Overview of a California Cap-and-Trade Market

March 23, 2009
California Air Resources Board
California Cap-and-Trade Rulemaking Timeline

- Focus in 2009: work through implications of different issues and policy decisions
- Focus in 2010: finalize program design and develop regulatory language
- End of 2010: Board action on cap-and-trade regulation
- Extensive public process throughout
Purpose of Meeting

• Discuss design options for implementing an allowance auction
• Discuss design options for compliance
• Stakeholders are asked to provide written comments on these topics to ARB by April 30 (to ccworkshops@arb.ca.gov)
Agenda

• Opening Remarks/Meeting Structure (15 min)
• Presentation: Auction Design (30 min)
• Roundtable: Auction Design Issues (30 min)
• Break (15 min)
• Presentation: Enforcement and Compliance (30 min)
• Roundtable: Compliance (30 min)
• General Discussion
• Adjourn
How Do Allowances and Offsets Enter the Market?

• Today’s Discussion: Allowance auction

• Discussion for future meetings:
  – Direct distribution of allowances to compliance entities
  – Use of approved offsets in the market
  – Allowances imported from “linked” cap-and-trade systems
  – Trading allowances
How Could Allowances Be Used for Compliance?

• At the end of a compliance period, ARB would have:
  – Verified reports of emissions
  – Proof of ownership of allowances equal to quantity of emissions

• ARB would then:
  – Evaluate compliance submissions
  – Resolve discrepancies
  – Determine compliance or violations and assess penalties
Meeting Objectives

- Discuss preliminary list of design features and issues on auctions and compliance
- Solicit input on items we’ve missed
- Identify your preferences among the options
Auction Design
Considerations in Evaluating Auction Objectives

• Some objectives are common to existing auction systems
• Objectives may conflict when implementing a design feature
• Design will probably involve tradeoffs
• How you make tradeoffs involves both values and how you expect the market will operate
Some Common Objectives Under Consideration

• Promote open access
• Ensure fairness and transparency
• Minimize administrative and transactions costs
• Promote economic efficiency
• Prevent manipulative behavior
• Reveal market valuation of allowances
• Minimize price volatility
• Promote allowance market liquidity
Some Common Design Features Under Consideration

• Financial Assurance Requirements
• Participation Restrictions
• Information Disclosure
• Purchase Limits
• Auction Frequency
• Award Process
• Reserve Price
• Noncompetitive Bids
Evaluating Design Features

• The following slides discuss:
  – Specific examples of design features
  – What the features accomplish
  – Tradeoffs inherent in these features

• ARB is evaluating which of these design features to include in the cap-and-trade program
Design Feature: Financial Assurances

• Participants provide proof of ability to pay for allowances (financial assurance)
  – Limit bidding to amount of financial assurance
  – Provide bid default guarantees
  – Designed to ensure auction integrity

• Possible Tradeoffs
  – Limits access if credit difficult to obtain
  – Raises cost of participation
Design Feature: Participation Eligibility

- Limit participation to compliance entities
  - Designed to ensure compliance entities have priority in access to allowances
  - Assumption that non-compliance entities would unnecessarily drive up prices

- Possible Tradeoffs
  - Reduces economic efficiency by reducing pool of bidders
Auction operators will acquire extensive information on participants through auction operation:

- Identity of bidders, their bid prices and quantities
- Identity of winners, their bid prices and quantities
- Status as compliance or non-compliance entities
Design Feature: Information Disclosure

• How much of the information should be provided to market participants?

• Possible Tradeoffs:
  – Disclosure of some of this information by the regulator could aid market manipulation
  – Regulator maintaining confidentiality of all data could reduce transparency of market
Design Feature: Purchase Limits

• Some auction platforms limit the share of allowances which can be purchased by any single entity
  – Intended to reduce potential market manipulation by speculators accumulating large positions
  – Examples

• Possible Tradeoffs:
  – A purchase limit can reduce economic efficiency by preventing bidders from using available market information
  – Complicates planning by businesses needing allowances to enter a market
Design Feature: Auction Frequency

• Higher auction frequency (e.g. quarterly) can:
  – Send price signals on allowance value in the early years of the program
  – Allow bidders to modify their bidding strategies
  – Reduce the chance that participants overbid

• Tradeoffs
  – Higher administrative costs
  – Reduces number of allowances at each auction, increases risk of oversubscription
Design Feature: Options for Awarding Auctioned Allowances

- Sealed versus open bids
- Setting auction price:
  - As lowest winning bid (first price) or as highest losing bid (second price)
  - Single price: all winners pay marginal winning bid
  - Pay-as-bid: each winner pays own bid
Design Feature: Options for Awarding Auctioned Allowances

• How many rounds of bidding?
  – Single round: submit only one bid
  – Multiple round: submit bids until winner declared

• Multiple round methods
  – Ascending or descending
  – Use submitted bids or auctioneer-issued value at each round
Design Feature: Options for Awarding Auctioned Allowances

Tradeoffs among the options:
• Multiple rounds provide:
  – Greater amount of information on bidders’ valuation
  – Higher operating costs
  – Greater complexity for participants
  – Greater potential for manipulation
• Single price method provides market valuation but pay-as bid provides detailed bidder valuations
Design Feature: Auction Reserve Price

- A reserve price is a minimum bid below which bids would not be accepted
  - Could result in unsold allowances
  - Unsold allowances could be held over for future auction, retired, or held for other use

- Tradeoffs if allowances remain unsold:
  - Creates price floor
  - Raises allowance cost
  - Reduces economic efficiency
Design Feature: Non-Competitive Bid Process

• Process creates a reserve of allowances for entities wishing to avoid quantity risk
  – Reduce number of allowances auctioned by amount of the reserve
  – Resolve auction using “competitive” bids
  – “Non-Competitive” bidders pay the auction price
  – Compatible with single-price formats

• Tradeoffs
  – Benefits those more concerned with allowance availability and overbidding
  – Problem with oversubscription of reserve
Roundtable Discussion
Enforcement and Compliance Issues in Cap-and-Trade
Potential Goals for Enforcement

- Level Playing Field
- Enforceability
- Simplicity
- Clarity
- Transparency
- Fair and Consistent Penalties
Existing Mandatory Reporting Requirements

- Emissions Reporting
- Verifier Accreditation
- Verification
Potential Allowance Oversight

• Tracking who has Received Allowances
• Possible use of Allowance Registries
• Allowance “Surrender” (To “surrender” is to turn in allowances for compliance purposes.)
• Matching Surrendered Allowances to Reported Emissions
• Enforcement Mechanisms Needed along the Way
Existing Enforcement Elements

- Inspections and Auditing
- Investigations, Possible Penalties
- Settlements and Court Proceedings
- Possible Press Release
- Case Summary Posted to Web
- Annual Report
Penalties Afforded Under AB 32

- H&SC §38580(a)
  - ARB shall monitor compliance and enforce
- Directed to use existing penalty provisions:
  - Article 3 Commencing with §42400
  - Chapter 1.5 commencing with §43025
Existing Penalty Structure

- **Administrative**
  - H&SC § 42410 - $10,000 per day to a $100,000 max
  - H&SC § 42402.5 - $500 per offense

- **Civil H&SC § 42400**
  - Up to $1,000 per day
  - Up to $1,000,000 for willful and intentional violations, causing great bodily harm
  - A maximum of 6 months to 1 year in jail

- **Criminal H&SC § 42402**
  - Up to $1,000 per day
  - Up to $1,000,000 for willful and intentional violations, causing great bodily harm
Existing Penalty Structure

- **Administrative** H&SC §43028
  Not to exceed $25,000 per day or $300,000

- **Civil** H&SC §43026
  Up to $1,000 per day and
  Up to $10,000 per violation per day
  Penalties to eliminate any economic benefit
  Other penalty amounts apply (negligence, etc.)
Factors Considered in Existing Penalty Structure

California Health & Safety Code §42403 & §43031: 

*In determining the amount assessed … shall take into consideration all relevant circumstances, including, but not limited to:*

- Extent of harm caused by the violation,
- Nature and persistence of the violation,
- Compliance history, including the frequency of past violations,
- The length of time of the violation,
- Preventive efforts taken by the defendant, including the record of maintenance and any program to ensure compliance occurs
Factors Considered in Existing Penalty Structure (con’t.)

- The unproven or innovative nature of the control equipment, and the accuracy, reproducibility, and repeatability of the available test methods
- Any action taken, including the nature, extent, and time of response of the cleanup and construction undertaken, to mitigate the violation,
- Financial burden,
- Cooperation during the course of the investigation,
- Efforts to attain, or provide for compliance, and
- In certain cases, the size of the business.
Possible Excess Emissions Penalty Options in Cap-and-Trade

• Should penalties be significantly higher than expected allowance price to deter violations?

• Possible penalty options for insufficient allowance surrender:
  – Fixed Financial?
  – Variable Financial Using Discretion?
  – Quantitative: Additional Allowances?
  – Let’s look at some examples from existing programs….
Excess Emission Penalties: US EPA SO$_2$ and NO$_x$

- **SO2 Program**
  - Automatic financial penalty
  - Automatic offset (deduct allowance from next year’s allocation)
  - Possible civil and criminal penalties

- **NOx Program**
  - 3 allowances surrendered for each excess ton
  - Possible civil and criminal penalties
• Uniform excess emissions penalties
  – €40 ($50)/ton CO₂e in 1\textsuperscript{st} Phase (2005-2007)
  – €100 ($125)/ton CO₂e in 2\textsuperscript{nd} Phase (2008-2012)
  – €100 ($125)/ton CO₂e in 3\textsuperscript{rd} Phase (2012-2020) and adjusted for inflation
  – Excess emissions must be offset in following year
Excess Emission Penalties: EU ETS (cont’d.)

- Member State set additional penalties (e.g., for fraudulent reporting) but have broad discretion
- “Naming and Shaming” provision for violators
Potential Options: Quantitative Versus Financial Penalties

• Should penalties be automatic or discretionary?

• Should penalties be:
  – Quantitative (extra allowances)?
  – Financial?
  – Both?

• How high should penalties be to deter non-compliance?
Compliance Timing

• If an entity has not surrendered sufficient allowances the amount of the shortfall may not be resolved until the subsequent compliance period.

• Can the entity submit allowances from the subsequent compliance period or only from the prior compliance period?
Summary

• Level Playing Field
• Administrative Simplicity
• Clarity
• Free of Market Manipulation (collusion & speculation)
• Linkage to Regional or Federal Programs
• High-Level of Compliance
• Transparency
Roundtable Discussion
For More Information...

- Mandatory Reporting Web Page
  - http://www.arb.ca.gov/cc/reporting/ghg-rep/ghg-rep.htm

- ARB’s Cap-and-Trade Web Site
  - http://www.arb.ca.gov/cc/capandtrade/capandtrade.htm

- To stay informed, sign up for the Cap-and-Trade listserv:

- Western Climate Initiative
  - http://www.westernclimateinitiative.org
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