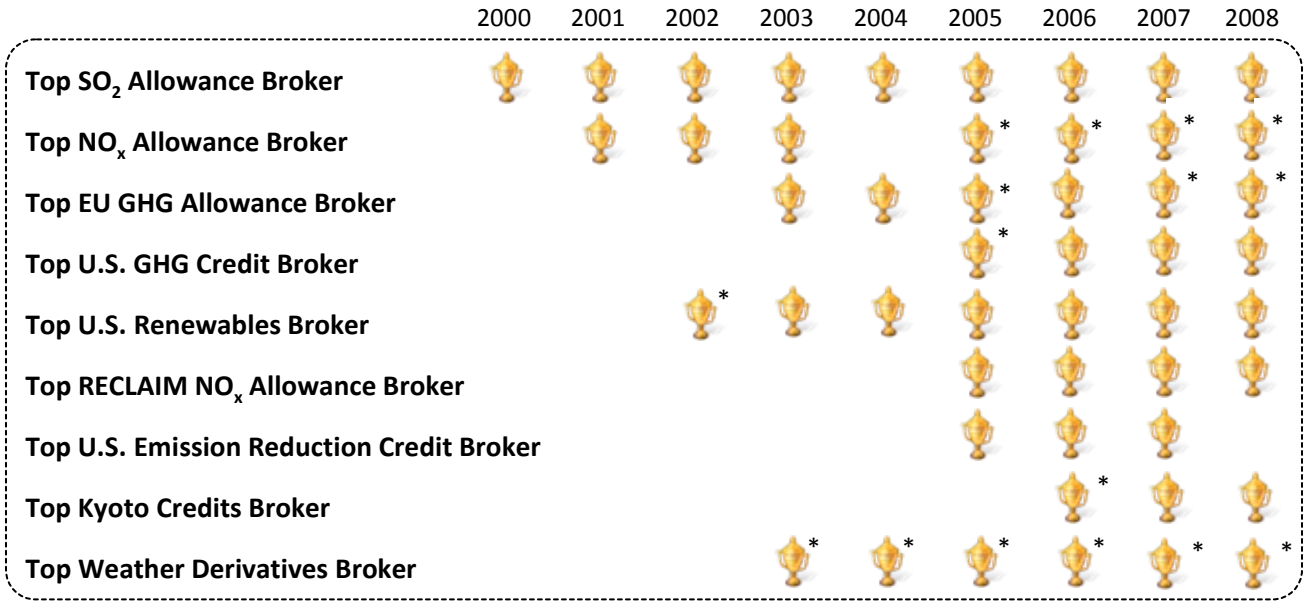
Environmental Finance MAGAZINE

Magazine Customer Survey



Deloitte. 2007 Technology Fast 50 New York

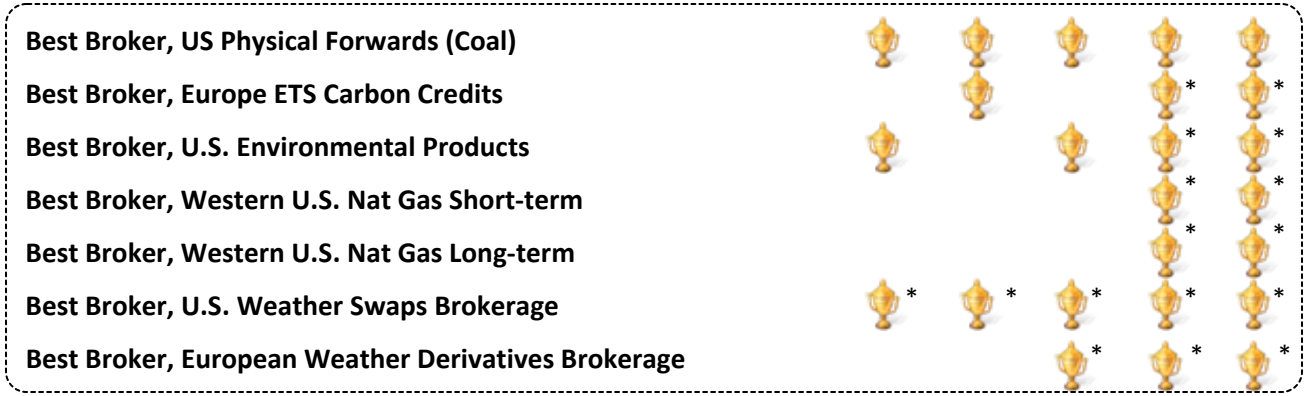
PointCarbon

Carbon Market Awards 2005:Best Broker"

energy risk

House of the Year:

- *European Emissions (2007)*
- *Weather / Emissions (2004)*



Energy Business
Silver Award Winner 2003
New Emerging Energy Markets

Energy Business
Silver Award Winner 2005
Renewable Energy

*category runner-up

Evolution Markets – Carbon

Evolution Markets has 20 carbon team members located in Beijing, Buenos Aires, New York, London and San Francisco originating and brokering every global carbon commodity

- Origination of offset projects globally
- Originate carbon offsets projects; leverage our brokerage desks in New York, London and San Francisco to access market participants
- Markets and product groups:

  - **North America:** VERs, RGGI Allowances, Alberta-based offsets, CCX, California/WCI pre-compliance offsets

  - **Europe:** Primary CERs, gCERs, ERUs, AAUs, EUAs, VERs, Options and other financial products

Overview of North American Carbon Markets and Products

Policy Patchwork

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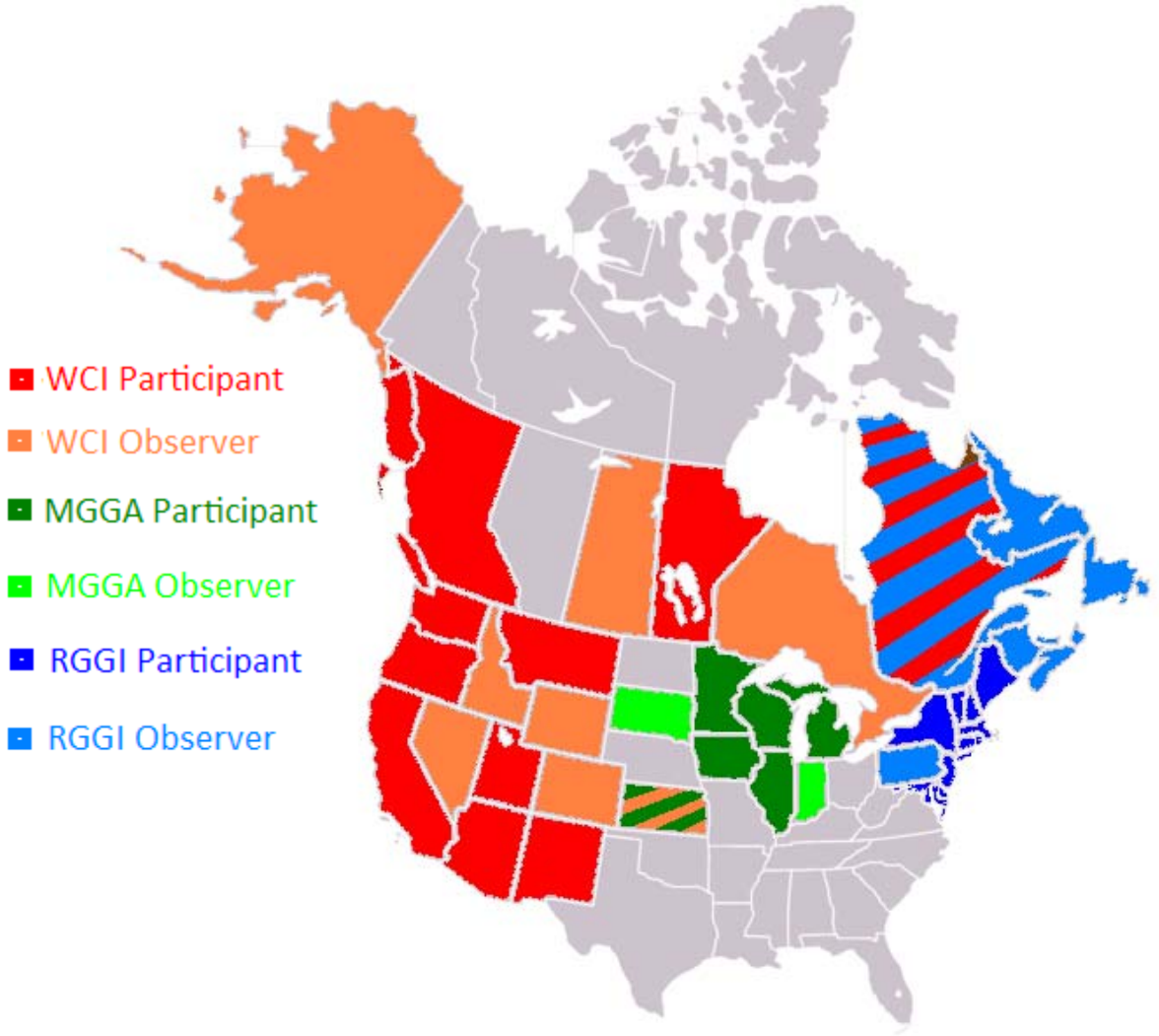

California: Assembly Bill (AB) 32

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September 2006: A.B.32 – California's Global Warming Solutions Act

- 1990 levels by 2020
- 2020 Target: 427 MMt CO_2e = 30% reduction from BAU 2020 levels

December 2008: CARB Approves Climate Change Scoping Plan

- Cap and trade system covering 85% of emissions
- Early Discreet Actions effective January 1, 2010 – LFG, LCFS, others

Scoping Plan Measures:

•Energy efficiency program, including building and appliance standards

•Clean vehicle standards (Pavley), including the Low Carbon Fuel Standard

•Renewable portfolio standard

•Cap and trade program

•Others

Mandatory GHG Reporting Rule

- Rule passed December 2007
- Covered facilities reported GHG inventories online June 1, 2009
- Facilities should be establishing internal reporting processes, procedures and define policies and personnel for GHG reporting

AB 32: Compliance Instruments

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Allowances:

- Issued by the CA government
- Covered entities must hold 1 allowance for every 1 MTCO2E emitted
- % freely allocated at first, transitioning to 100% auction likely

Offsets

- Project-based reductions which receive credit for "offsetting" emissions
- Credits can be used in place of allowances 1:1 for compliance
- Provides for low cost reductions
- 49% of required reductions from offsets
- AB 1404 proposes to reduce to 10%

Offsets (cont'd):

- Priority List: Board-approved offset protocols for dairy methane and forestry from the Climate Action Reserve
- Other potential offset types:
  - Coal mine methane
  - Landfill gas
  - Ozone depleting substances
  - Co-digestion
- No geographic limit
- Reviewing and approving:
  - Performance-based with ability to approve specific projects, likely

California: CEQA and GHG

CEQA

- Requires new projects or expansion at existing projects needing permitting to mitigate certain pollutants
- Office of Planning and Research submitted proposed amendments to CEQA to include GHGs in April 2009

Requirements

- Quantify and report GHG impacts from project
- Determine GHG significance thresholds
- If significant, mitigate GHGs:
  - Reducing other pollutants resulting in GHG reductions
  - Implement project features
  - Offsets
  - Other measures sequestering GHG

AQMDs w/ Plans:

- Bay Area
- San Joaquin
- South Coast
- Sacramento

The American Clean Energy and Security Act of 2009

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Introduced March 31, 2009 by Chairman Henry A. Waxman of the Energy and Commerce Committee and Chairman Edward J. Markey of the Energy and Environment Subcommittee.

Passed out of Committee May 21, 2009 and is currently being debated by the House Ways and Means Committee. Deadline of June 19th has been set by the House Speaker for its passage out of the House in advance of the July 4th Congressional recess.

Covered Sources

- Sources emitting more than 25,000 tons per year of CO2 equivalent
- Covers roughly 85% of US emissions, including utilities, refining, and the industrial sector

Targets

- 17% below 2005 levels in 2020,
- 83% below 2005 levels in 2050

The American Clean Energy and Security Act of 2009

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Allowance Distribution

Proposed 85% free allocation for electricity sector, oil refineries, natural gas, states, and others, and 15% auction

Banking/Borrowing

- Unlimited banking
- Sources can borrow allowances without interest one year ahead
- Sources can borrow allowances one to five years ahead for up to 15% of their compliance obligation. Interest is 8% per year.

State Programs

Emissions allowances issued before December 31, 2011 by either California or the Regional Greenhouse Gas Initiative (RGGI) can be exchanged for Federal carbon allowances. The EPA will make rules for this exchange.

CRTs and RGGI Offsets are accepted outright, but EPA retains the right to approve other offsets

The American Clean Energy and Security Act of 2009

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Offsets

- Affected sources are able to use up to 2BB tons in total annually
- Domestic offsets can be submitted 1:1 for an allowance
- International offsets have a submission ratio to an allowance
- Standards for offsets must stipulate
  - Reductions, avoidance, sequestration of GHGs
  - Offsets must be verifiable and additional
  - Additionality:
    - Not required by law
    - Projects starting after Jan 01, 2009
    - Activities that reduce emissions below BAU baseline set by EPA

Early Offset Supply

- Projects started after Jan 01, 2001, but credits are only available from these projects after Jan 01, 2009 and for three years

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Trading and Hedging

North American Compliance/Pre-Compliance Offsets

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Commodity	Project Type	Location	Regulatory Implication
Alberta-based Offsets	Wind, Landfill Gas, No Till Soil, Biomass to Energy, and several others	Alberta only	Compliance – *Specified Gas Emitters Regulations*
RGGI Offsets	Landfill gas, Hexafluoride Reductions, Afforestation, Agricultural Methane, Energy Efficiency	RGGI footprint states	Compliance - *Regional Greenhouse Gas Initiative* *Compliance - Waxman-Markey bill*
Climate Reserve Tonne (CRT)	Landfill Gas, Livestock Methane, Forestry (several other under review)	United States (soon to expand to Mexico and Canada)	Pre-compliance – potentially *AB32 / WCI and Waxman-Markey*

North American Compliance/Pre-Compliance Allowances

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Commodity	Source	Issuance	Regulatory Implication
RGGI Allowances	Issued by RGGI, Inc.	Bidding in an auction or trade	Compliance – *RGGI and Waxman-Markey*
CCFE CFI-US	Chicago Climate Futures Exchange	N/A	*Compliance – Contract to deliver allowances under the future federal program*

OTC Emerging Pre-compliance Market

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CRTs

- **Trading began Fall 2008 and continues**
- Dairy and forestry pre-approved as voluntary early action reductions by the California Air Resources Board (CARB)
- CAR dairy methane and forestry are "Priority List" offset protocols for CARB
- 46 projects Listed on the Reserve, 23 landfill gas, 14 dairy methane, 9 forestry
- **2.5 million + spot and forward CRTs have traded since Fall 2008**
- Current market participants:
  - Financials
  - Project developers
  - Retailers
  - **Naturals**

CRTs

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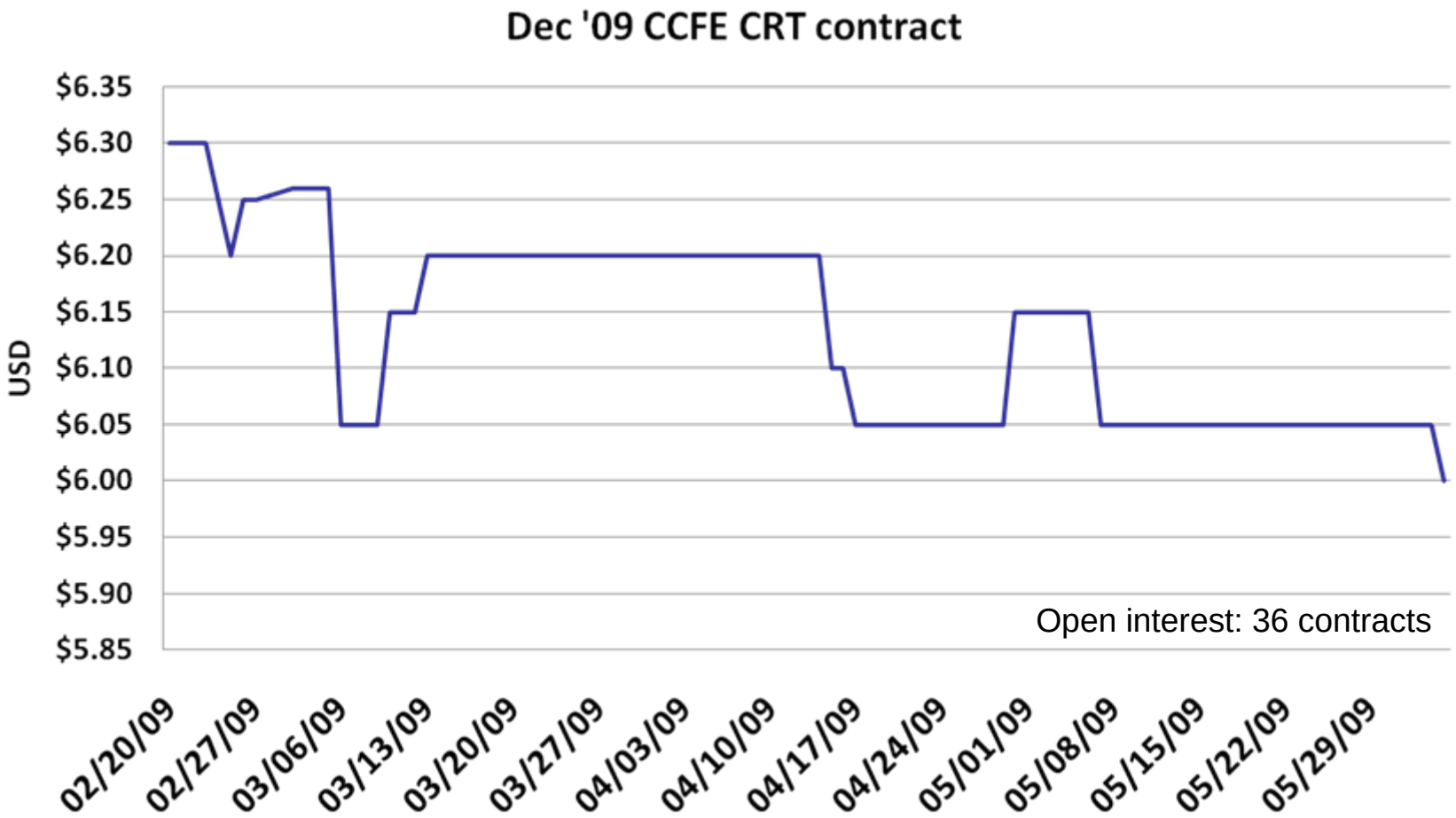

Preparing for Cap and Trade

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Steps covered entities should be taking

1. Quantify emissions by using the GHG Reporting Tool to determine a long or short position
2. Project a short to medium term positions based on growth, emission projections and other relevant factors driving GHGs at the facility
3. Budget capital expenditures to implement an effective mitigation strategy
4. Tailor a market strategy that meets risk appetite and capital expenditures, taking into consideration market conditions
5. Based on risk appetite, purchase early action offsets or State-program allowances taking into consideration regulatory developments
6. Execute strategy

Allocate resources internally including personnel to track pricing, trading, strategies, regulatory changes and market fundamentals

Closing Remarks and Outlook

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- Compliance buyers are already thinking about how to manage exposure and maximize revenue opportunities
- Facilities should be aware of market developments, but should also be exhausting all options to reduce emissions at their facilities
- Compliance pathways and trade structures and products exist in the emerging market to begin hedging today
- Clear rules on offsets in 2009 should continue to improve liquidity and attract natural buyers to the market, fomenting market depth
- Certainty from policymakers regarding Offsets and Carbon Market Regulation are the signals this market needs to move to the next stage

Contact Information

John P. Battaglia
Associate Broker, GHG Americas
Evolution Markets Inc.

101 California St, Suite 2750
San Francisco, CA 94111

tel. +1 415.963.9137
mob. +1 917.287.9688
fax +1 415.963.9121
JBattaglia@evomarkets.com

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Appendix

Western Climate Initiative

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Offsets

- Up to 49% of reductions obligations; limits to be established by the Partners through regulation
- International offsets, including offsets from U.S.-based, non-WCI Partner jurisdictions, Mexico and Canada may be allowed
- All offsets will be fungible between Partner jurisdictions
- 3 project types are being reviewed:
  - **Agriculture**: soil sequestration and manure management;
  - **Forestry**: afforestation/reforestation, forest management, forest preservation/conservation, forest products;
  - **Waste management**: landfill gas and wastewater management.

WCI Update

Update

- California is the only state to pass the regulations required to participate in WCI
- Washington and Oregon Governors continue to attempt to get legislation passed without success
- WCI Work Plan (February 2009)
  - Subcommittees formed (Reporting, Cap Setting and Allowance Distribution, Markets, Electricity, Offsets, Complementary Policies, Economic Modeling
  - Establishes tasks, expected deadlines and deliverables for each Committee over next 12-18 months
  - Offsets Committee Tasks:
    1. Essential system elements
    2. Offsets/Allowances from non-WCI Partners
    3. Offset Protocols (expected delivery in '09)
    4. Supply Analysis (expected dates: 2010-2020)

Regional Greenhouse Gas Initiative (RGGI)

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Program features

- January 1, 2009 start date
- Regional Cap of 188M tons (roughly 2005 emissions)
- CO_2 only, 25MW+ generators only
- Emissions stabilize from 2009-2014
- 2.5% reduction/yr 2015-2018
  - (35% below Business as Usual by 2020)
- Price triggers
- First auction clears $3.07, 12,565,387 '09 vintage
- Second auction clears $3.38, 31.505,898 '09 vintage
- Third auction clears $3.51, 31,513,765 '09 vintage and $3.05 for 2,175,513 '12 vintage allowances
- Price floor = $1.86/allowance in auction

Participants
Connecticut
Delaware
Maine
Maryland
Massachusetts
New Hampshire
New Jersey
New York
Rhode Island
Vermont

Observers
Pennsylvania
Florida
Northeastern Canadian Territories

RGGI

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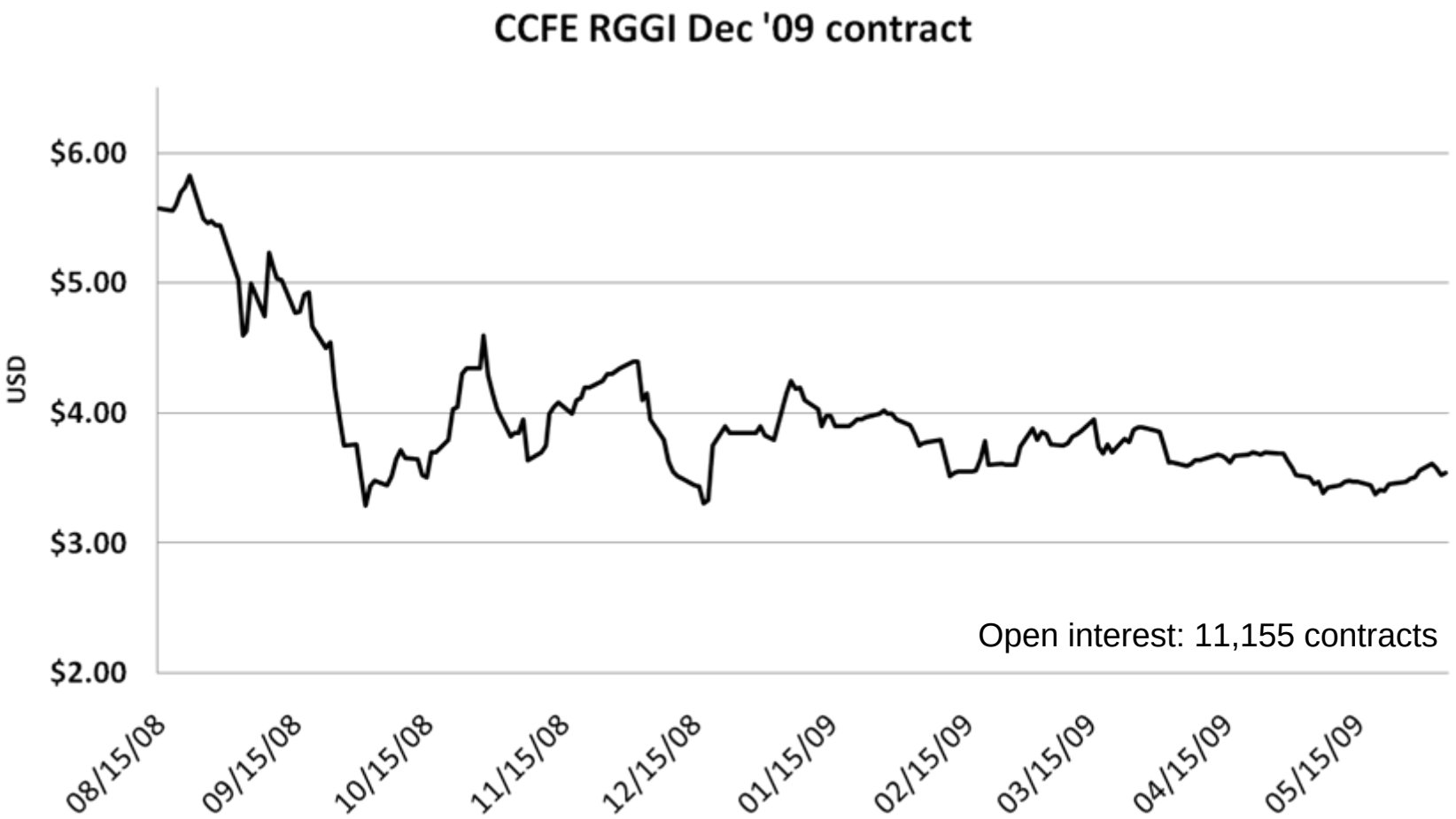
Offsets

- 5 offset project types allowed:
  - LANDFILL METHANE capture and destruction
  - Reductions in emissions of SULFUR HEXAFLUORIDE (SF_6))
  - Sequestration of carbon due to AFFORESTATION
  - Avoided AGRICULTURAL METHANE emissions
  - Reduction of CO_2 emissions through ENERGY EFFICIENCY
- 3.3% of reductions may come from offsets at the program outset
- RGGI explicitly bars carbon offsets where project generates REC's

Price Triggers at $7 and $10 (2005$)

- At $7 price trigger, offsets may be up to 5%
- At $10 price trigger, offsets may be up to 10%
- 14 Month settling period at the beginning of each compliance period
- Triggered if AVA spot price for allowances equals/exceeds thresholds above for 12 months
- No offsets trading taking place

RGGI Allowances



AB 32: Reductions

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Direct Regulations

- Energy efficiency, vehicle standards, etc.

Cap and Trade:

- Establishes price signal for emissions to incentivize the market to find least expensive means to reduce
- Mandatory reporting begins June '09 for "capped sectors"
- In 2012:
  - Large industrial facilities that emit 25,000+ mtCO2E/yr
  - Electricity generation, including imports not covered by WCI
- Staring in 2015:
  - Transportation fuel
  - Upstream industrial fuel below 25,000 mtCO2E/yr, and residential and commercial fuel combustion

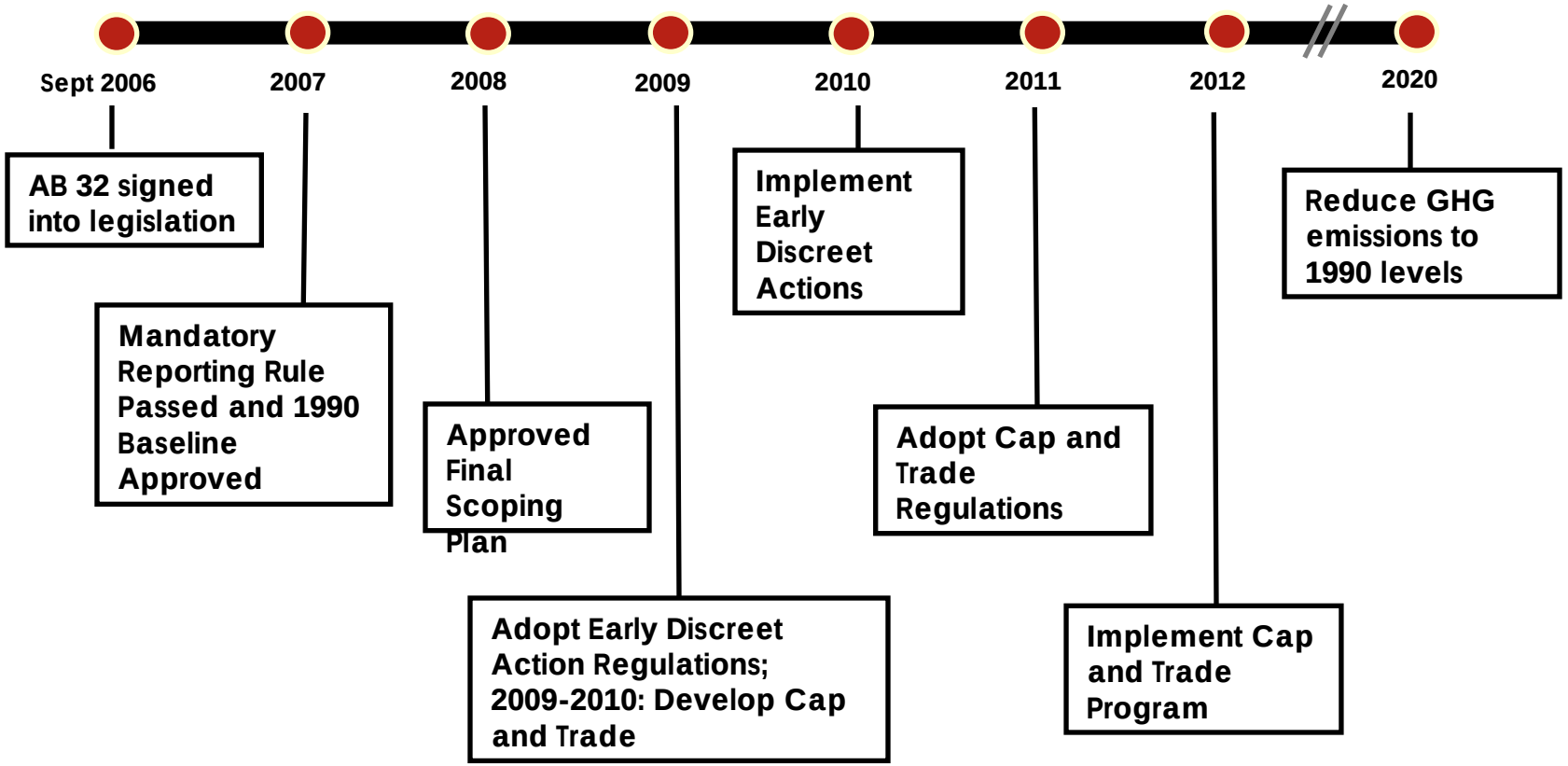
Capped Sector Reductions:

- 146.7 MMTCO2E reductions as follows:
  - 31.7; vehicle standards
  - 26.3; energy efficiency
  - 21.3; RPS
  - 15; LCFS
  - 18; various other measures
  - 34.4; facilities need to find ways to reduce by either buying allowances/offsets or other means

Uncapped Sector Reductions:

- 27.3 MMTCO2E reductions as follows:
  - 20.2; high GWP measures
  - 5; sustainable forest measures
  - 1.1; industrial measures
  - 1; recycling and waste measures

California: Assembly Bill (AB) 32



For more information see:
http://www.arb.ca.gov/cc/cc.htm

Project Case Study

Peter Freed

Originating Projects with the Climate Action Reserve

Understanding the **protocols** and how to turn carbon assets into **carbon offsets**

Peter Freed
Project Manager
TerraPass Carbon Management Services Group

CAR workshop
San Francisco, CA
9 June, 2009

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Agenda

About TerraPass

Climate Action Reserve protocol basics

Project case study No. 1

Project case study No. 2

Questions

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Who is TerraPass?

- Engaging consumers and businesses in climate change
- Carbon offset originator and retailer
- Goal: Proliferate high quality offset projects in the US by offering stable long-term revenue streams to project owners
- Founded in 2004 and based in San Francisco

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How do project protocols work?

- Projects vs. Inventory
- Eligibility Screens - vary slightly by protocol
  - Online date
  - Regulatory surplus
  - Location
- Performance standards
- Conservativeness

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What is the project process?

- Project listing
- “Super-verification”
- Issuance
- Ongoing verification and management
- Timelines

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A short aside on Baselines

- What is a baseline?
- How is it established?
- What are the requirements for different project types?
- How come I don't get credit for all this biogas I'm making?

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What does a project look like?

- George DeRuyter and Sons Dairy
- Large Dairy in Yakima, WA
- Plug flow digester, electricity, flare
- Straight forward project
- Status: Listed, on-going project management

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What are project requirements?

- Metering!
- Monitoring, data management, QA/QC
- Verification management
- Marketing and commercialization

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What are the challenges?

- Project basics: Scenic View Dairies, MI
  - Bundle of projects, complex end uses
- Standard shift and project transfer
- Seasonality and credit calculation
- Multiple or complex treatments
- Currently listed and undergoing verification

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Please get in touch!

Peter Freed

Project Manager

TerraPass Carbon Management Services

pfreed@terrapass.com

415.692.6702 or 877.210.9581 x3

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Thank you

- Thank you to The Reserve for hosting today.
- Looking forward to working on many more projects in landfill and livestock and expanding into Forestry.
- **Questions?**

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Update on Climate Action Reserve Protocols

Joel Levin

Landfill Project Protocol

- **Project Definition**
  - **Installation of a landfill gas control system for capturing and destroying methane gas**
    - On-site destruction (flare, generator), pipeline injection, etc.
    - End fate of methane *must* be destruction
- **Eligibility**
  - **Start date**: Back to 2001 for projects registered before November 2009; within 6 months of start of operation after November 2009
  - **Location**: United States; Mexico later in 2009
  - **Regulatory compliance**: Compliance with all applicable regulations
  - **Additionality**: Regulatory Test, Performance Threshold
- **Crediting Period:** 10 years

Landfill Projects – Additionality

- **Regulatory Test**
  - **Meets an *annual* test demonstrating project reductions would not have occurred as a result of federal, state or local regulations (e.g. NSPS)**
- **Performance Threshold**
  - **Surpasses a better than business-as-usual standard established through an analysis of U.S. landfill management practice**
  - For landfills with no baseline destruction: all destroyed methane is eligible to generate CRTs
  - For landfills with baseline destruction: only methane destroyed above baseline levels or pre-existing device capacity is eligible to generate CRTs

Project Contact: Tim Kidman, tim@climateregistry.org

Livestock Project Protocol

- **Project Definition**
  - **Installation of a Biogas Control System (BCS) that captures and destroys methane gas from manure management at livestock operations**
    - Includes “centralized digesters” and “co-digestion”
    - Onsite combustion or offsite pipeline injection
- **Eligibility**
  - **Start date**: Currently must be after 2001; only new projects after 2009
  - **Location**: United States; Mexico later in 2009
  - **Regulatory compliance**: Compliance with all applicable regulations
  - **Additionality**: Regulatory Test, Performance Threshold (next slide)
- **Crediting Period:** 10 years

Livestock Project – Additionality

- **Regulatory Test**
  - **Meets an *initial* test demonstrating project reductions would not have occurred as a result of federal, state or local regulations**
- **Performance Threshold**
  - **Surpasses a better than business-as-usual standard established through an analysis of U.S. manure management practice**
  - Technology-specific threshold: collection and destruction via a Biogas Control System (BCS)
  - Baseline must be anaerobic decomposition

Project Contact: Syd Partridge, syd@climateregistry.org

Urban Forestry

- **Project Definition**
  - An Urban Forest Tree Planting and Maintenance program that is developed by an eligible entity (municipality, educational institution or utility) and located in an urban setting
    - Along streets, in parks, near city buildings, greenbelts, etc.
    - Average spacing of no less than 5 meters between trees
- **Eligibility**
  - **Start date**: Must be after 2001; only new projects after 2009
  - **Location**: United States
  - **Additionality**: Regulatory Test, Performance Threshold
- **Crediting Period:** 100 years

Urban Forestry – Additionality

- **Regulatory Test**
  - **Must exceed any applicable regulations or statutes requiring planting or maintenance**
- **Performance Threshold**
  - For municipalities and educational campuses
    - Must demonstrate an entity-wide **Net Tree Gain** of at least 0 (a stable Urban Forest)
    - All trees planted are additional if NTG > 0 is maintained
  - For Utilities
    - All planted trees are additional
- **Other**
  - Permanence: Landowner liability

Project Contact: Syd Partridge, syd@climateregistry.org

Forest Management (Ver. 3)

- **Project Definition**
  - **Natural forest management practices employed on private or public lands for commercial or noncommercial harvest and regeneration of native trees**
- **Eligibility**
  - **Start date**: Must be after 2001; only new projects after mid-2010
  - **Location**: United States; Mexico in future?
  - **Additionality**: Performance exceeds baseline determined by regulatory, financial and common practice parameter
- **Other**
  - **Permanence**: Landowner liability and Buffer Pool
  - **Leakage**: Risk assessment and discounting
- **Crediting Period:** 100 years

Project Contact: John Nickerson, john@climateregistry.org

Reforestation (Ver. 3)

- **Project Definition**
  - **Establishment of native tree cover on lands that:**
    - **Have had less than 10% tree cover for at least ten years or**
    - **Have been subject to a significant natural disturbance**
- **Eligibility**
  - **Start date**: Must be after 2001; only new projects after mid-2010
  - **Location**: United States; Mexico in future?
  - **Additionality**: Financial viability lookup table for projects following natural disturbance
- **Other**
  - **Permanence**: Landowner liability and Buffer Pool
  - **Leakage**: Risk assessment and discounting
- **Crediting Period:** 100 years

Project Contact: John Nickerson, john@climateregistry.org

Avoided Conversion (Ver. 3)

- **Project Definition**
  - **Specific conservation actions to prevent the site-specific clearing and conversion of native forests to a non-forest use, such as agriculture or other commercial development**
- **Eligibility**
  - **Start date**: Must be after 2001; only new projects after mid-2010
  - **Location**: United States
  - **Additionality**: Verified demonstration of immediate conversion threat or site-specific conversion risk analysis
- **Other**
  - **Permanence:** Landowner liability and Buffer Pool
  - **Leakage:** Risk assessment and discounting
- **Crediting Period:** 100 years

Project Contact: John Nickerson, john@climateregistry.org

Contact Information

Joel Levin

VP Business Development

joel@climateactionreserve.org

www.climateactionreserve.org

523 W. 6th Street, Ste. 428
Los Angeles, CA 90014
213-891-1444