

# Moving Toward the Gas Target Model: What Role Could Market Coupling Play?

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UNECE Gas Centre Task Force Group  
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- 1. Context: Why Speak about Market Coupling Today?**
- 2. Market Coupling Already a Success in the Power Markets**
- 3. Explicit Auctions Still Ahead of Us in the Gas Markets**
- 4. Going a Step Further: Market Coupling and the French Experiment**

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# 1. Context: Why Speak about Market Coupling Today?

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- ◆ Objective of the 3<sup>rd</sup> Energy Package = functioning gas markets in the EU by 2014
- ◆ CEER was tasked by the European Commission to deliver a “Gas Target Model” (GTM) for a European gas market. CEER’s vision is that the EU will have just 7 Entry-Exit systems by 2014-2015
  - “Implicit allocation” (= “market coupling”) is seen as a potential building block toward the GTM by improving the efficiency in the use of interconnection capacities
  - CEER recommends to conduct pilot projects between at least two Entry-Exit zones in different Member States (feedback to be presented by early 2013)
- ◆ Development of Framework Guidelines by ACER, followed by Network Codes (NC) by ENTSO-G
  - NC on Congestion Management Procedures (CMP)
  - NC on Capacity Allocation Mechanisms (CAM) ⇒ explicit auctions should be the default mechanism for each time interval
    - ⇒ Day-ahead implicit auctions mentioned as a possibility for TSOs to optimise the use of interconnection capacities, but no consensus among stakeholders
- ◆ Draft Position Paper launched for consultation by the regulators of the GRI North West in October 2012 for exploring the feasibility of implicit allocation

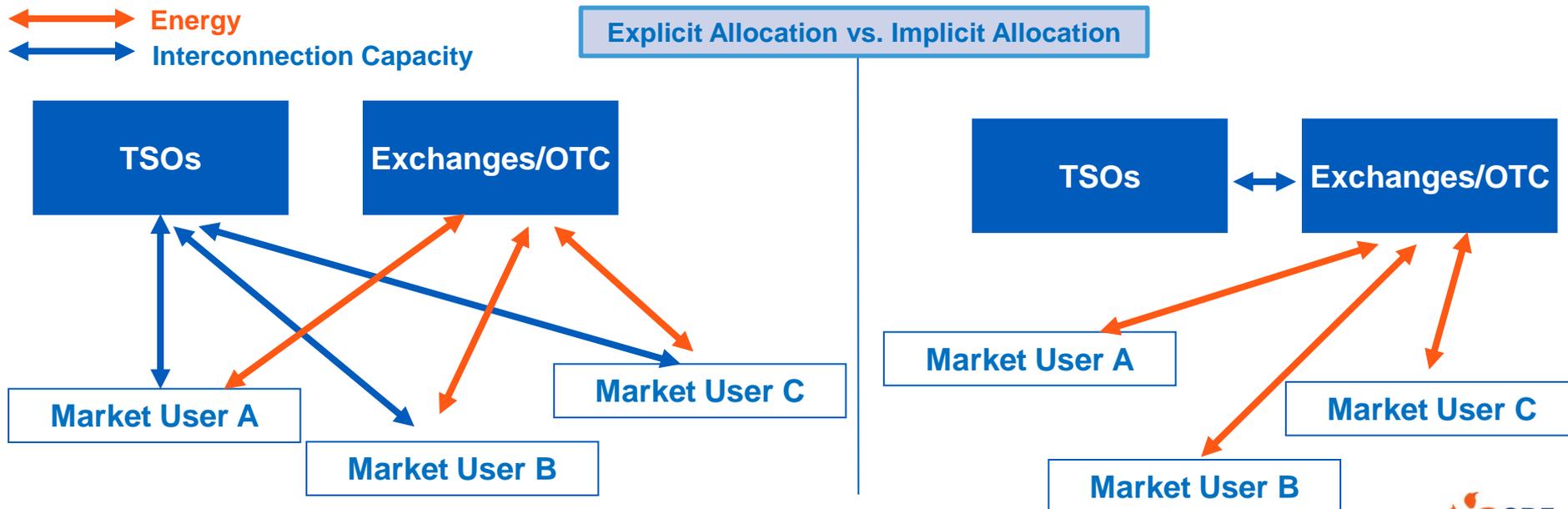
# 1. Context: Why Speak about Market Coupling Today?

## What is “market coupling”?

- all bids and offers to buy and sell gas on several entry-exit zones are collated onto a platform operated by TSOs, exchanges or hub operators
- TSOs provide details on the available interconnection capacity
- those bids and offers with the greatest price spread will be accepted until the capacity is fully used or prices converge
- capacity is implicitly allocated when the energy trade is accepted (≠ explicit capacity auctions)

## What for ?

- Ensuring the most efficient use of interconnection capacity by:
  - Avoiding gas flowing in the “wrong” direction or capacities not being fully utilised
  - Solving the coordination problem between capacity and commodity
  - Reducing transaction costs



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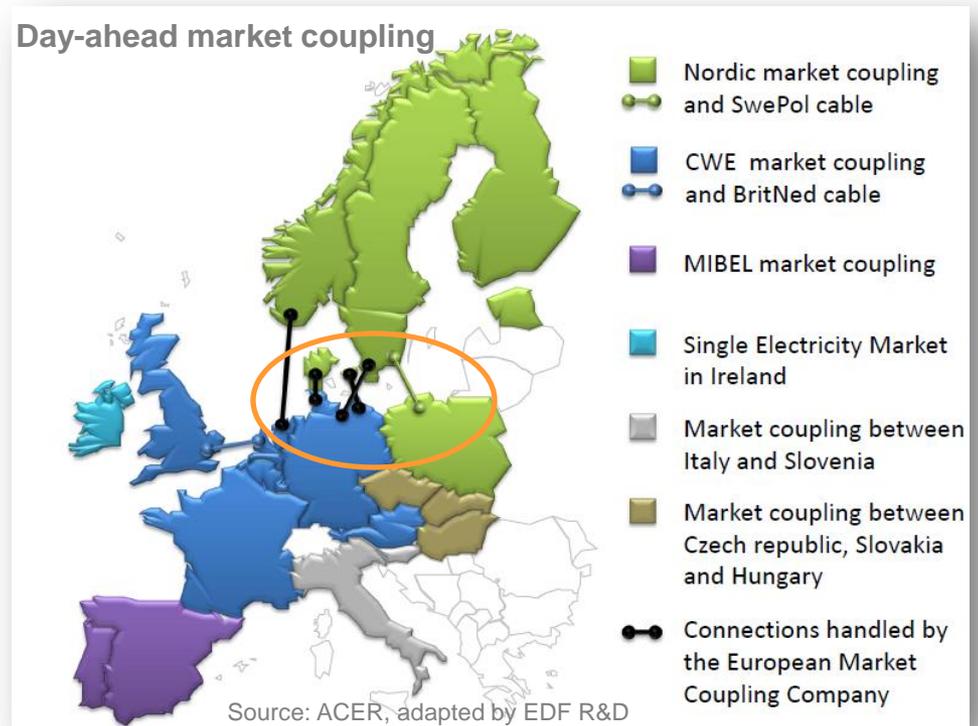
### ◆ Need for market participants to gain clarity on key issues at stake:

- What is the expected added value of implicit allocation once the NC on CAM and CMP are implemented, and is it greater than the additional costs?
- Which objectives can implicit allocation fulfill (and which can it not)?
- Who are the winners/losers if implicit allocation were implemented?
- How should implicit allocation mechanisms be designed (in particular to avoid market distortions)?
- To what extent is the successful experience in power markets transferable to gas markets?
- What is the feedback already available from the French pilot project?
- What will be the future role of exchanges and how will they be controlled?

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## 2. Market Coupling Already a Success in the Power Markets

- ◆ The calculation of the Net Transfer Capacities (NTCs) by TSOs is complex since physical flows don't follow commercial flows (Kirchhoff Laws)
- ◆ Nonetheless, strong incentives for TSOs and market players to develop interconnections in order to:
  - Exploit the complementarities of production parks (optimise the European "Merit Order")
  - Exploit the complementarities of load curves
  - Reduce investment and operating costs
  - Increase the system's security by providing mutual assurance and pooling reserves
- ◆ Explicit auctions for allocating interconnection capacities are already the rule at all time horizons
- ◆ Implicit auctions in many day-ahead and intra-day markets
- ◆ Objective of the European Commission is to have all day-ahead power markets in the EU coupled by 2014 (highly optimistic though)

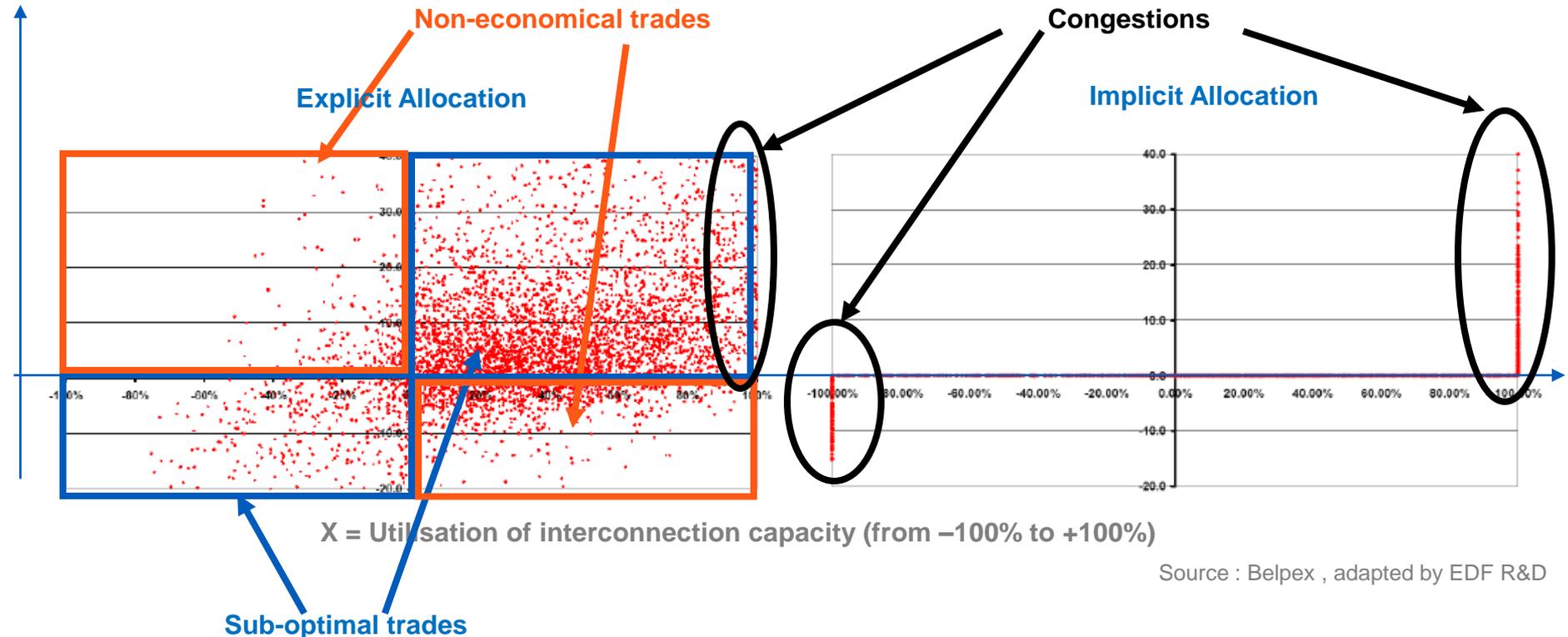


➔ The European Commission is keen to replicate this experiment to the gas sector

## 2. Market Coupling Already a Success in the Power Markets

- Impact of moving from explicit to implicit allocation on the France-Belgium interconnection in 2006: the spread becomes zero unless the NTC is congested

Y = Spread of price between FR and BE over a year



➔ Implicit auctions have successfully improved the efficient use of interconnection capacities in the power markets

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### 3. Explicit Auctions Still Ahead of Us in the Gas Markets

◆ In the gas markets, allocation mechanisms usually follow the “First-Come-First-Served” principle, interconnection capacity tariffs lack transparency and contractual congestion remains important

◆ However, CMP came into force in October 2012 and CAM should come into force by the end of 2013

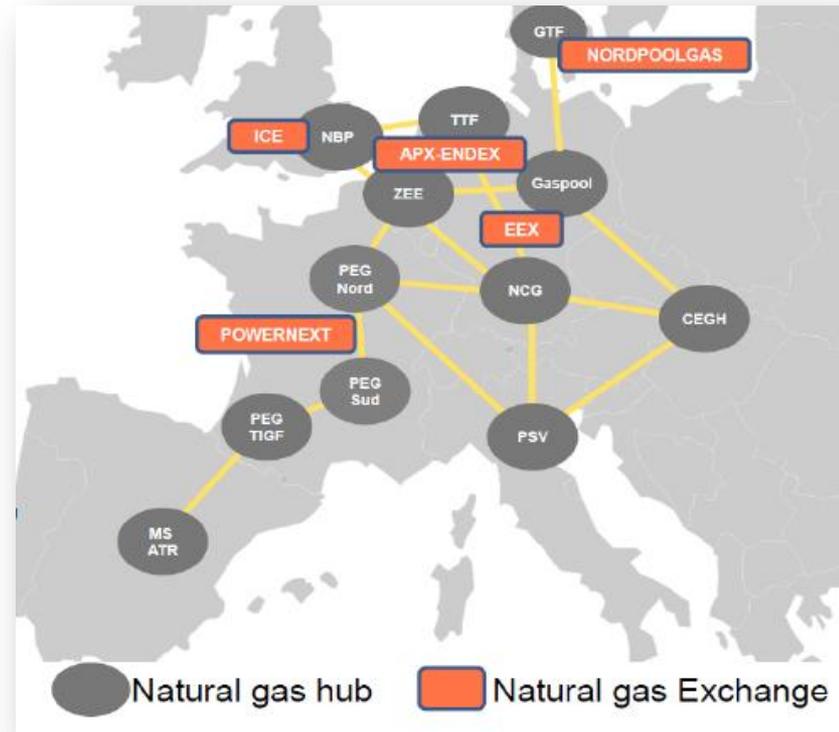
⇒ TSOs will gradually introduce explicit auctions of bundled cross-border capacity for all timeframes

	MEASURE	DESCRIPTION	EFFECTS
CAM	Bundling of cross-border capacity	Entry and exit cross-border capacity is only sold as a bundled product.	<input type="checkbox"/> Reduction of transaction costs; <input type="checkbox"/> More efficient use cross-border capacity.
	Auctioning	Capacity products (yearly, quarterly, monthly, daily and within day) are auctioned in different timeframes.	<input type="checkbox"/> Network users will book on a profiled basis <input type="checkbox"/> Day ahead cross-border capacity will increase if any non-auctioned short term cross-border capacity will roll over to day ahead auctions.
CMP	Oversubscription & buy back	TSOs shall make available an extra amount of firm cross-border capacity exceeding the technical capacity and – if necessary to maintain system integrity – shall apply a market based buy back procedure.	<input type="checkbox"/> Increase of available (day-ahead) cross-border capacity; <input type="checkbox"/> Reduction of contractual congestion.
	Surrender of Cross-border capacity	TSOs shall accept any surrender of firm cross-border capacity which is contracted by a network user for a duration of one month or longer	<input type="checkbox"/> Increase of available (day-ahead) cross-border capacity; <input type="checkbox"/> Reduction of contractual congestion.
	Limitation of renomination rights	Under certain conditions, rules come into place that limit renomination rights of a network user (a certain amount of cross-border capacity can only be re-nominated on an interruptible basis	<input type="checkbox"/> Increase of available (day-ahead) cross-border capacity; <input type="checkbox"/> Reduction of contractual congestion; <input type="checkbox"/> More efficient use cross-border capacity.
	Long term UIOLI	Under certain conditions a TSO shall withdraw contracted cross-border capacity (partially or completely) for a given period of time.	<input type="checkbox"/> Increase of available long term cross-border capacity; <input type="checkbox"/> Reduction of contractual congestion;

Bundling, reservation of minimum amount for short-term cross-border capacity, and CMP measures will already result in a more efficient use of capacity

### 3. Explicit Auctions Still Ahead of Us in the Gas Markets

- Recent efforts for early implementation of CAM NC and introduction of explicit auctions
- The Dutch company GTS and Gasunie Deutschland (GUD) launched on 22 May 2012 a pilot project for auctioning bundled day-ahead capacity between Germany and the Netherlands:
  - Firm Day-Ahead bundled capacity of 50,000 m<sup>3</sup>/h, (Exit GTS / Entry GUD and Exit GUD / Entry GTS)
  - Offered for auction on the German platform for primary capacity TRAC-X
  - Day-ahead prices on TTF and GASPOOL hubs invite market users to arbitrate
  - TTF is the most liquid traded hub on the continent (both OTC volumes and exchange volumes on APX-Endex)
- In December, 19 TSOs from the Netherlands, Germany, Denmark, France, Belgium, Italy and Austria agreed to launch a joint platform for auctioning interconnection capacity (= "Prisma European Capacity Platform", expected January 2013)

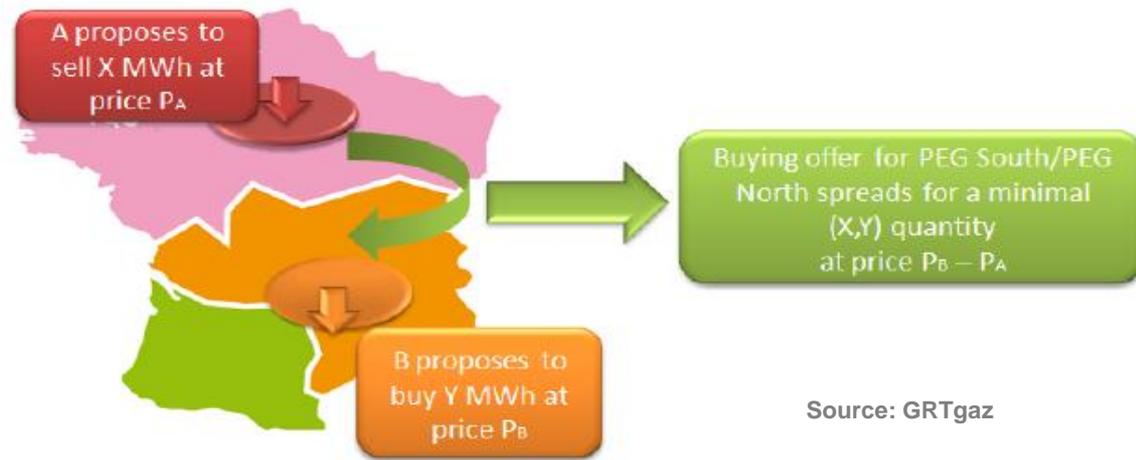


➔ Explicit auctions are to become a reality in the coming months, but little feedback is yet available

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## 4. Going a Step Further: Market Coupling and the French Experiment

- ◆ Market coupling project between PEG North and PEG South initiated by GRTgaz and Powernext as a first step towards merging the zones, with the following goals:
  - Contribute to the development of liquidity on the two hubs
  - Favour price convergence when possible
  - Reveal the market price of the capacity in case of congestion
- ◆ A first experimental phase of day-ahead market coupling took place between July 2011 and March 2012, and has been extended until April 2013:
  - GRTgaz markets a transmission service combining capacity + molecule transmission
  - GRTgaz dedicates firm day-ahead capacities (initially 10 GWh/day, then 14,5 GWh/d since April 2012) to the market coupling service, in the direction allowing a reduction of the market spread between PEGs
  - Creation of a product on Powernext Gas Spot exchange, called « PEG South - PEG North Spread », which corresponds to a swap of gas between the two zones
  - GRTgaz intervenes on the Powernext Gas Spot exchange to respond to the offers made by market users
  - Conditions on bid/ask spreads need to be met to ensure market users' anticipations are sufficiently convergent
- ◆ From April 2013, an interruptible capacity of 30 GWh/day will be dedicated to the market coupling
- ◆ Ongoing discussions to extend the pilot experiment between PEG South and TIGF

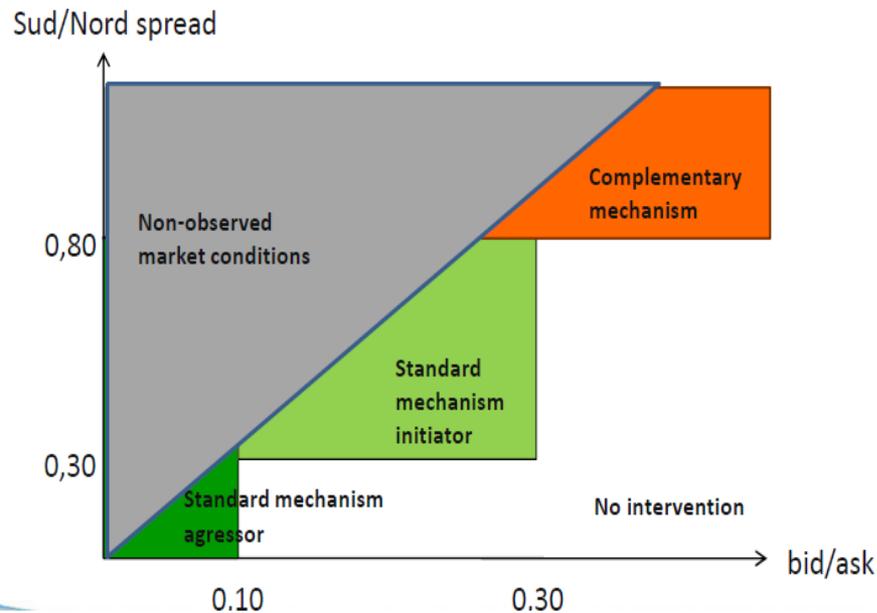


Source: GRTgaz

## 4. Going a Step Further: Market Coupling and the French Experiment

- ◆ To cope with different market conditions and congestion levels, GRTgaz has had to develop three intervention mechanisms during defined allocation windows:

- If no congestion  $\Rightarrow$  “basic aggressor” model (GRTgaz is “price taker” and meets the highest bid)
- If moderate congestion  $\Rightarrow$  “basic initiator” model (GRTgaz offers its coupling capacity at a fixed price)
- If high congestion  $\Rightarrow$  “complementary” model after the publication of EOD prices (GRTgaz offers its coupling capacity in the shape of a decreasing price-auction with no intervention constraints)



### ➤ « Standard mechanism aggressor »

- Every day, during the EOD period
- GRTgaz aggressor
- Bid/ask constraint of 10 cEUR/MWh

### ➤ Depending on bid/ask spread: « Standard mechanism initiator »

- Launched on May 4th 2012
- Potentially every day, during the second half of the EOD period
- GRTgaz initiator
- If  $10 < \text{bid/ask spread} \leq 30$  cEUR/MWh and bid/ask mid  $\geq 30$  cEUR/MWh

### ➤ Depending on EOD Sud-Nord: « Complementary mechanism »

- Threshold price  $N>S$  lowered to 0,8 €/MWh since February 27th 2012
- After the EOD period, if EOD Sud-Nord  $> 0,8$  €/MWh (=tension)
- GRTgaz initiator through a « descending auction »

16:30

16:37:30

16:45

Computation of EOD prices

Publication of EOD prices

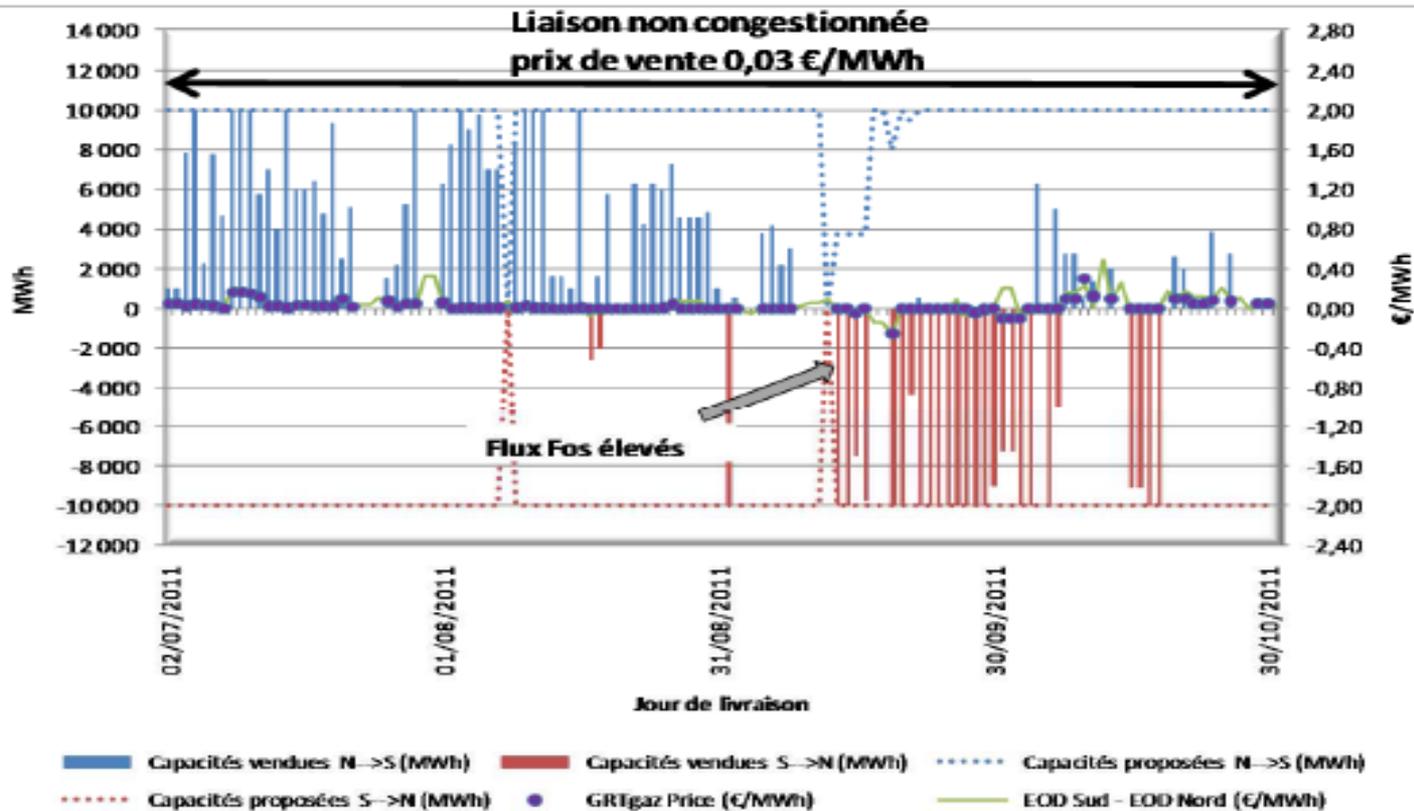
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Source: GRTGaz

## 4. Going a Step Further: Market Coupling and the French Experiment

### Case 1: No congestion (July – October 2011)

- Market coupling sold in the North to South direction (except for periods of high flows from the LNG terminals in the south)
- Increased liquidity on the PEGs
- Average price of “PEG South - PEG North Spread” = 0,03 €/MWh
- Reduction of the average spread between PEG North and PEG South (= 0,06 €/MWh)

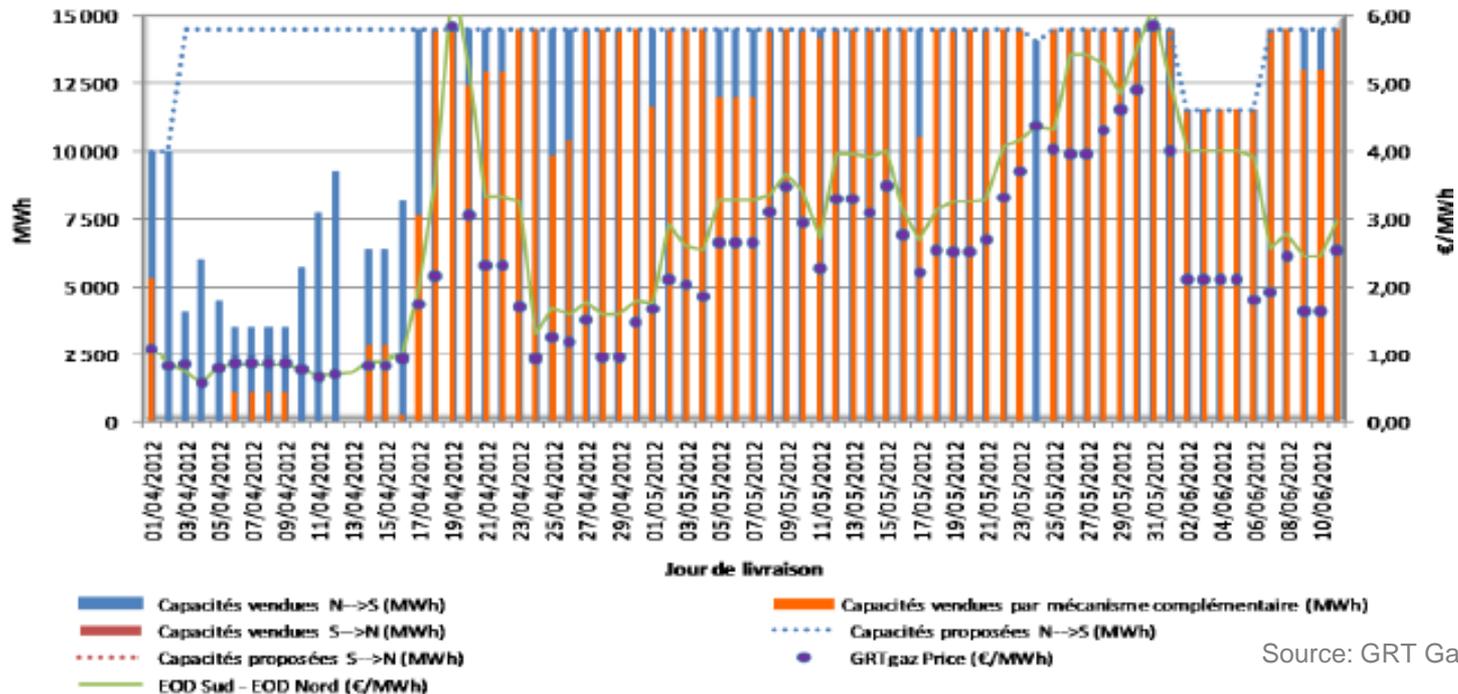


Source: GRT Gaz

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### Case 2: High congestion (April - June 2012)

- Very high interconnection use (99% in May 2012) due to low LNG deliveries in the south
- Increase of the average spread between PEG North and PEG South (= 3,8 €/MWh in May, with peaks at more than 5 €/MWh)
- 94% of capacities dedicated to market coupling were sold through complementary mechanism in May



➔ Under current market conditions, market coupling turns into a capacity selling process of last resort, with distorting effects on the spread South/North EOD market

## 4. Going a Step Further: Market Coupling and the French Experiment

### ◆ First lessons learnt:

- If no congestion:
  - liquidity increases
  - prices converge
  - coordination problem solved
  - But improvement in the efficient use of interconnection capacity compared with explicit auctions still needs to be assessed
- If congestion:
  - coordination problem solved
  - but market coupling turns into a capacity selling process of last resort with distorting effects on the spread South/North EOD market

### ◆ Minimum conditions for successful market coupling:

- availability of bundled cross-border capacity
- enough liquidity on the hubs
- no technical congestion
- careful design (dedicated volume, OTC vs. exchanges, continuous trading vs. discrete auctions)

	Explicit Auctions	Implicit Auctions
Advantages	-easier to implement	-optimal use of interconnection capacity -less complex trading operations and reduction of transaction costs -solution to coordination problem between commodity and capacity
Inconvenients	-risk of sub-optimal use of interconnection capacity -coordination problem between commodity and capacity -more complex trading operations	-high level of coordination required for pooling bids and offers and having a common algorithm -risk of market distortions