

*Romanian Electricity Market*  
- FINDINGS FROM THE PAST-

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OPCOM

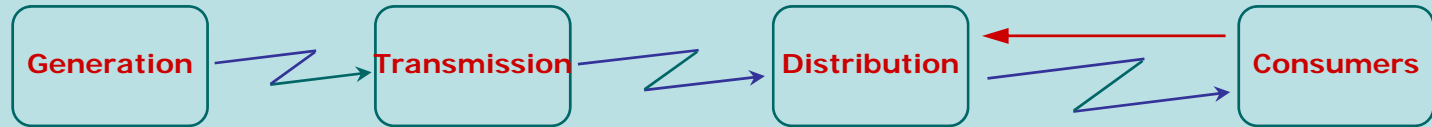
Current Status & Development Towards an EU Electricity Market –  
Highlights of the  
Western and Southeast European Electricity Markets

# Restructuring Process



1990: RENEL

## Integrated Electricity Utility



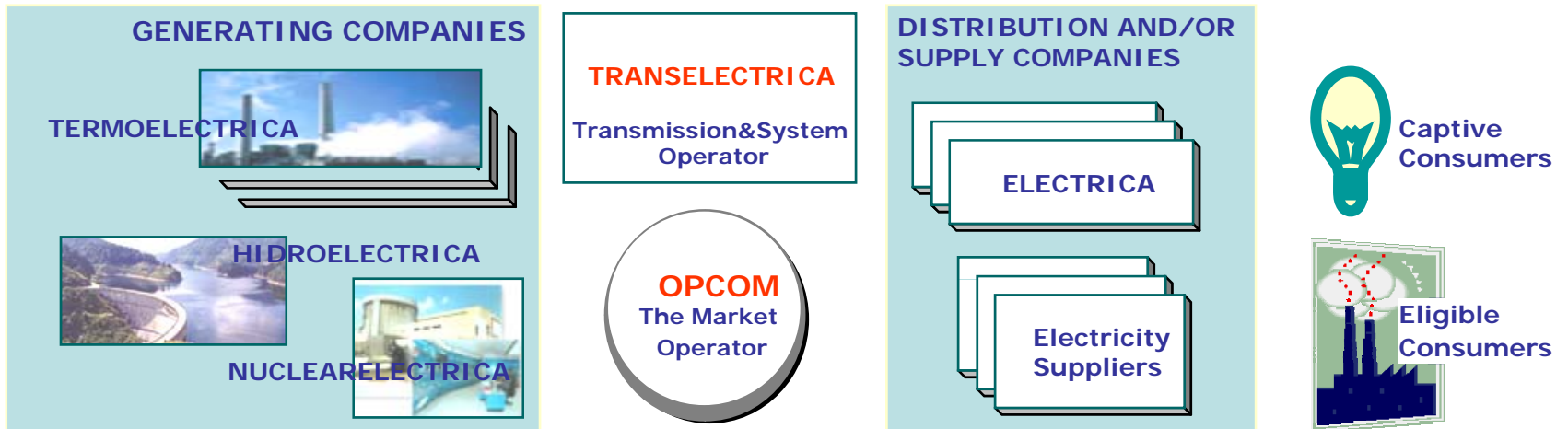
1998: CONEL



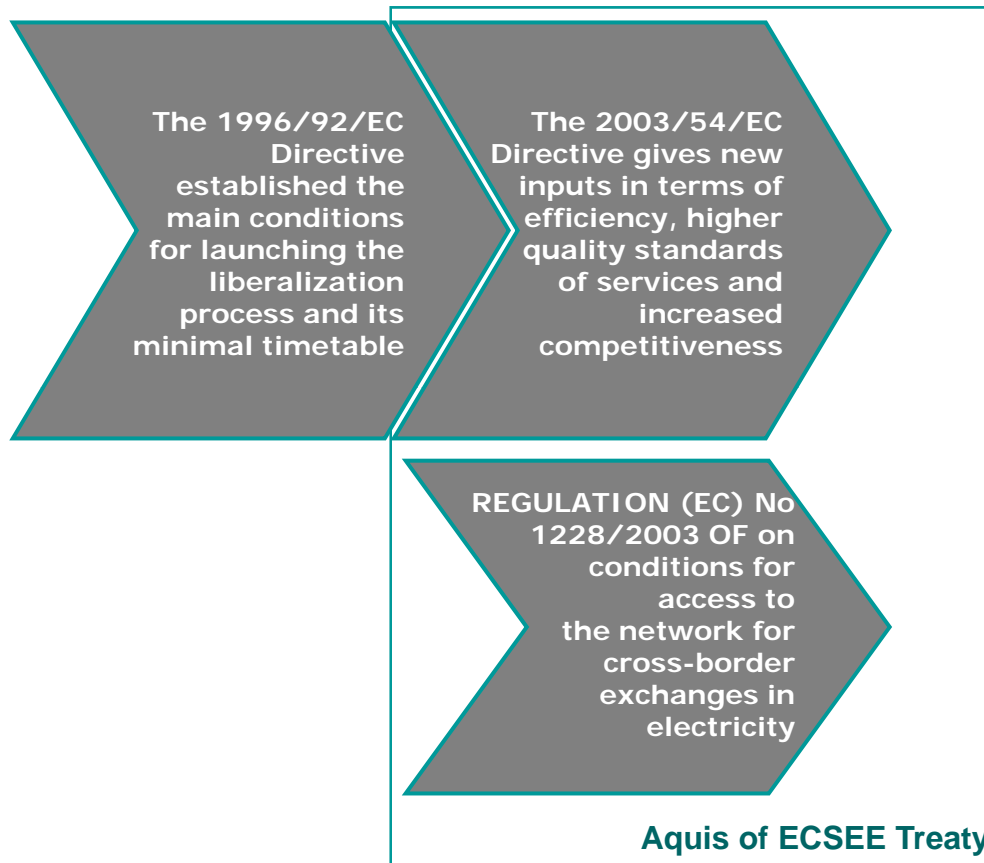
2000:  
Romanian  
electricity  
Market  
structure

MINISTRY OF ECONOMY  
AND TRADE

ANRE  
The Romanian Electricity  
Regulatory Authority



# The Legal Context



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 specific 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 Proces

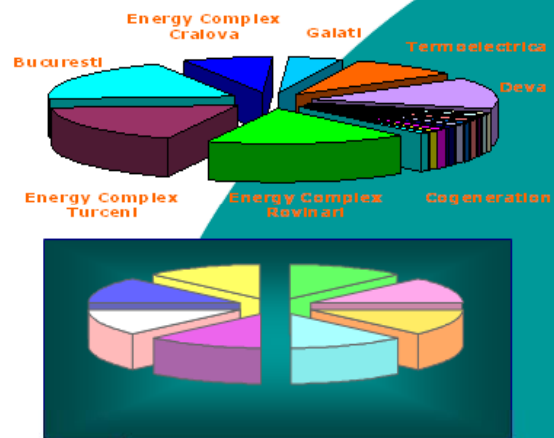


- Unbundling, big generation companies splitted or forced to divest;
- Distribution splitting
- Privatization;
- Consolidation, vertical integration through mergers and acquisitions;



Impact on participants' number, liquidity, competition, price

After 1989, consumption decrease encouraged competition



spot market launch before privatisation



2000-2005 increasing opening degree

Romanian Way

# The Roles of ANRE

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- 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

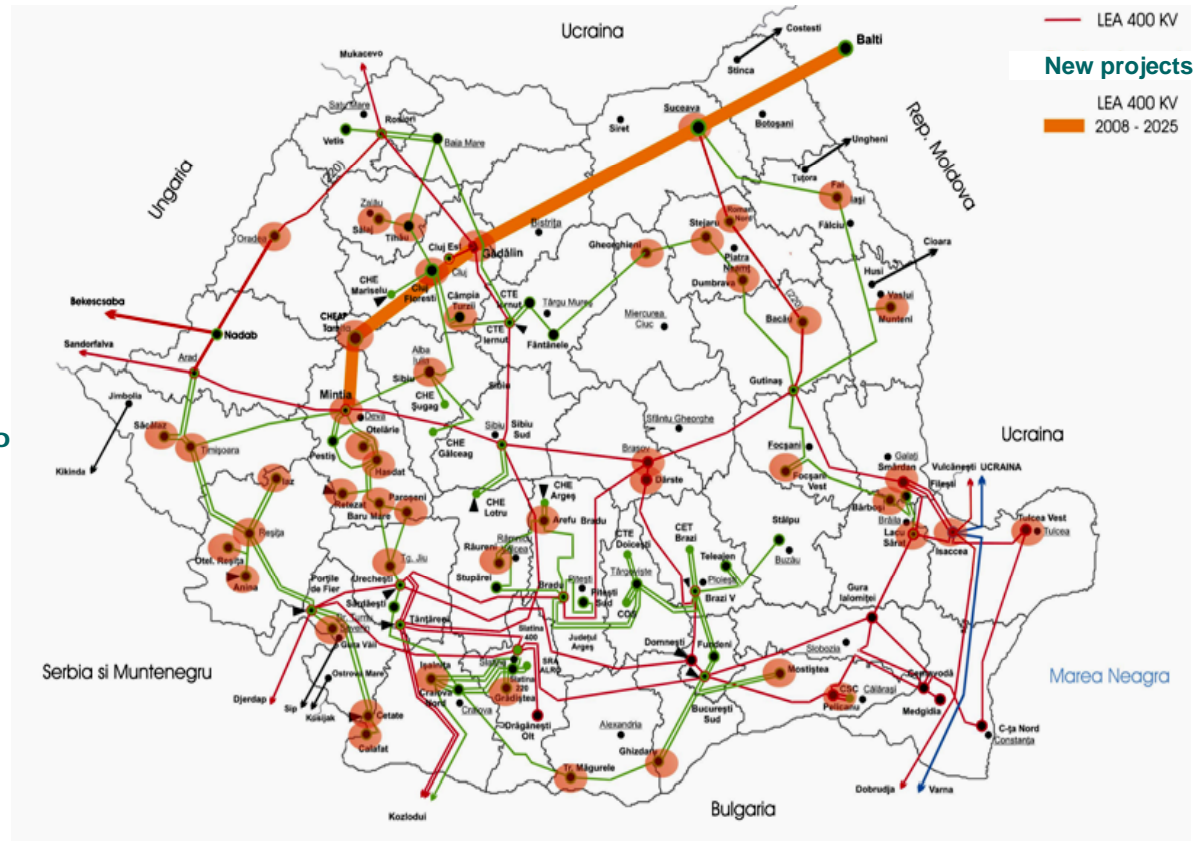
77 electric substations, of which:  
 1 substation of 750 kV  
 32 substations of 400 kV  
 44 substations of 220 kV

## 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)

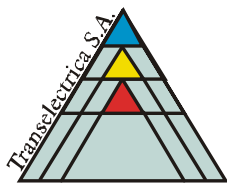
## Facilities

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

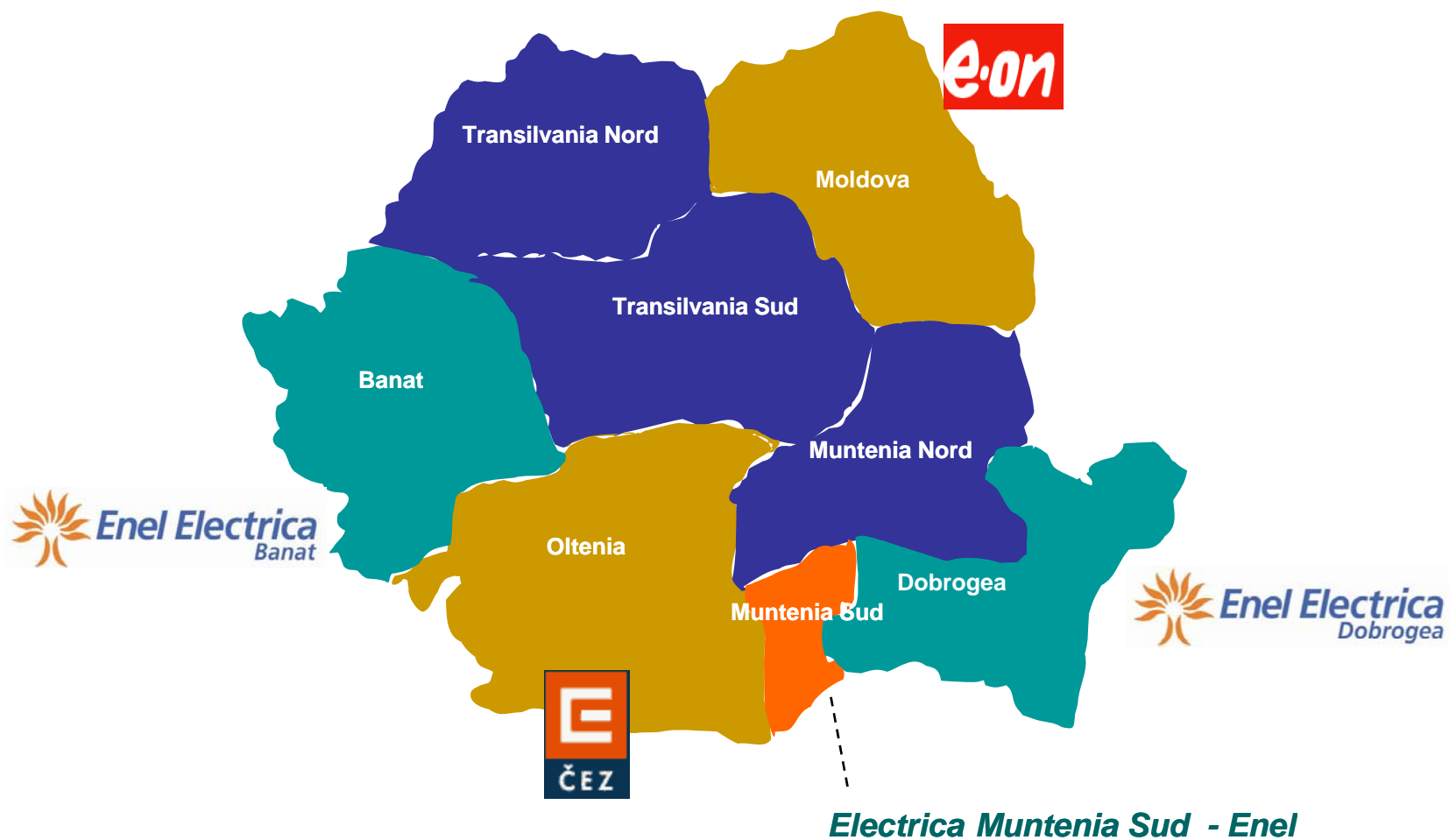


## Transelectrica's core activities:

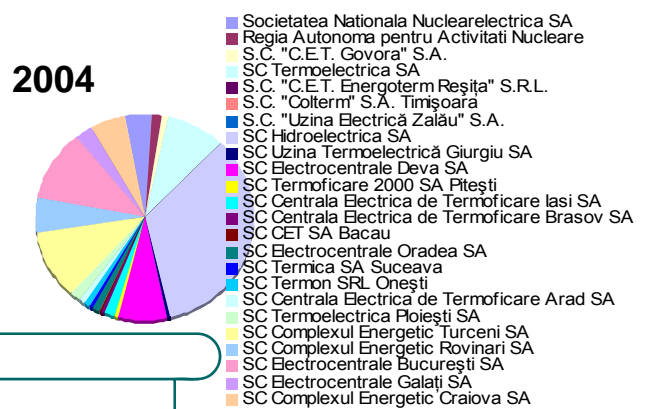
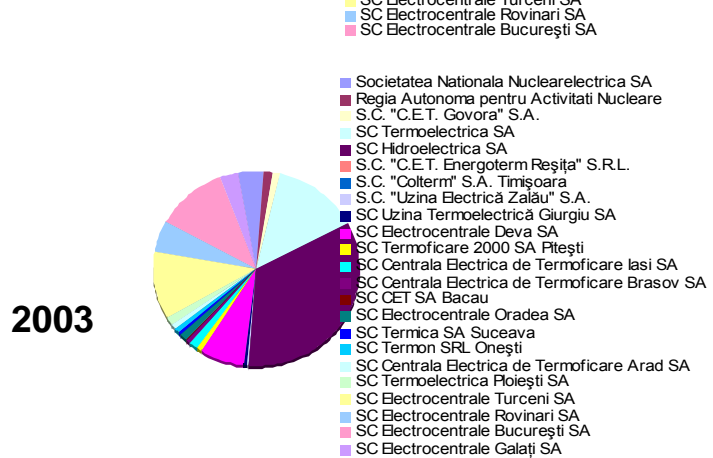
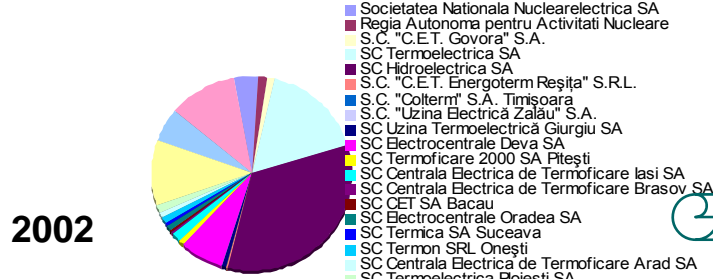
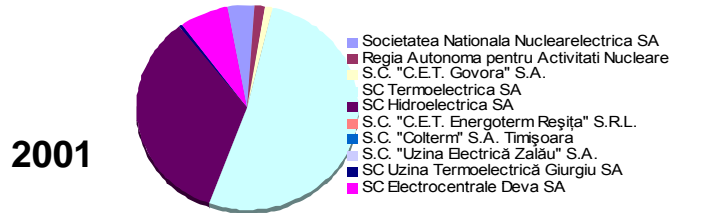
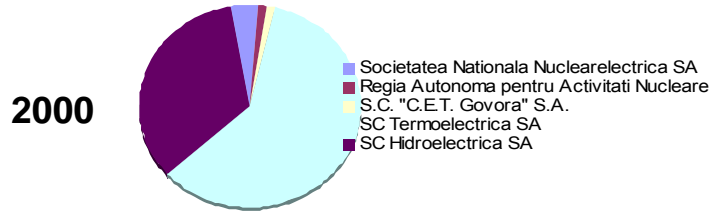
- Technical and operational management of the Power System, to ensure the safe and stable operation of the system
- Operation, maintenance and development of its assets
- Planning of National Power System and transmission network development
- Management of interconnections and electricity transits with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



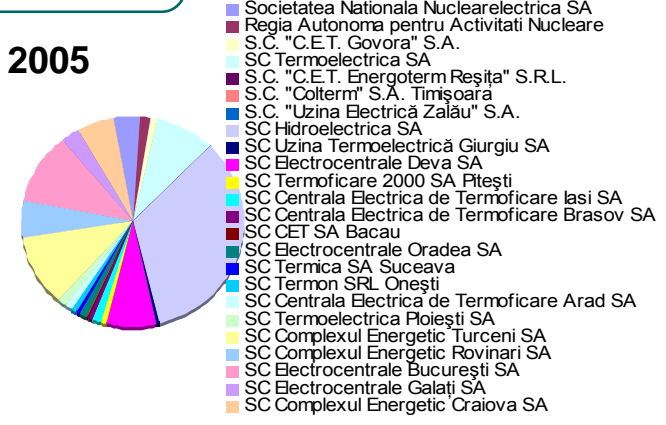
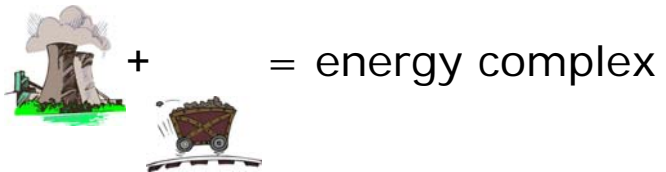
# Distribution Operators



# Installed Capacity & Market Shares

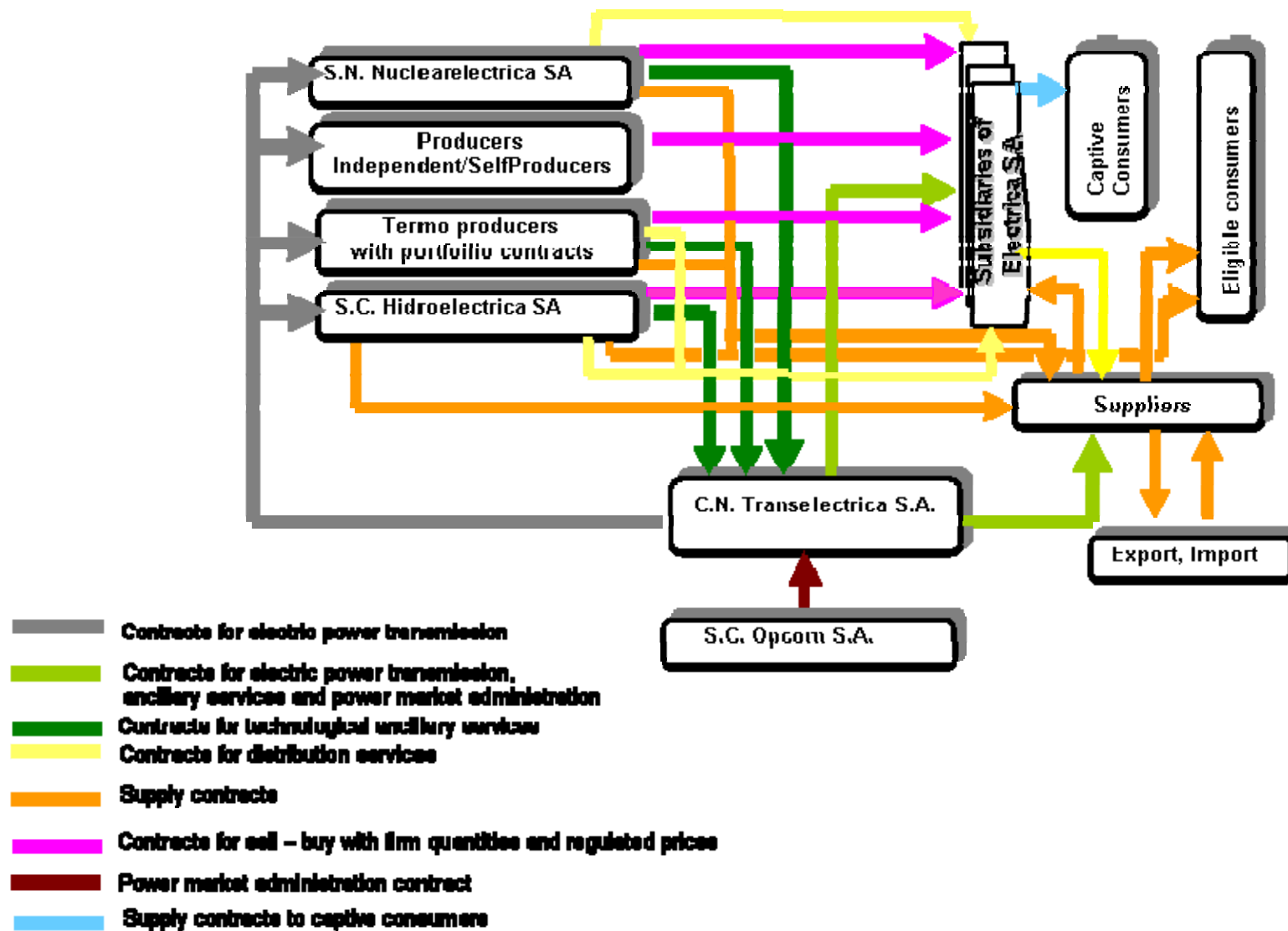


Water:34%  
Coal:38%  
Gas/Oil:24.5%  
Nuclear:4%

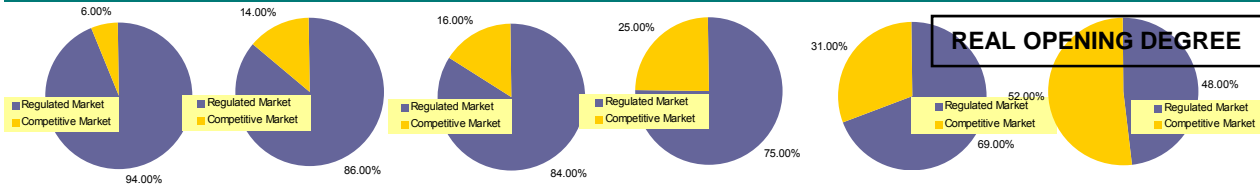


Installed capacity shares

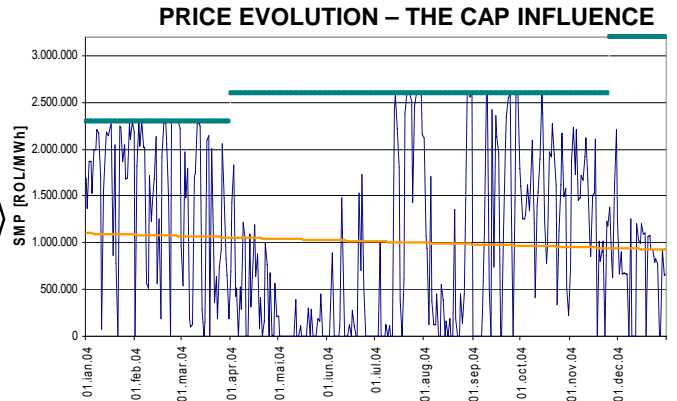
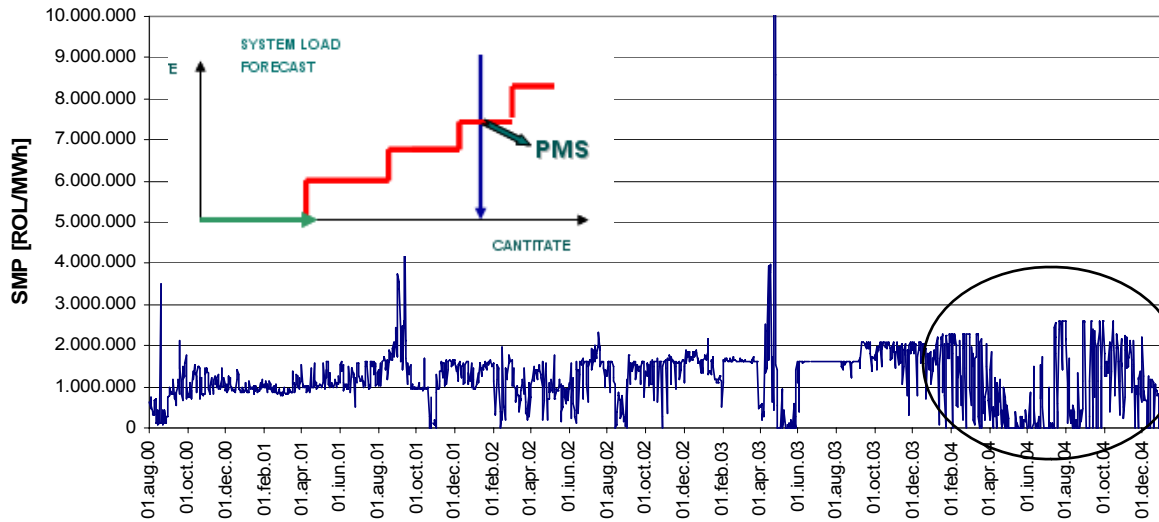
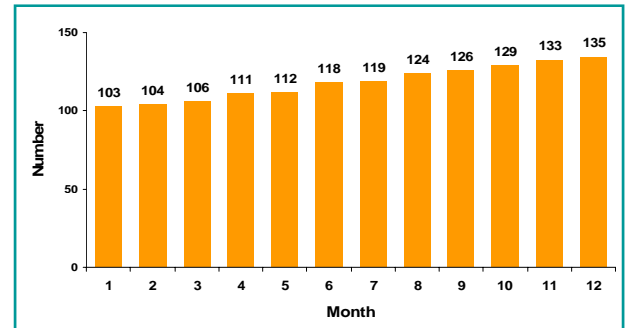
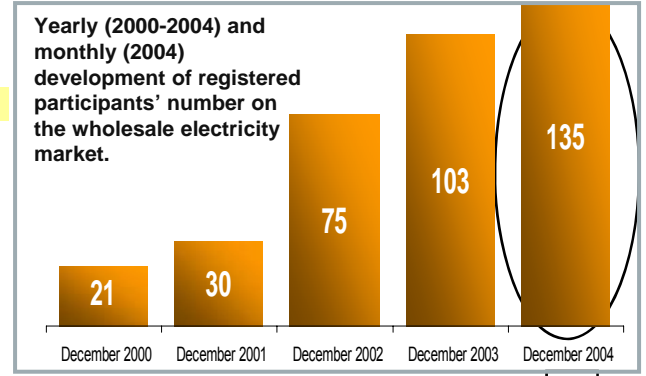
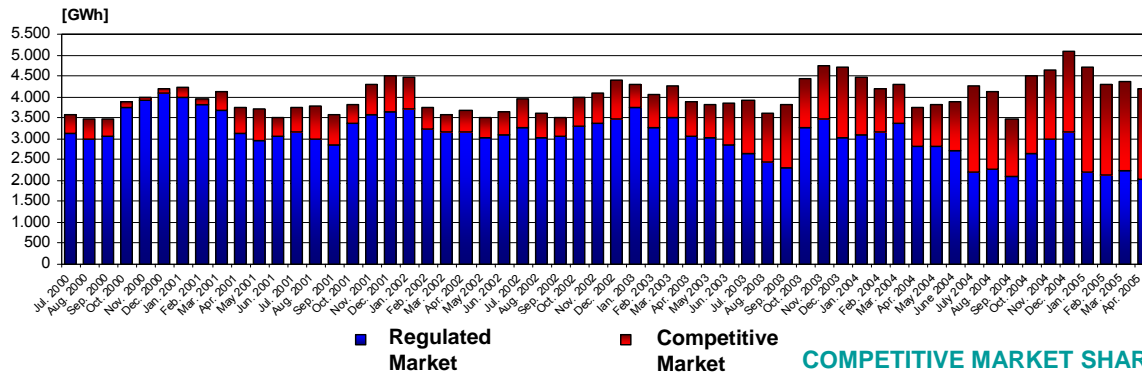
# Bilateral Contracts



# Market Indicators 2000 - 2005

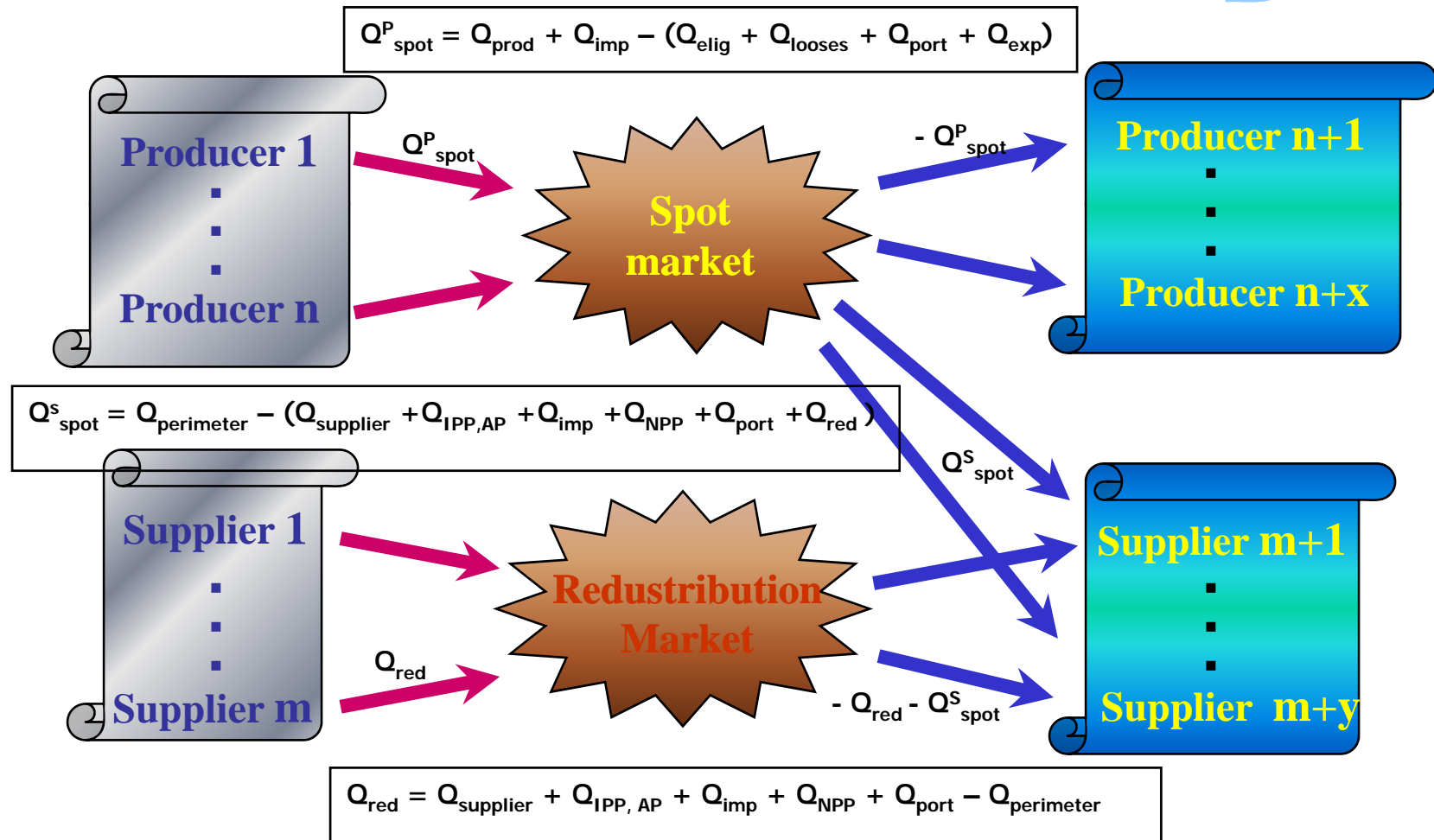


Declared opening degree (%) : 2000 - 15 , 2001 - 25 , 2002 - 33 , 2003 - 40 , 2004 - 55 , 2005 - 83.5



## Seller

## Buyer



# Market surveillance: 2000 – 2005 indicators



Ongoing reorganization process of SC Termoelectrica SA.  
Positive evolution of the market concentration mirrored in the specific indicators: HHI versus CR4

## HHI & CR4

Herfindahl-Hirschman (HHI) – market concentration degree.

$$HHI = \sum_{i=1}^n P_i^2$$

Pi: Participant's share in total installed capacity (a) and total delivered energy (b).

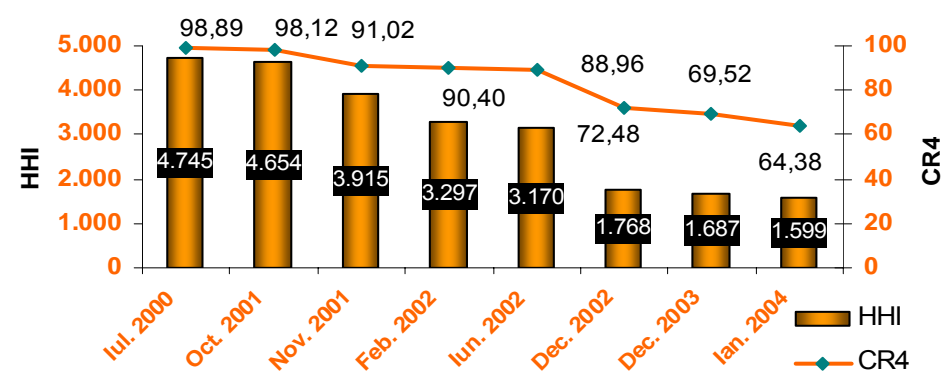
0	perfectly competitive market
0 – 1,000	reasonably competitive market
1,000 – 1,800	moderately concentrated market
1,800 – 10,000	highly concentrated market
10,000	monopoly

Four-Firm Concentration Ratio (CR4) - the extent to which the restructuring process generated competitive market participants.

$$CR4 = \sum_{i=1}^4 P_i$$

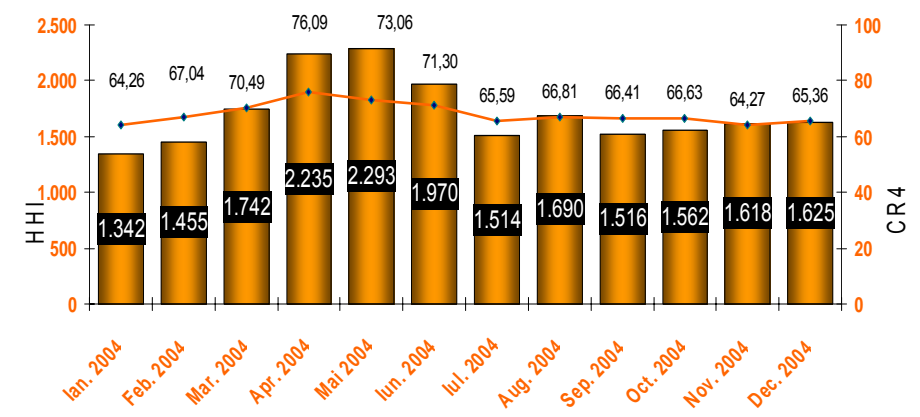
0-50%	market is considered moderately concentrated
50 – 100%	concentrated market

### (a) Subsequent reorganizations



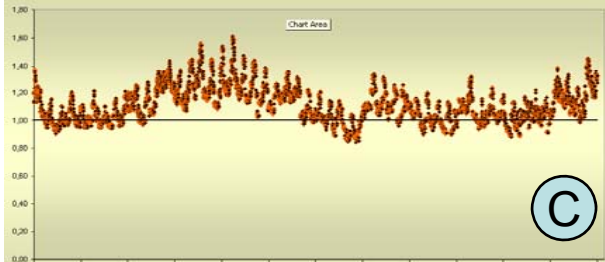
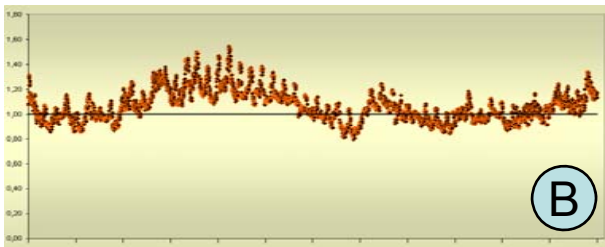
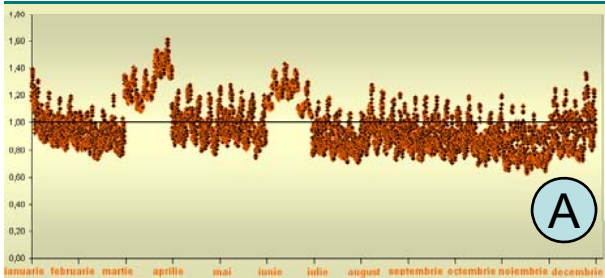
Both HHI and CR4 were calculated based on installed capacity of each generator existed in the market at a certain moment of unbundling process.

### (b) Specific conditions during 2004: low level of consumption, high level of reservoirs



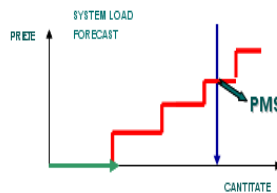
Both HHI and CR4 were calculated based on real output of each generator within the market.

# Market surveillance 2000 – 2005: Market Power



## Calculation of System Marginal Price (PMS)

OPCOM aggregates sell offers and elaborates system load forecast.



Dominant position under specific situations

occured during 2004.

Pivotal Producers: RSI

RSI

Residual Supply Index (RSI) – the extent to which the supply owned by the specific producer is needed to cover market demand.

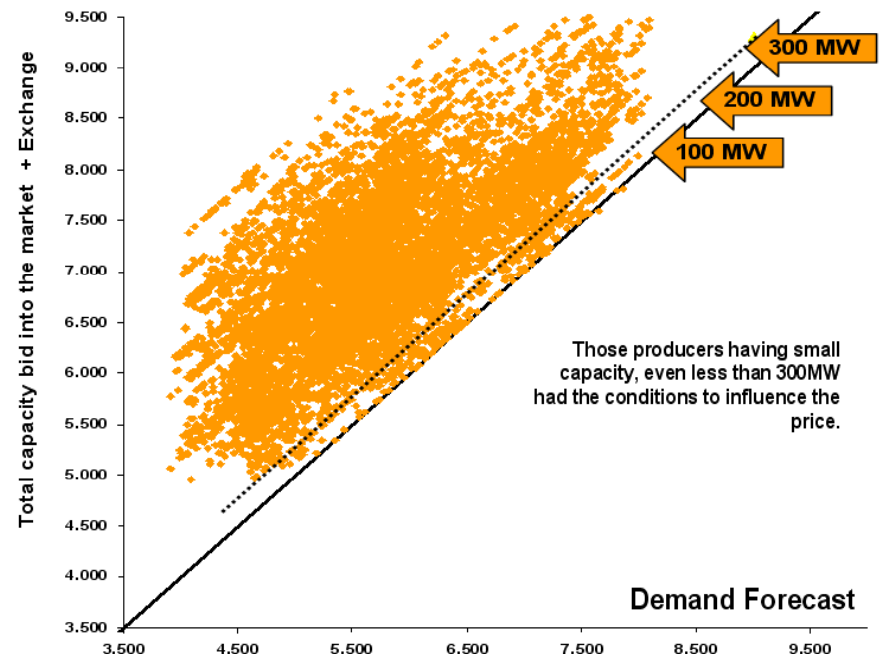
$$RSI = \frac{Cap_{tot} - Cap_j}{Demand}$$

- 0 - 1 high market power
- 1 - 1,5 significant potential market power
- 1,5 - 2 low potential market power

$Cap_{tot}$  : total capacity bid into the market by each producer

$Cap_j$  : supply provided by the producer j

Demand : total market demand



Y1	RSI	Total Capacity	RSI	Capacity
2000	0,30	6%	62	3%
2001	0,34	3%	69	2%
2004	1,80	2%	65	3%

This was  
until 30 June 2005 . . .

End of part I  
To be continued