U.S. Climate Policy Implementation

Effective Use of Carbon Markets for Cost Savings

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About Natsource

- Leading private sector greenhouse gas asset manager
  - $800 million in assets under management
  - One of the world's largest buyers of carbon compliance instruments created by projects
- Integrated service platform
  - Asset Management
  - Origination Services
  - Advisory and Research
- Headquartered in New York with global footprint
  - Strategically located proximate to regions developing and utilizing carbon emissions markets and major policy-making centers
  - Offices in London, Ottawa, Panama City, Tokyo and Washington, D.C.

Topics

- How can an effective carbon market be created and maintained?
- What are the effects of borrowing, banking, offsets, etc. on obtaining scheduled reductions?
- Will the availability of 2 billion tonnes of offsets every year keep the legislation from achieving its reduction goals?

Context and Overview

- Concerns about greenhouse gas emissions appear on state, federal and international policy agendas
  - EPA regulatory path is proceeding – and could be costly
  - California regulations proposed – and RGGI, WCI and other regional programs progressing
  - Senate momentum has slowed – bill could happen if Obama engages forcefully
  - International talks in Mexico City slated for November 2010
  - Emissions trading – with offsets – is at the center of all of these debates

- Cost containment is key to business support, political success and policy effectiveness
  - EPA model shows importance of banking, borrowing, offsets and strategic reserves in controlling costs – while allowing **equivalent environmental performance** over time
  - EPA models show offsets as providing 89% lower compliance costs
  - Waxman-Markey allowed 1 billion domestic and 1 billion international offsets
    - EPA model showed that domestic supplies did not reach the supply limit, so "reopener" allows additional international supplies to become available
  - Kerry-Boxer allowed 1.5 billion domestic offsets – and 0.5 billion international
    - But international "reopener" could allow more imports if domestic supplies failed to materialize

Understanding the Market: How Policy Impacts Price?

- Overall supply & demand
  - Choice of baseline year (1990 or 2005?)
  - Absolute targets (U.S., Europe, etc.) vs. intensity targets (China, India, etc.)
  - Timing / sectoral coverage of reduction obligations
  - Gases covered (CO2, CH4, N2O, PFC, HFC, SF6, etc.)

- Allocations
  - Free Allocations vs. Auctions vs. Special Purpose Allocations (CCS, R&D, etc)
  - Mix of the above

- Cost containment
  - Banking , borrowing and access to government reserves
  - International allowances (linked emissions trading systems)
  - Domestic offsets * (none, limited or unlimited)
    - ✓ agriculture, forestry, non-covered sectors/gases
  - International offsets * (none, limited by quality or quantity or unlimited)
    - ✓ EPA models show international offsets offer major cost containment benefits

* ***Note:*** *Compliance offsets (domestic and international) must obtain regulatory approvals – including proof that they are real, additional, measured, verified and permanent.*

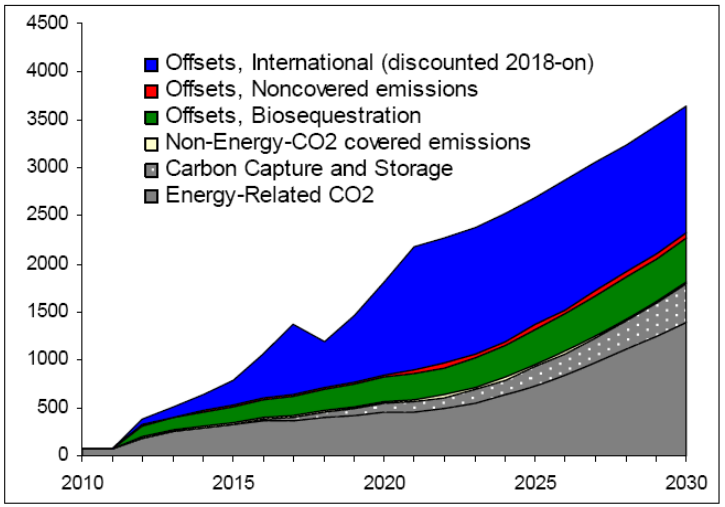
Understanding the Market: How Energy Impacts Price

- Heat waves, cold snaps and rainfall patterns
  - Regional impacts re: fuel use
  - Hydropower potential
  - Cooling water availability re: nuclear units
- Fuel costs
  - Natural gas vs. coal
  - Oil price impacts on natural gas
- Availability of power plants, gas supplies and offsets
- End-use customer behavior (conservation?)
- Increased demand (economic growth or declines)

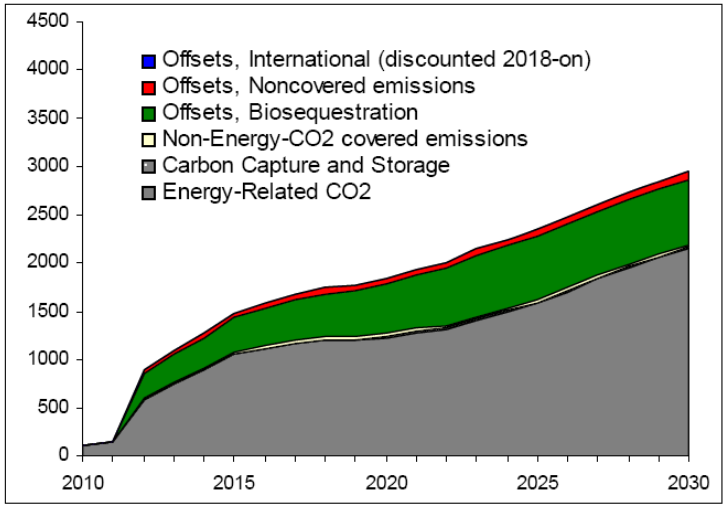
Effects of Flexibility Measures on Reductions

Figure 4. Sources of Cumulative Compliance in ACESA Main Cases, 2010-2030
(million metric ton CO_2-equivalent)

Basic



No International / Limited



"...Given the potential of offsets as a low-cost compliance option, the amount of reduction in covered emissions is exceeded by the amount of compliance generated through offsets in most of the main analysis cases... In the ACESA Basic Case, domestic abatement... represents only 39% of cumulative compliance." (US DOE, ACESA Analysis, 8/09, p. ix.)

Flexibility Measures Effect the Phasing of Reductions, not the Amount!

- Offsets, banking and borrowing achieve the same net emissions reductions over time as the system would produce without these flexibilities
  - Flexibilities are in “where” and “when” reductions take place
  - Companies use the flexibilities to save costs while achieving reduction targets
- If first compliance deadlines hit quickly, covered entities do not have time to develop and install new technologies on their systems
  - In EU ETS, first compliance deadline was 1 year after EU approved the ETS Directive
    - Early on, offsets were critical, because other options were not feasible
    - A few large units could switch from coal to gas (if fuel prices allowed)
    - Firms were reluctant to use borrowing, due to price uncertainty of future vintages
    - Offsets provided early relief while longer-term on-system strategies were planned and implemented
    - Over time, announcements of several large-scale renewable installations, CCS proposals and new nuclear units came forward (though some are stalled due to recession)
- U.S. Legislation also has early compliance deadline (2013)
  - “Low hanging fruit” of energy efficiency / simple plant upgrades will be harvested quickly
  - In near term, offsets, banking and borrowing will be major compliance options
  - In longer term, CCS, nuclear and large-scale renewables will become major compliance options
- In summary, flexibility measures are near-term bridge to longer-term strategies

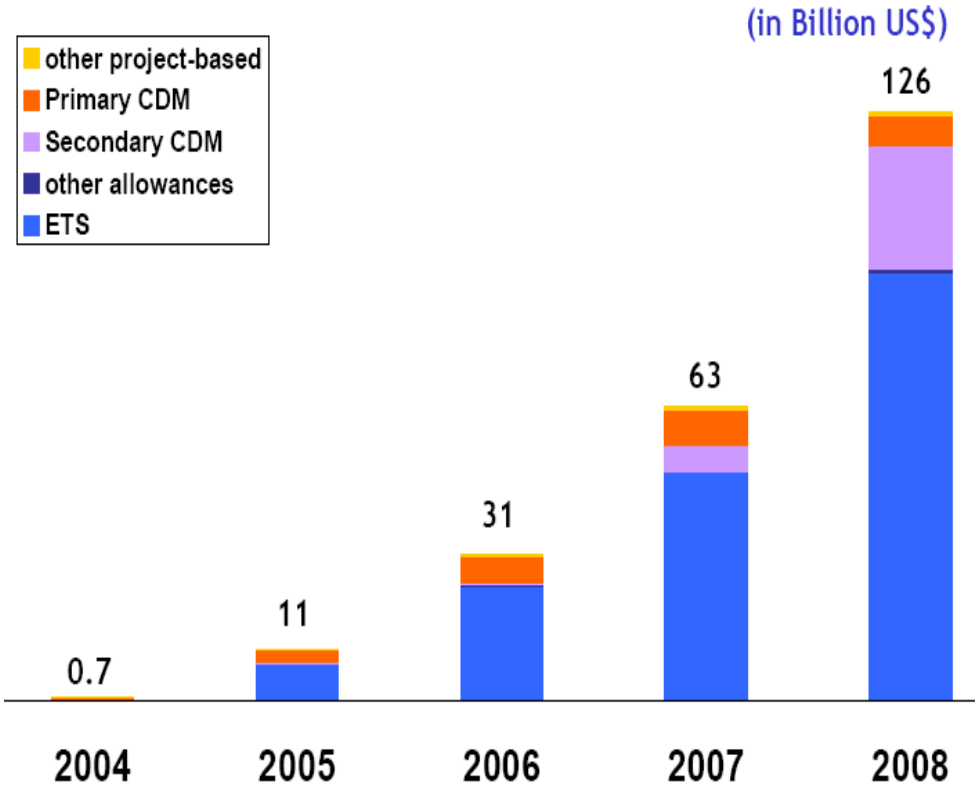
Controlling Market Volatility

- Emissions markets become volatile at times, just like energy markets
- In early years, US SO2 market became volatile near compliance deadlines
  - Market was new, players were inexperienced
  - More recently, they showed substantial volatility around expectations of policy changes – and court decisions
  - In the EU ETS, similar volatility in early years accompanied compliance deadlines – or mirrored volatility in oil, gas and coal markets
  - At beginning, prices changed with announcement of new National Allocation Plans
  - Then cold snaps or fuel outages moved prices
  - However, in 2008's oil market volatility moved prices – but not as much as in previous episodes, leading some analysts to believe that compliance buyers were benefitting from flexibility measures (offsets, banking or borrowing
- Waxman-Markey and Boxer-Kerry legislation contain the key cost containment policies that will dampen volatility
  - Free allocation at beginnning
  - Domestic and international offsets (limits)
  - Banking and borrowing
  - Strategic allowance reserve

Lessons from Europe's Emissions Trading Scheme (ETS)

- EU ETS offers important lessons for US climate policy
  - Key testing ground for US firms interested in getting prepared
  - Fundamentals of price formation established
- After trial phase in 2005-07, the ETS has been highly effective
  - Environmental targets achieved
  - Costs in the $20 – 25 / tonne range for most of 2008-9
  - Offsets and banking are keeping costs down
  - Auctions introduced gradually
  - Major EU industries now support the ETS politically
- The ETS also spawned a global market in offsets
  - Many EU firms are experienced in UN "Clean Development Mechanism"
    - ✓ CDM reviews projects and issues offsets, called "Certified Emissions Reductions" (CERs)
    - ✓ CERs are valid for use in Europe and Japan
  - Efforts to reform procedures were advanced in Copenhagen

Global Carbon Market Growth

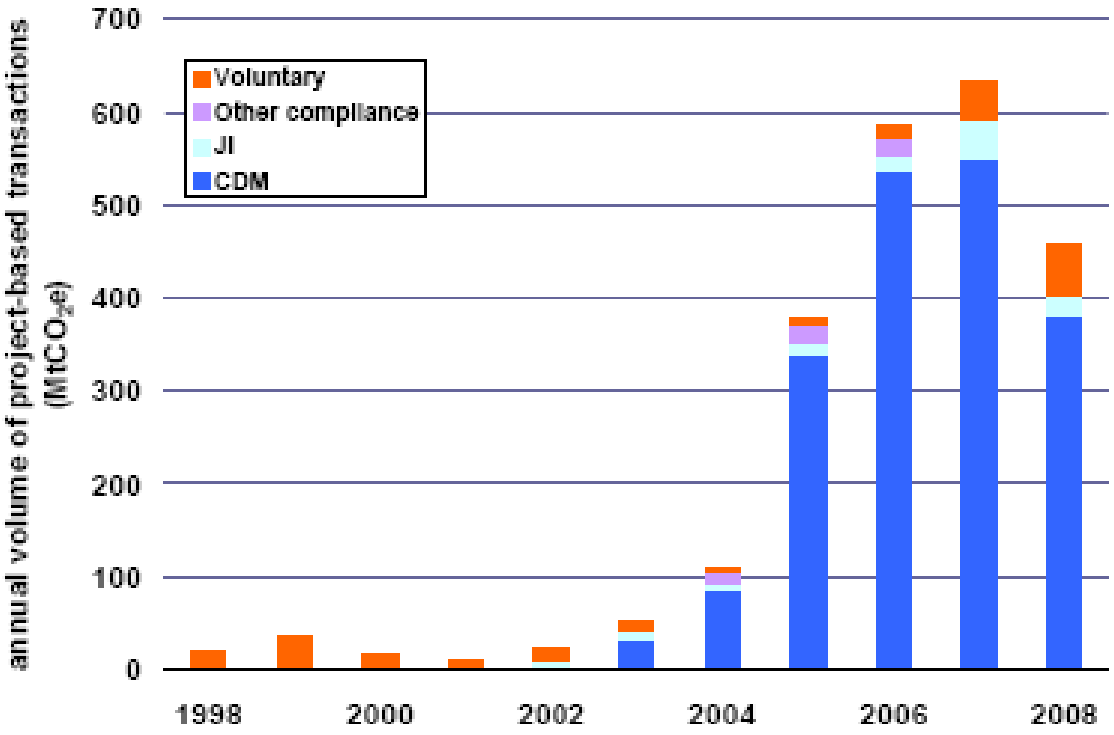


2008 Carbon Market Value	
EU Allowances:	**$92 billion**
Primary CDM:	**$6.5 billion**
Secondary CDM:	**$26 billion**
Other:	**$1.5 billion**
Total Market:	***$126 billion***

Source: *World Bank, State and Trends of the Carbon Market 2009 (May 2009)*

EU ETS Stimulated Growth in CDM/JI Market

Figure 2: Annual Volumes ($MtCO_2e$) of Project-Based Emission Reductions Transactions (vintage up to 2012)



Annual Volumes of Project-based Emissions Credits

Source: *World Bank, State and Trends of the Carbon Market 2009 (May 2009)*

Copenhagen Decisions on Offsets

- Negotiators adopted policies, institutions and procedures to improve CDM
  - However, CDM Executive Board's actions this year in implementing reforms is critical
  - Actions to implement reforms could bolster investor confidence in the CDM
- Negotiators discussed New Mechanisms, but took no decisions
  - Sectoral crediting and Forestry (REDD) will require further work in Mexico City talks
  - However, these types of crediting could become major new sources of offsets

Policy Reforms

✓Improved additionality criteria for projects

✓Eligibility for carbon capture & storage

✓Credits for Program of Activities

oCredits for Sectoral reductions

oCredits for REDD (forestry)

Governance Structures

✓Appeals process and direct access to decisions

oFull time Executive Board appointments

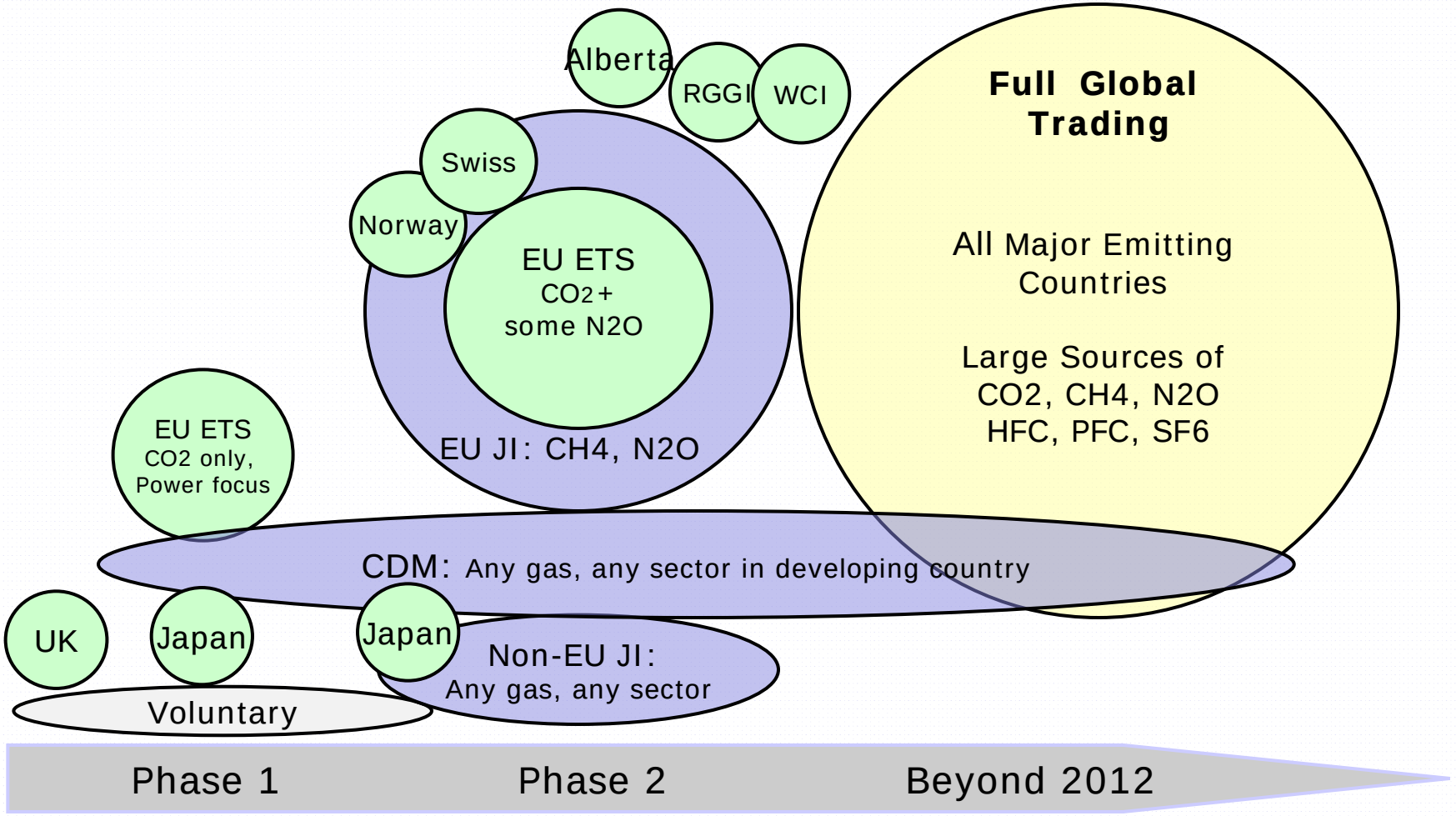
✓Code of Conduct for Board Members

✓Clarify roles for Board, Secretariat, DOEs

✓Hierarchy of decisions

✓Streamlined procedures

Vision: An Expanding Global Carbon Market



For additional information

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