

California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms

California Air Resources Board
March 15, 2013

What Is Cap-and-Trade?

- One of a suite of measures to reduce greenhouse gas (GHG) emissions under AB 32
- The “cap” limits total GHG emissions from all regulated sources
- The “cap” declines over time—reduces emissions
- Participants are allowed to “trade” state-issued GHG emissions allowances—creates flexibility, reduces costs of compliance
- “Works together with command-and-control measures (e.g. traditional regulation)

Goals of the Program

- Reduce GHG emissions
- “Price” emissions to incentivize change
- Spur innovation in low emissions and efficient technologies
- Complement existing programs to reduce smog and air toxics
- Ensure AB 32 reduction mandates for GHG are realized through strict limit
- Flexible mechanism—allows covered entities to find most cost effective reductions

Who Is Covered?

- Stationary sources of emissions at or above 25,000 metric tons of CO₂e per year
 - Large industrial sources (e.g. cement, refineries, oil and natural gas producers)
 - Electricity generation and imports
- Upstream coverage of small combustion emission sources (at fuel provider—e.g. fuel wholesaler, or first entity to offer fuel on the market)
 - Transportation fuels (beginning in 2015)
 - Residential and commercial use of natural gas (beginning in 2015)

Requirements of Covered Entities

- Register with ARB
- Report GHG emissions annually
- Surrender allowances and offsets to match emissions at the end of each compliance period
 - Reductions are program-wide, not facility specific
- Comply with recordkeeping, market rules, verification, and other requirements in the regulation
- Critical to success of cap-and-trade regulation

Mandatory Reporting

- Regulation adopted in 2007
- Entities with more than 10,000 metric tons of CO₂e per year must report annually
- Specific reporting methodologies for each sector
- Third-party verification required
 - Annual verification for entities >25,000 mt CO₂e
 - ARB trains and accredits third-party verifiers and verification bodies
 - Strict conflict-of-interest requirements
 - ARB oversees third-party verifiers

Program Design Helps Ensure Market Integrity

- Purchase and holding limits—prevent market manipulation
- All traders must register in the cap-and-trade tracking system
- The tracking system provides a chain of custody for allowances and offsets
- Balance need for transparency with safeguards to prevent market manipulation

Implementation Systems and Processes Are Key

- Compliance instrument tracking system and auction platform designed for security
 - Know Your Customer requirements
- Market surveillance activities performed by agency staff with assistance from outside experts
 - Coordination with other agencies on market surveillance
- Agency must protect market sensitive information while providing transparency to the public

February Auction Results

- 2013 Vintage Allowances
 - Quantity of Allowances Offered: 12,924,822
 - Quantity of Allowances Sold: 12,924,822
 - Total Submitted Bids Divided by Total 2013 Allowances Available for Sale: 2.49
 - Total Qualified Bids Divided by Total 2013 Allowances Available for Sale: 2.47
 - Auction Reserve Price: \$10.71
 - Settlement Price Per Allowance: \$13.62
 - Allowances Purchased by Compliance Entities: 88.15%
- 2016 Vintage Allowances
 - Sold: 4,440,000 at \$10.71

Litigation

- November 2012: California Chamber of Commerce et al. v. CARB et al.
 - Industry group argues that ARB lacks authority to conduct the auction, or in the alternative, that the auction constitutes an illegal tax
- March 2012: Citizen Climate Lobby and Our Children's Earth Foundation v. CARB
 - Environmental groups argue that offsets are not additional
 - January 2013, trial court found in ARB's favor and denied the Plaintiffs' Petition

Auction Proceeds

- Funds are appropriated annually in State budget.
- Legislation establishes funding framework.
 - Proceeds must fund projects that reduce GHG emissions.
 - Disadvantaged communities focus.
- Three-year investment plan is in progress.
- Priorities in Governor's Budget:
 - Clean transportation, commercial and residential energy efficiency, water-related energy efficiency all mentioned as potential priority areas.
 - Funding for sustainable agricultural practices, forestry, and waste diversion will also be examined.

More Information

- Cap-and-Trade Website:
 - <http://www.arb.ca.gov/cc/capandtrade/capandtrade.htm>
- Cap-and-Trade Regulation:
 - http://www.arb.ca.gov/cc/capandtrade/september_2012_regulation.pdf
- Mandatory Reporting Website:
 - <http://www.arb.ca.gov/cc/reporting/ghg-rep/ghg-rep.htm>
- Mandatory Reporting Verification Website:
 - <http://www.arb.ca.gov/cc/reporting/ghg-ver/ghg-ver.htm>
- Mandatory Reporting Regulation:
 - http://www.arb.ca.gov/cc/reporting/ghg-rep/regulation/mrr_2012_clean.pdf
- Tracking System Website:
 - <http://www.arb.ca.gov/cc/capandtrade/markettrackingsystem/markettrackingsystem.htm>
- Auction Website:
 - <http://www.arb.ca.gov/cc/capandtrade/auction/auction.htm>
- Auction Proceeds Website:
 - <http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/auctionproceeds.htm>

California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms:

Cap Setting, Allocation and Price Containment

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Cap Setting

- Goal is to have a gradual emission reduction path
- Based on third-party verified emissions data reported by covered facilities beginning with 2009 calendar year emissions
- Starting allowance budget equal to expected emissions
- 2020 allowance budget set to meet AB 32 goal of reducing emissions to 1990 levels by 2020
- “Narrow scope” program in 2013 and 2014
 - Electricity and industrial sources
- “Broad scope” program in 2015-2020
 - Electricity, industrial sources, transportation fuel, distributed natural gas

Allowance Distribution

Allowance Price Containment Reserve

- 4 percent of all allowances go to a 'reserve' to contain prices should they get too high
 - 121.8 million allowances
- Allowance Price Containment Reserve allowances are offered for sale four times a year in three price tiers.
- For 2013:
 - Tier 1: \$40/MT
 - Tier 2: \$45/MT
 - Tier 3: \$50/MT

Allowance Distribution

Voluntary Renewable Electricity Reserve

- Small percentage of allowances go to a voluntary renewable electricity reserve
 - 0.5% of 2013-14
 - 0.25% of 2015-2020
- End-users may apply to ARB to retire allowances to reflect use of voluntary renewable electricity

Allowance Distribution

Electrical Distribution Utilities

- Free allocation to electric utilities for the benefit of electricity ratepayers
 - Electricity *generators* receive no free allowances. *Utilities* are issued free allowances to account for pass through costs to the end-consumer (CA ratepayers)
- Investor-owned utilities must consign allowances to auction; publicly-owned utilities may consign allowances to auction or place them in their compliance account
- Public Utilities Commission decides how investor-owned utilities may spend auction proceeds; Publicly-owned utility boards decide how to spend auction proceeds

Allowance Distribution

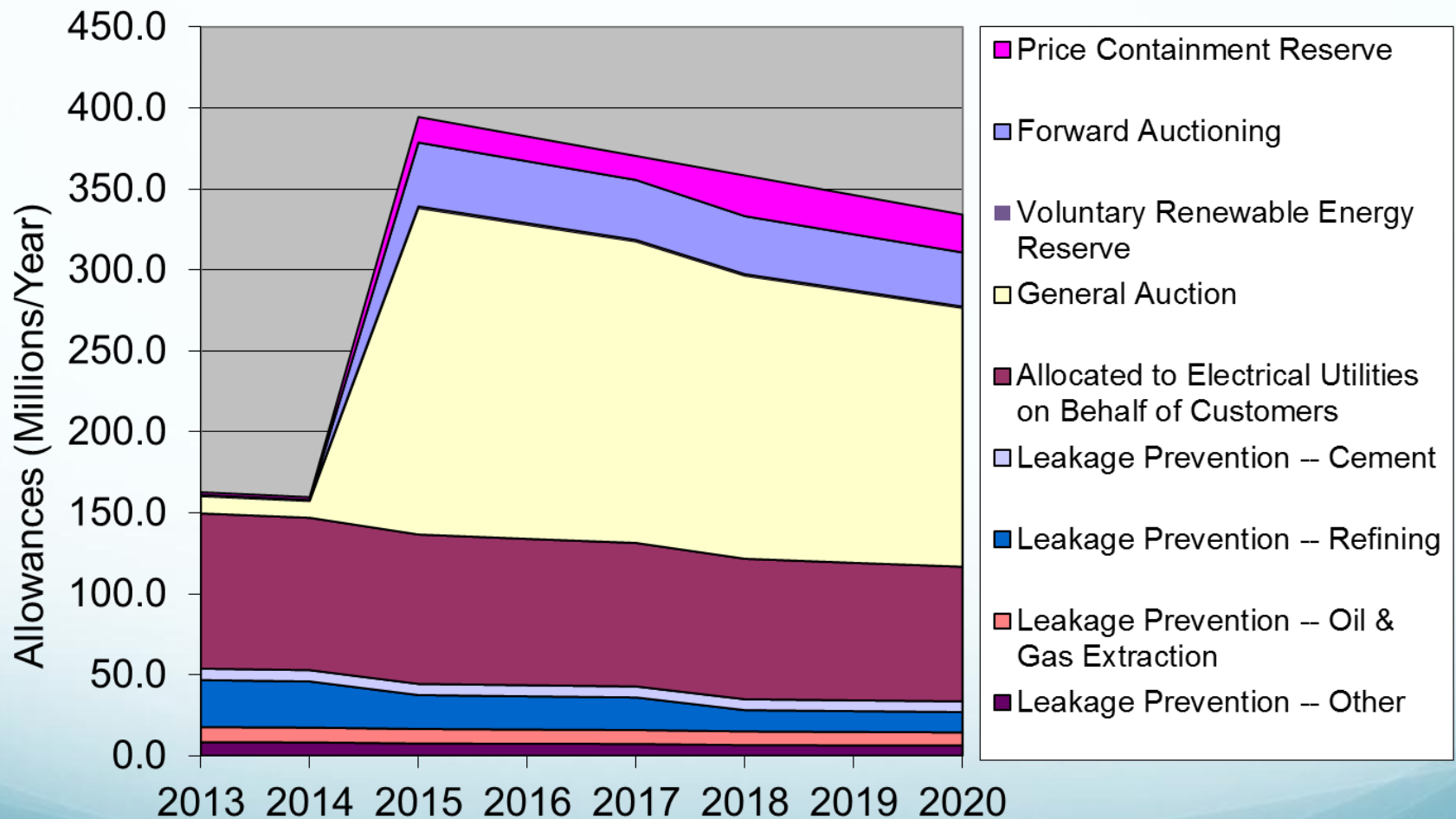
Industrial Producers

- Free allocation to industrial producers to provide transitional assistance and to minimize emissions leakage
- Allowances = Assistance Factor x Benchmark x Cap Decline Factor x Production
 - Assistance Factor considers energy intensity and trade exposure (“leakage”)
 - Benchmark is about 90 percent of the most efficient CA facility
 - Units: metric ton of CO₂e per unit of production
 - Cap decline is 2-3% a year
 - Production is reported each year

Allowance Distribution Auction

- Remaining allowances are auctioned
 - Approx. 5% of market in 2013; Approx. 50% in 2015
- Proceeds to the State to be appropriated during the budget process

Allowance Budget and Allocation



More Information

- Cap Setting:
 - <http://www.arb.ca.gov/regact/2010/capandtrade10/capv3appe.pdf>
- Allowance Price Containment Reserve:
 - <http://www.arb.ca.gov/regact/2010/capandtrade10/capv3appg.pdf>
- Allowance Allocation:
 - <http://www.arb.ca.gov/regact/2010/capandtrade10/capv4appj.pdf>
- Leakage analysis:
 - <http://www.arb.ca.gov/regact/2010/capandtrade10/capv4appk.pdf>

**California Cap on Greenhouse Gas
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Compliance Mechanisms:
Offset Design and Implementation**

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March 2013**

Role of Offsets

- Provide cost-containment
- Encourage emission reductions in non-covered sectors
- Entities may use offsets to satisfy up to 8 percent of their covered emissions
- Compliance offsets are only issued by the California Air Resources Board

General Offset Criteria

- Reductions must meet AB 32 criteria
 - Real, additional, quantifiable, permanent, verifiable, and enforceable
 - Additional = beyond regulation or what would otherwise occur
- Offsets must result from Board-adopted compliance offset protocols
 - Protocols contain performance standards
- Offset credits cannot be issued for GHG emission reduction activities already covered under the cap

Ensuring Offset Quality

- Protocols describe activities that are additional, and the monitoring, reporting and verification needed to qualify for compliance-grade offsets
- Multiple layers of review for each project
- Third-party verification required
 - ARB trains and accredits verifiers and verification bodies
 - Strict conflict-of-interest requirements
 - ARB oversees third-party verifiers
- Buyer liability encourages due diligence

Compliance Offset Protocols

- U.S. Forest Projects
 - Quantifies net carbon sequestered from reforestation, improved forest management, and avoided conversion projects
- Urban Forest Projects
 - Quantifies net carbon sequestered associated with tree planting and maintenance in urban areas
- Livestock Projects
 - Quantifies emission reductions from destruction of methane using dairy digester technology
- Ozone Depleting Substances Projects
 - Quantifies emission reductions from destruction of high global warming ozone depleting substances in refrigerants and foams

Offset Process Overview

Offset Project Operator (OPO) lists offset project

OPO monitors and reports annually

Third-Party verification of OPO's reported GHG reductions

Offset Project Registry (OPR) determines issuance of registry offset credits

OPR issues registry offset credits to OPO

ARB reviews all project documentation

ARB determines issuance of ARB offset credits

ARB issues ARB offset credits

Offset Project Operators

- Responsibilities
 - Implement offset projects
- Key Requirements
 - Submit required information to Offset Project Registries and ARB
 - Sign and submit attestations to ARB

Offset Verifiers / Verification Bodies

- Responsibilities
 - Provide independent third-party review of monitoring and reporting information submitted by Offset Project Operators
- Key Requirements
 - Demonstrate required experience
 - Take ARB required training and examinations
 - Demonstrate no potential for conflict of interest for projects reviewed

Offset Project Registries

- Responsibilities
 - List offset projects
 - Facilitate and audit offset verification
 - Determine issuance of registry offset credits
- Key Requirements
 - Demonstrate 2 years experience operating a registry in an environmentally focused market
 - Have the capabilities to track ownership and transactions of all registry offset credits
 - Must have experience in all offset protocols, demonstrated by taking ARB required training and examinations

Offset Project Registries

- Cannot be Operators or Verification Bodies
 - No overlap of responsibilities
- Provide an additional layer of checks before ARB compliance offset credits are issued
- Help make the process transparent by making documentation publicly available
 - Cannot designate information in offset project data report and as “confidential business information”

ARB's Role

- Review project documentation
 - Project data reports
 - Verification findings
- Determine issuance of ARB compliance offset credits based on review
- Issue ARB compliance offset credits
- Oversight and enforcement of compliance offset program
 - Accredite and oversee verifiers/verification bodies
 - Approve and oversee Offset Project Registries

More Information

- Guidance on offsets and how they are issued:
 - <http://www.arb.ca.gov/cc/capandtrade/guidance/chapter6.pdf>
- List of ARB-accredited offset project registries:
 - <http://www.arb.ca.gov/cc/capandtrade/offsets/registries/registries.htm>
- List of ARB-accredited verifiers and verification bodies:
 - <http://www.arb.ca.gov/cc/capandtrade/offsets/verification/verification.htm>
- Early action protocols:
 - <http://www.arb.ca.gov/cc/capandtrade/offsets/earlyaction/credits.htm>
- ARB-approved offset protocols:
 - <http://www.arb.ca.gov/cc/capandtrade/offsets/offsets.htm>

California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms:

Linkage with Quebec

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Linkage

- Increase greenhouse gas emission reductions
- Reduce overall program cost
- Provide more opportunities to find cost-effective emission reductions

Western Climate Initiative

- WCI is a coalition of western states and Canadian provinces seeking to reduce GHG emissions in a cost-effective manner
- Developed design recommendations for regional cap-and-trade program
 - Each jurisdiction adopts cap-and-trade program
 - Programs are linked through reciprocal acceptance of compliance instruments and a joint auction

Linkage Process in California

- California and Quebec staff worked together to develop regulatory modifications to enable linkage
- Staff proposed modification to the regulation to link with Quebec in May 2012
- Legislature passed a bill requiring the Governor to make specific findings before greenhouse gas programs can be linked with other jurisdictions
- ARB has requested the Governor to make these findings
- ARB must approve regulatory modifications before linkage is final

Linkage Process Implementation

- Joint tracking system for allowances and offsets
- Platform for joint auctions
- Market monitoring and surveillance
- Processes for day-to-day market operation

More Information

- Linkage Website:
 - <http://www.arb.ca.gov/cc/capandtrade/linkage/linkage.htm>