Allocation Decisions in the European Union Emissions Trading Scheme

Presentation to California Economic and Allocation Advisory Committee

Dr. David Harrison, Jr.
Senior Vice President

Sacramento, California
July 1, 2009
Agenda

- Overview of Allocation Choices
- Overview of EU ETS
- Allocation in Phases I and II of EU ETS
- Changes in Phase III of EU ETS
- Contrast to Prior Cap-and-Trade Programs
## Allocation Choices are Complex and Important

<table>
<thead>
<tr>
<th>Basic Allocation/Exemption Type</th>
<th>Free</th>
<th>Auctioning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-updated</td>
<td>Maximum Percentage</td>
</tr>
<tr>
<td></td>
<td>Updated</td>
<td>Other</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Point in Fossil Fuel Chain</th>
<th>Fuel Producers</th>
<th>Electric Generators, Suppliers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Industry / Other Consumers</td>
<td>Other (e.g., States)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Entity Allocation</th>
<th>Sector, Then Entity</th>
<th>Directly to Entity</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Metric Used</th>
<th>Emissions</th>
<th>Benchmarking</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Fuel Input</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Product Output</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other Metrics</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year Used</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>Other Years</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Specific Data / Formula</th>
<th>Single Year</th>
<th>Average</th>
<th>Max</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>New Entrants</th>
<th>Purchase Allowances</th>
<th>Receive Allowances (&quot;Updating&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Actual Emissions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Benchmarking Formula</td>
</tr>
</tbody>
</table>
EU ETS Fundamentals

- **Scope**
  - All 27 EU Member States, with over 11,000 installations representing about 40 percent of EU CO\textsubscript{2} emissions
    - About 2 billion tonnes; allocation value would be €40 billion at €20/tonne
  - Phase I (2005-2007) and Phase II (2008-12) targets based upon National Allocation Plans (NAPs) of individual Member States

- **“Downstream” program** covering CO\textsubscript{2} emissions from five sectors:
  1. Electricity and heat generation;
  2. Petroleum refining;
  3. Ferrous metals industry;
  4. Cement, glass, and brick industry; and
  5. Pulp, paper, and board industry

- **“Laboratory”** for well-structured cap-and-trade program for CO\textsubscript{2}
Potential for Linkage of EU ETS to Other Trading Programs

“Non-Kyoto” Parties

Other National ETS
- Australia
- Canada

Other Sub-National ETS
- RGGI
- California
- Western Gov’s

“Kyoto” Parties

CDM / CERs 2005

EU ETS

JI / ERUs 2008

Other National ETS
- UK
- Norway
- Switzerland
- Japan
EU ETS Overview of National Allocation Plans (NAPs)

BAU

BSA / “Kyoto Target”

Non-Covered Sectors

Covered Sectors

Individual Sectors

Individual Sectors

Government Purchases

ETS Facility

ETS Facility

ETS Facility

ETS Facility

ETS Facility

ETS Facility

ETS Facility

ETS Facility

ETS Facility

ETS Facility

ETS Facility

ETS Facility

ETS Facility

ETS Facility

ETS Facility
## Overview of Major EU ETS Elements in Phases I and II

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cap-setting</strong></td>
<td>Via Member State (&quot;MS&quot;) NAP; some Commission oversight</td>
<td>Via MS NAP; more harmonised (and stringent) oversight</td>
</tr>
<tr>
<td><strong>Auction levels</strong></td>
<td>5% maximum; less than 1% used</td>
<td>10% maximum; less than 5% used</td>
</tr>
<tr>
<td><strong>Allocation methodology</strong></td>
<td>Mostly historical emissions, some benchmarking</td>
<td>Mostly historical emissions; more benchmarking</td>
</tr>
<tr>
<td><strong>Sector differentiation</strong></td>
<td>Many MSs used sector-specific growth projections and other factors</td>
<td></td>
</tr>
<tr>
<td><strong>Installation allocation</strong></td>
<td></td>
<td>By MS</td>
</tr>
<tr>
<td><strong>Banking</strong></td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>New entrants / closure</strong></td>
<td>New entrant allocation provided in most MSs; closures forfeit rights</td>
<td></td>
</tr>
<tr>
<td><strong>Ex-post adjustment</strong></td>
<td>Rejected by EC; permitted by Court of First Instance</td>
<td>Rejected by EC; legal challenges may go forward</td>
</tr>
</tbody>
</table>
EU ETS Allowance Prices Have Been Very Volatile
EU ETS Linkages Between CO₂ Price and Electricity Prices

- Electricity price rise with CO₂ price rise led to **concerns for “windfall profits”**
- Fall in CO₂ price coincided with fall in UK electricity prices

Source: PointCarbon
Concerns about “Windfall Profits” to Electricity Generators in EU ETS

- **Basic “windfall profit” argument**: electricity price reflects carbon costs (of marginal supplier), but generators receive free allowances
  - Implication that if coal on margin in competitive market, all generators get “windfall”

- **“Windfall profits” critique obscures complications in electricity prices**
  - Differences among demand period (marginal fuel)
  - Differences among generators (coal vs. gas vs. nuclear)
  - Interactions of fuel/emission/electricity markets,
  - Influence of new entrant reserve/closure provisions
  - Influence of green/white certificates

- **Various country proposals (but none implemented) to limit electricity prices and “windfall profits”**
  - Re-regulation of electricity markets
  - “Industry tariffs”
  - Revenue “recycling”
  - “Windfall profits” tax
Changes in Phase III of EU ETS

- Centralization and harmonization of cap-setting and allocation
  - No more NAPs: single EU cap and harmonized allocation rules
  - Free allocation to be based on EU-wide benchmarks (top 10%), to be adopted December 2010

- Much greater use of auctioning
  - Electricity generation: 100% (but possibility of some free allocation in certain MSs, e.g. Poland)
  - Other sectors: 20% in 2013 → 70% in 2020 → 100% in 2027

- 300 million allowances set aside for CCS and “innovative” renewables

- Sectors exposed to risk of carbon leakage may receive higher allocation
  - Main criteria based on historical trade intensity and ratio of emissions costs to value added
  - Majority of industrial emissions likely to qualify given criteria used
  - EC to determine which sectors receive higher allocation by December 31, 2009; periodic reviews

- Broader scope
  - CO₂ emissions from aviation (starting in 2012), petrochemicals, ammonia, and aluminum
  - N₂O emissions from nitric, adipic, and glyoxylic acid production and PFC production from aluminum

- Limits on use of international project credits (max 50% of reductions 2008-2020)

- Unrestricted banking between Phases II and III

- Allocations and caps may be reduced with global agreement
Many Common Elements

- Shift from legal-engineering to market-based approach
- Basic architecture of a cap-and-trade program
- Allocation contentious but doable; allowance markets developed

Some Differences

- Allocations based upon recent emissions, not benchmarking (heterogeneity, no prior standard)
- New entrant reserves/closure provisions (except some NOx states)
- Multiple, sequential cap level and allocation
- More long-term uncertainties (cap, allocations, post-2012?)
Additional Information


Thank You

Dr. David Harrison, Jr.

Senior Vice President
Boston
+1 617 927 4512
David.Harrison@nera.com