

**REPORT ON RESULTS OF MONITORING THE  
ROMANIAN ELECTRICITY MARKET  
NOVEMBER 2011**

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

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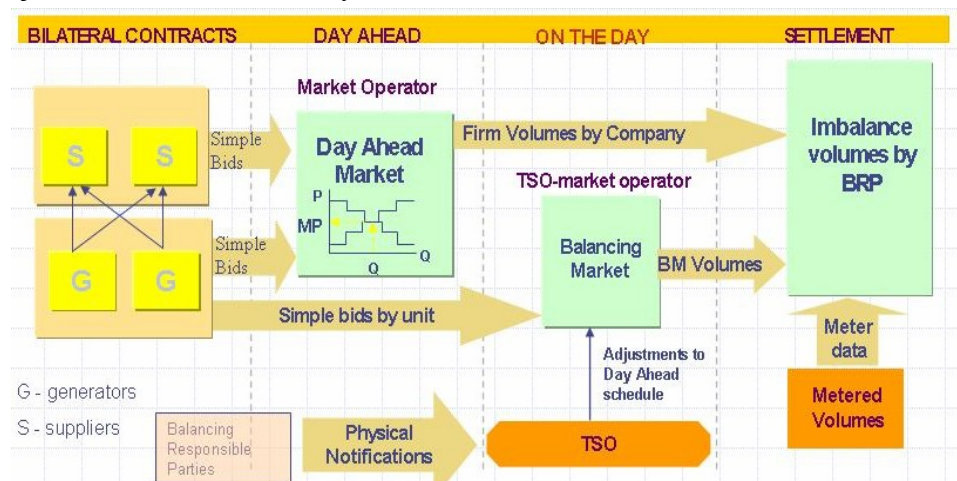
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## I. MAIN EVENTS IN THE DEVELOPMENT OF THE ROMANIAN ELECTRICITY MARKET

- 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 dissolved;
- 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 negotiation;
- 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).
- August 2008 – process of legal unbundling of distribution and supply companies has been concluded;
- July 2011 - launch of the intraday market.

## II. WHOLESALE ELECTRICITY MARKET

### 1. Structure of the wholesale electricity market



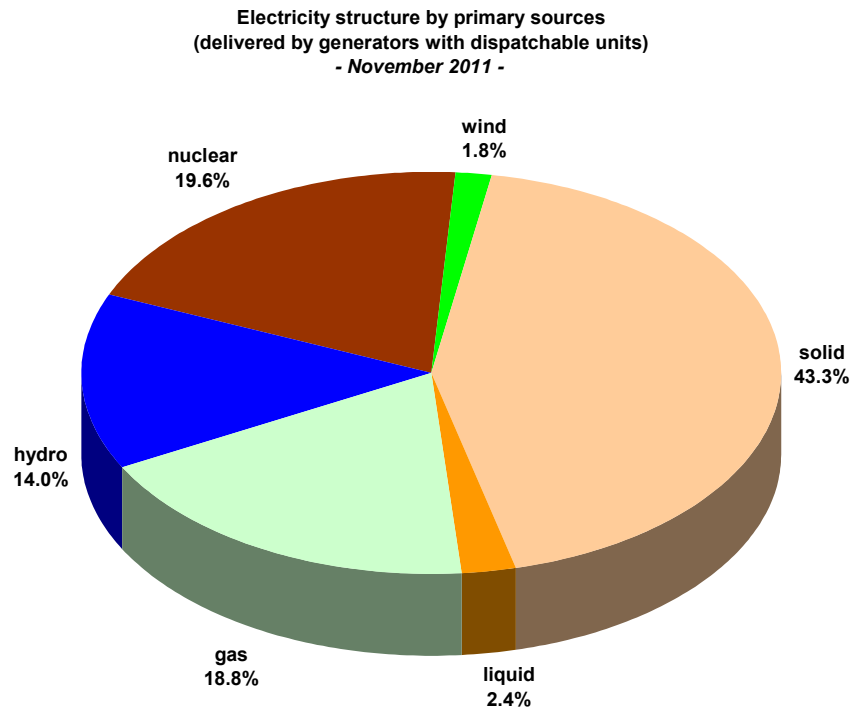
## 2. Participants on the wholesale electricity market

The market participants\* acting on the electricity market in November 2011 are presented below split into categories:

No.	Name	No.	Name	No.	Name
<b>A Electricity generators operating dispatching units</b>		<b>F Electricity Suppliers acting exclusively on the wholesale market</b>		<b>G Electricity Suppliers</b>	
1	SC CET Bacău SA	1	Alpiq Energy SE	1	SC Alpiq RomEnergie SRL
2	SC CET Govora SA	2	SC AMV Style SRL	2	SC Alpiq RomIndustries SRL
3	MUNICIPIUL IAȘI	3	SC BIT-REEN SRL	3	SC Alro SA
4	SC CET Oradea SA	4	CEZ as	4	SC Arcelormittal Galati SA
5	SC Cernavoda Power SRL	5	SC CEZ Trade Romania SRL	5	SC Arelco Distribuție SRL
6	SC Dalkia Termo Prahova SRL	6	Danske Commodities/s Aarhus	6	SC Aton Transilvania SRL
7	SC EDP Renewables România SRL	7	Electrabel SA	7	SC Beny Alex SRL
8	SC Electrocentrale București SA	8	SC Edison Trading SpA	8	SC Biol Energy SRL
9	SC Electrocentrale Galați SA	9	SC Encaz SRL	9	SC EFE Energy SRL
10	SC Electrocentrale Paroșeni SA	10	SC Enel Trade Romania SRL	10	SC EGL Gas & Power Romania SA
11	SC Enel Green SRL	11	Energy Financing Team Switzerland	11	SC Electrica SA
12	SC Lukoil Energy & Gaz Romania SRL	12	SC Energy Market Consulting SRL	12	SC Electricom SA
13	SC Romconstruct Top SRL	13	SC Energon Power&Gaz SRL	13	SC Electromagnetica SA
14	SC Termica SA Suceava	14	E.ON Energy Trading SE	14	SC Energotrans SRL
15	SC Termoelectrica SA	15	SC Ezpada SRL	15	SC Energy Distribution Services SRL
16	SC Tomis Team SRL	16	Ezpada SRO	16	SC Energy Financing Team Romania SRL
<b>AI Electricity generators operating dispatching units and acting also as suppliers on the competitive</b>		17	Gazprom Marketing & Trading	17	SC Energy Holding SRL
17	RAAN	18	SC GDF Suez Energy Trading Romania SRL	18	SC Energy Network SRL
18	SN Nuclearelectrica SA	19	GEN-I trgovanje in prodaja elektricne energije	19	SC Enex SRL
19	SC OMV Petrom SA	20	GEN-I Bukarest Electricity Trading and Sales	20	SC Ennet Grup SRL
20	SC CE Craiova SA	21	SC Global Electric Trading SRL	21	SC Enol Grup SA
21	SC CE Rovinari SA	22	SC Grivco SA	22	SC EURO-PEC SA
22	SC CE Turceni SA	23	SC Grupul de Comerț și Investiții SRL	23	SC Fidelis Energy SRL
23	SC CET Arad SA	24	SC Invest Dinamic Proiect SRL	24	SC GDF SUEZ Energy Romania SA
24	SC Electrocentrale Deva SA	25	SC Jas Budapest Zrt	25	SC General Com Invest SRL
25	SC Hidroelectrica SA	26	JP Morgan Ltd	26	SC Hidroconstructia SA
26	SC OMV Petrom Power Park SRL	27	Korlea Invest as	27	SC ICCO Energy SRL
<b>B Transmission System Operator</b>		28	SC Korlea Invest SRL	28	ILIOTOMI Impex GRPA
1	CN TRANSELECTRICA SA	29	SC Lord Energy SRL	29	SC ICPE Electrocond Technologies SA
<b>C DAM, Bilateral Contracts Market, Green Certificates Market Operator</b>		30	MVM Partner Energy Trading Ltd	30	SC Luxten LC SA
1	SC OPCOM SA	31	OMV Trading GmbH	31	Magyar Aramszolgaltato KFT
<b>D Distribution network operators</b>		32	SC RomEnergie Industry SRL	32	SC Monsson Energy Trading SRL
1	SC CEZ Distribuție SA	33	RWE Supply Trading GmbH	33	OET Obedineni Energini Targovtsi
2	SC ENEL Distribuție Banat SA	34	Repower Trading Ceska Republica	34	SC Petprod SRL
3	SC ENEL Distribuție Dobrogea SA	35	SC Repower Vanzari Romania SRL	35	SC Renovation Trading SRL
4	SC E.ON Moldova Distribuție SA	36	SC Romelectro SA	36	SC Repower Furnizare Romania SRL
5	SC ENEL Distribuție Muntenia SA	37	SC Rudnap SRL	37	SC Ten Gaz SRL
6	SC FDEE Electrica Distribuție Muntenia Nord SA	38	Societatea Națională a Lignitolui Otlenia	38	SC TEN Transilvania Energie SRL
7	SC FDEE Electrica Distribuție Transilvania Sud SA	39	Statkraft Markets GmbH	39	SC Tinmar Ind SA
8	SC FDEE Electrica Distribuție Transilvania Nord SA	40	SC Statkraft Romania SRL	40	SC Transformer Supply SRL
<b>E Incumbent suppliers</b>		41	SC Verbund Trading România SRL	41	SC Transenergo Com SA
1	SC CEZ Vanzare SA			42	SC UCM Energy SRL
2	SC ENEL Energie SA				
3	SC E.ON Energie Romania SA				
4	SC ENEL Energie Muntenia SA				
5	SC Electrica Furnizare SA - ACF Muntenia Nord				
6	SC Electrica Furnizare SA - ACF Transilvania Sud				
7	SC Electrica Furnizare SA - ACF Transilvania Nord				

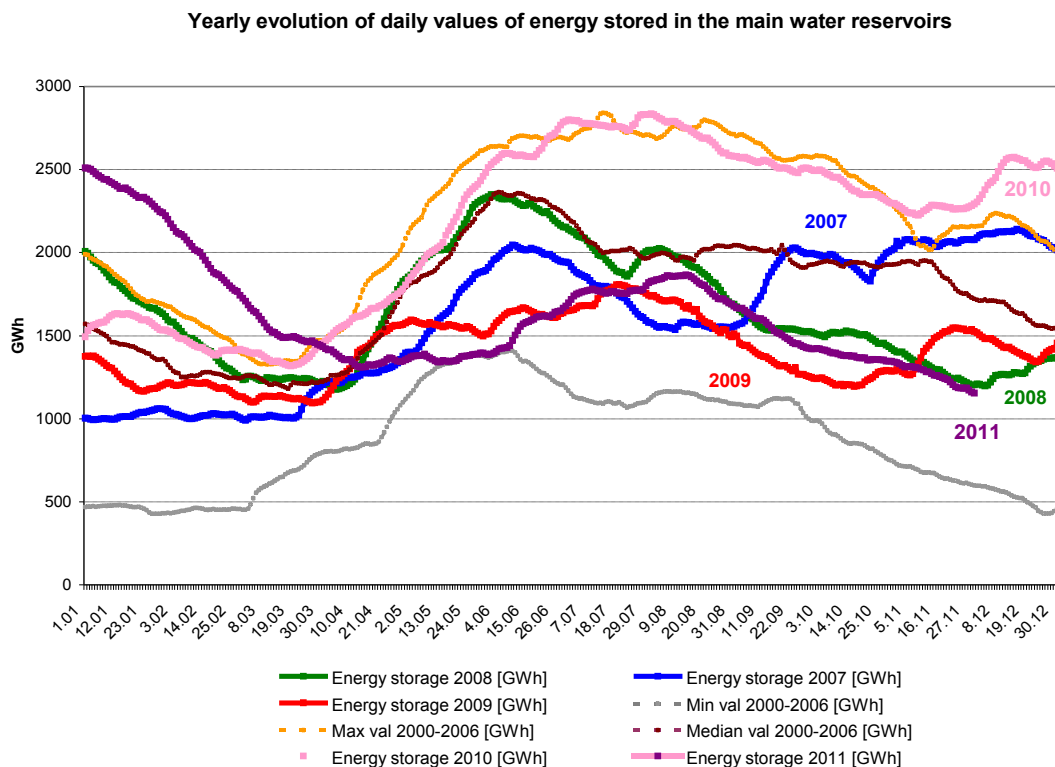
\*) The electricity market participants report to ANRE technical/commercial data according to the *Methodology of wholesale electricity market monitoring for assessing the competition level on market and preventing the abuse of dominant position*, approved by ANRE Order no. 35/2006. The table does not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

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



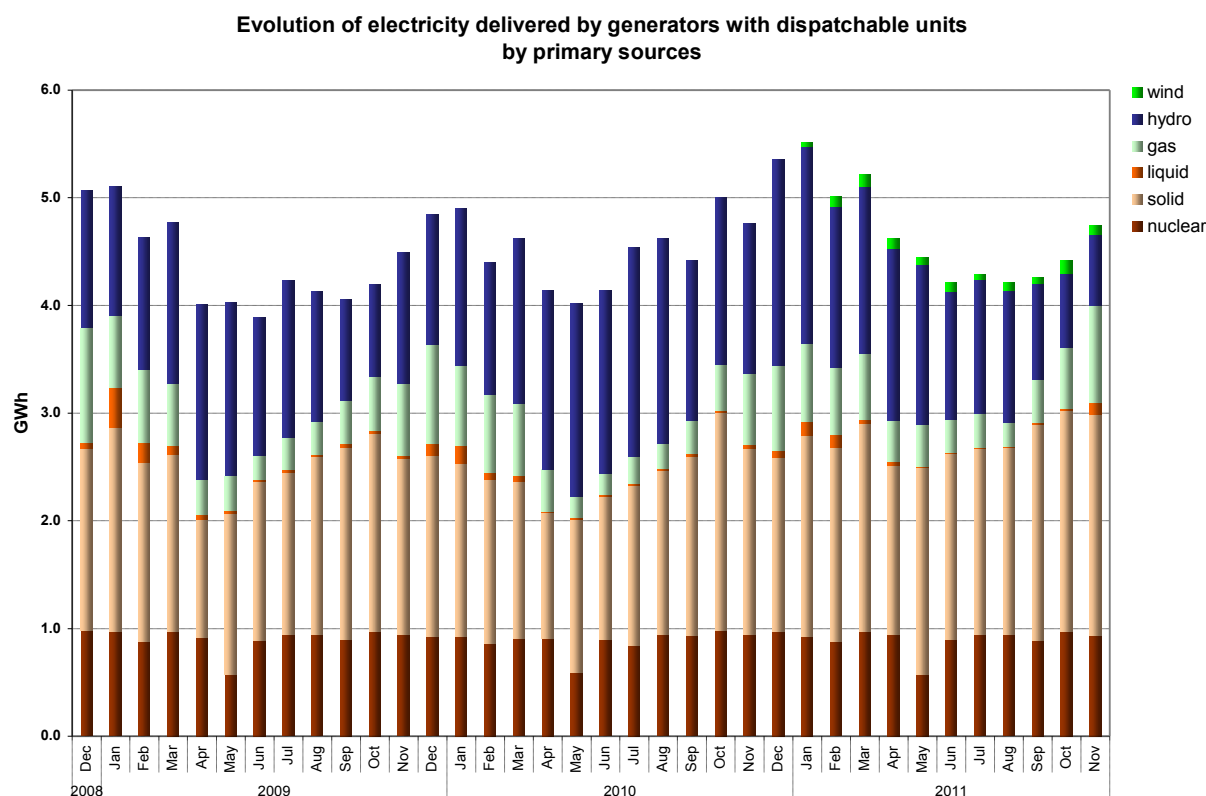
Source: Monthly reports of generators – processed by MG

The electricity generated from hydro resources and the energy stored in the main water reservoirs are directly correlated. The following graph presents the evolution of daily amounts of energy storage during the last 4 years and compared to minimum, maximum and median values from 2000-2006.



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

The evolution of delivered electricity structure, during the last 3 years, 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 November 2011 and for the first 11 months of 2011, compared to data for similar periods of 2010:

	INDICATOR	MU	Nov 2010	Nov 2011	%	Jan-Nov 2010	Jan-Nov 2011	%
0	1	2	3	4	5=4/3*100	6	7	8=7/6*100
1	Generated electricity	TWh	5.15	5.22	101.36	53.32	55.23	103.76
2	Delivered electricity	TWh	4.76	4.74	99.58	49.58	50.96	102.78
3	Import	TWh	0.13	0.19	146.15	0.86	0.93	108.14
4	Export	TWh	0.52	0.11	21.15	3.26	2.83	86.81
5	Internal consumption	TWh	4.37	4.82	110.30	47.18	49.05	103.96
6	Consumption of household consumers on the regulated market	TWh	0.90	0.94	104.44	10.23	10.52	102.83
7	Consumption of non-households consumption	TWh	2.70	2.92	108.15	29.43	31.43	106.80
7.1	on the regulated market	TWh	0.75	0.76	101.33	9.26	7.88	85.10
7.2	on the competitive market	TWh	1.95	2.16	110.77	20.17	23.56	116.81
8	Transmission–Injection component	TWh	4.80	4.74	98.75	48.76	50.25	103.06
9	Transmission–Extraction component	TWh	4.88	4.80	98.36	49.75	51.21	102.93
10	System services	TWh	4.88	4.80	98.36	49.75	51.21	102.93
11	Actual transmission grid losses	TWh	0.10	0.09	90.00	1.00	0.99	99.00
12	Heat generated for delivery	Tcal	1614.05	2054.10	127.26	14836.77	15332.46	103.34
13	Heat in co-generation	Tcal	1403.74	1906.21	135.80	11958.63	13137.00	109.85

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.

#### ***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 standardised bilateral contracts, with continuous negotiation) and on the Power floor of RCE (Romanian Commodities Exchange), transactions on DAM (day-ahead market), on BM (Balancing Market) and Intraday Market (recently introduced).

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 following tables for November 2011 compared to the month before and November 2010:

TRANSACTIONS ON THE WHOLESALE MARKET	October 2011	November 2011	November 2010
<b>1. BILATERAL CONTRACTS' MARKET</b>			
traded volume (GWh)	<b>7236</b>	<b>7274</b>	<b>7950</b>
% from internal consumption (%)	163.3	151.0	181.9
average price (lei/MWh)	184.81	186.68	165.95
<b>1.1. Sales on regulated contracts</b>			
traded volume (GWh)	<b>2365</b>	<b>2418</b>	<b>2567</b>
% from internal consumption (%)	53.4	50.2	58.7
average price (lei/MWh)	173.99	171.99	172.42
<b>1.2. Sales on negotiated contracts*</b>			
traded volume ***(GWh)	<b>4871</b>	<b>4856</b>	<b>5383</b>
% from internal consumption (%)	109.9	100.8	123.2
average price (lei/MWh)	190.07	193.99	162.87
<b>2. EXPORT</b>			
traded volume** (GWh)	<b>110</b>	<b>112</b>	<b>520</b>
% from internal consumption (%)	2.5	2.3	11.9
average price (lei/MWh)	202.54	215.94	181.08
<b>3. CENTRALISED MARKETS OF CONTRACTS</b>			
traded volume (GWh)	<b>508</b>	<b>465</b>	<b>401</b>
% from internal consumption (%)	11.5	9.6	9.2
average price (lei/MWh)	186.74	187.11	157.29
<b>4. DAY AHEAD MARKET</b>			
traded volume (GWh)	<b>744</b>	<b>775</b>	<b>735</b>
% from internal consumption (%)	16.8	16.1	16.8
average price (lei/MWh)	242.10	273.00	169.36
<b>5. INTRADAY MARKET</b>			
traded volume (GWh)	<b>2</b>	<b>1</b>	-
% from internal consumption (%)	0	0	-
average price (lei/MWh)	264.31	323.27	-
<b>6. BALANCING MARKET</b>			
traded volume (GWh)	<b>564</b>	<b>773</b>	<b>219</b>
% from internal consumption (%)	12.7	16.0	5.0
upward volume (GWh)	<b>454</b>	<b>680</b>	<b>117</b>
average negative imbalance price(lei/MWh)	290.59	328.40	276.60
downward volume (GWh)	<b>110</b>	<b>93</b>	<b>102</b>
average positive imbalance price (lei/MWh )	67.48	67.18	37.07
<b>INTERNAL CONSUMPTION (includes distribution and transmission losses) (GWh)</b>	<b>4430</b>	<b>4818</b>	<b>4371</b>

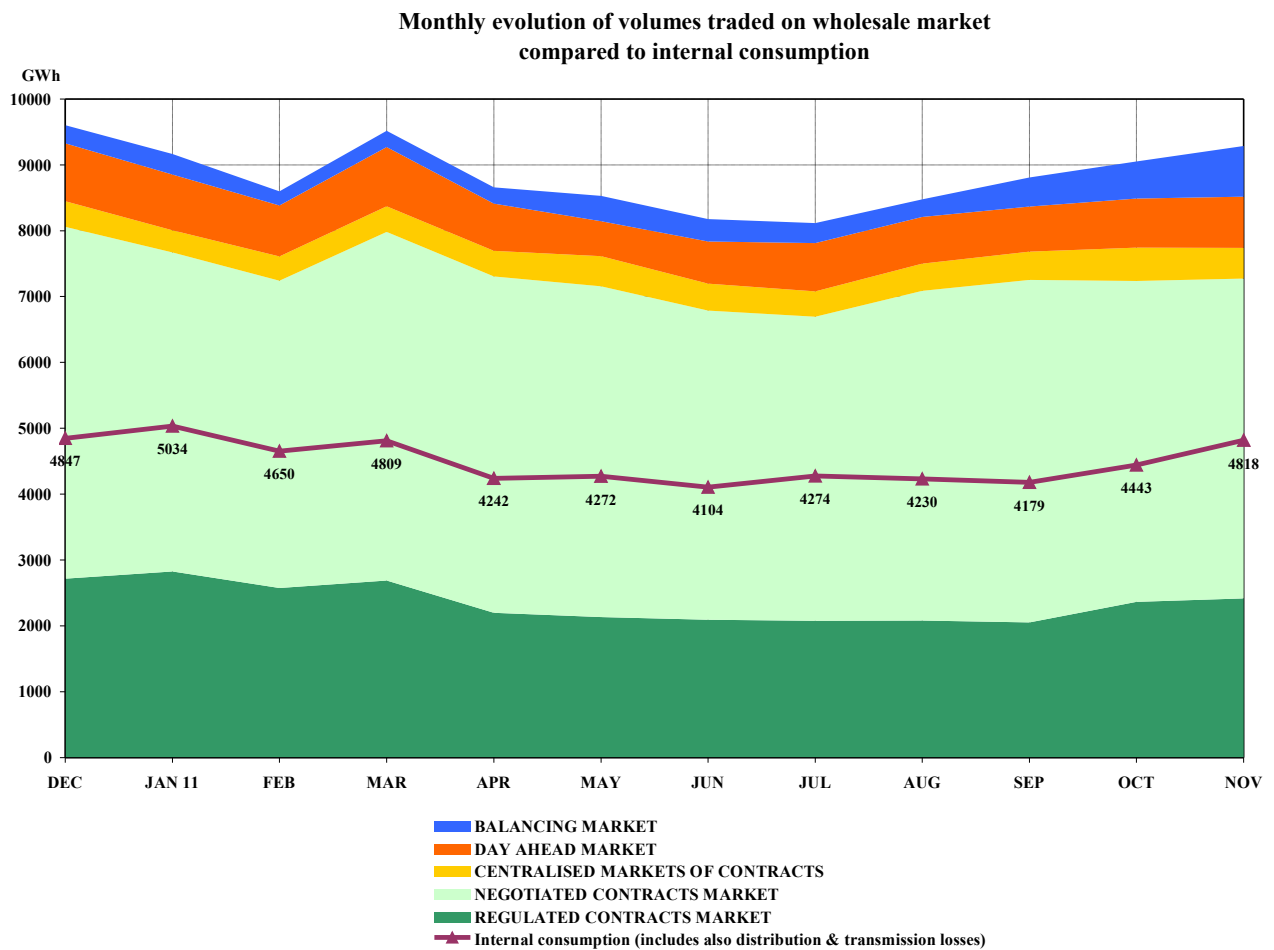
Note: \* Contracts of supply to consumers and contracts of export are not included

\*\* Export volumes correspond to the quantities for which CN Transelectrica SA applied extraction component of transmission tariff for export which in some cases may be different from those reported as traded by participants

\*\*\* Volumes traded on negotiated contracts do not include the quantities resulted from the processing contracts concluded between the fuel suppliers and the generators, as this activity is not subject of ANRE regulations and not comprised within the market participants' reports

The percentage of electricity quantities from the internal consumption (see table from above) offers a dimensional reference for each of the specified markets. Prices include 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, during December 2010 – November 2011, is presented below:

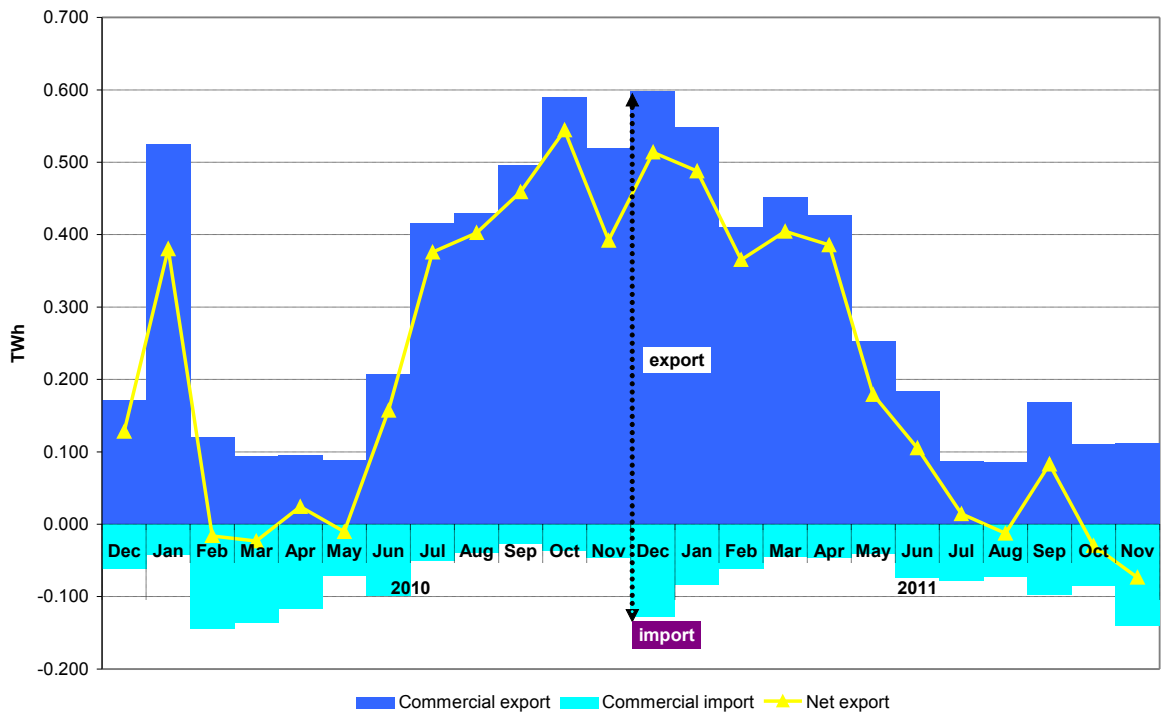


*Source: Monthly reports of wholesale market participants. SC Opcom SA and CN Transelectrica SA – processed by MG*

*Note: In the above graph, the volumes traded on negotiated 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:

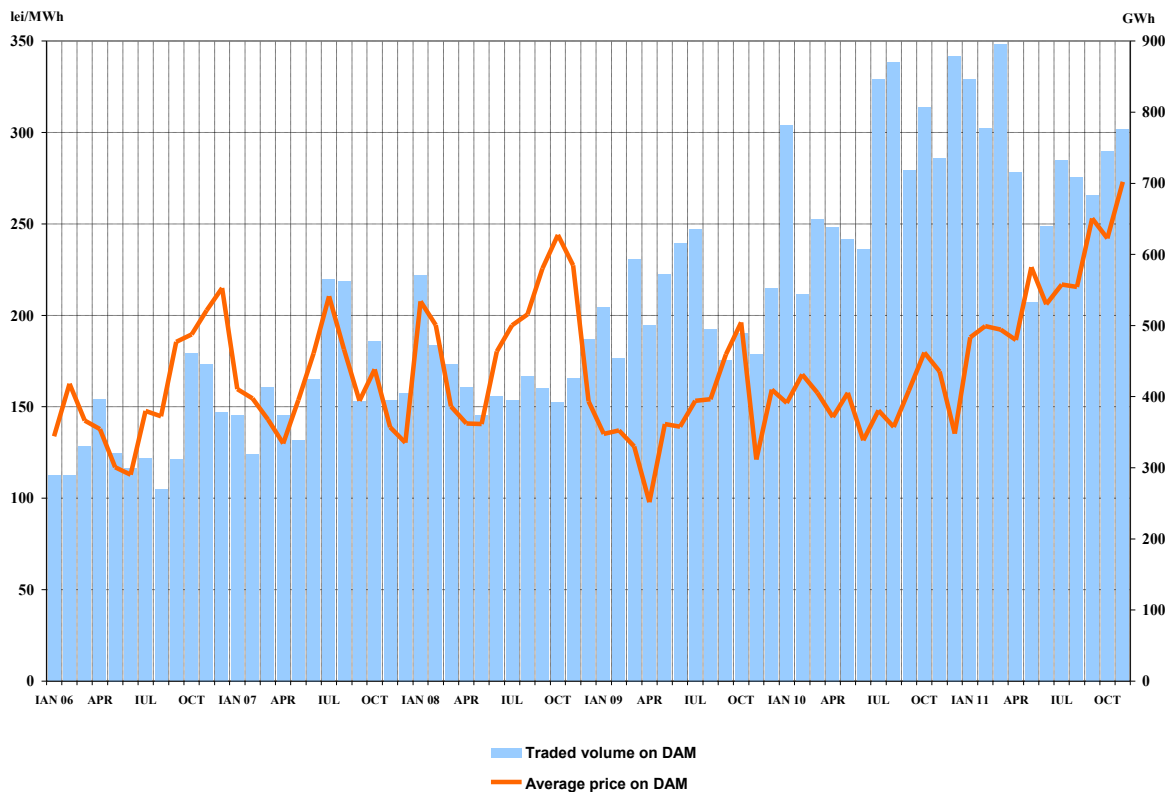
Monthly evolution of export, import and net export of electricity during the last 2 years



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.

Monthly evolution of the traded volume and average prices on DAM



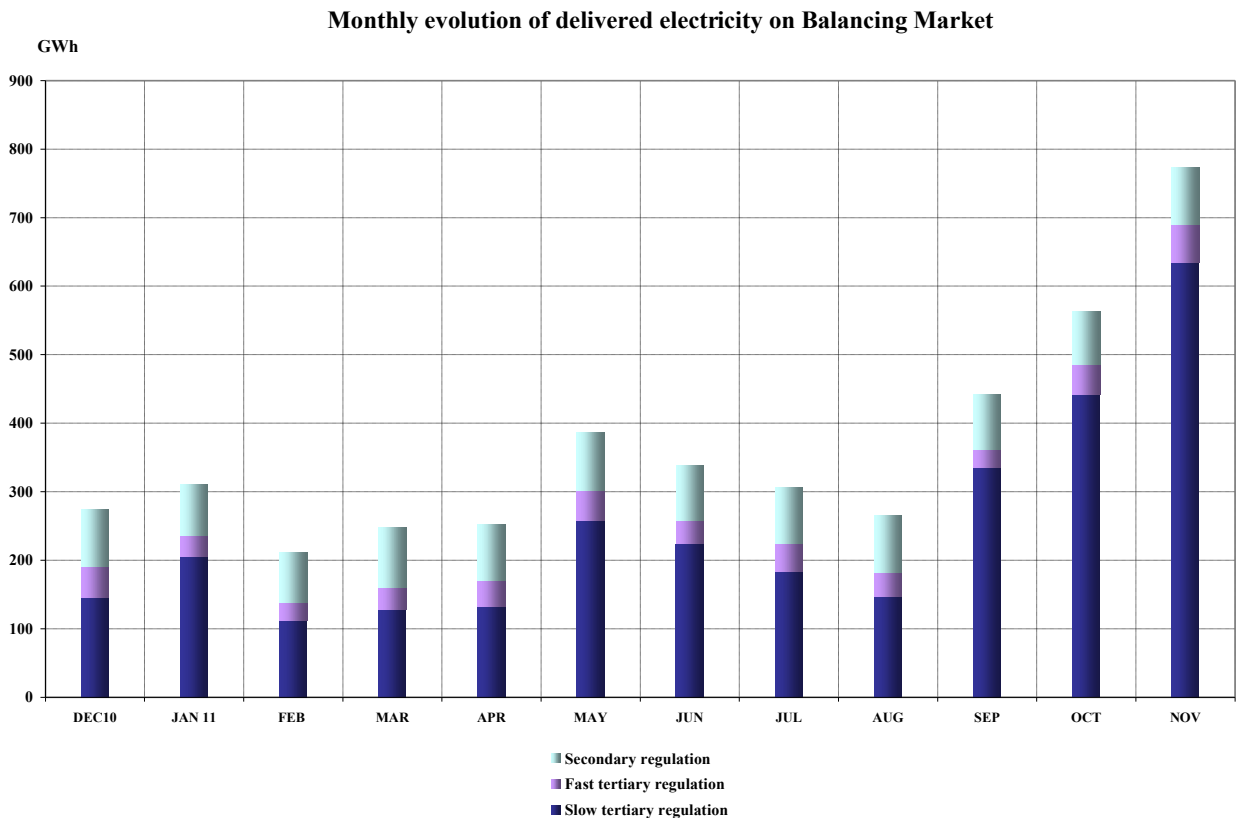
Source: Monthly reports of SC Opcom SA and CN Transelectrica SA – processed by MG

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 November 2011 is presented in the following table:

November 2011	Dispatch order (GWh)	Delivered electricity (GWh)	Deviation (%)
<b>Secondary regulation</b>	<b>84</b>	<b>84</b>	
<i>upward</i>	42	42	
<i>downward</i>	42	42	
<b>Fast tertiary regulation</b>	<b>59</b>	<b>55</b>	<b>7</b>
<i>upward</i>	43	42	4
<i>downward</i>	15	13	16
<b>Slow tertiary regulation</b>	<b>666</b>	<b>635</b>	<b>5</b>
<i>upward</i>	622	597	4
<i>downward</i>	44	38	13
<b>TOTAL</b>	<b>809</b>	<b>774</b>	
<i>upward</i>	708	680	
<i>downward</i>	101	93	
<b>INTERNAL CONSUMPTION</b>		<b>4818</b>	
<i>% share of traded volumes from internal consumption</i>		<b>16.1%</b>	

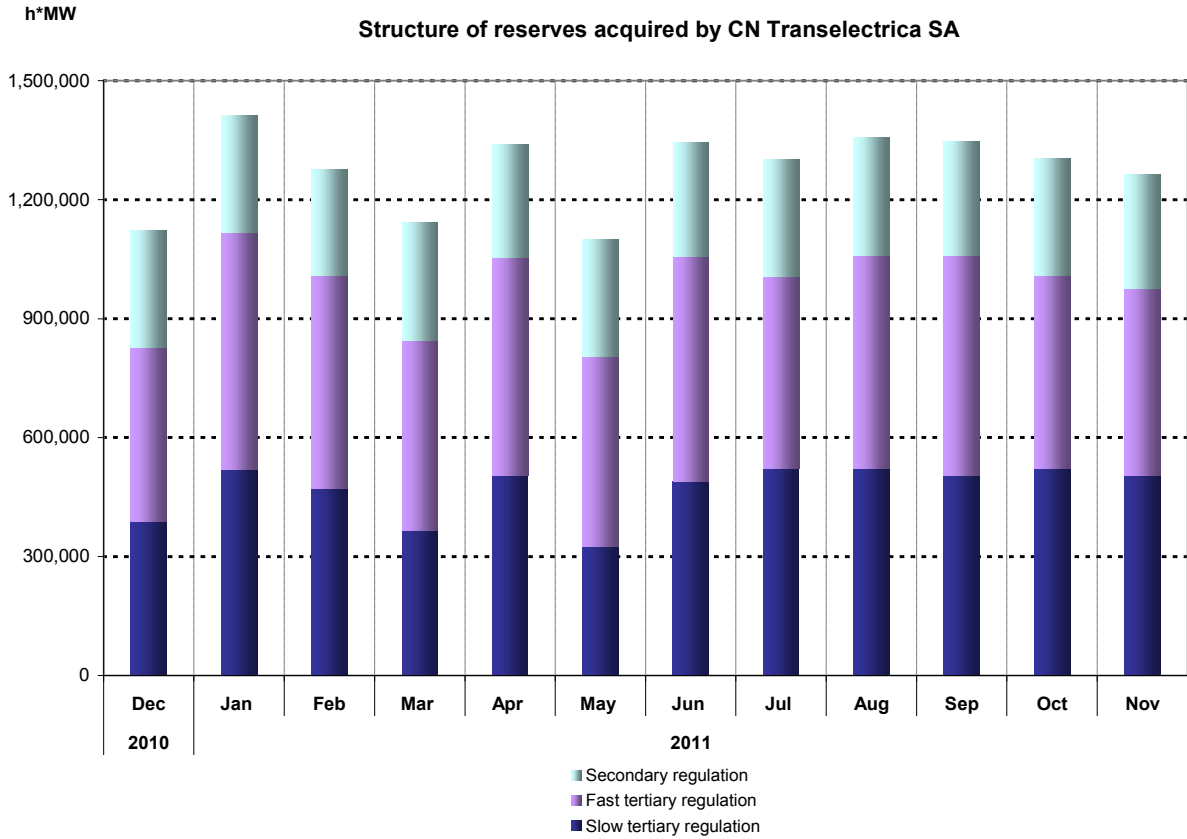
Source: Monthly reports of CN Transelectrica SA – processed by MG

The structure of balancing electricity delivered in the system on each type of regulation starting from December 2010 is presented in the graph below:



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

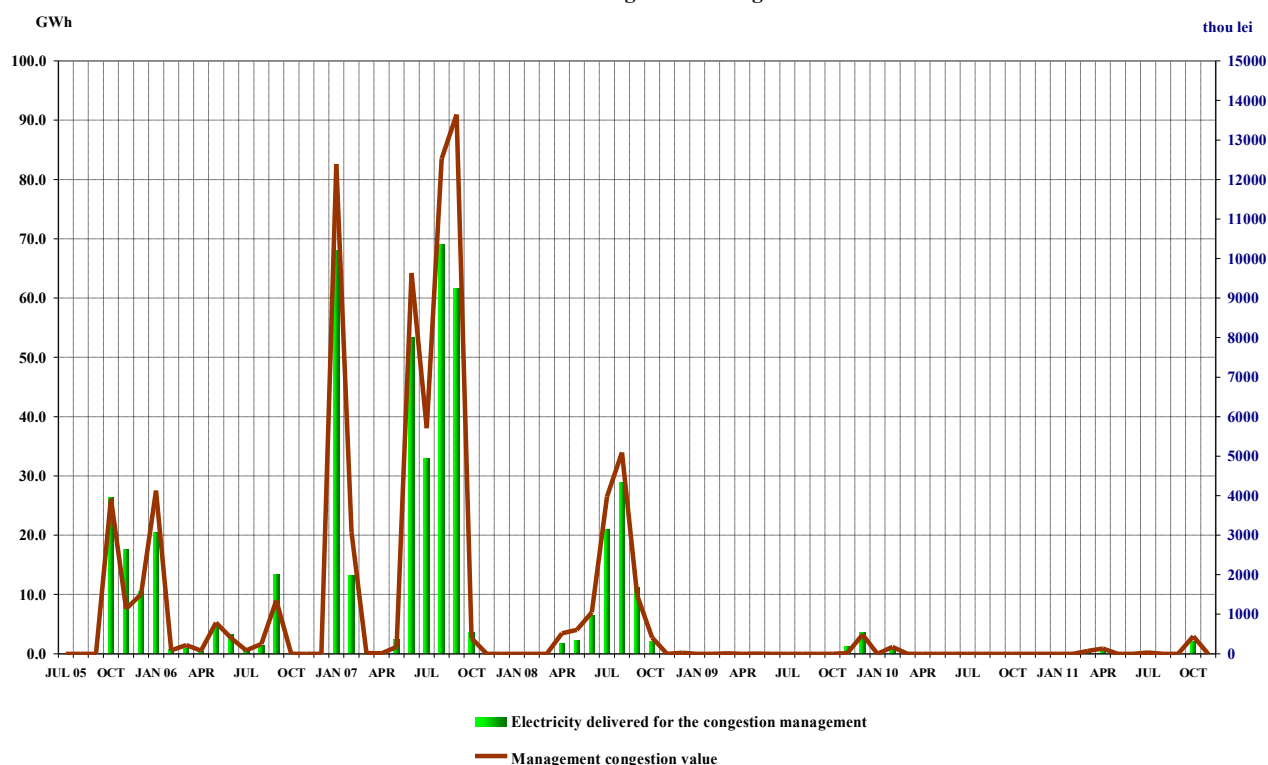
For comparison, the following graph presents the evolution of reserves (ancillary services, i.e. obligations of generators to maintain their contracted capacities available for dispatching/offering on BM) acquired/paid by CN Tranelectrica SA starting with December 2010:



Source: Monthly reports of CN Tranelectrica SA – processed by MG

The following graph presents the evolution of electricity traded by CN Tranelectrica 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 starting with July 2005.

## Monthly evolution of the volume and value of the electricity delivered for the congestion management



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 November 2011 compared to previous month and October 2010 was the following:

Transaction type	- GWh -		
	October 2011	November 2011	November 2010
<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>
Regulated to incumbents. thermal generators	979.38	1095.56	1100.33
Regulated to incumbents. hydro generator	125.71	117.31	208.11
Regulated to incumbents. nuclear generator	520.12	508.00	458.22
Regulated for distribution losses. thermal generators	346.58	399.32	404.10
Regulated for distribution losses. hydro generator	23.59	27.27	41.86
Regulated for distribution losses. nuclear generator	131.46	136.02	76.63
Regulated for transmission losses. thermal generator	74.55	74.54	73.09
Regulated. to other generators (with return of obligation within a year)	163.74	59.88	204.32
Negotiated. to other generators	100.13	146.68	221.61
Negotiated. to suppliers	741.82	648.74	1385.95
Contracts concluded on centralized markets (CMBC. CMBC-NC. RCE)	507.80	439.16	400.89
Supply to consumers (regulated and competitive)	286.74	311.28	158.92
Export	36.75	34.05	97.47
DAM	384.01	485.59	253.65
<b>Total</b>	<b>4422.39</b>	<b>4483.39</b>	<b>5085.14</b>

Source: Monthly reports of generators – processed by MG

**Suppliers**

In November 2011, 90 companies having as main activity the supply of electricity concluded transactions on the electricity market; from these, 41 suppliers traded electricity exclusively on the wholesale market and 49 suppliers on both retail and wholesale markets (in this category are also included the 7 incumbent suppliers).

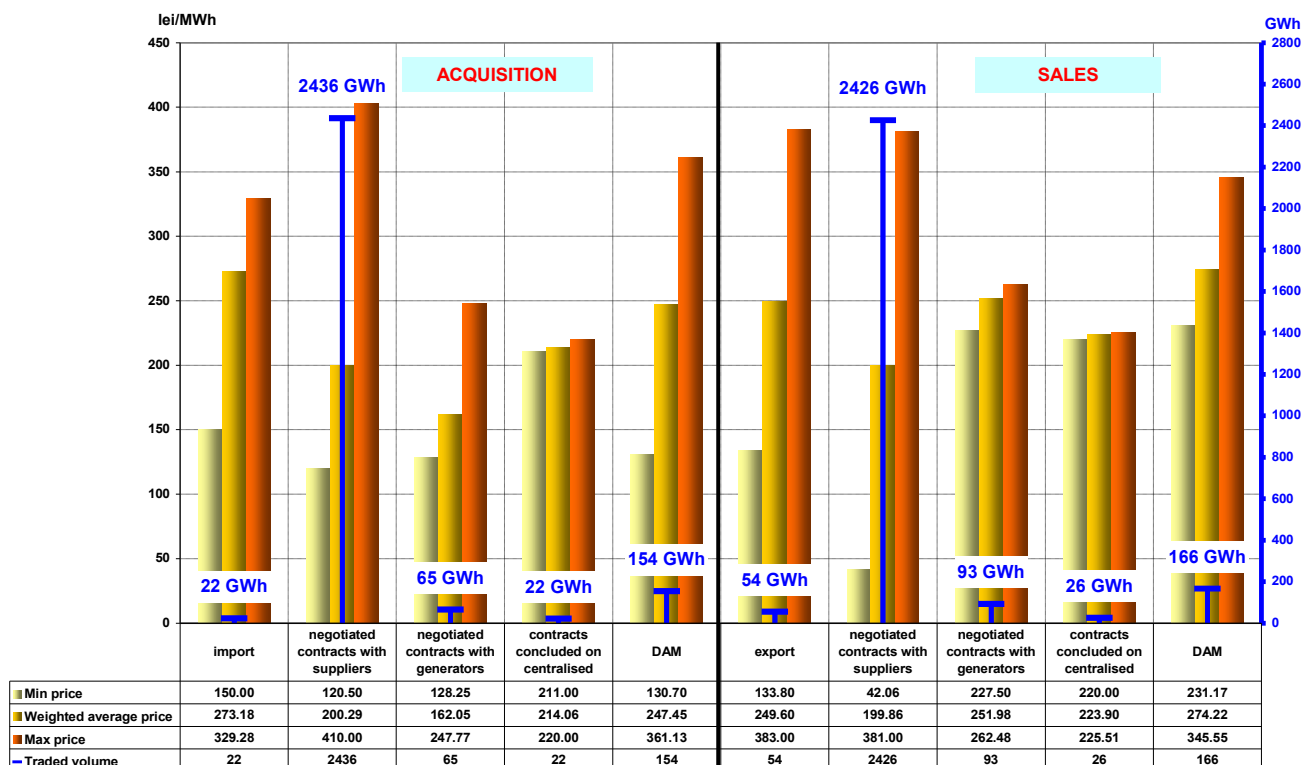
Suppliers acting exclusively on WEM

The following table shows the activity for November 2011 compared to November 2010 of the suppliers acting exclusively on WEM, acquisitions and sales being split by categories of markets/participants:

- GWh -

<b>Transactions' structure of suppliers acting exclusively on WEM</b>	<b>November 2010</b>	<b>November 2011</b>
<b>Acquisitions</b>		
Import	29.31	22.27
Negotiated contracts with suppliers	2064.01	2435.70
Negotiated contracts with generators	0.00	64.88
Contracts concluded on centralized markets	16.39	21.96
DAM	57.24	154.21
<b>Sales</b>		
Export	415.35	54.37
Negotiated contracts with suppliers	1690.62	2425.77
Negotiated contracts with generators	0.00	92.89
DAM	0.00	25.68
	144.41	166.45

In addition to the data from the table above, the following graph presents the minimum, average and maximum actual prices by categories of transactions completed by the suppliers acting exclusively on WEM (traders) in November 2011:

Transactions concluded by suppliers acting exclusively on WEM  
 - NOVEMBER 2011 -


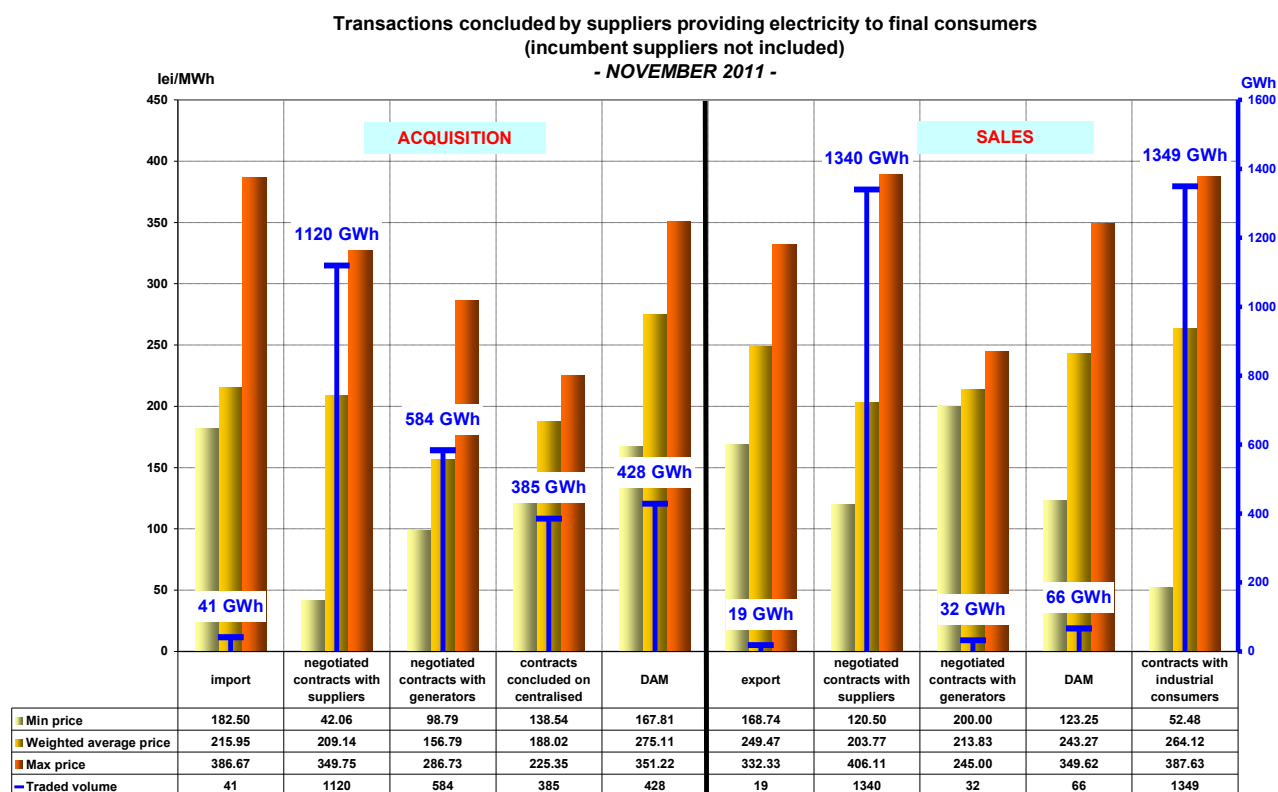
Source: Monthly reports of the competitive suppliers – processed by MG

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

The following table presents aggregated information on transactions volume and structure for suppliers providing electricity to final consumers. on the competitive market, for November 2011 and November 2010.

	- GWh -	
Transactions' structure of suppliers providing electricity to final consumers (the incumbent suppliers are not included)	November 2010	November 2011
<b>Acquisitions</b>		
Import	61.06	41.22
Negotiated contracts with suppliers	1005.77	1119.55
Negotiated contracts with generators	1385.95	583.85
Contracts concluded on centralized markets	344.89	385.28
DAM	522.39	428.13
<b>Sales</b>		
Export	7.23	18.51
Negotiated contracts with suppliers	1906.67	1340.03
Negotiated contracts with generators	0.00	32.08
Contracts concluded on centralized markets	0.00	0.00
DAM	83.29	66.33
Final consumers	1279.44	1348.87

In addition to the data from the table above, the following graph presents the sales structure and the minimum, average and maximum actual prices by categories of transactions completed by suppliers providing electricity to final consumers in November 2011:



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

### Incumbent suppliers

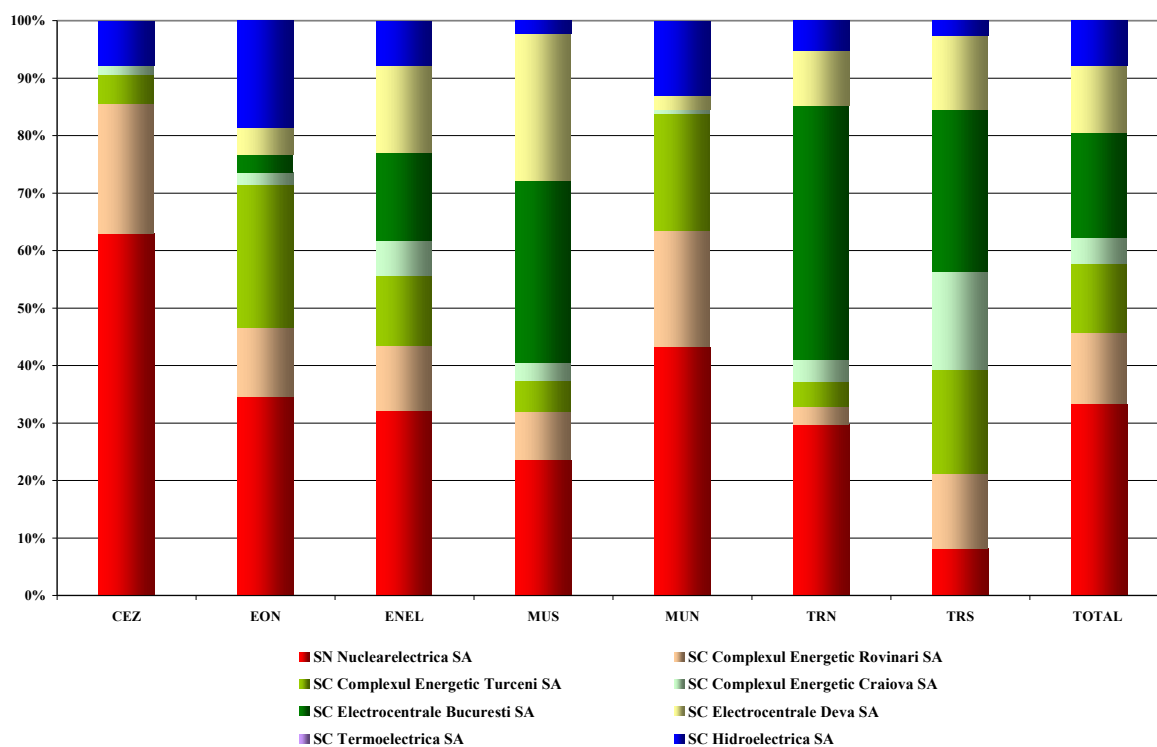
Electricity acquisition structure of incumbent suppliers (before the delivery day), for supplying the regulated market consumers, is presented in the table below, for November 2011 compared to the situation of November 2010:

- GWh -

Acquisition structure of incumbent suppliers for regulated REM component	November 2010	November 2011
Regulated contracts with generators	1809.92	1774.48
Negotiated contracts	31.73	0.43
Contracts concluded on centralized markets	0.00	0.00
DAM	15.07	20.60

The structure of the electricity purchased by the incumbent suppliers from the main generators on regulated contracts is presented in the following graph for November 2011:

**Electricity acquisition from main generators, on regulated contracts, of incumbent suppliers for delivering electricity to final consumers on regulated market**  
**NOVEMBER 2011**



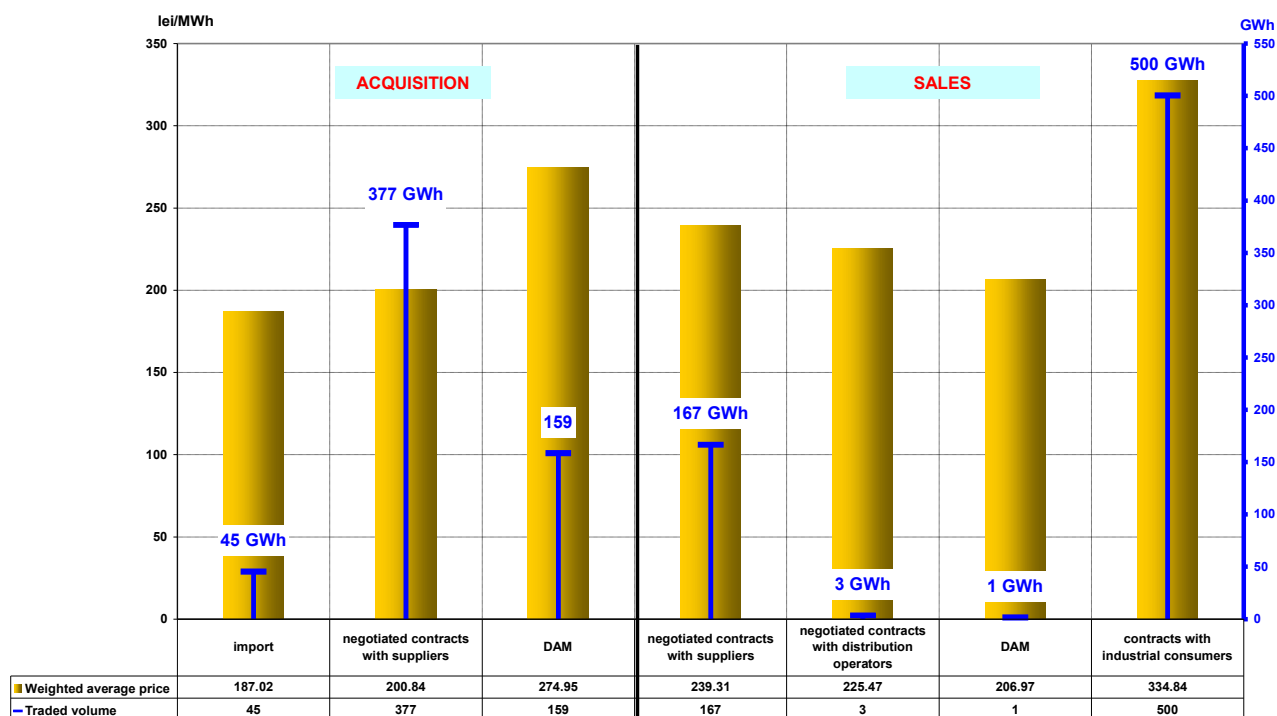
*Source: Monthly reports of the incumbent suppliers – processed by MG*

Likewise to the situation presented for the regulated REM, the table below presents the structure of incumbent suppliers' transactions (before the delivery day), corresponding to the competitive REM (energy supplied at negotiated prices to the consumers who renounced to regulated tariffs) for November 2011 compared to November 2010:

	- GWh -	
<b>Transactions' structure of incumbent suppliers for competitive REM component</b>	<b>November 2010</b>	<b>November 2011</b>
<b>Acquisitions</b>		
Import	37.93	45.29
Negotiated contracts with suppliers	539.31	376.69
Negotiated contracts with generators	0.00	0.00
Contracts concluded on centralized markets	0.00	0.00
DAM	70.70	158.54
<b>Sales</b>		
Negotiated contracts with suppliers	43.61	166.60
Negotiated contracts with distributors	34.30	3.29
DAM	159.26	1.39
Final consumers	422.93	500.22

The structure by types of sources/destinations of the traded volumes combined with the actual average prices of the incumbent suppliers corresponding to the competitive segment of REM is presented in the following graph for November 2011:

**Transaction concluded by incumbent suppliers providing electricity  
on the competitive component of REM  
- NOVEMBER 2011 -**



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

### **Main distribution operators**

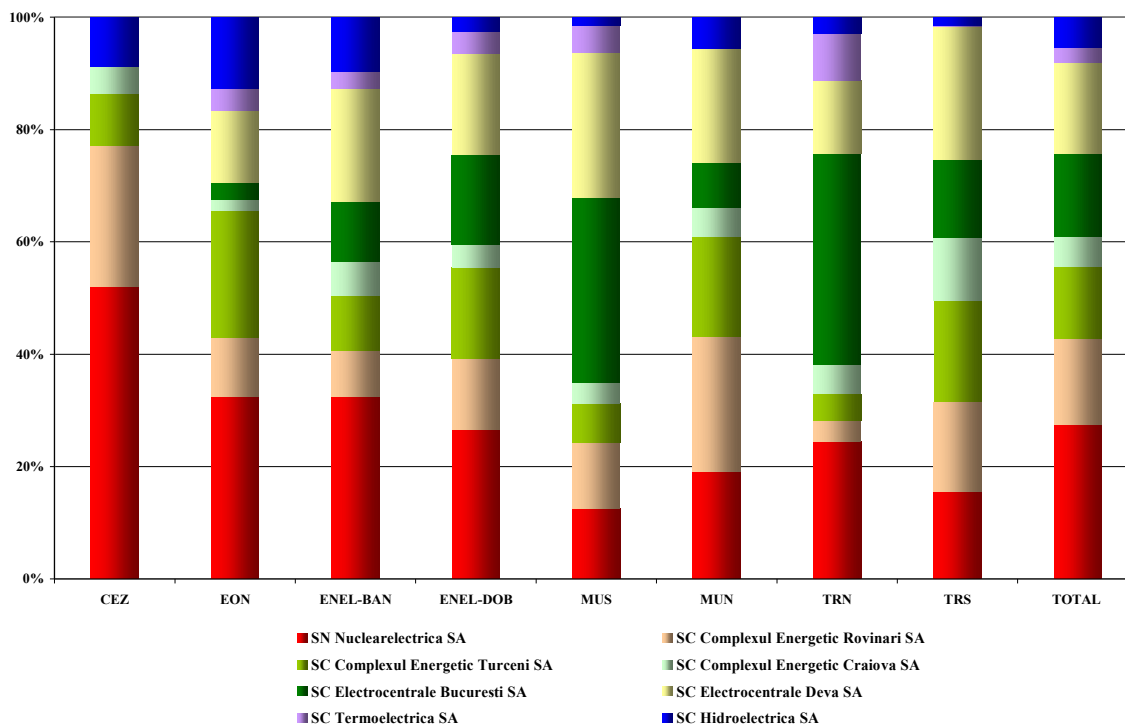
The following table shows the electricity acquisition structure of main distribution operators (before the delivery day), for covering the distribution network losses, for November 2011 compared to November 2010:

**- GWh -**

Acquisition structure	November 2010	November 2011
Regulated contracts with generators	524.20	576.18
Negotiated contracts with suppliers	34.30	3.29
Contracts concluded on centralized markets	0.00	0.00
DAM	147.01	83.11

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 November 2011:

Electricity acquisition of distribution operators from main generators, on regulated contracts, for covering the distribution losses  
November 2011



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.

### Concentration indicators and market shares of the electricity generators

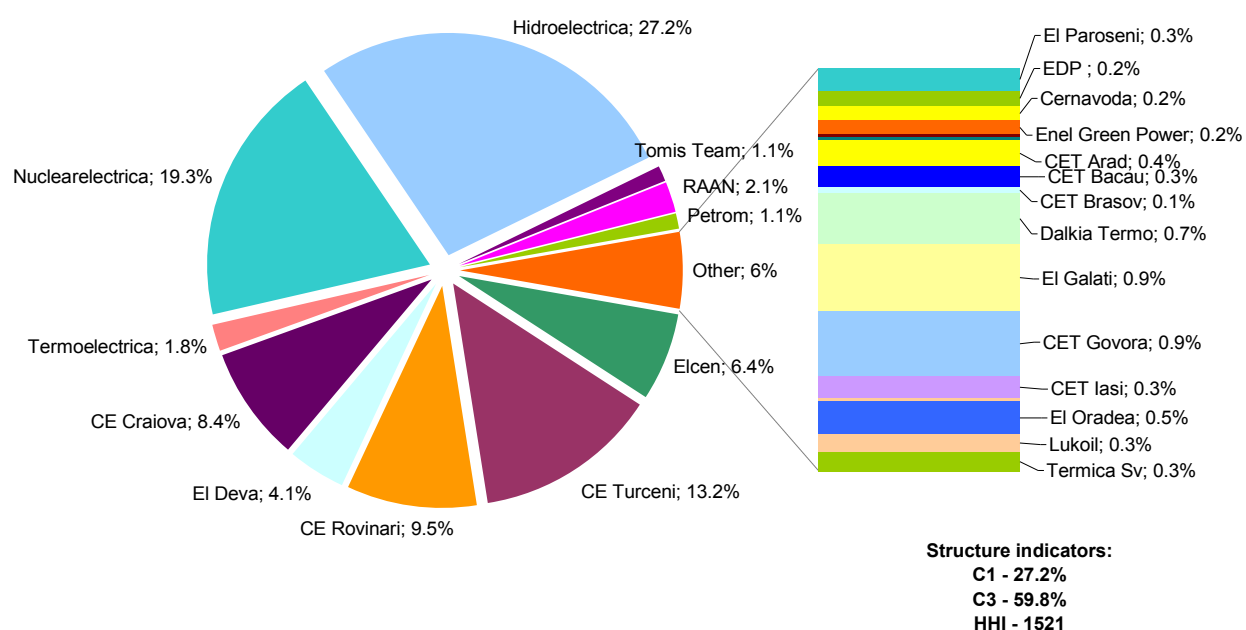
The market structure regarding the electricity generation offers an initial basis for analyzing the possible competitiveness level of the electricity market.

The following table presents the concentration indicators of electricity generation for November 2011, calculated based on electricity delivered into the networks by the generators with dispatchable units.

Concentration indicators - November 2011 -	C1 (%)	C3 (%)	HHI
Value	19.6	47.7	1130

The market shares of the electricity generators, taking into account all components of the wholesale electricity market, are presented in the following graph, for the first 11 months of 2011. These market shares are calculated based on the electricity delivered into networks.

Market shared of generators with dispatchable units by delivered electricity  
January-November 2011



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 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 for November 2011:

Structure/concentration indicators of BM - NOVEMBER 2011 -	Regulation					
	Secondary		Fast tertiary		Slow tertiary	
	upward	downward	upward	downward	upward	downward
C1 - % -	48	41	89	30	27	37
C3 - % -	84	81	93	77	60	85
HHI	3076	2641	7940	2359	1707	2703

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 November 2011:

Concentration indicators on ASM - November 2011 -		Secondary reserve	Fast tertiary reserve	Slow tertiary reserve
regulated component	contracted quantity (h*MW)	290000	462600	354000
	C1 (%)	43.8	77.4	38.3
	C3 (%)	76.1	86.4	82.0
competitive component	contracted quantity (h*MW)	0	8400	150000
	C1 (%)	-	50	95.8
	C3 (%)	-	100.0	100.0
	HHI	-	5000	9195

### Concentration Indexes for the Day Ahead Market

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 applicable 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 November 2011, based on quantities traded by participants on this market.

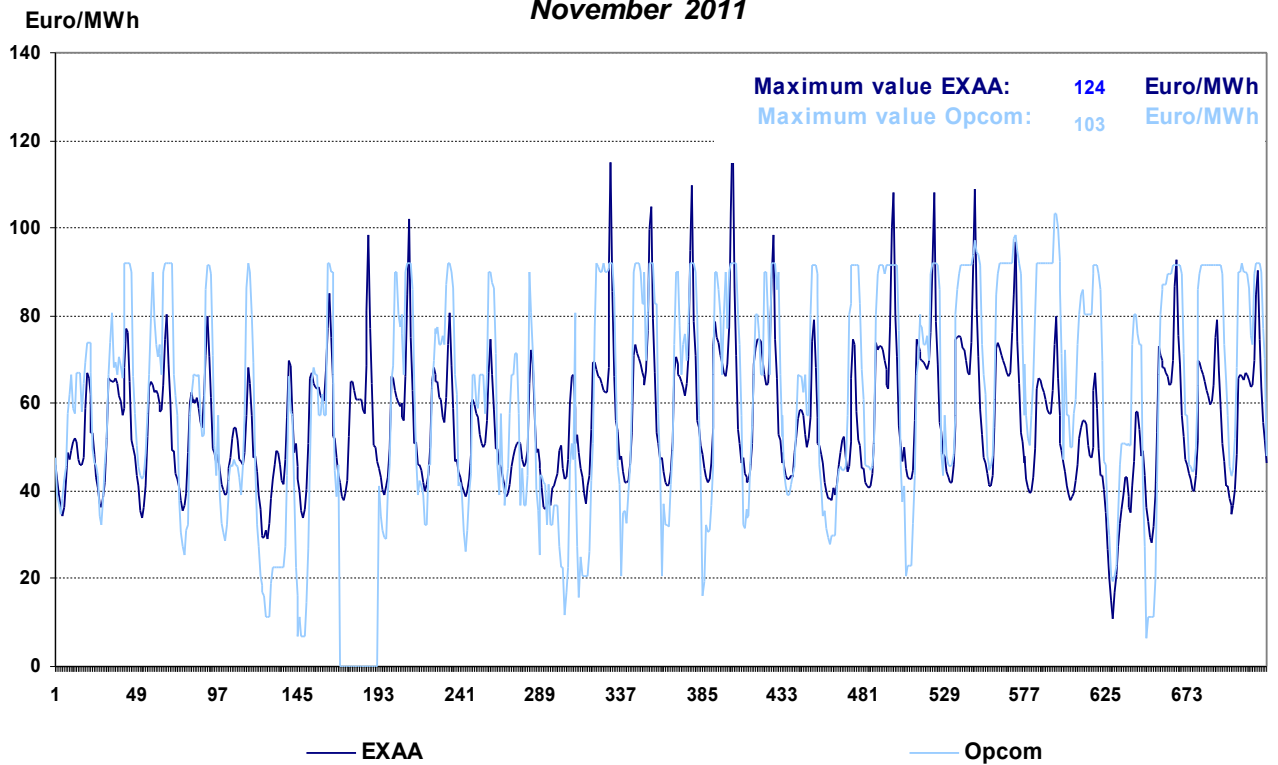
Concentration indicators on DAM - November 2011 -	C1 (%)	C3 (%)	HHI
Buying transactions	16.49	40.74	809
Selling transactions	17.01	42.41	810

### **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 evolutions of hourly and daily average prices on DAM in November 2011 are presented in the following graphs, along with the prices on EXXA.

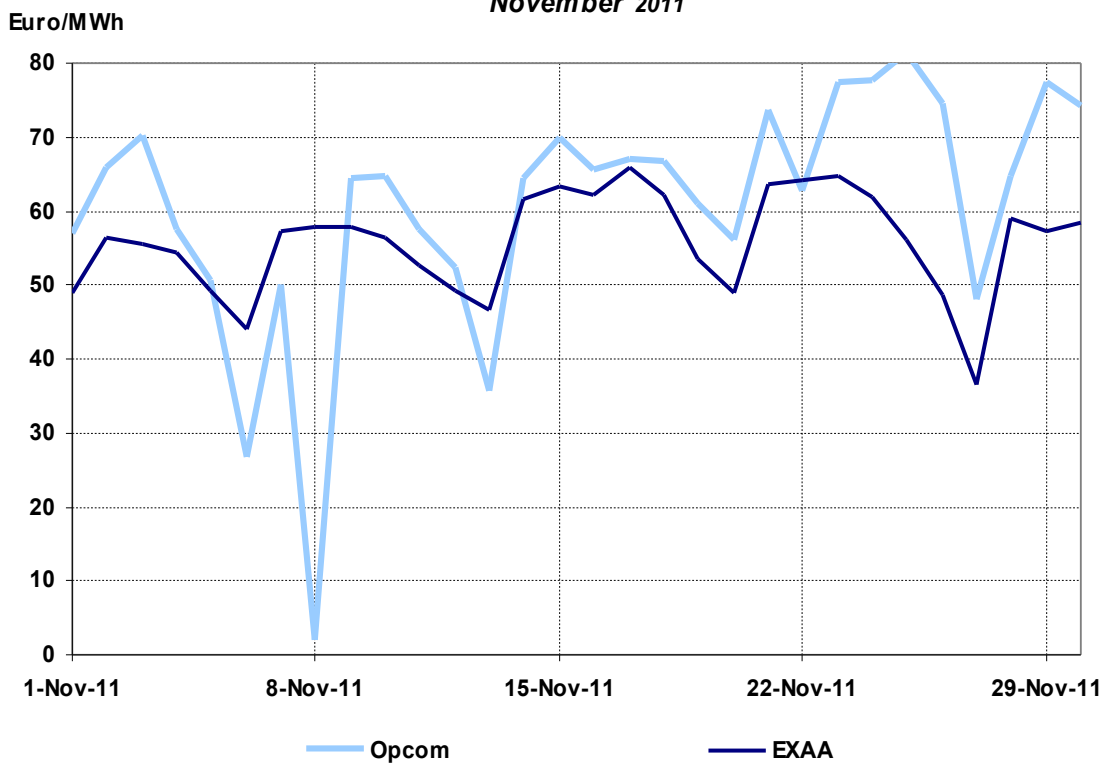
For comparison with prices on the European power exchanges, the spot price on SC Opcom SA is denominated in EUR, taking into consideration the daily exchange rates Euro/leu communicated by the National Bank of Romania.

### HOURLY SPOT PRICES November 2011



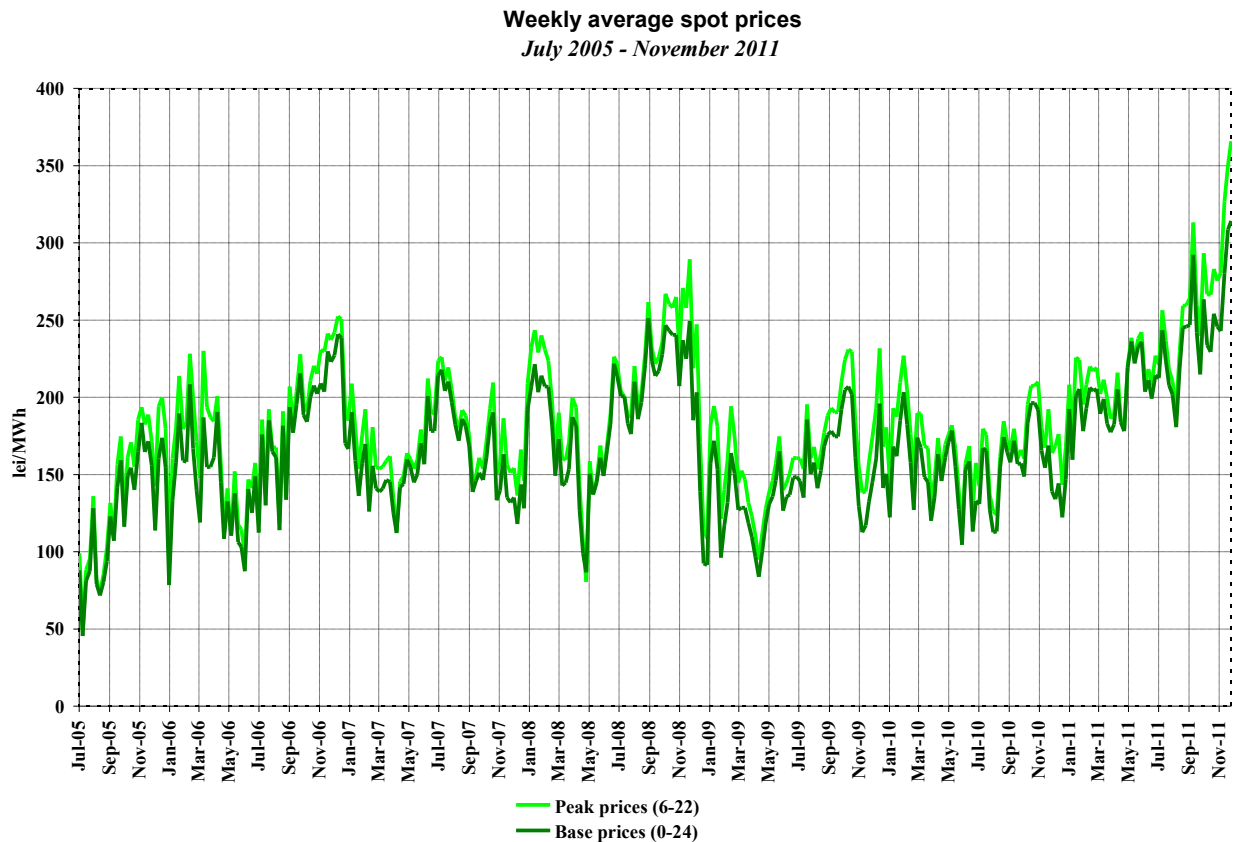
Source: Daily reports of SC Opcom SA and published data of EXAA  
– processed by MG

### DAILY AVERAGE SPOT PRICES November 2011



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

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

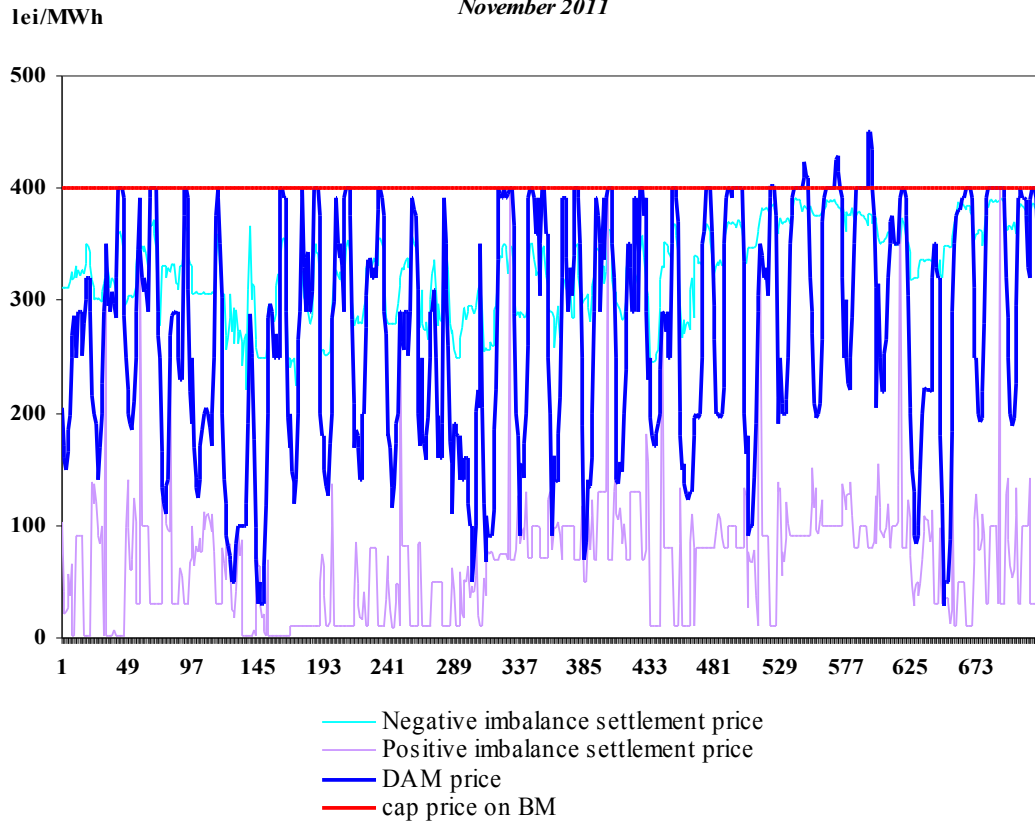


*Source: Daily reports of SC Opcom SA – processed by MG*

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.

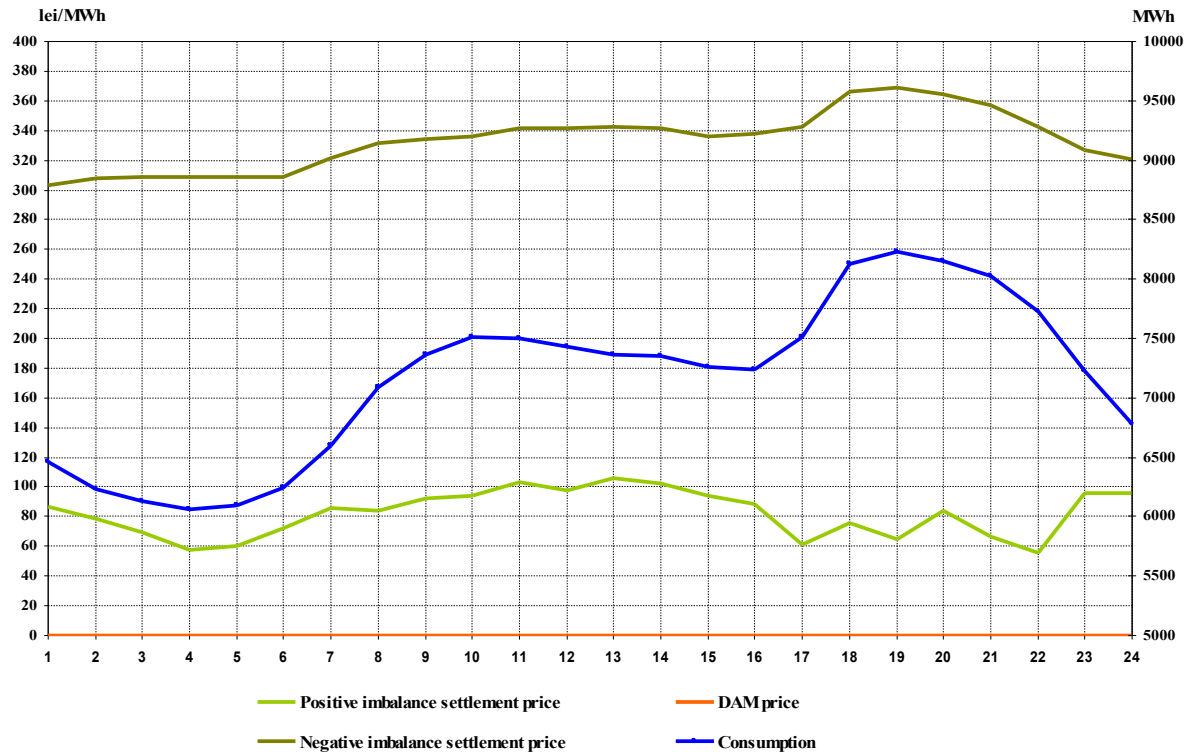
The settlement prices (MCP on DAM, negative imbalance settlement price and positive imbalance settlement price) are represented on the same graph, showing the two markets correlation degree. In the first graph the prices are expressed in hourly values, in the second graph in hourly average values compared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

### Hourly settlement prices November 2011



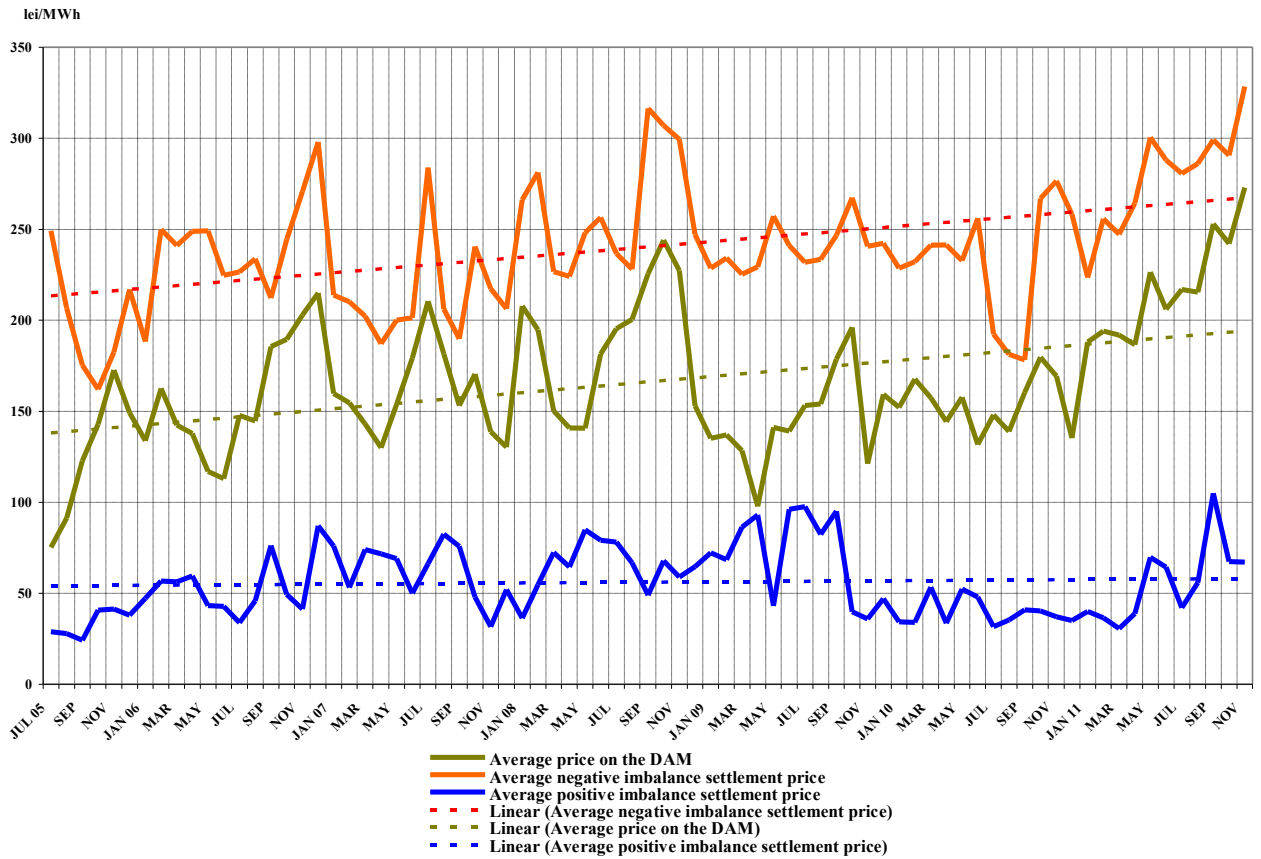
Source: Daily/monthly reports of SC Opcom SA – processed by MG

### Hourly average settlement prices and internal consumption December 2011



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

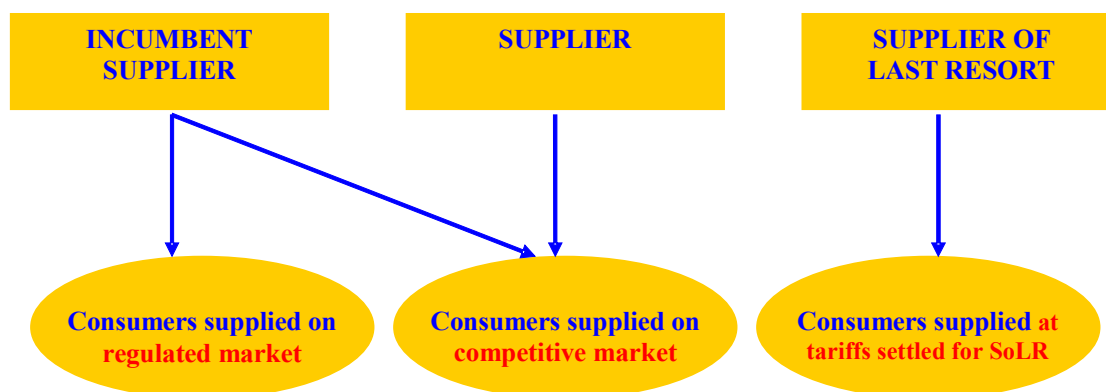
Monthly average prices on DAM and BM  
 July 2005 - November 2011



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

### III. RETAIL ELECTRICITY MARKET

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



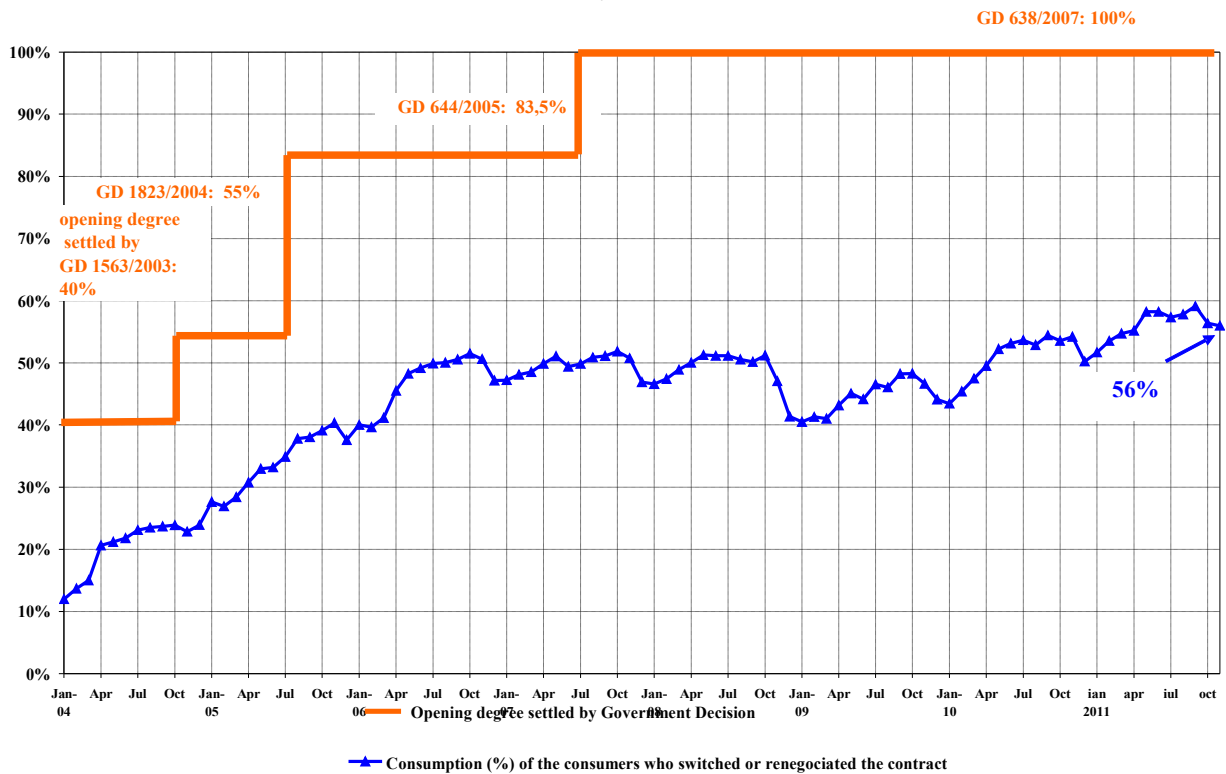
#### 2. Steps in the opening process of the electricity market

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 – November 2011. The values presented are cumulated from the beginning of the opening process and are presented monthly:

Opening degree evolution for electricity market  
January 2004 - November 2011



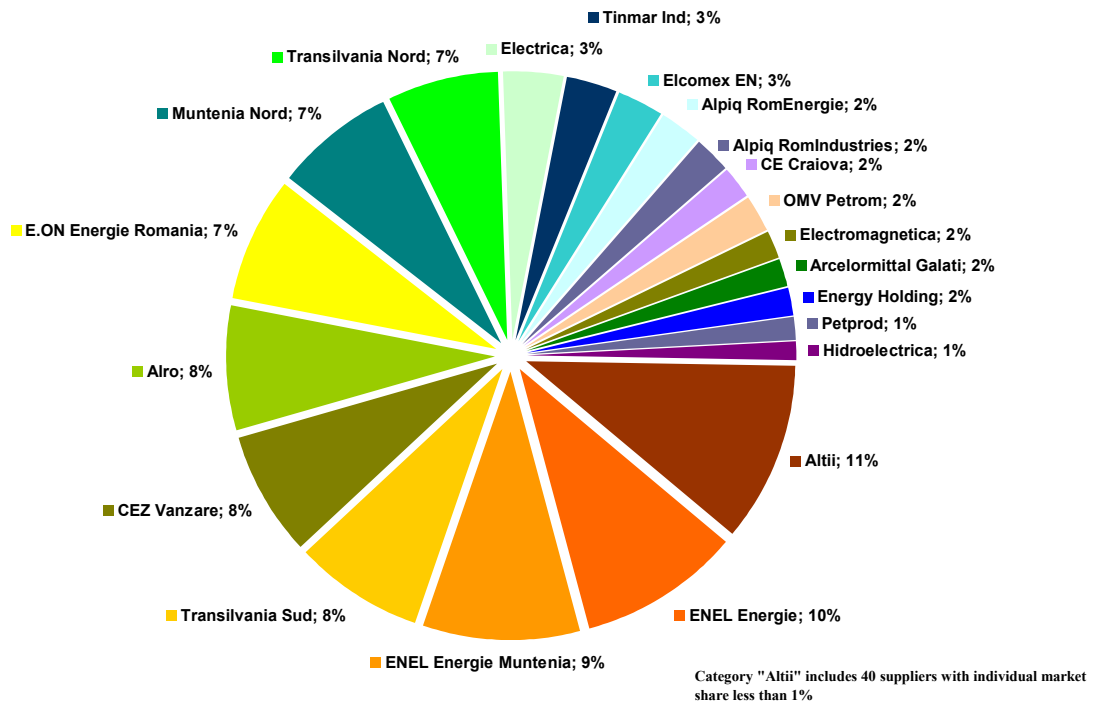
Source: Monthly reports of the final consumers' suppliers – processed by MG

#### 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 renegotiated their contract;

**Market shares of suppliers for final consumers**  
- JANUARY - NOVEMBER 2011 -

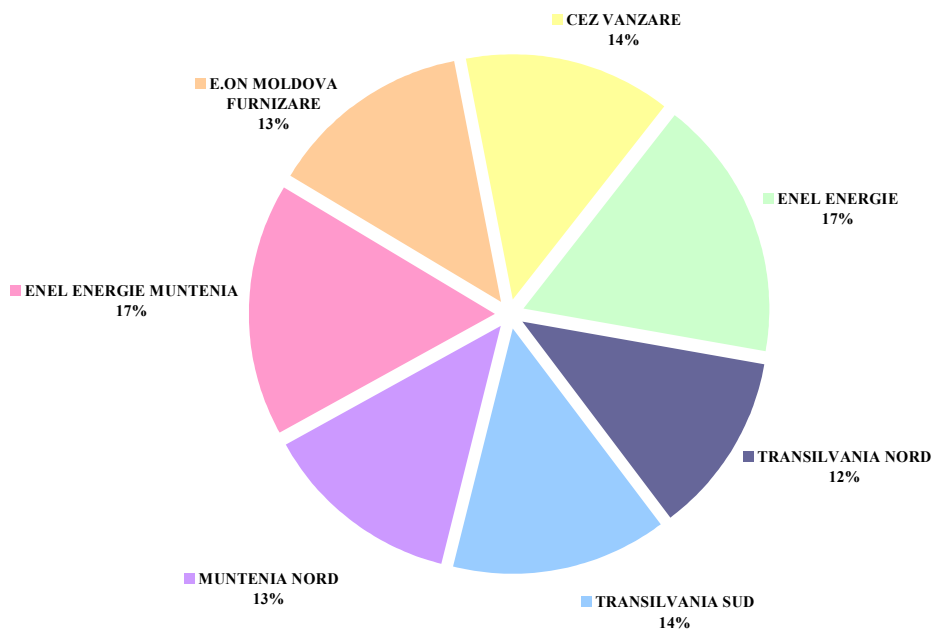


Final consumption: 41953 GWh

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,

**Market shares of incumbent suppliers on regulated market**  
- JANUARY- NOVEMBER 2011 -

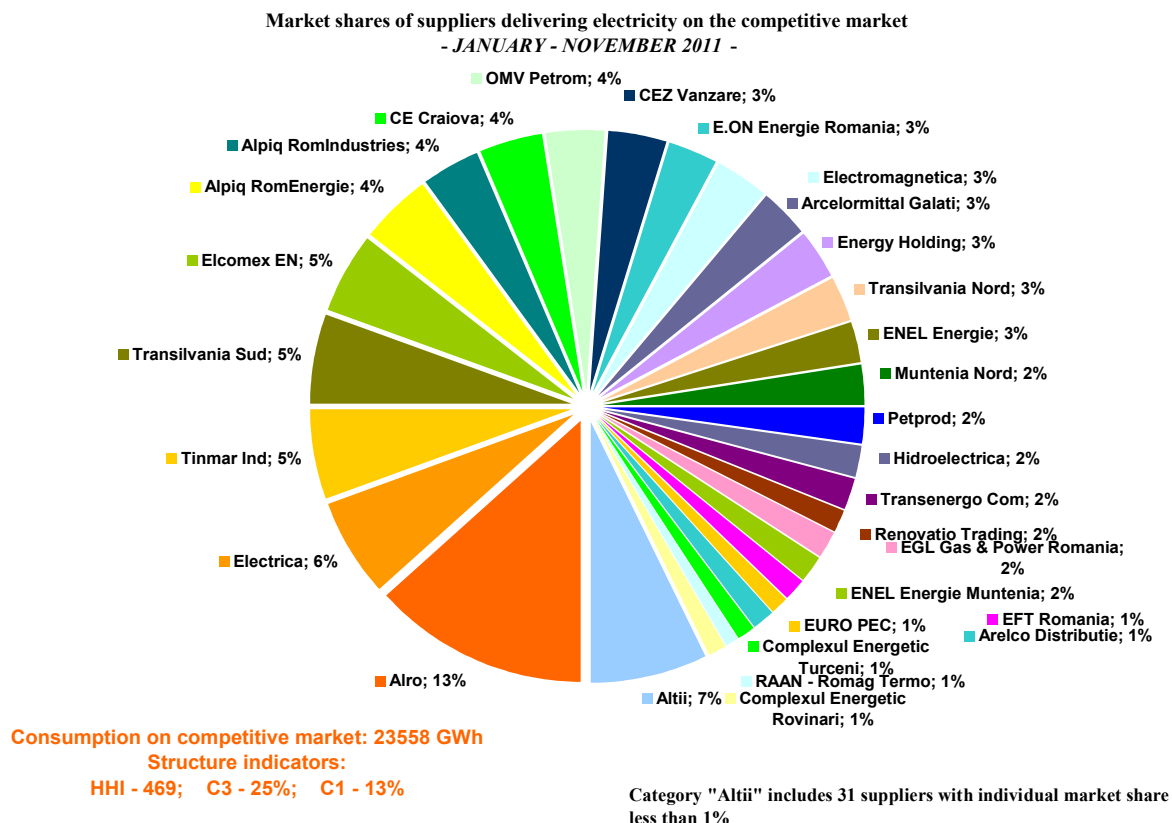


Consumption of consumers supplied at regulated tariffs: 18395 GWh

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 negotiated prices on competitive component of REM:



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

The structure indicators were calculated without considering the principle of dominance. The delivered electricity (used for calculating the market shares) comprises the self-consumption of large industrial consumers who possess supply licenses and acquire electricity from the wholesale market as competitive suppliers.

The values of market indicators were calculated without taking into consideration the dominance principle. The delivered electricity used for determining the market share of each supplier comprises the self-consumption of the largest industrial consumer which owns a supply license and based on it acquired its electricity from the WEM as a competitive supplier.

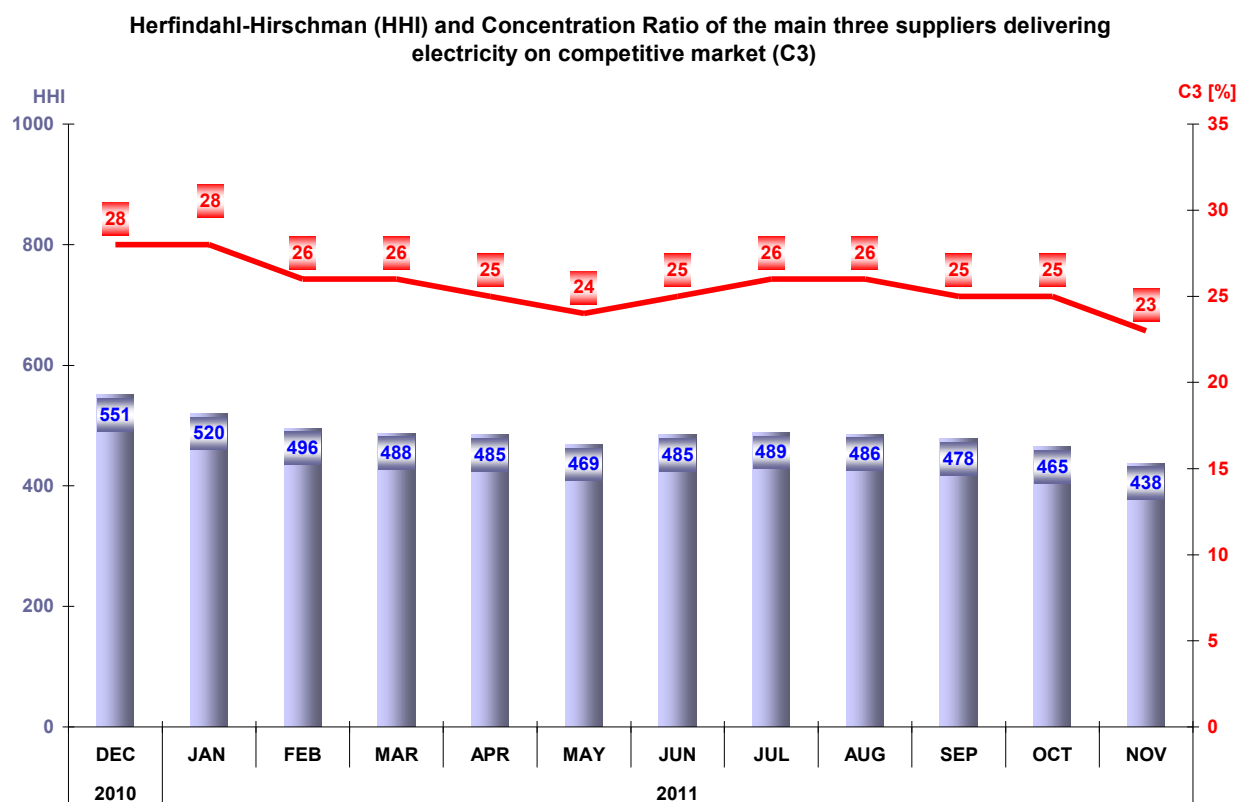
The electricity supplied to the final consumers used for calculating the market share of every supplier includes also the self-consumption of that particular supplier (e.g. consumers with supply license who buy electricity for themselves from WEM as competitive suppliers).

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 November 2011:

Number of suppliers	Share of sales to final consumers from total sales transactions			
	100%	75% - 100%	50% - 75%	<50%
<b>Competitive</b>	10	11	6	15
<b>Incumbent</b>	1	5	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 for December 2010 – November 2011 in the following graph:



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

The table below shows the values of structure indicators of competitive component of REM for and the number of active suppliers in November 2011, 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:

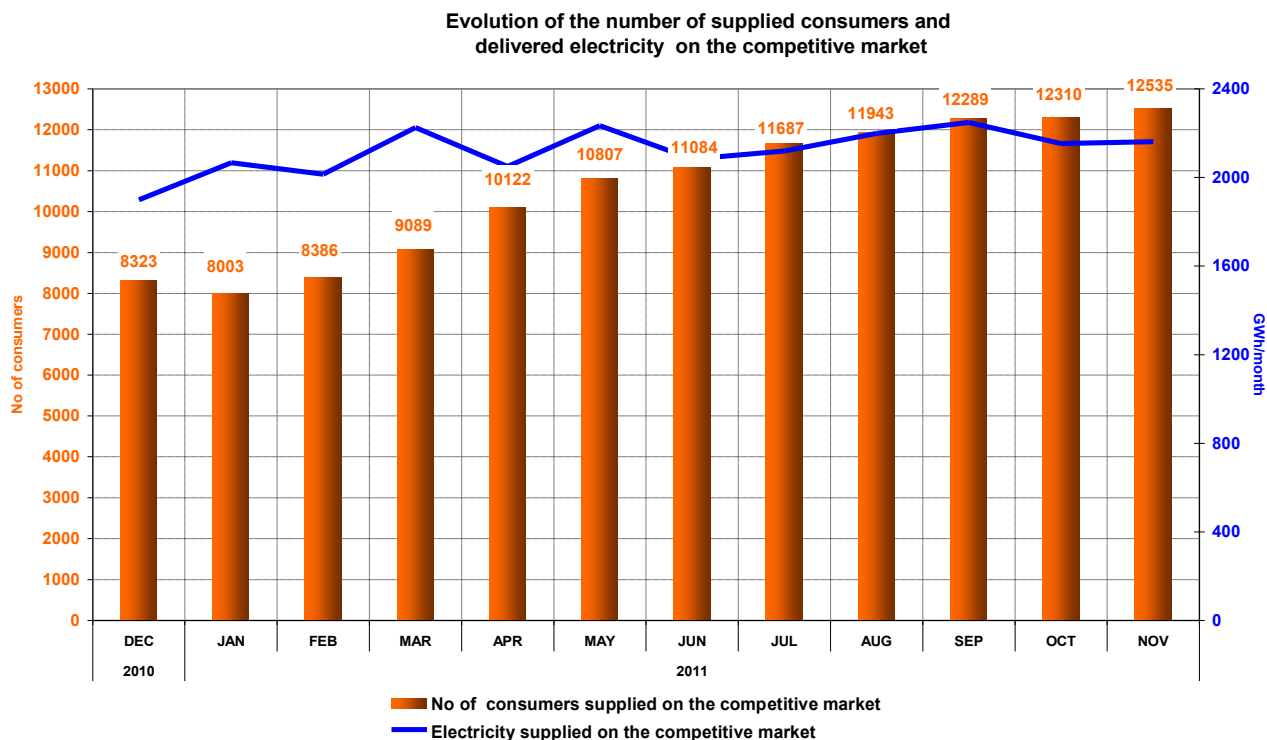
Indicators - November 2011	Consumer category							Total REM
	IA	IB	IC	ID	IE	IF	Other	
C1 - % -	50	17	22	17	12	28	28	11
C3 - % -	85	44	40	34	29	58	52	23
HHI	3346	997	919	703	631	1508	1320	438
Consumption - GWh -	24.6	131	213	450	269	239	835	2162
No. of SUPPLIERS	24	45	48	44	26	12	19	59
No. of incumbent suppliers	7	7	7	7	4	4	1	7
No. of competitive suppliers	12	32	34	32	19	7	10	42
No. of producers	5	6	7	5	3	1	8	10

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

Number of consumers supplied on the competitive market is presented as total value from the beginning of the market opening process; for November 2011 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	

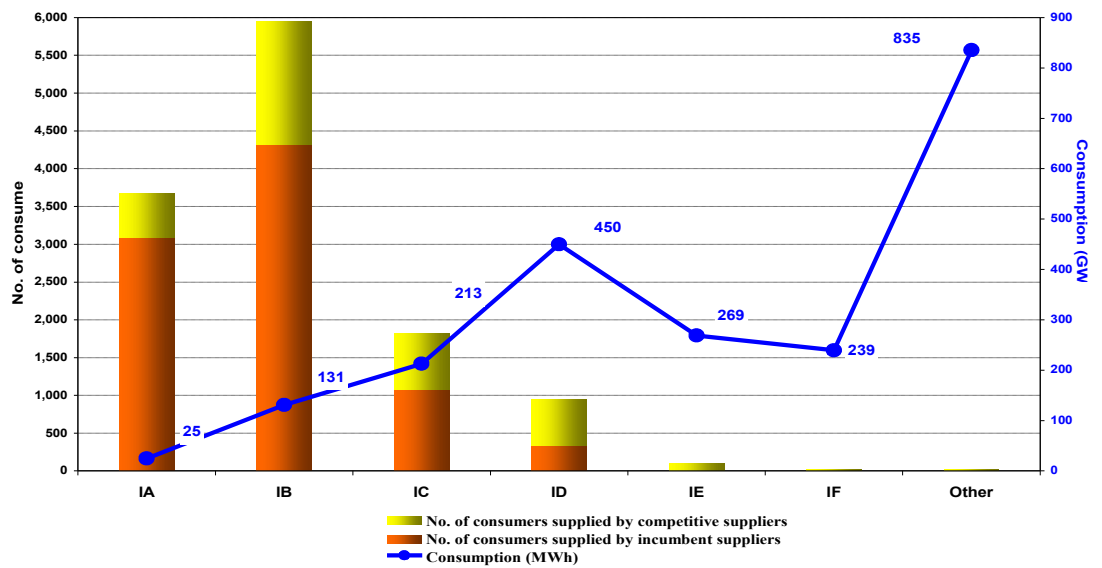


Source: Monthly reports of the competitive suppliers – processed by MG

NOTES: 1. Starting with January 2011, the data are also comprising the electricity delivered by 3 main dispatchable producers (with a self-generation exceeding 200 GWh in 2010) to their own consumption places - others than the generation site

2. There has been identified one supplier which had sent wrong figures corresponding to January-April 2011. Following the MG warnin, they reported the accurate figures, which are visible in the hereabove graph.

Number of consumers supplied on competitive market and the consumption of each category of consumers  
- November 2011 -

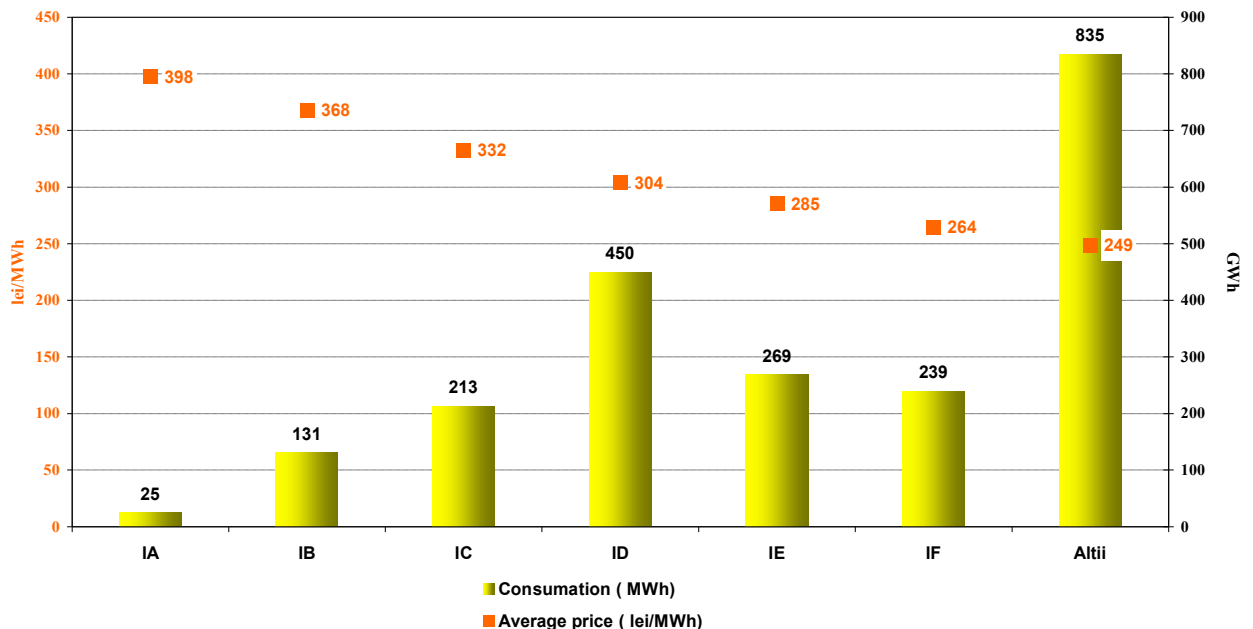


Source: Monthly reports of the suppliers – processed by MG

### 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 applied on competitive market  
- November 2011 -



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

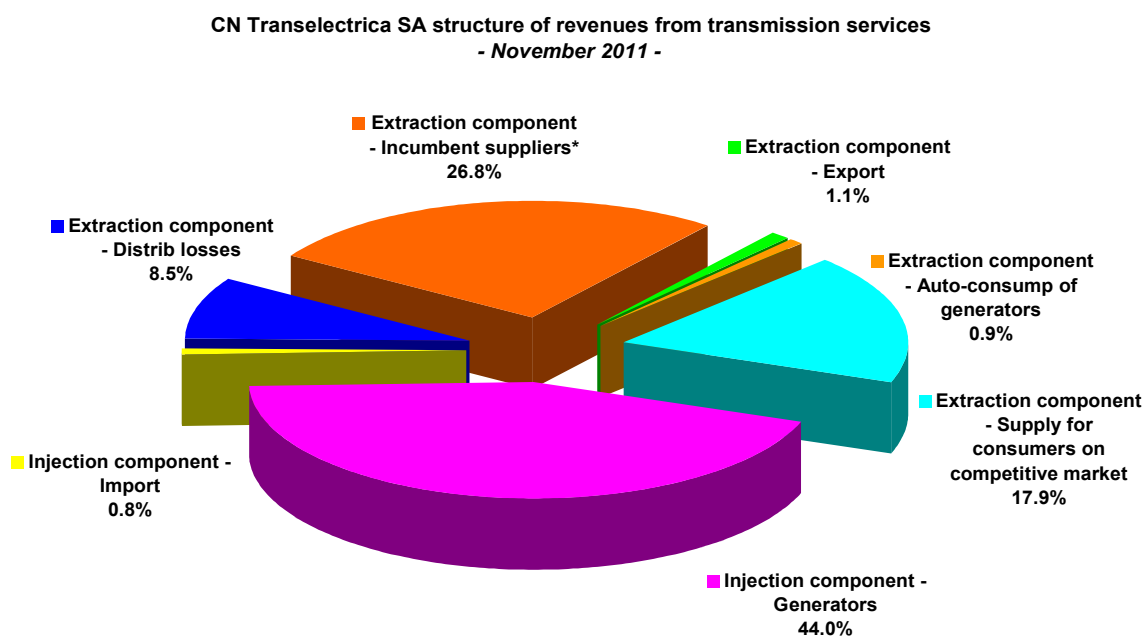
Note: The average selling price on each category was calculated as weighted average of prices applied by suppliers with quantities supplied, according to the provisions of the European Directive. The average prices do not include VAT, excise or other taxes but include the supplied services (injection and extraction components of transmission, system services, distributio, 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 territory 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 November 2011.

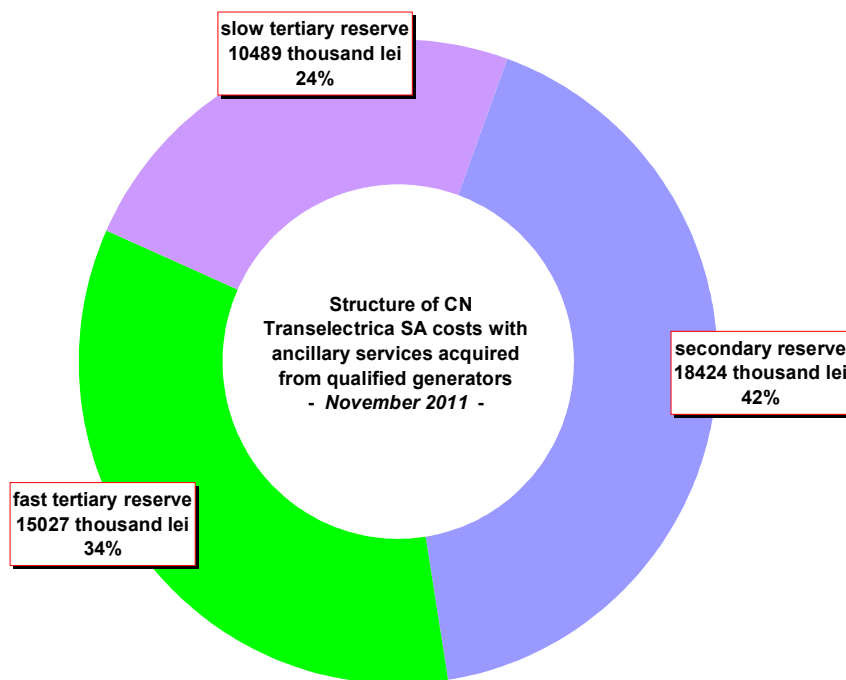


\* referring to all their activity as well as the distribution losses for one distribution operator

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 which may be used are reserves for secondary, fast tertiary, slow tertiary regulation and reactive energy. With the implementation of the support scheme for high efficiency cogeneration from April 2011, the slow tertiary reserve from cogeneration has been eliminated.

The following graph presents the costs of ancillary services CN Transelectrica SA had to pay in November 2011. 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 NOVEMBER 2011

In November 2011, ANRE issued the following regulations with impact on the wholesale electricity market:

- Decision of ANRE president no.2739/04.11.2011 for modifying the regulated quantities and prices of electricity for SC CE Turceni SA;
- Decision of ANRE president no.2740/04.11.2011 for modifying the regulated quantities and prices of electricity for SC CE Rovinari SA;
- Decision of ANRE president no.2741/04.11.2011 for modifying the regulated quantities of electricity for SN Nuclearelectrica SA;
- Decision of ANRE president no.2742/04.11.2011 for modifying the regulated quantities of electricity for mycrohydro unit of SC Hidroelectrica SA;
- Decision of ANRE president no.2743/04.11.2011 for modifying the regulated quantities of electricity of SC Hidroelectrica SA;
- Decision of ANRE president no. 2883/18.11.2011 for approving the list of accredited cogeneration capacities owned by the electricity and heat high cogeneration producers;
- Decision of ANRE president no. 2884/18.11.2011 for approving the quantities produced in high efficiency cogeneration which benefits from bonus scheme in October 2011;
- Decision of ANRE president no.2915/18.11.2011 for modifying the regulated quantities and prices of electricity of SC Electrocentrale Bucuresti SA;

## 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 negotiated 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 OMV 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](http://www.eex.de)
- EXAA – Energy Exchange Austria, [www.exaa.at](http://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 standardised bilateral contracts with continuous negotiation
- NES – National Energy System
- WEM – wholesale electricity market
- REM – retail electricity market
- RCE – Romanian Commodities Exchange