



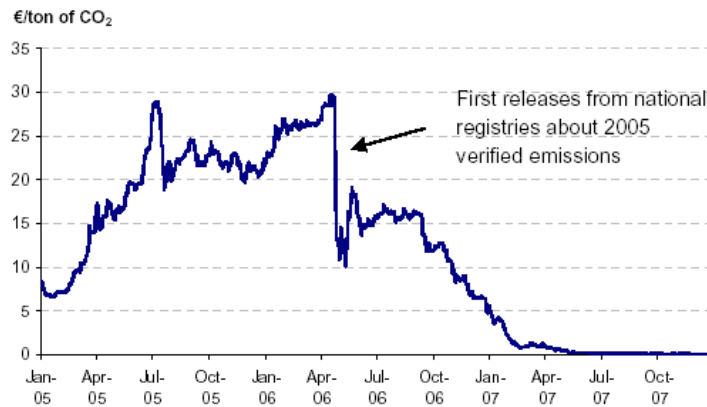
**EPRI / IEA / IETA – Paris,
September 24, 2008**

Special Session on CO₂ Cost
Containment Mechanisms

Session 2 – Market
Perspective

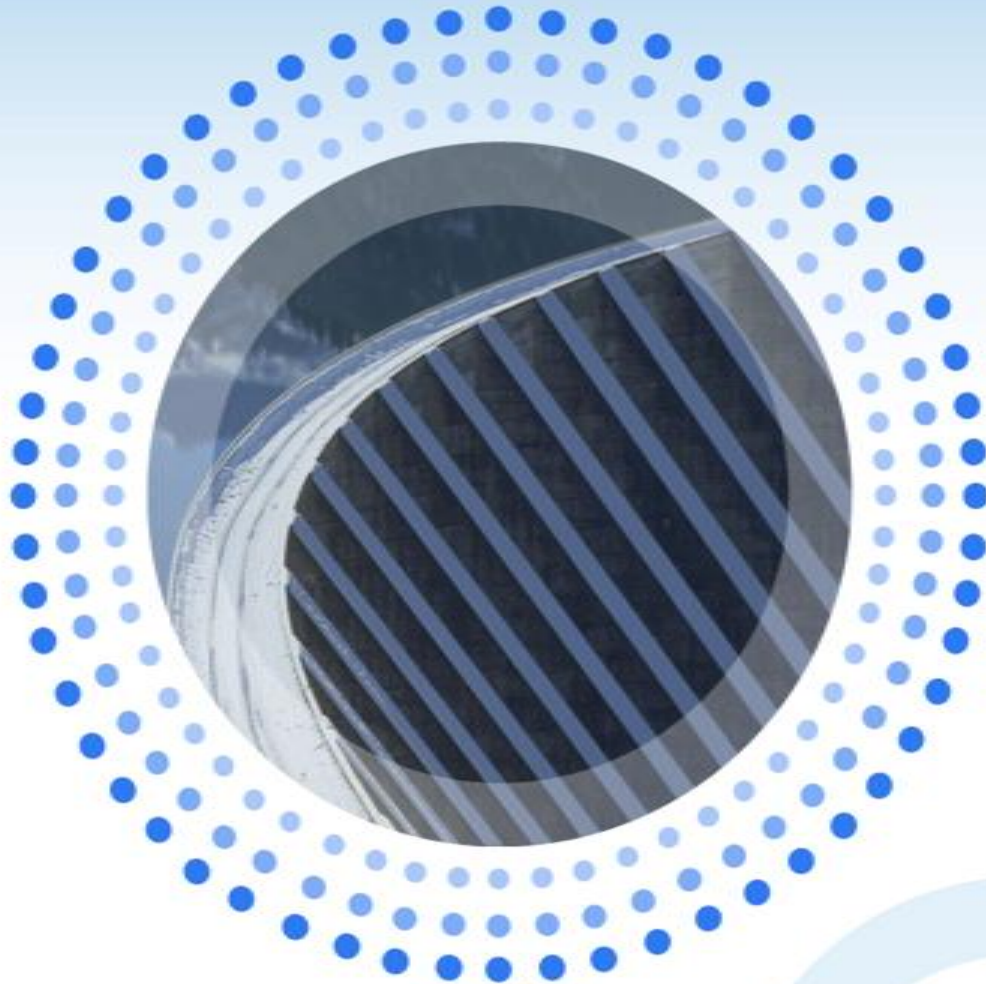
How the EU-ETS market behaved in the 1st period

- ⊙ In the first period ?



Source: BlueNext, PointCarbon.

- ⊙ Strong volatility was observed
- ⊙ This volatility is not desirable from an investment perspective
- ⊙ Let us come back to the fundamentals of the electricity sector

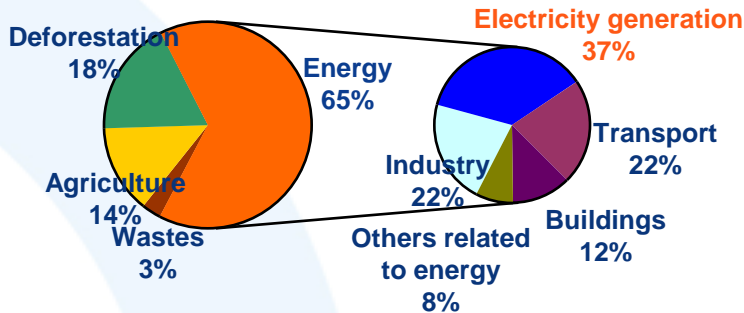


The electricity sector

A matter of
Investments and Policy
Designs

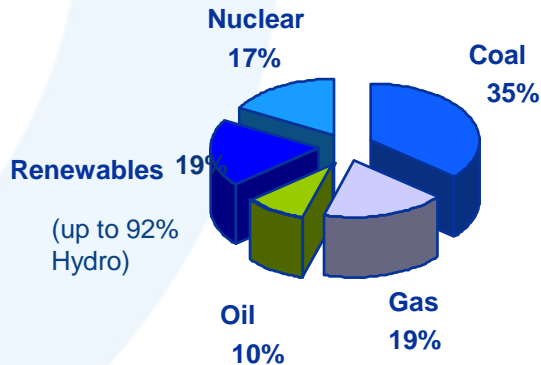
Some facts about electricity sector

- Electricity represents 40% of greenhouse gases emissions



Source Stern review
2000 : 42 GT equivalent CO2

- Two thirds of the world electricity are generated from fossil fuels



- Over the next 30 years:

- Huge demand

- Developing countries (China, India...)
 - Renewal of fleet in most developed countries

- Ready answer: coal

- Accessible and affordable
 - But would double volumes of greenhouse gas emissions

- Necessity to:

- Improve energy efficiency
 - Improve demand side management
 - Deploy low carbon and carbon-free technologies
 - Accelerate R&D on promising technologies, including carbon sequestration (demonstrators)



How to make sure that existing technologies, future technologies and R&D come on board ?

- **Create successful deployment conditions of already existing technologies**
- **Address barriers to investment in mature but emerging technologies**
- **Address particular policies oriented to appliances**
- **Organise and support R&D process**
 - Nuclear generation 4
 - Renewables (photovoltaic, biofuels,...)
 - CCS
 - Networks
 - Appliances
- **Address the time frames appropriately**
- **Building progressively the right international architecture taking what is right in what has emerged already :**
 - CDM programmes with extension in scope
 - Collaborative research between developed and developing countries



What road map for carbon prices ? Putting in perspective carbon prices and technologies

- **Goal :** emissions decrease by a factor 4 in 2050 compared to 1990 levels, in developed countries like EU

- *CO2 price ranges based on assumptions on key technologies maturity and investment needs to drive appropriate arbitrages*
 - **By 2025-2030: at least and over 40 €/ton of CO2**
CCS mature for mass deployment

 - **By 2010-2025: 20-40 €/ton of CO2 (10-15 years view)**
Real opportunities to invest according to national and regional policies; enough to pull towards market windpower, ultra-supercritical coal, CCGTs backed by LT gas supply contracts and nuclear in some countries

 - **Up to 2010 around 20-30 €/ton of CO2**
emissions reduction potential limited but can start to make coal to gas profitable and nuclear in some countries



Do we need a cost containment mechanism ?

- ⊙ On the short term the use of the existing power plants can change (and have changed !), but there was no basic effect on the structural change of power plants fleets
- ⊙ Opportunities to curb the normal pathway of investment exist in coal to gas, for instance, if the CO2 price is in the range of 20-30 euros
- ⊙ If the price would exceed that value in the next five years one would face difficulties (we would experience **high prices for electricity** not bearable for the economy and no possibility to invest in new technologies like CCS because the technology is not yet mature)
- ⊙ In the electricity sector **the cap trajectory has to be decided in line with the full costs of mature technologies** (or expected full costs later when they will be mature) in order the CO2 price which will be generated by the market **give the right incentive to investors**
- ⊙ Therefore one has to be sure that there is a floor and that a mechanism helps to contain the CO2 price at the right level : it can be a price cap, a “safety valve” or a “special reserve”. **Alternatively flexibility mechanisms like CDM/JI can play this role**



The Future of EU ETS

◎ A new proposal :

- Cap setting at EU level
 - Necessary step for an EU harmonization
 - Provided it is done in collaboration with EU MS, it will ensure minimization of distortions
- Targets visibility
- 8 years after 2012 a next indication of and a similar decrease for 8 years more.
 - Is that enough for the power sector
 - Uncertainty on the future (in case of an international agreement?)
- Allocation by auctions
 - Need to manage an appropriate framework for harmonization and learning phase for actors

◎ Some questions

- Extension of the scheme
- domestic projects
- linking with other schemes

◎ A difficult point CDM credits limitation :

- Risk of disinterest from developing countries
- Lack of safety mechanism in case of unexpected situation
- If the power sector has to buy all the allowances it should do it with the largest flexibility to ensure least cost mitigation