



CO2 Emissions Trading in Europe: Current Issues Affecting the Marketplace

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Webinar Details

- Current Status & Background of EU ETS
- Why Do Developments in the US Matter to EU ETS Traders?
- Correlations Between US and European Emissions/Energy Markets
- The Future: Broadening the Eurex Environmental Platform

The EU Emissions Trading Scheme

- Began in 2005 with Phase 1, but Phase 2 in 2008 has become the real market
- 27 nations participate in the program
- Goal is to reduce CO2 emissions by 8% from 1990 levels by 2012
- World's first compliance market for Greenhouse Gas Reductions
- Impacts over 10,000 industrial facilities
- Most actively traded environmental market



The EU Emissions Trading Scheme

- § In the EU ETS, each country adopts a National Allocation Plan (NAP) which is approved by the European Commission.
- § Under the NAP, a country allocates its country wide allowances to various installations which comprise the top emitters of greenhouse gases in the country.
- § If these installations exceed their allocated allowances, they must purchase allowances from other installations.
- § Similarly, if an installation does not need all of its allocated allowances, it is able to sell these to other installations.

The EU Emissions Trading Scheme

- § Coverage of EU ETS impacts electricity generators, oil refineries, coke ovens and factories making cement, glass, ceramics, bricks and pulp & paper to name a few.
- § Coverage of the program will expand in Phase 3 (post 2012)
- § The EU market does not exist without government mandates
- § Supply and demand factors affect prices but regulatory risk is also pervasive.

The EU Emissions Trading Scheme

- § **The EU ETS uses “Cap and Trade” as its compliance mechanism**
 - § **A Baseline of emissions is set and a target is set for emissions reductions**
 - § **There is a 100 Euro penalty per tonne for noncompliance**
 - § **The EU cap covers 40% of greenhouse gas emissions in the EU**

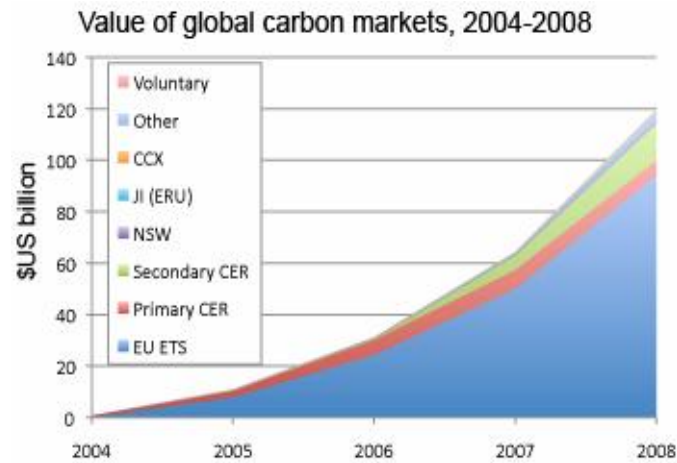
The EU Emissions Trading Scheme

- § EU countries can use EUAs (European Union Allowances) and Kyoto Credits called CERs (Certified Emissions Reductions) for compliance: called carbon offsets
- § UNFCCC determines the Kyoto credits which are called CERs and are converted into EUAs for compliance with the EU market

EU Emissions Trading Scheme Today

- May 7, 2010 (European Energy Exchange called EEX):
 - EUA DEC 2010 (~~€~~tCO₂) €15.58
- Need scarcity to drive prices higher and force fuel switching and deployment of new technologies
- **EU is 14% of global greenhouse gases**
- What's going to happen after 2012 is now in negotiation
- **EU ETS Phase 3 will reduce import of Kyoto credits and boost energy efficiency & renewables to 20% in the EU and broaden program to include new sectors such as petrochemicals, aluminum, and ammonia**

Global Carbon Markets Dominated by EU ETS



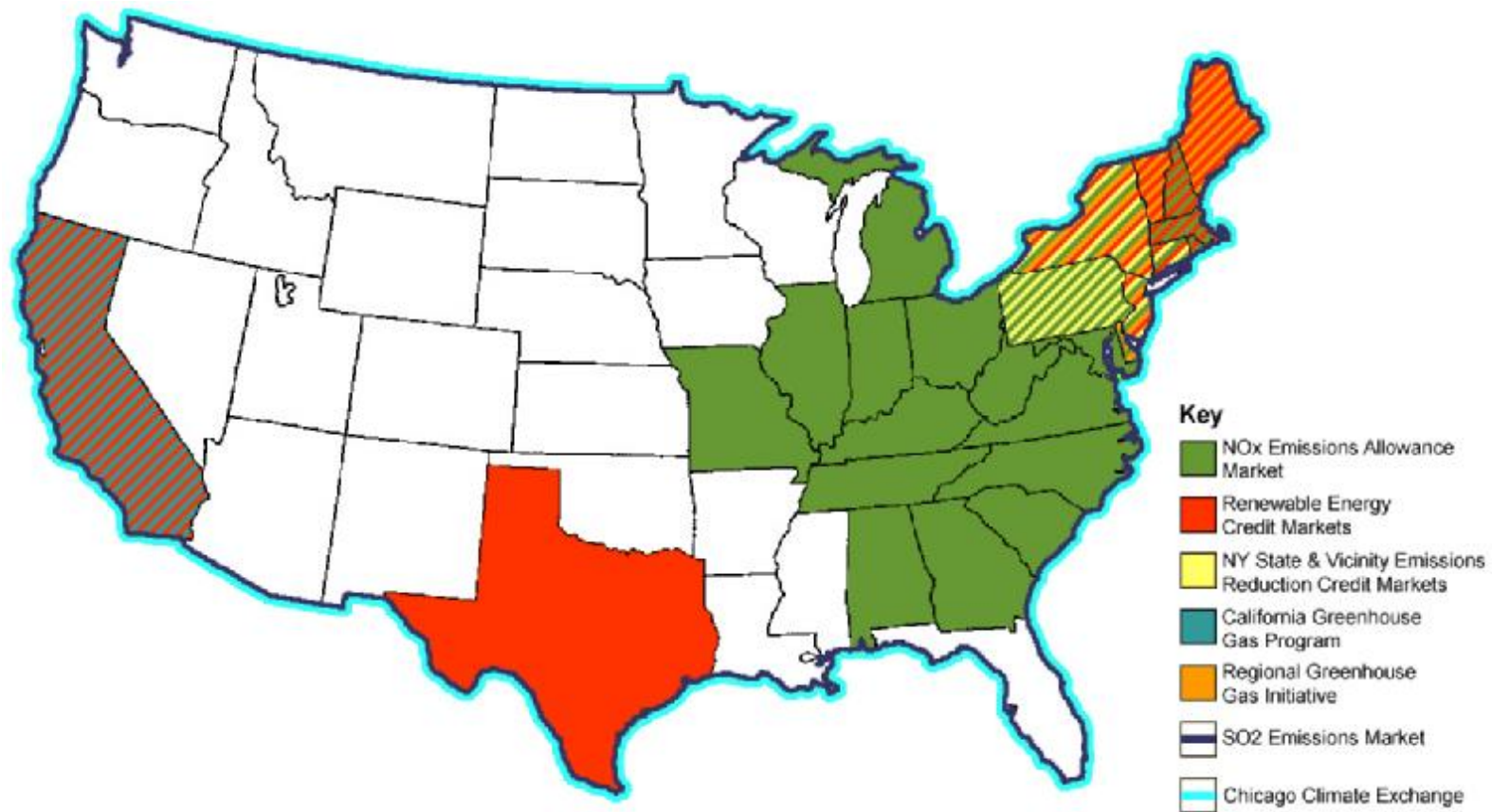
Why Do Developments in the US Matter for EU ETS Traders

- Most fundamental reason is US carbon footprint is 6.1 billion, second in the world (market influencer)
- US will never implement a carbon tax but is “cap and trade centric”
- Secondly, there will be arbitrage opportunities between the 2 carbon markets
- There will never be one global price for carbon
- Too many different fuels and geographies
- Need to manage portfolio of credits globally

Changing Fuels Based on Emissions: Arbitrage

- Higher oil prices can boost coal usage
 - RWE and others switched from oil to coal and bought more emissions allowances when oil spiked to \$147 per barrel
- We are already seeing an unforeseen consequence in some US markets; the use of more renewables is boosting coal usage as back up fuel
- Global competition for fossil energy will cause even greater shifts in emissions markets

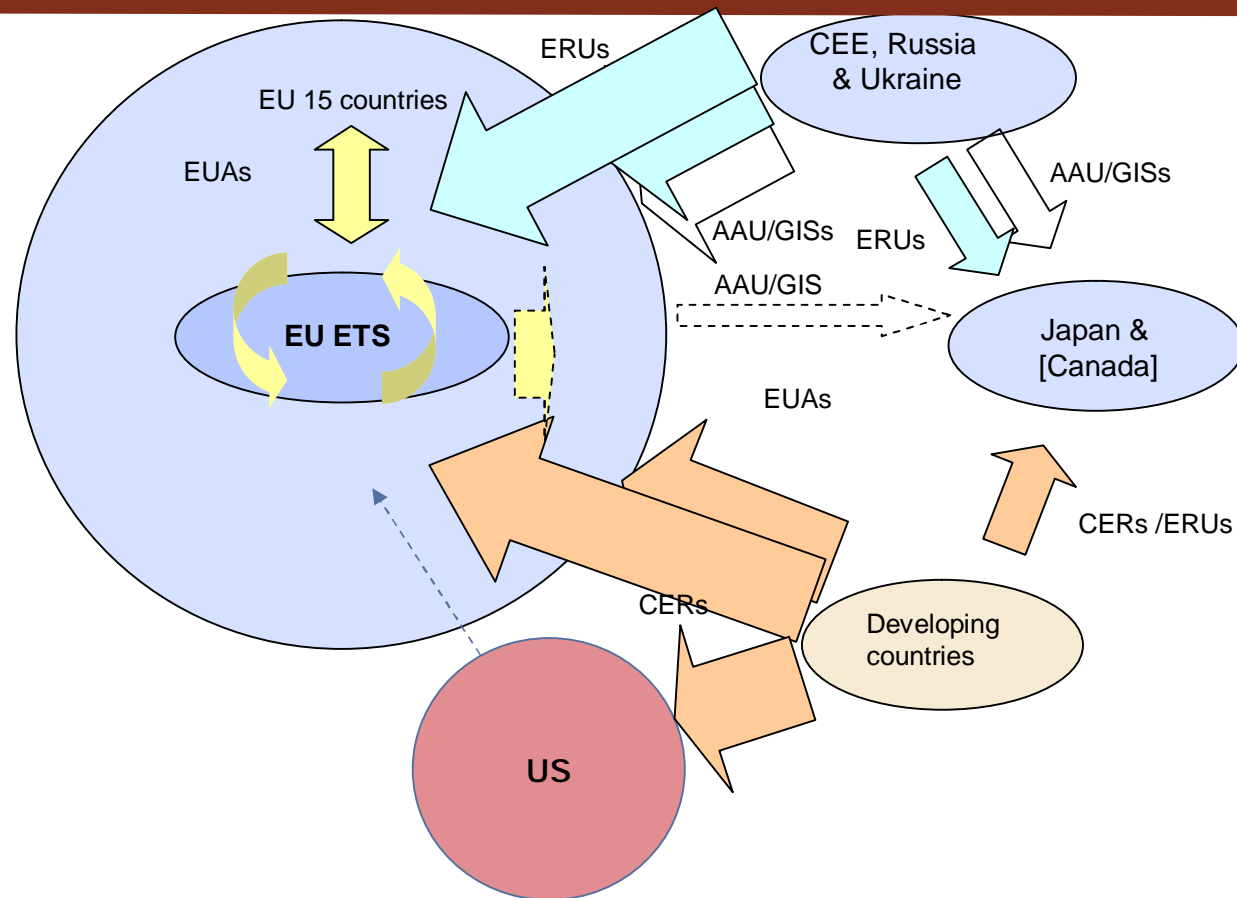
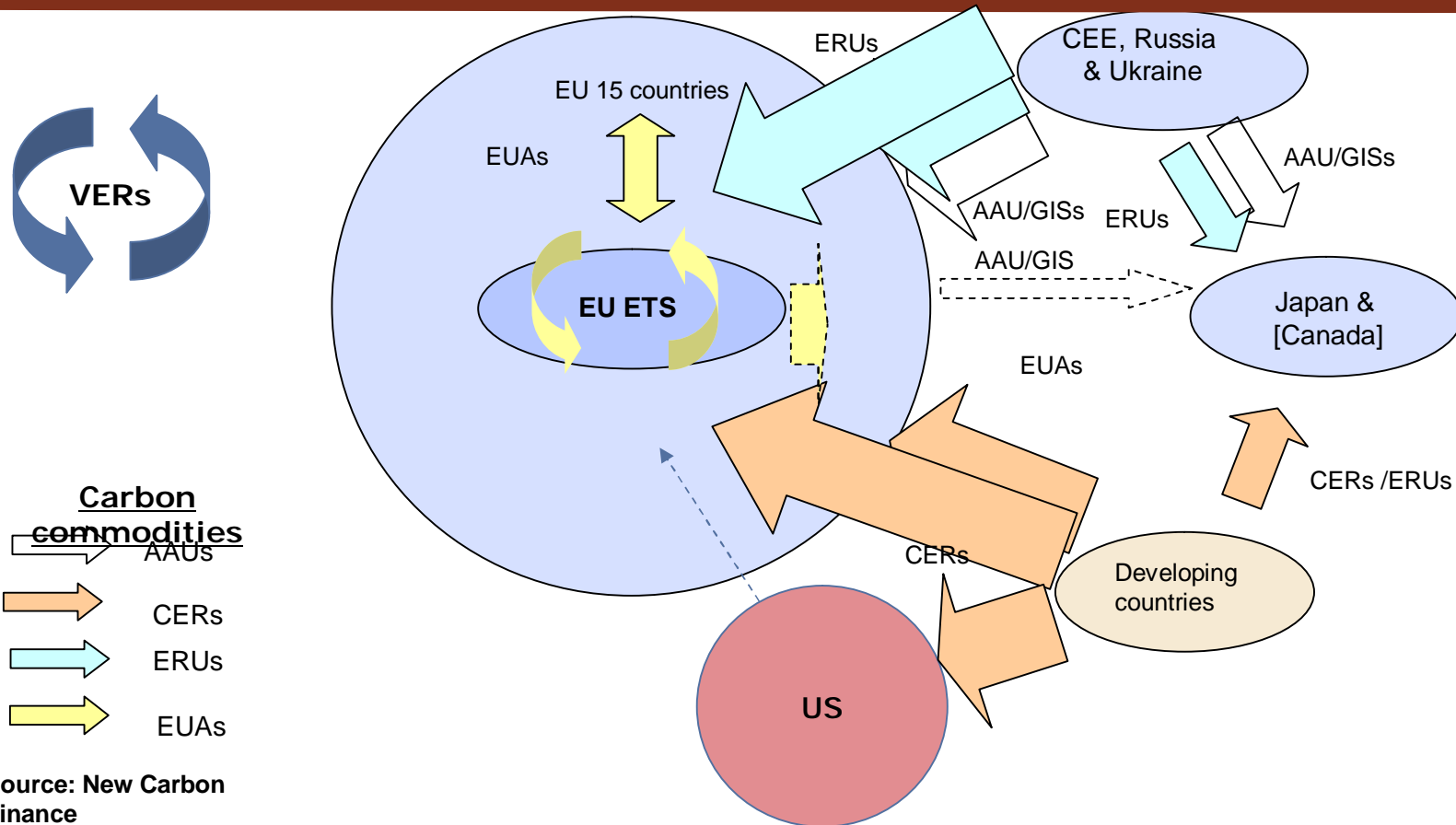
US is 38 Environmental Financial Markets



What are These Markets?

- Sulfur Dioxide (Acid Rain)
- Nitrous Oxide (Ozone or Smog)
- Particulate Matter
- Carbon Monoxide
- Carbon Dioxide
- Renewable Energy Credits
- Wetlands and Species Banking

Emerging Connectivity Among World Schemes



Energy & Environmental are Linked

- Emissions desk is extension of energy trading desk
- We have well established markets for energy trading in both the US and Europe
- Cross commodity arbitrage between fuels and emissions
- Interfuel competition will also grow

The Commodity Markets

- Global market for crude oil and petroleum products
- Global markets for coal
- Regional markets for gas except for LNG
- Electric power markets are regional because of the inability to store energy
- Emissions markets are global!

Regional Arbitrage Abundant in Oil Today

- Emissions trading will follow oil markets in that they are international and the commodity is CO₂e
- The issue is fungibility between markets
- Environmental alpha is high in illiquid and immature markets like emissions
- Price volatility is pervasive: good for traders

Comparison of Carbon Prices

- Regional Greenhouse Gas Initiative: \$2.10
- Climate Action Reserve (California): \$4 to \$7
- Chicago Climate Exchange: 10 cents
- **EUAs: 15.58 euros or 22 dollars**
- CERs: (Kyoto Credits): 13.55 euros



Future Environmental Financial Products for Eurex

- Sulfur Dioxide (Acid Rain)
- Nitrous Oxide (Urban Smog)
- Renewable Energy Credits including S-RECs
- White Tags (energy efficiency units)
- Ags including biofuels
- Weather derivatives impacted by climate
- Environmental Warehouse of Credit Trading
- These and other environmental attributes need exchange to clear OTC contracts for performance



The Flight to Exchanges

- In this regulatory and financial environment, more trading will be both exchange-traded and exchange cleared
- Compliance driven markets like environment have more government involvement
- Traders adapt to markets and are flexible
- Future is very bright
- \$3 trillion market opportunity called **Carbon**

