



ROMANIAN ENERGY REGULATORY AUTHORITY

DEPARTMENT OF MONITORING, REMIT



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# REPORT ON RESULTS OF MONITORING THE ROMANIAN ELECTRICITY MARKET JULY 2018

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

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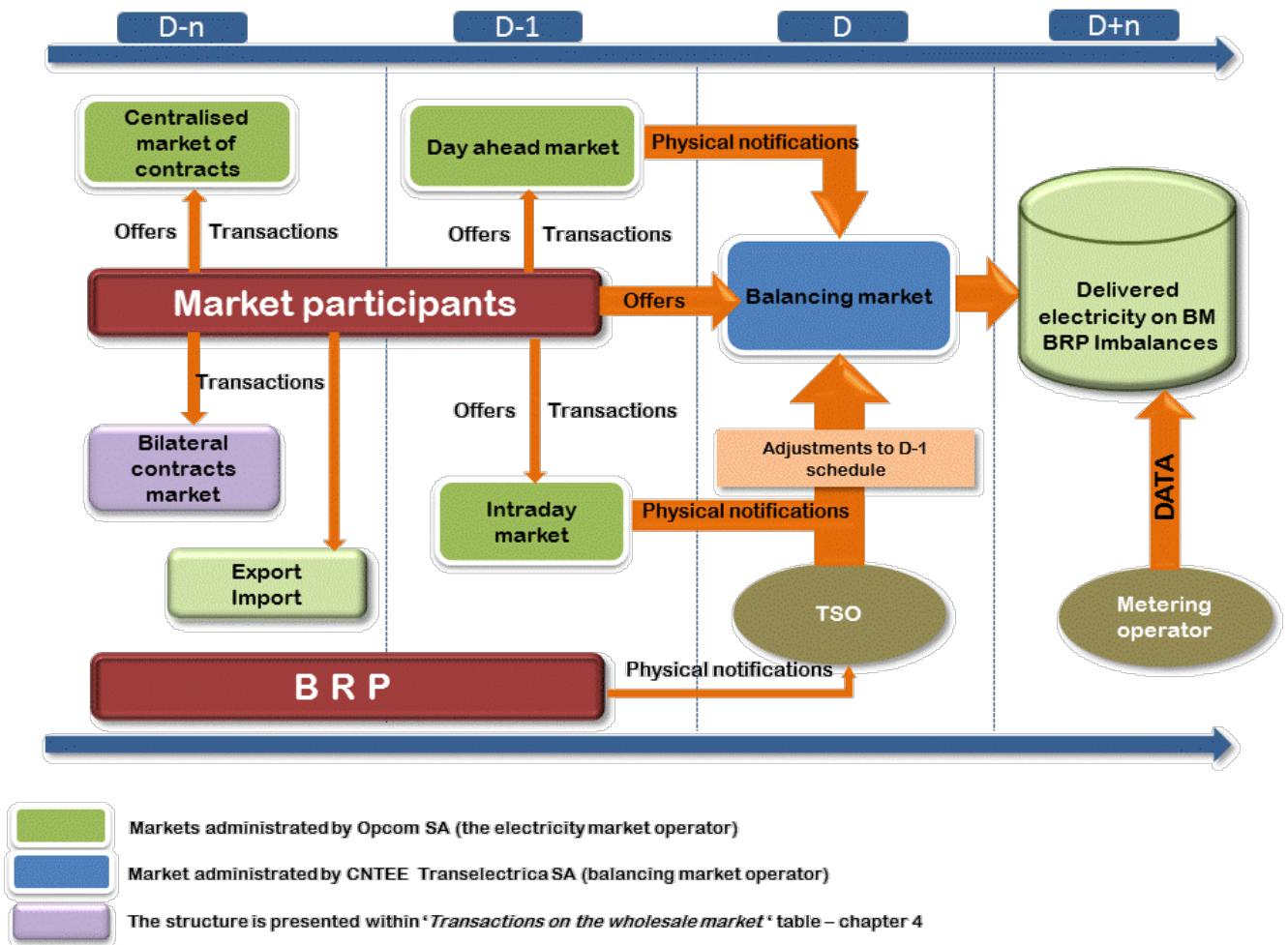
## I. MAIN EVENTS IN THE DEVELOPMENT OF THE ROMANIAN ELECTRICITY MARKET

- **GD 365/1998** – vertically integrated monopol – RENEL – was split into 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;
- **August/October 2010** – launch of bilateral coordinated auctions for capacity allocation on interconnections with Hungary and Bulgaria;
- **July 2011** - launch of the intraday market;
  - GD 930/2010 – SC Electrica Furnizare SA had been established through merger of the former last resort suppliers Electrica Furnizare Muntenia Nord. Electrica Furnizare Transilvania Nord and Electrica Furnizare Transilvania Sud;
- **June 2012** – a new entity obtains the generation license and enters on the electricity market - Complexul Energetic Oltenia SA. established in a dual system through merger of the former SNLO Tg. Jiu. Complexul Energetic Turceni. Complexul Energetic Rovinari and Complexul Energetic Craiova (GD 1024/2011);
- **July 2012** – the Law of electricity and natural gas no. 123/2012 has enter into force;
- **September 2012** – the application of the first stage from the timetable of phasing out of regulated electricity tariffs to final customers who choose not to exercise their eligibility rights. in accordance with the obligations assumed by the Romanian Government in relation with the IMF. World Bank and European Commission;
- **October 2012** – the Law no. 160/2012 regarding the organisation and operation of the Romanian Energy Regulatory Authority has entered into force;
- **November 2012** - a new entity obtains the generation license and enters on the electricity market - Complexul Energetic Hunedoara SA. established through merger of the former Electrocentrale Deva and Electrocentrale Paroseni (GD 1023/2011);
- **December 2012** – launch of the organised electricity market for the large customers;
- **July 2013** – launch of centralized market trading with continuous double negotiation of bilateral contracts for electricity;

- **August 2013** – removal of injection transmission tariff for the imported and respectively of the extraction transmission tariff for the exported quantities. and of the corresponding system services;
- **December 2013** – removal of the export tariffs applied by the electricity market operator;
  - certification with conditions for CNTEE Tranelectrica SA as an independent transmission and system operator;
  - application of last stage of the phasing out calendar for removal the regulated tariffs applied to the final nonhousehold clients who do not use their eligibility rights;
- **August 2014** – CNTEE Tranelectrica SA certification as NES transmission system operator following the „independent system operator” model;
- **October 2014** – entry into force of the Law no. 127/2014 for amending the Law no. 123/2012;
- **November 2014** – the launch of the CZ-SK-HU-RO market coupling project. that encompasses the DAM markets from the Czech Republic, Slovakia, Hungary and Romania;
- **January 2015** – entry into force of the new centralized market for bilateral contracts with its components: Extended Auctions Mechanism (CMBC–EA), Continuous Negotiation Mechanism (CMBC–CN), Fuel Processing Mechanism (CMBC–FP);
- **February 2015** – implementing the centralized market for universal service;
- **November 2016** - entry into force of the Law no. 203/2016 amending the Law no. 123/2012 on electricity and natural gas.

## 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 July 2018 are presented below split into categories:

No.	Category	No.	Category
<b>A Electricity generators on classic sources operating dispatching units</b>		<b>D Electricity generators on solar source operating dispatching units</b>	
1	Bepco SRL	1	Blue Sand Investment SRL
2	CET Arad SA	2	Caracal Solar Alpha SRL
3	CET Govora SA	3	Casa Crang SRL
4	CE Hunedoara SA	4	Clue Solar SRL
5	CE Oltenia SA	5	Corabia Solar SRL
6	Contour Global Solutions SRL	6	Cujmir Solar SRL
7	Ecogen Energy SA	7	Delta & Zeta Energy SRL
8	Electrocentrale Bucuresti SA	8	Ecosfer Energy SRL
9	Electrocentrale Constanta SA	9	Energo Proiect SRL
10	Electrocentrale Galati SA	10	Eye Mall SRL
11	Electro Energy Sud SRL	11	Fort Green Energy SRL
12	Enet Focsani SA	12	Foton Epsilon SRL
13	Gas Energy Ecotherm SA	13	Gama & Delta Energy SRL
14	Lukoil Energy & Gaz Romania SRL	14	GPSB Solaris 48 SRL
15	Modern Calor SA	15	Greenlight Solution SRL
16	OMV Petrom SA	16	Green Vision Seven
17	Rulmenti SA	17	Kentax Energy SRL
18	SNGN Romgaz SA	18	Lemar Grup SRL
19	Termoficare Oradea SA	19	LJG Green Source Energy Alpha SA
20	Veolia Energie Iasi SRL	20	LJG Green Source Energy Beta SRL
21	Veolia Energie Prahova SRL	21	LJG Green Source Energy Gamma SRL
22	Vest Energo SA	22	Long Bridge Milenium SRL
		23	Mar-Tin Solar Energy SRL
		24	Potehu Solar SRL
		25	Power L.V.E. One SRL
		26	RA-RA PARC SRL
		27	Romkumul SRL
		28	Simco Prod Factory SRL
		29	Skybase Energy SRL
		30	Solar Electric Frasinet SRL
		31	Solar Future Energy SRL
		32	Solaria Green Energy SRL
		33	Solprim SRL
		34	Spectrum Tech SRL
		35	Studina Solar SRL
		36	Sun Energy Complet SA
		37	Tis Energy SRL
		38	Tinmar Green Energy SRL
		39	Urdel Energy SRL
		40	Vanju Mare Solar SRL
		41	Varokub Energy Development SRL
		42	VIR Company International SRL
		43	VIS Solaris 2011 SRL
		44	Vrsh Pro Investments SRL
		45	WDP Development RO SRL
		46	Xalandine Energy SRL
		47	XPV SRL
<b>B Electricity generators on wind source operating dispatching units</b>		<b>E Electricity generators on hydro source operating dispatching units</b>	
1	Alizeu Eolian SA	1	Hidroelectrica SA
2	Ariina Development SRL		
3	Blue Line Energy SRL	<b>F Electricity generator on nuclear source operating dispatching units</b>	
4	Blue Planet Investments SRL	1	SN Nuclearelectrica SA
5	Braia Winds SRL		
6	Bridgeconstruct SRL	<b>G Transmission System Operator</b>	
7	Catalan Electric SRL	1	CNTEE TRANSELECTRICA SA
8	Cernavoda Power SRL		
9	Corni Eolian SRL	<b>H Market Operator for DAM, Intra-Day, Centralised Markets - CMBC-EA, CMBC-CN, CMBC-FP, CM-OTC, CMUS</b>	
10	Crucea Wind Farm SRL	1	OPCOM SA
11	Dan Holding MGM SRL		
12	Eco Power Wind SRL	<b>I Distribution operators</b>	
13	Ecoenergia SRL	1	Distributie Energie Oltenia
14	EDPR Romania SRL	2	Delgaz Grid
15	Electrica Serv SRL	3	E-Distributie Banat
16	Electricom SA	4	E-Distributie Dobrogea
17	Elektra Green Power SRL	5	E-Distributie Muntenia
18	Elektra Wind Power SRL	6	SDEE Muntenia Nord
19	Enel Green Power Romania SRL	7	SDEE Transilvania Nord
20	Energia Verde Ventuno SRL	8	SDEE Transilvania Sud
21	Enex SRL		
22	Eol Energy SRL	<b>J Suppliers of Last Resort</b>	
23	Eol Energy Moldova SRL	1	CEZ Vanzare SA
24	Eolian Center SRL	2	ENEL Energie SA
25	Eolica Dobrogea One SRL	3	E.ON Energie Romania SA
26	EP Wind Project (ROM) SIX SA	4	ENEL Energie Muntenia SA
27	Evisa Nalbant SRL	5	Electrica Furnizare SA
28	Ewind SRL		
29	General Concrete Cernavoda SRL		
30	Green Energy Farm SRL		
31	Ground Investment Corp SRL		
32	Holrom Renewable Energy SRL		
33	Horia Green SRL		
34	Intertrans Karla SRL		
35	Kelavent Charlie SRL		
36	Kelavent Echo SRL		
37	Land Power SRL		
38	LC Business SRL		
39	M&M 2008 SRL		
40	Mireasa Energies SRL		
41	East Wind Farm SRL		
42	Ovidiu Development SRL		
43	Peștera Wind Farm SRL		
44	Romconstruct Top SRL		
45	Sibioara Wind Farm SRL		
46	Smart Clean Power SRL		
47	Smartbreeze SRL		
48	Soft Grup SRL		
49	Tomis Team SRL		
50	Verbund Wind Power Romania SRL		
51	Wind Park Invest SRL		
52	Windfarm MV I SRL		
53	VS Wind Farm SRL		
No.	Category		
<b>C Electricity generators on biomass source operating dispatching units</b>			
1	Bioenergia Suceava SRL		

No.	Category
<b>K</b>	<b>Electricity Suppliers acting exclusively on the wholesale market</b>
1	Alpiq Energy SE
2	Axpo Energy Romania SRL
3	CEZ as
4	Danske Commodities/s Aarhus
5	EDF Trading Limited
6	Energo-Pro Trading EAD
7	Elpetra Energy E.A.D.
8	Energi Danmark A/S
9	Energy Supply & Trade D.O.O
10	Eolian Project SRL
11	EVN Trading South East Europe
12	Ezpada SRO
13	Flavus Investiții SRL
14	Freepoint Commodities Europe Ltd
15	GEN I trgovanje in prodaja elektricne energije doo
16	Holding Slovenske Elektrarne
17	Interenergo Energetski, Inženiring d.o.o.
18	JAS Energy Trading s.r.o.
19	Lord Energy SRL
20	MVM Partner Zrt
21	Neptun SA
22	Nis Petrol SRL
23	OMV Gas Marketing & Trading GmbH
24	Petrol, Slovenska energetska družba
25	Photovoltaic Green Project SRL
26	Ritam-4-TB ood
27	Statkraft Markets GmbH
28	Transenergo Com.SA
29	Unit Energy Trade SRL
30	Verbund Trading Romania SRL
<b>L</b>	<b>Electricity Suppliers acting also on the retail market</b>
1	Absolute Energy SRL
2	Aderro G.P. Energy SRL
3	A Energy Ind SRL
4	Alive Capital SRL
5	Alpiq RomIndustries SRL
6	Alro SA
7	Aqua Energia SA
8	Anchor Grup SA
9	Apuron Energy SRL
10	Ciga Energy SA
11	Cotroceni Park SA
12	Crest Energy SRL
13	Curent Alternativ SRL
14	CYEB SRL
15	EFE Energy SRL
16	EFT Furnizare SRL

No.	Category
	<b>Electricity Suppliers acting also on the retail market</b>
17	Energia Gas & Power SRL
18	Energy Trade Activ SRL
19	Electric Planners SRL
20	Electrificare CFR SRL
21	Elsid SA
22	Electrocarbon SA
23	Electromagnetica SA
24	Enel Trade Romania SRL
25	Energy Distribution Services SRL
26	Engie Romania SA
27	Enol Grup SA
28	Entrex Services SRL
29	Eolian Generator SRL
30	E.V.A. Energy SRL
31	GDM Logistic SRL
32	Getica 95 COM SRL
33	Grenerg SRL
34	Hermes Energy International SRL
35	ICCO Energy SRL
36	ICPE Electrocond Technologies SA
37	Imperial Development SRL
38	Industrial Energy SA
39	Izvor de Lumina SRL
40	Luxten LC SA
41	Menarom PEC SRL
42	MET Romania Energy SA
43	Midas&CO SRL
44	Monsson Trading SRL
45	Next Power SRL
46	Next Energy Parteners SRL
47	Nova Power&Gas SRL
48	P.C. Management & Consulting SRL
49	Plenerg SRL
50	Power Clouds SRL
51	QIA Energy SRL
52	QMB Energy SRL
53	RCS&RDS SA
54	Renovatio Trading SRL
55	Restart Energy One SRL
56	Romelectro SA
57	RWE Energie SRL
58	Stock Energy SRL
59	Tinmar Energy SA
60	Transformer Energy Supply SRL
61	Unistil SRL
62	Uzinsider General Contractor SA
63	Veolia Energie România SA
64	Werk 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. 67/2018 as well as to the *Methodology of retail electricity market monitoring*, approved by ANRE Order no. 60/2008. The table does not include the Balancing Responsible Parties (BRP). The BRP updated list is published on the Balancing Market Operator website - [www.transelectrica.ro](http://www.transelectrica.ro).

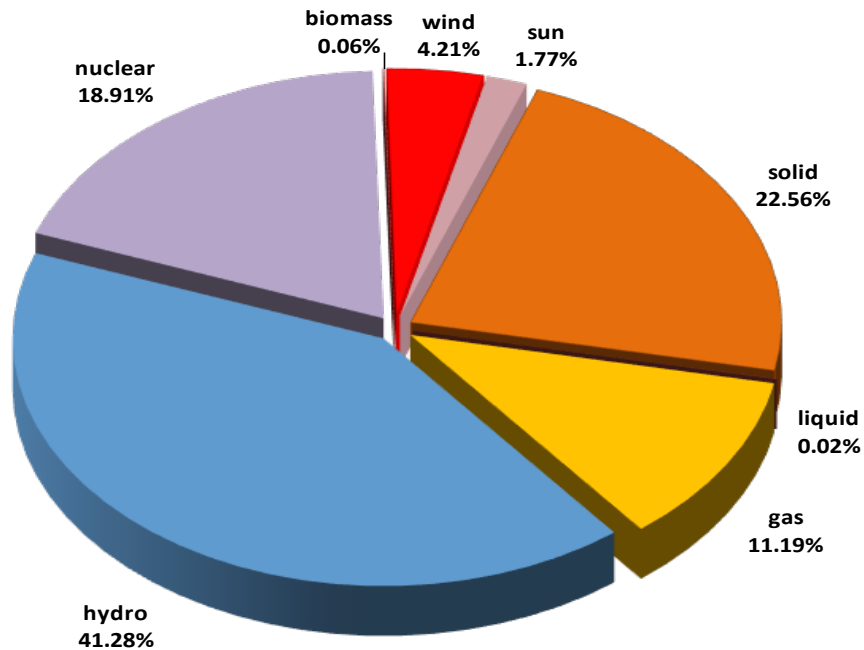
The monitored electricity generation license holders are producers holding dispatchable groups, which, according to the Regulation of Programming of production units and dispatchable consumers, approved by the Order of the ANRE President no. 32/2013 are classified under the following power categories:

- hydro generation group with installed power higher than 10 MW;
- thermal generation group (including biomass and nuclear) with installed power higher than 20 MW;
- wind, photovoltaic or internal combustion engine with installed power higher than 5 MW.

Electricity suppliers acting exclusively on the wholesale market category include supplying license owners who act only on wholesale market and owners of a trading license issued according ANRE Order no. 13/2015 for approval the „General conditions associated to the license for trading electricity”.

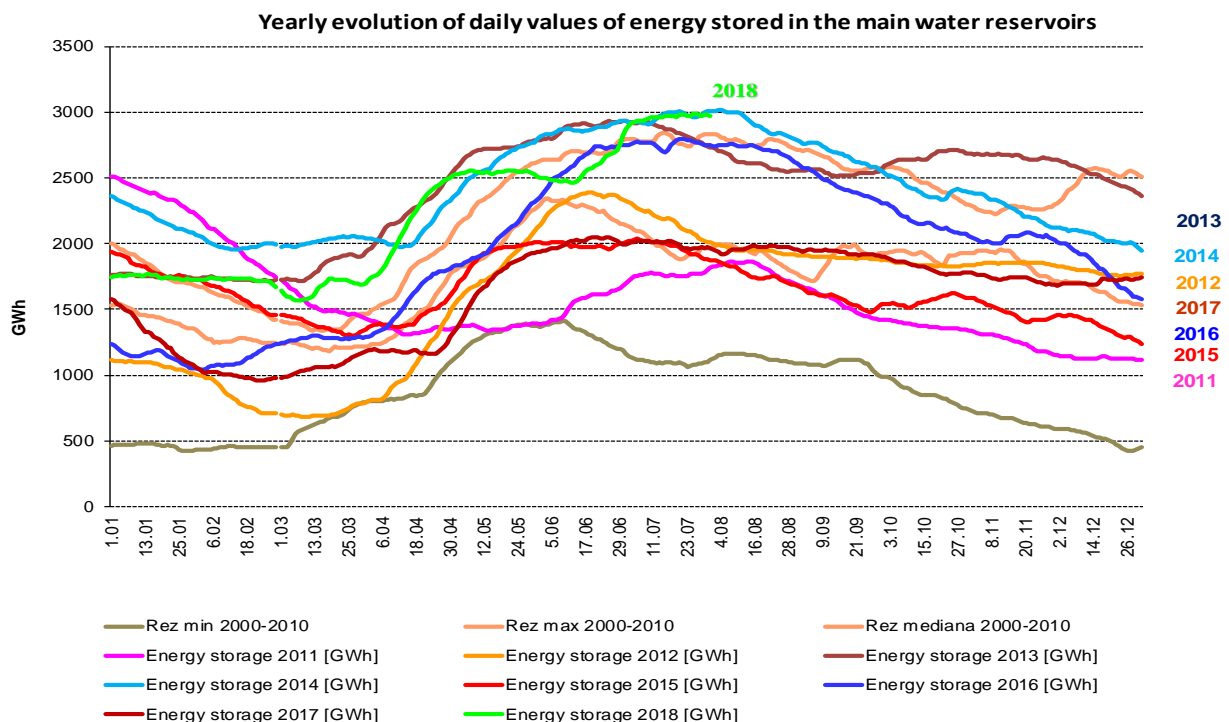
### 3. Generation structure of National Energy System on resources types

**Electricity structure by primary sources  
(delivered by generators with dispatchable units)  
- July 2018 -**



Source: Monthly reports of generators – processed by MU

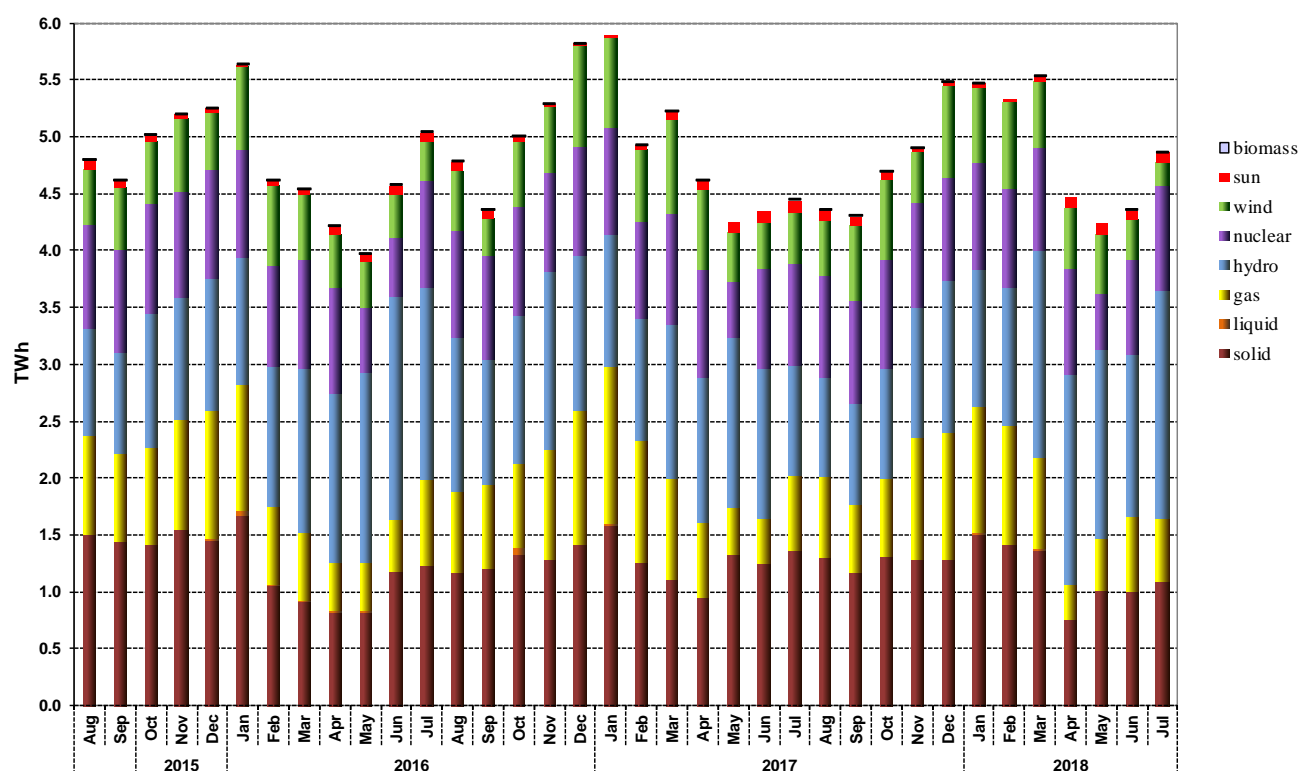
The electricity generated from hydro resources and the energy stored in the main water reservoirs is directly correlated. The following graph presents the evolution of daily amounts of energy storage during July 2018 compared to the daily values of the last 7 years and compared to minimum, maximum and median values from 2000-2010.



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

The evolution of the structure for the delivered electricity during the last 3 years is the following:

Evolution of electricity delivered by generators with dispatchable units by primary sources



Source: Monthly reports of generators – processed by MU

The following table presents the main data regarding the physical balance of electricity for July 2018, compared to data for the similar period of 2017:

Nr. Crt.	INDICATOR	UM	Jul 2017	Jul 2018	%	Jan-Jul 2017	Jan-Jul 2018	%
0	1	2	3	4	$\frac{5=4/3*10}{0}$	6	7	$\frac{8=7/6*100}{0}$
1	Generated electricity	TWh	4.76	5.15	108.19	35.96*	36.45	101.36
2	Delivered electricity	TWh	4.45	4.86	109.21	33.71*	34.30	101.75
3	Import	TWh	0.35	0.09	25.71	2.05	1.47	71.71
4	Export	TWh	0.42	0.52	123.81	4.16	3.48	83.65
5	Internal consumption (2+3-4)	TWh	4.38	4.43	101.14	31.60*	32.29	102.18
6	Consumption of household customers:	TWh	1.01	1.01	100.00	7.36	7.42	100.82
6.1	on Universal Service regime	TWh	0.89	0.76	85.39	6.77	5.89	87.00
6.2	on the competitive market	TWh	0.12	0.25	208.33	0.59	1.53	259.32
7	Consumption of non-households customers:	TWh	3.07	3.19	103.91	20.82	21.63	103.89
7.1	on universal service and last resort regime	TWh	0.09	0.08	88.89	0.71	0.59	83.09
7.2	on the competitive market	TWh	2.98	3.11	104.36	20.11	21.03	104.57
8	Transmission–Injection component	TWh	4.33	4.74	109.47	32.94*	33.52	101.76
9	Transmission–Extraction component	TWh	4.43	4.50	101.58	31.82*	32.46	102.01
10	Actual transmission grid losses	TWh	0.07	0.08	114.29	0.54	0.68	125.93
11	Heat generated for delivery	Tcal	448.89	478.46	106.59	7919.99	7549.75	95.33
12	Heat in co-generation	Tcal	347.40	360.36	103.73	6089.65	5656.30	92.88

**Note:**

- 1 The produced energy and the delivered energy are presented in accordance with the reports of the monitored production license holders - producers operating dispatchable electric groups, as defined in the Programming Regulation of Production Units and Dispatchable Consumers, approved by ANRE Order no. 32/2013 as amended;
  2. The data presented in the table do not include the energy supplied to the final customers connected to the plant's installations (headings 6 and 7);
  3. The imported / exported quantities do not include transits and cross-border exchanges of electricity by CNTEE Transelectrica SA with neighboring power systems in order to balance the system;
  4. The electricity for which a transport contract is concluded corresponds to the electricity delivered from the plants with installed capacity of more than 5 MW connected to the transmission and distribution electric networks; the electricity extracted from the network for which a transport contract is concluded coincides with the electricity for which the electricity extraction tariff is charged in the network (according to ANRE Order 108/2018);
  5. The consumption of US household customers (Universal Service) is the electricity consumption invoiced at SU price.
- \* The differences from the Electricity Market Monitoring Report on July 2017 are determined by the processing of corrections reported by economic operators.

**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.

When entering into force, the Law no. 123/2012 on Electricity and Natural Gas has set the general principle that energy competitive market and electricity transactions should take place in a transparent, public, centralized and non-discriminatory way. Therefore, all the new transactions have to be the result of participation on the centralized markets administrated by Opcom SA, the only owner of a license issued by ANRE for the electricity market operation in Romania. The centralized markets which are presently functional are DAM (Day Ahead Market), CMBC (centralized market of bilateral contracts with Extended Auction mechanism-EA, with Continuous Negotiation mechanism-CN, with Fuel Processing mechanism -FP), ID (Intraday Market), CM-OTC – (Centralized Market with Double Continuous Negotiation for Electricity Bilateral Contracts), CM-LCM (Large Consumers mechanism) and CMUS (Centralized Market for Universal Service).

Besides the existing centralized markets operated by Opcom SA (which ensure the transparent, public, centralized and non-discriminatory character required by the Law) there still exist bilateral negotiated contracts concluded before the entering into force of the Law still pending, export and import contracts and regulated contracts with regulated quantities and prices, based on ANRE decisions concluded between a number of generators and the suppliers of last resort.

Following the entering into force of the Law no. 23/2014 subsequent to Law no. 220/2008 for establishing the system for promoting producing electricity from renewable energy sources, modified and completed by Law no. 122/2015, a specific range of RES generators may conclude negotiated bilateral contracts as follows:

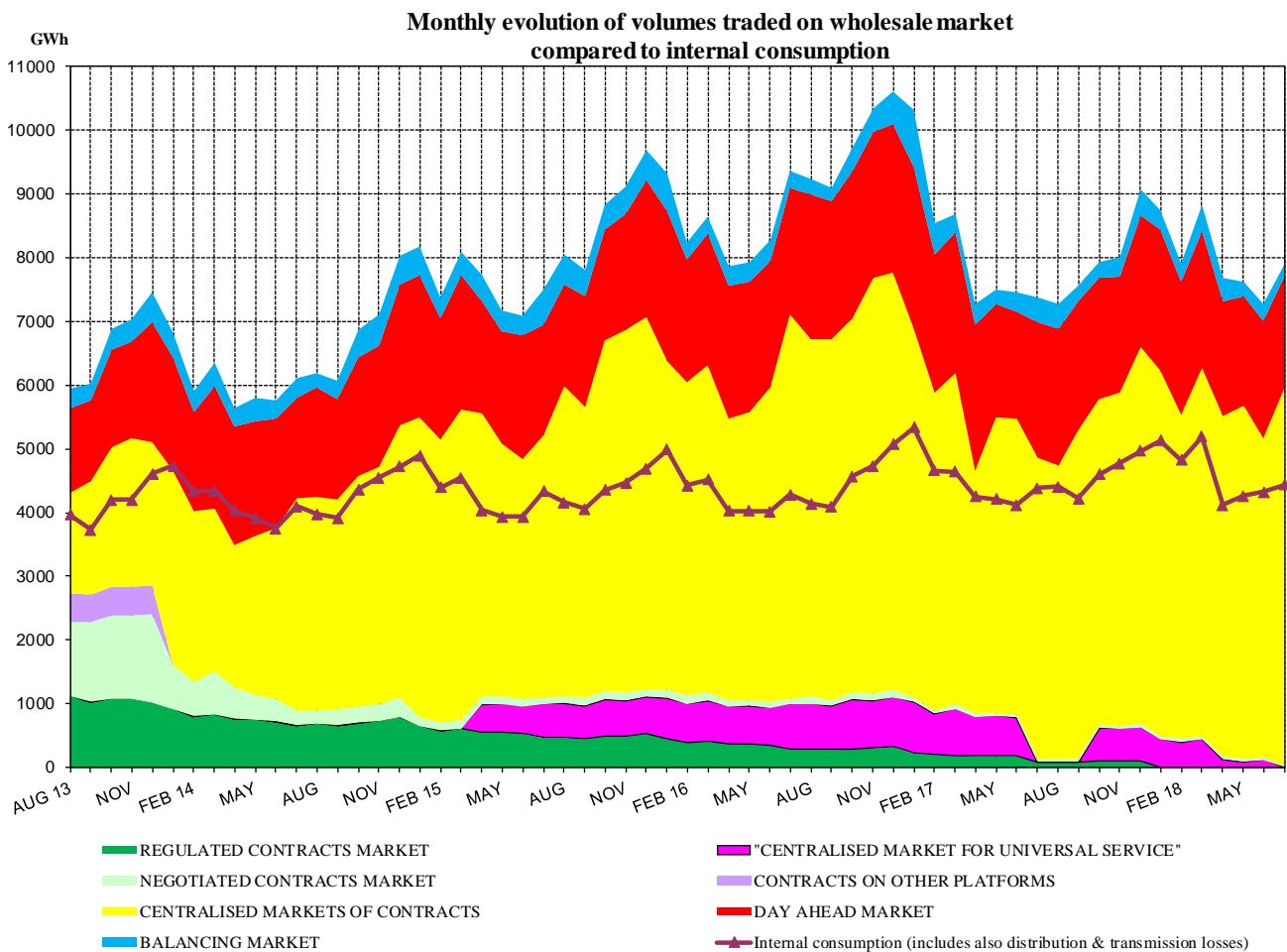
- those owning power plants that benefit from the promotion system and having installed capacity less than 1 MW/generator and less than 2 MW/generator for biomass high efficiency cogeneration, but only with suppliers for final customers;
- those owning power plants that benefit from the promotion system and having installed capacity between 1 and 3 MW/generator and between 2 and 3 MW/generator for biomass high efficiency cogeneration, but only if they are considered small or medium enterprises, according to Law no. 346/2004.

The following table presents the volumes traded and the average prices on each type of contracts and on the main components of the wholesale market. The aggregated volumes and the average prices on negotiated contracts are reported by market participants on their own responsibility and except the concluded contracts based on provisions of Law no. 23/2014 they should reflect only the ongoing contracts which had been concluded before Law no. 123/2012 entered into force.

<b>TRANSACTIONS ON THE WHOLESALE MARKET</b>	<b>June 2018</b>	<b>July 2018</b>	<b>July 2017</b>
<b>1. BILATERAL CONTRACTS' MARKET</b>			
traded volume (GWh)	<b>28</b>	<b>23</b>	<b>138</b>
average price (lei/MWh)	181.85	188.63	139.36
% from internal consumption (%)	0.7	0.5	3.2
<b>1.1. Sales on regulated contracts</b>			
traded volume (GWh)			<b>92</b>
average price (lei/MWh)	-	-	123.76
% from internal consumption (%)			2.1
<b>1.2. Sales on negotiated contracts<sup>1)</sup></b>			
traded volume (GWh)	<b>28</b>	<b>23</b>	<b>47</b>
average price (lei/MWh)	181.85	188.63	170.09
% from internal consumption (%)	0.7	0.5	1.1
<b>2. EXPORT</b>			
traded volume (GWh) <sup>2)</sup>	<b>260</b>	<b>522</b>	<b>416</b>
average price (lei/MWh)	209.01	193.36	189.72
% from internal consumption (%)	6.00	11.8	9.5
<b>3. CENTRALIZED MARKETS OF CONTRACTS</b>			
traded volume (GWh)	<b>5026</b>	<b>5920</b>	<b>4716*</b>
average price (lei/MWh)	184.00	202.32	170.21*
% from internal consumption (%)	116.3	133.6	107.6
<b>3.1. Extended auction mechanism CMBC-EA<sup>3)</sup></b>			
traded volume (GWh)	<b>1800</b>	<b>1768</b>	<b>1954*</b>
average price (lei/MWh)	179.88	189.01	164.91
% from internal consumption (%)	41.7	39.9	44.6
<b>3.2. Continuous negotiation mechanism CMBC-CN<sup>3)</sup></b>			
traded volume (GWh)	<b>1061</b>	<b>1300</b>	<b>1065</b>
average price (lei/MWh)	190.71	202.88	175.73
% from internal consumption (%)	24.6	29.3	24.3
<b>3.3. CM-OTC mechanism<sup>3)</sup></b>			
traded volume (GWh)	<b>2165</b>	<b>2852</b>	<b>1696</b>
average price (lei/MWh)	184.13	210.32	172.86
% from internal consumption (%)	50.1	64.3	38.7
<b>4. CENTRALIZED MARKET FOR UNIVERSAL SERVICE - CMUS</b>			
traded volume (GWh)	<b>123</b>	<b>8</b>	-
average price (lei/MWh)	178.18	205.55	
% from internal consumption (%)	2.8	0.2	
<b>5. DAY AHEAD MARKET</b>			
traded volume (GWh)	<b>1842</b>	<b>1752</b>	<b>2134</b>
average price (lei/MWh) <sup>4)</sup>	221.75	181.49	230.94
% from internal consumption (%)	42.6	39.5	48.7
<b>6. INTRADAY MARKET</b>			
traded volume (GWh)	<b>14.4</b>	<b>11.6</b>	<b>15.1</b>
average price (lei/MWh) <sup>5)</sup>	95.62	71.50	171.33
% from internal consumption (%)	0.3	0.3	0.3
<b>7. BALANCING MARKET</b>			
traded volume (GWh)	<b>247</b>	<b>188</b>	<b>396</b>
% from internal consumption (%)	5,7	4,2	9,0
upward volume (GWh)	<b>156</b>	<b>113</b>	<b>302</b>
average negative imbalance price(lei/MWh)	326,31	276,71	343,41
downward volume (GWh)	<b>91</b>	<b>74</b>	<b>94</b>
average positive imbalance price (lei/MWh )	61,56	26,83	52,05
<b>INTERNAL CONSUMPTION (GWh) (distribution and transmission losses included)</b>	<b>4320</b>	<b>4432</b>	<b>4383*</b>

- Note:
- 1) Supply contracts to final customers and export contracts are not included as they are separately identified;
  - 2) Export volumes and price information correspond to those reported monthly by market participants and include the volumes exported by CNTEE Transelectrica as shipper for coupled DAM; in some cases those volumes are different from those notified in DAMAS platform;
  - 3) The monthly data are presented as reported by the participants for the electricity delivered in the respective month. These information refer both to transactions concluded previously on CMBC and CMBC-NC (ANRE Order 6/2011) and to transactions concluded on CMBC-EA and CMBC-NC (ANRE Order 78/2014) with delivery within the reported month;
  - 4) The price is calculated as the average of the hourly market closing price and it is published by Opcom SA. The average monthly price calculated by Opcom SA as weighted average of the hourly market closing price with traded volumes was 185,99 lei/MWh in July 2018; The average monthly price is calculated based on monthly traded volume and transaction value published by OPCOM SA.  
\* The differences from the Electricity Market Monitoring Report in July 2017 are determined by the processing of the corrections reported by the economic operators.
  - 5)

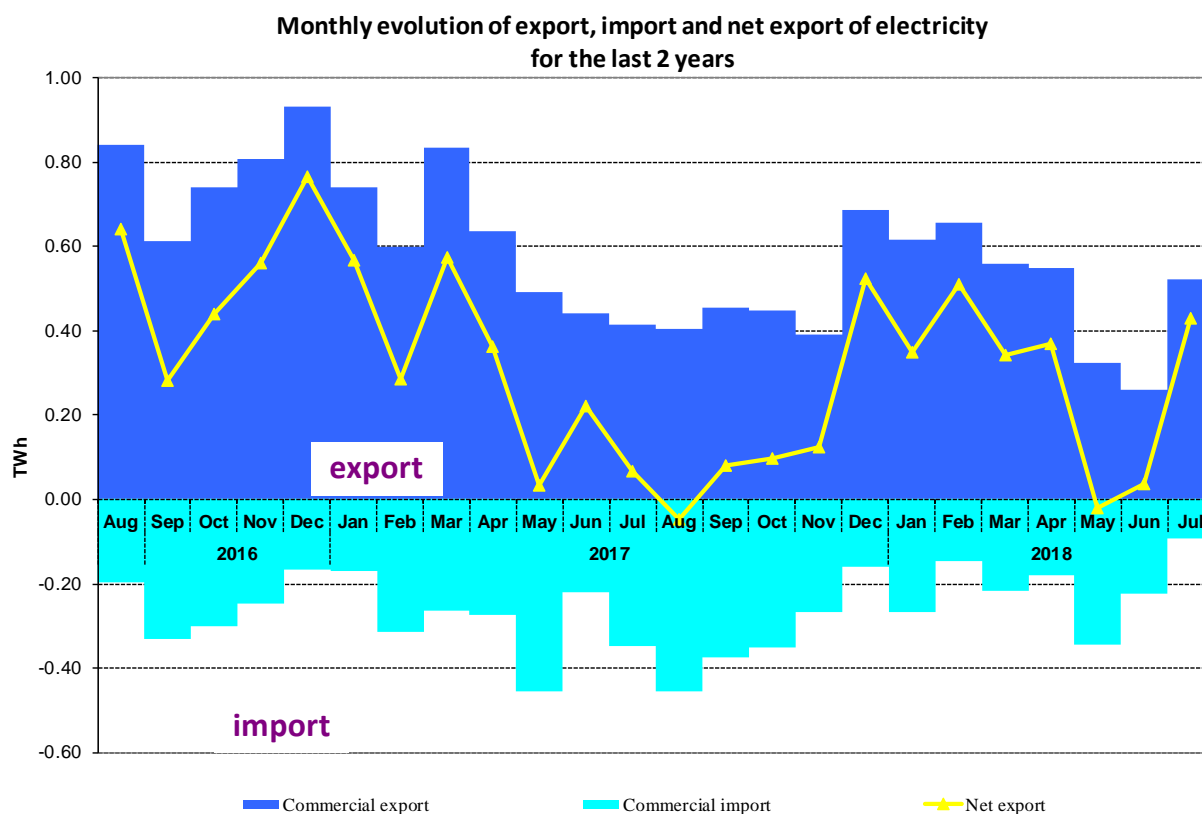
The percentage of electricity quantities from the internal consumption (see table from above) offers a dimensional reference for each of the specified markets. Prices include only the injection component of the transmission tariff, in this way being comparable within a month and making possible the comparison with the previous month. The following graph presents the evolution of the relation between the volumes sold on each market and the estimated internal consumption, since March 2013.



Source: Monthly reports of wholesale market participants. Opcom SA and CNTEE Transelectrica SA – processed by MU

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

The following graph presents 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) during the last 24 months:

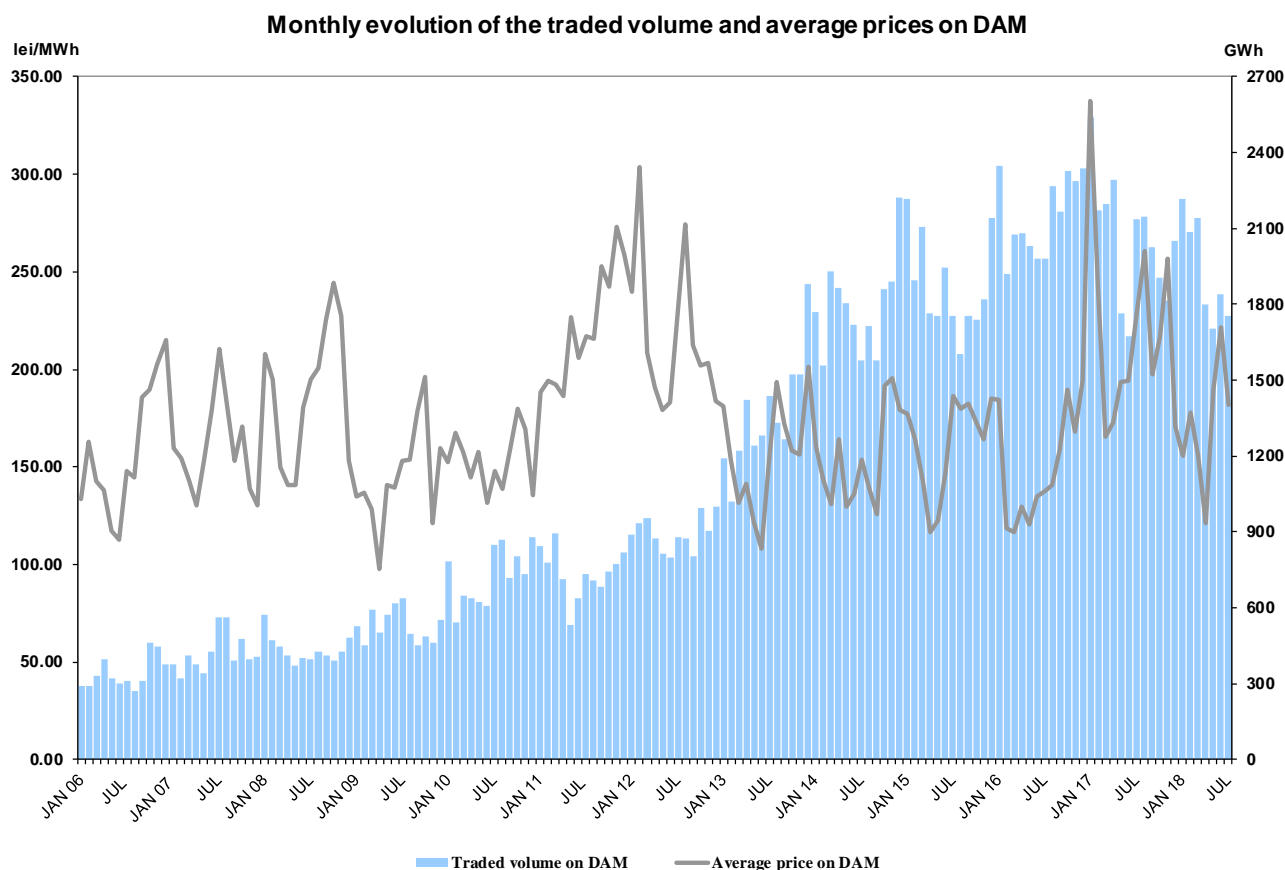


*Source: Monthly reports of CNTEE Tranelectrica SA – processed by MU*

The following table presents commercial export and import transactions for electricity extracted/introduced from/in transmission network. These include transaction of CNTEE Tranelectrica SA as shipper agent in the price coupling mechanism of DAM, known as 4M MC. Shipper agent role is reflected in physical and commercial transfer of electricity for import/export on the interconnections between Romania and Hungary.

Import/Export Transactions	June 2018	July 2018	July 2017
<b>Export</b>			
traded volume (GWh)	<b>260</b>	<b>522</b>	<b>416</b>
average price (lei/MWh)	209.01	193.36	189.72
% from internal consumption	6.0	11.8	9.5
<b>in which, for coupled DAM</b>			
traded volume (GWh)	<b>80</b>	<b>203</b>	<b>39</b>
average price (lei/MWh)	208.65	175.67	197.03
% from internal consumption	1.9	4.6	0.9
<b>Import</b>			
traded volume (GWh)	<b>223</b>	<b>92</b>	<b>348</b>
average price (lei/MWh)	227.48	198.97	241.36
% from internal consumption	5.2	2.1	7.9
<b>in which, for coupled DAM</b>			
traded volume (GWh)	<b>74</b>	<b>2</b>	<b>231</b>
average price (lei/MWh)	235.32	264.18	248.91
% from internal consumption	1.7	0.04	5.3

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



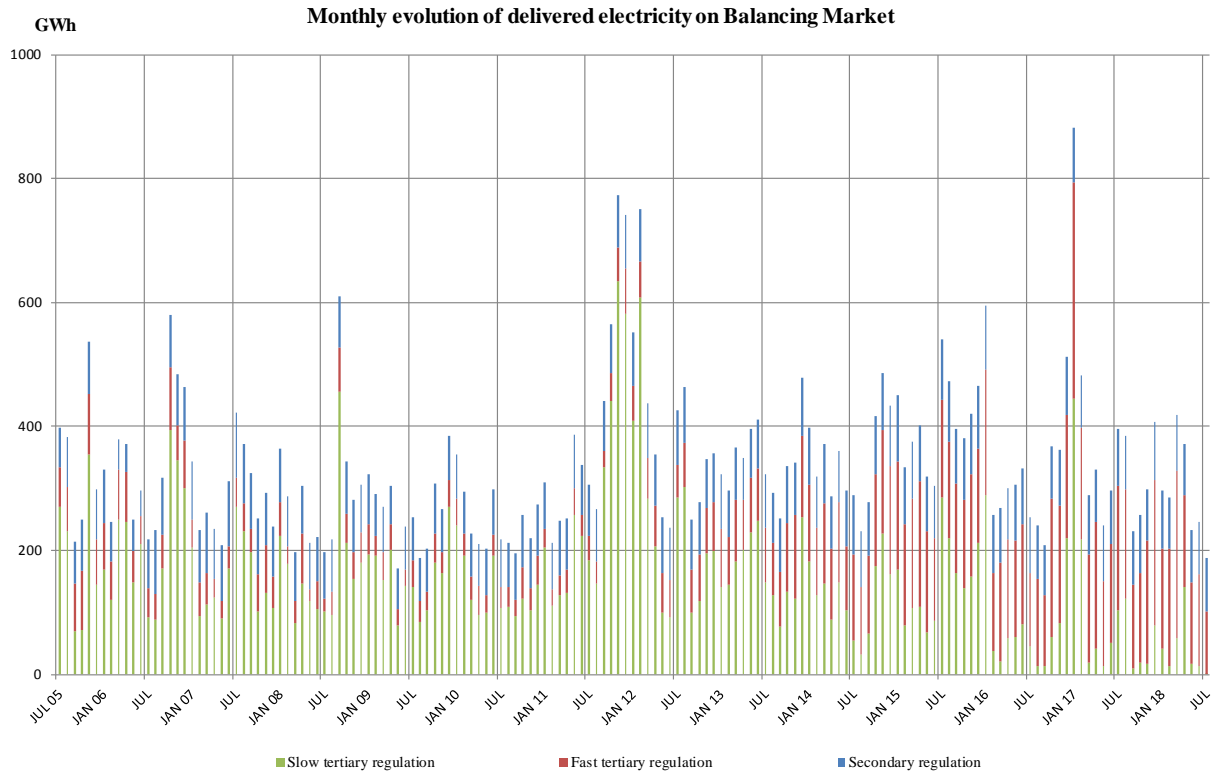
Source: Monthly reports of Opcom SA and CNTEE Tranelectrica SA – processed by MU

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 July 2018 is presented in the following table:

July 2018	Dispatch order (GWh)	Delivered electricity (GWh)	Deviation (%)
<b>Secondary regulation</b>	<b>85</b>	<b>85</b>	
<i>upward</i>	46	46	
<i>downward</i>	39	39	
<b>Fast tertiary regulation</b>	<b>106</b>	<b>102</b>	<b>4</b>
<i>upward</i>	68	67	2
<i>downward</i>	38	35	7
<b>Slow tertiary regulation</b>	<b>0</b>	<b>0</b>	<b>2</b>
<i>upward</i>	0	0	2
<i>downward</i>	0	0	3
<b>TOTAL</b>	<b>192</b>	<b>188</b>	
<i>upward</i>	114	113	
<i>downward</i>	77	74	
<b>INTERNAL CONSUMPTION</b>		<b>4432</b>	
<b>% share of traded volumes from internal consumption</b>		<b>4.2%</b>	

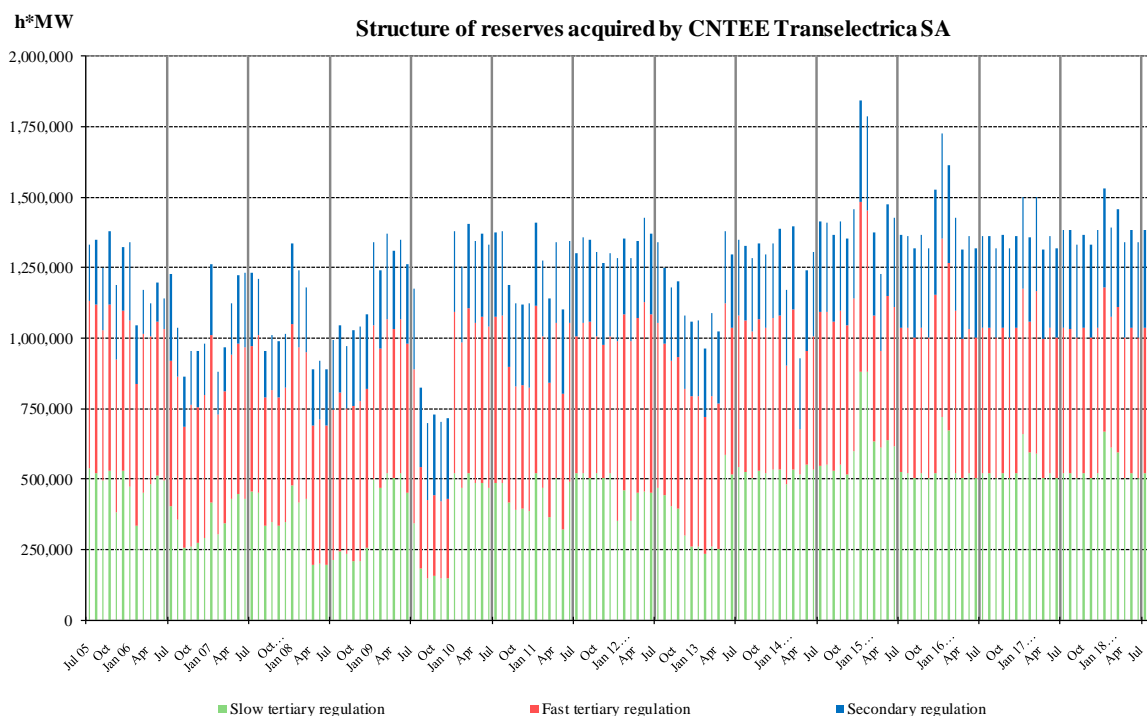
Source: Monthly reports of CNTEE Tranelectrica SA – processed by MU

The structure of balancing electricity delivered in the system on each type of regulation starting since July 2005 is presented in the graph below:



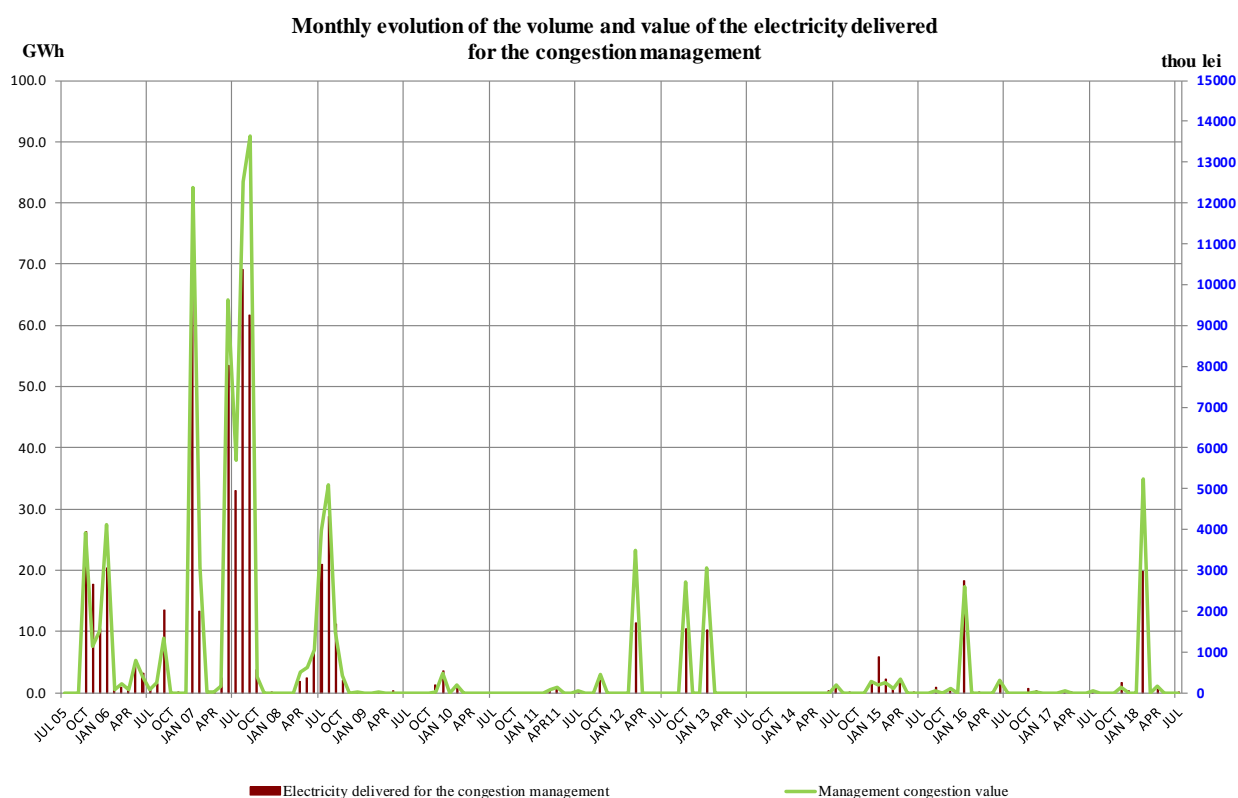
Source: Monthly reports of CNTEE Tranelectrica SA – processed by M

The following chart shows the evolution of the reserves (technological system services - STS, representing obligations of the producers to keep available to the dispatcher / bid on the balancing market of contracted capacities) purchased / settled by CNTEE Tranelectrica S.A. for the period July 2005 - July 2018:



Source: Monthly reports of CNTEE Tranelectrica SA – processed by MU

The following graph presents the evolution of electricity traded by CNTEE 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 from July 2005.



*Source: Monthly reports of CNTEE Tranelectrica SA – processed by MU*

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

### Generators

In July 2018 compared with the similar period of 2017, the structure of electricity sales obligations contracted before delivery interval by the electricity generators with dispatchable units was the following:

Transaction type	-GWh-	
	July 2017	July 2018
	<b>1</b>	<b>2</b>
Regulated contracts to suppliers of last resort - hydro generator	53.07	-
Regulated contracts to suppliers of last resort - nuclear generator	38.57	-
Negotiated contracts to suppliers	46.51	22.65
Contracts concluded on Opcom centralized markets:	3033.60*	4093.18
<i>CMBC-EA</i>	1759.47*	1646.26
<i>CMBC-CN</i>	642.69	987.50
<i>CM-OTC</i>	631.43	1459.41
Centralized market for universal service	0.00	0.08
DAM	1254.14	1000.23
Intraday	4.92	3.71
Supply contracts to final customers, from which:	454.27	403.96
<i>Households</i>	0.28	0.27
<i>Non-households</i>	453.99	403.69
<b>Total</b>	<b>4885.09*</b>	<b>5523.81</b>

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

*\* The differences from the Electricity Market Monitoring Report in July 2017 are determined by processing the corrections reported by the economic operators.*

## Suppliers

In July 2018, on the electric power market, 99 economic operators whose main activity is supplying electricity were activated; of these, 30 are suppliers that only operate on WEM (some of which are already licensees for the electricity trader) and 69 are suppliers also active in the REM (including last resort providers acting on the regulated segment as well as on the competitive part of the REM).

### Suppliers acting exclusively on WEM

The following table shows the activity for July 2018 of the suppliers acting exclusively on WEM, acquisitions and sales being split by categories of markets participants, compared with similar period of 2017:

-GWh-

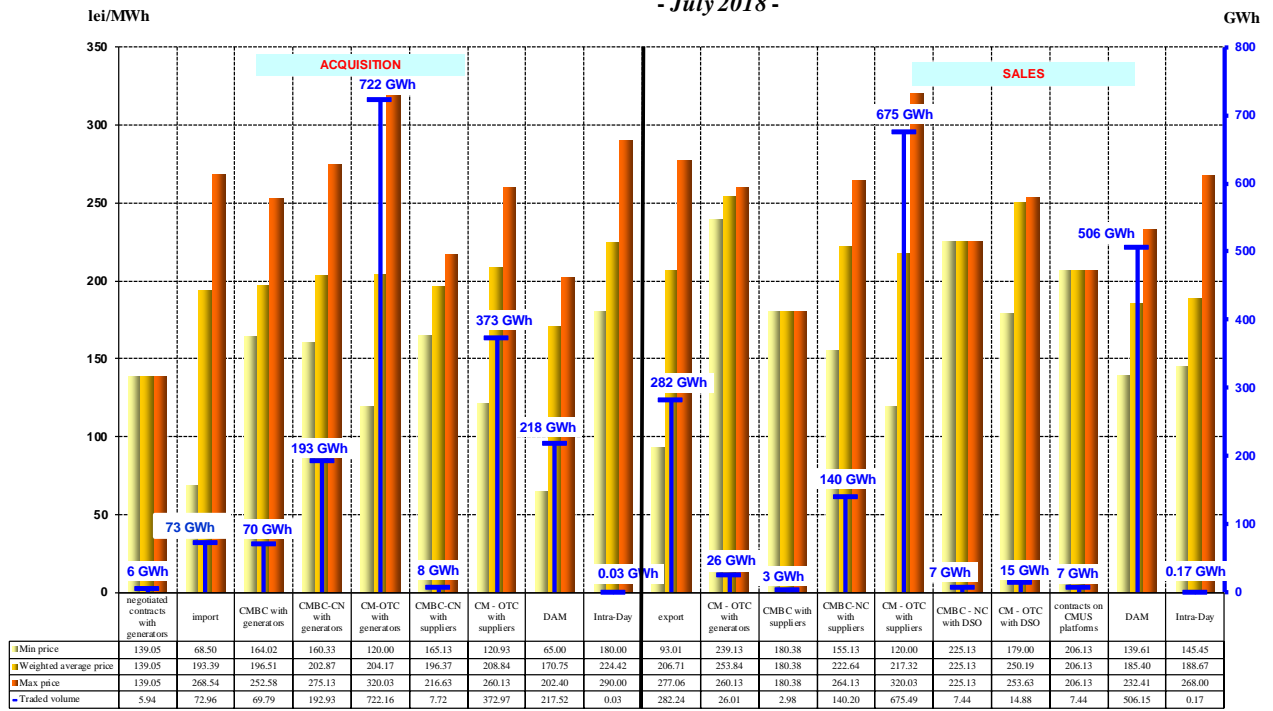
Transactions structure of suppliers acting exclusively on WEM	July 2017	July 2018
<b>Purchase</b>		
Import	104.18	72.96
-transactions negotiated with generators	0.00	5.94
Contracts concluded on Opcom centralized markets:	1174.59	1365.57
- on CMBC-EA with generators	247.19	69.79
- on CMBC-CN with generators	371.20	192.93
- on CM-OTC with generators	205.26	722.16
- on CMBC-EA with other suppliers	0.01	0.00
- on CMBC-CN with other suppliers	19.46	7.72
- on CM-OTC with other suppliers	331.48	372.97
DAM	285.35	217.52
Intraday market	1.34	0.03
<b>Sales</b>		
Export	291.02	282.24
Contracts concluded on Opcom centralized markets:	910.82	866.99
- on CMBC-CN with generators	122.75	0.00
- on CM-OTC with generators	47.62	26.01
- on CMBC-EA with other suppliers	16.36	2.98
- on CMBC-CN with other suppliers	142.54	140.20
- on CM-OTC with other suppliers	557.54	675.49
- on CMBC-CN with DO	1.69	7.44
- on CM-OTC with DO	22.32	14.88
CMUS with last resort suppliers	0.00	7.44
DAM	359.08	506.15
Intraday market	4.54	0.17

Source: Monthly reports of suppliers – processed by MU

Note: Data in the table also includes transactions negotiated with producers reported by an economic operator that did not have activity on WEM during the analyzed month.

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 July 2018.

Transactions concluded by suppliers acting exclusively on WEM  
- July 2018 -



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

Active suppliers on REM (suppliers of last resort not included)

The following table presents aggregated information on transactions volume and structure for suppliers providing electricity to final customers, on the competitive market, for July 2018 compared with the similar period of 2017:

-GWh -

Transactions' structure of suppliers acting on REM (suppliers of last resort excluded)	June 2017	June 2018
<b>Purchase</b>		
Import	12.97	16.61
Negotiated contracts with generators	47.97	19.76
Contracts concluded on Opcom centralized markets:	1887.28	2266.62
- on CMBC-EA with generators	977.13	965.02
- on CMBC-CN with generators	176.57	318.17
- on CM-OTC with generators	215.58	414.41
- on CMBC-EA with other suppliers	65.49	55.77
- on CMBC-CN with other suppliers	102.89	101.14
- on CM-OTC with other suppliers	349.62	412.10
Negotiated contracts with undispachable generators (others than under Law 23/2014 and Law 122/2015)*	7.92	7.39
Negotiated contracts with undispachable generators (Law 23/2014 and Law 122/2015)**	33.60	29.99
DAM	229.19	286.67
Intraday market	6.81	9.51

Transactions' structure of suppliers acting on REM (without the suppliers of last resort)	June 2017	June 2018
<b>Sales</b>		
Export	86.07	36.33
Contracts concluded on Opcom centralized markets:	712.98	922.77
- on CMBC-EA with generators	30.22	5.66
- on CMBC-NC with generators	17.68	15.39
- on CM-OTC with generators	18.60	11.29
- on CMBC-EA with other suppliers	57.83	75.86
- on CMBC-NC with other suppliers	134.23	138.36
- on CM-OTC with other suppliers	361.71	627.44
- on CMBC-EA with DO	66.63	14.69
- on CMBC-NC with DO	3.76	11.16
- on CMBC-EA with TSO	22.32	22.94
CMUS with last resort suppliers	0.00	0.02
DAM	233.55	114.25
Intraday market	1.21	1.16
Household customers	14.59***	23.29
Non-household customers	1212.63***	1555.42

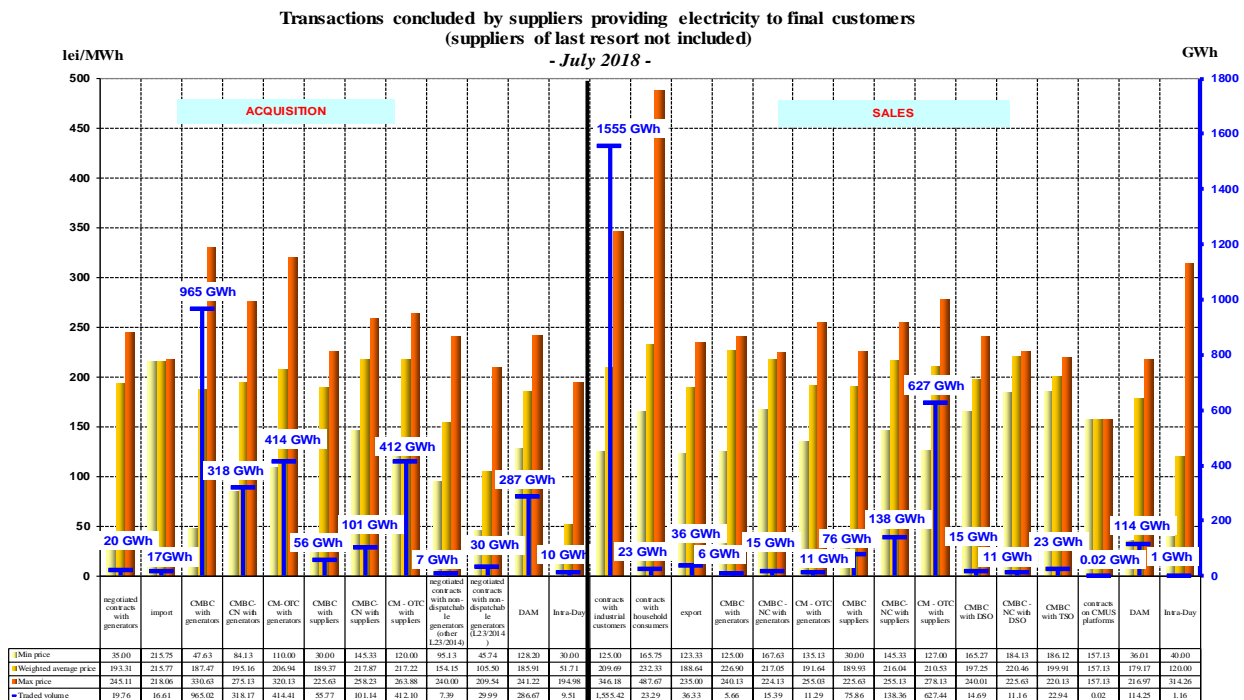
Source: Monthly reports of the competitive suppliers – processed by MU

\*negotiated trades concluded with undispachable generators which are not able to conclude contracts according to Law 23/2014 provisions, with subsequent changes and additions of Law no. 122/2015, both Laws subsequent to Law no. 220/2008

\*\*negotiated trades concluded with undispachable generators which may conclude contracts according to Law 23/2014 provisions, with subsequent changes and additions of Law no. 122/2015, both Laws subsequent to Law no. 220/2008

\*\*\* The differences from the Electricity Market Monitoring Report in July 2017 are determined by processing the corrections reported by the economic operators.

The breakdown by source/destination of the volumes traded, the minimum, average and maximum prices made in July 2018 by suppliers with REM and WEM activity are shown in the following graph:



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

### Suppliers of last resort

The structure of last-of-the-art WEM electricity transactions (made before the delivery interval) for SU (optional / mandatory) and UI final customers is shown in the table below for July 2018 compared to the similar period of 2017:

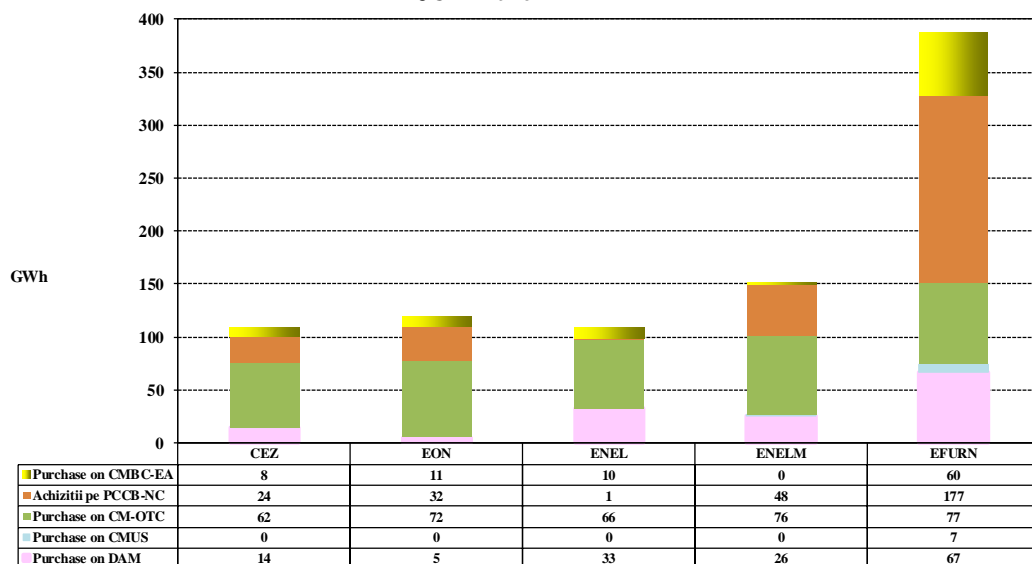
- GWh -

Transactions structure of suppliers of last resort for supplying the customers in SU and UI regime	July 2017	July 2018
Regulated contracts with generators	91.65	-
Negotiated contracts with undispachable generators (Law 23/2014 and Law 122/2015)*	0.04	0.02
Contracts concluded on Opcom centralized markets:	126.30	721.83
- contracts on CMBC-EA with generators	26.70	87.64
- contracts on CMBC-CN with generators	14.91	158.56
- contracts on CM-OTC with generators	13.84	96.36
- contracts on CMBC-EA with other suppliers	0.58	0.15
- contracts on CMBC-CN with other suppliers	19.60	123.39
- contracts on CM-OTC with other suppliers	50.67	255.72
Centralized market for universal service:	0.00	7.54
- contracts on CMUS with generators	0.00	0.08
- contracts on CMUS with suppliers	0.00	7.46
Transactions concluded on DAM:	747.09	119.08
- purchase	750.83	144.90
- sales	3.74	25.83
Transactions concluded on Intraday market:	-0.37	0.00
- purchase	0.65	0.00
- sales	1.01	0.00

\*negotiated trades concluded with undispachable generators which may conclude contracts according to Law 23/2014 provisions, with subsequent changes and additions of Law no. 122/2015, both Laws subsequent to Law no. 220/2008

The structure of the electricity purchased by the suppliers of last resort from the main generators on regulated contracts is presented in the following graph for July 2018:

Transactions structure of suppliers of last resort for supplying the customers in SU and UI regime  
- JULY 2018 -



Source: Monthly reports of the suppliers of last resort – processed by MU

Starting with 01.07.2018, according to the provisions of the *The Regulation for the competitive selection of suppliers of last resort*, approved by the ANRE Order no. 26/2018, ANRE has designated as mandatory suppliers of last resort for each network area until 30 June 2022, E.ON Energie Romania SA, Enel Energie SA, Enel Energie Muntenia SA, Electrica Furnizare SA and CEZ Vânzare SA, and, as an optional supplier of last resort, Enel Energie Muntenia SA (for the regions of Moldova, Oltenia, North Muntenia, Northern Transylvania and South Transylvania) until 30 June 2019.

At the same time, starting with 01 July 2018, in accordance with the *Methodology for setting the calculation method and the conditions for approving prices applied by the obligated suppliers of last resort and the optional suppliers of last resort to the final customers* (approved by Order No. 39/06 March 2018), obligated and optional suppliers of last resort apply in the final customer invoices the final prices, approved by ANRE for each network area and application period, as follows:

- obligated suppliers of last resort apply the price for universal service (to households and non-households that benefit of universal service) and, based on its multiplication with an increase coefficient, the price for inactive clients (non-households that did not use their eligibility rights and do not fulfill the conditions for universal service or did not request to be supplied under the universal service regime);
- optional suppliers of last resort apply to final consumers that benefit from universal service the price for universal service, determined by applying on the universal service price applied by the obligated supplier a discount assumed by the optional supplier through the pricing offers.

At the same time, the obliged suppliers of last resort determine and apply the last resort price to the non-household final customers supplied under the universal service regime under the conditions stipulated by the *Methodology* approved by Order no. 39/2018.

On the date of entry into force of ANRE President Order no. 27/2018 for the approval of the *Regulation for organizing and conducting the auctions on the centralized market for the universal service*, the conditions of participation of suppliers of last resort to CMUS for the purchase of electric energy to cover the consumption of final customers supplied under US regime were changed, the participation in the auctions sessions becoming, thus, voluntary.

The structure of suppliers of last resort electricity transactions on the REM (made before the delivery interval) for universal service is presented in the following table for July 2018, compared with the similar period of 2017:

Transactions' structure of suppliers of last resort for universal service	-GWh-			
	July 2017		July 2018	
	Quantity [GWh]	Average price [lei/MWh]	Quantity [GWh]	Average price [lei/MWh]
Contracts concluded on Opcom centralized markets:	98.10	240.63	666.38	217.51
- on CMBC-EA with generators	0.00	0.00	87.17	202.94
- on CMBC-CN with generators	14.86	208.71	158.04	203.33
- on CM-OTC with generators	13.76	240.20	87.02	251.80
- on CMBC-EA with other suppliers	0.48	203.17	0.00	0.00
- on CMBC-CN with other suppliers	19.32	218.27	100.97	226.52
- on CM-OTC with other suppliers	49.68	175.43	233.18	215.87
Contracts concluded on CMUS:	0.00	0.00	7.54	205.55
- contracts on CMUS with generators	0.00	0.00	0.08	163.26
- contracts on CMUS with suppliers	0.00	0.00	7.46	206.00
Transactions concluded on DAM:	700.73	-	108.33	219.01
- purchase	700.82	240.62	132.62	204.42
- sales	0.09	102.14	24.29	139.32
<b>TOTAL</b>	<b>798.82</b>	<b>237.87</b>	<b>782.24</b>	<b>217.60</b>

\* The differences from the Electricity Market Monitoring Report in July 2017 are determined by processing the corrections reported by the economic operators.

The following table presents the electricity acquisition structure of suppliers of last resort (before the delivery interval) corresponding to the competitive REM (energy supplied at negotiated prices to the customers who renounced to regulated tariffs) for July 2018 compared to similar previous period:

-GWh-

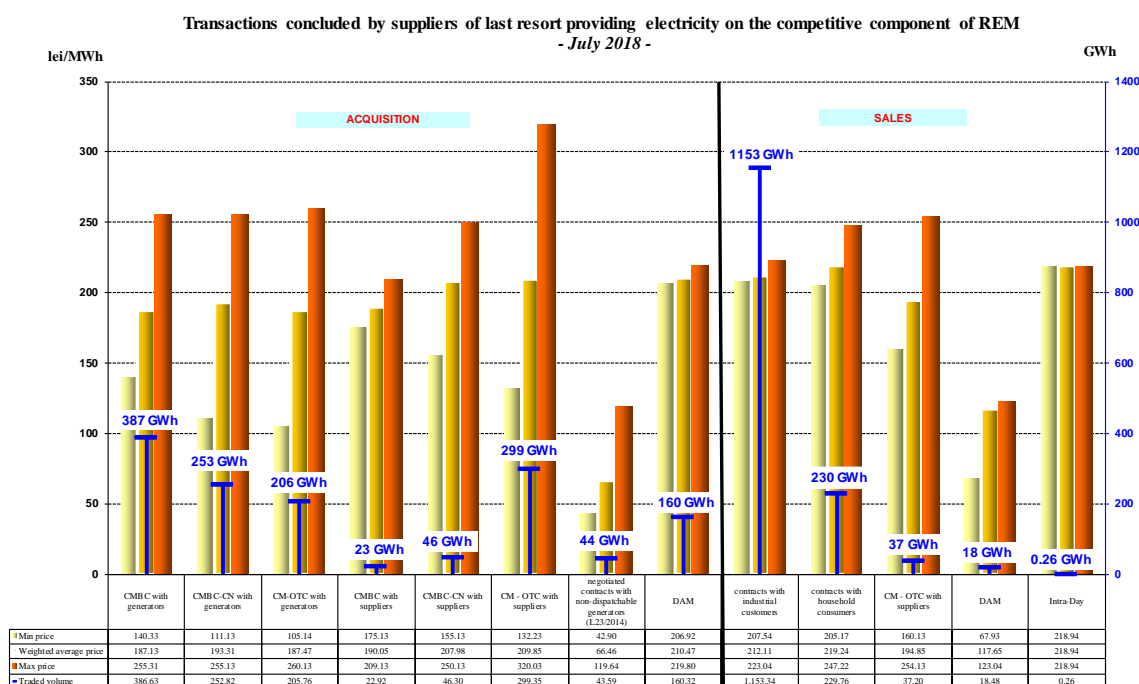
Transactions' structure of suppliers of last resort for the competitive segment of REM	July 2017	July 2018
<b>Aquisitions</b>		
Contracts concluded on Opcom centralized markets:	1059.74	1213.77
- on CMBC-EA with generators	419.08	386.63
- on CMBC-CN with generators	70.34	252.82
- on CM-OTC with generators	182.88	205.76
- on CMBC-EA with other suppliers	8.12	22.92
- on CMBC-CN with other suppliers	134.82	46.30
- on CM-OTC with other suppliers	244.51	299.35
Negotiated contracts with undispachable generators (Law 23/2014 and Law 122/2015)*	38.80	43.59
- transactions DAM	338.83**	160.32
<b>Sales</b>		
Contracts concluded on Opcom centralized markets:	58.21	37.20
- on CMBC-EA with generators	1.19	0.00
- on CM-OTC with other suppliers	57.02	37.20
- transactions DAM	3.68	18.48
- transactions Intraday market	0.00	0.26
Household customers	102.44**	229.76
Non-household customers	1310.43**	1153.34

\*negotiated trades concluded with undispachable generators which may conclude contracts according to Law 23/2014 provisions. with subsequent changes and additions of Law no. 122/2015. both Laws subsequent to Law no. 220/2008

\*\* The differences from the Electricity Market Monitoring Report in July 2017 are determined by processing the corrections reported by the economic operators.

Source: Monthly reports of the suppliers of last resort – processed by MU

The structure by types of sources/destinations of the traded volumes and of the average prices of the suppliers of last resort on the competitive segment of REM is presented in the following graph for July 2018:



Source: Monthly reports of the suppliers of last resort – processed by MU

### Main distribution operators

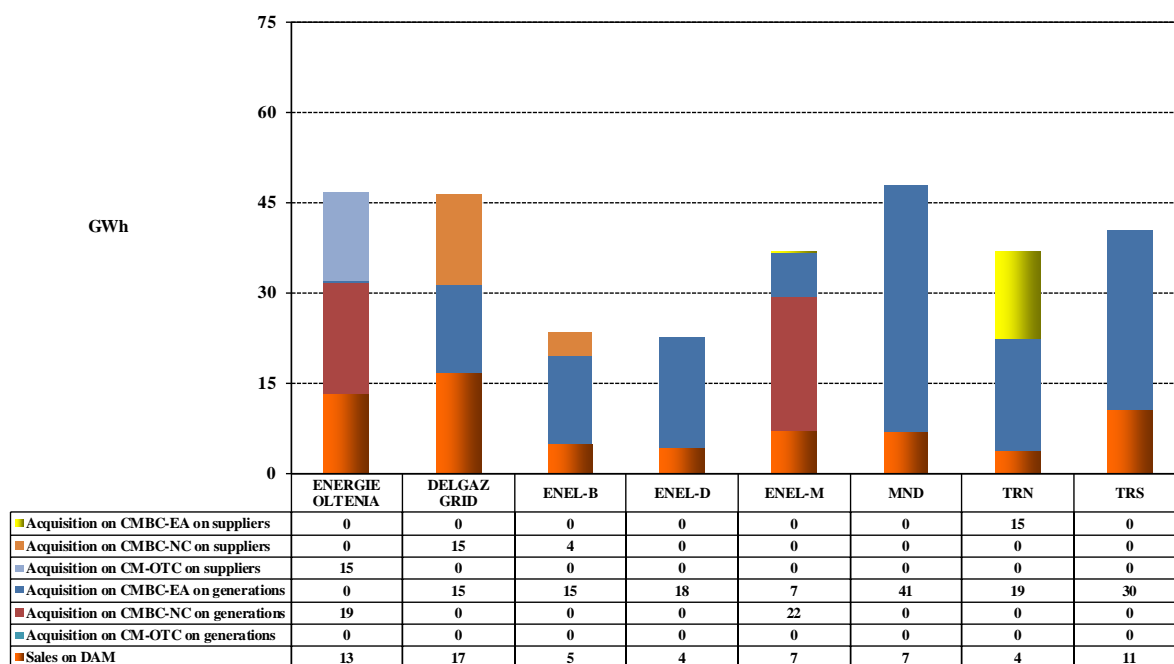
The following table shows the electricity acquisition structure of main distribution operators (before the delivery interval), for covering the distribution network losses, for July 2018 compared with similar previous period:

Transactions' structure	July 2017	July 2018
Contracts concluded on Opcom centralized markets:	206.79	233.65
- CMBC-EA with generators	103.27	144.59
- CMBC-CN with generators	5.40	40.91
- CM-OTC with generators	3.72	0.00
- CMBC-EA with suppliers	66.63	14.68
- CMBC-CN with suppliers	5.45	18.60
- CM-OTC with suppliers	22.32	14.88
Transactions concluded on Intraday market	0.83	0.04
- purchase	0.83	0.04
- sales	0.00	0.00
Transactions concluded on DAM:	133.05	66.30
- purchase	133.06	66.44
- sales	0.01	0.14

Source: Monthly reports of the distribution operators – processed by MU

The electricity purchased for covering their network losses is presented in detail in the following graph, for July 2018:

Electricity acquisition of distribution operators for covering the distribution losses  
JULY 2018



Source: Monthly reports of the distribution operators – processed by MU

## 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.
- **C1** = market share of the main market participant (%)  
The indicator values signify:  

C1 > 20%	alarming concentrated market;
C1 > 40%	suggests the existence of a dominant position;
C1 > 50%	clearly indicates a dominant position.
- **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.

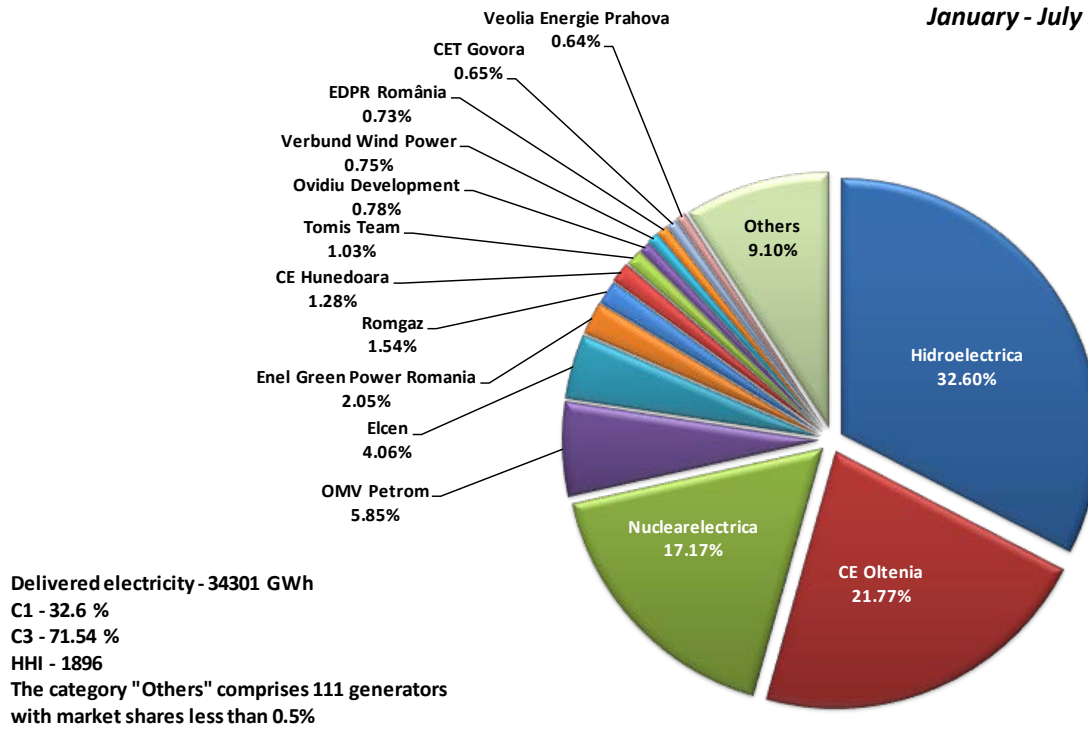
### Concentration indicators and market shares of the electricity generators

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 generation for July 2018, calculated based on electricity delivered into the networks by the generators with dispatchable units while the graph shows the dispatchable generators market shares for seven-months period.

Concentration indicators - July 2018 -	C1 (%)	C3 (%)	HHI
Value	41.22	81.19	2541

**Market share of generators with dispatchable units by delivered electricity  
January - July 2018**



Source: Monthly reports of generators – processed by MU

A component of the WEM on which 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 July 2018:

Structure/concentration indicators of BM - July 2018 -	Regulation					
	Secondary		Fast tertiary		Slow tertiary	
	upward	downward	upward	downward	upward	downward
<b>C1 - % -</b>	<b>83</b>	<b>83</b>	<b>87</b>	<b>75</b>	<b>100</b>	<b>100</b>
<b>C3 - % -</b>	<b>97</b>	<b>98</b>	<b>96</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>HHI</b>	<b>6991</b>	<b>7055</b>	<b>7635</b>	<b>5992</b>	<b>10000</b>	<b>10000</b>

Source: Monthly reports of CNTEE Transelectrica SA – processed by MU

Requirements for maintaining safety of the technological system services operation of SEN in May 2018 was achieved both by getting competitive and regulated. Pursuant to the provisions of Emergency Ordinance No. 26/2018 on the adoption of measures for security of electricity supply, approved the decision of the President of the Agency No.655/2018 concerning the purchase price covered for the period 1 May to 31 December 2018 at what his producer Hunedoara a quantity of system technological services representing the tertiary reserve slow for a capacity of 400 MW. In addition, Transelectrica S.A. CNTEE organized the auction for the purchase of stocks on all kinds of adjustment.

In the following table are shown the concentration indicators by types of reserves (secondary adjustment rapid tertiary, tertiary, slow).

Concentration indicators on Ancillary Services Market -July 2018 -		Secondary reserve	Fast tertiary reserve	Slow tertiary reserve
regulated component	contracted quantity (h* <b>MW</b> )	-	-	<b>297600</b>
	<b>C1 (%)</b>	-	-	<b>100.0</b>
	<b>C3 (%)</b>	-	-	<b>100.0</b>
competitive component	contracted quantity (h* <b>MW</b> )	<b>350300</b>	<b>514600</b>	<b>223200</b>
	<b>C1 (%)</b>	<b>94.5</b>	<b>88.5</b>	<b>50.0</b>
	<b>C3 (%)</b>	<b>100.0</b>	<b>94.5</b>	<b>100.0</b>
	<b>HHI</b>	<b>8939</b>	<b>7858</b>	<b>5000</b>

Source: Monthly reports of CNTEE Transelectrica SA – processed by MU

### 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 based on quantities traded by participants on this market.

Concentration indicators on DAM - July 2018 -	C1 (%)	C3 (%)	HHI
<b>Selling</b>	<b>19.26</b>	<b>47.15</b>	<b>888</b>
<b>Buying</b>	<b>28.12</b>	<b>39.44</b>	<b>966</b>

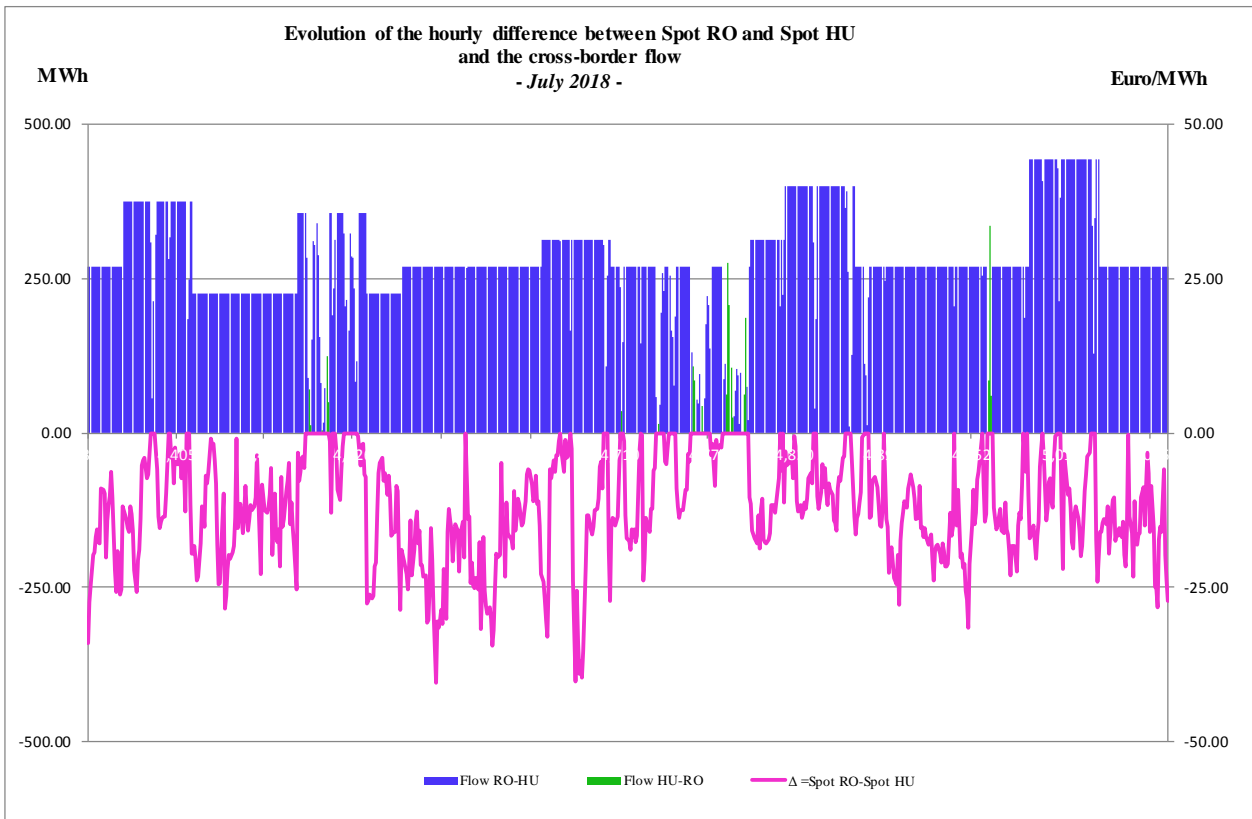
Source: Monthly reports of Opcom SA – processed by MU

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

Starting with November 2014 the Romanian DAM is working coupled with the spot markets from Hungary, Slovakia and Czech Republic based on the price coupling mechanism, project known as 4M MC. This coordinated correlation mechanism uses an unique European method for price coupling of regions (called *Price Coupling of Regions - PCR*-initiative) in order to fulfil the harmonization of national european markets and create the internal european electricity market. The functioning of these spot markets is based on coupling algorithm recommended by ACER (Euphemia) and its goal is maximizing the social welfare to the entire area of the coupled markets.

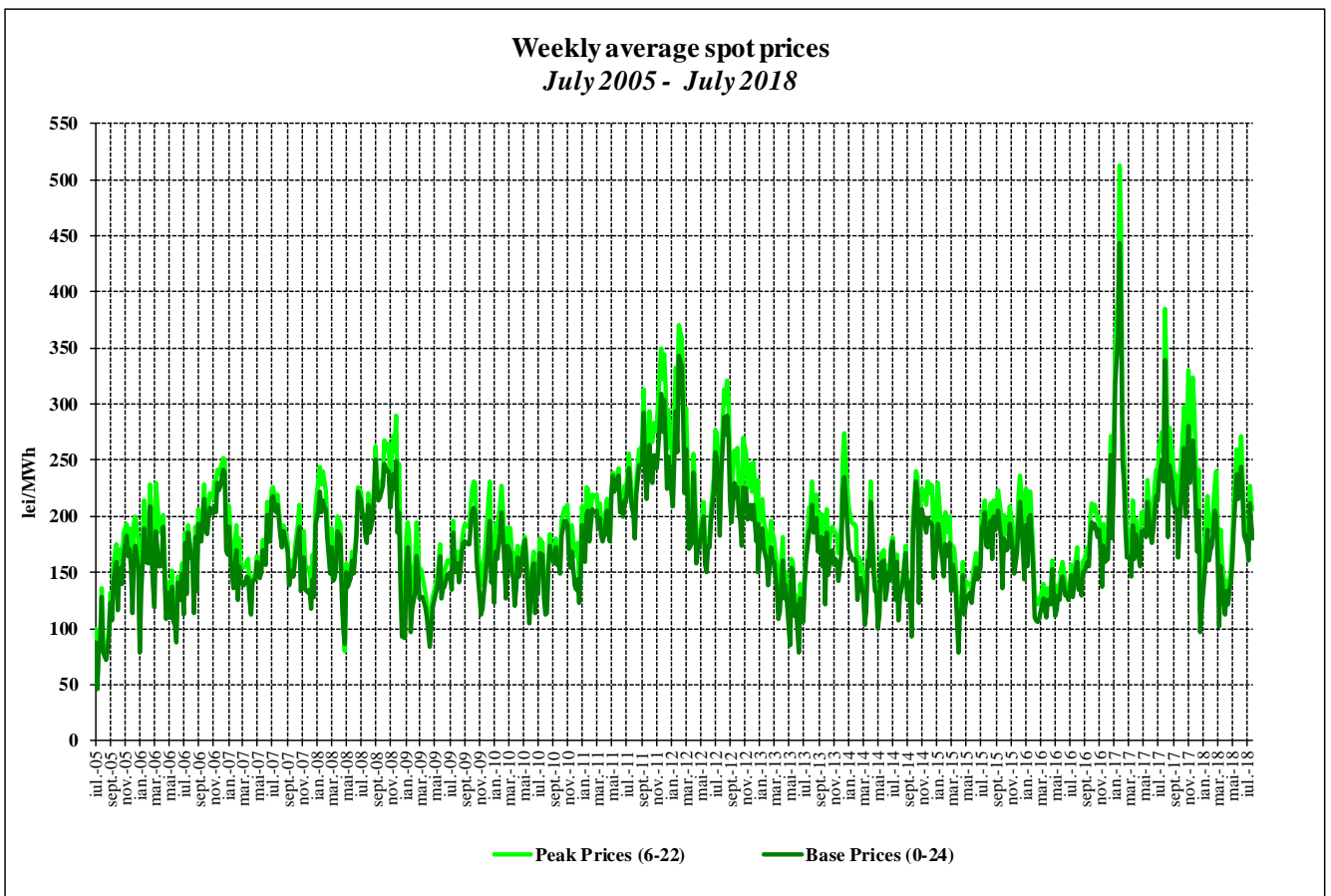
The coupling mechanism is developed through the operators OTE-Czech Republic, EPEX Spot (operating as services supplier for OKTE-Slovakia and HUPX-Hungary) and from 17<sup>th</sup> of January 2017 OPCOM-Romania (who became PCR member from 1<sup>st</sup> January 2016). After succesfully finalisation of the implementation process of the changes and tests performed, OPCOM operates in its own name the coupling solution impelemented in the 4M MC operational mechanism, all processes





Source: Data published by Opcom SA – processed by MU

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

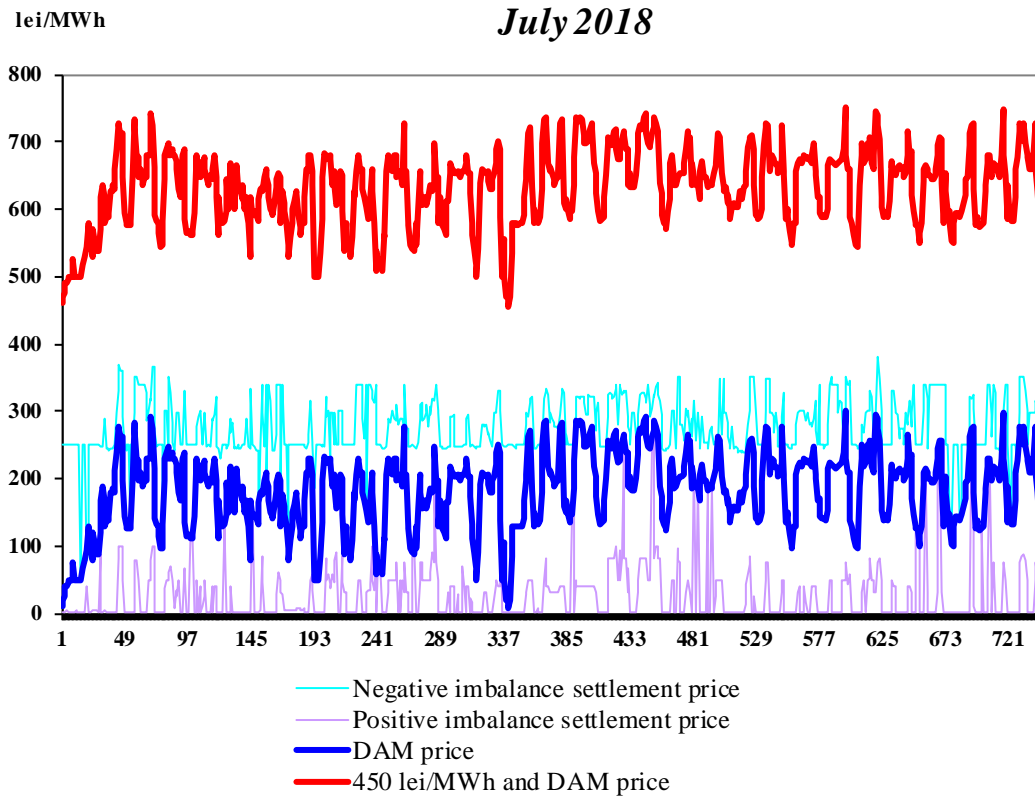


Source: Daily reports of Opcom SA – processed by MU

In order to cover the differences between planned/contracted amounts of consumption/ generation and the real time consumption, the system operator (CNTEE Transelectrica SA) operates the BM by buying or "selling" electricity at prices determined by the merit order of dispatchable generators' offers. The participants generating 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.

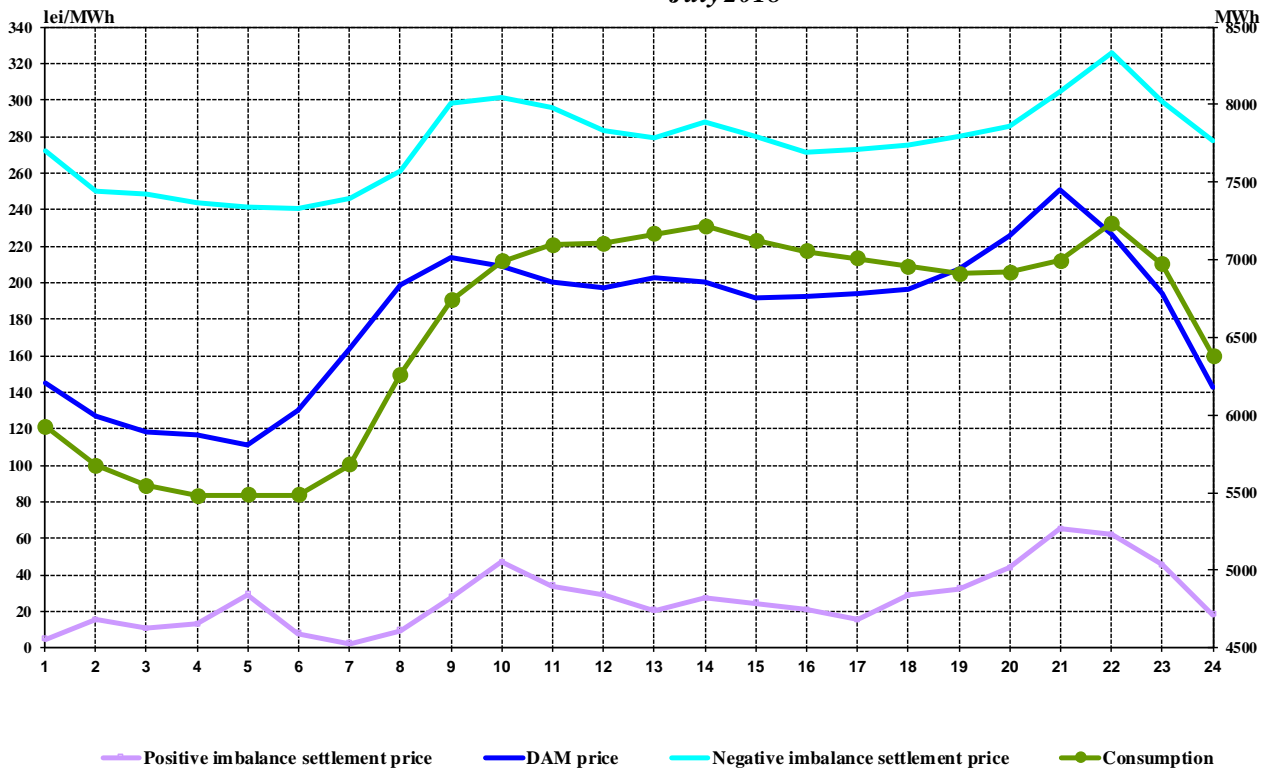
The settlement prices (MCP on DAM, negative imbalance settlement price and positive imbalance settlement price) are represented on the same graph, showing the two markets correlation degree. In the first graph the prices are expressed in hourly values, in the second graph in hourly average values compared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

### Hourly settlement prices July 2018



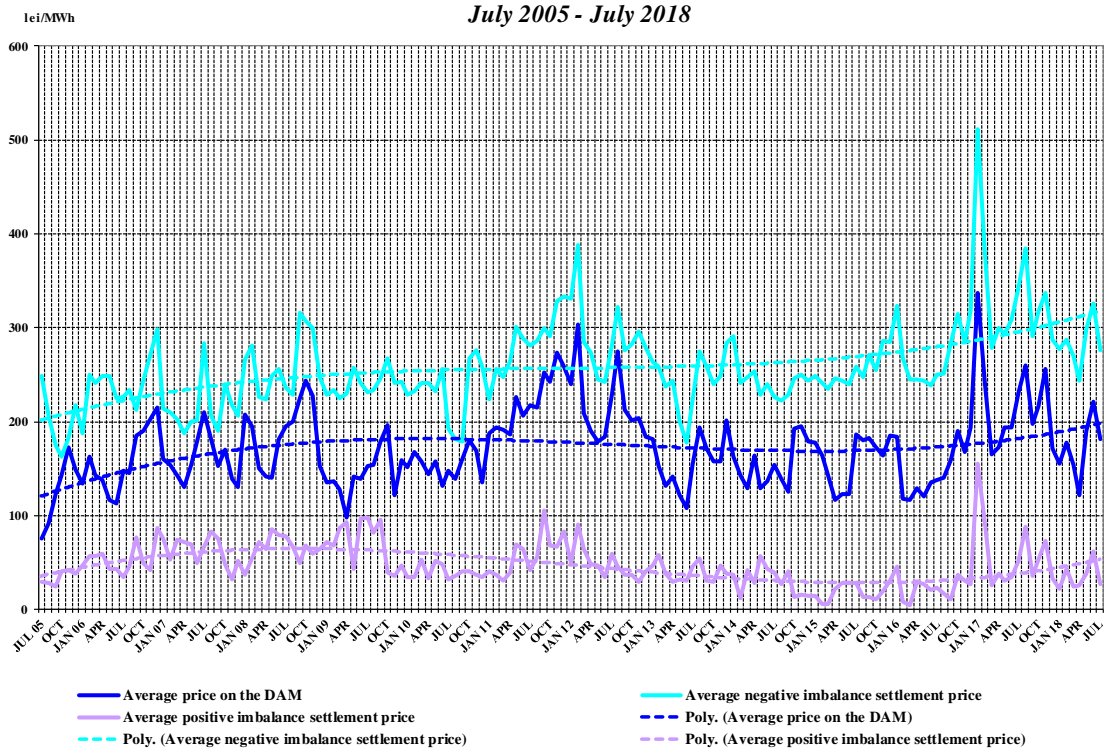
Source: Daily/monthly reports of Opcom SA – processed by MU

Hourly average settlement prices and internal consumption  
July 2018



Source: Monthly reports of Opcom SA and CNTEE Tranelectrica SA – processed by MU

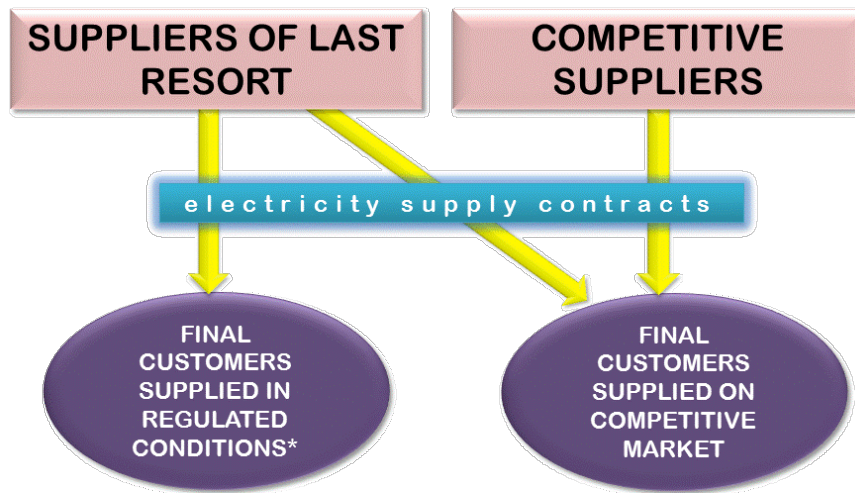
Monthly average prices on DAM and BM  
July 2005 - July 2018



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

### III. RETAIL ELECTRICITY MARKET

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

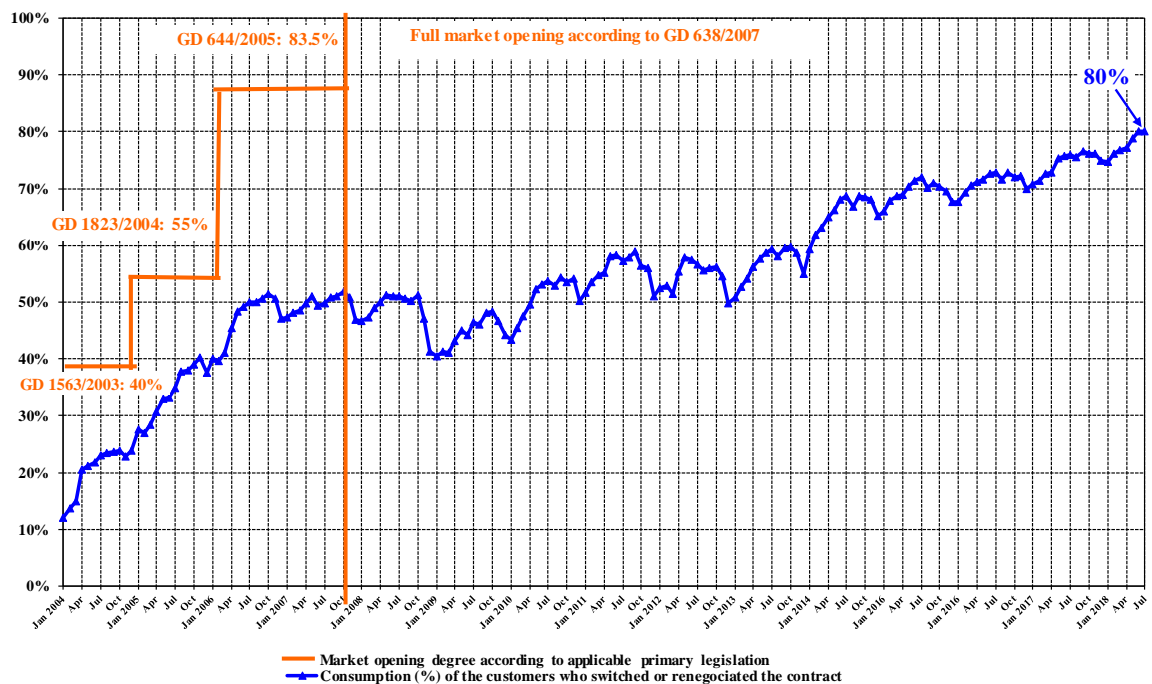


\* according to art. 53 (2) and art. 55 (1) from Electricity and Gas Law no. 123/2012

#### 2. Electricity market opening degree

The following graph contains the quota of the consumption from total consumption, of the customers who switched their supplier or renegotiated their contracts with the suppliers operating on the regulated market, between January 2004 – July 2018. The values presented are cumulated from the beginning of the opening process and are presented monthly:

Opening degree evolution of electricity market  
January 2004 - July 2018

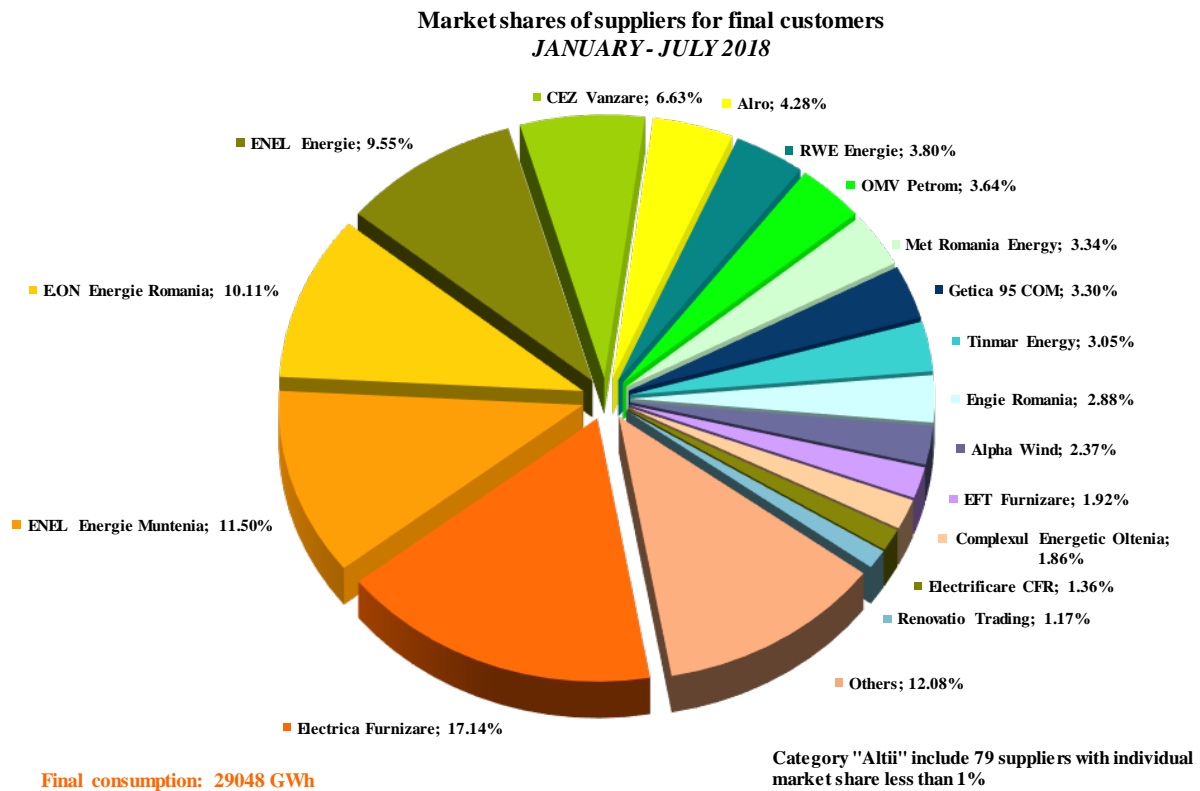


Source: Monthly reports of the final customers' suppliers – processed by MU

### 3. 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:

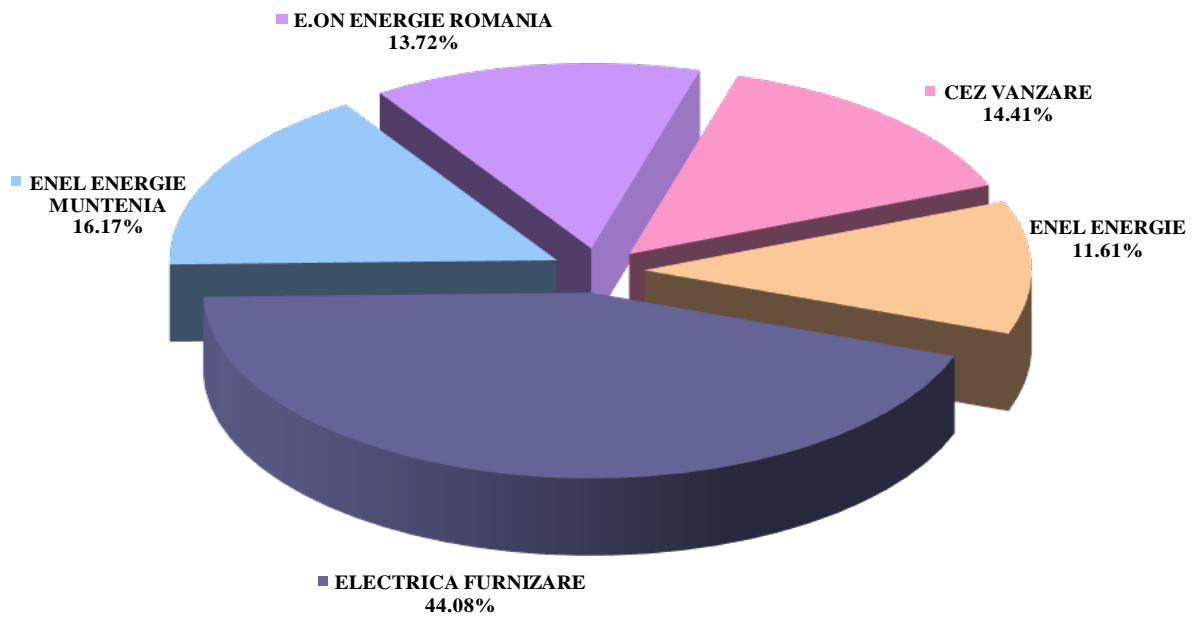
- a) for all REM suppliers, including those ultimate in terms of electricity supplied to end-customers (at SU and UI prices) under SU and UI, as well as electricity supplied to customers who have switched their supplier or have negotiated the contract;



Source: Monthly reports of suppliers for final customers– processed by MU

- b) for suppliers of last resort - based on the electricity supplied to the final customers in SU and UI;

**Market shares of suppliers of last resort on US and last resort regime  
JANUARY- JULY 2018**



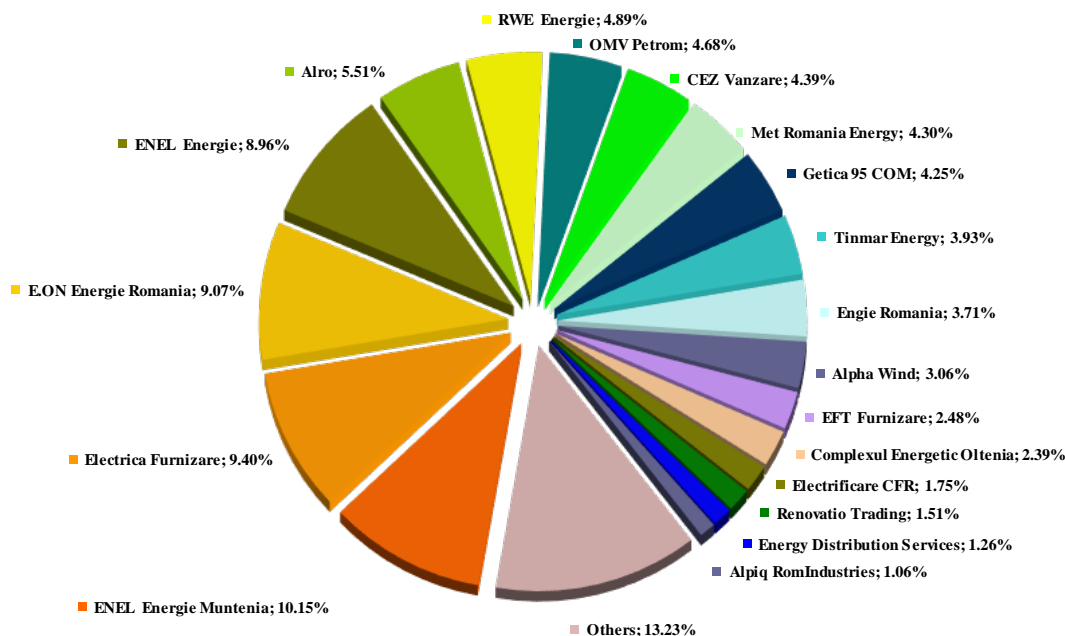
Consumption of customers supplied at CMC and last resort tariffs: 6485 GWh

Source: Monthly reports of the suppliers of last resort – processed by MU

c) for all suppliers, including those of last resort, active in the REM competition segment - depending on the electricity supplied to customers who have changed their supplier or have negotiated their contract.

d)

Market shares of suppliers delivering electricity on the competitive market  
JANUARY - JULY 2018



Consumption on competitive market: 22564 GWh  
Structure indicators:  
HHI - 552; C3 - 29%; C1 - 10%

Category "Others" includes 77 suppliers with individual

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

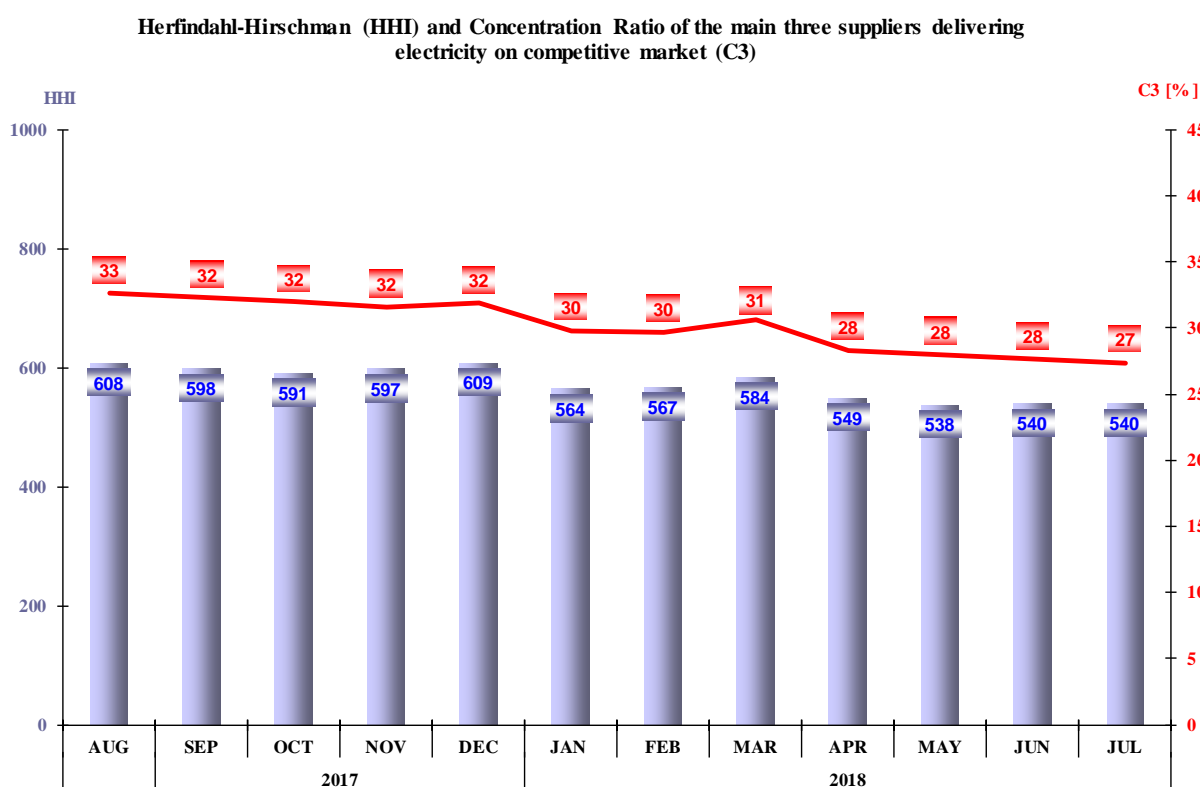
It is noted that the calculation of the market indicator values did not take into account the principle of dominance and the electricity supplied on the basis of which each supplier's market share was established includes the self-consumption of the large industrial customers who also hold a supply license and who have decided to buy their energy from the wholesale market as competitive suppliers. Quantification of the activity carried out within the REM competition segment compared to that of the WEM by suppliers can be achieved by determining the share of sales to final customers in total sales transactions. Thus, the following table shows the number of suppliers active on the REM, structured according to the size of the activity carried out on this market in July 2018.

Number of suppliers	Share of sales to final customers from total sales transactions			
	100%	75% - 100%	50% - 75%	<50%
Competitive	9	19	12	24
Of last resort	0	5	0	0

Source: Monthly reports of the suppliers– processed by MU

#### 4. 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 July 2018 in the following graph:



Source: Monthly reports of the suppliers – processed by MU

The tables below shows the values of structure indicators of competitive component of REM for and the number of active suppliers in July 2018, calculated for each non-household and household customer categories as defined by the Regulation (EU) 2016/1952 of the European Parliament and of the Council:

Indicators - Jul 2018	Consumption tranches - Non-household customers							
	IA	IB	IC	ID	IE	IF	IG	Total
C1 - % -	38	22	15	11	16	12	19	9
C3 - % -	75	49	39	29	45	31	44	26
HHI	2270	1198	808	588	882	648	980	509
Consumption - GWh -	122	382	312	699	431	266	901	3112
No. of SUPPLIERS	69	78	67	62	26	20	18	91
No. of suppliers of last resort	0	5	5	5	5	4	3	5
No. of competitive suppliers	53	56	47	45	16	13	8	63
No. of producers	16	17	15	12	5	3	7	23

Source: Monthly reports of the suppliers – processed by MU

Indicators - July 2018	Consumption tranches - Household customers					
	DA	DB	DC	DD	DE	Total
C1 - % -	53	35	31	31	31	39
C3 - % -	91	78	73	75	72	79
HHI	3934	2277	2092	2206	2045	2539
Consumption - GWh -	80	80	48	33	12	253
No. of SUPPLIERS	38	42	41	40	38	51
No. of suppliers of last resort	5	5	5	5	5	5
No. of competitive suppliers	29	34	32	32	29	40
No. of producers	4	3	4	3	4	6

Source: Monthly reports of the suppliers – processed by MU

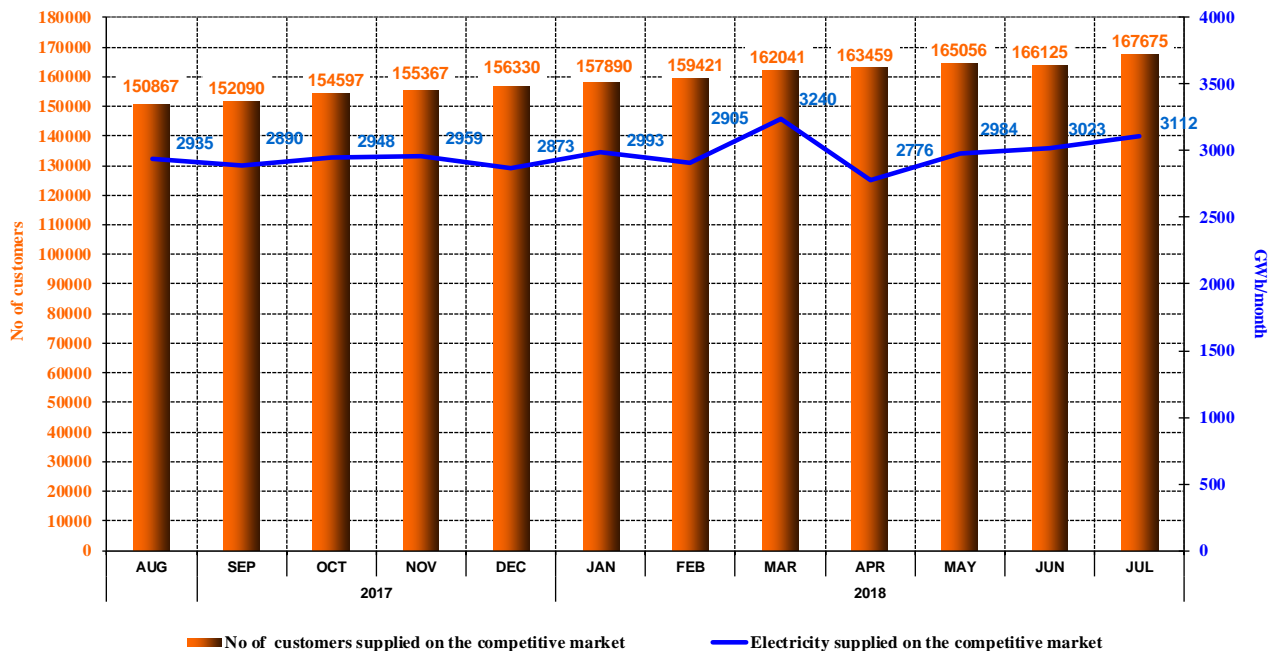
**5. Evolution of customers' number and of electricity delivered**

Number of customers supplied on the competitive market is presented as an evolution over the last 12 months; for July 2018 this number is split into categories, according to the provisions of Regulation (EU) no. 2016/1952 of the European Parliament and of the Council. The tables below presents the bands of consumption of each category of non-household and household customers:

Non-household customers	Annual electricity consumption (MWh):	
IA		<20
IB	>=20	<500
IC	>=500	<2000
ID	>=2000	<20000
IE	>=20000	<70000
IF	>=70000	<150000
IG	>=150000	

Household customers	Annual electricity consumption (kWh):	
DA		<1000
DB	>=1000	<2500
DC	>=2500	<5000
DD	>=5000	<15000
DE	>=15000	

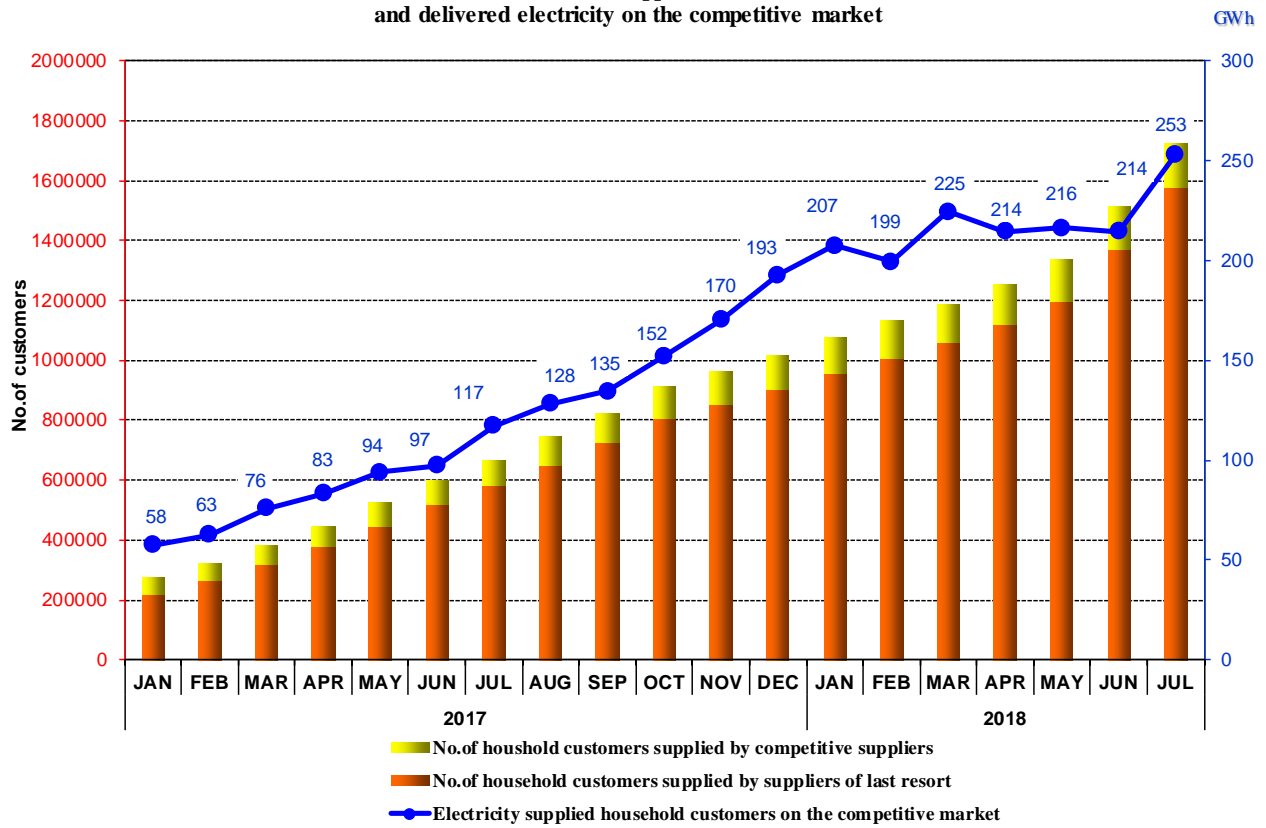
**Evolution of the number of supplied non-household customers and delivered electricity on the competitive market**



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

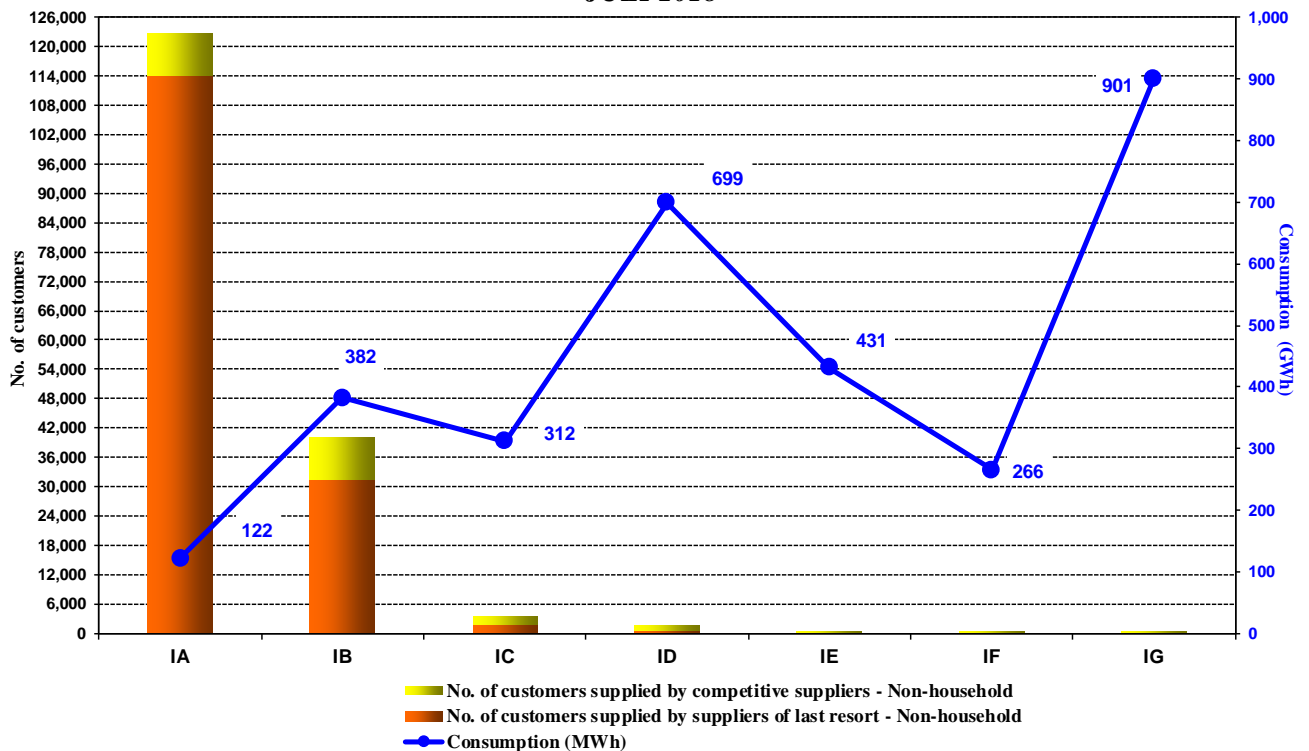
Competitive electricity sales to household final customers between January 2017 and July 2018 are shown in the following graph

Evolution of the number of supplied household customers and delivered electricity on the competitive market



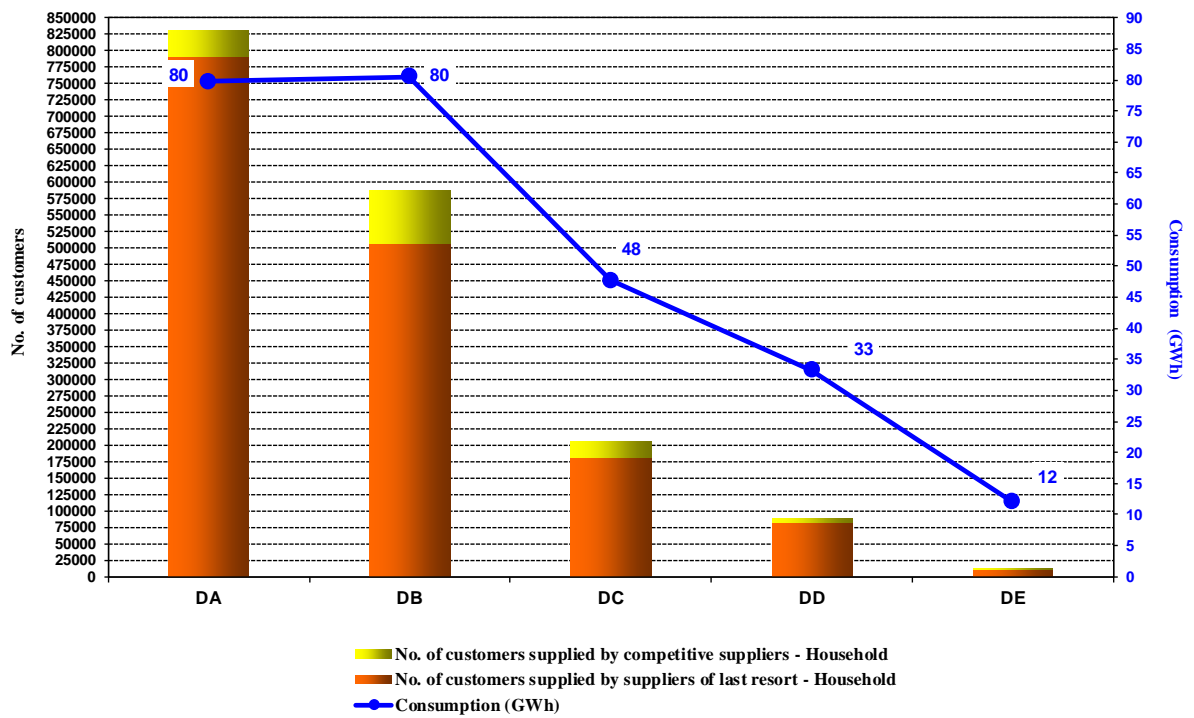
Source: Monthly reports of the suppliers – processed by MU

Number of non-household customers supplied on competitive market and the consumption of each category of customers - JULY 2018 -



Source: Monthly reports of the suppliers – processed by MU

**Number of household customers supplied on competitive market and the consumption of each category of customers**  
- JULY 2018 -

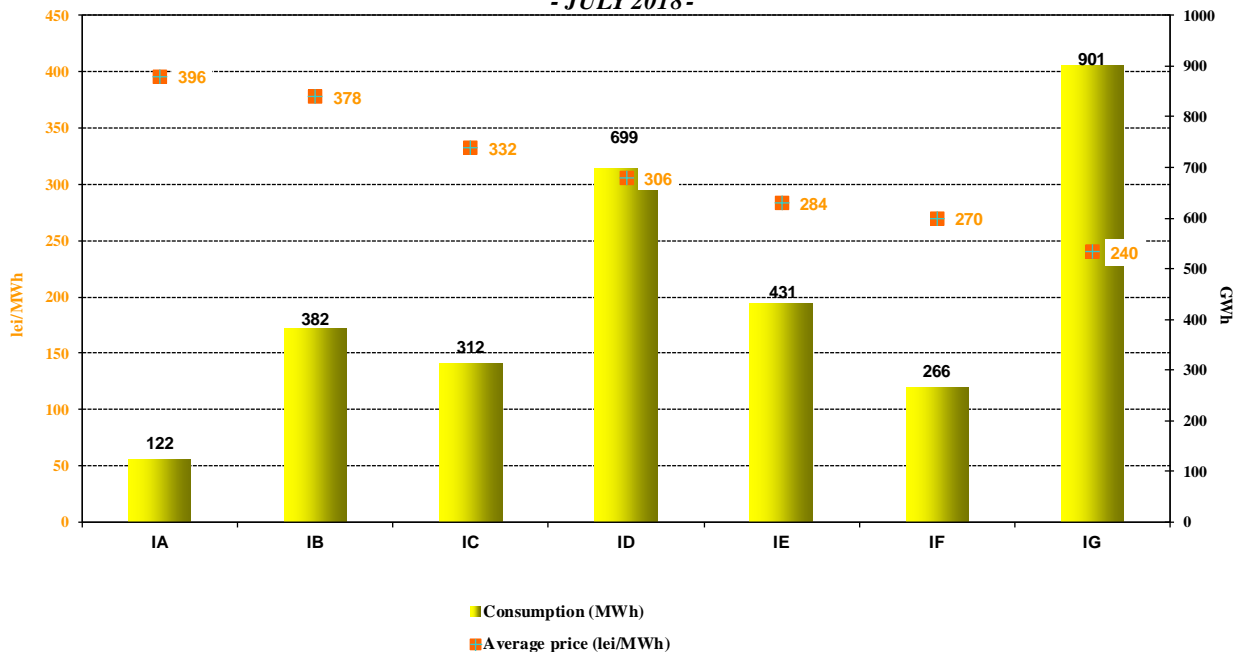


Source: Monthly reports of the suppliers – processed by MU

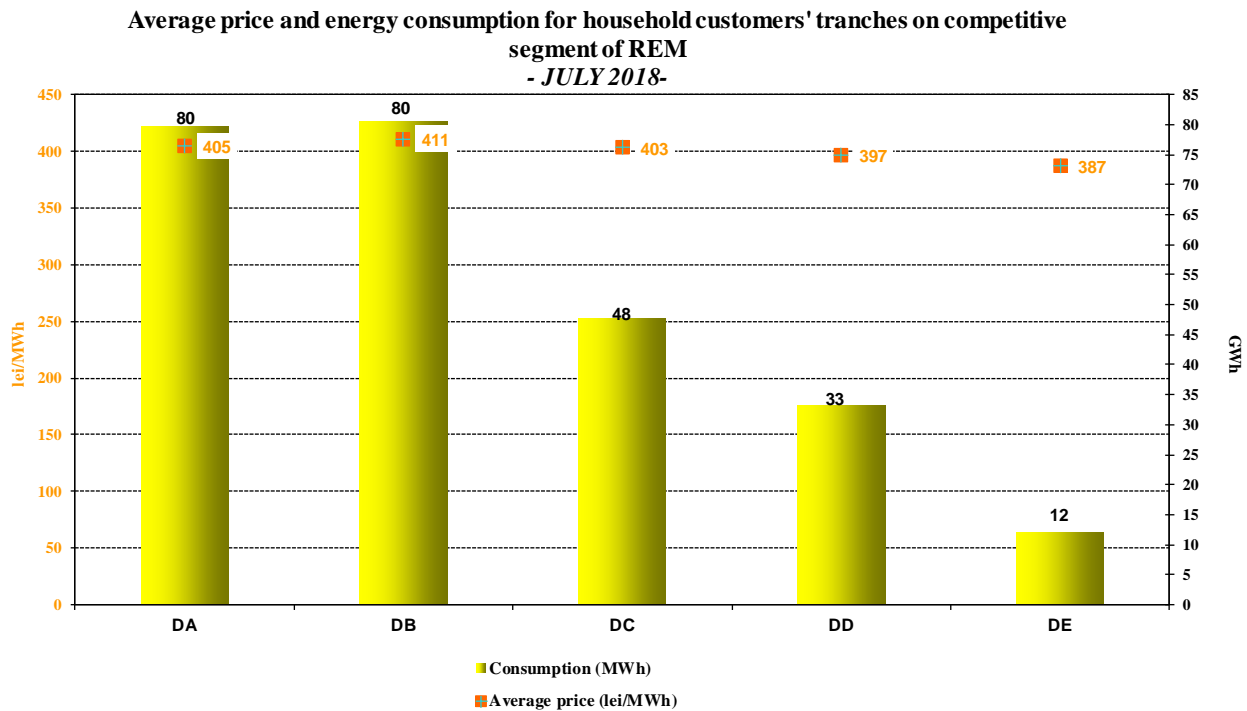
### 6. Average selling prices of customers supplied on the competitive market

The following graph presents the average selling prices of customers supplied on the competitive market, based on the structure defined according to the Regulation (EU) no. 2016/1952 of the European Parliament and of the Council for July 2018.

**Average price and energy consumption for non-household customers' tranches on competitive segment of REM**  
- JULY 2018 -



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



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

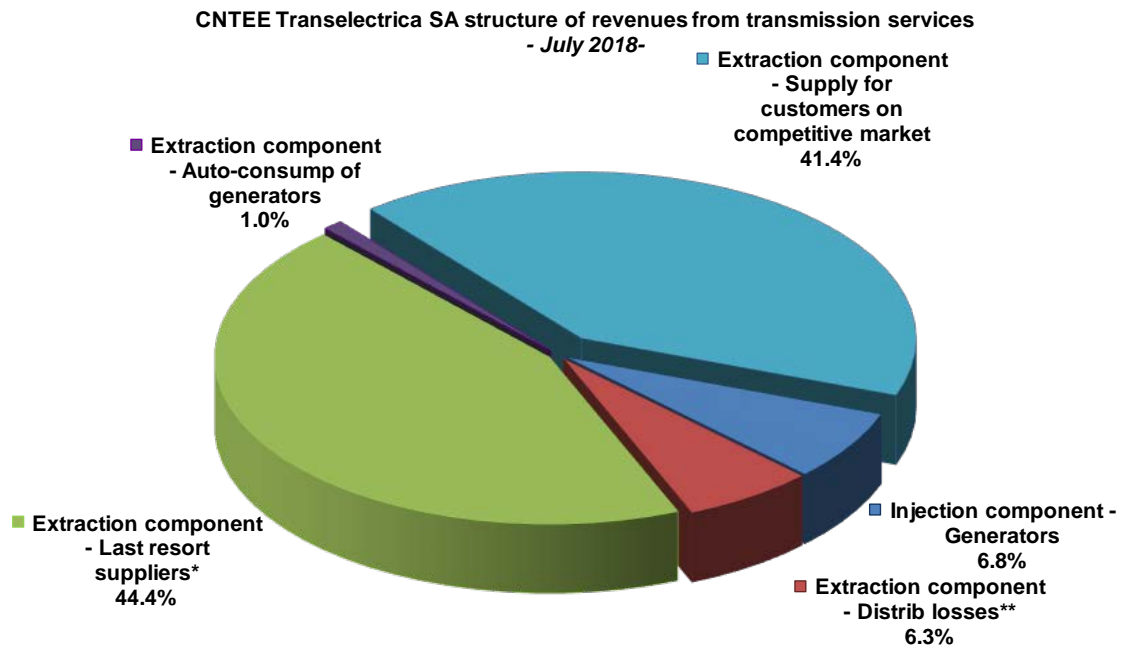
**Specifications:** The average selling price for each consumption tranche was determined as the weighted average of the prices charged by suppliers with the quantities supplied by them to that household consumption in accordance with the provisions of Regulation (EU) 1952/2016. Prices do not include VAT, excise or other taxes, but include all related services (transport tariffs, system services, distribution, imbalances, PRE aggregation taxes, measurement). Breakdown of customers into consumer installments was based on their annual consumption forecast.

#### IV. TRANSMISSION AND SYSTEM OPERATOR CNTEE TRANSELECTRICA SA

TSO performs the electricity transmission service at regulated tariffs, differentiated by separate tariff zones, depending on the impact of injection or extraction of electricity in/from transmission grid upon NES functioning regime.

Compared to the previous method of establishing the transmission zonal tariffs, which aimed to offer locational signals, starting with July 2015 the methodological principles were modified in order to comply with EU regulations and ACER recommendations in this field. Following this, the injection tariff covers only the network losses costs with different zonal tariffs, while the extraction tariff covers the average cost of transmission service.

The following graph presents the structure of CNTEE Tranelectrica SA revenues from performing the transmission services and reflects the structure of its clients benefiting from this type of service in July 2018.



\* for electricity extracted from their own licence areas as well as from other areas

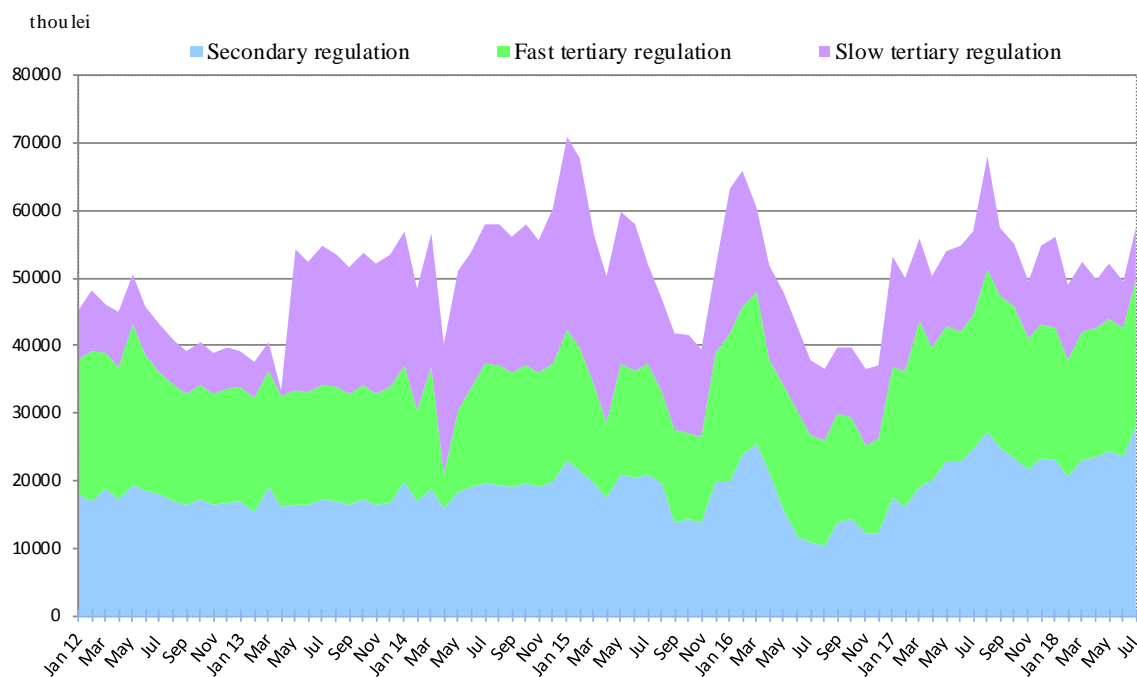
\*\* includes the electricity with which some distribution operators supply their own self-consumption places

Source: Monthly reports of CNTEE Tranelectrica SA – processed by MU

In order to perform the system operator tasks, CNTEE Tranelectrica 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.

The following graph represents the cost evolution of ancillary services acquisition which were paid by the transmission and system operator starting with January 2012. The tariffs applied for this type of services may be regulated (for the quantities approved through decision by ANRE) and/or competitive (in case the TSO organizes competitive sessions).

### Structure of CNTEE Tranelectrica SA costs with ancillary services acquired from qualified generators



Source: Monthly reports of CNTEE Tranelectrica SA – processed by MU

## V. MARKET RULES EVOLUTION IN JULY 2018

In July 2018, ANRE issued the following regulations with an impact on the wholesale and retail markets:

- ANRE President's Order no. 157 / 27.07.2018 approving the Methodology for establishing the mandatory annual quota for the acquisition of green certificates;
- ANRE President's Order no. 158 / 27.07.2018 approving the establishment of the mandatory mandatory quota for the acquisition of green certificates for the period August - December 2018;
- ANRE President's Decision no. 1165 / 04.07.2018 approving the document "Proposal of all transmission system operators for the common network model methodology according to the provisions of art. 18 of Commission Regulation (EU) 2016/1719 of 26 September 2016 laying down guidelines for capacity allocation in the long-term market ";
- ANRE President's Decision no. 1166 / 04.07.2018 approving the document "Proposal of all TSOs in the CORE calculation region to modify the current regional structure of long-term transport rights pursuant to Article 4 (12) of Regulation (EU) 2016/1719 Commission ";
- ANRE President's Decision no. 1228 / 19.07.2018 regarding the approval of the quantities produced in high efficiency cogeneration units benefiting from the bonus scheme for June 2018.

## VI. EXPLANATIONS AND ABBREVIATIONS

### 1. Explanations

- **Internal consumption** is calculated, in this document, as the sum of electricity delivered into the grid (described below) and the balance of trades made on the basis of the import and export contracts of the wholesale market participants;
- **Consumption of final customers under universal service and last resort regime** represents the consumption of customers supplied by the suppliers of last resort at CMC and last resort prices;
- **Consumption of final customers on competitive market** represents the consumption of customers supplied at negotiated prices or defined by standard bids;
- **Fuel consumption** represents the fuel consumed for generating electricity and heat in the power plants of monitored generators;
- **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;
- **Electricity delivered into the grid** includes the electricity sold by the generators through direct lines or consumed by themselves at other consumption sites;
- **Electricity delivered into the grid according to the transport contract** is the electricity for which the transport service (the grid input component) is provided corresponding to the electricity delivered from the power plants with installed capacity of more than 5 MW connected to the transmission and distribution electric grids (according to ANRE President Order No. 89/2013); CNTEE Transelectrica SA charges for only a part of the respective electricity, given that in four of the grids the regional tariffs are zero (according to ANRE President Order No. 27/2016)

### 2. Abbreviations

- MU – Monitoring Unit
- WEM – Wholesale Electricity Market
- REM – Retail Electricity Market
- CMBC – Centralised Market of Bilateral Contracts
- CMC – Competitive Market Component
- DAM – Day Ahead Market
- ID – Intraday Market
- BM – Balancing Market
- MCP – Market Clearing Price
- PCSU – Centralised Market of Universal Service (Romanian abbreviation)
- 4M MC – Price coupling mechanism for spot markets from Romania, Hungary, Slovakia and Czech Republic
- BRP – Balancing Responsible Party
- TG/TL – injection / extraction component of the transmission tariff
- OU-NPD – Operational Unit-National Power Dispatch
- US – Universal Service
- DO – Distribution operator
- SLR – Supplier of last resort

- ATC – Available Transmission Capacity
- DO – Distribution operator
- SLR – Supplier of last resort
- ATC – Available Transmission Capacity