AB 32 Cap-and-Trade Rulemaking to Reduce Greenhouse Gases

Public Workshop

January 29, 2009

California Air Resources Board
Cap-and-Trade

• Scoping Plan Directive:
  – Implement a broad-based California cap-and-trade program to provide a fixed limit on emissions
  – Link to other Western Climate Initiative Partner programs

• Sectors Included:
  – Electricity generation, including imports (2012)
  – Large industrial sources (2012)
  – Commercial/residential natural gas use (2015)
  – Transportation fuels (2015)
• Cap set in 2012, declining to 2020 target
• Three year compliance periods
• Minimum 10% auction; expect transition to 100% auction
• Offsets use limit: up to 49% of required emissions reductions
• Use complementary measures to reduce market barriers, spur innovation, and distribute costs more equitably
• Remaining reductions (35 mmtCO2e) achieved through cap-and-trade program
Board Direction on Cap-and-Trade Rule Development

• Program to complement health-based air quality programs and EJ policies

• Seek input from experts on public health, allowance distribution and use, revenue distribution, and economic analysis

• Consider effects of the program on the California economy and public health
California 2020 GHG Emissions and Adopted Measures in Scoping Plan

**Total Emissions 596 MMTCO2E**

- Agriculture
- High GWP
- Recycling & waste
- Industry
- Natural gas
- Electricity
- Transportation

**Total Emissions 456 MMTCO2E**

- Agriculture
- High GWP
- Recycling & waste
- Industry
- Natural gas
- Electricity
- Transportation

**Reduction Measures**

- **Reductions from uncapped sectors:**
  - Total reductions of 27.3 MMT
  - Sustainable forests: 5.0 MMT
  - Industrial measures: 1.1 MMT
  - Recycling & waste: 1.0 MMT
  - High GWP measures: 20.2 MMT

- **Reductions from capped sectors:**
  - Total reductions of 146.7 MMT
  - (including 112.3 MMT from specified measures):
    - Pavley standards: 31.7 MMT
    - LCFS: 15.0 MMT
    - Regional targets: 5.0 MMT
    - Vehicle efficiency: 4.5 MMT
    - Goods movement: 3.7 MMT
    - Heavy/medium veh: 1.4 MMT
    - High speed rail: 1.0 MMT
    - Energy efficiency: 26.3 MMT
    - 33% RPS: 21.3 MMT
    - Million solar roofs: 2.1 MMT
    - Industrial measures: 0.3 MMT
California 2020 GHG Emissions and Recommended Reduction Measures

Total Emissions:
- Business-as-Usual: 596 MMTCO2E
- After Specified Reductions: 456 MMTCO2E
- With Cap-and-trade: 422 MMTCO2E

Specified Reductions:
- Recycling & waste
- Agriculture
- Transportation
- High GWP

365 MMTCO2E Cap on Capped sectors
The California Cap

First Compliance Period Cap
- electricity and industrial sources

2nd and 3rd Compliance Period Cap
- electricity, industrial sources, transportation fuels, and natural gas

2015: Expansion of scope


Cap: 365 MMT

Expansions of scope: 2015
Principles Guiding Cap-and-Trade Regulation

• Minimize costs and maximize total benefits
• Minimize leakage and administrative burden
• Complement existing air programs to reduce emissions, exposure and risk
• Consider direct, indirect, and cumulative emissions, including localized impacts
• Do not disproportionately impact low-income communities
State Agency Coordination

• Cross-cutting issues
  – Offsets (Resources, Forestry)
  – Industry (Caltrans)
  – Transportation Fuels (CEC)
  – Energy (PUC and CEC)

• Electricity/Natural Gas
  – Work with CEC/CPUC on Joint Proceedings recommendations
  – Utilize expertise of Commissions on energy related issues
Western Climate Initiative

Partners:
- Arizona
- British Columbia
- California
- Manitoba
- Montana
- New Mexico
- Ontario
- Oregon
- Quebec
- Utah
- Washington
WCI Benefits to California

• Regional approach has potential to double emission reductions over a CA-only approach
• Regional harmonization reduces potential for emissions “leakage” and supports jobs retention
• Broader carbon market increases opportunities for low-cost greenhouse gas reductions
• Increased leverage on Federal climate policy development
Linking to a Regional Program

• Each partner jurisdiction adopts and implements its own program, with consistency among WCI partner programs

• Trading across jurisdictional lines authorized through administrative agreements among partner jurisdictions

• One auction design and coordinated auctions
• Consistent rulemaking provisions, including
  – Offset protocols and criteria for use
  – Reporting protocols and thresholds

• Address potential competitiveness issues in allocation formula
Interaction with Federal Activity

- Develop recommendations on policy issues that can influence national legislation and regulatory development
- Promote strong state involvement in developing federal climate policies and regulations
- Invite participation by U.S. EPA officials and other federal lead agencies
- Promote federal actions, funding opportunities and incentives for activities that support achieving California cap in 2020
Cap-and-Trade: Key Rulemaking Provisions

- Scope and Threshold
- Setting the Cap
- Allowance Distribution
- Auction Revenue Distribution
- Offsets
Cap-and-Trade: Key Rulemaking Provisions (cont’d)

- Reporting
- Market Operations and Oversight (including enforcement)
- Other Administrative Requirements
  - Examples:
    - Linking with WCI Jurisdiction programs
    - Provisions for rule revisions
    - New program entrants or changes in threshold eligibility
Public Participation Process

• Technical Working Groups
  – Purpose: clarify and define specific issues within each major rule sub-division (design element) with aim on finding good approaches to thorny issues

• Expert input on broad policy issues
  – Purpose: discuss and seek expert advice on issues related to economic impacts, public health, allowance distribution and revenue use, etc.
• Public Workshops
  – Regular broad-based public meetings to inform the public and key stakeholders on the status of rule development
Issues: Scope and Threshold

- Threshold for source eligibility within a sector
- Potential for inclusion of new sectors
Issues: Cap Setting

• Set cap levels for 2012 and 2015
• Rate of decline between milestone years
• Accounting for electricity imports in setting the cap
• Effect of weather and economic variability on cap setting
Issues: Allowance Distribution

• Transitioning over time to 100% auction
• Guiding principles for allowance distribution
• Economic, environmental, and social impacts of different allocation strategies
  – Including emissions and jobs leakage potential
• Allowance set-asides and criteria for use
• Coordination with WCI
Issues: Auction Revenue Distribution

- Uses of allowance value
- Oversight of directed expenditures
Issues: Offsets

• Criteria for offset protocols
  – Definitions: real, additional, quantifiable, verifiable, permanent, and enforceable
  – Conditions for approval, e.g., temporal, geographic, percentage changes over time, harmonization with regional system, etc.

• Potential supply of offsets within and outside California
• Procedures for review and adoption of project types and protocols for offset credits issued by WCI jurisdictions

• Tools to identify co-benefits in approval of offset projects

• Crediting period and start date for issuing offsets
Issues: Reporting

• Point of regulation for transportation fuels and natural gas for commercial/residential uses
• Quantification methods for new sectors
• Working definition of biomass (including sustainability guidelines and a method to assess carbon neutrality)
• Comparability of reporting requirements among WCI jurisdictions
Issues: Market Operations and Oversight

• Compliance quantification and verification
• Enforcement
• Regional auction design in concert with WCI
• Prevention of potential market manipulation to ensure system integrity
Issues: Market Operations and Oversight (cont’d.)

• Trading rules, including possible restrictions on market participation
• Managing inter-jurisdictional WCI allowances
• Transparency in the trading process
• Design of allowance-tracking system (registry)
Issues: Program Equity

• Potential for increases in criteria and toxic pollutants, especially in disproportionately impacted communities
• Marginal cost of abatement
• Impacts of regional program on small business, jobs, and competitiveness
• California as net importer or exporter of allowances within the WCI region
Issues: Harmonization with Other Requirements

• Harmonizing complementary measures (e.g., LCFS, high GWP mitigation program, energy measures) with cap-and-trade system
• Harmonizing cap-and-trade with other State policies and requirements (including CEQA and SIPs)
• Complementarity of California requirements with those of WCI Partner jurisdictions
Cap & Trade Impact Analyses

- Parallel to rule development
- Analyses will include:
  - Environmental, including criteria pollutants and air toxics
  - Economic
  - Energy diversification
  - Public health
  - Localized impacts
  - Small business
  - Market operations
### Team Leads for Cap & Trade Rulemaking

<table>
<thead>
<tr>
<th>Team Lead(s)</th>
<th>Responsibilities</th>
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<tbody>
<tr>
<td>Sam Wade, Mary Jane Coombs</td>
<td>Cap setting and allowance distribution</td>
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<tr>
<td>Ray Olsson</td>
<td>Market operations and oversight</td>
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<tr>
<td>Brieanne Aguila</td>
<td>Offsets</td>
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<td>Claudia Orlando</td>
<td>Electricity</td>
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<td>Karen Khamou</td>
<td>Transportation</td>
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<tr>
<td>Manpreet Mattu</td>
<td>Reporting, Energy efficiency</td>
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<tr>
<td>Bruce Tuter, Mihoyo Fuji</td>
<td>Industrial sectors</td>
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<tr>
<td>Mihoyo Fuji, Claudia Orlando</td>
<td>Natural gas for residential and commercial</td>
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<tr>
<td>Mihoyo Fuji</td>
<td>Marginal abatement costs and competitiveness issues</td>
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<tr>
<td>Barbara Bamberger, Mihoyo Fuji, Jeannie Blakeslee, Judy Nottoli, Jerry Hart</td>
<td>Impact analyses (environmental, economic, localized, small business, public health)</td>
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## Cap-and-Trade Rulemaking Timeline

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Events</th>
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| Monthly            | • Focused public meetings to get input on issue papers and draft rule provisions  
                    | • Expert input on economic analyses, allocation distribution and revenue use, and public health |
| Quarterly          | Public meetings on rule development progress and impact analyses       |
| Semi-annually      | Board updates to seek guidance from the Board                          |
| To be determined   | WCI stakeholder meetings                                               |
| As needed          | Meetings with ARB standing committees (ETAAC, EJAC)                    |
Cap-and-Trade Rulemaking Timeline (cont’d.)

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>2009</td>
<td>Regular public meetings on specific issues</td>
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| November 2009 - ~April 2010 | Prelim. draft rule provisions and white papers  
                          Public workshops on preliminary draft rule provisions, impact analyses |
| ~December 2009 | WCI early draft of essential elements for a cap-and-trade program |
| May/July 2010 | Preliminary draft regulation released  
                      Public workshops |
<table>
<thead>
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<th>Date</th>
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<tbody>
<tr>
<td>September 2010</td>
<td>Release of staff report, draft regulation, and associated analyses,</td>
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<td>beginning of public comment period</td>
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<tr>
<td>November 2010</td>
<td>ARB hearing on cap-and-trade regulation</td>
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<td>2011</td>
<td>Development of Final Statement of Reasons</td>
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<td></td>
<td>Distribution and/or auction of allowances</td>
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<td>January 1, 2012</td>
<td>California/WCI cap-and-trade programs launch</td>
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## Preliminary Schedule for Initial Issue-Focused Meetings

<table>
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<tr>
<th>Month</th>
<th>Agenda</th>
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<tr>
<td>February 2009</td>
<td>• Reporting: California and WCI Interaction</td>
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<td>• Reporting: Biomass definitions and point of regulation for various uses</td>
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<td>March 2009</td>
<td>• Early reduction program</td>
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<td></td>
<td>• Set asides</td>
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<td></td>
<td>• Essentials of market oversight and operations</td>
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<td></td>
<td>• Offsets compliance limits</td>
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<td></td>
<td>• Competitiveness issues</td>
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<td>April 2009</td>
<td>• Defining the essential elements of offsets and offset system requirements</td>
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<td></td>
<td>• Attributing emissions to imported electricity</td>
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<td></td>
<td>• Evaluating potential impacts to vulnerable communities from cap and trade</td>
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Continuing Scoping Plan Economic Analysis

AB 32 Implementation of the Scoping Plan
January 29, 2008

Air Resources Board
Overview

- Board Resolution
- Direct Measure Development
- Analysis to Support the Design of the Cap and Trade Program
- Expert Input on Economic Analysis
Board Resolution 08-47 directs ARB staff to:

• By December 31, 2009 examine and report on:
  • Estimates of overall costs and savings and the cost-effectiveness of reductions, including appropriate inclusion of reductions in co-pollutants
  • Estimates of the timing of capital investments, annual expenditures to repay investments and resulting cost savings
  • Sensitivity of results to changes in key inputs, including energy price forecasts and estimates of measure costs and savings
  • Impacts on small businesses
Board Resolution 08-47 directs ARB staff to:

- Solicit input from experts to advise ARB on its continuing evaluation of the economic effects of implementing AB 32
- Consider the effects of the program on the overall California economy as staff develops the cap-and-trade regulations
- Consider the economic implications of different cap-and-trade program design options
- Coordinate the economic analysis of California’s AB 32 program with the analysis conducted for the Western Climate Initiative.
- Work with other agencies, as appropriate, to ensure that California’s energy demands are met, and that disproportionate geographic impacts on energy rates are avoided.
ARB will continue to develop individual measures and to assess their associated costs and savings

- Updated analysis of measures include LCFS, Pavley regulations, energy efficiency and RPS
- Evaluate how changing economic conditions affect the projected measure costs and savings
Cap and Trade Program Design

As part of the cap-and-trade rulemaking, ARB should consider the economic implications of different cap-and-trade program design options, including:

- Various scenarios for allowance distribution (percent auction vs. free distribution, method of distribution);
- Various scenarios for the use of auction revenue;
- The initial cap level and the rate of decline of the cap over time;
- The potential supply of offsets within and outside California; and
- The economic and co-benefit effects of limits on the use of offsets
Continued Modeling Efforts

• Continue to utilize and refine in-house modeling tools such as E-DRAM and Energy2020

• Evaluate additional modeling tools and external modeling resources

• Assess results from analyses performed by other interested parties
Seek Expert Input

• Consult with experts on modeling tools and issues raised by the Board and stakeholders.

• Evaluate opportunities for supplemental analyses to be performed by ARB, other organizations in collaboration with ARB or independently

• Solicit expert input on economic analyses needed to inform the design of the cap-and-trade program
Economic Analysis Workplan

- February 2009 workshop to discuss economic analysis workplan
- Ongoing measure analysis
- Periodic public participatory meetings and workshops as part of cap-and-trade rulemaking
- Solicit expert input on Board and stakeholder concerns
- Board presentation of updated analysis in December 2009
Questions and Comments?

E-mail questions to CCWorkshops@arb.ca.gov
For More Information…

• 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