

ENTRACTE - CECILIA Joint Climate Workshop

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SESSION ON EU ETS: PERFORMANCE AND PROSPECTS PART 2 - SECTORAL PERSPECTIVES

Topics 2: **The EU Power Sector and EU-ETS**

Dr. Jean-Yves CANEILL, Head of Climate Policy, EDF Group



Where the EU ETS comes from ?

- ◆ The adoption of the KYOTO PROTOCOL in late 1997 acted as a revolution in the EU thinking
 - emergence of the market instruments
 - a logical consequence of the cap

- ◆ After one year of « silence » EU Commission took the lead of the preparation of EU ETS
 - a green paper in 2000
 - a stakeholder consultation
 - a legislative proposal in Fall 2001

- ◆ EU ETS Directive adopted in December 2003

EURELECTRIC (the European association of electricity utilities) been quite close to the EU debate and EDF was strongly involved in the latter

The GETS experiments

« Greenhouse gas emissions and
Energy (Electricity) Trading Simulations »

- ▶ Early in the process EURELECTRIC decided to set up a learning by doing process to understand better market instruments
- ▶ EDF was strongly involved in this awareness process
- ▶ The different market experiments described hereafter (GETS 1 and GETS 2) helped the actors to become familiar with the use of an emissions market, and put the electricity sector in a good stakeholder position in the discussions with the Commission
- ▶ EURELECTRIC was invited in the ECCP Group devoted to emissions trading
- ▶ Following up studies (like GETS 3) brought the right matter to pursue a continuous dialogue with EC
- ▶ Without any doubts, proactivity of the electricity sector, helped to channel right informations for the EU ETS design

Key conclusions from “GETS” experiments

« Greenhouse gas emissions and Energy (Electricity) Trading Simulations »

GETS 1 (1999)

- Most companies traded CO₂ actively and learnt quickly how to include the price signal into their strategies
- Trading *per se* was not a problem
- Investment, not trading, delivered compliance at the end; emissions trading helped to lower the cost of compliance

GETS 2 (2000)

“ Companies’ investments drive environmental compliance...
...the emissions trading market allows them
to integrate fully environmental goals into business strategies
and decision making.”

ETS Objective

1/ Reducing the GHG emissions at the least cost

2/ Incentivizing low carbon investments

Achievement of the EU's 2050 GHG emissions reduction target can be best achieved by setting a binding 2030 economy wide GHG emissions reduction target together with an indicative 2040 target and by ensuring that the EU ETS continues to be the EU flagship policy instrument and mechanism for achieving these targets.

Challenges

Power Sector

- ▶ A large number of actors
- ▶ Geographical differences
- ▶ Sectoral perspectives
- ▶ Competition in regional areas
- ▶ **New opportunities and vector of development**

Investment , diffusion and innovation

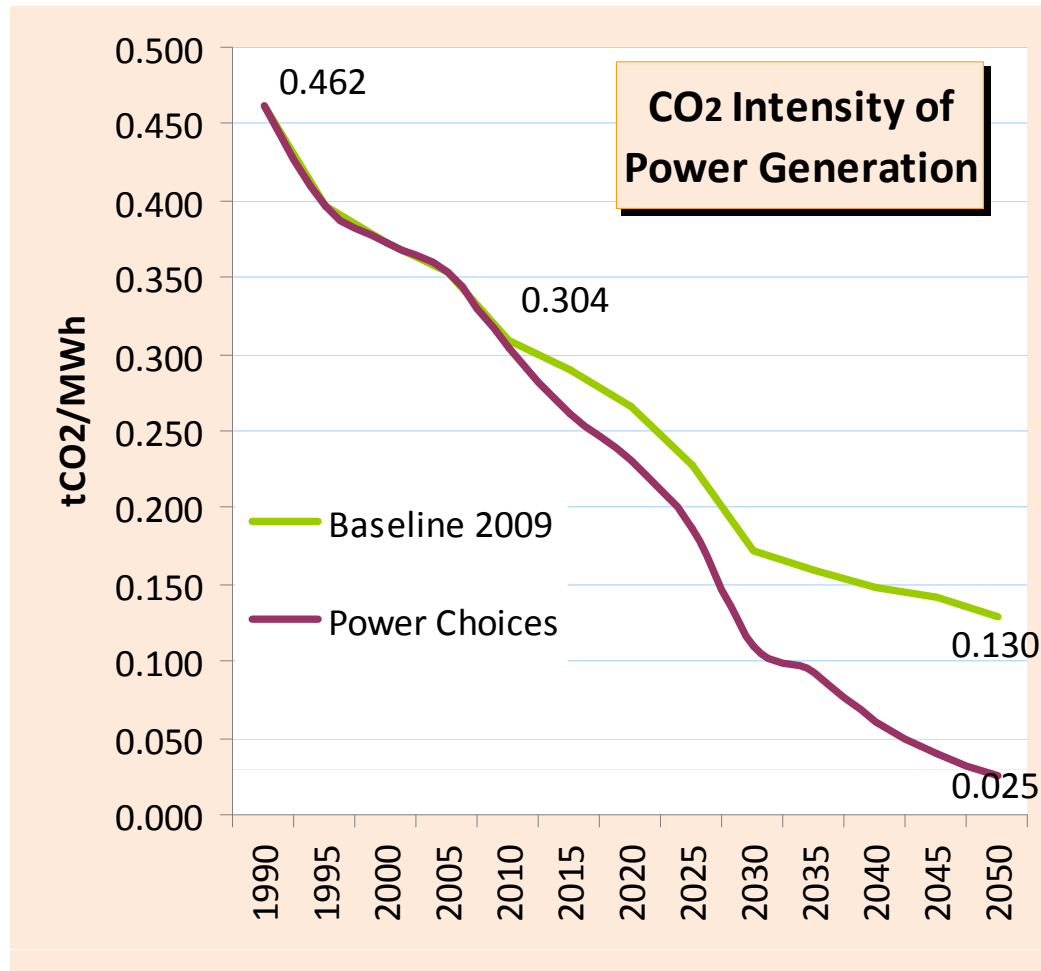
Government

- ▶ Differing perspectives
- ▶ Geographic/regional perspectives
- ▶ National energy policies
- ▶ Need actions
- ▶ **Need for fulfillment of commitments**

Source: adapted from WBCSD

Emission reductions, development, survival

“POWER CHOICES” : approach “ zero CO₂ emissions “ in 2050 for EU electricity generation (EURELECTRIC)



From Eurelectric

The EU Power Sector and EU-ETS



- Some lessons on EU ETS from the electricity sector side
- A focus on electricity prices
- Carbon Risk Management as the rule for the “big ones”
- What about the future ?



Some lessons on EU ETS from the electricity sector side

The system works !

▶ Carbon has a price
→ emitting carbon has a cost

- Environmental externalities are internalised

▶ Market infrastructure works and guarantees the environmental integrity of the system

- Verification of emissions
- Registry and accountability of allowances
- Compliance procedure and possible penalties

▶ A structured and liquid market is put to birth → price signal clear and credible

- Intermediaries and market platforms
- Volumes increasing continuously
- Transactions become more sophisticated

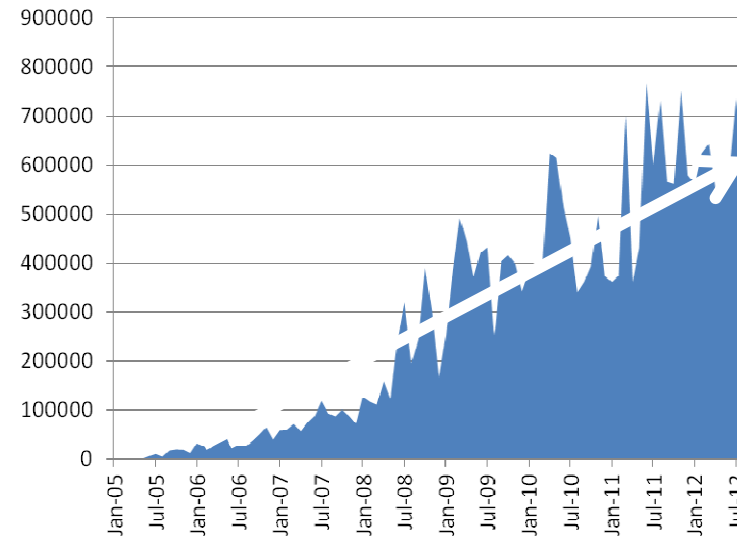
	Volumes de quotas échangés (MtCO ₂ e)	Valeur des transactions (M€)
2005	262	5 400
2006	828	14 500
2007	1 458	25 200
2008	2 731	61 200
2009	5 016	65 900

Source : CDC Climat

The EU carbon market has rather been a success story so far

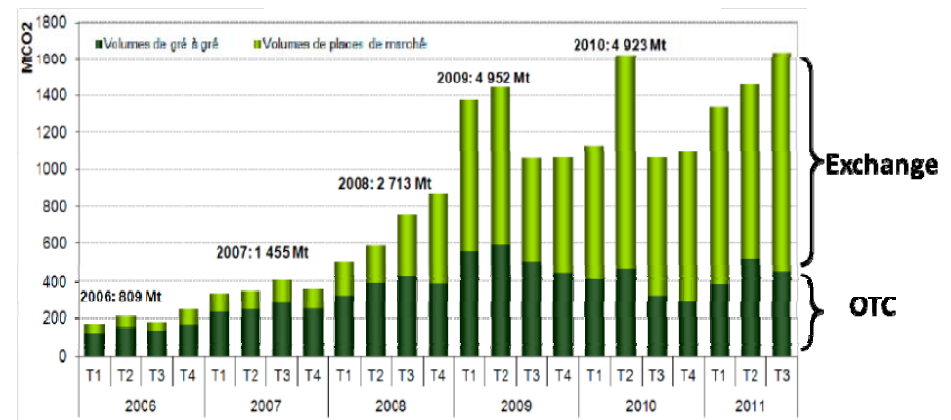
- ▶ (One of) the **most liquid** markets in the EU energy complex
- ▶ **Resilient** to challenging conditions
 - Registry failures and EUA theft
 - Price fall
 - Progressive loss of market participants
- ▶ (One of) the **most organised and transparent** commodity markets
 - Vast majority of exchange-based transactions
 - Vast majority of forward/futures cleared

ICE Futures Europe emissions contracts
Monthly traded volumes (in ktCO₂)



Source: ICE ECX

Total cleared volumes

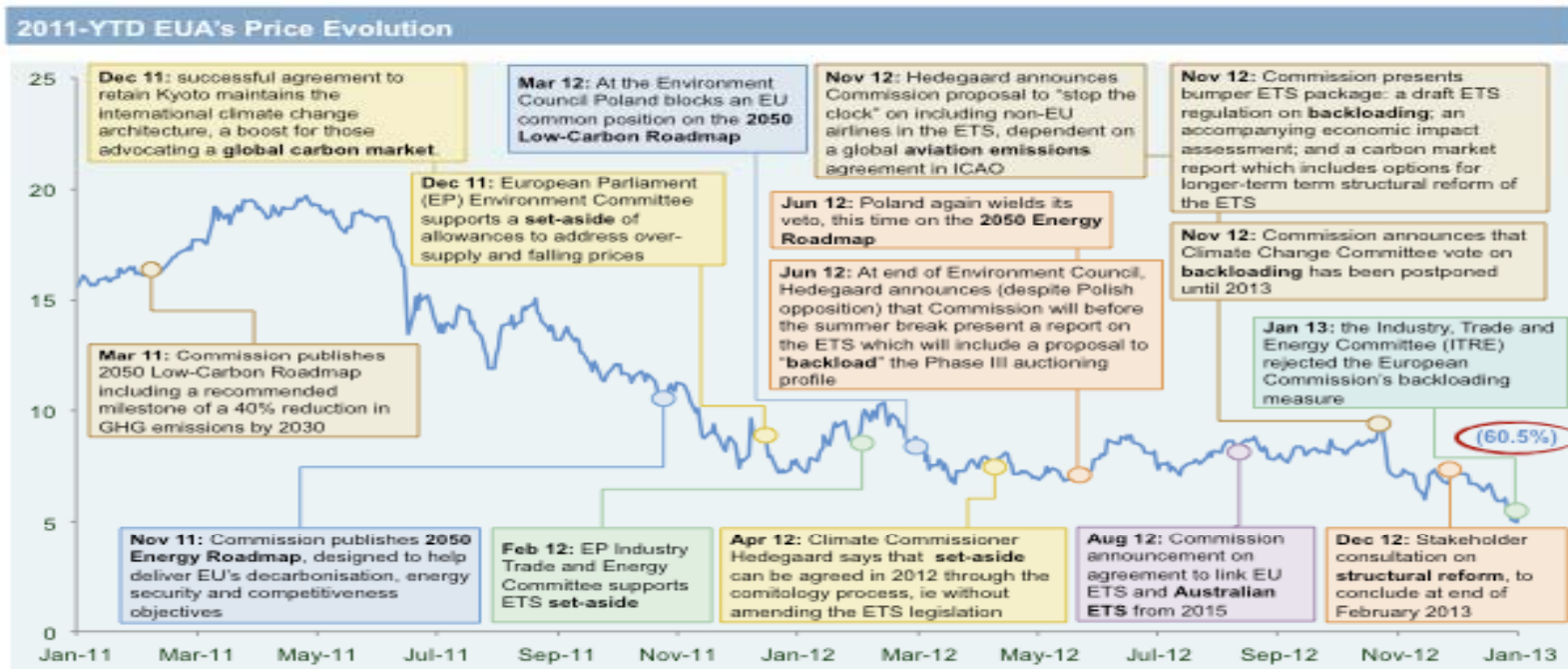


Source: CDC Climat Research

Evolution of carbon price on EU ETS since 2011

Political hedging !

EUA's Political Price Drivers



Source: Bloomberg

- The **2050 Low-Carbon Roadmap**, included a recommended milestone of a 40% reduction in GHG emissions (compared with 1990 levels) envisages the ETS as a central pillar of European climate policy in terms of promoting carbon pricing as an incentive for **low-carbon investment**
- What will the European Parliament do now?
 - A 19 February vote in favor of backloading will not be the end of the parliamentary process.
 - The EP would still have to vote in plenary on the regulatory amendment, possibly in March or April
 - A no vote on 19 February would leave the Commission's strategy in tatters, and the market would surely respond accordingly.

Impact of CO₂ emissions trading

- ▶ **The burden of CO₂ reductions has fallen** mainly to the electricity industry
- ▶ **As in most commodity markets**, prices are set by the marginal plant
- ▶ Opportunity cost is a real cost
- ▶ **CO₂ is one of the many factors that** influence short-term marginal operational costs **and hence wholesale prices**
- ▶ **Ultimately, and in the longer term**, electricity prices must cover long-term marginal costs, **including capital costs**
- ▶ Signal to invest in low carbon technologies



A focus on the electricity prices

Is emission trading leading to higher electricity prices ?

- **Changes in electricity prices will not be a consequence of emissions trading, but of implementation of a carbon constraint in the economy**
- Goods that contain more carbon will be relatively more expensive than goods that contain less carbon. As the trading scheme is the cheapest way to implement the quantitative constraint, it means that any **price changes should be the lowest necessary**
- Pricing decisions in the liberalized power market are **increasingly complex and difficult to predict**
- **Many events directly affect the electricity prices,** emission trading is just one of them

Interpreted from Source: European Commission, MEMO/05/84, Brussels, 08 March 2005

In most EU countries the carbon value is passed through the electricity prices

- ▶ On wholesale markets, the allowances value is passed through the electricity price whatever the allocation is done

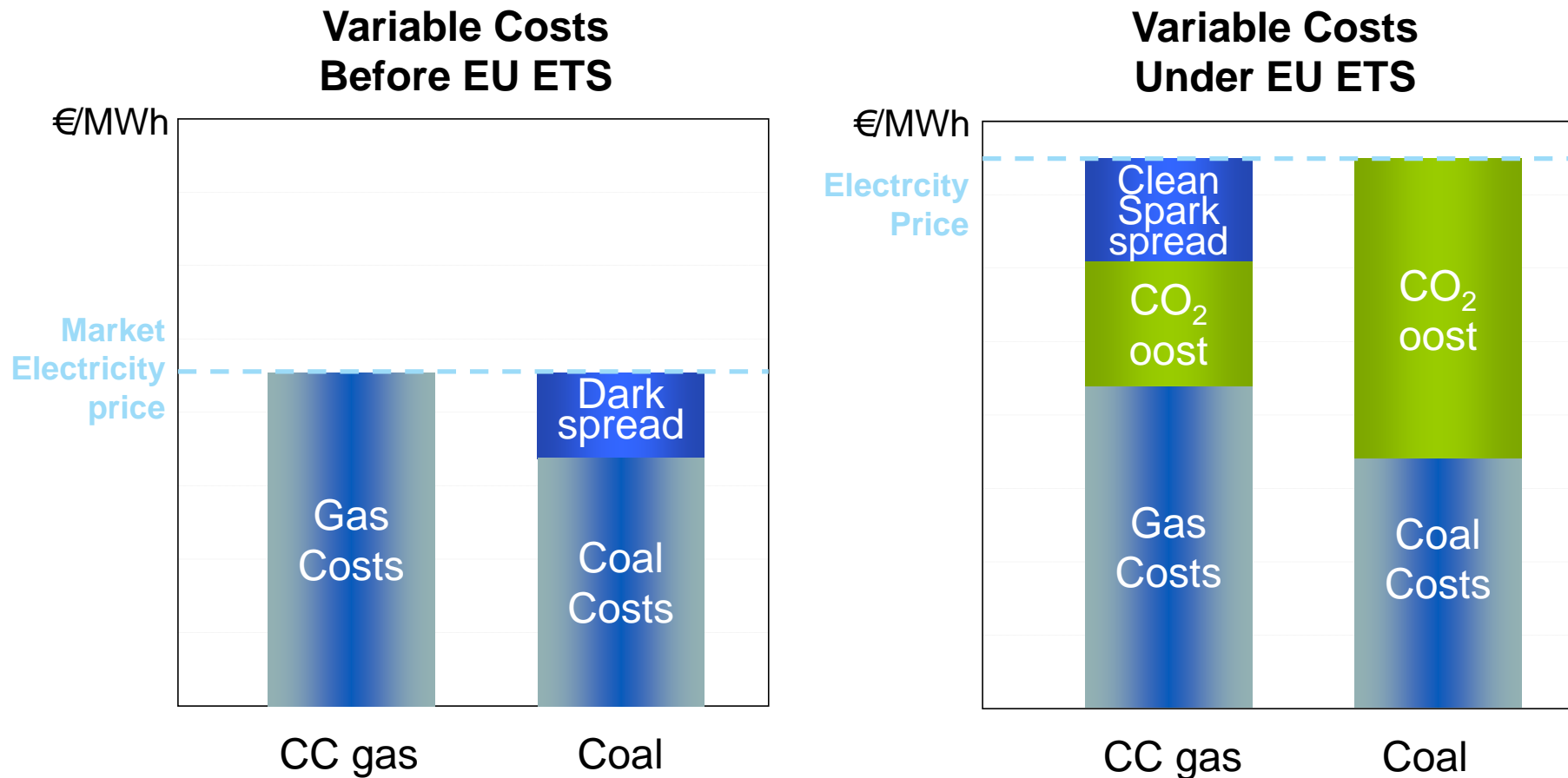
- To generate electricity one needs to use fuel and »allowances «
- As allowances have a price, if you consume one you lose its corresponding value (cost of opportunity)



- ▶ In countries where prices are not regulated the final consumers prices are in coherence with the wholesale prices and reflect the carbon value

- It is the case for instance in UK , Germany (one can assess this value at approximately 5 euros per Mwh but could grow up to 10 euros per Mwh in some years)

Emissions have been reduced mainly in the electricity sector...

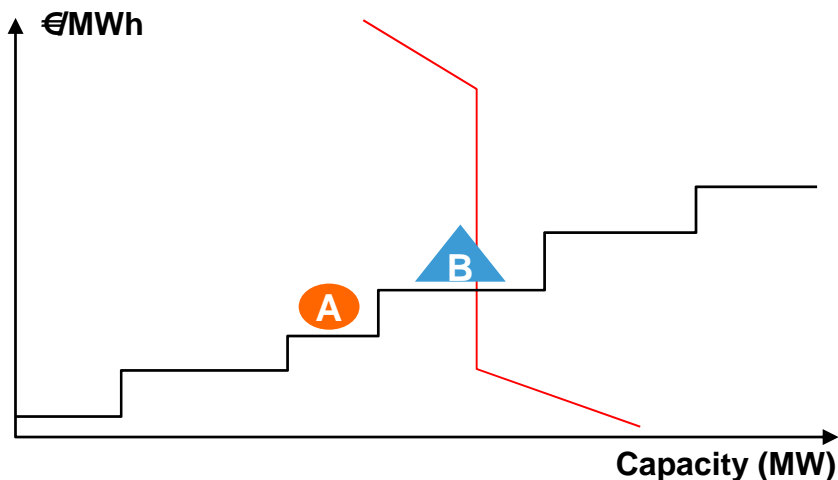


Clean spark spread = Electricity Price - gas costs - CO₂ costs
Clean dark spread = Electricity Price - coal costs - CO₂ costs

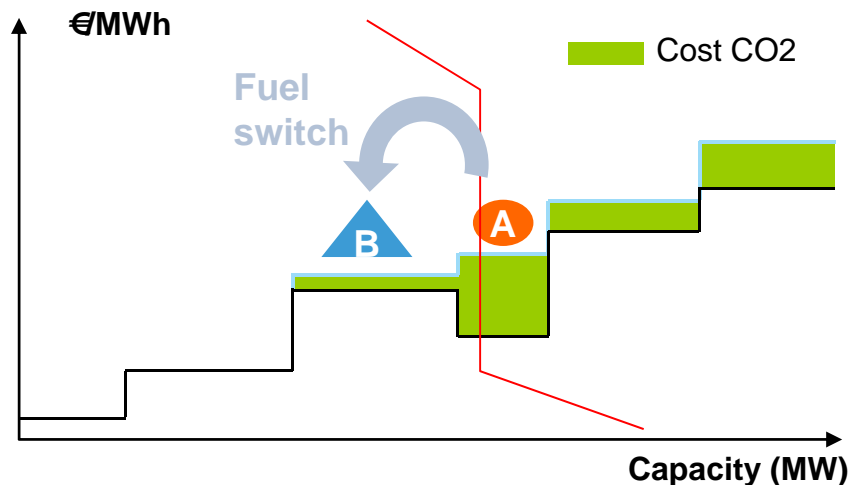
... by relative arbitrage between existing coal and gas capacities ('fuel switch')

Merit Order of the different electricity generation units

WITHOUT carbon cost

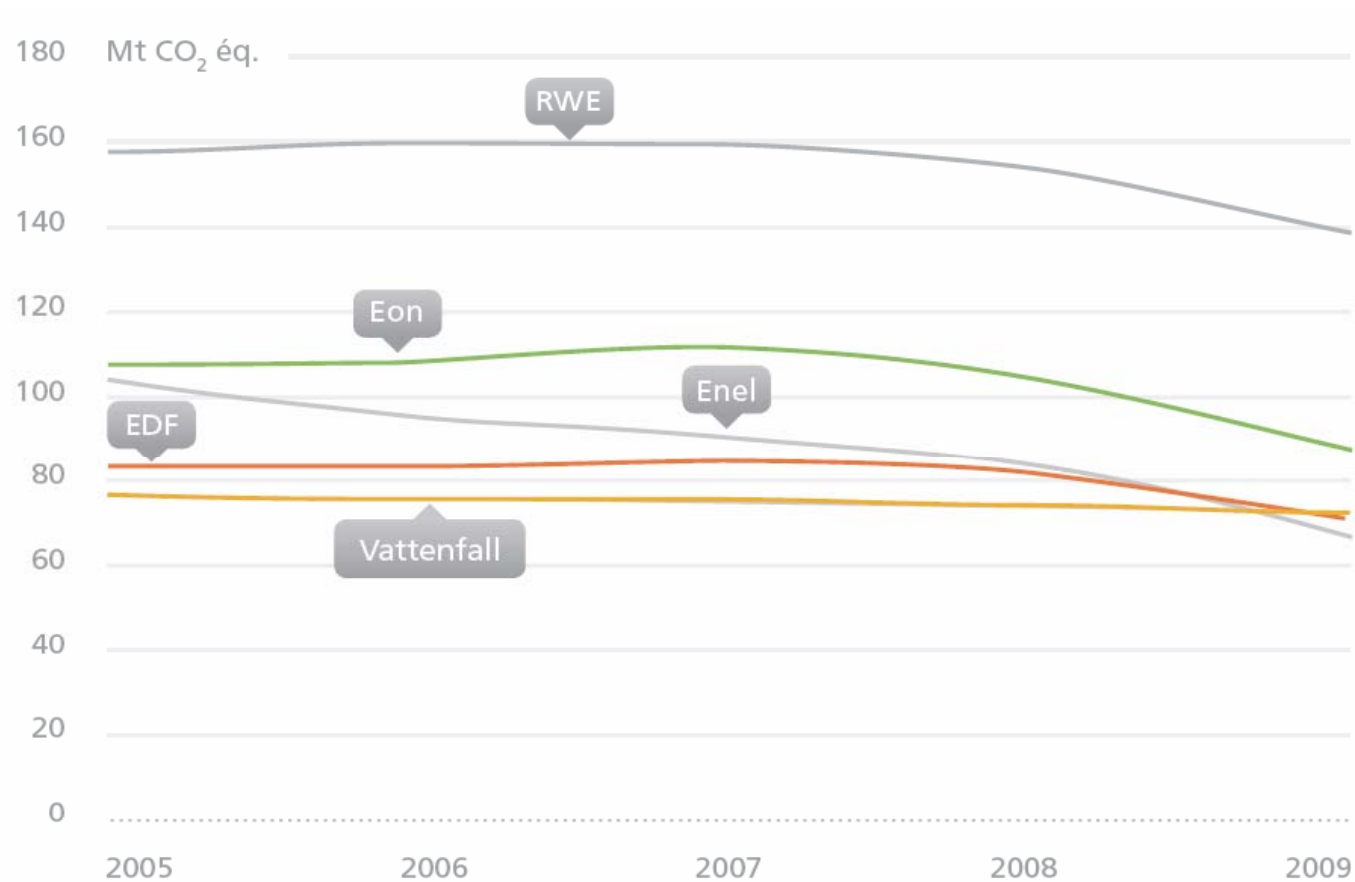


WITH a carbon cost



- ▶ Switching potential mainly in Spain and Germany
 - In phase I, contribution to reduction of 5% of total emissions
- ▶ Integration of CO2 cost in electricity assets management optimisation
 - Increasing electricity price
 - Free allocations = 'windfall profits' for the sector

CO₂ emissions of some electricity « utilities » in EU



Source : CITL, EDF R&D. Périmètre 2009.



Carbon Risk Management as the rule for the “big ones”

Impact on electricity companies

Additional factor in changing electricity industry environment

Key elements to be addressed:

- Climate strategy and risk management system
- Financial and accounting arrangements
- Taxation requirements (Corporate, capital gains, VAT)
- Legal, permitting issues
- Investment planning
- Production planning
- Organisation and administration (monitoring, reporting, verification, allowance recording, trading)
- IT systems
- Communication

Company compliance strategies

Three basic options:

1. **Internal abatement**
 - Efficiency improvements, fuel switching (if portfolio allows) in short term
 - Repowering, restructuring plant portfolio, carbon capture and storage in longer term
2. **Use of ETS market**
 - Spot trading of EU allowances (active / passive)
3. **Hedging**
 - EU allowance forward contracts / derivative products
 - CERs (and ERUs post 2008): bilateral, funds
 - But limited availability of CERs in pilot period

Balance for each company is related on their own national and/or business circumstances

EU Climate Energy Package

The EU ETS rules have changed significantly for the period post 2012,
compared to phases 1 and 2

They have to change again to increase the visibility, and one has to depart from a piecewise
implementation of the policy giving too much importance to short term arbitrage

	EU ETS Phases 1&2	EU ETS Phase 3	EU ETS Phase 4 and beyond
	2005-2007 and 2008-2012	2013-2020	2013-2030 +Roadmap 2050
Period	3 and 5 years	8 years	~ 20 years ?
Allocations to existing installations	Free	General rule : auctions	AUCTIONS
Allocations to new projects	Free	Auctions except for some rare exceptions	NO
Subsidiarity	High (National Allocation Plans)	Low or non-existent in the long term	NO
Banking	Generally not authorised between phase 1 and 2	Authorised as of phase 2	YES



What about the future ?

EU ETS structural reforms proposed by the Commission



- **Target change from 20% to 30% in 2020**
- **Reducing the linear factor of 1.74%**
- **Suppression of backloaded allowances if the latter proposal decided**
- **Perimeter extension**
- **Removing offsets**

Emission Markets : transition to phase III and longer term perspective. How to fix the problem !



- 1) Engage a structural reform of the climate energy package including a deep thinking for a proper articulation of the various policies in presence
- 2) Put in place a structural mechanism to correct supply under specific conditions through a transparent and predictable process
- 3) Announce the launch of target milestones up to 2050 and deciding the 4th period of EU ETS (at least up to 2030)
- 4) Fix on the short term the price problem by removing or setting aside allowances