Session 4

Possible Policy Mechanisms for Emissions Reductions

Issues and Options for Cap and Trade

Email questions to CCPlan@arb.ca.gov

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Regional and Federal Cap and Trade

- A regional or federal system for addressing GHG emissions is likely to include a strong cap-and-trade element
- Expanded geographic coverage can provide key benefits:
  - More opportunities for low-cost reductions in the system
  - Reduced potential for leakage of emissions or economic activity
- California is active working with WCI partners to develop a regional market system that is consistent with AB 32
- Scoping Plan process can help California influence the design of a future federal system

Cap and Trade Defined

- Establish a declining emissions cap for regulated sources
- Issue allowances based on the cap
- Require affected sources to obtain allowances equal to their emissions
- Allow sources within the cap to purchase or trade allowances in the compliance period
- Administer the program to provide certainty, verification of reductions, and program compliance

Market Mechanism Design

- Key design elements for a cap and trade system include:
  - Point of regulation
  - Scope (what sources and gases are included)
  - Setting the cap
  - Allowance distribution
  - Cost containment
  - Program administration and enforcement
  - Distribution of revenues if allowances are auctioned
- Many of these elements also apply to other market systems

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Point of Regulation

- Point of regulation refers to what entities are responsible for obtaining needed allowances
- Two main approaches to point of regulation
  - Upstream (Carbon contained in fuels at appropriate point in wholesale distribution or use)
  - Downstream (Point of combustion or quantifiable process-related emissions)

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Program Scope Issues

- **What is "Program Scope"?**
  - Which GHGs are included?
  - Which sectors?
  - What specific facilities, or fuels?
  - Direct emissions or embodied emissions?
- **Criteria for Determining Scope**
  - Extent of coverage
  - Administrative feasibility
  - Integrity of emissions data
  - Vulnerability to leakage

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Scope: Electricity Sector

- **Emissions in 2004 (in mmtCO_2e): 120**
  (25% of total emissions)
  - Imports: 61
  - In-State: 59
    - *Merchant generation: 28*
    - *Combined Heat & Power: 24*
    - *CA utilities: 7*
- **Point of regulation options**
  - Load-based (retail provider or utility)
  - Generator (source)-based (California only)
  - "First Seller" (addresses imports)
  - Mix of approaches
- **Included in EU ETS, RGGI, Federal SO_x Market**

CPUC/CEC Recommendations on approach by early March

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Scope: Industrial Sector

- **Emissions in 2004 (in mmtCO_2e): 96**
  (20% of total emissions)
- **Sources**
  - Glass, cement & lime manufacturing, petroleum refining, oil and gas production, large cogeneration facilities
- **Point of regulation options for downstream approach**
  - Point of combustion
  - Process emissions
- **Included in RECLAIM and EU ETS**

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Scope: Transportation Sector

- **Emissions in 2004 (in mmtCO_2e): 182**
  (38% of total emissions)
- **Sources**
  - Mobile sources & fuels
- **Point of regulation options**
  - Fuel producers/importers; fuel wholesalers
  - Vehicle manufacturer
- **Limited inclusion in markets (motor vehicle fleet average; lead in fuels); not included in EU ETS, RGGI, Federal SO_x Market**

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Scope: Agriculture and Forest Sectors

- **Emissions in 2004 (in mmtCO_2e)**
  - Agriculture: 28 (6% of total emissions)
  - Forestry: 0.2 (less than 1% of total emissions)
- **Sources**
  - Manure mgmt, digesters, cultivation, soil treatment
  - Forest biomass
- **Point of regulation options**
  - Landowner or government land manager

Unlikely to be suitable for cap and trade system but other regulatory options could apply

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Setting the Cap for a Cap-and-Trade System

- Cap level in 2012
- Cap level in 2020
- Cap levels between 2012 and 2020
  - "Glide path" vs. constant rate
- Cap level after 2020
  - How far into the future?
  - At what level?
- Compliance period length
  - Annual vs. multi-year; overlapping?

Allowance Distribution

- Allowance distribution method …
  - Does <u>not</u> compromise environmental outcome
  - Does determine how allowance value is distributed
  - May affect decisions on operations and investment
- Two general methods
  - Free Allocation
  - Auction
  - → Methods can be combined

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Key Questions for Allowance Distribution

- What criteria should be used to determine the distribution of any free allowances?
- What percentage of allowances, if any, should be auctioned?
  - How should the percentage of auctioned allowances change over time?
  - When and how often should any auctions be held?
  - Should auctions have rules to prevent "hoarding"?

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Key Questions for Other Allowance Issues

- Should there be allowance set asides, perhaps for new entrants or other reduction activities?
- Who may own, buy and sell allowances?
  - Who may participate in an auction?
  - What rules should govern the trading of allowances?
- Should allowances from any other programs be accepted in a California program?

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Cost Containment

- Cap and trade system can include cost containment options, such as:
  - Allowance trading
  - Temporal flexibility: banking, borrowing, longer compliance periods
  - Offsets
  - Linkage (allowances and credits from other programs)
  - Price ceiling ("safety valve") and/or floor
- Cost containment approaches must be evaluated in terms of effect on meeting emission reduction goals

Program Administration and Enforcement

- Strict reporting rules
  - Existing mandatory reporting rules can be tailored to fit program design
- Strong enforcement procedures for noncompliance
- Level of administration required
- Prevention of market manipulation

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Cross-Cutting Issues for Various Cap-and-Trade Options

- Emissions tracking and reporting
- Linkage to other regional or State programs
- Leakage
- Potential for legal conflicts with federal laws
- Use of allowance value
- Potential for program redundancy and double counting with related regulatory programs

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Cap and Trade Advantages/Disadvantages

- Advantages:
  - Can lower cost of compliance for given level of emission reduction
  - Flexibility
  - Larger scope over time can further reduce costs
  - Price signals can change emission levels more directly
- Disadvantages:
  - Potential legal challenge for capturing imports
  - Potential competitiveness issues and leakage for some sources
    - However, trading potential to reduce costs could result in less leakage than direct regulation
  - Method of distributing allowances could have mixed results
- Other issues:
  - Need to assess potential for localized impacts and effect on criteria or toxic air pollutant emissions

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Questions and Comments?

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