

IDDRI's side-event, Bonn Learning Platform on Climate Policies

Friday, 18 May 20:00 to 21:30 pm - METRO (MoT)

From climate policies to long-term strategies in China

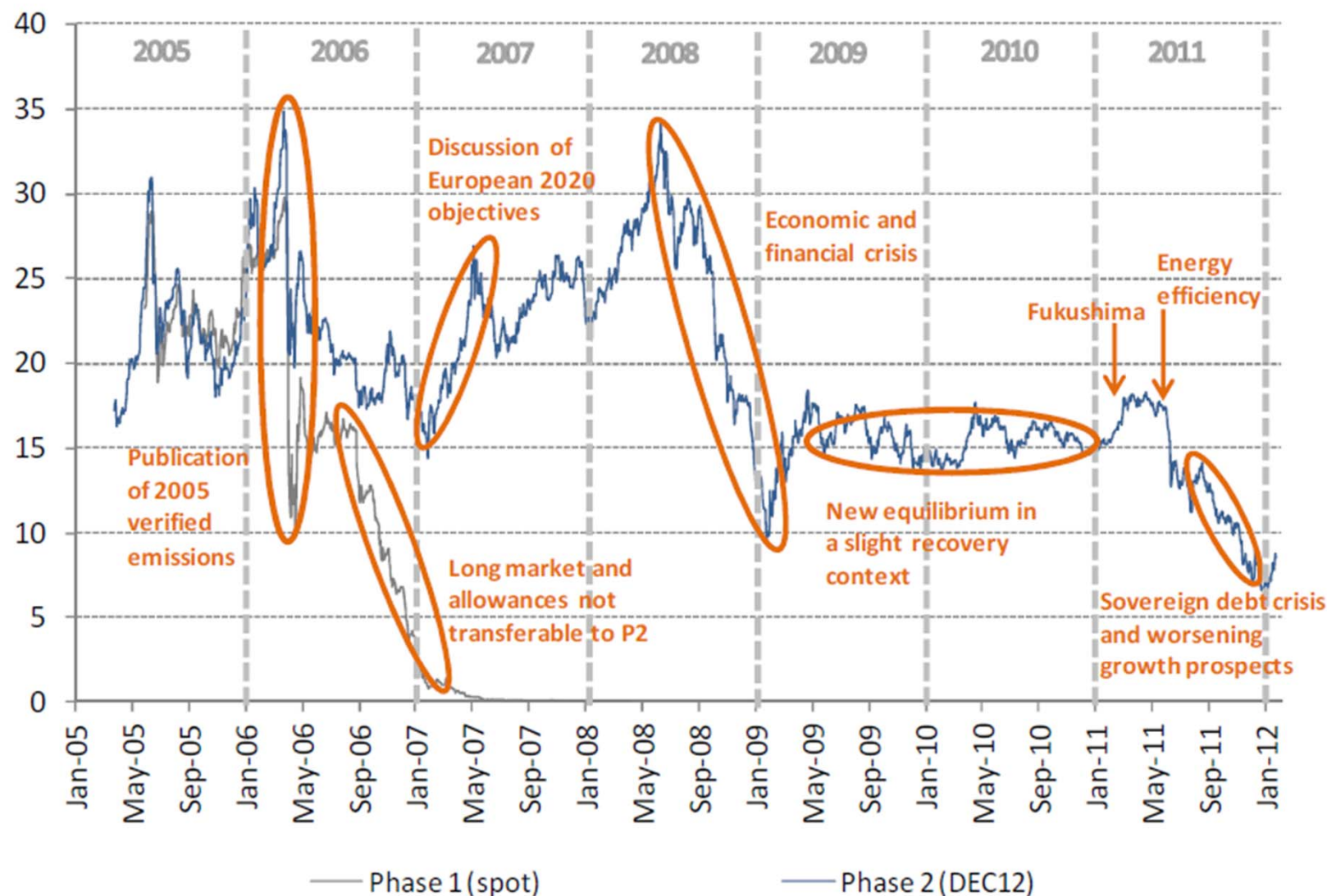
*Session 2 - Developing Chinese climate policy
framework:prospects for carbon
markets establishment*

*The power sector facing carbon pricing
policies*

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CO2 emissions prices since launch of ETS in 2005 (€/tCO₂)



Source: Climate Economics Chair, based on BlueNext and ICE ECX Futures data

Giving a price to a ton of carbon will incentivize to reducing the emission of the latter !

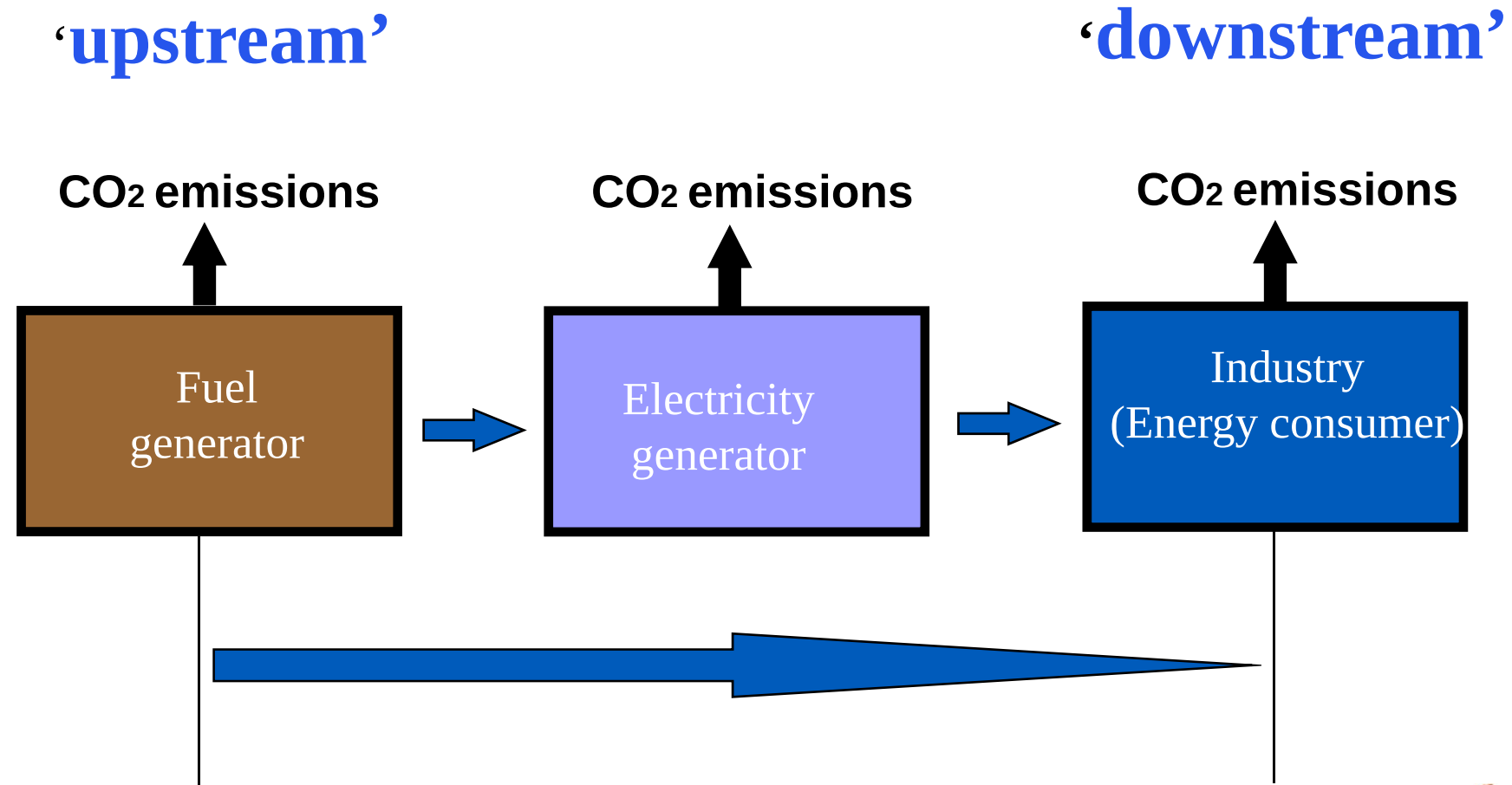
Economic instruments adapted to environmental questions

→ Creating a price signal inducing behaviour changes :

- Operational decisions
- Investment decisions

Instrument	Principle	Advantages	Inconvenients
Fiscal instrument (tax)	Regulation through price	Predictability → help investment decisions	Uncertainties on emisisions level at the end of the day
Tradeable Emissions allowances	Regulation through volume (cap then trade)	▶ « Environmental integrity » ? ▶ Cost Effectiveness	▶ Heavier to handle ▶ Volatility ▶ Manipulation ?

direct vs. indirect emissions scheme 'upstream vs. downstream'



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

The markets designs remain very diverse in spite of the European framework

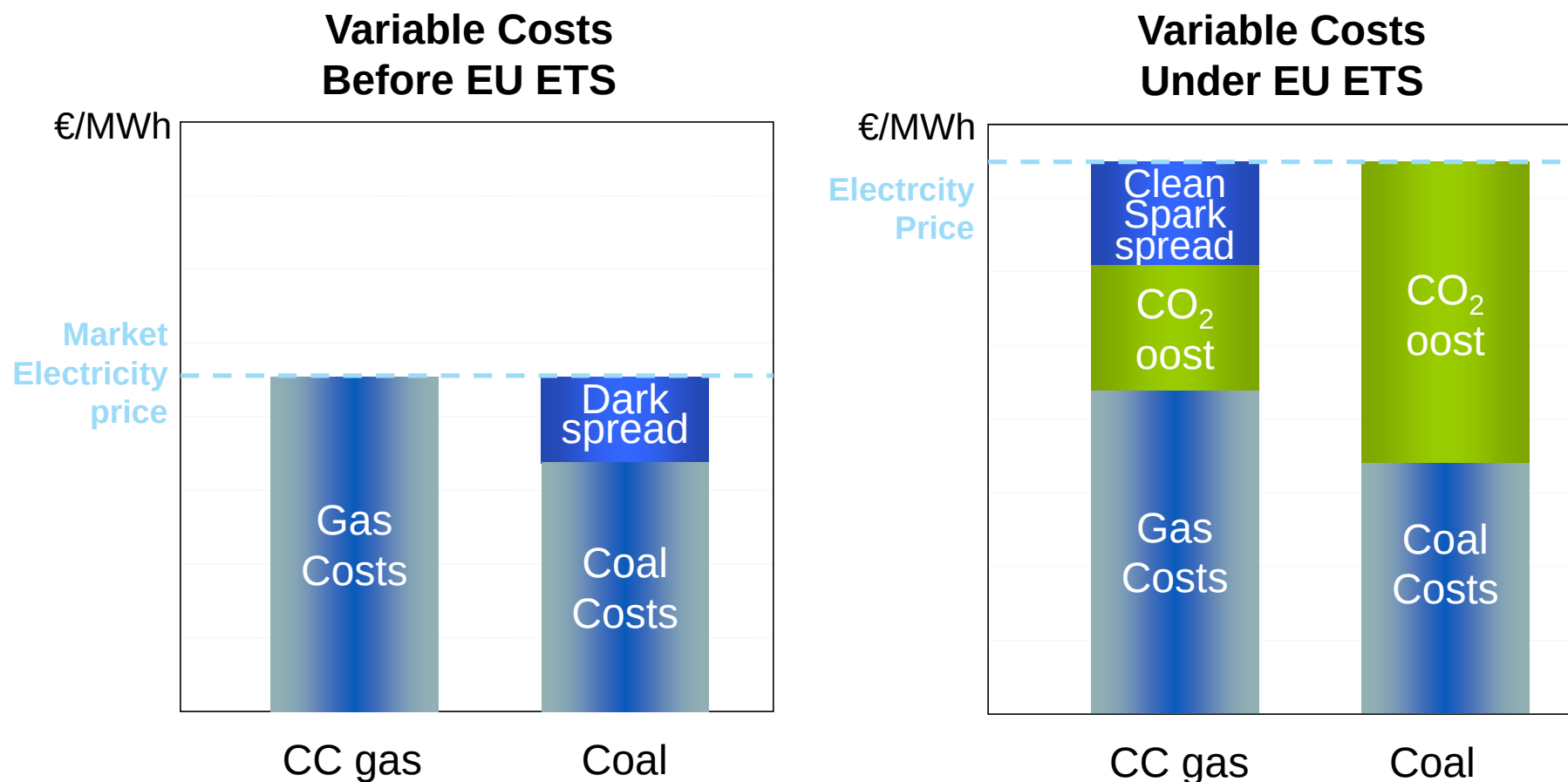
A comparison between four of the main European markets shows contrasted market structures regarding for example:

- Wholesale markets, regulated revenues, status of TSOs, regulated tariffs

Mandatory pool	OTC and power exchange	Nearly only OTC	OTC and power exchange	Mandatory pool
Capacity payments	none	none	none	Capacity payments
Ownership unbundled TSO	4 strongly integrated TSOs in spite of legal unbundling	Fully independent TSO, ISO in Scotland	TSO subsidiary of EDF	Fully independent TSO
Low regulated tariffs	Regulated tariffs without influence on competition	No regulated tariff	Low regulated tariffs	Regulated tariffs for universal service



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

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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

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. Hedge
 - 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 based on own circumstances

Predictability is essential.

What does that mean :

- **Clear visibility**
- **Forward price curve for carbon**
- **A stable regulatory framework which gives clear indication of allocation rules and methodologies over time (2030)**
- **Offsets are and will remain an integrated part of the compliance**

Points to be investigated further for China

(as far as power sector is concerned)

► Reliance on coal fired generation in China for existing as well as for new projects need that attention is paid when introducing a carbon price signal

- China context is different from EU context as a whole but in the EU diversity some member states are relying on coal as well
- In new MS for instance special provisions are possible in order to make sure that implementation of phase III do not prevent investments in new capacity
- As a matter of principle one should avoid to subsidize new projects with “free carbon allowances”; this question has to be treated carefully

Points to be investigated further for China

(as far as power sector is concerned)

► When introducing a market principle (i.e. a cap&trade system) one needs to address ex-ante the following questions

- Allocation process for existing installations (free allocation is possible provided long term rules are clearly stated : decreasing percentage and increasing auctions, based on the remaining life of the installations, etc...)
- Allocation process for new installations have also to be clear; economic rationality recommends that auction is chosen which allows taking into account the CO2 cost in the full costs of technology for a right carbon arbitrage between them. A smooth transition to auctioning can also be investigated.
- Consequences of the latter principle has to be looked at : what is the needed carbon price for changing an investment decision ? What is the expected trajectory of carbon prices which would be compatible with the present low carbon emissions strategy ? Compatibility with the pricing policy for electricity and the electricity reform as a whole ?

Points to be investigated further for China

(as far as power sector is concerned)

- ▶ In a first instance and for sustainability of a market instrument it is preferable to keep a good design at the right beginning and low carbon prices rather than the contrary
 - It is probable that low carbon prices at the beginning will give an incentive to energy efficiency measures and will help to reduce emissions on the existing fleet
 - Enhancing the constraint in a progressive manner will help to make the constraint more acceptable by the power generation operators and the electricity consumers (as a matter of fact the implementation of the policy has to be accepted and special treatments have to be designed for treating special situations : case of “fuel poors”)

Points to be investigated further for China (as well as for Europe !)

(as far as power sector is concerned)

► There is a real need to coordinate “ex ante” the different climate policies that can interact within the power sector, namely : **carbon prices policy** (tax or cap&trade), **energy efficiency policy**, **renewables policy**

- Targets for each policy need a careful balance as well as binding character has to be looked at carefully
- If the carbon price resulting from the ETS market matters for investments in the power sector, then it is of primary importance to make sure that the other policies do not weaken the latter
- Objectives set up on long time framework are necessary in the centralized power sector where the decisions need high capital investment and long term visibility
- The structural volatility of the carbon market, due to the fact that the supply is fully inelastic and the demand possibly highly varying, needs that attention is paid to ways to removing this volatility (structural adjustments on a regular basis ? A carbon bank ?)