ROMANIAN ENERGY REGULATORY AUTHORITY

ELECTRICITY MARKET DEPARTMENT

# REPORT ON RESULTS OF MONITORING THE ROMANIAN ELECTRICITY MARKET

# MARCH 2009

*- This document represents an unauthorised translation of the Romanian document -*

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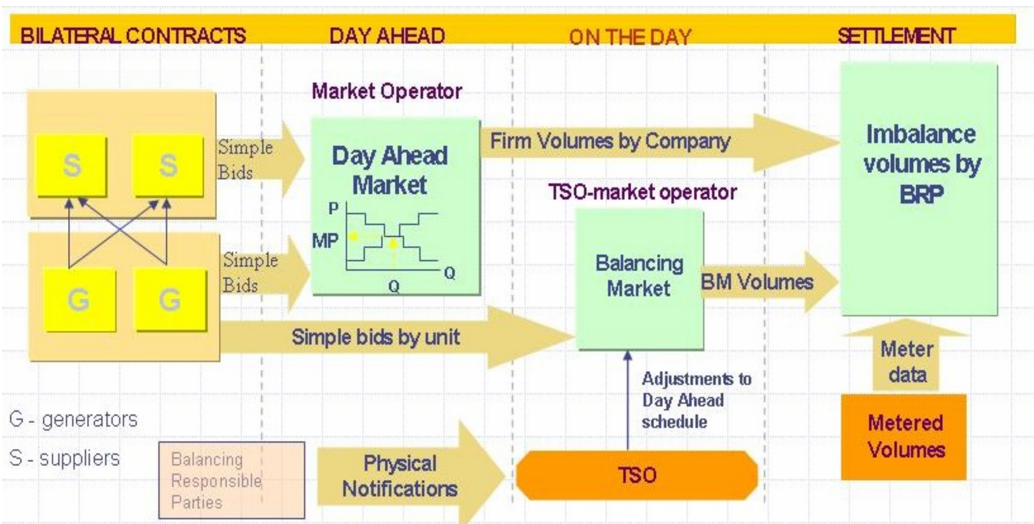
# I. MAIN EVENTS IN THE DEVELOPMENT OF THE ROMANIAN ELECTRICITY MARKET

- **GD 365/1998** – vertically integrated monopol – RENEL – was split in. Separated distribution and supply companies (SC Electrica SA) and generation companies (SC Termoelectrica SA and SC Hidroelectrica SA) were established within a new company - CONEL SA. Two other electricity generators (SN Nuclearelectrica SA and RAAN) were separately established;
- transmission, system services and market administration were separately organised, within CONEL SA;
- the relationships between parties within the electricity sector were settled based on contracts;
- **GD 122/2000** – electricity market opens at 10%;
- **GD 627/2000 –** CONEL holding is disolved;
- **September 2000** – launch of the compulsory electricity spot market in Romania, administrated by OPCOM and organized based on pool model;
- **GD 1342/2001** – SC Electrica SA splits in 8 subsidiaries for electricity distribution and supply;
- **GD 1524/2002** – SC Termoelectrica SA reorganizes in several separate legal entities for generation;
- **July 2005** – launch of the new market model, based on:
  - voluntary spot market, with both sides offers and bilateral settlement;
  - compulsory balancing market, with TSO as single counterparty;
  - financial responsibilities of the balancing are allocated to the BRP;
- **GD 644/2005** – electricity market opens at 83.5%;
- **November 2005** – launch of the green certificates market;
- **December 2005** – launch of the centralized market for bilateral contracts;
- **March 2007** – launch of the centralized market for partially standardized bilateral contracts with continuous negociation;
- **GD 638/2007** – fully opening of electricity and gas markets;
- **July 2007** – rules for capacity market have been established.
- **July 2008** – launch of the mechanism of direct debit and guarantee for electricity transactions on the day-ahead market (OPCOM as central counterparty).

# II. WHOLESALE ELECTRICITY MARKET

## *1. Structure of the wholesale electricity market*



## 2. *Participants on the wholesale electricity market*

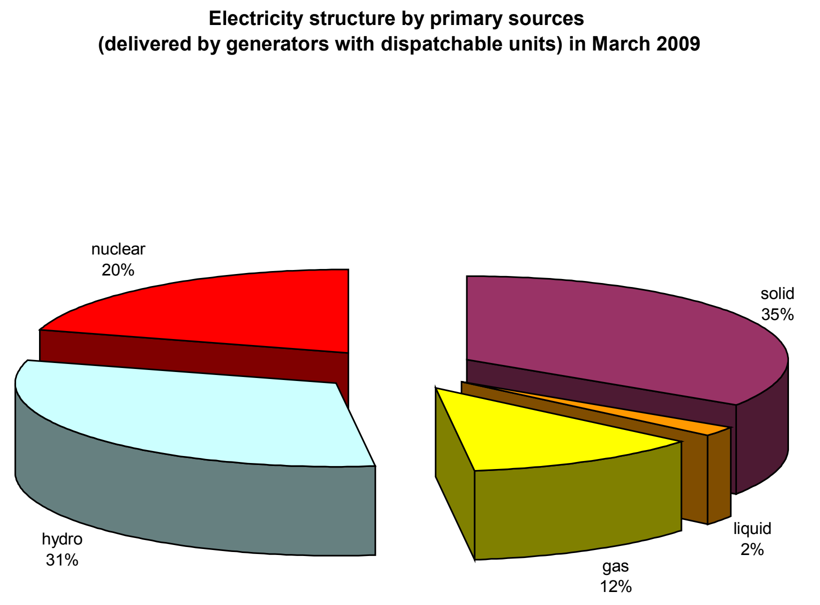
The market participants* acting on the electricity market in March 2009 are presented below split into categories:

| No. | Name | Comments |
|---|---|---|
| ***A*** | ***Electricity generators operating dispatching units*** | |
| 1 | SC CET Bacău SA | |
| 2 | SC CET Braşov SA | |
| 3 | SC CET Govora SA | |
| 4 | SC CET Iaşi SA | |
| 5 | SC CET Oradea SA | |
| 6 | SC Electrocentrale Bucureşti SA | |
| 7 | SC Electrocentrale Galaţi SA | |
| 8 | SC Dalkia Termo Prahova SRL | |
| 9 | SNP Petrom Sucursala Petrobrazi | |
| 10 | SC Termica SA Suceava | |
| 11 | SC Termoelectrica SA | |
| 12 | SC Termoficare 2000 SA Piteşti | |
| 13 | SC Uzina Termică Giurgiu SA | |
| 14 | SN Nuclearelectrica SA | |
| 15 | SC CE Rovinari SA | |
| 16 | SC CE Turceni SA | |
| 17 | RAAN | |
| 18 | SC CE Craiova SA | Generators acting also as suppliers on the competitive market |
| 19 | SC CET Arad SA | |
| 20 | SC Electrocentrale Deva SA | |
| 21 | SC Hidroelectrica SA | |
| ***B*** | ***Transmission System Operator*** | |
| 1 | CN TRANSELECTRICA SA | Balancing Market Operator |
| ***C*** | ***DAM Operator*** | |
| 1 | SC OPCOM SA | Operator of the Green Certificates Market, Bilateral Contracts Market and Settlement Administrator |
| ***D*** | ***Distribution network operators*** | |
| 1 | SC CEZ Distributie SA | Operators of the distribution network |
| 2 | SC ENEL Distributie Banat SA | |
| 3 | SC ENEL Distributie Dobrogea SA | |
| 4 | SC E.ON Moldova Distributie SA | |
| 5 | SC ENEL Distributie Muntenia SA | |
| 6 | SC FDEE Electrica Distributie Muntenia Nord SA | |
| 7 | SC FDEE Electrica Distributie Transilvania Sud SA | |
| 8 | SC FDEE Electrica Distributie Transilvania Nord SA | |
| ***E*** | ***Incumbent suppliers*** | |
| 1 | SC CEZ Vanzare SA | Incumbent suppliers acting also as suppliers on the competitive market |
| 2 | SC ENEL Energie SA | |
| 3 | SC E.ON Moldova Furnizare SA | |
| 4 | SC ENEL Energie Muntenia SA | |
| 5 | SC FFEE Electrica Furnizare Muntenia Nord SA | |
| 6 | SC FFEE Electrica Furnizare Transilvania Sud SA | |
| 7 | SC FFEE Electrica Furnizare Transilvania Nord SA | |

| No. | Name |
|---|---|
| ***F*** | ***Electricity Suppliers acting exclusively on the wholesale market*** |
| 1 | SC Atel Energy Romania SRL |
| 2 | SC CEZ Trade Romania SRL |
| 3 | SC EFT Romania SRL |
| 4 | SC Electrabel Romania SRL |
| 5 | SC Encaz SRL |
| 6 | SC Enel Trade Romania SRL |
| 7 | SC Energy Market Consulting SRL |
| 8 | SC E.ON Energy Trading AG |
| 9 | SC Eco Energy SRL |
| 10 | SC Edison Trading SpA |
| 11 | SC Ezpada SRL |
| 12 | SC Global Electric Trading SRL |
| 13 | SC Grivco SA |
| 14 | SC Inteltra SRL |
| 15 | SC Jas Budapest Zrt |
| 16 | SC Korlea Invest SRL |
| 17 | SC Merrill Lynch Commodities (Europe) |
| 18 | SC Re Energie SRL |
| 19 | SC Romelectro SA |
| 20 | SC Rudnap SRL |
| 21 | SC RBS Sempra Energy Europe Ltd |
| 22 | SC Statkraft Romania SRL |
| **No.** | **Name** |
| ***G*** | ***Electricity Suppliers*** |
| 1 | SC Alro SA |
| 2 | SC Also Energ SA |
| 3 | SC Arelco Distributie SRL |
| 4 | SC Beny Alex SRL |
| 5 | SC Biol Energy SRL |
| 6 | SC Buzmann Industries SRL |
| 7 | SC EFE Energy SRL |
| 8 | SC EGL Gas & Power Romania SA |
| 9 | SC Ehol Distribution SRL |
| 10 | SC Elcomex EN SRL |
| 11 | SC Electrica SA |
| 12 | SC Electricom SA |
| 13 | SC Electromagnetica SA |
| 14 | SC Energotrans |
| 15 | SC Energy Holding SRL |
| 16 | SC Energy Network SRL |
| 17 | SC Enex SRL |
| 18 | SC Ennet Grup SRL |
| 19 | SC Enol Grup SA |
| 20 | SC EURO-PEC SA |
| 21 | SC Fidelis Energy SRL |
| 22 | SC GDF SUEZ Energy Romania SA |
| 23 | SC General Com Invest SRL |
| 24 | SC Gevco SRL |
| 25 | SC Hidroconstructia SA |
| 26 | SC ICCO Electric SRL |
| 27 | SC ICPE Electrocond Technologies SA |
| 28 | SC Interagro SA |
| 29 | SC Luxten LC SA |
| 30 | SC Petprod SRL |
| 31 | SC Renovation Trading SRL |
| 32 | SC Tinmar Ind SA |
| 33 | SC Total Electric Oltenia SA |
| 34 | SC Transenergo Com SA |
| 35 | SC UCM Energy SRL |

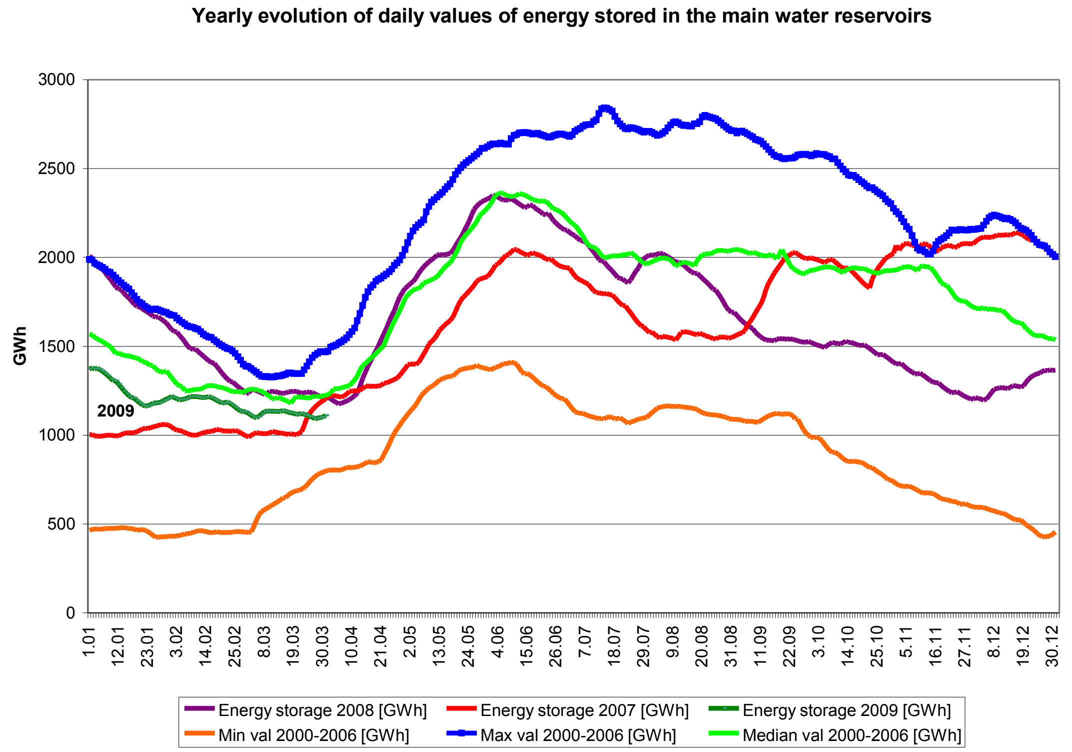
***)** The electricity market participants report to ANRE technical/commercial data according to the ***Methodology of wholesale electricity market monitoring for assessing the competition level on market and preventing the abuse of dominant position,*** approved by ANRE Order no. 35/2006. The table does not include the Balancing Responsible Parties (BRP). The BRP updated list is published on the Balancing Market Operator website - www.ope.ro.

## *3. Generation structure of National Energy System on resources types*



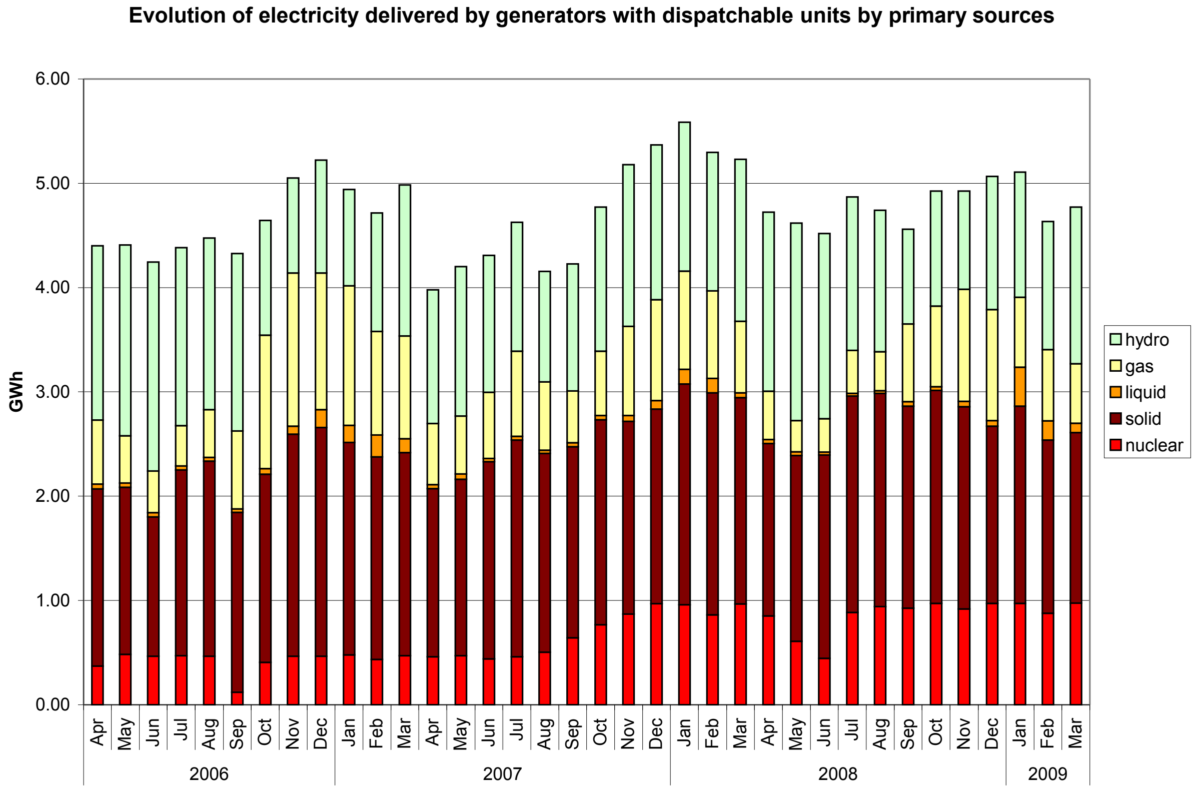

*Source: Monthly reports of generators – processed by MG*

The electricity generated from hydro resources depends on and at the same time influences the energy stored in the main water reservoirs. The following graph presents the evolution of daily amounts of energy storage in March 2009 compared to daily values in 2007 and 2008 and to minimum, maximum and median values during 2000-2006.




*Source: Monthly reports of S.C. Hidroelectrica S.A. – processed by MG*

The evolution of delivered electricity structure, starting with April 2006, is the following:




*Source: Monthly reports of generators – processed by MG*

The following table presents the main data regarding the physical balance of electricity for March 2009 and for the first 3 months of 2009, compared to data for similar periods of 2008:

| No. | Indicator | MU | March 2008 | March 2009 | % | Jan-Mar 2008 | Jan-Mar 2009 | % |
|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5=4/3*100 | 6 | 7 | 8=7/6*100 |
| 1 | Generated electricity | TWh | 5.69 | 5.10 | 89.74 | 17.60* | 15.75 | 89.47 |
| 2 | Delivered electricity | TWh | 5.23 | 4.77 | 91.25 | 16.11* | 14.51 | 90.08 |
| 3 | Import | TWh | 0.06 | 0.09 | 148.11 | 0.21 | 0.32 | 148.71 |
| 4 | Export | TWh | 0.56 | 0.45 | 80.77 | 1.79 | 1.44 | 80.52 |
| 5 | Internal consumption | TWh | 4.73 | 4.41 | 93.20 | 14.54* | 13.39 | 92.12 |
| 6 | Consumption of household consumers on the regulated market | TWh | 0.91 | 1.02 | 112.09 | 2.74* | 3.00 | 109.49 |
| 7 | Consumption of non-households consumption | TWh | 3.11 | 2.63 | 84.57 | 9.22 | 7.72 | 83.73 |
| *7.1* | *on the regulated market* | TWh | 1.14 | 1.13 | 99.12 | 3.52* | 3.33 | 94.60 |
| *7.2* | *on the competitive market* | TWh | 1.97 | 1.50 | 76.14 | 5.70 | 4.39 | 77.02 |
| 8 | Transmission – Injection component | TWh | 5.12 | 4.70 | 91.75 | 15.89 | 14.35 | 90.36 |
| 9 | Transmission – Extraction component | TWh | 5.20 | 4.79 | 91.98 | 16.06 | 14.59 | 90.80 |
| 10 | System services | TWh | 5.20 | 4.79 | 91.98 | 16.06 | 14.59 | 90.80 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 11 | Actual transmission grid losses | TWh | 0.08 | 0.08 | 98.59 | 0.26 | 0.25 | 96.78 |
| 12 | Heat generated for delivery | Tcal | 2118.72 | 2291.55 | 108.16 | 8087.82* | 7612.26 | 94.12 |
| 13 | Heat in co-generation | Tcal | 1785.06 | 1861.04 | 104.26 | 6508.46* | 6490.58 | 99.73 |

***Note**: 1. Data shown in the table neither include the energy produced by the generators who do not own dispatchable units (positions 1 & 2) nor the energy delivered to the consumers directly connected to the power plants (positions 6 & 7).*
*2. The imported/exported quantities do not comprise transits and cross border exchange of CN Transelectrica SA with neighbor countries in order to ensuring the balance of the national energy system.*
*3. The electricity considered for transmission tariff – injection component do not comprise the electricity sold by generators for covering the transmission losses.*
** Data published into Report on monitoring results of the electricity market – March 2008 were modified due to some corrections made by market participants*

## *4. Transactions' structure on the wholesale electricity market*

The size of wholesale market depends on the sum of all transactions performed by the market players, exceeding the quantities physically transmitted from generation to consumption; the total transactions include also resale transactions made in order to match the contractual obligations and to obtain financial benefit.

Therefore, the wholesale electricity market includes: regulated contracts and bilateral negotiated contracts between generators and suppliers, regulated contracts for covering the network losses, bilateral negotiated contracts generator-generator and supplier-supplier, as well as contracts concluded on centralized markets: CMBC (centralized market of bilateral contracts), CMBC-CN (centralized market of partially stardardised bilateral contracts, with continuous negotiation) and on the Power floor of RCE (Romanian Commodities Exchange), transactions on DAM (day-ahead market) and on BM (Balancing Market).

The volumes traded and the average prices on each type of contracts and on the main components of the wholesale market are presented in the table below for March 2009 compared to the volumes of the month before and March 2008:

| TRANSACTIONS ON THE WHOLESALE MARKET | February 2009 | March 2009 | March 2008 |
|---|---|---|---|
| **1. NEGOTIATED CONTRACTS' MARKET** | | | |
| traded volume (GWh) | **4968** | **5396** | **5387** |
| average price (lei/MWh) | *170.36* | *163.38* | *144.83* |
| **1.1. Sales on regulated contracts** | | | |
| traded volume (GWh) | **2627** | **2713** | **2545** |
| % from internal consumption (%) | *61.8* | *61.5* | *53.8* |
| average price (lei/MWh) | *178.29* | *167.18* | *150.88* |
| **1.2. Sales on negociated contracts* contracte negociate *** | | | |
| traded volume (GWh) | **2341** | **2683** | **2842** |
| % from internal consumption (%) | *55.0* | *60.8* | *60.1* |
| average price (lei/MWh) | *161.46* | *159.53* | *139.41* |
| **2. EXPORT** | | | |
| traded volume** (GWh) | **467** | **449** | **556** |
| % from internal consumption (%) | *11.0* | *10.2* | *11.7* |
| average price (lei/MWh) | *195.11* | *172.32* | *183.42**** |
| **3. CENTRALISED MARKETS OF CONTRACTS** | | | |
| traded volume (GWh) | **699** | **616** | **878** |
| % from internal consumption (%) | *16.4* | *14.0* | *18.6* |
| average price (lei/MWh) | *195.16* | *194.87* | *175.85* |
| **4. DAY AHEAD MARKET** | | | |
| traded volume (GWh) | **454** | **594** | **445** |
| % from internal consumption (%) | *10.7* | *13.5* | *9.4* |
| average price (lei/MWh) | *137.11* | *128.44* | *150.17* |

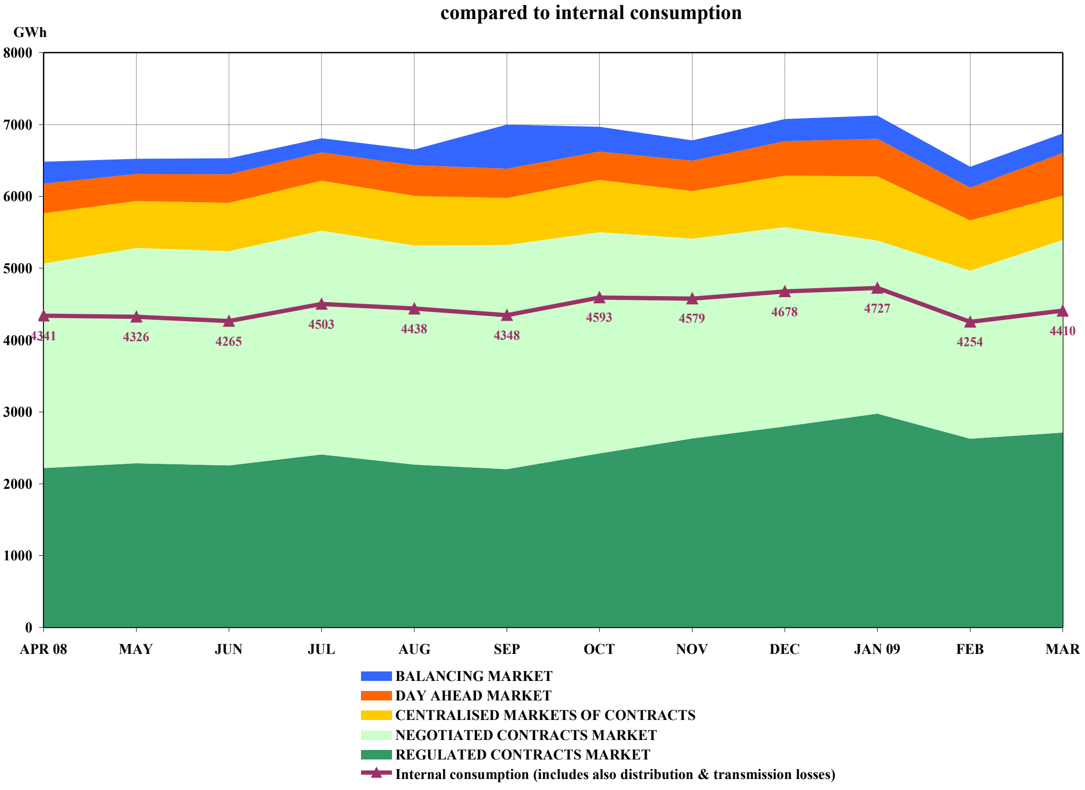
| | | | |
|---|---|---|---|
| **5. BALANCING MARKET** | | | |
| traded volume (GWh) | **290** | **271** | **197** |
| % from internal consumption (%) | *6.8* | *6.1* | *4.2* |
| upward volume (GWh) | **99** | **56** | **72** |
| average negative imbalance price(lei/MWh) | *234.21* | *225.28* | *226.78* |
| downward volume (GWh) | **192** | **215** | **125** |
| average positive imbalance price (lei/MWh ) | *68.51* | *86.26* | *72.44* |
| ***INTERNAL CONSUMPTION (includes distribution and transmission losses) (GWh)*** | **4254** | **4410** | **4732** |

***Note***: ** Contracts of supply to consumers and contracts of export are not included*
*** Export volumes correspond to the quantities for which CN Transelectrica SA applied extraction component of transmission tariff for export, which in some cases are different to those reported as traded by participants*
****Price in March 2008 is calculated as an average of prices reported by the participants; all prices include injection component of transmission tariff, most of them include the extraction component, system service and market administration tariffs and only few of them include value of interconnection capacity.*

The relevance of comparison between the above prices is affected by the fact that, in 2008, the value of injection component of the transmission tariff was not included in all categories of prices; thus, the average selling price on DAM/BM totally included this tariff component, the average selling price for negociated contracts included it only partially, while the average selling price for regulated contracts did not include it at all. In 2008, the prices for export trades were not reported in an unified manner, but as the ***Note*** ***) above. Starting with January 2009, all prices are including only the injection component of the transmission tariff, in this way being comparable within a month and making possible the comparison with the previous month.

The evolution of the relation between the volumes sold on each market and the estimated internal consumption, for April 2008 – March 2009, is presented below:

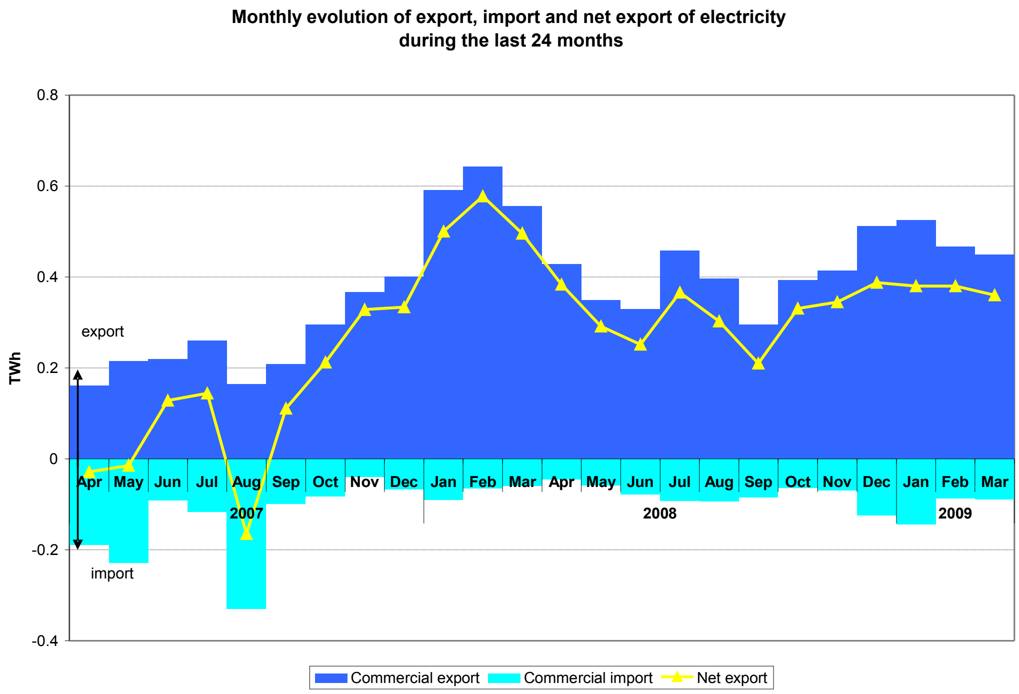
**Monthly evolution of volumes traded on wholesale market compared to internal consumption**




*Source: Monthly reports of wholesale market participants, SC Opcom SA and CN Transelectrica SA – processed by MG*

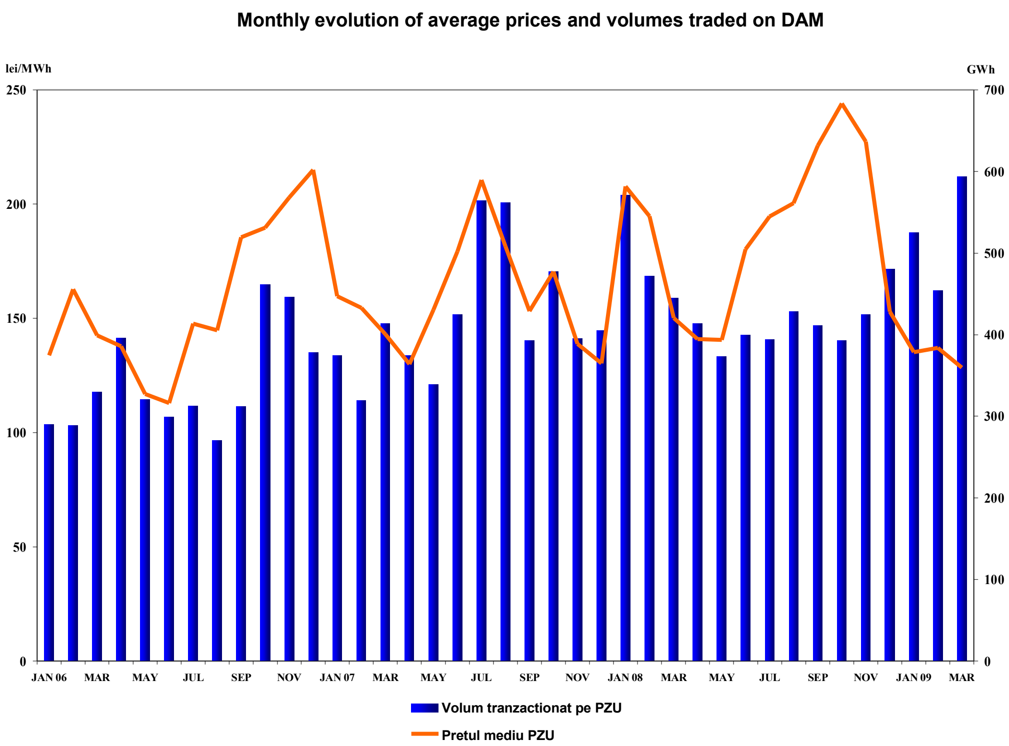
***Note***: *In the above graph, the volumes traded on negociated contracts' market do not include the export trades*

The following graph represents the monthly values of commercial export (quantities for which the extraction component of transmission tariff was applied), commercial import (quantities for which the injection component of transmission tariff was applied) and the net export (export minus import) in the last 24 months:




*Source: Monthly reports of CN Transelectrica SA – processed by MG*

The following graph presents the volumes and the monthly average prices on DAM starting with January 2006.



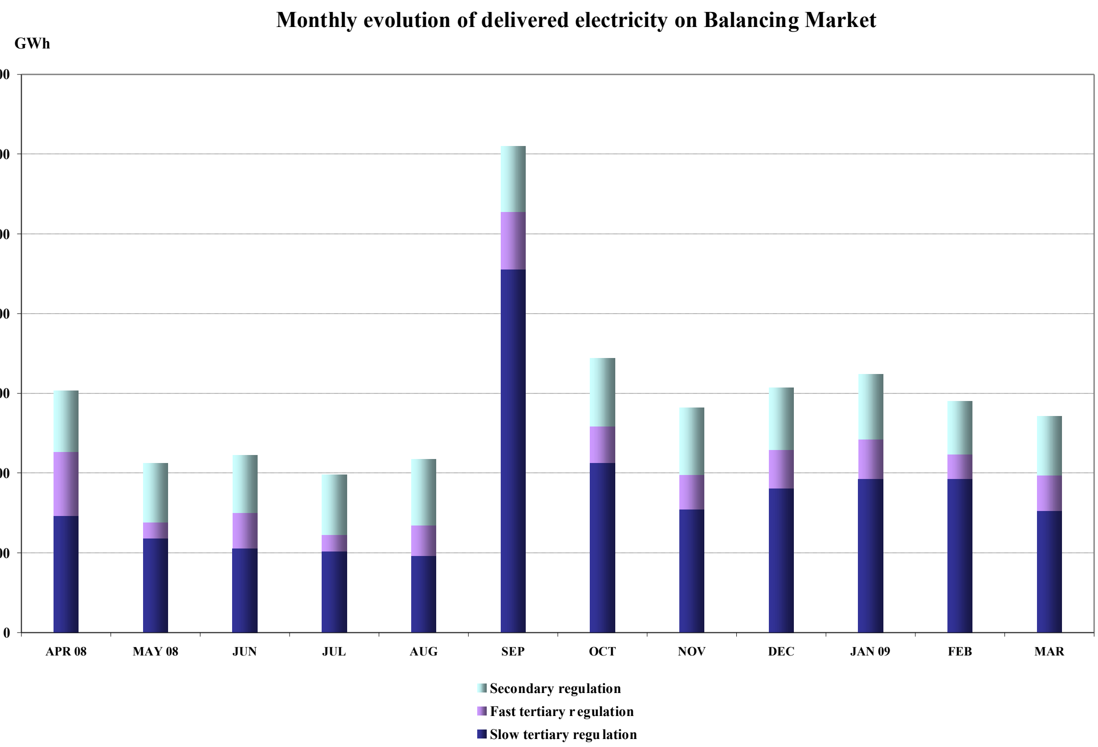

*Source: Monthly reports of SC Opcom SA and CN Transelectrica SA – processed by MG*

Balancing electricity is determined by the dispatch orders (accepted offers) received by generators. After settlement, the actual electricity delivered by generators on balancing market is determined based on the measured (approved) values; the relation between the accepted and delivered electricity in March 2009 is presented in the following table:

| **March 2009** | **Dispach order (GWh)** | **Delivered electricity (GWh)** | **Deviation (%)** |
|---|---|---|---|
| **Secondary regulation** | **74** | **74** | **0** |
| *upward* | 18 | 18 | 0 |
| *downward* | 56 | 56 | 0 |
| **Fast tertiary regulation** | **54** | **44** | **17** |
| *upward* | 3 | 3 | 12 |
| *downward* | 50 | 41 | 18 |
| **Slow tertiary regulation** | **180** | **153** | **15** |
| *upward* | 39 | 34 | 13 |
| *downward* | 141 | 118 | 16 |
| **TOTAL** | **308** | **271** | **12** |
| *upward* | 61 | 56 | 9 |
| *downward* | 247 | 215 | 13 |
| **INTERNAL CONSUMPTION** | | **4410** | |
| ***% share of traded volumes from internal consumption*** | | ***6.1%*** | |

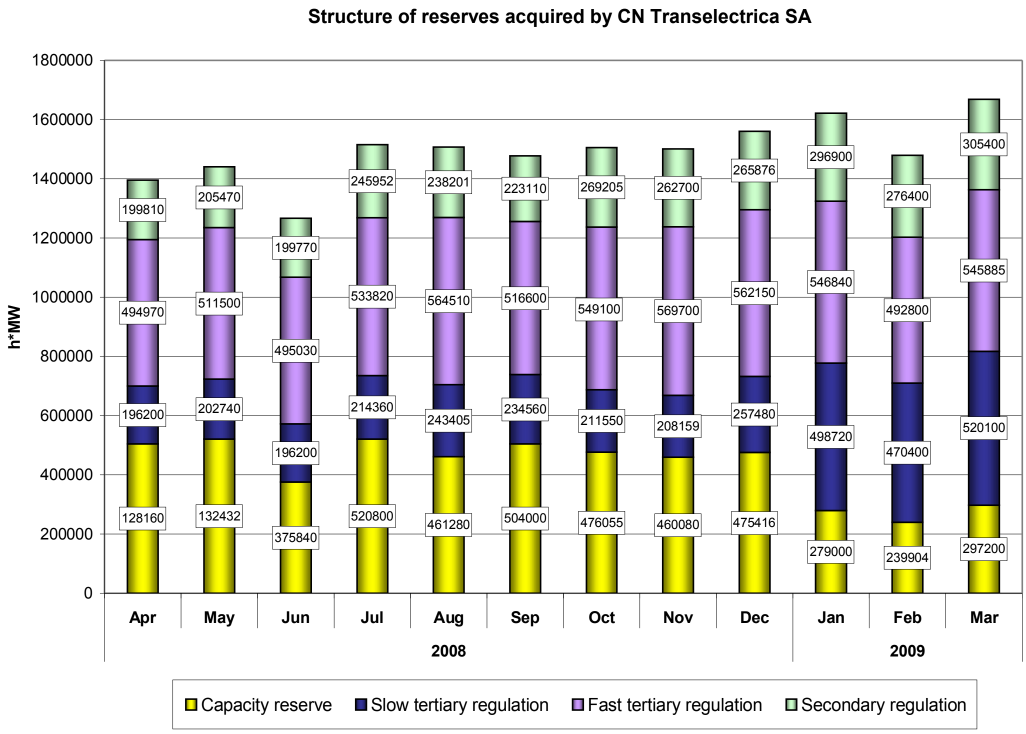
*Source: Monthly reports of CN Transelectrica SA – processed by MG*

The structure of balancing electricity delivered in the system on each type of regulation between April 2008 – March 2009 is presented in the graph below:



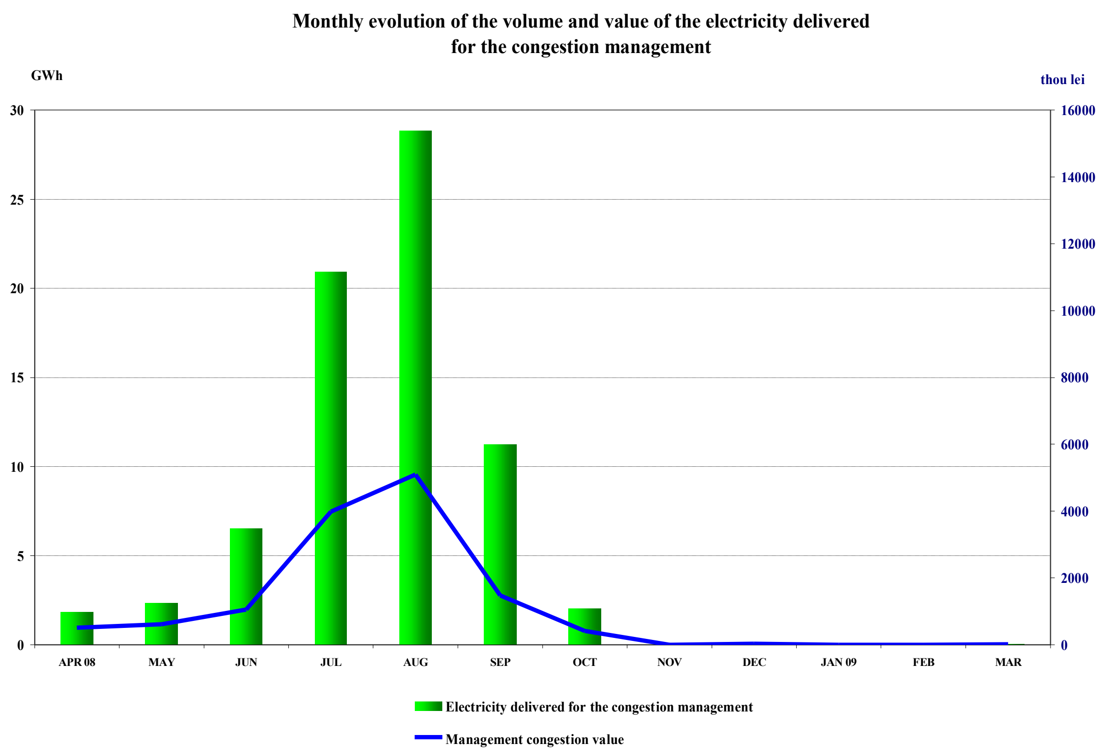

*Source: Monthly reports of CN Transelectrica SA – processed by MG*

For comparison, the following graph presents the evolution of reserves (ancillary services, i.e. obligations of generators to maintain their contracted capacities available for dispatching/offering on BM) acquired/paid by CN Transelectrica SA during April 2008 – March 2009.




*Source: Monthly reports of CN Transelectrica SA – processed by MG*

The following graph presents the last 12-months evolution of electricity traded by CN Transelectrica SA on the Balancing Market for covering the electricity used for congestion management (in order to solve the congestions occurred within the transmission grid) and the evolution of the values of these transactions.




*Source: Monthly reports of CN Transelectrica SA – processed by MG*

## *5. Trading structure on the wholesale electricity market of different participant categories*

### *Generators*

The structure of electricity sales obligations contracted before delivery day by the electricity generators with dispatchable units in March 2009 compared to February 2009 and March 2008 was the following:

**- GWh -**

| **Transaction type** | **February 2009** | **March 2009** | **March 2008** |
|---|---|---|---|
| 0 | 1 | 2 | 3 |
| Regulated to incumbents, thermal generators | 1373.13 | 1260.20 | 1185.19 |
| Regulated to incumbents, hydro generator | 147.13 | 285.95 | 226.46 |
| Regulated to incumbents, nuclear generator | 453.85 | 501.22 | 506.24 |
| Regulated for distribution losses, thermal generators | 363.01 | 332.60 | 307.61 |
| Regulated for distribution losses, hydro generator | 44.01 | 64.08 | 70.37 |
| Regulated for distribution losses, nuclear generator | 133.82 | 147.78 | 148.19 |
| Regulated for transmission losses, thermal generator | 64.47 | 71.57 | 74.25 |
| Regulated, to other generators (with return of obligation within a year) | 47.51 | 49.13 | 27.16 |
| Regulated to other generators, activated on request, with option premium | 0.00 | 0.00 | 0.00 |
| Negotiated, to distributors | 0.00 | 0.00 | 0.00 |
| Negotiated, to other generators | 93.32 | 151.22 | 68.73 |
| Negotiated. to suppliers | 927.70 | 1028.39 | 1312.99 |
| Contracts concluded on centralized markets (CMBC, CMBC-NC, RCE) | 695.89 | 611.81 | 879.10 |
| Supply to consumers (regulated and competitive) | 210.80 | 234.05 | 164.66 |
| Export | 116.97 | 114.24 | 126.48 |
| DAM | 163.85 | 236.43 | 269.92 |
| **Total** | **4835.46** | **5088.69** | **5367.34** |

*Source: Monthly reports of generators – processed by MG*

### *Suppliers*

In March 2009, 64 companies having as main activity the supply of electricity concluded transactions on the electricity market; from these, 22 suppliers traded electricity exclusively on the wholesale market and 42 suppliers on both retail and wholesale markets (in this category are also included the 7 incumbent suppliers).

Suppliers acting exclusively on WEM

The following table shows the activity for March 2009 compared to March 2008 of the suppliers acting exclusively on WEM, acquisitions and sales being split by categories of markets/participants:

**- GWh -**

| **Transactions' structure of suppliers acting exclusively on WEM** | **March 2008** | **March 2009** |
|---|---|---|
| **Acquisitions** | | |
| Import | 9.47 | 2.53 |
| Negotiated contracts with suppliers | 589.91* | 658.25 |
| Negotiated contracts with generators | 265.95 | 164.27 |
| Contracts concluded on centralized markets | 207.08* | 302.27 |
| DAM | 37.08 | 150.23 |

| Sales | | |
|---|---|---|
| Export | 379.10 | 322.90 |
| Negociated contracts with suppliers | 673.71* | 800.72 |
| Negociated contracts with generators | 14.86 | 41.36 |
| Contracts concluded on centralized markets | - | - |
| DAM | 41.73 | 112.13 |

**Data published in the Report on monitoring results of the electricity market – March 2008 were modified due to some corrections*

Active suppliers on REM (the incumbent suppliers are not included)

The following table presents aggregated information on acquisitions volume and structure for suppliers providing electricity to final consumers, on the competitive market, for March 2009 and March 2008.

**- GWh -**

| Acquisition structure of suppliers providing electricity to final consumers (the incumbent suppliers are not included) | March 2008 | March 2009 |
|---|---|---|
| Import | 50.26 | 49.12 |
| Negociated contracts with suppliers | 621.93 | 531.06 |
| Negociated contracts with generators | 1047.23 | 864.12 |
| Contracts concluded on centralized markets | 521.96* | 298.74 |
| DAM | 119.17 | 143.43 |

**Data published in the Report on monitoring results of the electricity market – March 2008 were modified due to some corrections*

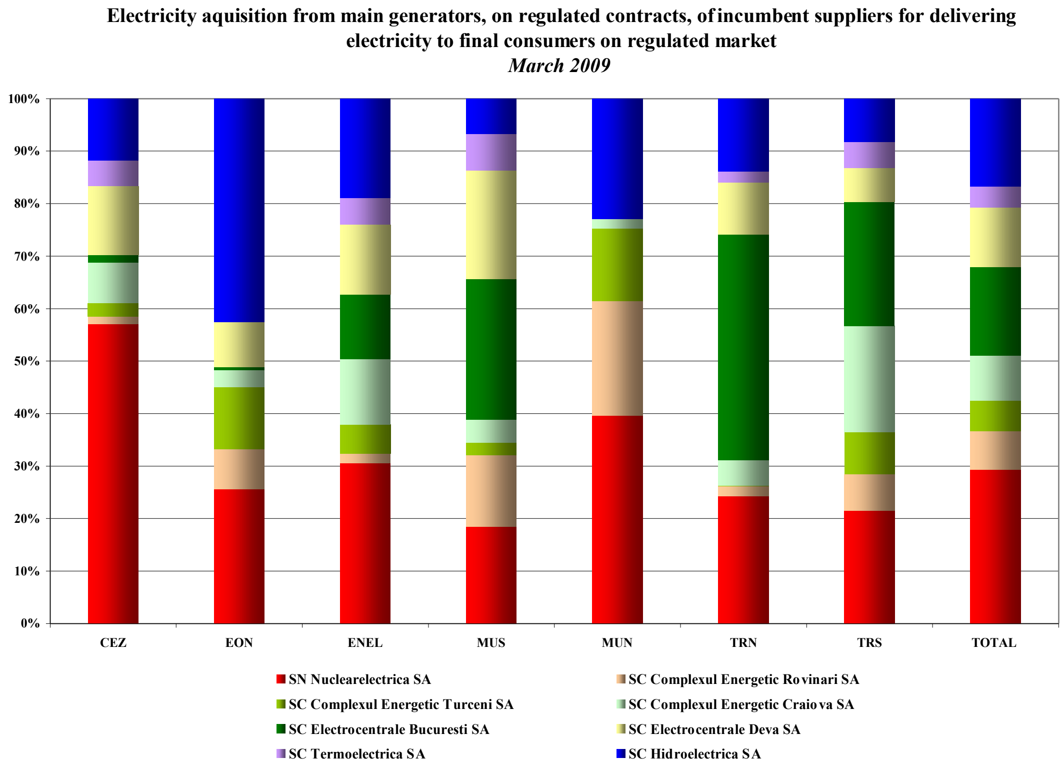
Incumbent suppliers

Electricity acquisition structure of incumbent suppliers (before the delivery day), for supplying the regulated market consumers, is presented in the table below, for March 2009 compared to the situation of March 2008:

**- GWh -**

| Acquisition structure of incumbent suppliers for regulated REM component | March 2008 | March 2009 |
|---|---|---|
| Regulated contracts | 1964.88 | 2105.46 |
| Negociated contracts | 13.52 | 29.87 |
| Contracts concluded on centralized markets | 5.39 | - |
| DAM | 77.21 | 130.16 |

The structure of the electricity purchased by the incumbent suppliers from the main generators on regulated contracts is presented in the following graph for March 2009:




*Source: Monthly reports of the incumbent suppliers – processed by MG*

Likewise to the situation presented for the regulated REM, the table below presents the acquisition structure of incumbent suppliers (before the delivery day), corresponding to the competitive REM (energy supplied at negotiated prices to the consumers who renounced to regulated tariffs) for March 2009 compared to March 2008:

**- GWh -**

| Acquisition structure of incumbent suppliers for competitive REM component | March 2008 | March 2009 |
|---|---|---|
| Import | - | 36.81 |
| Negotiated contracts with suppliers | 193.88 | 238.33 |
| Negotiated contracts with generators | - | - |
| Contracts concluded on centralized markets | 143.96 | 14.52 |
| DAM | 72.89 | 71.77 |

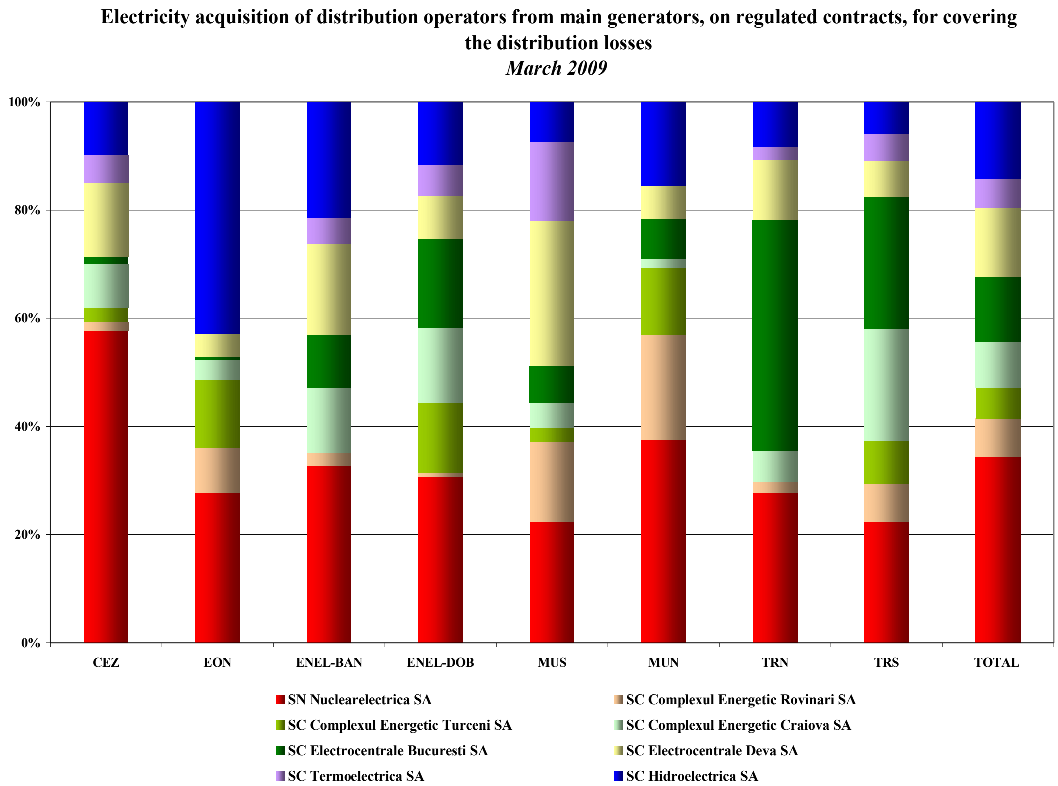
## *Main distribution operators*

The following table shows the electricity acquisition structure of main distribution operators (before the delivery day), for covering the distribution network losses, for March 2009 compared to March 2008:

**- GWh -**

| Acquisition structure | March 2008 | March 2009 |
|---|---|---|
| Regulated contracts | 527.11 | 544.46 |
| Negotiated contracts | 4.47 | 5.59 |
| Contracts concluded on centralized markets | - | - |
| DAM | 53.55 | 34.40 |

The electricity purchased by the 8 distribution operators from the main generators on regulated contracts, for covering their network losses is presented in detail in the following graph, for March 2009:




*Source: Monthly reports of the distribution operators – processed by MG*

## *6. Concentration indicators on the wholesale electricity market and its components*

According to the economic theory and the EU documents, the following market concentration indicators may be defined:

- HHI, Herfindahl-Hirschman Index = sum of square market shares (%) of participants:

  The indicator values signify:

| | |
|---|---|
| HHI < 1000 | non-concentrated market; |
| 1000 < HHI < 1800 | moderately concentrated market; |
| HHI > 1800 | highly concentrated market. |

- C3 = sum of market shares of the main three participants in the market:

  The indicator values signify:

| | |
|---|---|
| 40% < C3 < 70% | moderately concentrated market; |
| C3 > 70% | highly concentrated market. |

These concentration indicators may be defined for the wholesale market (electricity market or ancillary services market) or for each of its components where direct competition takes place.

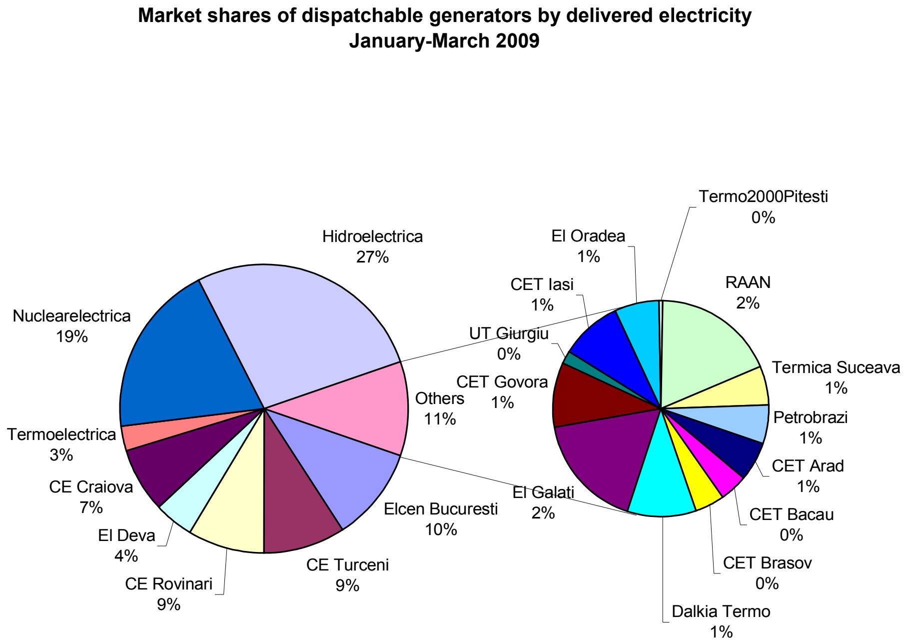
<u>Concentration indicators and market shares of the electricity generators</u>

The market structure regarding the electricity generation offers an initial basis for analyzing the possible competitiveness level of the electricity market.

The following table presents the concentration indicators of electricity generation for March 2009, calculated based on electricity delivered into the networks by the generators with dispatchable units.

| **Concentration indicators - March 2009 -** | **C1 (%)** | **C3 (%)** | **HHI** |
|---|---|---|---|
| **Value** | 31 | 61 | 1685 |

The market shares of the electricity generators, taking into account all components of the wholesale electricity market, are presented in the following graph, in the first quarter of 2009. These market shares are calculated based on the electricity delivered into networks.




*Source: Monthly reports of generators – processed by MG*

A component of the WEM where direct competition between generators exists is the Balancing Market (BM). The values of concentration indicators on this market in March 2009 are determined based on effectively delivered electricity, for each type of regulation defined within the Commercial Code, and they are presented in the following table:

| **Structure/concentration indicators on BM - March 2009 -** | **Regulation** | | | | | |
|---|---|---|---|---|---|---|
| | **Secondary** | | **Fast tertiary** | | **Slow tertiary** | |
| | **upward** | **downward** | **upward** | **downward** | **upward** | **downward** |
| **C1 (%)** | 67 | 65 | 67 | 50 | 45 | 41 |
| **C3 (%)** | 93 | 92 | 91 | 84 | 89 | 74 |
| **HHI** | 4887 | 4655 | 4832 | 3260 | 3263 | 2507 |

The competition between generators is also present when speaking about the ensuring the reserves necessary for security of supply in the NES. Due to the fact that generators have different levels of capabilities for ensuring this type of service, this market has an important regulated component.

The relationship between regulated and competitive components on the Ancillary Services Market (ASM) as well as the main concentration indicators on each type of reserve (secondary, fast tertiary and slow tertiary) are presented in the following table for March 2009:

| Concentration indicators on ASM - March 2009 - | | Secondary reserve | Fast tertiary reserve | Slow tertiary reserve | Capacity reserve |
|---|---|---|---|---|---|
| **regulated component** | **contracted quantity (h*MW)** | 305400 | 545885 | 260050 | 0 |
| | **C1 (%)** | 63.9 | 80.2 | 85.7 | 0 |
| | **C3 (%)** | 90.1 | 91.0 | 100 | 0 |
| **competitive component** | **contracted quantity (h*MW)** | 0 | 0 | 260050 | 297200 |
| | **C1 (%)** | 0 | 0 | 58.9 | 44.5 |
| | **C3 (%)** | 0 | 0 | 100 | 100 |
| | **HHI** | 0 | 0 | 4321 | 3821 |

<u>Concentration Indexes for the Day Ahead Market</u>

Day Ahead Market (DAM) is a voluntary market, opened both for buying and selling for all types of market participants: generators, suppliers, grid operators, under aplicable regulations.

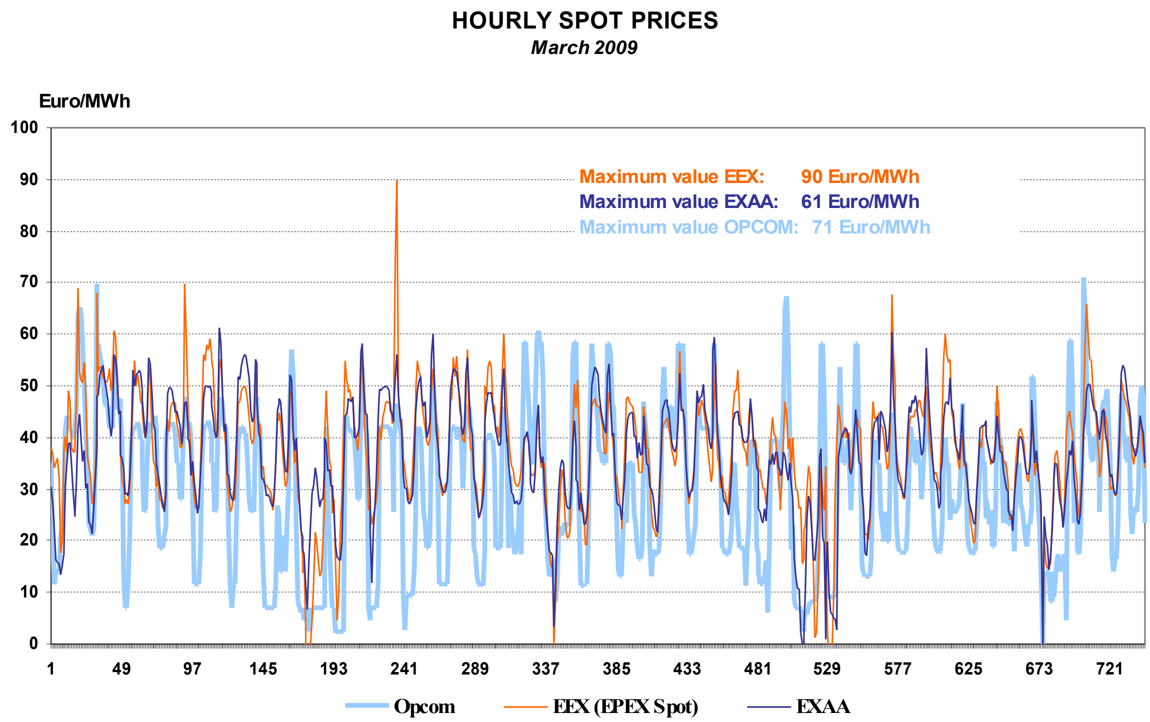
The concentration indicators on DAM reflects the level of competition between sellers and between buyers respectively, the dynamics of both influencing the price level. The following table presents C1, C3 and HHI for buying and for selling side of DAM in March 2009, based on quantities traded by participants on this market.

| Concentration indicators on DAM - March 2009 - | C1 (%) | C3 (%) | HHI |
|---|---|---|---|
| **Buying transactions** | 12 | 34 | 724 |
| **Selling transactions** | 14 | 36 | 717 |

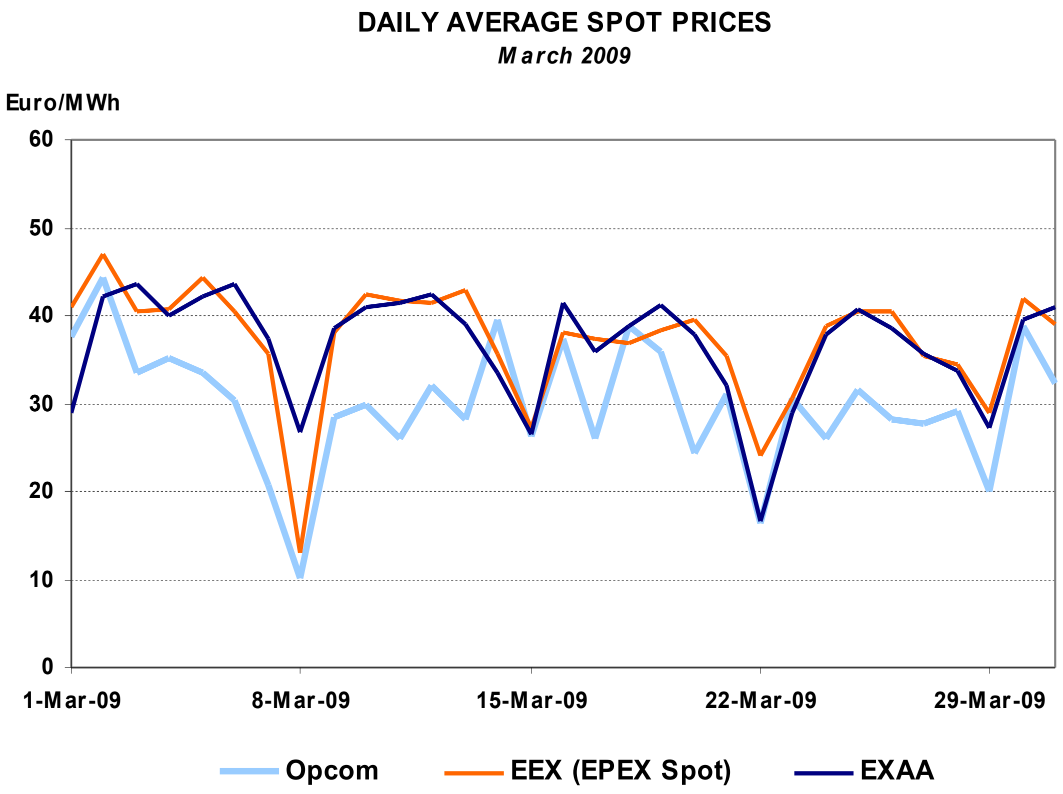
## *7. Price evolution on wholesale electricity market*

SC Opcom SA is the administrator of DAM. The MCP on DAM represents a reference value for the prices on the bilateral contracts. The evolution of hourly and daily average prices on DAM in March 2009 is presented in the following graphs, along with the prices on EEX and EXXA.

For comparison with prices on the European power exchanges, the spot price on SC Opcom SA is denominated in EUR, taking into consideration the daily exchange rates Euro/leu communicated by the National Bank of Romania.

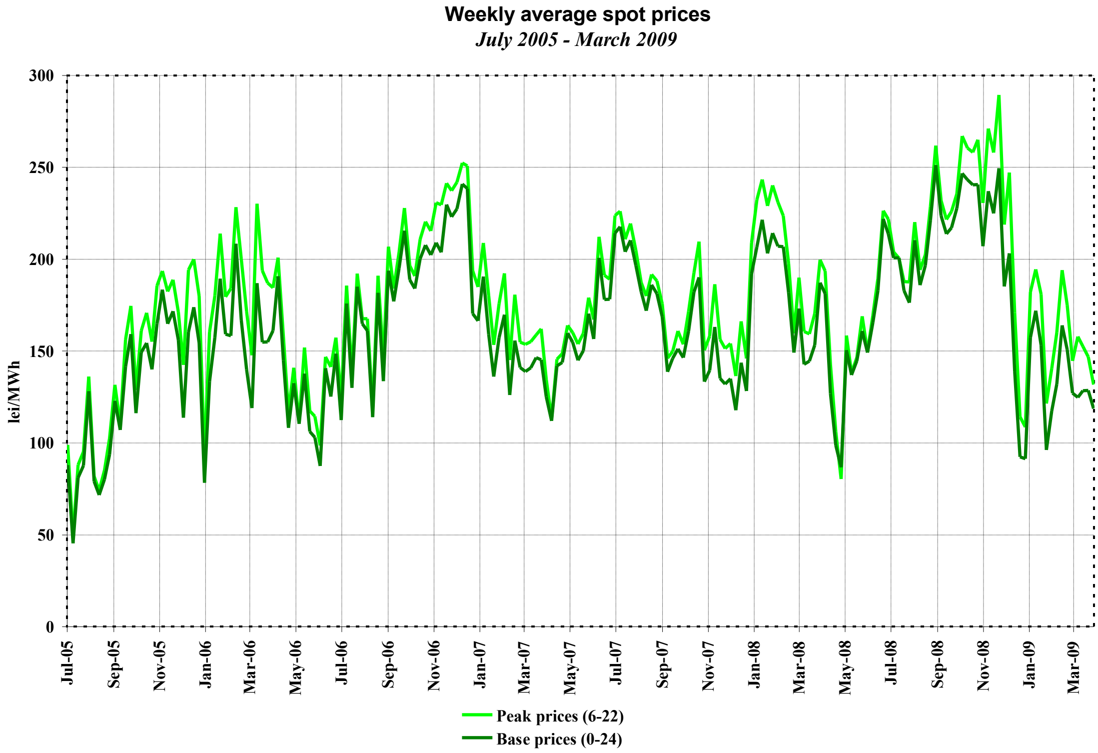



*Source: Daily reports of SC Opcom SA and published data of EXAA and EEX – processed by MG*




*Source: Daily reports of SC Opcom SA and published data of EXAA and EEX – processed by MG*

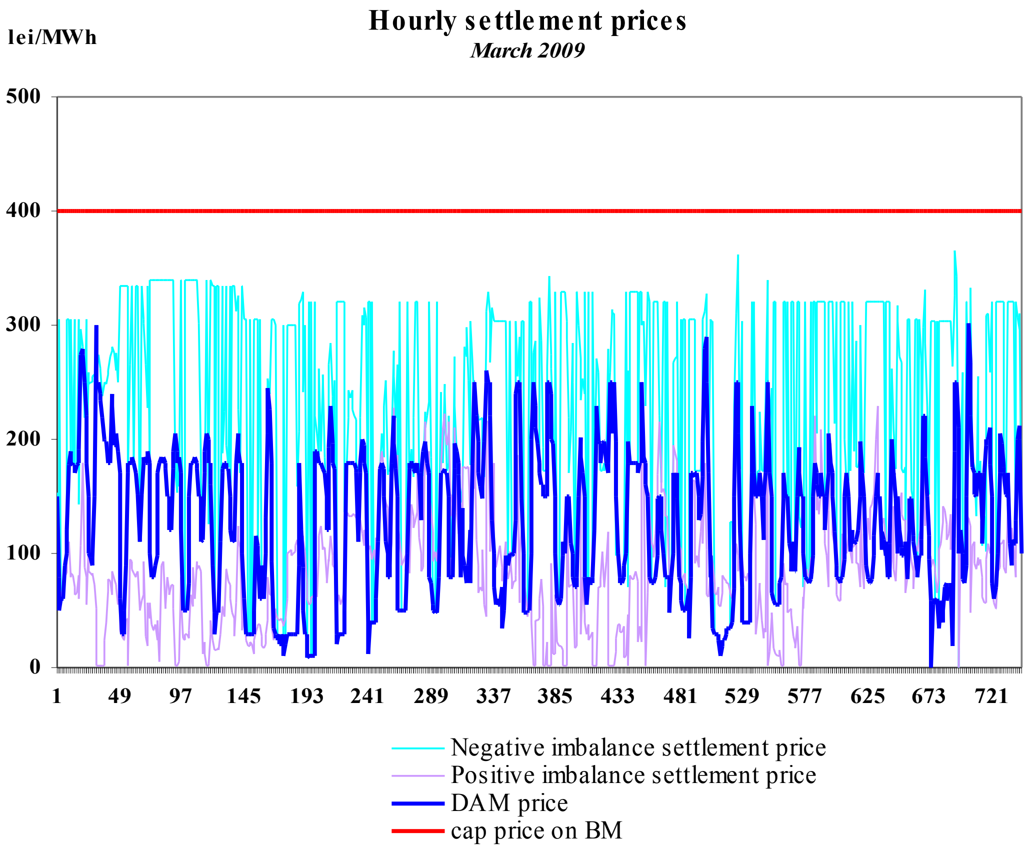
The following graph presents the evolution of weekly average spot prices starting with July 2005:



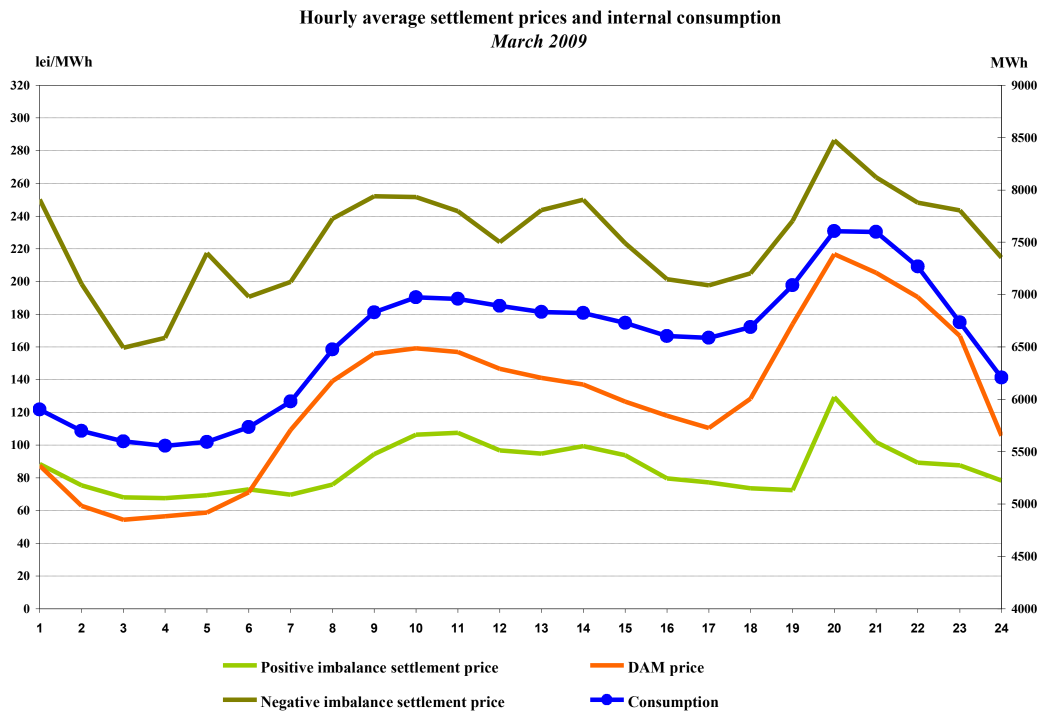

*Source: Daily reports of SC Opcom SA – processed by MG*

In order to cover the differences between planned/contracted amounts of consumption/ generation and the real time consumption, the system operator (CN Transelectrica SA) operates the BM by buying or "selling" electricity at prices determined by the merit order of dispatchable generators' offers. The participants who generate the imbalances, grouped in BRPs, have to bear the imbalances costs. For the negative imbalances, they have to pay the settlement price resulting from the upward bids accepted on the BM, while for the positive imbalances they receive the settlement price resulting from the downward bids accepted on the BM.

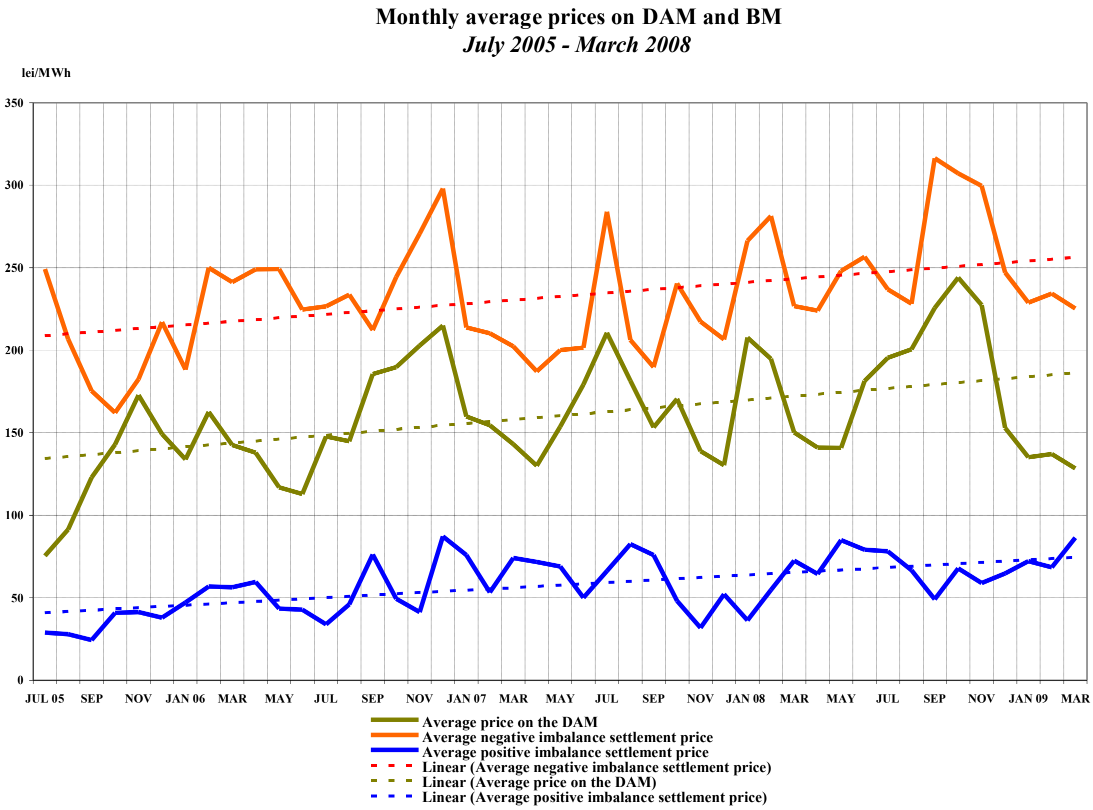
The settlement prices (MCP on DAM, negative imbalance settlement price and positive imbalance settlement price) are represented on the same graph, showing the two markets correlation degree. In the first graph the prices are expressed in hourly values, in the second graph in hourly average values compared to internal consumption, and in the last graph in average monthly values.




*Source: Daily/monthly reports of SC Opcom SA – processed by MG*



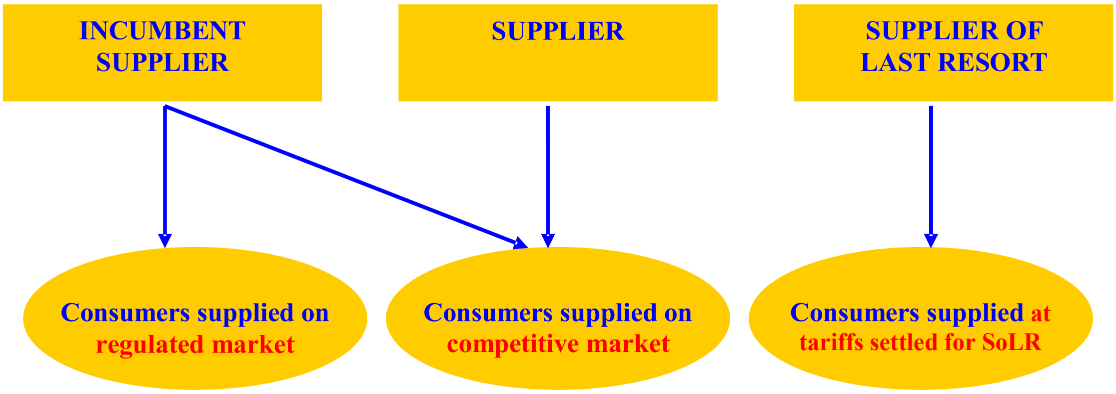

*Source: Monthly reports of SC Opcom SA and CN Transelectrica SA – processed by MG*




*Source: Monthly/daily reports of SC Opcom SA – processed by MG*

# III. RETAIL ELECTRICITY MARKET

### *1. Structure of the retail electricity market*

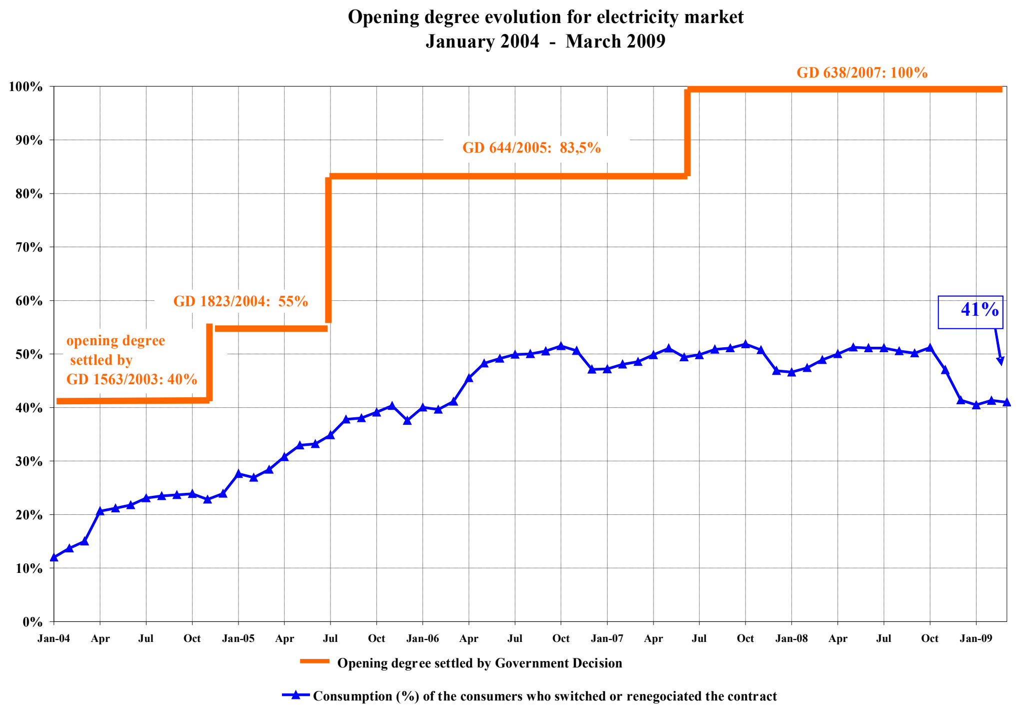



### *2. Steps in the opening process of the electricity market*

| Government Decision | Opening degree % | Annual consumption threshold GWh/year |
|---|---|---|
| **No. 122/2000,** published in O.G. 77/21.02.2000 | 10 | 100 |
| **No. 982/2000,** published in O.G. 529/27.10.2000 | 15 | 100 |
| **No. 1272/2001,** published in O.G. 832/21.12.2001 | 25 | 40 |
| **No. 48/2002,** published in O.G. 71/31.01.2002 | 33 | 40 |
| **No. 1563/2003,** published in O.G. 22/12.01.2004 | 40 | 20 |
| **No. 1823/2004,** published in O.G. 1062/16.11.2004 | 55 | 1 |
| **No. 644/2005,** published in O.G. 684/29.07.2005 | 83.5 | - |
| **No. 638/2007,** published in O.G. 427/27.06.2007 | 100 | - |

### *3. Electricity market opening degree*

The following graph contains the quota of the consumption from total consumption, of the consumers who switched their supplier or renegotiated their contracts with the suppliers operating on the regulated market, during January 2004 – March 2009. The values presented are cumulated from the beginning of the opening process and are presented monthly:

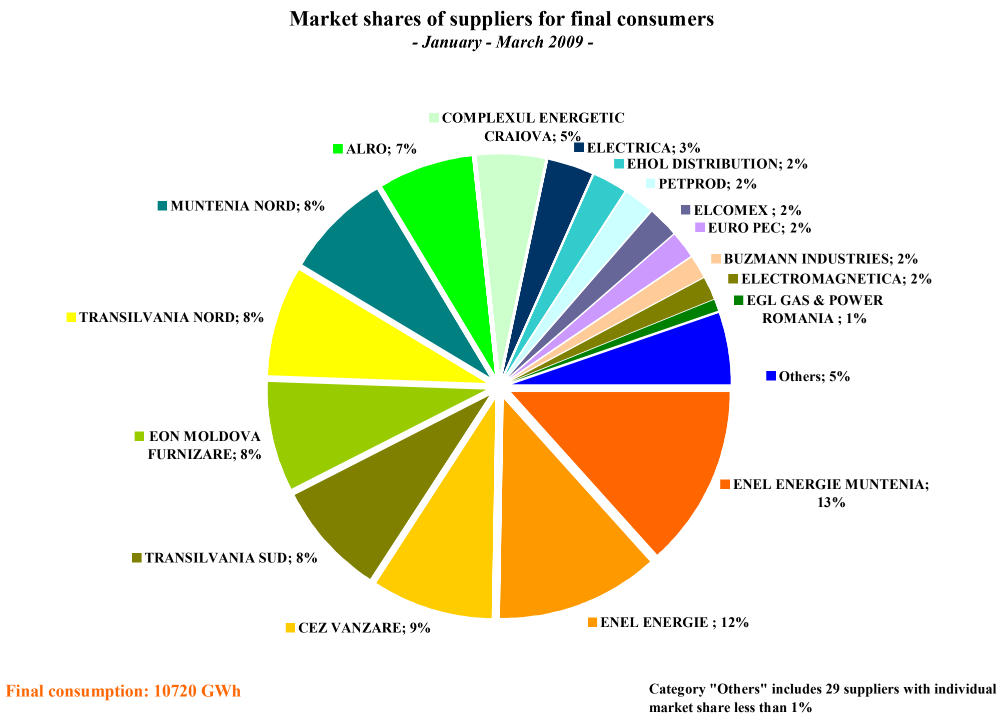



*Source: Monthly reports of the final consumers' suppliers – processed by MG*

## *4. Market shares of the electricity suppliers*

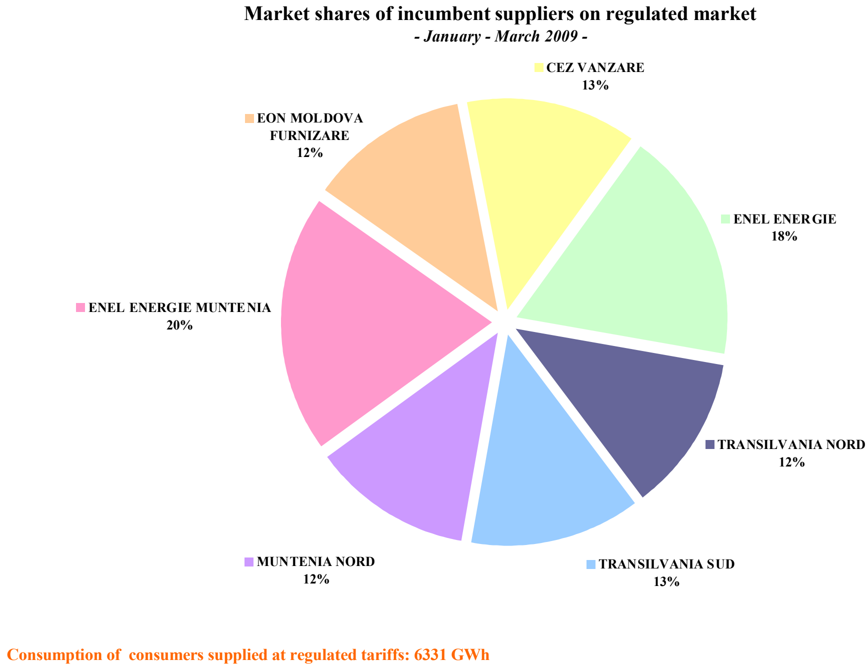
In the following three graphs there are presented the market shares of electricity suppliers on the retail market, calculated:

a) for all suppliers (including the incumbents) on REM – based on the electricity supplied to the consumers on regulated tariffs as well as to the consumers who switched their supplier or renegociated their contract;




*Source: Monthly reports of the incumbent suppliers– processed by MG*

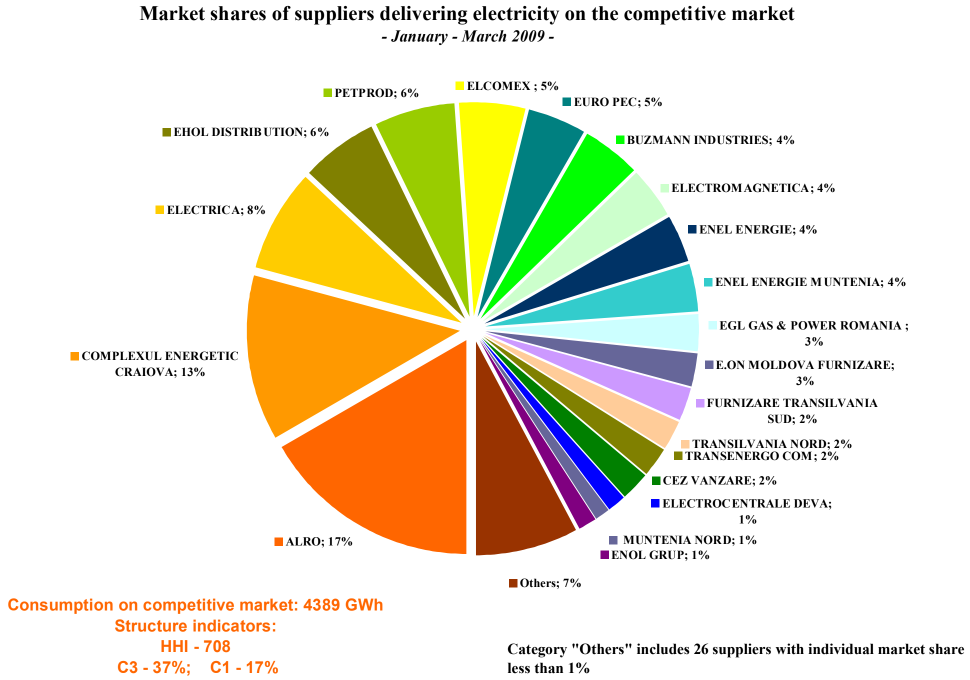
b) for incumbent suppliers - based on the electricity supplied to the consumers at regulated tariffs,




*Source: Monthly reports of the incumbent suppliers– processed by MG*

and

c) for all suppliers (including the incumbents) based on the electricity supplied for the consumers at negociated prices on competitive component of REM:




*Source: Monthly reports of the competitive suppliers– processed by MG*

The electricity supplied to the final consumers used for calculating the market share of every supplier includes also the self-consumption of that particular supplier (e.g. consumers with supply license who buy electricity for themselves from WEM as competitive suppliers).

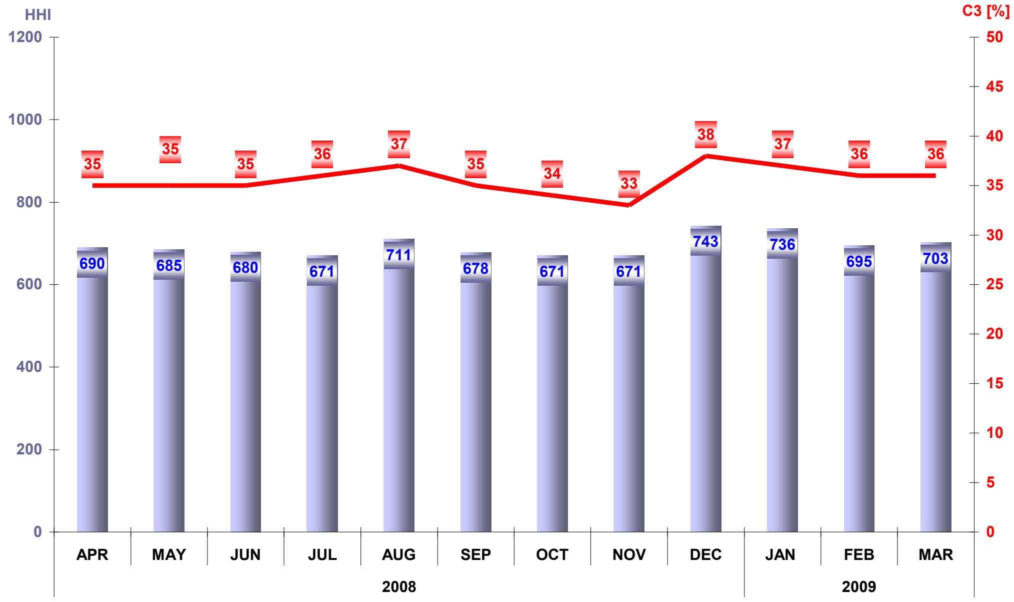
The analysis of the competitive suppliers' activity on the competitive REM component compared to their activity on the WEM is developed based on the weight of the electricity sold to final consumers in total electricity sales. The table below presents the number of suppliers acting on the REM, grouped into categories of sales weight during March 2009:

| Number of suppliers - March 2009 - | Share of sales to final consumers from total sales transactions | | | |
|---|---|---|---|---|
| | 100% | 75% - 100% | 50% - 75% | <50% |
| **Competitive** | 11 | 5 | 9 | 10 |
| **Incumbent** | 4 | 2 | 0 | 1 |

## 5. *Concentration indicators of the competitive retail electricity market*

The monthly evolution of concentration indicators (C3, HHI) determined on the competitive component of the REM is presented in the following graph:

**Herfindahl-Hirschman (HHI) and Concentration Ratio of the main three suppliers delivering electricity on competitive market (C3)**




*Source: Monthly reports of the suppliers – processed by MG*

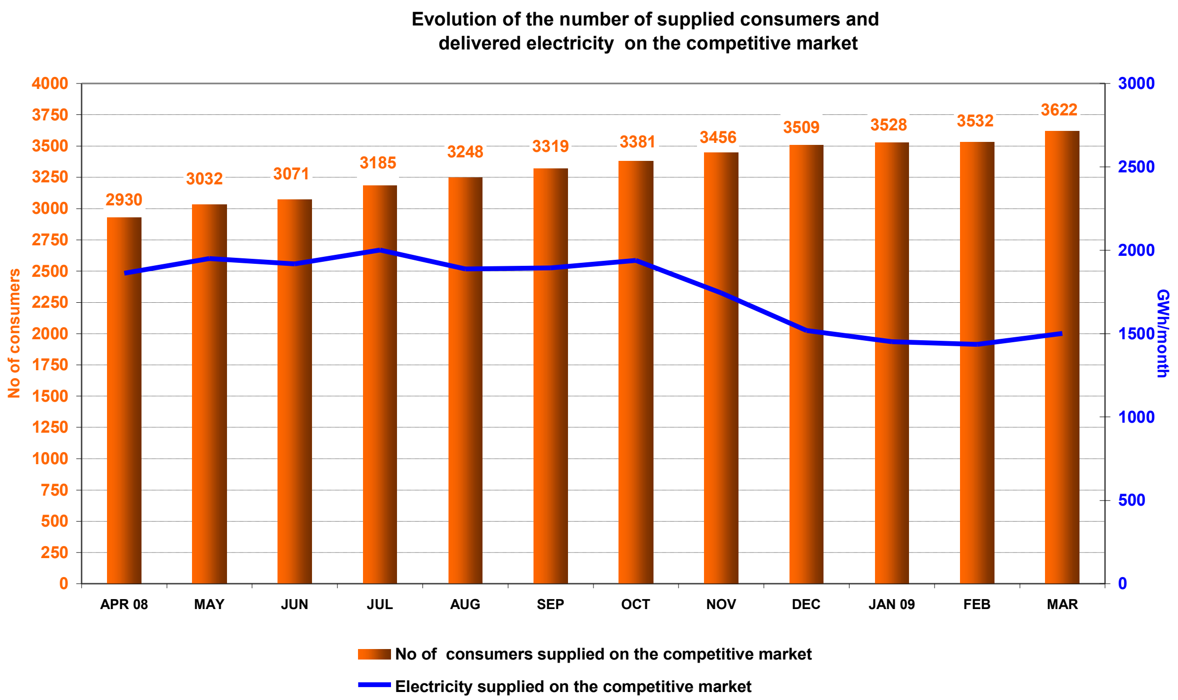
The table below shows the values of structure indicators of competitive component of REM in March 2009 and number of active suppliers, calculated for each consumer category as defined by the European Council Directive no. 90/377/EEC, modified by the Commission Decision no. 2007/394/EC:

| Indicators - March 2009 - | Consumer category | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|
| | IA | IB | IC | ID | IE | IF | Others | |
| **C1 (%)** | 27 | 35 | 19 | 14 | 16 | 22 | 33 | **16** |
| **C3 (%)** | 70 | 64 | 43 | 35 | 37 | 51 | 70 | **36** |
| **HHI** | 1899 | 1775 | 892 | 667 | 741 | 1231 | 2007 | **703** |
| **Consumption (GWh)** | 0.2 | 30 | 84 | 307 | 177 | 146 | 756 | **1501** |
| **No. of suppliers** | 9 | 30 | 35 | 37 | 22 | 12 | 11 | **46** |
| **Incumbent suppliers** | 6 | 7 | 7 | 7 | 6 | 3 | 0 | **7** |
| **Competitive suppliers** | 3 | 21 | 25 | 27 | 15 | 9 | 8 | **35** |
| **Generators acting as suppliers** | 0 | 2 | 3 | 3 | 1 | 0 | 3 | **4** |

## *6. Evolution of consumers' number and of the electricity delivered*

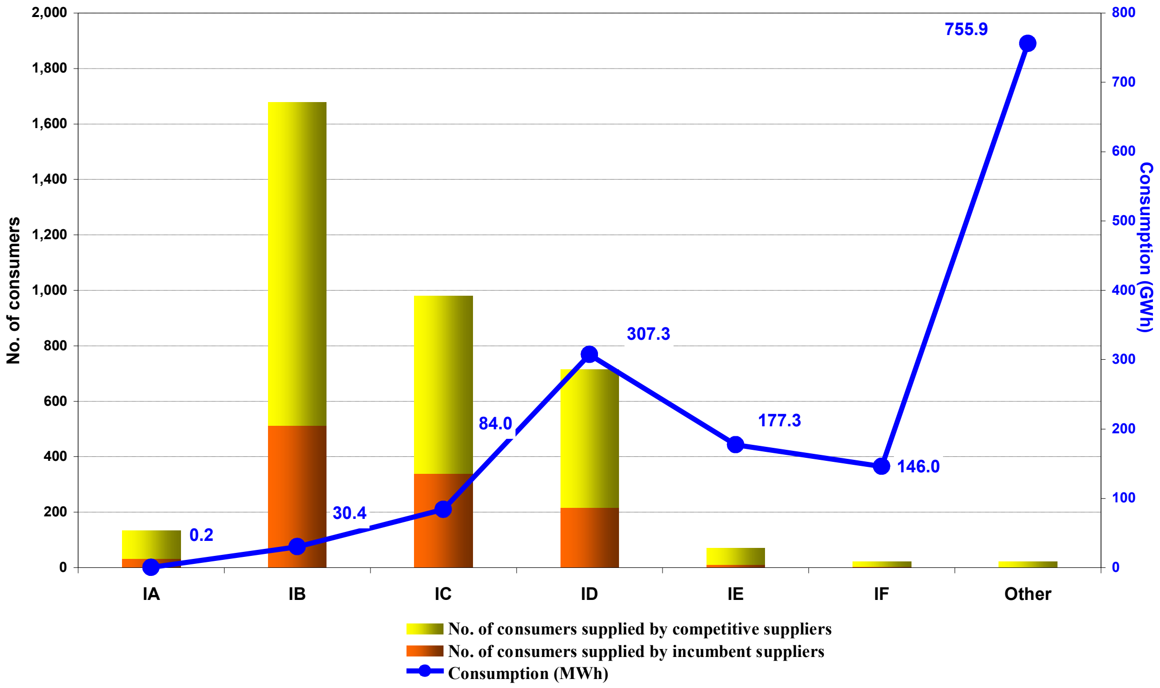
Number of consumers supplied on the competitive market is presented as total value from the beginning of the market opening process; for March 2009 this number is split into categories, according to the provisions of the European Council Directive no. 90/377/EC, with subsequent modifications. The table below presents the bands of consumption of each category of consumers:

| Industrial end-user | Annual electricity consumption (MWh) | |
|---|---|---|
| | Lowest | Highest |
| IA | | <20 |
| IB | 20 | <500 |
| IC | 500 | <2000 |
| ID | 2000 | <20000 |
| IE | 20000 | <70000 |
| IF | 70000 | <=150000 |
| Others | >150000 | |




*Source: Monthly reports of the competitive suppliers – processed by MG*

**Number of consumers supplied on competitive market and the consumption of each category of consumers**
***- March 2009 -***

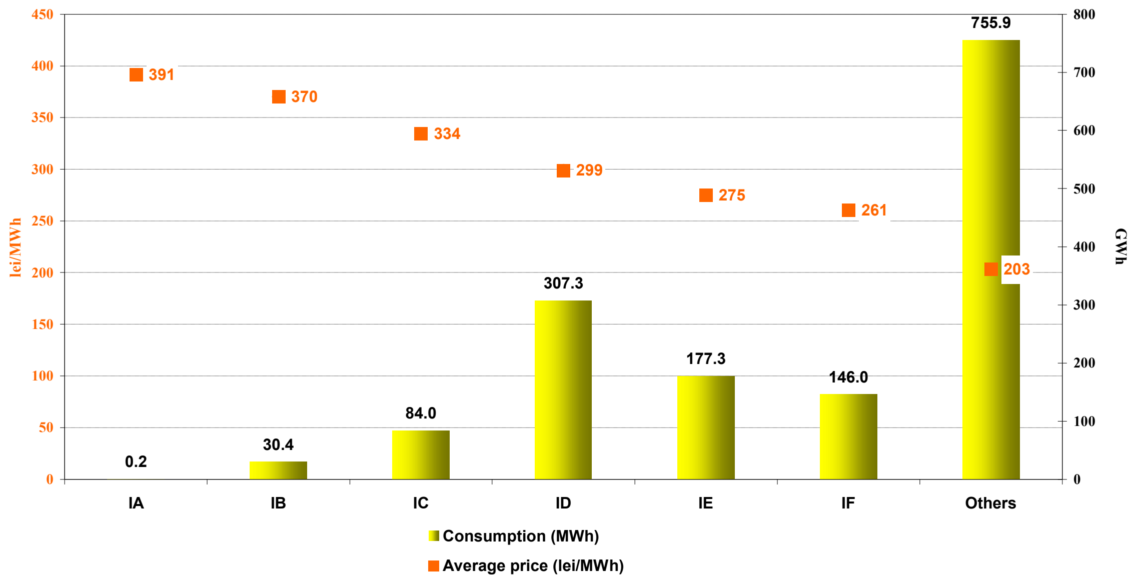



*Source: Monthly reports of the suppliers – processed by MG*

## 7. *Average selling prices of consumers supplied on the competitive market*

The following graph presents the average selling prices of consumers supplied on the competitive market, based on the structure defined according to the European Council Directive no. 90/377/EC, with the subsequent modifications.

**Average price and energy consumption on types of consumers supplied on competitive market**
***- March 2009 -***




*Source: Monthly reports of the competitive suppliers – processed by MG*

***Note**: The average selling price on each category was calculated as weighted average of prices applied by suppliers with quantities supplied, according to the provisions of the European Directive. The average prices do not include VAT, excise or other taxes but include the supplied services (injection and extraction components of transmission, system services, distribution, market settlement, imbalances, BRP aggregated taxes, metering).*

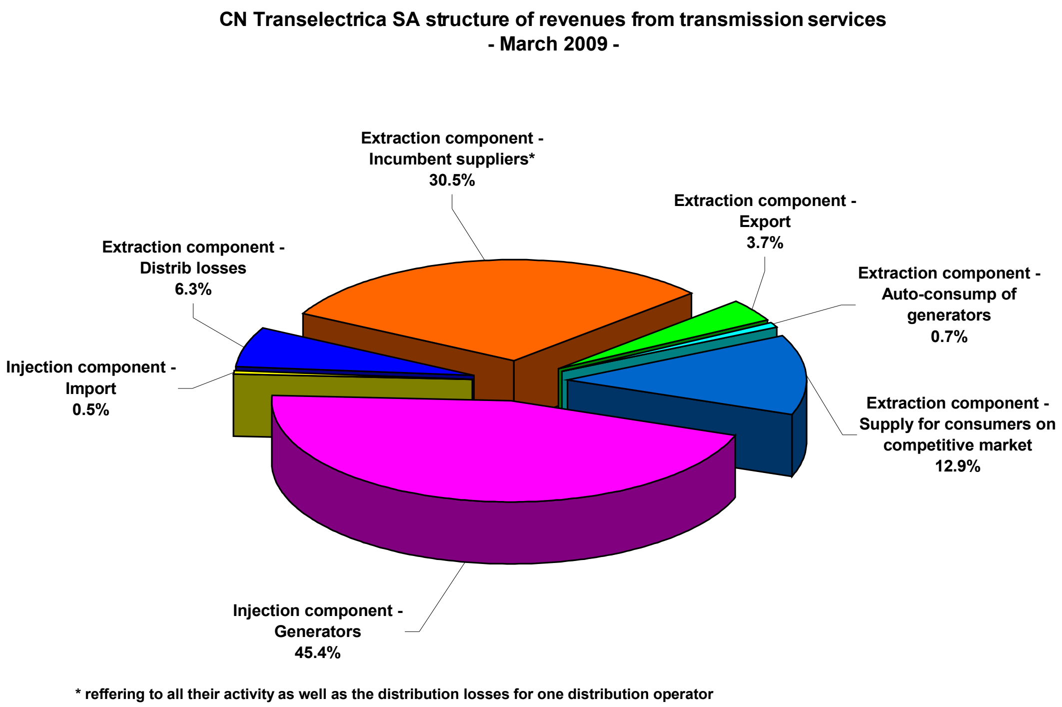
*Splitting consumers into categories was based on their annual consumption forecast, according to the provisions of above mentioned Directive.*

# IV. TRANSMISSION AND SYSTEM OPERATOR C.N. TRANSELECTRICA S.A.

CN Transelectrica SA performs the electricity transmission service at regulated tariffs, which have two components:

- injection component (TG), aimed to determine an optimum geographic positioning of the new power units;
- extraction component (TL), as an incentive for an equilibrate positioning into the teritorry of the consumers.

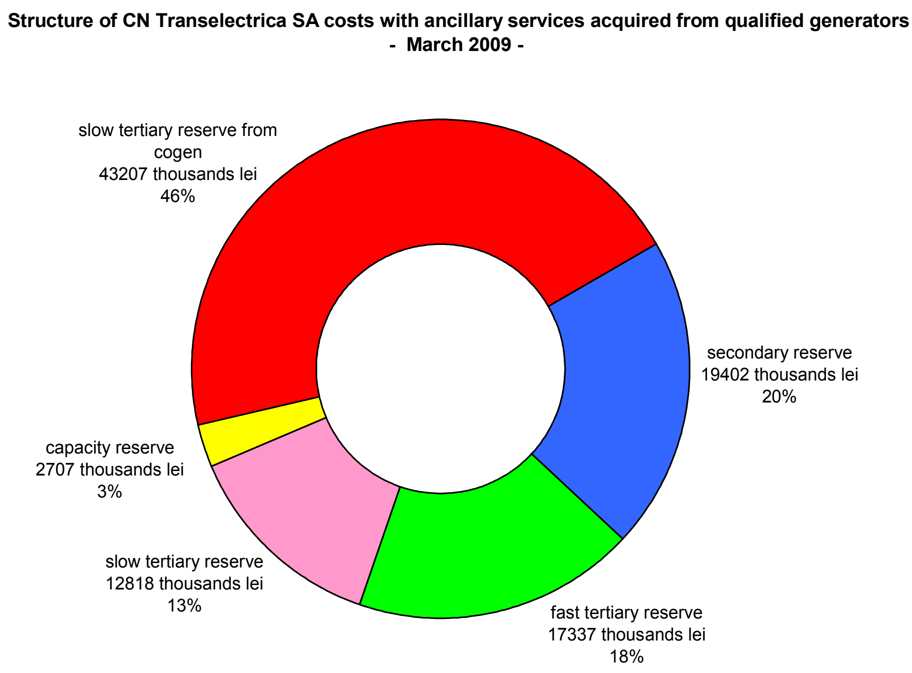
The following graph presents the structure of CN Transelectrica SA revenues from performing the transmission services and reflects the structure of its clients benefiting from this type of service in March 2009.




*Source: Monthly reports of CN Transelectrica SA – processed by MG*

In order to perform the system operator tasks, CN Transelectrica SA assesses and contracts reserves (ancillary services) from qualified generators, which are integrated on BM. The ancillary services used are: reserves for secondary, fast tertiary, slow tertiary regulation and slow tertiary reserve from cogeneration. Starting with July 2007, the rules for capacity reserve entered into force, by determination of the reserve dimensions, the way in which the suppliers of this service are selected and the conditions in which this new type of reserve may be used by CN Transelectrica SA.

The following graph presents the costs of ancillary services CN Transelectrica SA had to pay in March 2009. In order to cover these costs and its own operating costs, TSO applies a regulated tariff for system services.




*Source: Monthly reports of CN Transelectrica SA – processed by MG*

# V. EVOLUTION OF MARKET RULES IN MARCH 2009

- In March 2009, ANRE issued the Order no. 46/2009 that settled the rules upon which the electricity generators would calculate, by themselves, the value of transmission tariff (the injection component) in order to be distinctly reclaimed from incumbent suppliers and distributors.
- No regulations concerning the functioning of the retail electricity market were issued in March 2009.

# VI. EXPLANATIONS AND ABBREVIATION

1. Explanations

- ***Self-consumption of generators*** – in the graph regarding the revenues of CN Transelectrica SA, the self-consumption exclusively represents the generators consumption at consumption places other than the generation sites.
- ***Internal consumption*** represents the electricity covered by the wholesale market participants and calculated as *Delivered electricity + Import – Export*.
- ***Consumption of consumers on regulated market*** represents the consumption of consumers supplied at regulated tariffs by the incumbent suppliers.
- ***Consumption of consumers on competitive market*** represents the consumption of consumers supplied at negociated prices.
- ***Fuel consumption*** represents the fuel consumed for generating electricity and heat.
- ***Electricity delivered into the grid*** includes also the own consumption of auto-generators such as RAAN and SNP Petrom together with the electricity sold by the generators through direct lines or consumed by themselves at other consumption sites.
- ***Competitive supplier*** represents, within the present document, the supplier which is active on the competitive retail market.

2. Abbreviation

- MG – Monitoring Group
- EEX – European Energy Exchange – Leipzig, Germany, www.eex.de
- EXAA – Energy Exchange Austria, www.exaa.at
- DAM – Day Ahead Market
- BM – Balancing Market
- ASM – Ancillary Services Market
- MCP – Market Clearing Price
- BRP – Balancing Responsible Party
- TG/TL – injection / extraction component of the transmission tariff
- CMBC – centralised market of bilateral contracts
- CMBC-CN – centralised market for partially stardardised bilateral contracts with continuous negociation
- NES – National Energy System
- WEM – wholesale electricity market
- REM – retail electricity market
- RCE – Romanian Commodities Exchange