U.S. Federal CO₂ Cap-and-trade System and Manufacturing

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The U.S. Carbon and Environmental Derivatives Exchanges
Climate Exchange Plc. (CLE.L)

Climate Exchange Plc. companies own and operate the world’s leading exchanges specializing in environmental asset classes, including emissions, weather and insurance-related products.
Waxman-Markey Bill
“American Clean Energy and Security Act of 2009”

TITLE I—CLEAN ENERGY:
combined renewable electricity standard + end use efficiency, carbon
capture/storage, clean autos, smart grid, state energy program funding

TITLE II—ENERGY EFFICIENCY
building efficiency, lighting, vehicle standards, industrial efficiency

TITLE III—REDUCING GLOBAL WARMING POLLUTION
reduction goals, cap and trade + offsets, reduced deforestation crediting,
emission performance standards, carbon market oversight

TITLE IV—TRANSITIONING TO A CLEAN ENERGY ECONOMY
rebates to trade-sensitive U.S. industries, consumer and worker assistance,
domestic adaptation, allowance purchase requirements for certain imports
Waxman-Markey: Targets and Timetables

Emission coverage: 66% of U.S. total in 2012, rises to 84.5% at 2016

**Emission Reduction Goals**

- **2012**: 3% below 2005 levels
- **2020**: 17% below 2005 levels
- **2050**: 80% below 2005 levels
### Waxman-Markey: Sectoral Coverage Phased-in

<table>
<thead>
<tr>
<th>2012</th>
<th>2014</th>
<th>2016</th>
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</table>
| **Electric power plants** (excluding oil), allowances distributed to Local Distributors and merchant coal plants | **Industrials** - producers of:  
Adipic acid.  
Primary aluminum  
Ammonia  
Cement  
Hydrochlorofluorocarbons  
Lime  
Nitric acid  
Petroleum products  
Phosphoric acid  
Silicon carbide  
Soda ash  
Titanium dioxide  
Coal-based liquids/gases | **Natural gas distributors** (responsible for emissions from combustion of gas they deliver, except sales to other covered entities, i.e. power gen) |
| **Refined oil products** (refiners/importers responsible for emissions of their products) |                                                                                          |                                                                                          |
Waxman-Markey: Central Elements of Cap-and-trade

• Annual compliance true-up process administered by EPA

• Full banking of unused allowances, some borrowing allowed

• Project-based Offsets allowed, not specified (except forest conservation)

• Import of allowances/offsets allowed from approved programs

• Significant allocations to:
  • states for energy efficiency
  • early carbon capture/sequestration projects

• Emission performance standards for new coal-fired power plants
Waxman-Markey: Central Elements of Cap-and-trade

• Annual issuance of allowances

• Every three years, there is a change in each sources’ share of declining overall allowance pool

• Full banking of unused allowances, some borrowing allowed

• Project-based Offsets allowed, not specified (except forest conservation)

• Import of allowances/offsets allowed from approved programs
Waxman-Markey: Allowance Allocations

• Electric Power Sector – LDCs
  • Issuance is to Local Distribution Companies and merchant plants
  • Allocation based on combination of past emissions + retail sales
  • Many coal-based utilities appear to start short by 25-35%

• Oil refiners/fuel importers get no allowances for product emissions

• Natural gas LDCs responsible for product emissions (except for gas burned by other regulated sources – power, heavy industry)

• Issuance to “commodity” industries based on emissions/unit of output

• Allocations adjusted every three years based on market share

• Allowance allocations to emitters phased-out by 2030
Waxman-Markey: Project-based Offsets

- Use Offsets allowed: up to 1 billion domestic and 1 billion international

- Entity level limits on offset use: starts at 30% of entity emissions, rises

- Offsets Integrity Board to advise EPA on program rules, methods, etc.

- EPA to examine project types and recommend rules: initial list in 1 year
  - *project types that are to be examined by EPA include ag soils, methane capture, livestock management, nitrogen management, forestation and forest management, others*

- Some early project reductions to be credited: (@1-1 for 2009 and later)

- Performance standards to be developed for landfill, natural gas systems
  - *This would preclude most offsets for those systems*
Waxman-Markey: Cost Containment

- Significant use of domestic and international offsets, including forest expansion, management, wood products accounting

- Foreign manufacturers “docked” allowances home country effort deemed inadequate (starting 2020), rebates to trade-competitive manufacturers

- Auction minimum price starts at $10/t, rises annually by 5% + CPI

- Quarterly Auctions of Strategic Reserve Allowances: emitters only
  - Annual amount starts at 1% of total system allocation, rises
  - Minimum price is $28/t, rises by 5% + CPI

• Purpose
  
  • avoid harming competitiveness by providing allowance rebates to entities in eligible domestic industrial sectors

  • prevent carbon leakage (i.e. driving emissions outside the US by raising U.S. production costs)

  • reward innovation and facility-level investments in energy efficiency

  • induce foreign countries to take action (or face export penalties)

Operation:

• EPA identifies sectors that are “trade intensive” and “greenhouse gas intensive”

• allowance rebates can be issued to both regulated emitters and entities exposed only to higher electricity prices

  • rebate based on an entity’s “carbon factor” (production X industry average emission per unit of output)

• US industry rebate value exceeds $10 billion/year for at least a decade

• rebates phased-out over nine years once 85% of relevant imports are from countries with US-comparable commitments or emissions intensity
## Waxman-Markey: USEPA carbon price scenarios

<table>
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<tr>
<th>Year</th>
<th>USEPA Modeled Allowance Price Range*</th>
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<tbody>
<tr>
<td>2012</td>
<td>$13 - $23/metric ton CO$_2$</td>
</tr>
<tr>
<td>2020</td>
<td>$16 - $30</td>
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* Prices are in constant 2005 dollars

- CCFE price for Dec 2013 delivery of mandatory U.S. federal CO$_2$ allowances (CFI-US contract) on 10/10/09: $10.65/mtCO$_2$

*(in the event of no federal mandate, the CCFE CFI–US contract requires delivery of an alternative mandatory CO2 allowance, either a RGGI allowance or an EU Allowance)*
Carbon Market Regulation: New Constraints on Hedging Methods?

• Financial upheaval making Congress cautious – risk of overreaction?

• Strong desire to force trades, including OTC derivatives, onto clearinghouses

• Role of CFTC and FERC unsettled

• Expect requirements to:
  • report all trades
  • licensing of market participants
  • possible establishment of federal clearing and market mechanisms
  (beyond ever-growing allowance auctions)

• Expect policy discussion to contain lots of heated rhetoric …
  • historical and institutional accuracy? … not so much
Preparing and Managing Climate Policy Exposure: Elements of a Strategy

• Make climate risk management strategy a Board-level issue

• Board strategy implementation team: CFO, General Counsel, environmental and fuel specialists, energy and emissions traders

• Evaluate your optimal historic emission baseline among allowed time periods.

• Understand your situation regarding GHG intensive, trade intensive industries

• Develop and test emission trading capabilities: market access, internal procedures

• Consider gaining practical experience: e.g. Carbon Disclosure Project, Chicago Climate Exchange and EPA Climate Leaders program.

• Understand the benefits and risks associated with buying credits from recognized “early” offset projects and emission allowance programs