Romanian Electricity Market

Romanian experience

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OPCOM

FOUNDATION OF THE BIH ELECTRICITY MARKET

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Restructuring Process

1990: RENEL

1998: CONEL

Integrated Electricity Utility

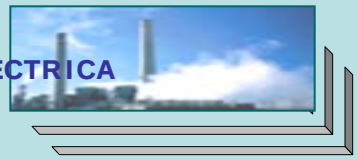
Generation → Transmission → Distribution ⇄ Consumers

2000: Romanian electricity Market structure

MINISTRY OF ECONOMY AND TRADE

ANRE
The Romanian Electricity Regulatory Authority

GENERATING COMPANIES



TERMOELECTRICA

HIDROELECTRICA

NUCLEARELECTRICA

TRANSELECTRICA
Transmission&System Operator

OPCOM
The Market Operator

DISTRIBUTION AND/OR SUPPLY COMPANIES

ELECTRICA

Electricity Suppliers

Captive Consumers

Eligible Consumers

The Legal Context

The 1996/92/EC Directive established the main conditions for launching the liberalization process and its minimal timetable

The 2003/54/EC Directive gives new inputs in terms of efficiency, higher quality standards of services and increased competitiveness

REGULATION (EC) No 1228/2003 OF on conditions for access to the network for cross-border exchanges in electricity

Aquis of ECSEE Treaty

The European Community of the Energy Community Treaty

Signed 25 October 2005
Ratified 1 July 2006

- ANRE's Decision 27/1999 - the old Commercial Code

ENERGY LAW (318/2003)
Adapts the E.U Directive 2003/54 to specifics Romanian provision

"ROAD MAP" (HG 890/2003)
Sets the specific tasks and targets, as well as the evolution milestones for the Romanian power market.

- ANRE's Decision 25/2004 - in force Commercial Code

NEW ENERGY LAW (17/2007)

Stages of the Restructuring Process

Stages of the *liberalization* process:

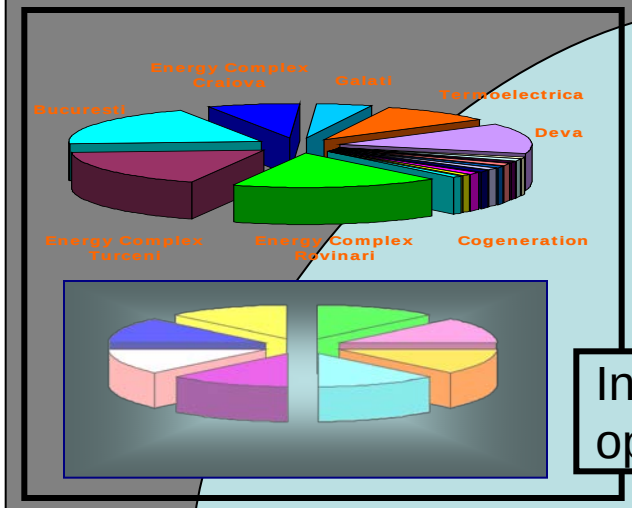
-**Unbundling, big generation companies splitted or forced to divest; distribution splitting**

- **Privatization;**

-**Consolidation, vertical integration through mergers and acquisitions;**

Unbundling: generation, transmission, distribution, retailers, operators: transmission&system, market,

Spot Market launch before privatization



Increasing opening degree

After 1990, the consumption declined in Romania: excess of capacity was encouraging the competition

Romanian Way

realistic vision about "after unbundling"

Impact on participants' number, liquidity, competition, price

The Roles of ANRE- Regulatory Authority

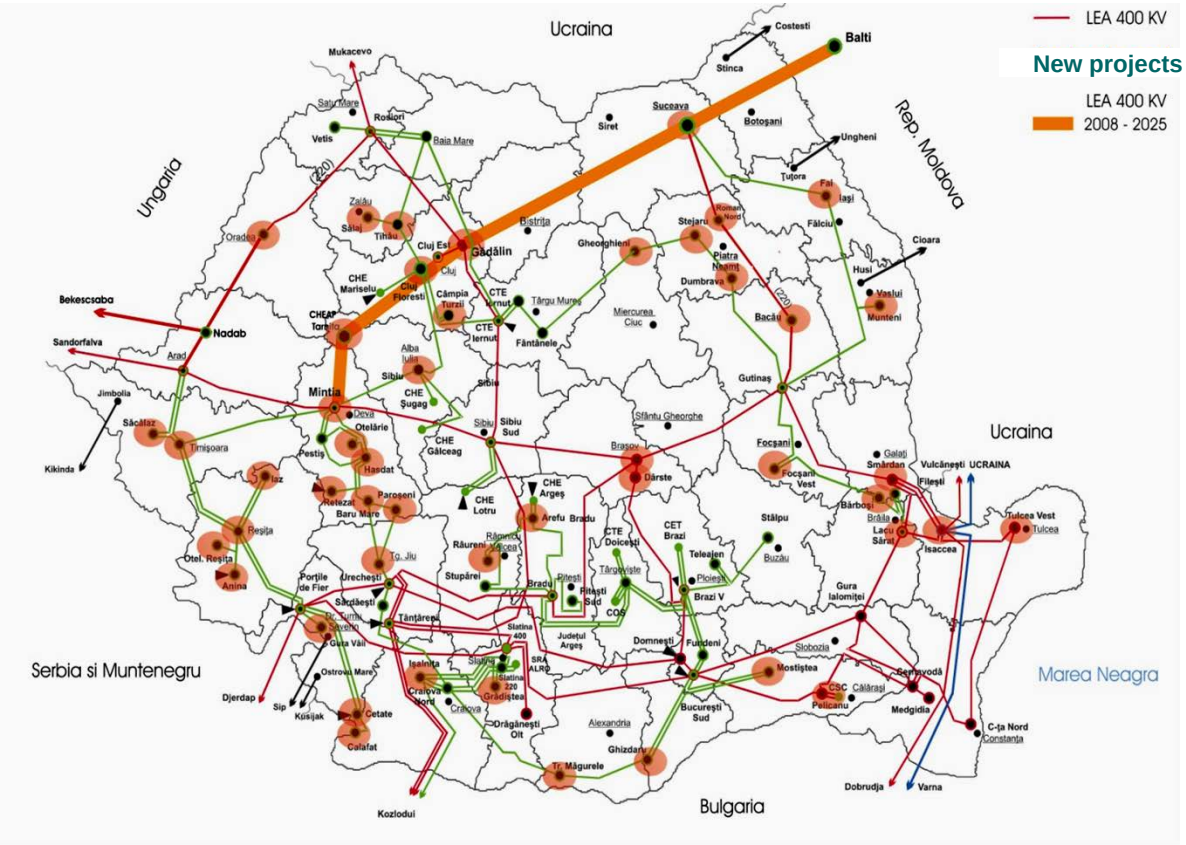
- Issue licenses to participants in the electricity market
- Supervise the performance of licensees
- Approve tariffs for grid usage
- Approve market rules for the electricity market
- Supervise the development of the market
- Settle disputes in the network business and in the electricity market

The Romanian Transmission System

Electric substations
77 electric substations, of which:
1 substation of 750 kV
32 substations of 400 kV
44 substations of 220 kV

Overhead lines
8950 km of overhead lines (OHL), of which:
155 km of 750 kV
4630.2 km of 400 kV
4132.4 km of 220 kV
38 km of 110 kV (interconnection lines to the neighbouring systems)

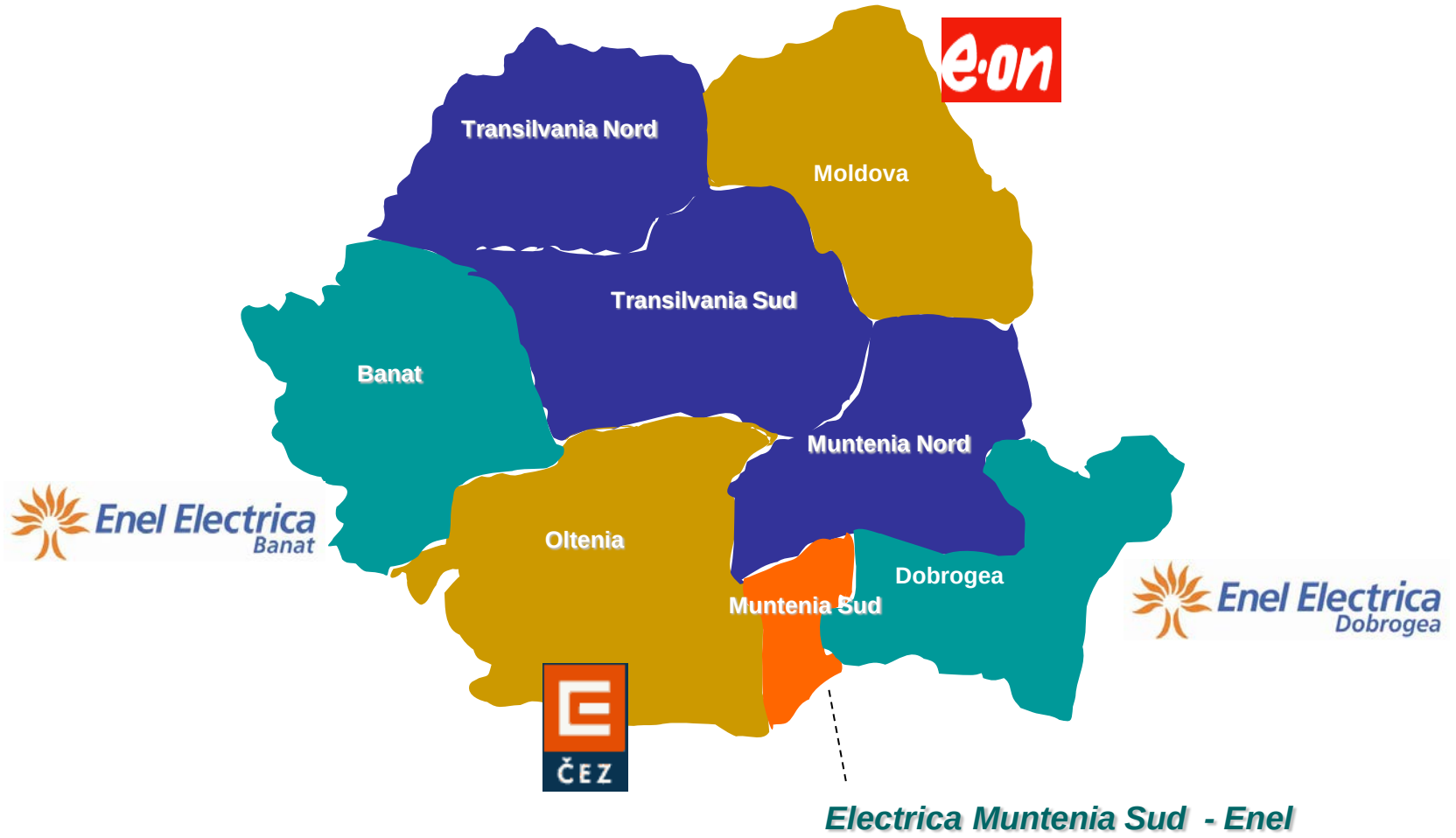
Facilities
135 main transformer units totalling 34525 MVA
2 x 750/400 kV
22 x 400/220+ 400/220/MT
22 x 400/110+400/110/MT
89 x 220/110 kV+220/110/MT



Transelectrica's core activities:

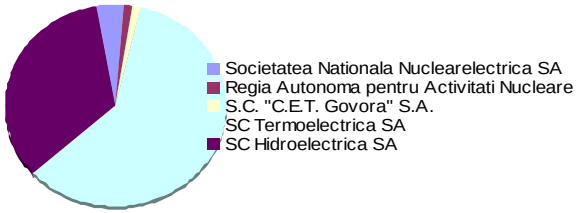
- **Technical and operational management of the Power System, to ensure the safe and stable operation of the system**
- **Operation, maintenance and development of its assets**
- **Planning of National Power System and transmission network development**
- **Management of interconnections and electricity transits with neighboring countries**
- **Transelectrica does not trade electricity, except to cover its own technical transmission losses**

Distribution Operators

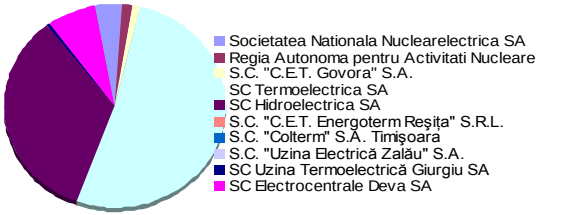


Installed Capacity & Market Shares

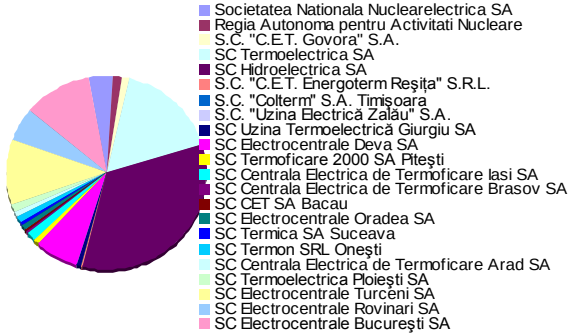
2000



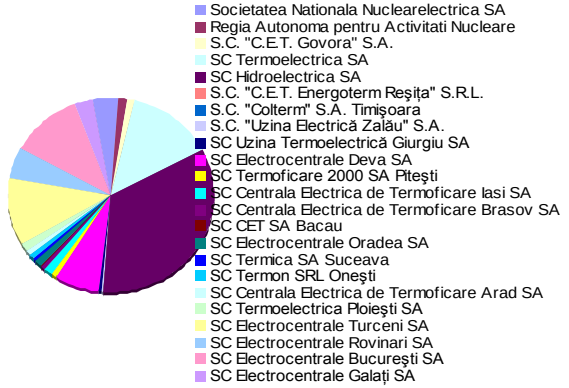
2001



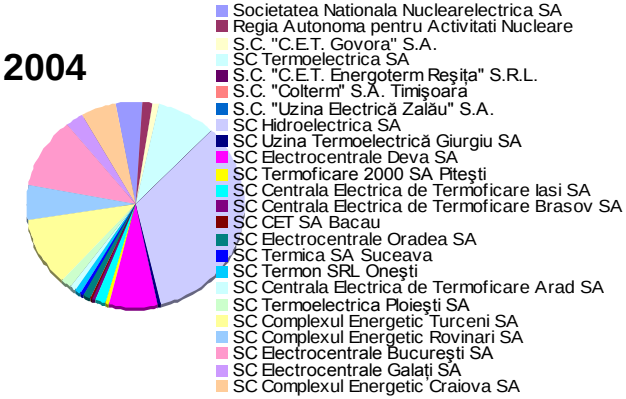
2002



2003

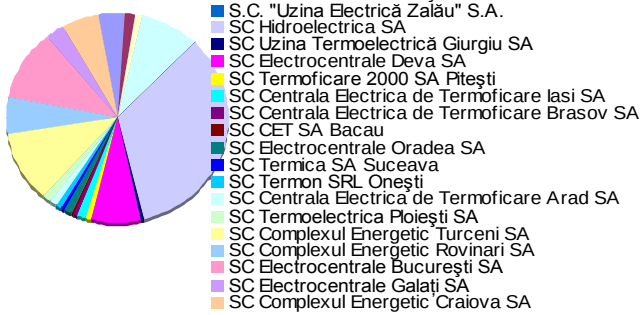


2004



\+ = energy complex

2005

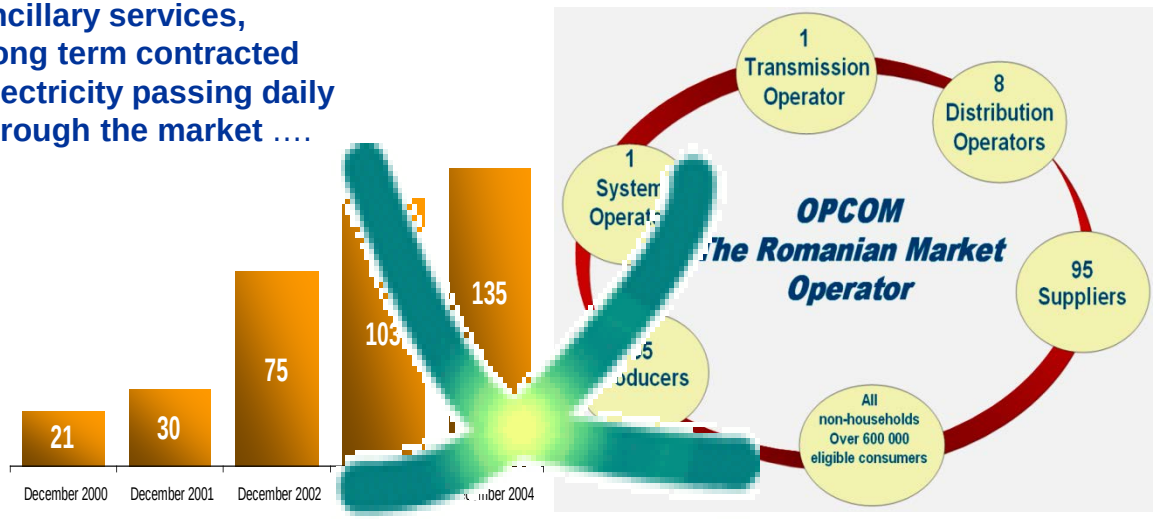


Installed capacity shares

The challenge and the changing

Since June, 2005

Forecast, scheduling, ancillary services, Long term contracted Electricity passing daily through the market ….



Participants number

OPCOM is dealing with the main roles of a Power Exchange:

-To provide a reliable reference price for other physical and financial markets;
-To support the reliable generation schedule making.

For a marketplace to face the challenges of the liberalization process is a "never ending story": Each stage is rising different problems.

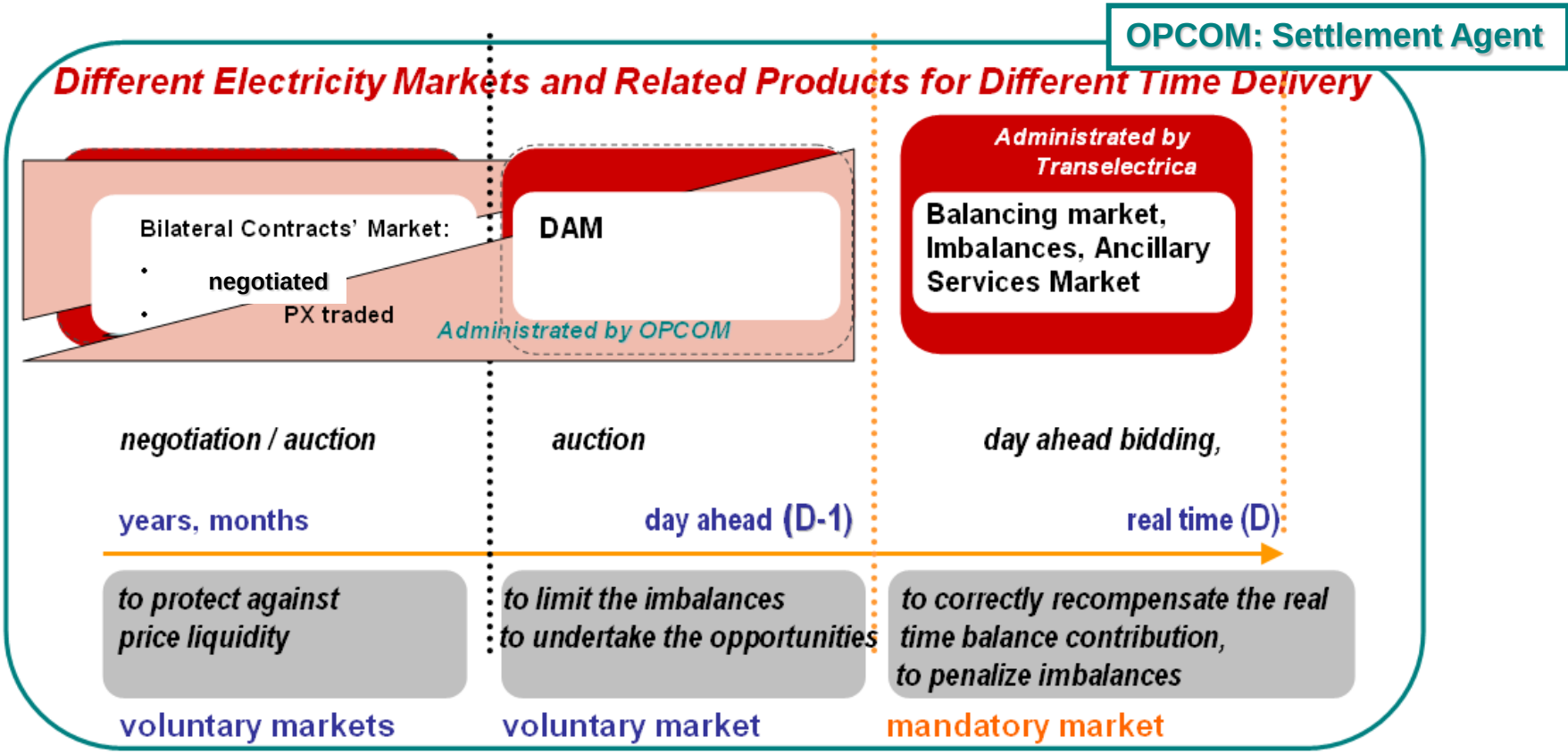
The Marketplace has to prospect these challenges, correctly appraise the impact, cooperate with and ask for support of the regulator.

Principles of the current market model

Since June, 2005

- **The market is changed from a centrally dispatched system to a self dispatching system**
- **The market participants have the possibility to negotiate bilateral contracts for exchange of electricity**
- **A voluntary power exchange was established where the market participants can purchase and sell electricity on hourly contracts for delivery next day by introducing bids expressing their willingness**
- **There is established a Balancing Market where the TSO can get resources for balancing the electricity system**

The Multi-Market Concept

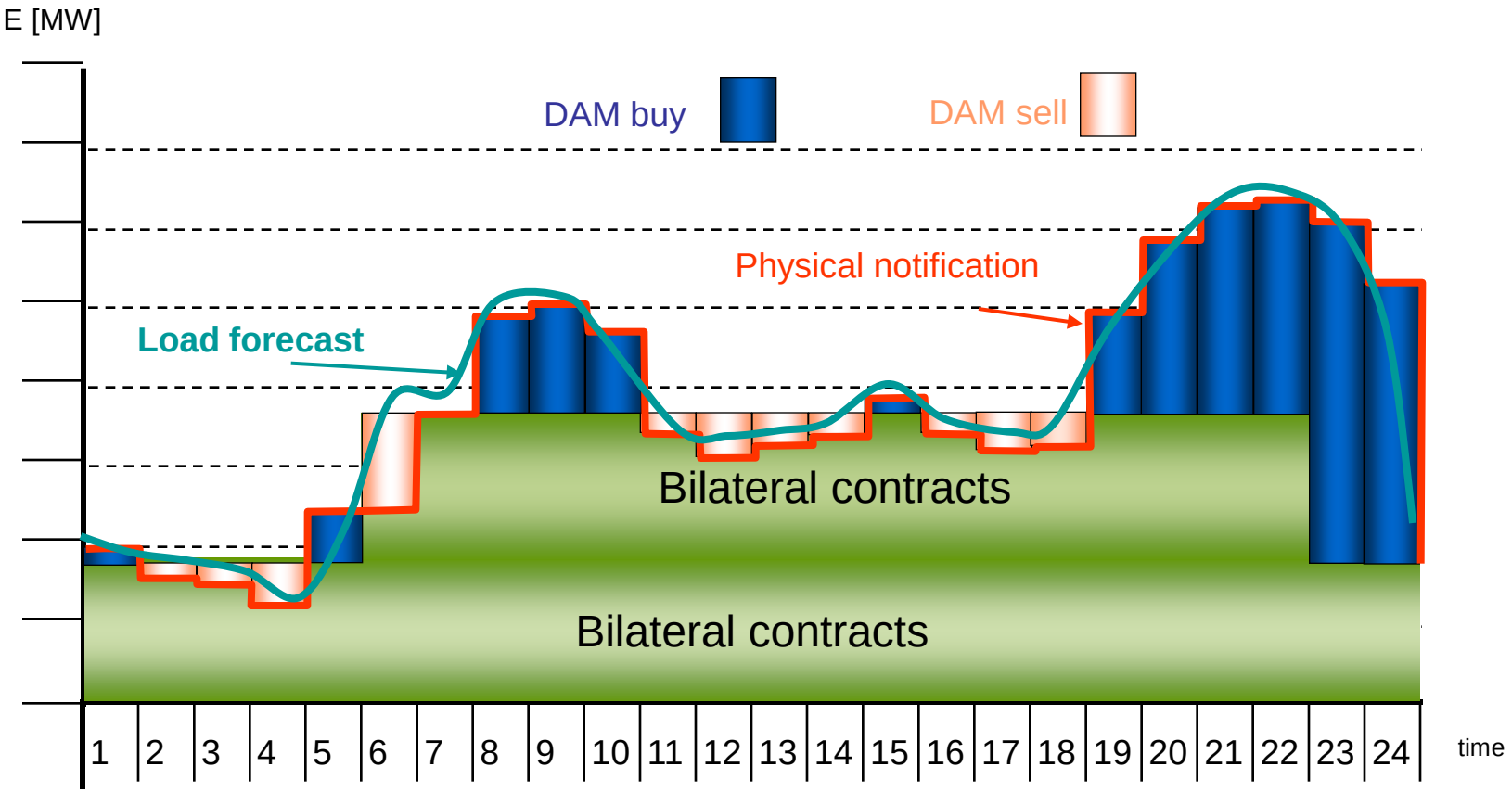


Other Products

Transelectrica — ***Cross Border Transmission Capacity Market Operator***

OPCOM — ***Green Certificate Market Operator***

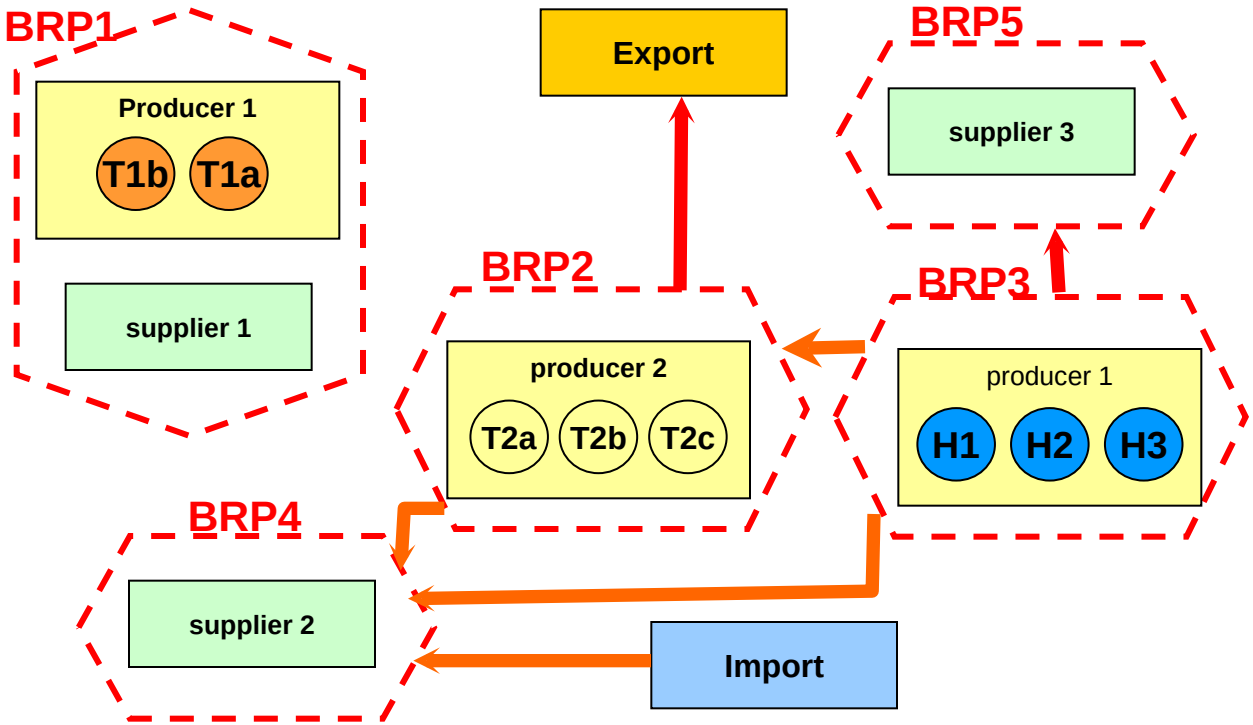
Participation in the market – day ahead



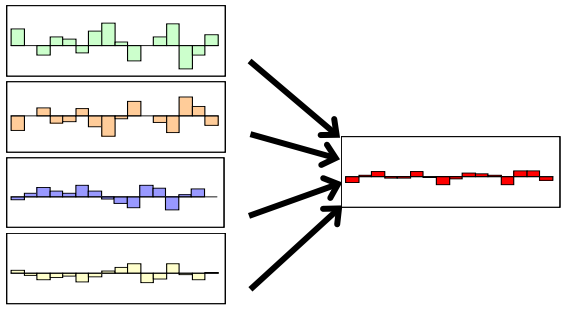
Balance responsible party concept

A balance responsible party (BRP) is a licensed party registered by the TSO, being mandatory for all market participants to assume the balancing responsibility, meaning to maintain the equilibrium

generation + buy = consumption + sell



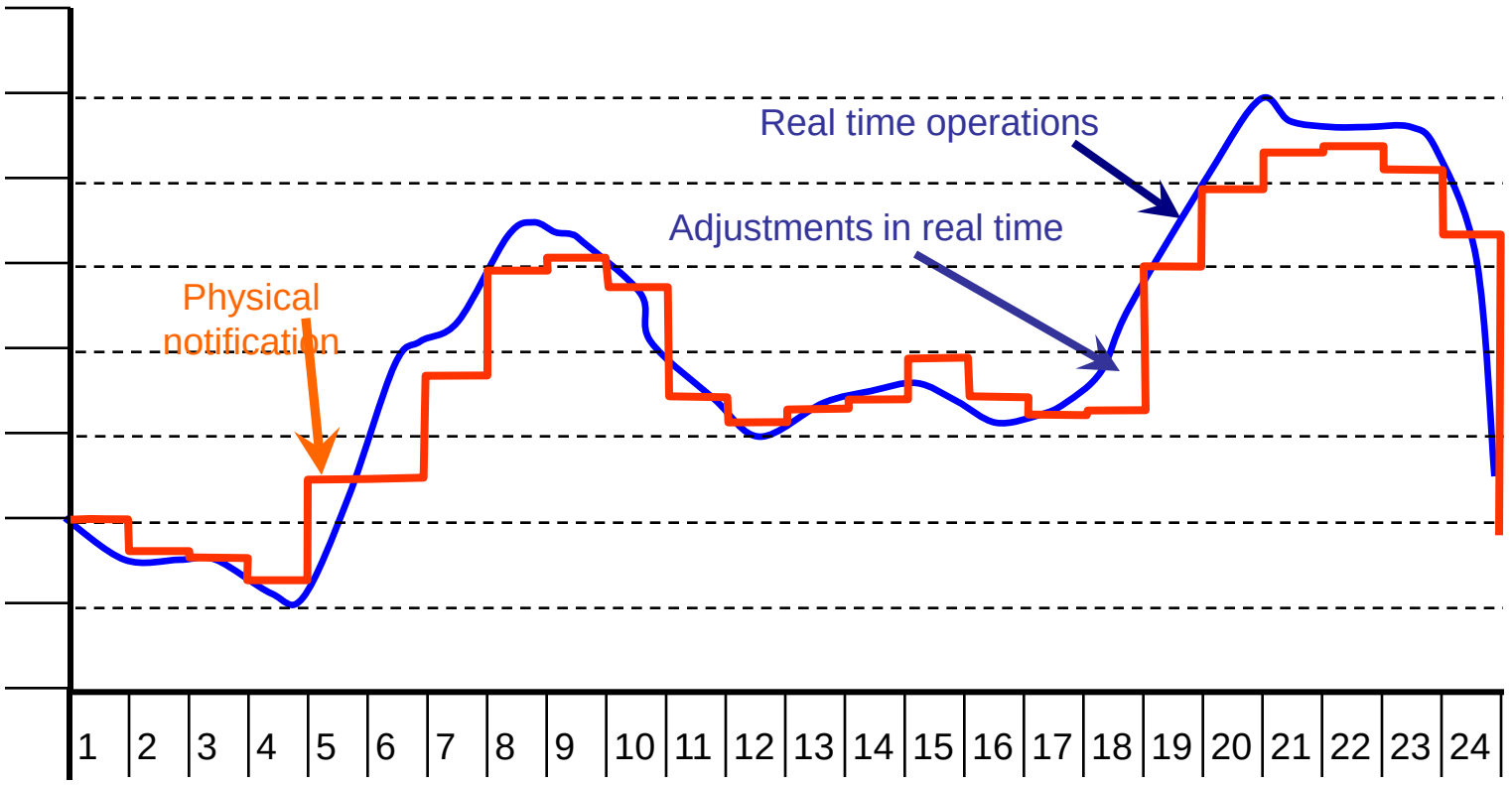
BRP imbalances !



Self Scheduling

- **The licensed market participants use the bilateral market and the day-ahead markets to balance their portfolio**
- **After the gate closure (when all trading activity has to be stopped) all trades between BRPs have to be reported to TE for settlement purposes**
- **All generators have to schedule their units themselves and submit physical notifications to TE**

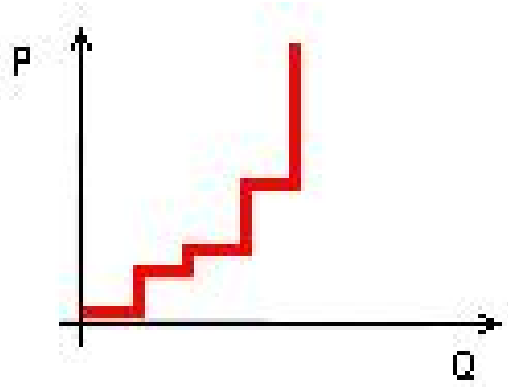
Participation in the market – real time

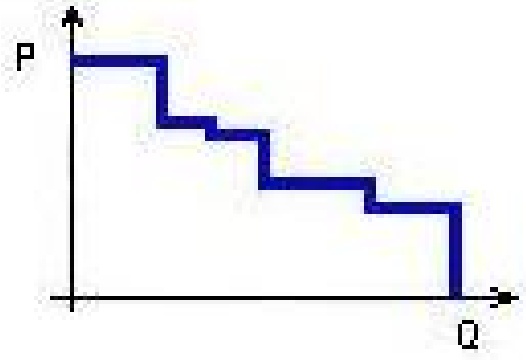


DAM: Bidding

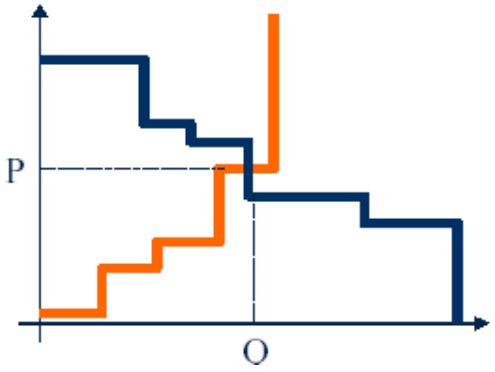
The Day Ahead Market Model is defined by the subsequent principles:

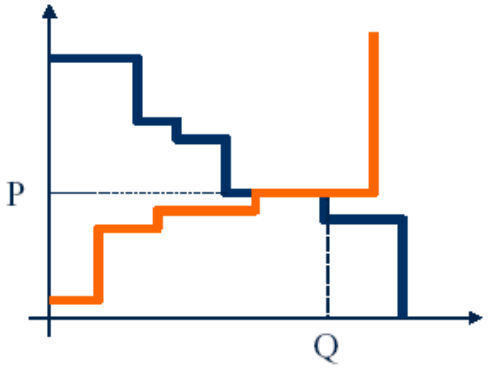
- The Trading Interval is an hour;
- A DAM participant can submit only one buying offer and one selling offer for the National Trading Zone for each Trading Interval (one hour);
- The electricity selling/buying offers are simple offers and comprise maximum 25 quantity-price pairs. Each offer will indicate the prices with a participant is willing to buy and/or sell the quantities of electricity mentioned in the pair of quantity-price of the Trading Interval specified;
- After the offers are received and validated, the Electricity Market Operator will determine for each Trading Interval, the offer curve and the selling curve:

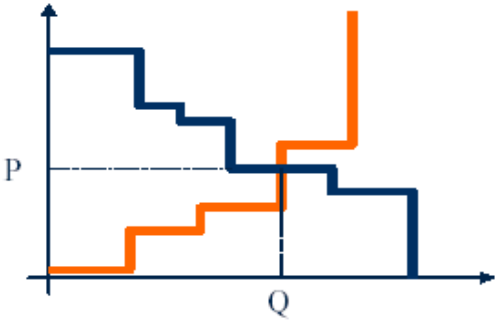


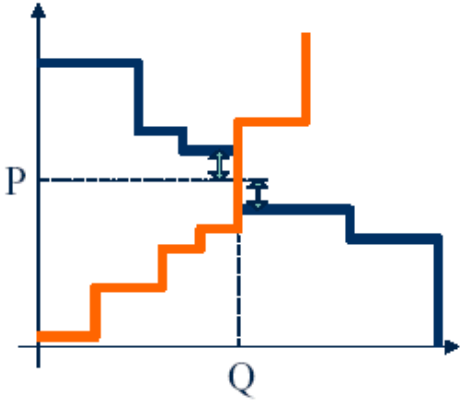


DAM: The Price Mechanism





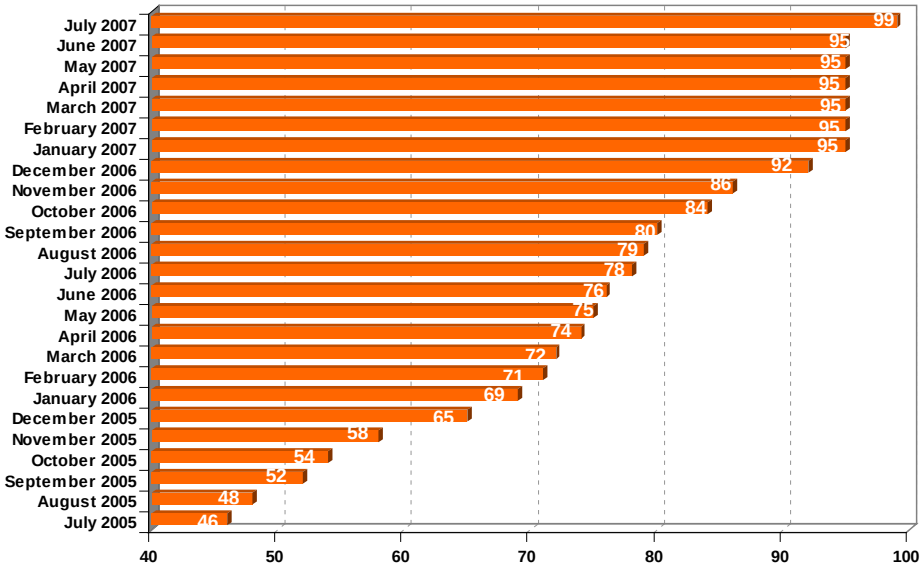




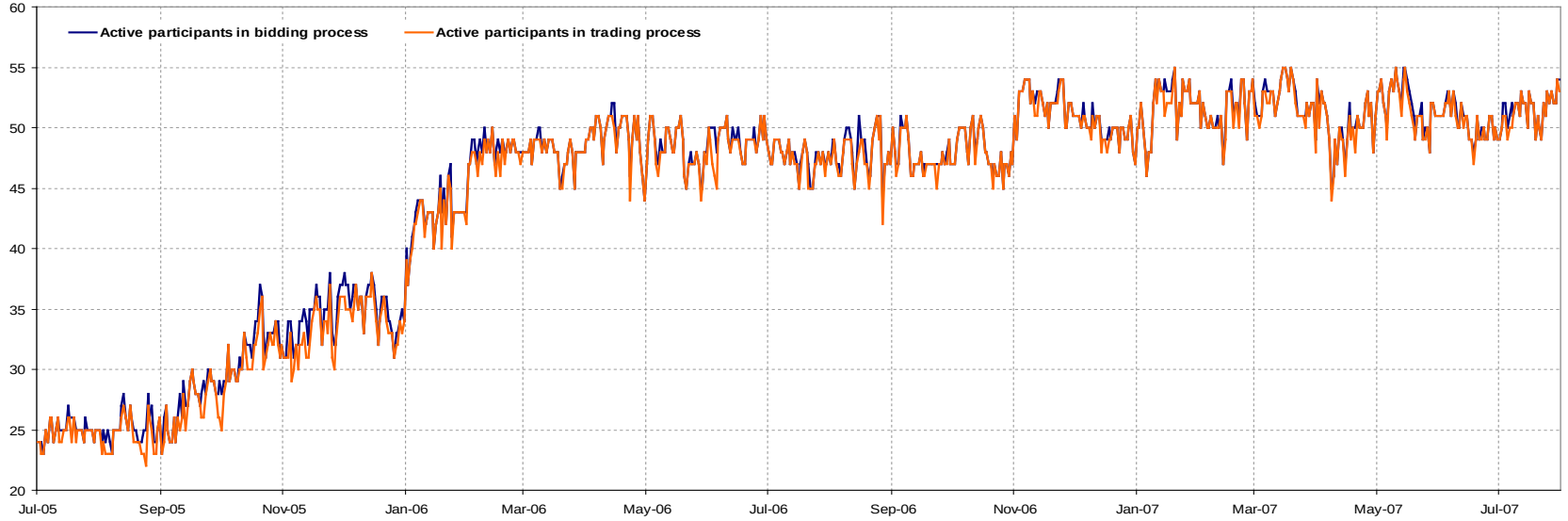
CLOSED AUCTIONS

The intersection point between the demand curve and the offer curve represents the equilibrium point between demand and offer and determines the Market Clearing Price (MCP).

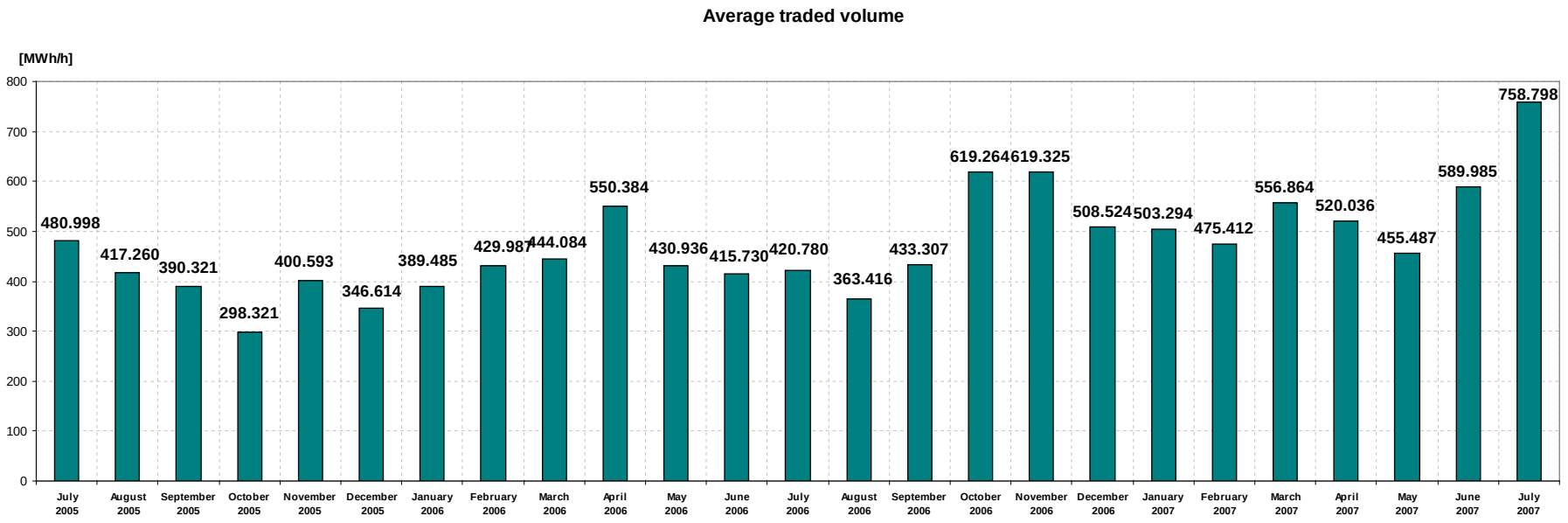
DAM: Results-participation in the spot market



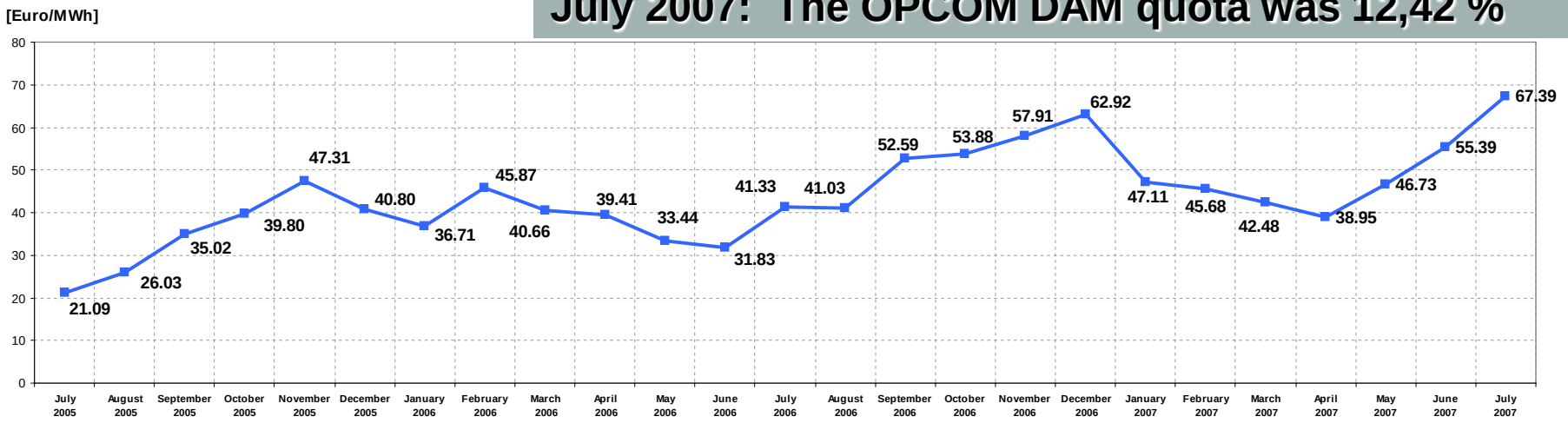
Participants are licensed parties holding a license for supplier, producer or network operator (only for network looses)



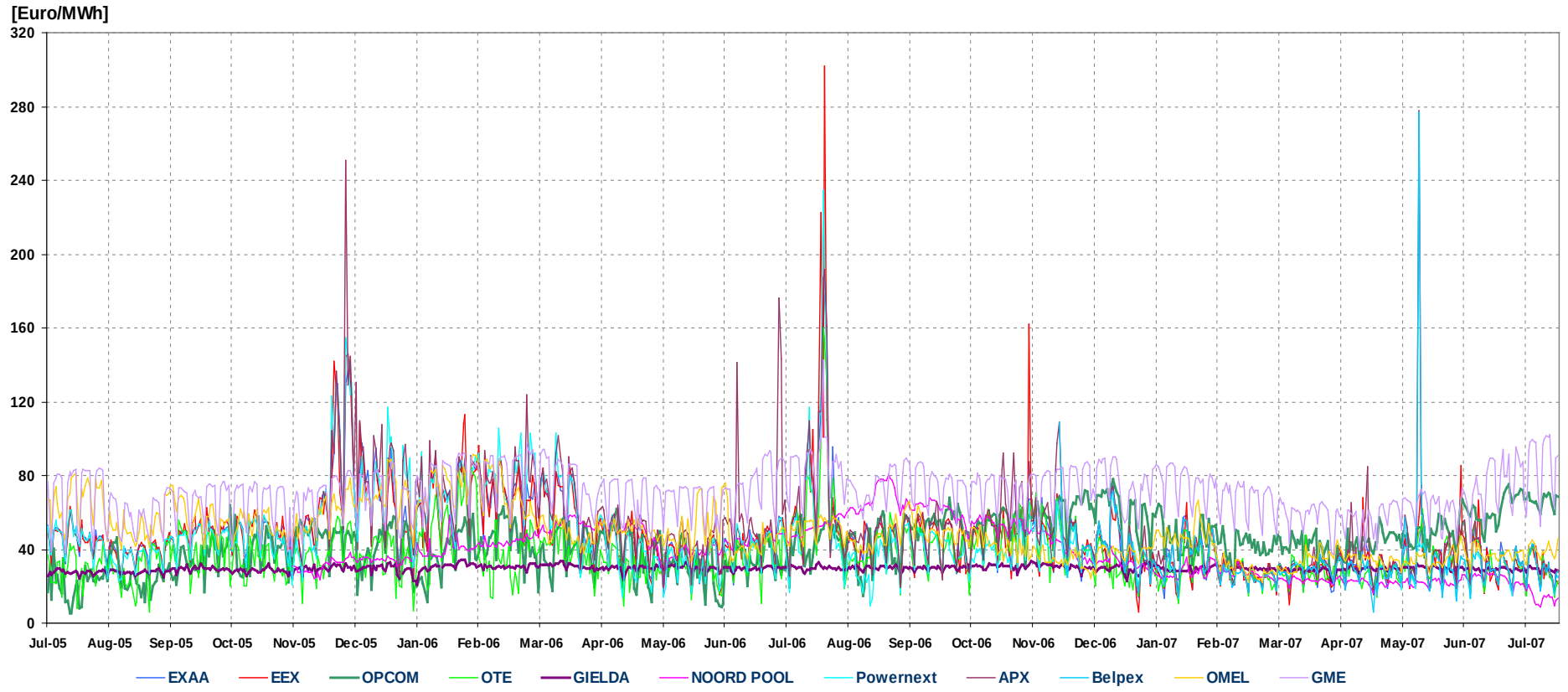
DAM: Results – prices and volume in the spot market



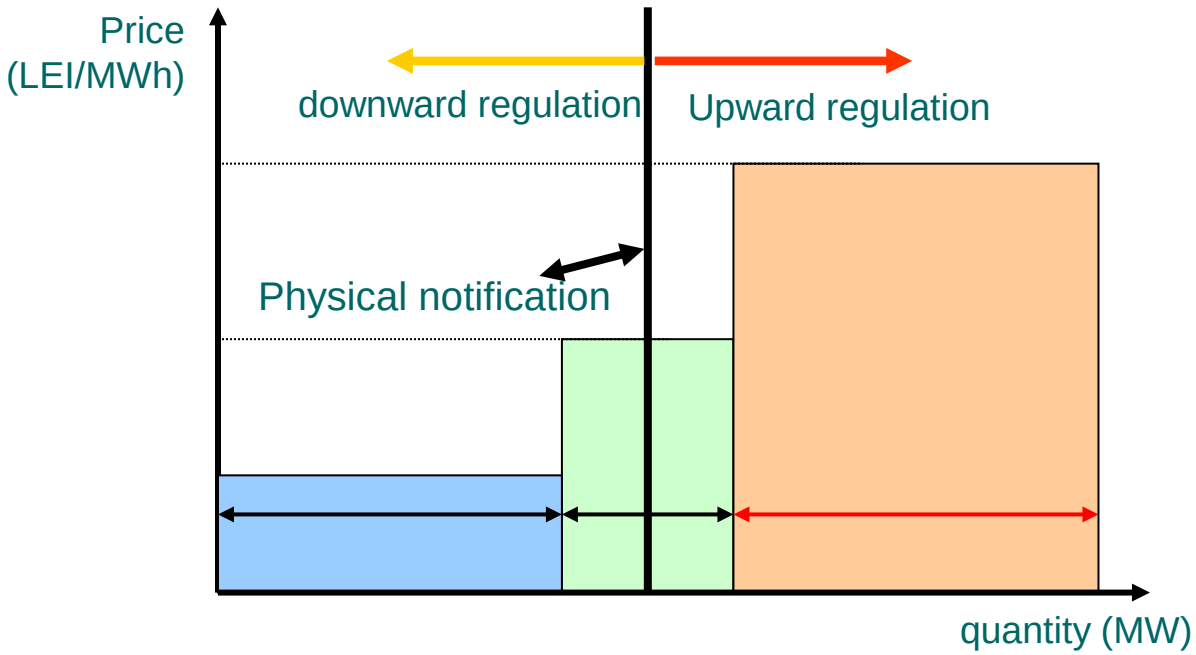
July 2007: The OPCOM DAM quota was 12,42 %



DAM: Results – European Position



Balancing Market: Bidding



- There is a unique offer for all types of reserves (secondary reserves, fast tertiary reserves, slow tertiary reserves)
- It is mandatory to submit offers for each dispachable unit
- An offer can contain up to 10 pairs price-quantity
- The physical notification makes the difference between upward and downward regulation.

Balancing Market: prices calculation

value of balancing energy = accepted quantities x price

$Price_{BM}$= { offer price (in case of fast tertiary energy and slow tertiary energy)
marginal price (in case of secondary reserve)

imbalance = measure - contact

BRP pays to TSO for the negative imbalance

quantity x deficit price *

BRP receive form the TSO the payment for positive imbalance

quantity x surplus price*

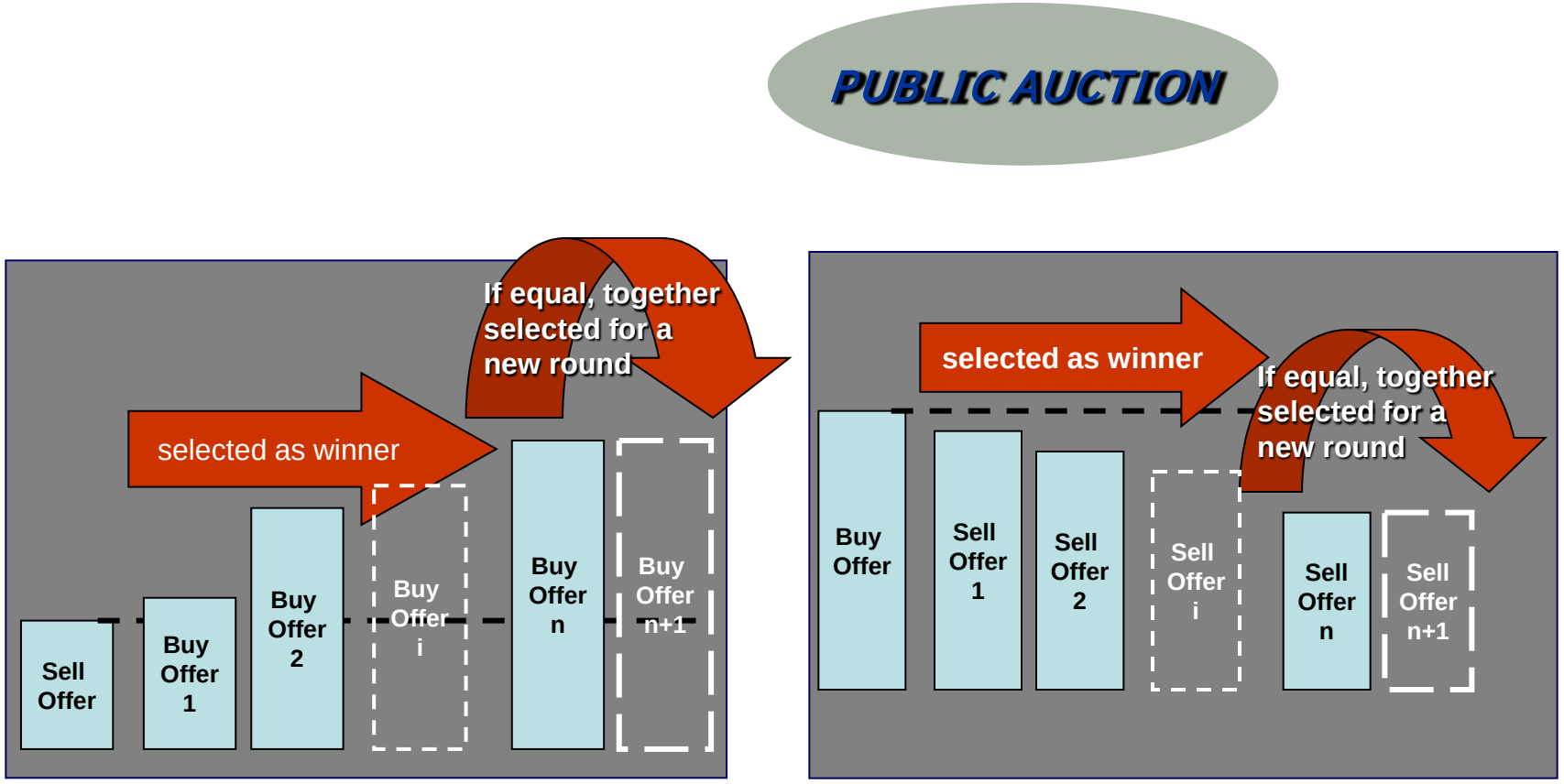
* The imbalance price is calculated as weighted average price from the accepted offers for upward/downward regulation

Settlement of the centralised markets

- **The settlement is performed separately for the different products**
- **Bilateral contracts is settled bilateral between buyer and seller**
- **The trade in the DAM is settled by the Settlement Operator (OPCOM)**
- **The Balancing Market transactions is settled by Settlement Operator after input from Balancing Market Operator**
- **Settlement of imbalances between contracts and metered usage of the grid is settled by Settlement Operator**

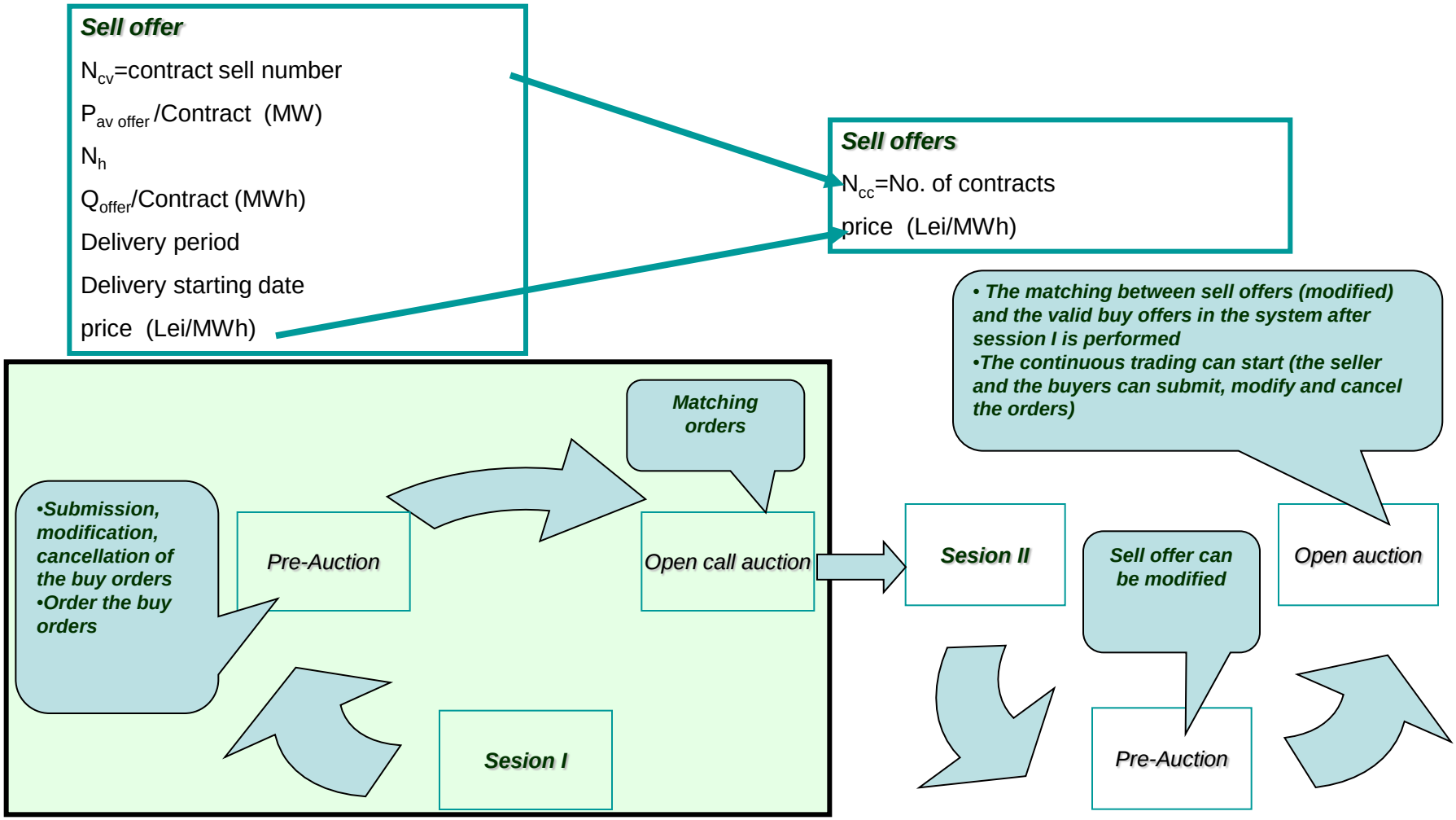
Centralised bilateral contract markets

- **Centralised Market for Electricity Bilateral Contracts - PCCB (since December 2005)**



Centralised bilateral contract markets

- **Centralised Market for Electricity Forward Bilateral Contracts with physical delivery – PCCF (since March 2007)**



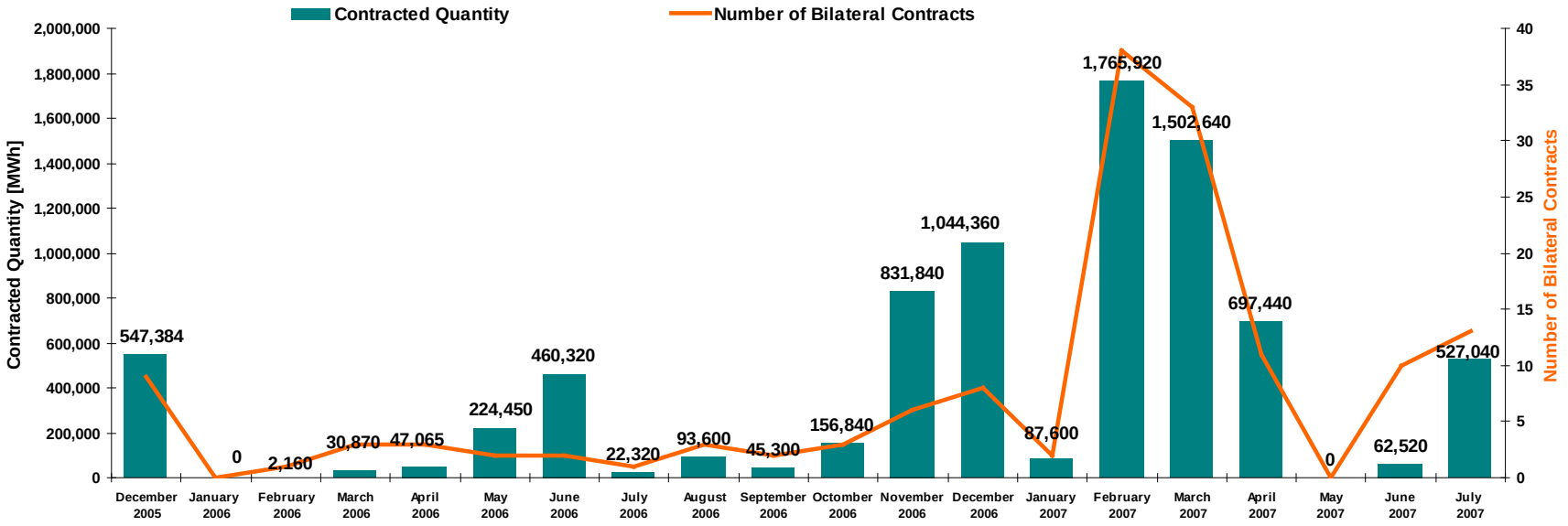
CBCM: results (01.12.2005-31.07.2007)

Registered participants : 90

	2006	2007
Weighted Average Price [lei/MWh]:	**126.77**	**166.15**
Weighted Average Price[EURO/MWh]:	**35.97**	**52.61**

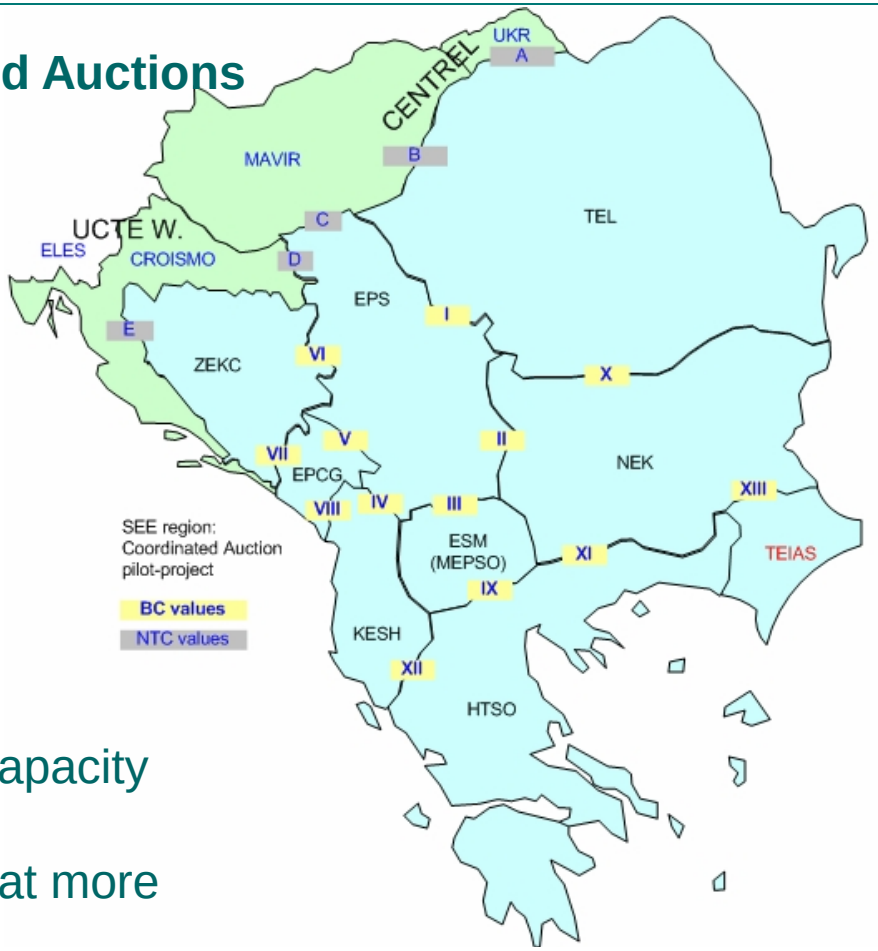
Deliveries	**2006**	**2007**
Volume (TWh)	**1.25**	**5.89**
Quota (%)	**2.41**	**11.24**

Maximum Quota(%): deliveries for April 2007 15.61



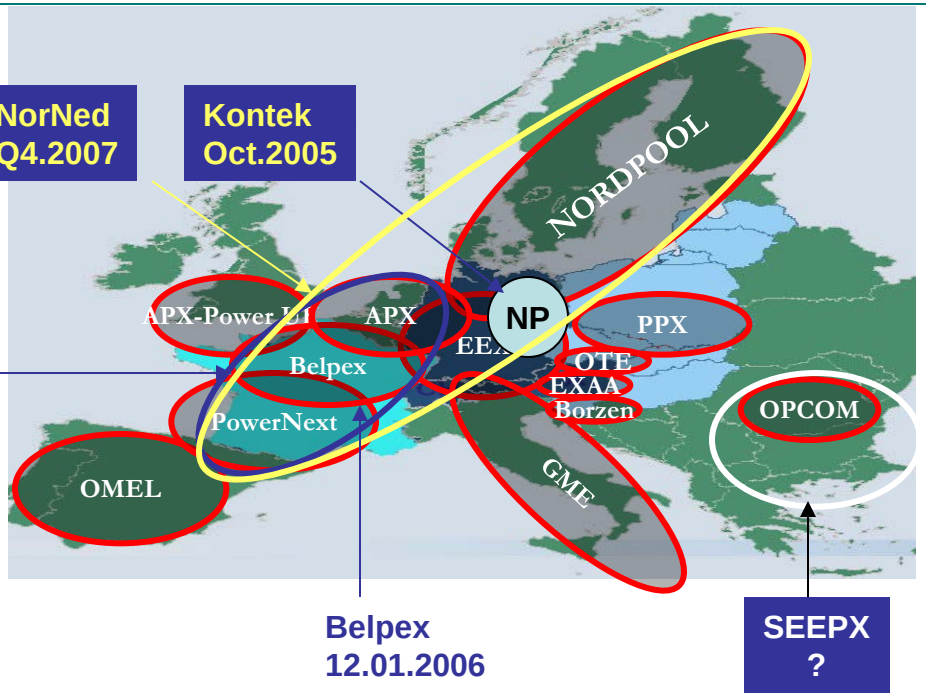
SEE region

Dry Run of Explicit flow-based Coordinated Auctions



auctions (market based method)
explicit (process of allocation of transmission capacity only (MW), without electricity trade)
coordinated (simultaneous capacity allocation at more than one border)
flow-based (with considering real power flow paths (through PTDFs) originated by the transactions, and physical limitations (BC - border capacity)

The future



"Power Exchanges are also likely to have a key role in developing the Single European Electricity market by providing transparent, non-discriminatory access to electricity trading in the European Union, insuring the proper functioning of electricity markets."

"It is expected that Power Exchanges will harmonize trading arrangements so as to facilitate the final single electricity market objective."

DG TREN

Questions?

and .... THANK YOU FOR YOUR ATTENTION!