

Status and future outlook for carbon credit certificates

SCI Conference:

A New Age for Coal with Carbon Capture
and storage (CCS)

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London, November 7th 2013



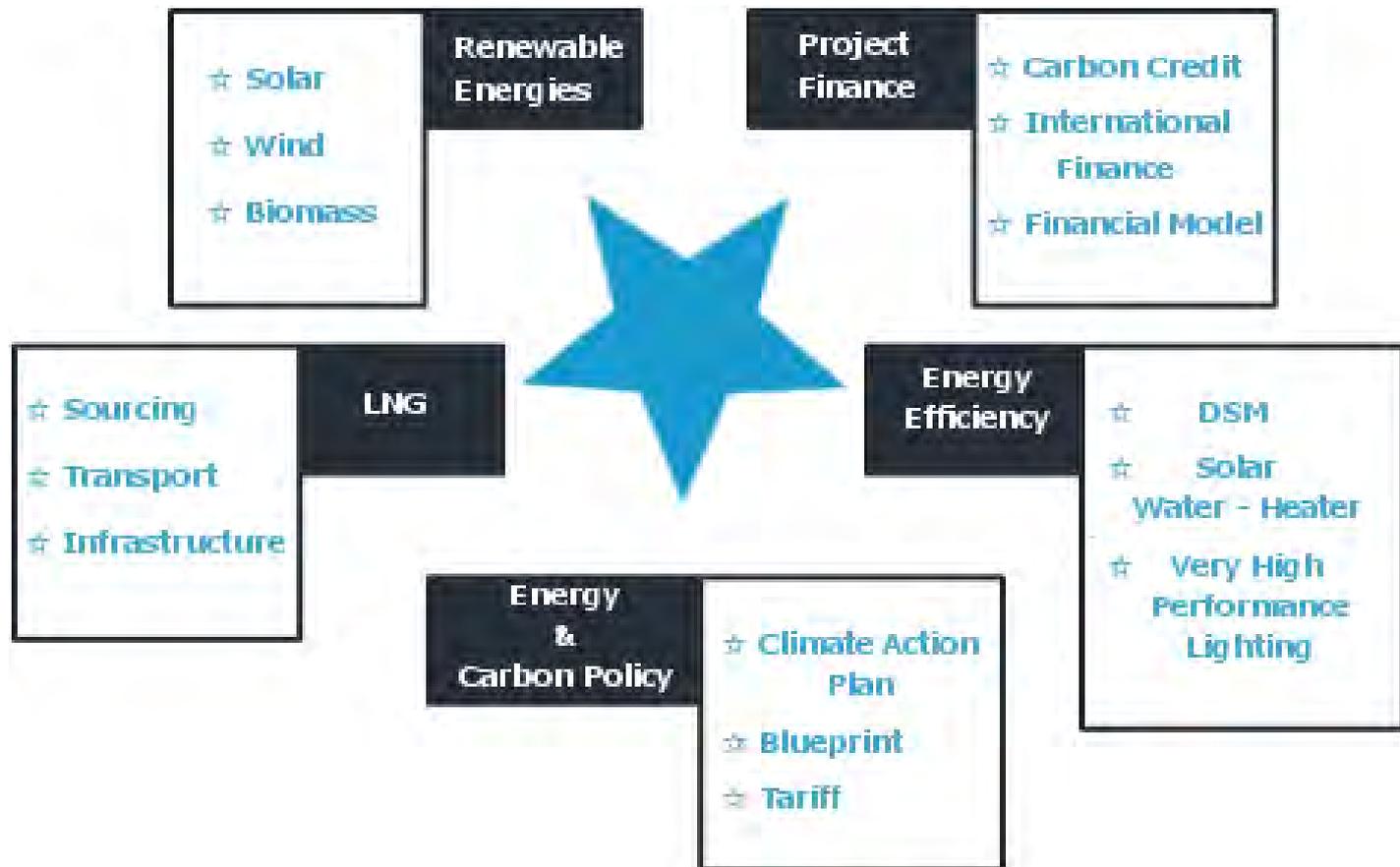
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Presentation outline

- I. Brief Reminder: Climate changes and International treaties**
- II. Kyoto Protocol and EU ETS**
- III. Status: First period key results**
- IV. Future outlook of carbon credit certificates**



I. Brief Reminder: Climate changes and international treaties

GHG and Global Warming Potential

- 6 different gases responsible for Greenhouse effect (natural and synthesis gases)
- Their PRG are depending on gas concentrations and gas life time
- One unit of measurement : ton of carbone dioxide equivalents (teq CO₂)

	Natural GHG			Synthesis gases		
<u>GHG</u>	CO₂	CH₄	N₂O	HFC	PFC	SF₆
	Carbon dioxide	Methane	Nitrous oxide	Hydro Fluoro Compounds	Perfluoro Compounds	Sulfur Hexafluoride
<u>GWP on 100 years</u>	1	23	298	124 à 14 800	7 300 à 12 200	22 200

Life time =
3200 years

A small quantity but very long life time (→ 10 000 years)

Example : 1kg of SF₆ = 22 200 kg of CO₂

GHG Context

Who pollutes ?

Some countries...

- World ~ 40 Mds teq CO2
- China ~ USA ~ 8 Mds teq CO2
- Europe ~ 5 Mds teq CO2
- France 550 Mt CO2 eq /9t per capita

Which goal ?

2050 : Reduce by 4 GHG emissions compared with 1990

Some activities...

<i>Gas</i>	<i>GWP</i>	<i>Activities</i>
CO2	1	Fossil fuel burning, Cement production, tropical deforestation
CH4	23	Biomass, breeding, wasteland, leaks, gas exploitation , oil
N2O	298	Chemical processes, nitrogen fertilizers, nylon
HFC	124 - 14 800	Cooling gas, foam, aerosol
PFC	7300 - 12200	Chimie, aluminium production, cleaning
SF6	22 200	gaseous dielectric medium, electrical equipement, casting magnesium, windows filling (banned)

Kyoto: a regulatory framework

« Annex B » countries (developed countries) have accepted emission reduction obligations

- Objectives at the state level
- Objectives of companies (12 000 industrial sites under quotas in Europe)

France : Kyoto target = + 0 %

Priorities economy and environment

Annex B

UE : Kyoto target = - 8 %

Non-Annex B : no obligations

Priority development and equity

« Non Annex B » countries (developing countries) have no GHG emission reduction obligations but may participate in the Clean Development Mechanism.

■ Signé et ratifié
 ■ Signé, ratification en cours
 ■ Signé, ratification refusée
 ■ Pas de position

International Treaties

- History

1992: Earth Summit in Rio de Janeiro (Brazil)

- Agreement on the UN Framework Convention for Climate Change (UNFCCC)

1997: Adoption of the Kyoto Protocol (Japan)

- Quantified targets for the amounts of GHG reductions

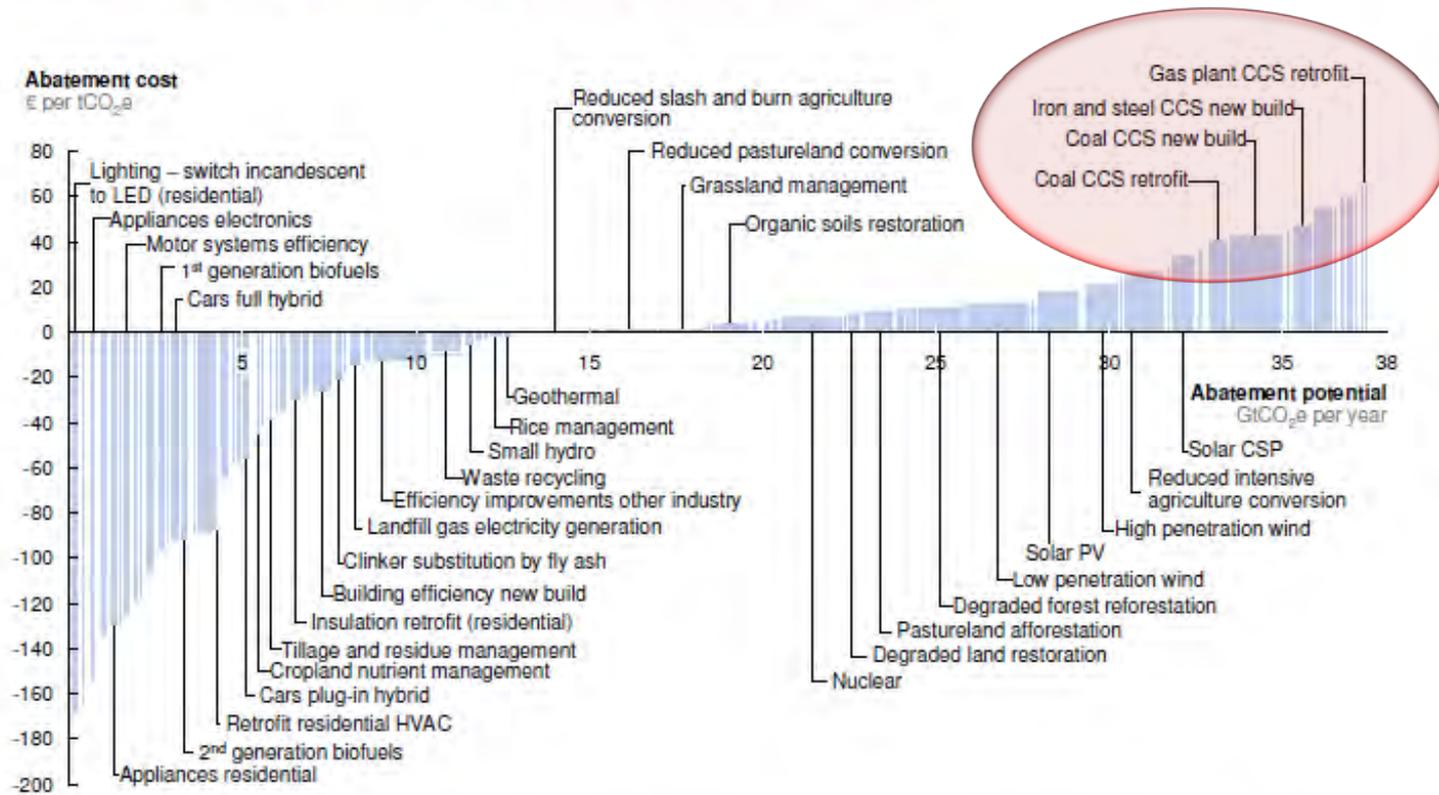
2005: Entry in force of the Kyoto Protocol (not Ratified by the USA)

2008-2012: 1st Commitment Period

2013-2020: 2nd Commitment Period

• CCS in GHG abatement cost

V2.1 Global GHG abatement cost curve beyond BAU – 2030



Note: The curve presents an estimate of the maximum potential of all technical GHG abatement measures below €80 per tCO₂e if each lever was pursued aggressively. It is not a forecast of what role different abatement measures and technologies will play.
 Source: Global GHG Abatement Cost Curve v2.1

II. Kyoto Protocol Flexibility Mechanisms

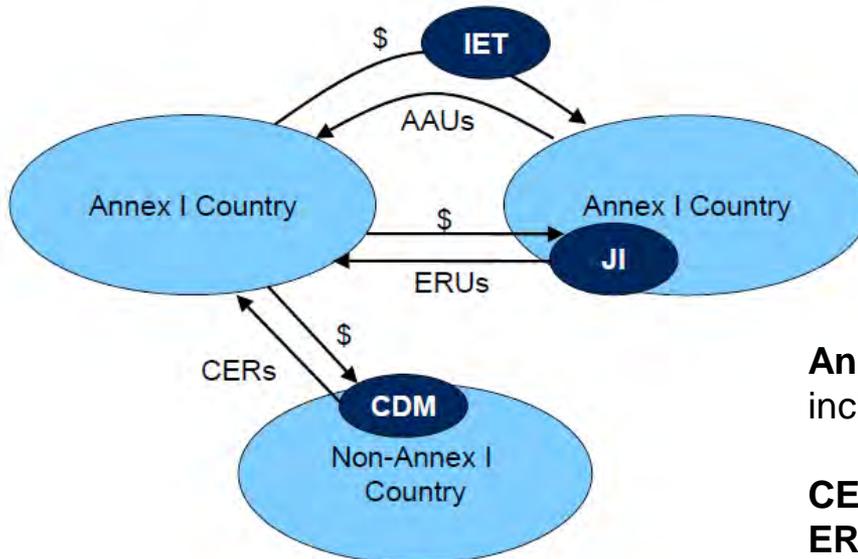
Kyoto Protocol « Flexibility Mechanisms »

- **3 market mechanisms**

Allow Annex I countries to achieve their emission reduction targets.

The Kyoto Flexibility Mechanisms

➤ System of cap & trade



Annex I countries: Developed countries including economies in transition

CER: Certified Emission Reduction

ERU: Emission Reduction unit

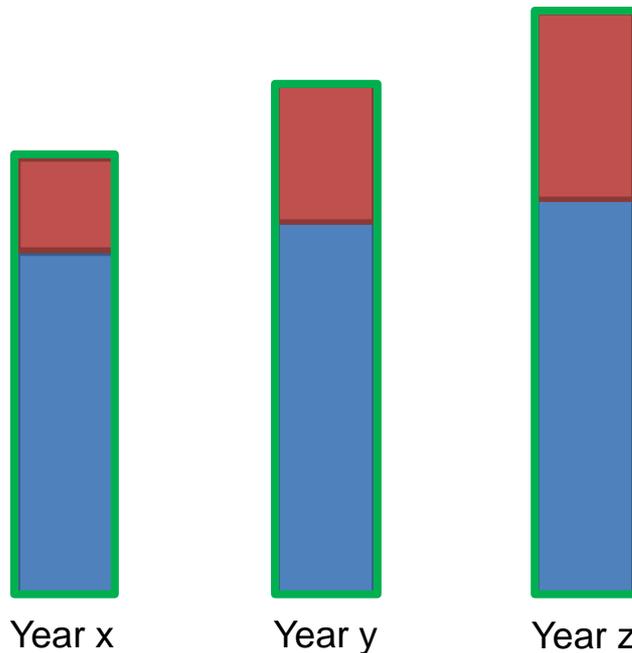
AAU: Assigned Amount Unit

The EU Emission Trading Scheme

- **Example of carbon market: the EU ETS**
 - **The European Union Emission Trading Scheme**
 - ❖ world's largest carbon market
 - ❖ core of the international carbon market.
 - **Based on a cap-and-trade structure**
 - ❖ Cap on CO₂ emissions of more than **11,000 industrial sites in Europe** emitting sectors: power generation, mineral industries, metallurgy, etc.
 - ❖ Ceiling materialized by the **distribution of quotas**:
1 quota (EUA: European Union Allowance) = 1 ton of CO₂.
 - ❖ Between 2005 and 2020: **diminution of the cap of 21%**

The EU Emission Trading Scheme

- **Example of carbon market: the EU ETS**



- If countries or industries exceed their cap, they need to purchase emissions allowances.
- Those allowance can be purchase in CERs (for a limited defined share)
- On the other hand, if a country or private actor does not exceed its allowance, it can sell its remaining allowances



CO2
emissions



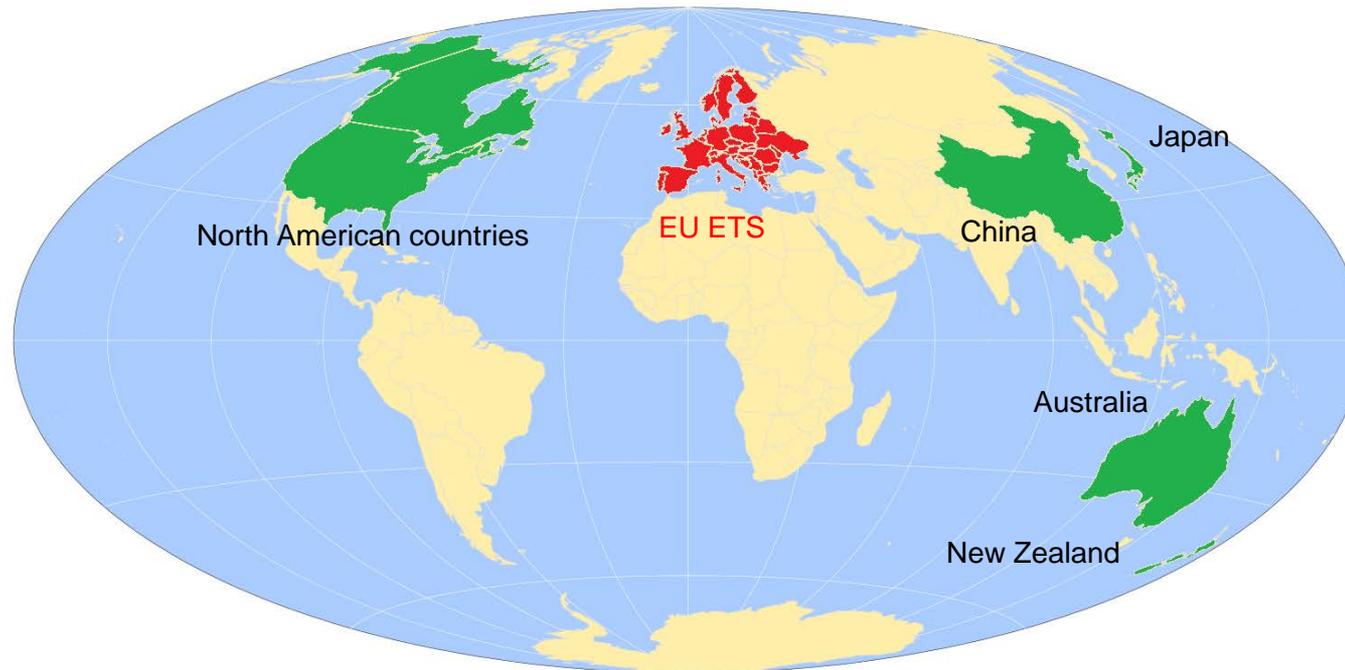
Allowed
quotas



Purchase to
meet targets

Carbon Market Initiative

- **Other carbon markets:**



- **Parallel structure:**

- Organizations, companies or individuals who wish without any regulatory constraints, acquire CERs representing CO₂ emission reductions and withdraw them from the market in order to offset their own emissions.

II. First commitment period key results

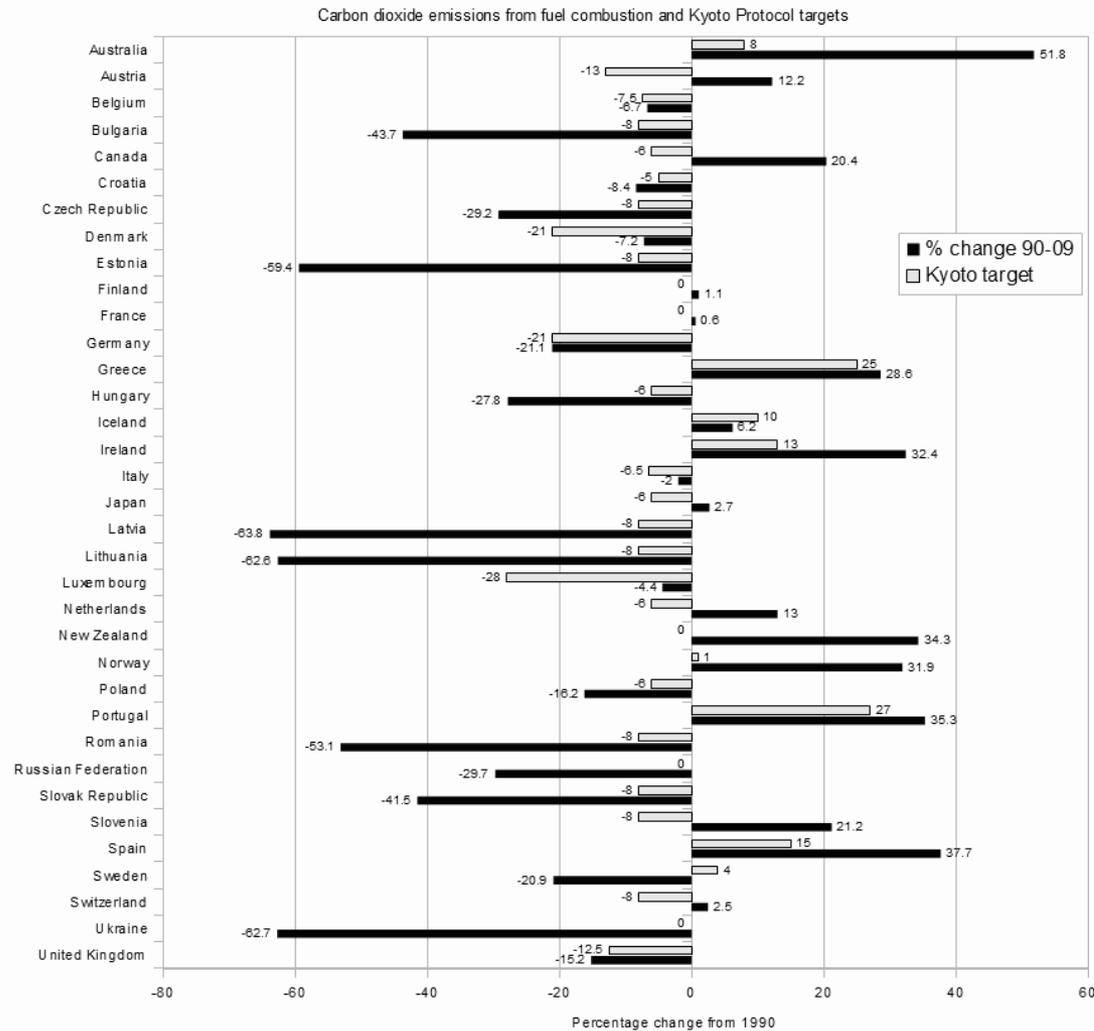
First commitment period objectives

- 2008 – 2012: Kyoto Protocol first commitment period
 - EU target: - 8% emissions compared to 1990 emissions

Country	Target	Country	Target
Austria	-1,3%	Ireland	+13%
Belgium	-7,5%	Italy	-6,5%
Danemark	-21%	Luxemburg	-28%
Finland	0%	Portugal	+27%
France	0%	Spain	+15%
Germany	-21%	Sweden	+4%
Grece	+25%	Switzerland	-8%
Holland	-6%	United-Kingdom	-12,5%

- Most countries need to reduce their emissions, other as Grece only need to limitate the raise of GHG emissions.

First results

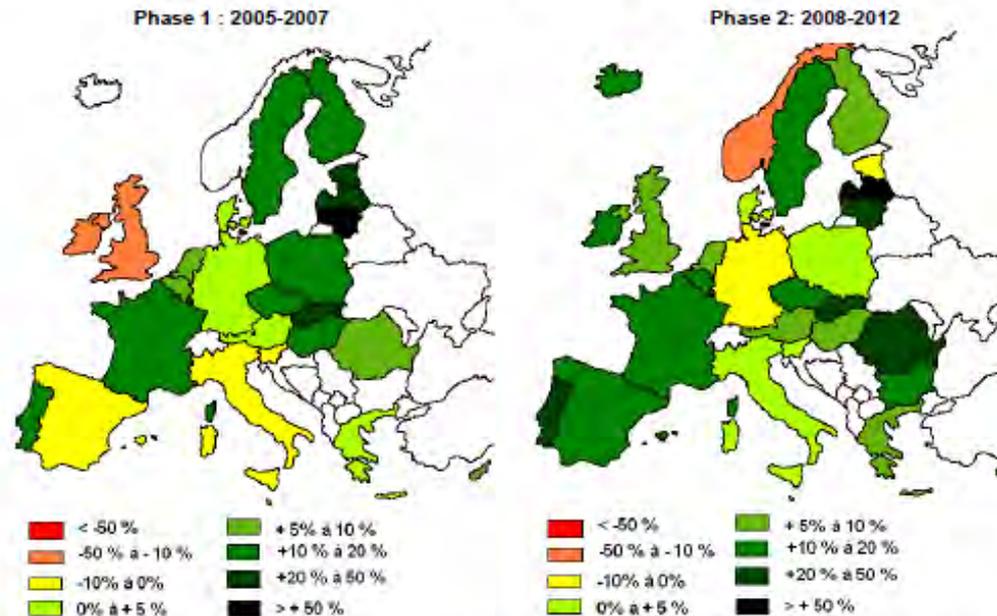


- In 2009:
 - many countries already surpassed their reductions

Net figures

- End of the first commitment period:
 - EU reduced its emissions by 18%, almost its 2020 targets (3x20)
- Verified CO2 emissions by the EU ETS amounted to 1,867 MtCO2 in 2012 (a 2% decrease compared to 2011 and a 12% decrease compared to 2008)

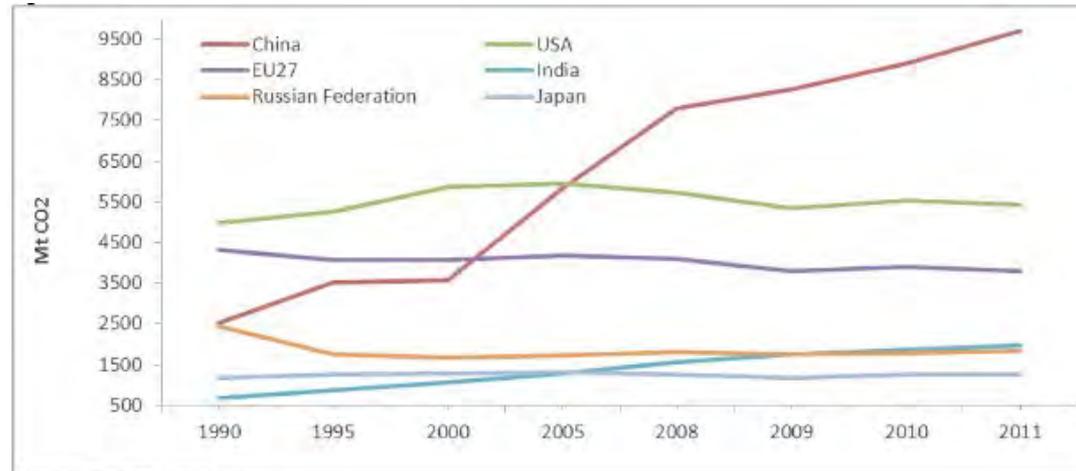
Figure 5 – Member States' net compliance positions: ratio of net positions based on verified emissions. The data include the allowances auctioned by some countries during Phase 2



Source: CDC Climat Research, based on data from the EUTL

Mitigation

- Worldwide some countries did not ratify the protocol, or don't respect their commitments:



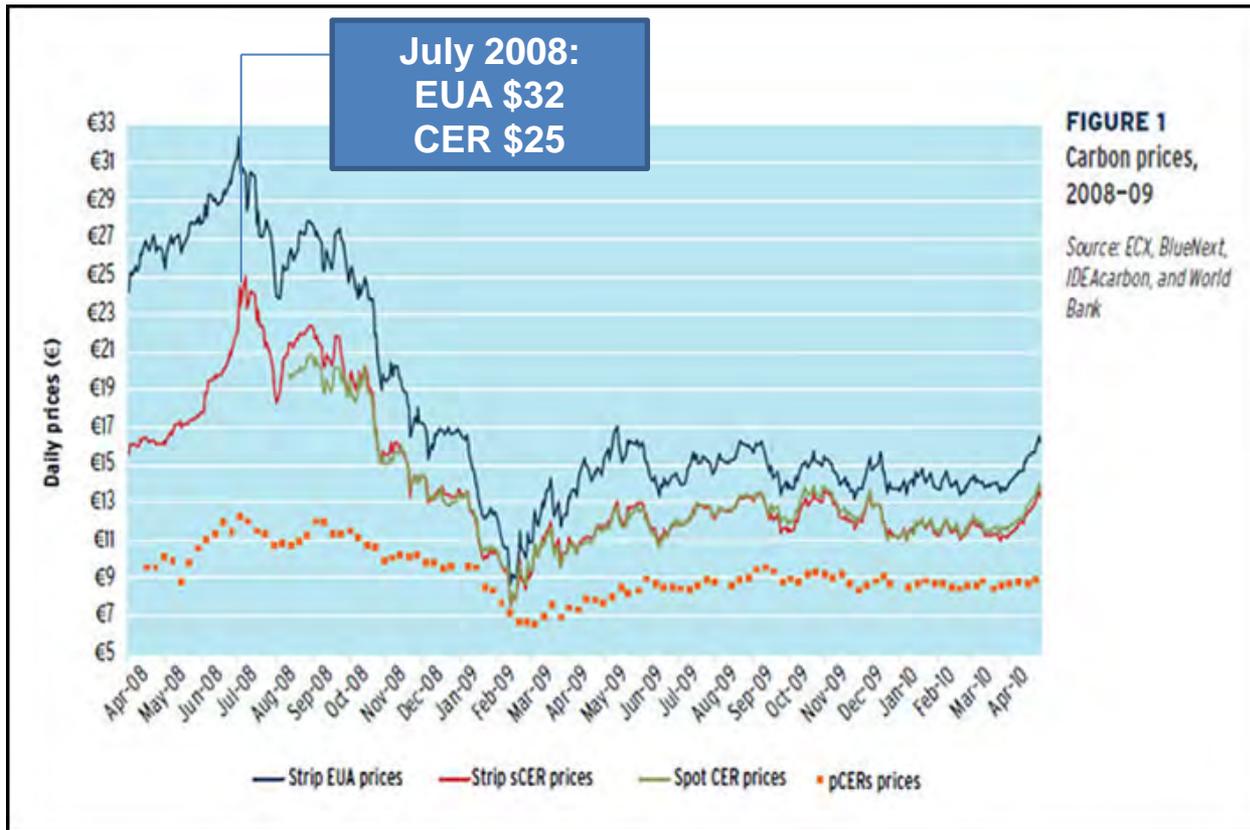
Source: EDGAR database

- Massive deindustrialization of the ex-Soviet bloc**
(explains the good results of some countries (Latvia, Estonia, ...))
- Global economic slowdown**
positive impact on emissions but not a complete result of their energy policies.
- Exceeding quotas on the carbon market**
considerable decline in the value of the credit

II. Future Outlook for carbon credit certificates

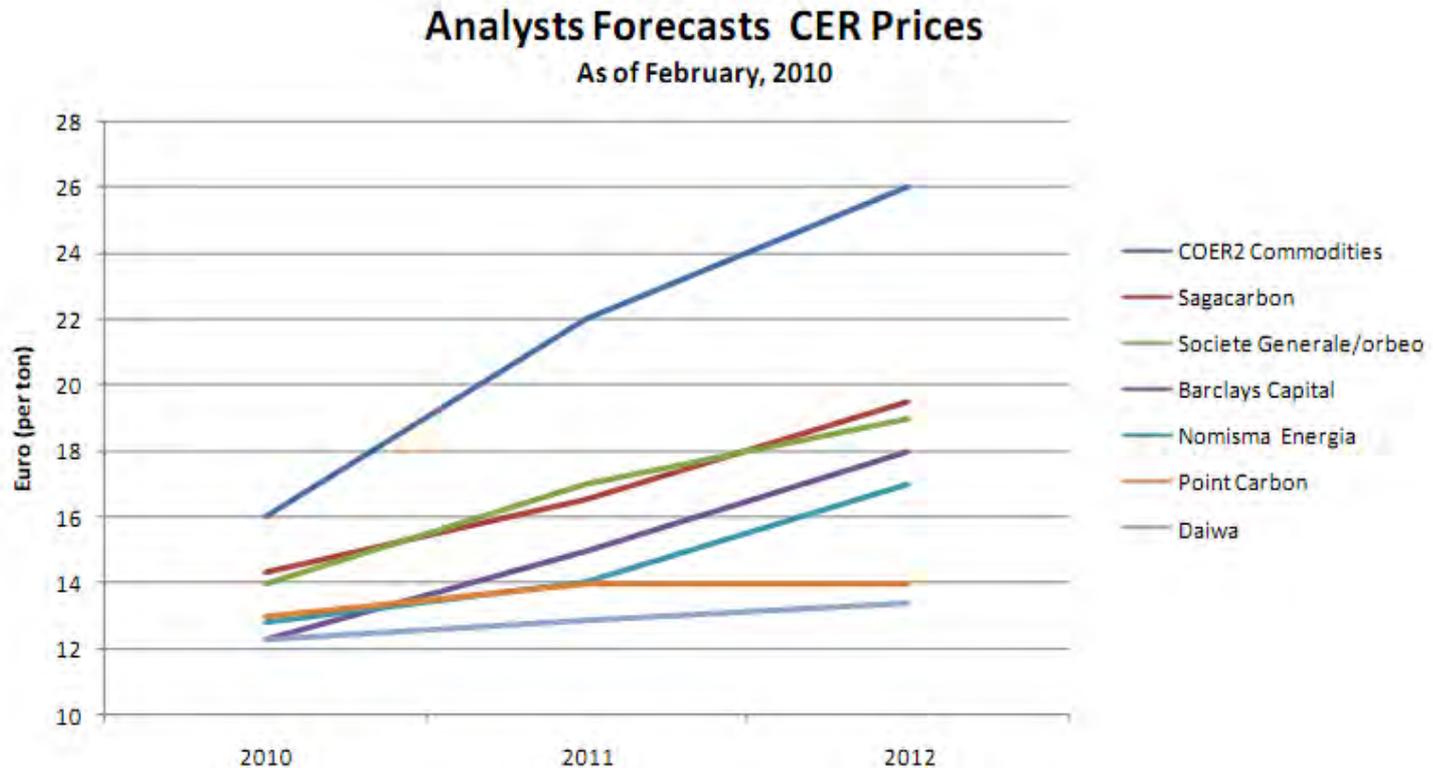
• Historical carbon courses

➤ Golden age of carbon certificates: 2008 - 2010



• Previous CER Forecasts

➤ Optimistic forecasts of carbon certificates courses (2010)



Source: Reuters

- **Real trend of the CER**

➤ **Actually well below forecast (2011-2013)**

ICE EUA & CER FUTURES HISTORICAL FRONT-DEC PRICE



- **Focus on 2013 trend**

- No more forecast
- **Price of EUA between 2.5 €/ton and 5 €/ton**
- **Price of CER credit falls to 0,5 €/ton**

EU Emission Allowances 2013-2020 | Prices and Trading Volumes | 2013/11/06 | European Energy Exchange



• 2013: Key year, discussions

- **Post-2020 Kyoto Protocol targets to be set (2030 objectives)**
 - ❖ Last COPs inefficient: (Copenhagen 2009, ... , Doha 2012)
 - ❖ Necessity to set clear objectives for 2030 at Paris 2015
- **Future of the EU ETS**
 - ❖ Second back loading proposal (July 2013) **Adopted**
Postpone to EU ETS Phase 3: 900 million quotas auctioned
No significant impact on carbon courses

• Uncertain future: Emergent markets

- **EU ETS could link to other markets**

Example of Switzerland, South Korea or California

- **New emergent market could grow up**

- ❖ Japan
- ❖ China's ETS
- ❖ ...

- **Focus on the China ETS**

- ❖ Shenzhen **pilot project** launched in **June 2013**
- ❖ **635 companies** at opening date
- ❖ **Carbon price 20% higher** than in the European Scheme

- ❖ **By 2015**, 7 chinese markets are expected to regulate **800 million to 1 billion tons of emissions**

Thank you

London, November 7th 2013



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