EU Electricity Market Reform Seminar

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Wholesale power market challenges:

from simplicity and efficiency …
to complexity and regulation

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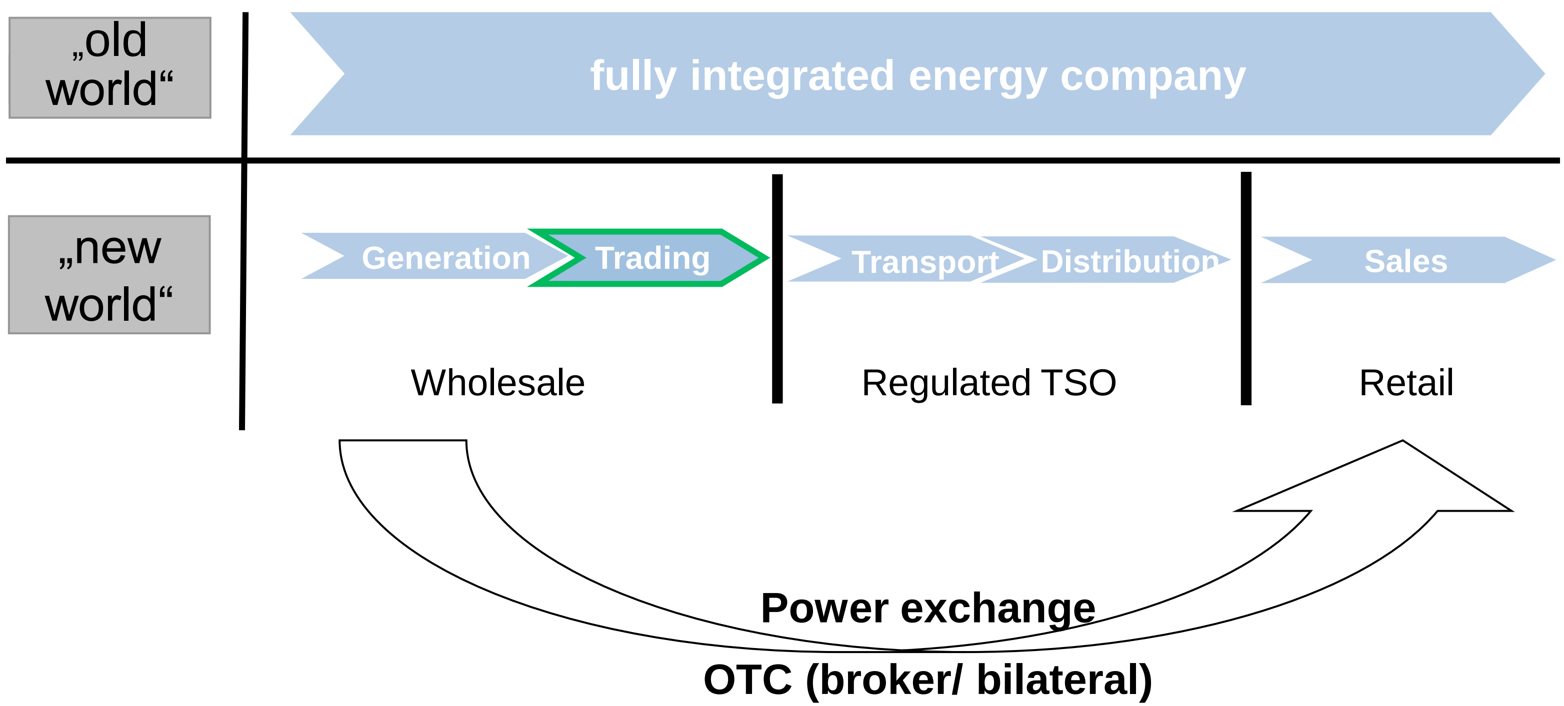
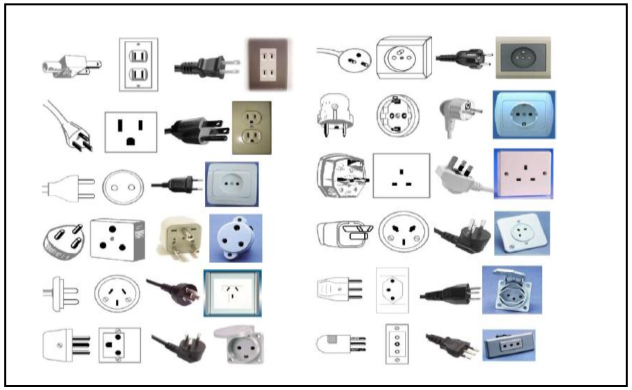
Liberalisation: formation of markets

- Consumer has free choice of supplier
- Suppliers can supply consumers outside their supply area
- Development of wholesale market intermediation



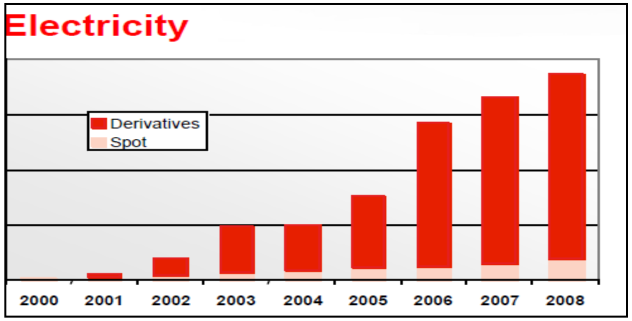
Characteristics of a mature wholesale market

Standardisation



- Standard products:
  Base: Mo - Su: 0:00 – 24:00h
  Peak: Mo - Fri : 8:00 – 20:00h
- For OTC: 1 Standard Master Contract (EFET)

Liquidity



Example: EEX futures market

- ~ 4 x consumption in DE
- 5 market makers: continuous, simultaneous bids and offers

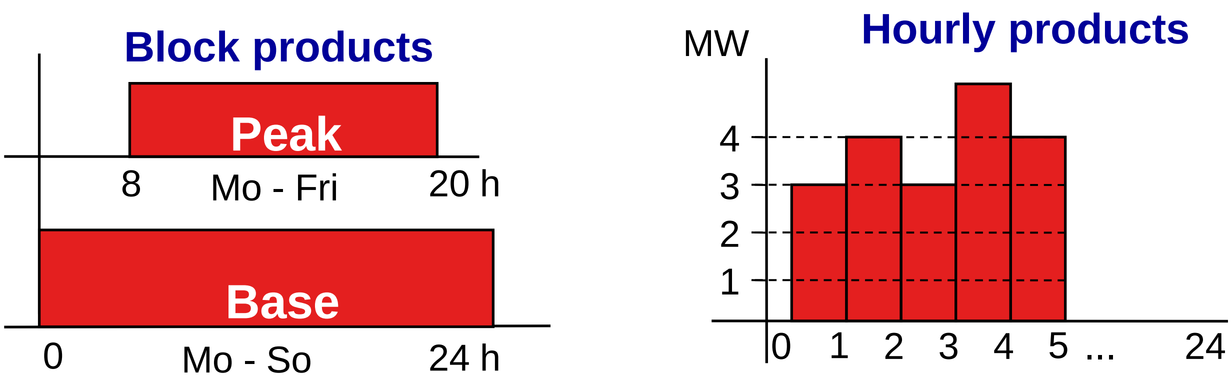
Transparency

Trading data: bids and offers, prices, volumes → PXs & broker screens

Fundamental data: generation and grid usage → TSOs and/ or PXs

Standardisation facilitates pooling liquidity

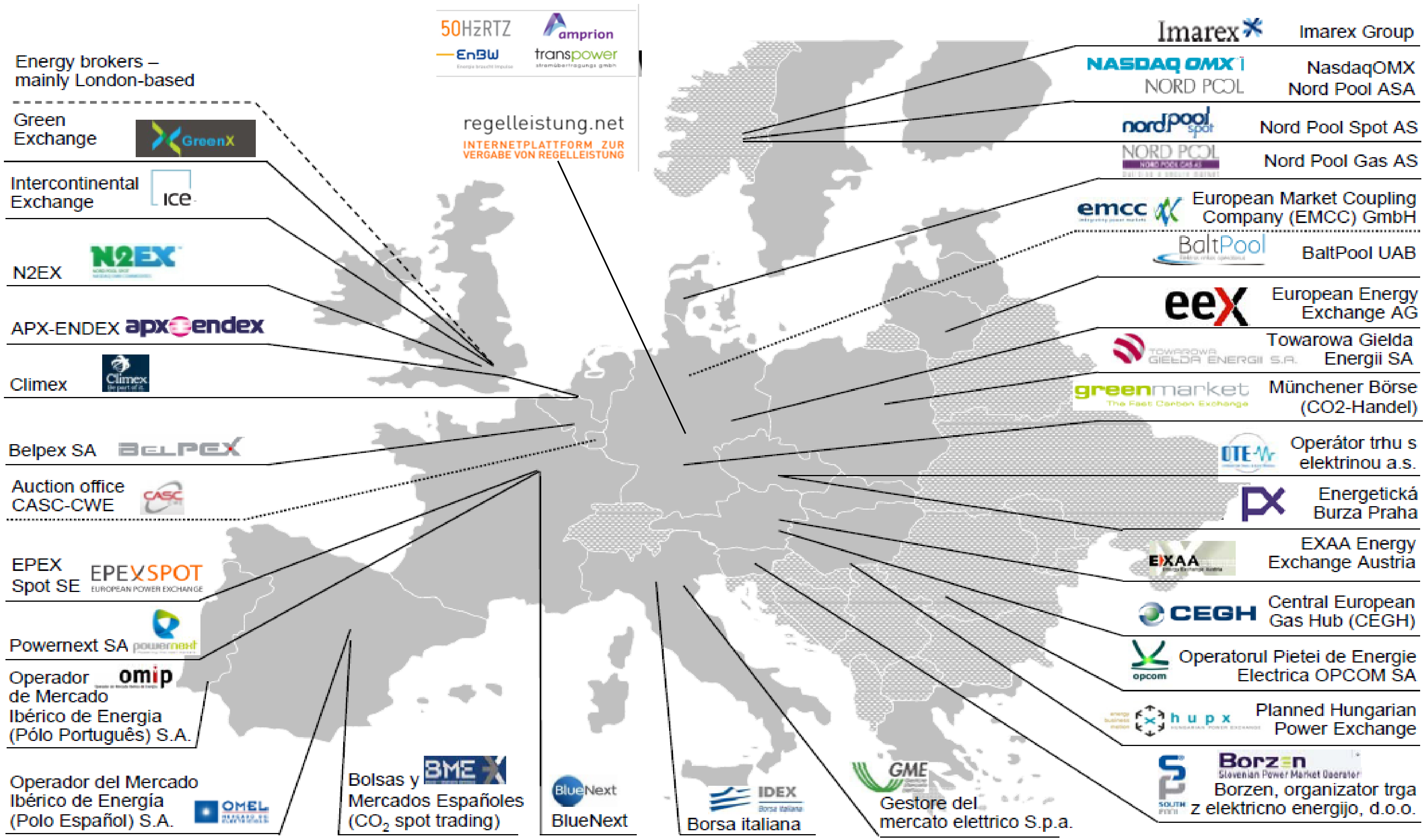
- Long term: two products = baseload and peakload
- Short term: hourly products, combinations (e.g. weekend)



→ **few products = high liquidity**

→ **<u>but</u> strong need remains for non-standard products…**

Marketplaces: large variety of locations and products



Marketplaces: characteristics of PX and OTC

Power exchange

- PX as organised market is central counterparty; provides settlement and clearing
- Electronic trading → anonymous and neutral
- Standardised products → liquidity
- Transparency
- Fixed (higher) transaction costs

Over the counter

Broker

- Standard Master Contract ("EFET") → counterparty credit risk
- Mainly electronic → counterparty known after conclusion of contract
- Standardised products → liquidity
- Transparency
- Negotiable transaction costs (e.g. brokerage fee)

Bilateral

- Private negotiations
- Structured products
- Counterparty credit risk

Motivation to be active in power trading

Asset backed trading

➲ **Objective:**

portfolio optimisation by using optionality and flexibility of assets (e.g. make-or-buy)

➲ **Objective:**

“lock-in” of margins (e.g. hedging of price and volume risks for generation and sales)

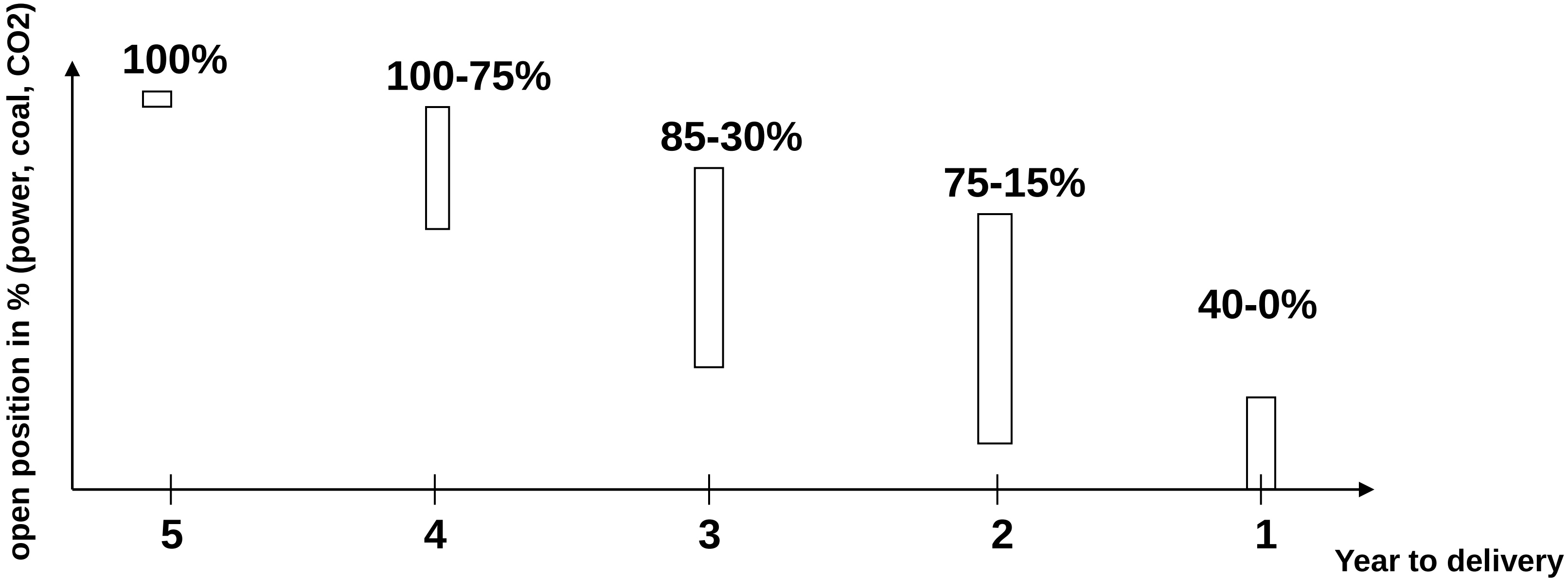
Proprietary trading

➲ **Objective:**

generating profit by explicitly taking open positions (based on a specific expectation)

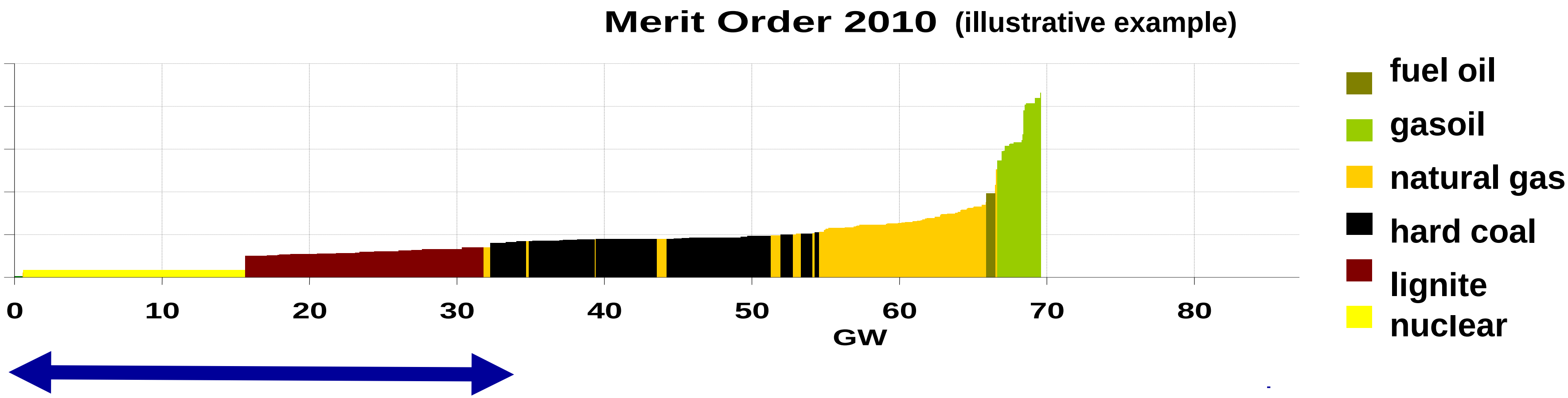
→ no intention physically to deliver
→ intentionally taking (pre-defined) risk

Hedge process: reducing future risks and chances



- Following the hedge concept
  - Open power positions will be marketed via wholesale markets
  - Related fuel and CO_2 positions will be fixed or passed on
  - Exchange rate EUR/ USD (and others) will be fixed
- Hedging reduces risks *but also* chances → decisions are taken without certainty

Spot Market:
Merit Order of generation park sets the market price



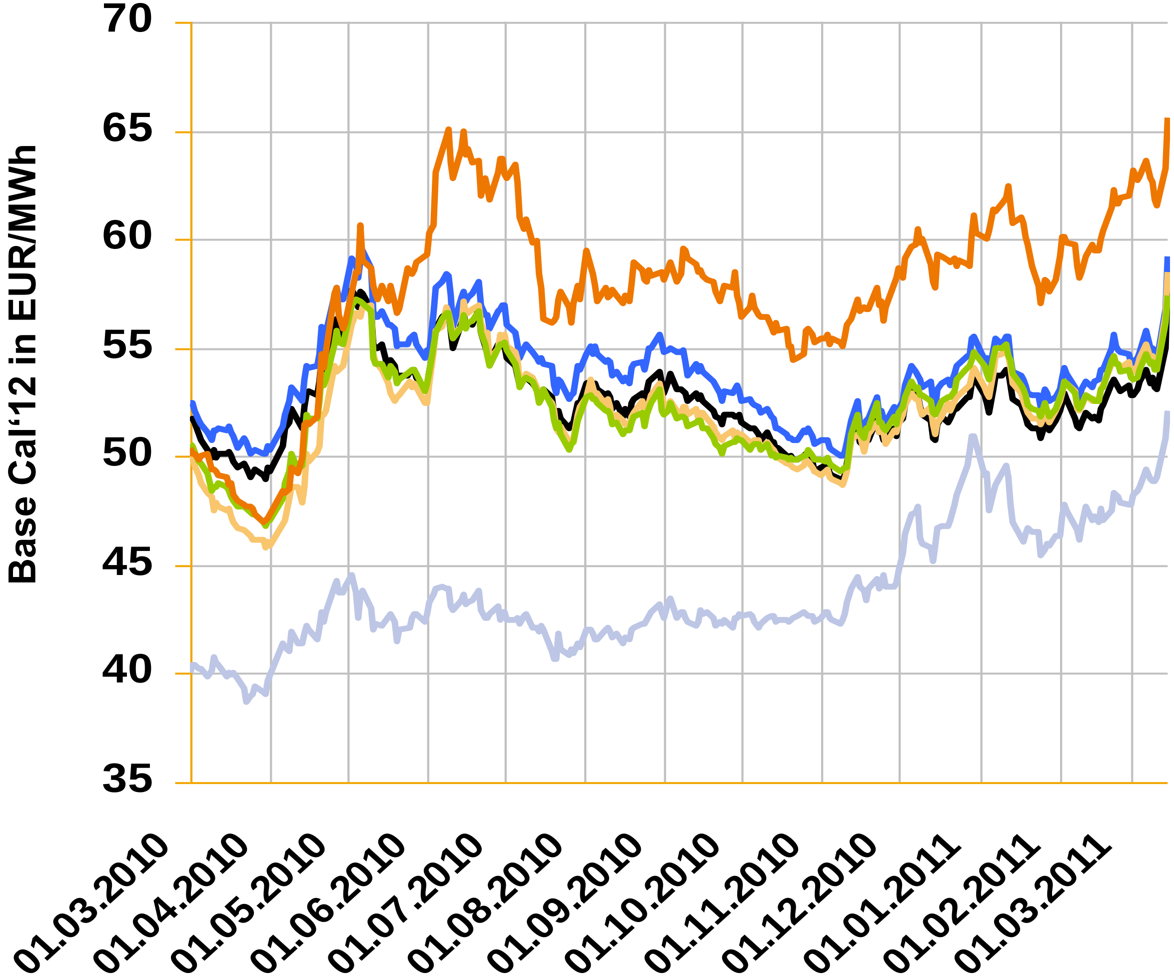
Renewable generators: dynamically change „zero point“ of conventional merit order

➲ **Key factors: marginal costs; RES; demand**

➲ Small changes in demand may lead to significant changes in prices

➲ Big variations in renewable production may also lead to significant changes in prices

European forward prices (Cal 12):
Converging particularly in CWE



Prices Cal 2012 baseload (15.03.11)

Germany	58,16
France	59,20
Netherlands	58,49
Belgium (Endex)	57,38
Great Britain	65,60
Nordpool	52,10

Electricity policies influenced by national interests:
a major disturbance to the original vision

Countries focus on a national perspective regarding:

- Security of supply
- Green targets

Leading to diverging market overlays e.g.

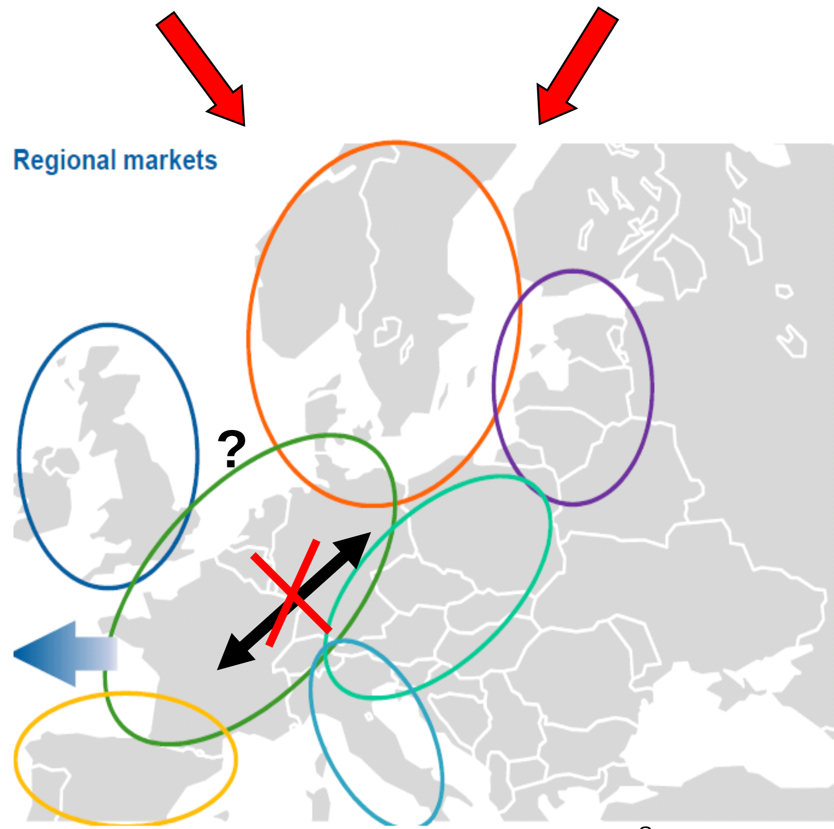
- Capacity Remuneration Mechanisms
- RES promotion schemes

Resulting in:

→Jeopardy to integrity of the IEM

→Unpredictability of energy prices

→Energy trading getting more complex



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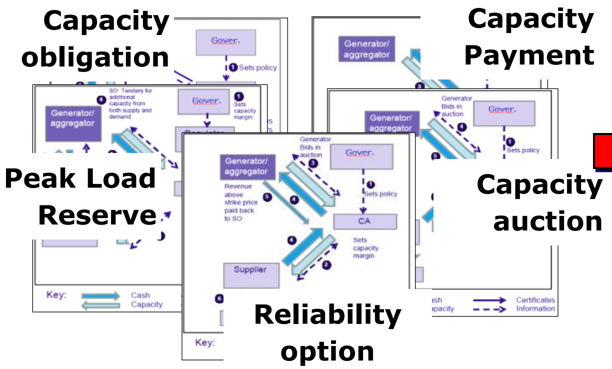
National perspectives on generation adequacy: ill effects of Capacity Remuneration Mechanisms

Capacity Remuneration Mechanisms



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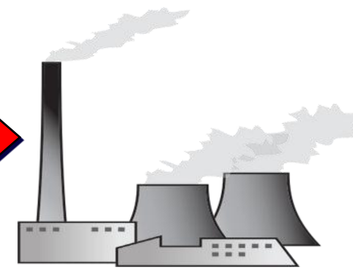
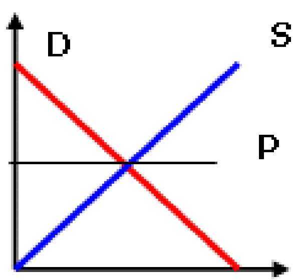


Producers

- Various types of CRM can be introduced
- CRM can significantly affect energy markets
- CRM have unpredictable impacts on wholesale and XB pricing



Energy markets

Traders

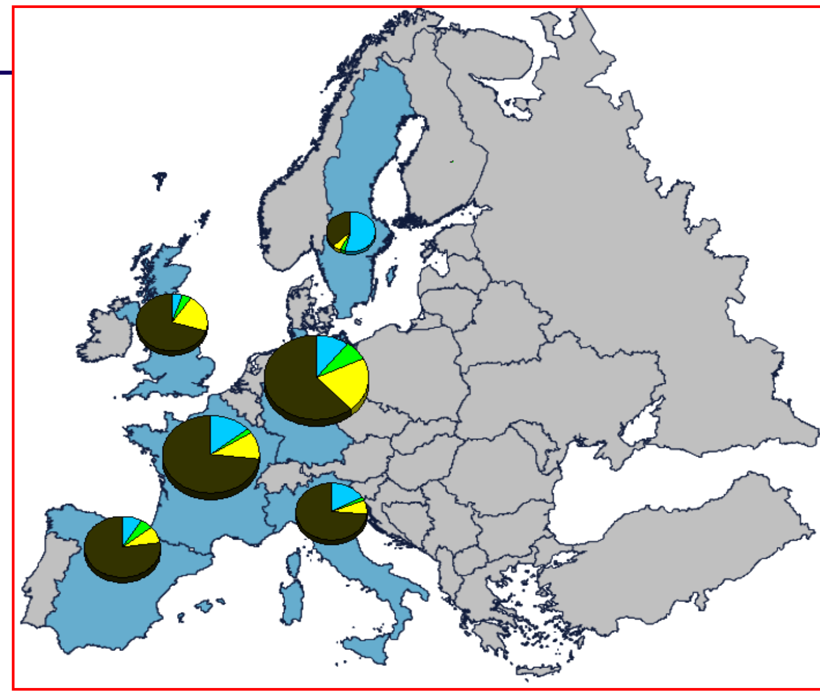
→ Energy only markets can provide correct price signals for dispatch and investment decisions

National division of RES power targets:
renewable production incentives change the market

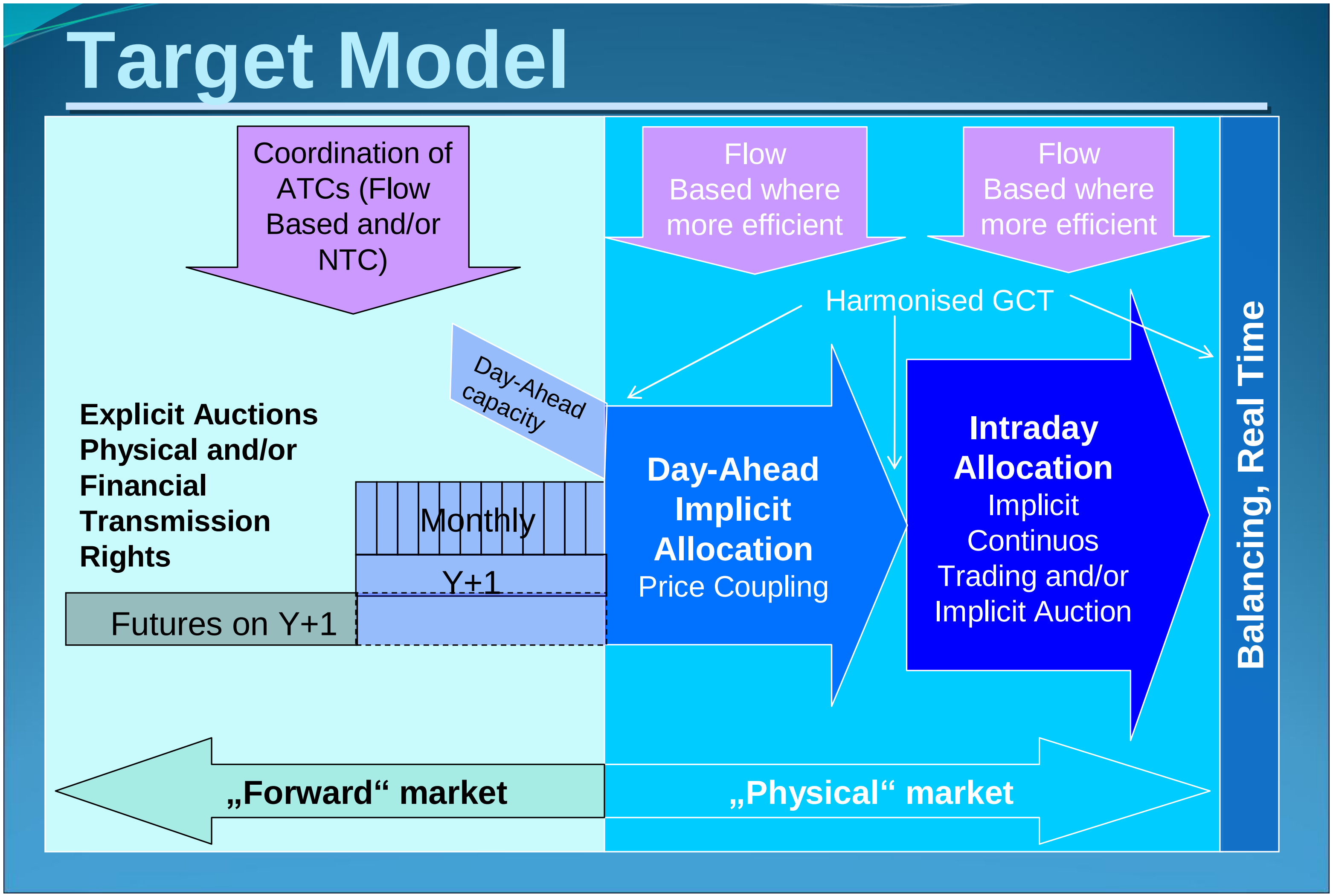
- RES-E induced involuntary flows interfere with cross-border trade in the IEM
- RES-E induced negative prices interfere with efficient dispatch decisions
- Important to apply congestion management, re-dispatch, and balancing rules to RES-E producers as to all other generators
- Any future financial support should be subject to a market-based approach

	Target 1: Total RES portion		
Country	**2005**	**2010**	**2020**
Germany	10%	17%	39%
Italy	16%	19%	26%
UK	5%	9%	30%
France	14%	16%	27%
Spain	8%	14%	23%
Sweden	54%	57%	62%

- Renewable energy sources (RESs) in 2005
- Additional RES-E by 2010
- Additional RES-E by 2020
- Traditional energy sources



EU Target Model for cross border electricity market design



The EU Target Model:
are the foundations actually in place?

New price zones ?

Cross border balancing\reserves

Flow based DA Allocation ?

Firm XB trans-mission rights

Harmonised balancing rules

Day-ahead implicit price coupling

Continuous XB intraday markets

H-1 gate closure

Unbundling and regulated TPA

Self dispatch

Market driven end-user prices

Market driven investments