



Public Meeting

Discussion of Emissions Leakage Issues in Cap-and-Trade

April 13, 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 Today's Meeting

- Begin discussion of emissions leakage issues in a cap-and-trade program
 - Frame the issues in the California context
 - Discuss methodologies used by other GHG cap-and-trade programs
 - Outline a framework and timeline for assessing potential leakage-related issues in a California cap-and-trade program

Meeting Agenda

- Opening Remarks (15 minutes)
- Staff Presentation (30 minutes)
- Round-Table Discussion (2 hours)
- Other Issues (15 minutes)
- Adjourn

What Does AB 32 Require?

- AB 32 measures must minimize leakage to the extent feasible
- Per AB 32, “Leakage” means a reduction in emissions of greenhouse gases within the state that is offset by an increase in emissions of greenhouse gases outside the state

What Is Emissions Leakage?

- Arises when production is transferred to jurisdictions without a GHG emissions cap, leading to no (or a smaller) net decrease in global GHG emissions

Why Competitiveness Matters

- Competitiveness is one indicator of how likely leakage is to occur from production transfer
- Competitiveness can be thought of as the extent to which a producer can raise the price of goods without facing loss of demand
- Producers that face compliance costs may not be able to pass costs through to consumers because their competitors that do not face similar costs do not have to increase their prices

Competitiveness and GHG Emissions Leakage in California

- California is interconnected with trade markets around the globe
- Some GHG emission-intensive California industries compete in markets that may not be subject to similar GHG reduction requirements
- Potential for increased GHG emissions (“leakage”) and job losses in California
- This could put some California capped industries at a competitive disadvantage

How is ARB Addressing This Issue?

- Identify potentially affected industries
- Evaluate possible impacts
- Evaluate options to address leakage
- Incorporate appropriate features in the program design

What Are Emissions Intensive, Trade Exposed Industries?

- Industries that compete in global markets that are not able to pass on the costs of the GHG emissions reduction program
- Industries in this category may include non-ferrous metals smelting, iron and steel-making, cement, and other energy and/or emissions intensive activities.

Why Are These Industries Potentially Vulnerable?

- These industries may face significant compliance costs from carbon intensive combustion processes and fuel use
 - Limited ability to reduce costs due to fewer opportunities for emission reductions
- Inability to pass through costs to consumers
 - Competition from those without similar compliance requirements (trade exposure)

Emissions-Intensive Industries in the US*

- Ferrous metal
- Non-ferrous metals (copper and aluminum)
- Non-metal mineral products (cement and glass)
- Paper and pulp
- Basic chemicals

*Leveling the Carbon Playing Field, World Resources Institute, 2008
<http://www.wri.org/stories/2008/05/leveling-carbon-playing-field>

Industrial Sources in a California Cap-and-Trade Program

- Cement and other minerals
- Chemicals (basic and other)
- Food processing
- Glass
- Metal processing
- Oil and gas extraction/transmission
- Paper
- Petroleum refining
- Others

How Do Other Programs Address Leakage-Related Issues?

- European Union Emissions Trading Scheme (EU ETS)
- Australian Carbon Pollution Reduction Scheme (CPRS) proposal

EU ETS Program

- Caps industrial sources, including electricity
- Percentage of auctions in 2013-2020 (Phase III) likely to expand
- EU ETS 2008 staff paper on methodology to identify potentially vulnerable European industries (**“Commission Services Paper”**)
- Analysis led to preliminary agreement on thresholds to identify leakage-exposed sectors or sub-sectors
- Final decision awaits Copenhagen Conference (COP 15) in December 2009

EU ETS

Commission Services Paper

- Objective of analysis: assess potential of GHG requirements to increase industry “exposure” and emissions leakage
- Proposed methodology to measure impacts to potentially vulnerable industries at risk of emissions leakage
- Account for other market factors that could contribute to exposure and emissions leakage

EU ETS Commission Services Paper

- Methodology to measure impacts
 - Step 1: Define potential exposed sources at the sector or sub-sector level
 - Manufacture of cement, lime and plaster, OR
 - Manufacture of cement
 - Manufacture of lime and plaster
 - Manufacture of pulp, paper and paperboard, OR
 - Manufacture of pulp
 - Manufacture of paper and paperboard

Commission Services Paper (cont'd.)

- Step 2: Measure potential product price increase
 - Account for direct carbon product cost
 - Account for indirect carbon product cost
 - Standardize fuel mix of electricity input
 - Assume full compliance costs are passed down to the manufacturer

Commission Services Paper (cont'd.)

- Methodology to measure the impacts (cont'd.)
 - Step 3: Measure potential exposure of vulnerable sources to international trade
 - Use exposure to non-EU trade as primary indicator
 - Suggests selection of additional indicators, such as price elasticity, to get better estimate of exposure

EU ETS

Commission Services Paper (cont'd.)

- Account for other market factors, e.g.,
 - Transportation costs
 - Market protection policies
 - Geographic scope and concentration

Australia Carbon Pollution Reduction Scheme (CPRS)

- Starts in 2010
- Cap includes industrial sources and electricity
- Assistance program for emissions-intensive, trade exposed industries under development
 - Preliminary assessment: more than 30 affected processes
 - Currently conducting formal assessment
 - Stakeholders involved in assessment

Australia CPRS

- Measuring the impacts
 - Step 1: Define exposed sources based on activity
 - Activities defined through stakeholder process
 - Step 2: Assess emissions intensity
 - To derive emissions intensity, direct and indirect emissions are evaluated relative to employment, revenue or value added

Australian CPRS (cont'd.)

- Measuring the impacts
 - Step 3: Assess competition from lower cost products and ability to pass-through costs (trade exposure)
 - Responsiveness of customers to price changes (price elasticity)
 - Parity of import and export prices
 - Share of trade in the market
 - Potential for international competition

Sectors Under Consideration in the CPRS

Metal

- Alumina refining
- Aluminum smelting
- Copper refining/smelting
- Iron and steel manufacturing
- Pig iron production

Non-Metal Mineral

- Clinker production
- Lime production
- Soda ash production
- Silicon production

Glass

- Float glass production
- Glass container production

Oil and gas

- Petroleum refining
- Coke production
- LNG

Sectors Under Consideration in the CPRS (cont'd.)

Chemicals

- Ammonia production
- Caustic/chlorine gas production
- Ethanol production
- Methanol production
- Nitric acid/ammonium nitrate production
- Ethylene/polyethylene production

Paper

- Newsprint manufacturing
- Printing paper manufacturing
- Cardboard manufacturing
- Carton board manufacturing

California Framework for an Assessment Methodology

Step1:

- Define potential exposed sources
 - By sector or subsector
 - By activity as a set of processes

California Framework for an Assessment Methodology (cont'd.)

Step1 (cont'd.):

- Define potential exposed sources in the context of trade market
 - Trade flow and California industry's market share
 - US or North America market
 - Implications for California industries in the WCI and possible federal program
 - International market
 - Industry market trends
 - Supply and demand

California Framework for an Assessment Methodology (cont'd.)

Step 2:

- Identify methods to estimate potential compliance cost
 - Emissions data collection (mandatory reporting)
 - Reductions opportunities using existing technologies
 - Available financial data, e.g.,
 - Revenue, production costs, value added, other

Framework for an Assessment Methodology (cont'd.)

Step 3:

- Identify methods to assess ability to pass-through costs (trade exposure)
 - Parity of import and export prices
 - Share of trade in the market
 - Price elasticity
- Identify other relevant quantitative/qualitative information

Proposed Next Steps To Assess Competitiveness and Leakage

- Consider comments on assessment framework (May)
- First cut of assessment methodology options (June)
- Concept Paper on assessment methodology (late summer)
- White Paper addressing methods to minimize leakage to potentially affected sources (Fall)

ARB will solicit public review and comment at each step of the process

Questions for Discussion

- What criteria should be used to define exposed sectors?
- What criteria should be used to define the affected market for potentially exposed sources?
- What data should be used to assess potential risk of cost increases through trade exposure?

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:
 - http://www.arb.ca.gov/listserv/listserv_ind.php?listname=captrade-ej
- Western Climate Initiative
 - <http://www.westernclimateinitiative.org>

Comments

- Questions during the workshop can be sent to: ccworkshops@arb.ca.gov
- Written comments on the assessment methodology framework are requested by May 11th; please submit comments to: ccworkshops@arb.ca.gov