



ROMANIAN ENERGY REGULATORY AUTHORITY

DEPARTMENT FOR MONITORING, REMIT


romania2019.eu



ELECTRICITY MARKET MONITORING REPORT

APRIL 2019

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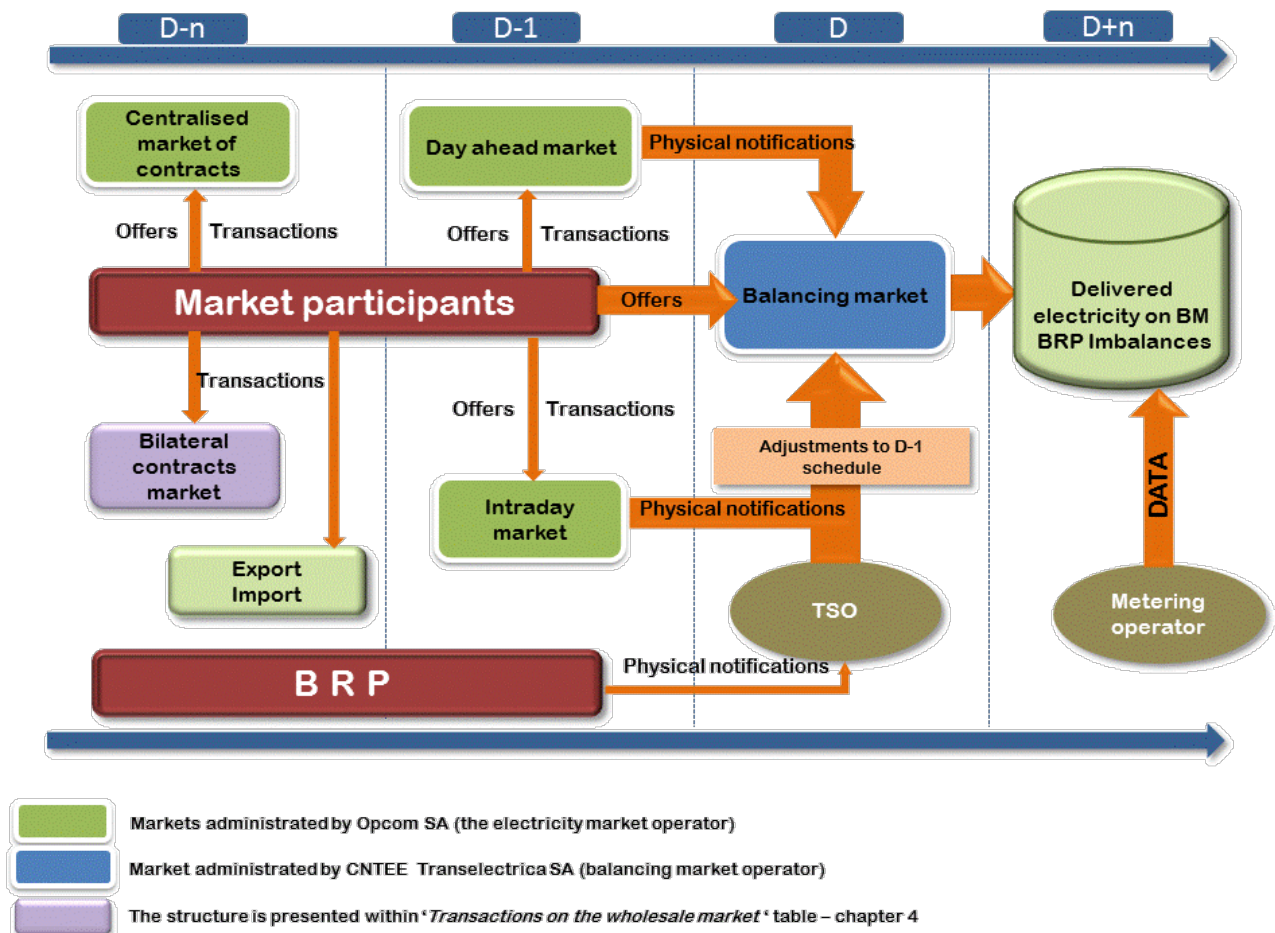
I. MAIN EVENTS IN THE DEVELOPMENT OF THE ROMANIAN ELECTRICITY MARKET

- **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.
- **July 2018** - entry into force of Law no. 167/2018 amending and supplementing Law on electricity and natural gas no. 123/2012.
- **December 2018** – EGO no. 114/2018 regarding the introduction of some measures in the field of public investments and some fiscal-budgetary measures, the modification and completion of some normative acts and the extension of some deadlines.
- **March 2019** – EGO no. 19/2019 amending and supplementing EGO no. 114/2018 on establishing measures in the field of public investment and some fiscal-budgetary measures, the modification and completion of some normative acts and the extension of some deadlines.

II. WHOLESALE ELECTRICITY MARKET

1. Structure of the wholesale electricity market



2. Wholesale electricity market participants

Market participants* active on the electricity market in April 2019 are presented below, split into categories:

No.	Category	No.	Category
A Electricity generators on classic sources operating dispatching units		D Electricity generators on solar source operating dispatching units	
1	Bepco SRL	1	Blue Sand Investment SRL
2	CET Govora SA	2	Caracal Solar Alpha SRL
3	CE Hunedoara SA	3	Casa Crang SRL
4	CE Oltenia SA	4	Clue Solar SRL
5	Contour Global Solutions SRL	5	Corabia Solar SRL
6	Ecogen Energy SA	6	Cujmir Solar SRL
7	Electrocentrale București SA	7	Delta & Zeta Energy SRL
8	Electro Energy Sud SRL	8	Ecosfer Energy SRL
9	Enet Focsani SA	9	Energo Proiect SRL
10	Lukoil Energy & Gaz Romania SRL	10	Eye Mall SRL
11	Modern Calor SA	11	Fort Green Energy SRL
12	OMV Petrom SA	12	Foton Epsilon SRL
13	Petrotel-Lukoil SA	13	Gama & Delta Energy SRL
14	Rulmenti SA	14	GPSB Solaris 48 SRL
15	SNGN Romgaz SA	15	Greenlight Solution SRL
16	Termoficare Oradea SA	16	Green Vision Seven
17	Veolia Energie Iași SRL	17	Kentax Energy SRL
18	Veolia Energie Prahova SRL	18	Lemar Grup SRL
19	Vest Energo SA	19	LJG Green Source Energy Alpha SA
		20	LJG Green Source Energy Beta SRL
		21	LJG Green Source Energy Gamma SRL
		22	Long Bridge Milenium SRL
		23	Mar-Tin Solar Energy SRL
		24	Potehu Solar SRL
		25	Power L.L.V.E. One SRL
		26	RA-RA PARC SRL
		27	Romkumulo SRL
		28	Simico 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	Warehouses de Paw Romania
		46	Xalandine Energy SRL
		47	XPV SRL
		E Electricity generators on hydro source operating dispatching units	
		1	Hydroelectrica SA
		F Electricity generator on nuclear source operating dispatching units	
		1	SN Nuclearelectrica SA
		G Transmission System Operator	
		1	CNTEE TRANSELECTRICA SA
		H Market Operator for DAM, Intra-Day, Centralised Markets - CMBC-EA, CMBC-CN, CMBC-FP, CM-OTC, CMUS	
		1	OPCOM SA
		I Distribution operators	
		1	Distributie Energie Oltenia
		2	Delgaz Grid
		3	E-Distributie Banat
		4	E-Distributie Dobrogea
		5	E-Distributie Muntenia
		6	SDEE Muntenia Nord
		7	SDEE Transilvania Nord
		8	SDEE Transilvania Sud
		J Suppliers of Last Resort	
		1	CEZ Vanzare SA
		2	ENEL Energie SA
		3	E.ON Energie Romania SA
		4	ENEL Energie Muntenia SA
		5	Electrica Furnizare SA
No.	Category		
C Electricity generators on biomass source operating dispatching units			
1	Bioenergy Suceava SRL		

No.	Category	No.	Category
K	Electricity Suppliers acting exclusively on the wholesale market		Electricity Suppliers acting also on the retail market
1	Axpo Energy Romania SRL	12	Crest Energy SRL
2	CEZ as	13	CYEB SRL
3	Ciga Energy SA	14	EFT Furnizare SRL
4	Cinta Energy SA	15	Elcata MHC SRL
5	Danske Commodities/s Aarhus	16	Energia Gas & Power SRL
6	EDF Trading Limited	17	Energy Trade Activ SRL
7	Energio-Pro Trading EAD	18	Electric Planners SRL
8	Elpetra Energy E.A.D.	19	Electricicare CFR SRL
9	Energy Deta SRL	20	Elsid SA
10	Energi Danmark A/S	21	Electrocarbon SA
11	Energy Supply D.O.O	22	Electromagnetica SA
12	Enero Furnizare SRL	23	Enel Trade Romania SRL
13	Eolian Project SRL	24	Energy Distribution Services SRL
14	Ezpada AG	25	Engie Romania SA
15	Ezpada SRO	26	Enol Grup SA
16	Flavus Investitii SRL	27	Entrex Services SRL
17	Freepoint Commodities Europe Ltd	28	GDM Logistic SRL
18	GEN I trgovanje in prodaja elektricne energije doo	29	Getica 95 Com SRL
19	Holding_Slovenske_Elektrane	30	Grenerg SRL
20	Interenergo Energetski, Inzeniring d.o.o.	31	Hermes Energy International SRL
21	Lord Energy SRL	32	ICCO Energ SRL
22	Menarom PEC SRL	33	ICPE Electrocond Technologies SA
23	Met RO NRG	34	Imperial Development SRL
24	MVM Partner Zrt	35	Industrial Energy SA
25	Neptun SA	36	Izvor de Lumina SRL
26	Nis Petrol SRL	37	Luxten LC SA
27	OMV Gas Marketing & Trading GmbH	38	MET Romania Energy SA
28	Petrol, Slovenska energetska druzba	39	Monsson Trading SRL
29	Photovoltaic Green Project SRL	40	Next Energy Parteners SRL
30	Statkraft Markets GmbH	41	Nova Power&Gas SRL
31	Unit Energy Trade SRL	42	P.C. Management & Consulting SRL
32	Verbund Trading Romania SRL	43	Plenerg SRL
		44	Power Clouds SRL
L	Electricity Suppliers acting also on the retail market	45	QMB Energy SRL
1	Absolute Energy SRL	46	RCS&RDS SA
2	Aderro G.P. Energy SRL	47	Renovatio Trading SRL
3	A Energy Ind SRL	48	RES Energy Solutions SA
4	Alive Capital SRL	49	Restart Energy One SRL
5	Alro SA	50	Romelectro SA
6	ArcelorMittal SA	51	Stock Energy SRL
7	Aqua Energia SA	52	Tinmar Energy SA
8	Anchor Grup SA	53	Transenergo Com SA
9	Apuron Energy SRL	54	Transformer Energy Supply SRL
10	CET Arad SA	55	Uzinsider General Contractor SA
11	Cotroceni Park SA	56	Veolia Energie România SA
		57	Werk Energy SRL

*Electricity market participants report to ANRE technical/commercial data according to the *Methodology for wholesale electricity market monitoring*, approved by ANRE Order no. 67/2018, as well as according to the *Methodology for retail electricity market monitoring*, approved by ANRE Order no. 60/2008, with subsequent amendments and additions. The table above does not include the Balancing Responsible Parties (BRP). The updated BRP list is published on the Balancing Market Operator website, CNTEE TRANSELECTRICA SA - www.transelectrica.ro.

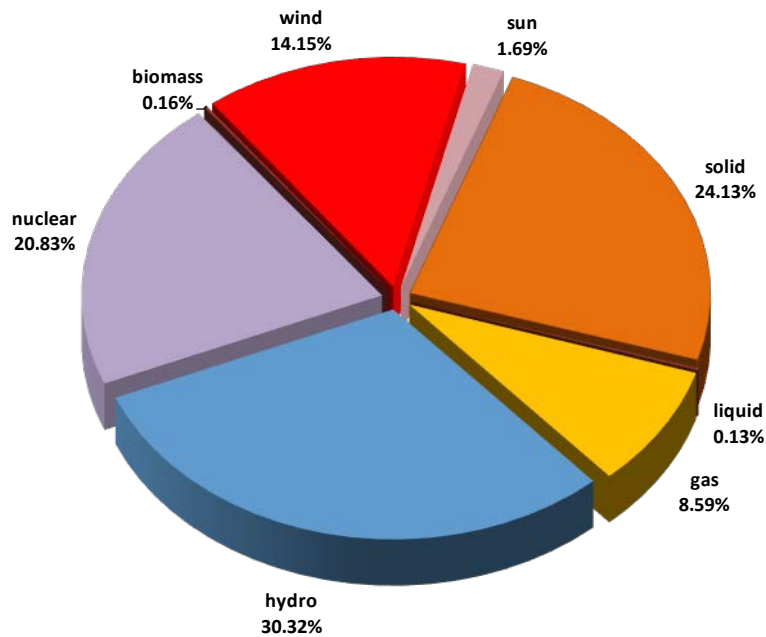
The monitored electricity generation license holders are producers holding dispatchable groups, which, according to the *Regulation for programming production units and dispatchable consumers*, approved by the ANRE Order no. 32/2013 are classified under the following power categories:

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

The category of electricity suppliers acting exclusively on the wholesale market includes electricity supply licensees that are active only on the wholesale market and electricity trading licensees with licenses issued according to ANRE Order no. 13/2015 for the approval of the „General conditions associated to the license for trading electricity”.

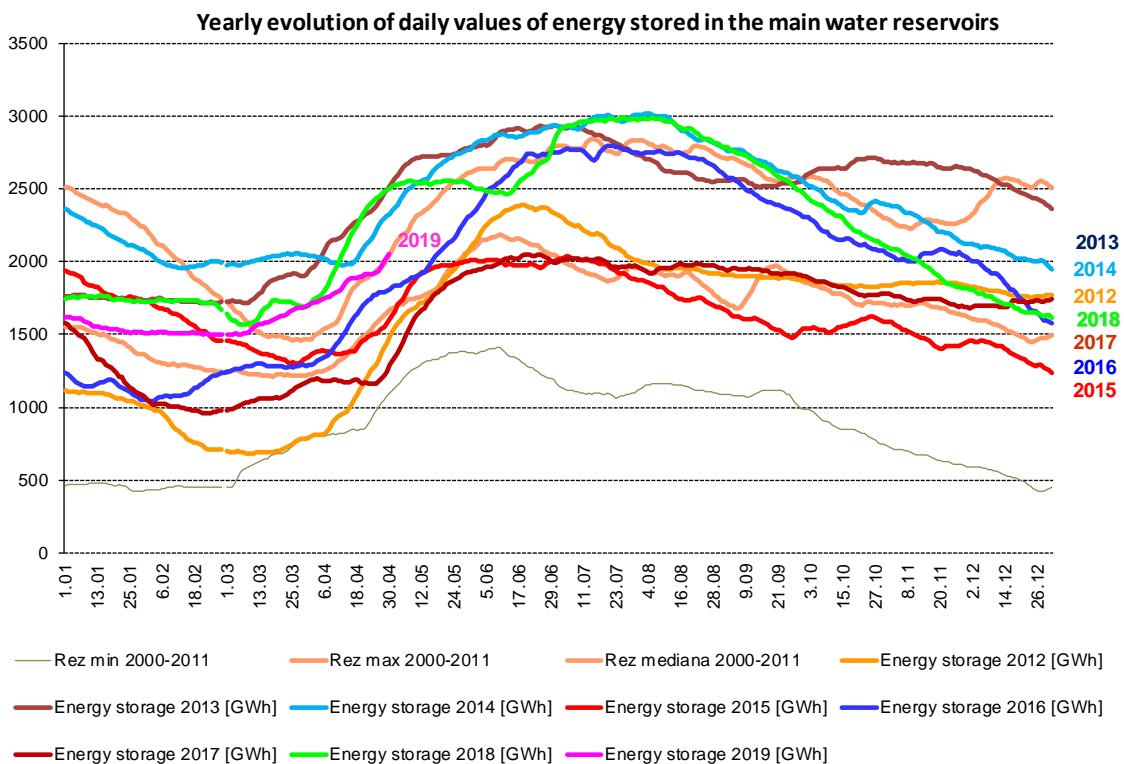
3. Generation structure of the National Power System on resources types

Electricity structure by primary sources
(delivered by generators with dispatchable units)
- April 2019 -



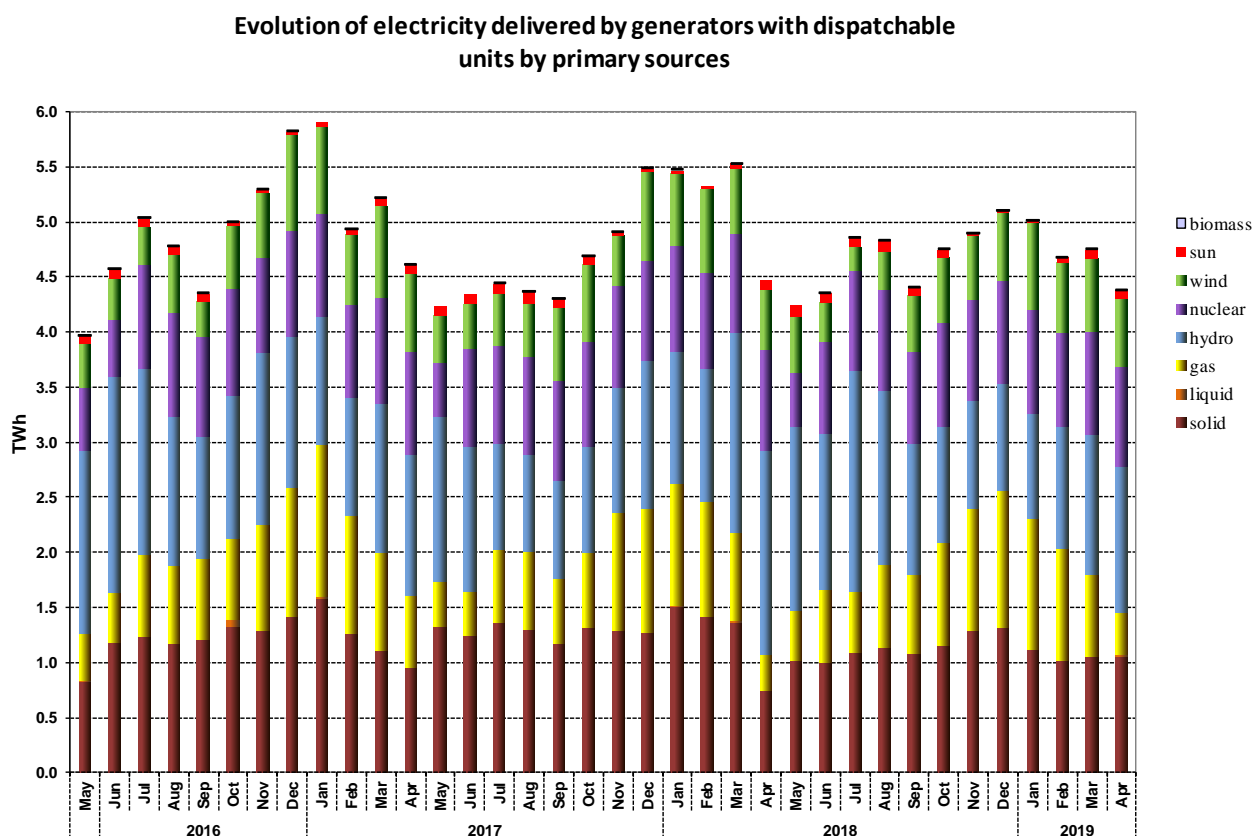
Source: Monthly reports of producers – Electricity Market Monitoring Unit assessment

The electricity generated from hydro resources depends on the energy reserve in the main water reservoirs and at the same time it is influenced by it. The following graph presents the evolution of the daily amounts of energy stored in water reservoirs during April 2019 compared to the daily values of the last 7 years and compared to minimum, maximum and median values from 2000-2011.



Source: Monthly reports of S.C. Hidroelectrica S.A. – Electricity Market Monitoring Unit assessment

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



The following table presents the main data regarding the physical balance of electricity for April 2019, compared to the data for the similar period of 2018:

Nr. crt.	INDICATOR	UM	Apr 2018	Apr 2019	%	Jan-Apr 2018	Jan-Apr 2019	%
0	1	2	3	4	$5=4/3*100$	6	7	$8=7/6*100$
1	Generated electricity	TWh	4.75	4.67	98.32	22.19	20.12	90.67
2	Delivered electricity	TWh	4.48	4.38	97.77	20.84*	18.87	90.55
3	Import	TWh	0.18	0.29	161.11	0.81	1.41	174.07
4	Export	TWh	0.55	0.32	58.18	2.38	1.18	49.58
5	Internal consumption (2+3-4)	TWh	4.12	4.35	105.58	19.27*	19.10	99.12
6	Consumption of household customers:	TWh	1.02	1.08	105.88	4.46*	4.54	101.79
6.1	- on US/ regulated regime	TWh	0.81	0.72	88.89	3.62	3.03	83.70
6.2	- on the competitive market	TWh	0.21	0.36	171.42	0.84*	1.51	179.76
7	Consumption of non-household customers:	TWh	2.88*	2.91	101.04	12.29*	12.24	99.59
7.1	- on universal service and last resort regime and inactive clients	TWh	0.10*	0.08	80.00	0.37	0.35	94.59
7.2	- on the competitive market	TWh	2.78	2.83	101.80	11.92*	11.89	99.75
8	Transmission–Injection component	TWh	4.38	4.28	97.72	20.39	18.45	90.49
9	Transmission–Extraction component	TWh	4.23	4.43	104.73	19.23	19.11	99.38
10	Actual transmission grid losses	TWh	0.10	0.08	80.00	0.44	0.34	77.27
11	Heat generated for delivery	Tcal	718.64	1046.55	145.64	6163.82	5806.25	94.20
12	Heat in co-generation	Tcal	549.32	740.93	134.88	4574.32	4309.37	94.21

Notes:

1. The produced energy and the delivered energy are presented in accordance with the reports sent by electricity generation licensees monitored - 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 imported/ exported quantities do not include transits and cross-border exchanges of electricity by CNTEE Tranelectrica SA with neighboring power systems in order to balance the system;
 3. 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 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 (according to ANRE Order no. 108/2018);
 4. As of 1 March 2019, the consumption of households under US regime is ensured under a regulated regime by suppliers of last resort (according to ANRE Order no. 11/2019).
- Note: * The differences from the April 2018 Electricity Market Monitoring Report are determined by the corrections reported by the market participants that were included in the current report

4. The structure of trades on the wholesale electricity market

The size of wholesale market depends on the sum of all trades of the market participants, exceeding the quantity physically transmitted from generation to consumption; the overall trades also includes resales made in order to adjust the contractual position and to obtain a financial benefit.

Starting with the moment of entering into force of Law no. 123/2012 on electricity and natural gas, the structure of wholesale energy market was significantly changed through the introduction of the obligation to conduct all trades on the competitive market in a transparent, public, centralized and non-discriminatory manner. Therefore, after the entry into force of the law, all new trades on the wholesale energy market have to be concluded on the centralized markets, organized by Opcom SA, the only ANRE licensee for 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 and 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, which ensure the transparent, public, centralized and non-discriminatory legal requirements, there still are bilateral negotiated contracts concluded before the entering into force of the Law, still pending, and export and import contracts.

At the same time, as an exemption from the obligation of concluding all trades on the competitive electricity market, in a transparent, public, centralized and non-discriminatory manner, in accordance with Law no. 184/2018 for the approval of Emergency Government Ordinance (EGO) no. 24/2017 amending and supplementing Law no. 220/2008 establishing the system for promoting the production of electricity from renewable energy sources, non-dispatchable producers of electricity from renewable energy sources and public authorities holding power plants from renewable energy sources with installed capacity of no more than 3 MW per producer may still conclude direct negotiated bilateral contracts, but only with the suppliers of final consumers for the sale of electricity and/or green certificates.

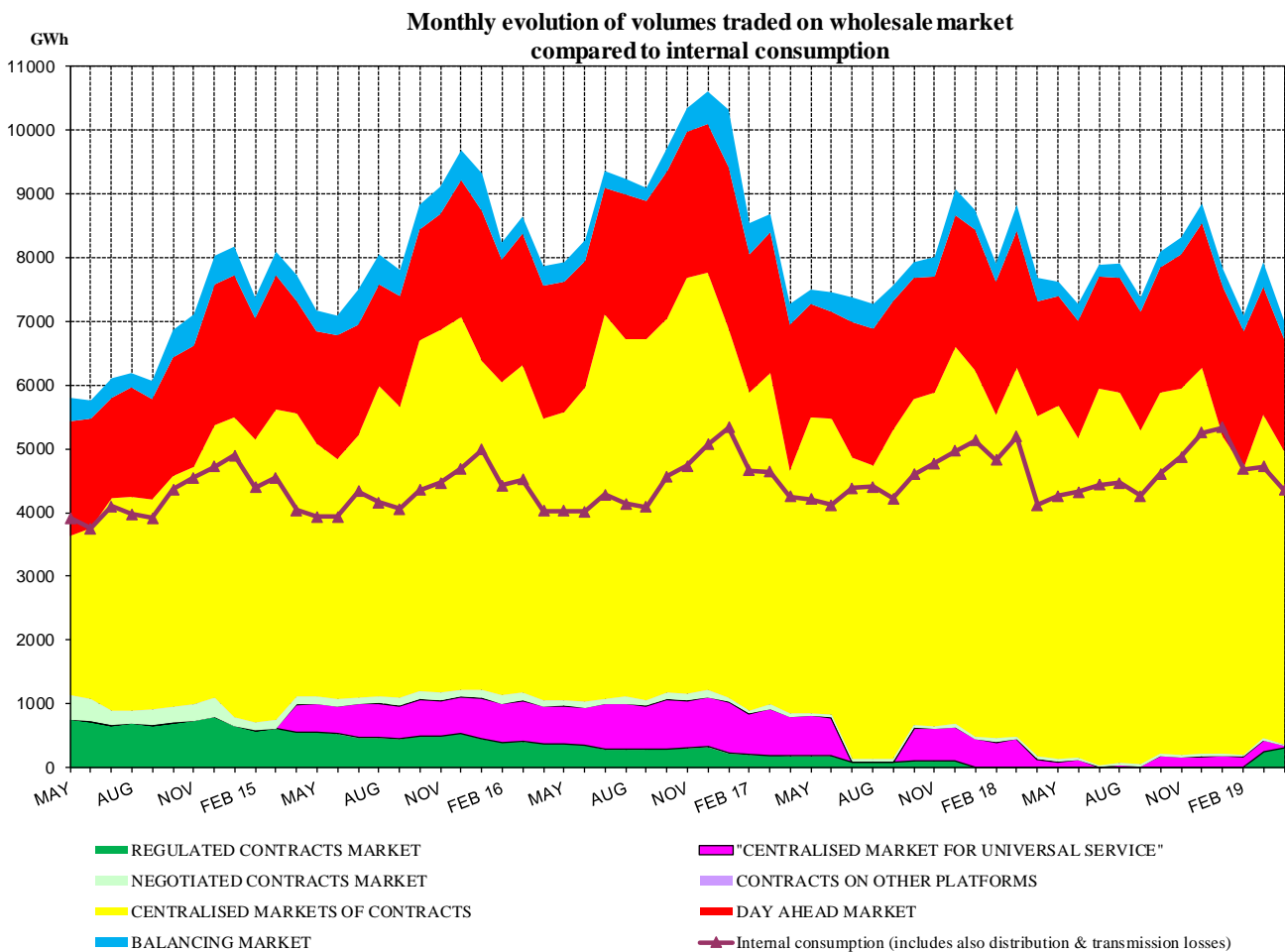
The following table presents the volumes traded and the average prices on each type of contracts and on the main components of the wholesale market, in the month under review compared to the previous month and the similar month from the previous year. The aggregated volumes and the average prices on negotiated contracts are those reported by market participants on their own responsibility and with the exception of the contracts concluded under the provisions of Law no. 220/2008, with subsequent amendments and supplementations, they should match the still ongoing contracts which had been concluded before Law no. 123/2012 entered into force.

WHOLESALE MARKET TRADES	March 2019	April 2019	April 2018
1. BILATERAL CONTRACTS MARKET			
traded volume (GWh)	276	336	40
average price (lei/MWh)	150.28	117.76	137.47
% from internal consumption (%)	5.8	7.7	1.0
1.1. Sales on regulated contracts			
traded volume (GWh)	252	314	-
average price (lei/MWh)	148.05	113.52	-
% from internal consumption (%)	5.3	7.2	-
1.2. Sales on negotiated contracts¹⁾			
traded volume (GWh)	23	22	40
average price (lei/MWh)	174.52	177.50	137.47
% from internal consumption (%)	0.5	0.5	1.0
2. EXPORT			
traded volume (GWh) ²⁾	321	318	548
average price (lei/MWh)	171.53	188.02	128.48
% from internal consumption (%)	6.8	7.3	13.3
3. CENTRALIZED MARKETS OF BILATERAL CONTRACTS			
traded volume (GWh)	5079	4605	5340
average price (lei/MWh)	239.26	226.52	173.89
% from internal consumption	107.5	105.8	129.7
3.1. Extended auction mechanism CMBC-EA³⁾			
traded volume (GWh)	1661	1496	1955
average price (lei/MWh)	232.35	228.83	176.88
% from internal consumption	35.1	34.4	47.5
3.2. Continuous negotiation mechanism CMBC-CN³⁾			
traded volume (GWh)	1380	1199	930
average price (lei/MWh)	236.14	223.05	186.38
% from internal consumption	29.2	27.6	22.6
3.3. CM-OTC mechanism³⁾			
traded volume (GWh)	2039	1910	2455
average price (lei/MWh)	247.00	226.89	166.78
% from internal consumption	43.2	43.9	59.6
4. CENTRALIZED MARKET FOR UNIVERSAL SERVICE - CMUS			
traded volume (GWh)	178	29	127
average price (lei/MWh)	292.59	257.79	166.68
% from internal consumption	3.8	0.7	3.1
5. DAY AHEAD MARKET			
traded volume (GWh)	2013	1748	1802
average price (lei/MWh) ⁴⁾	182.78	214.50	121.28
% from internal consumption	42.6	40.2	43.8
6. INTRADAY MARKET			
traded volume (GWh)	40	31	15.7
average price (lei/MWh) ⁵⁾	154.52	204.54	59.86
% from internal consumption	0.8	0.7	0.4
7. BALANCING MARKET			
traded volume (GWh)	374	288	371
% from internal consumption	7.9	6.6	9.0
upward volume (GWh)	58	52	85
average price for negative imbalance (lei/MWh)	531.86	574.32	243.31
downward volume (GWh)	316	236	287
average price for positive imbalance (lei/MWh)	6.08	3.48	25.71
INTERNAL CONSUMPTION (GWh) <i>(distribution and transmission losses included)</i>	4725	4351	4116

- 1) Sales on negotiated contracts do not include supply contracts to final customers and export contracts, the latter being separately identified;
- 2) Volumes and prices' information corresponding to export contracts are those reported monthly by wholesale market participants and include the volumes exported by CNTEE Tranelectrica as shipper agent for the coupled DAM; export volumes are verified with the DAMAS platform notifications, some differences being noticed in some cases;
- 3) The monthly data is presented as reported by the market participants monitored for the electricity delivered in the respective month. The information refers both to trades concluded previously on CMBC and CMBC-NC (according to ANRE Order 6/2011) and to trades concluded on CMBC-EA and CMBC-CN (according to ANRE Order 78/2014);
- 4) The average monthly price presented in the table is calculated as the average of the hourly closing prices and is published by Opcom SA; the average monthly price calculated as an weighted average of the hourly closing prices with the traded volumes was 223.83 lei/MWh in April 2019, and it was published by Opcom SA;
- 5) The average monthly price is calculated based on the monthly traded volumes and values, published by OPCOM SA.

The percentage of electricity volumes traded from the internal consumption (see table above) offers a reference for assessing the size of each of the specified markets. Prices presented above 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.

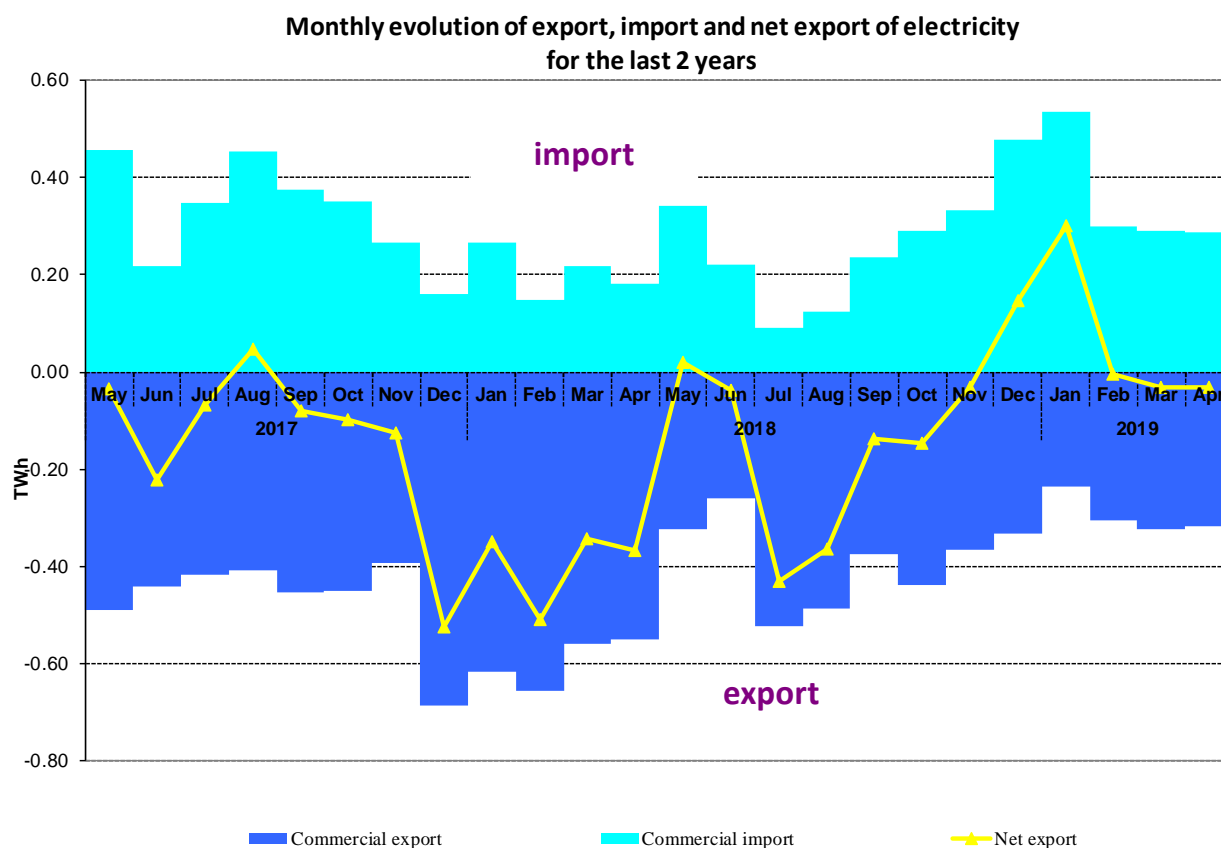
The following graph presents the evolution, starting with May 2014, of the relation between the volumes sold on each market and the estimated internal consumption.



Source: Monthly reports of wholesale market participants, Opcom SA and CNTEE Tranelectrica SA – Electricity Market Monitoring Unit assessment

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

The following graph presents the monthly values of commercial export and import, and the net export (export minus import) during the last 24 months:

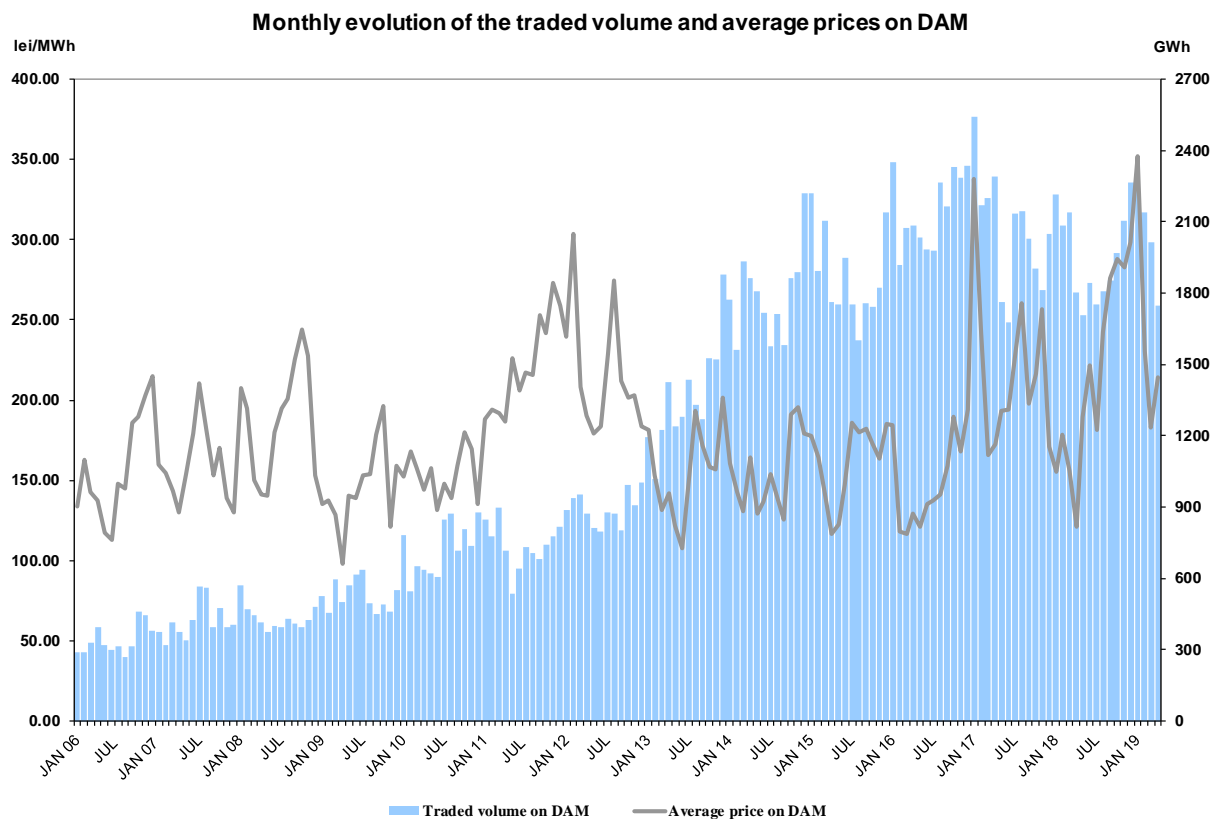


Source: Monthly reports of CNTEE Transelectrica SA – Electricity Market Monitoring Unit assessment

The following table presents commercial export and import trades for the electricity extracted/injected from/in the transmission network. These include the trades of CNTEE Transelectrica SA as the shipper agent in the price coupling mechanism of DAM. Shipper agent role is reflected in the physical and commercial transfer of electricity for import/export on the interconnections between Romania and Hungary.

Import/Export Trades	March 2019	April 2019	April 2018
Export			
traded volume (GWh)	321	318	548
average price (lei/MWh)	171.53	188.02	128.48
% from internal consumption	6.8	7.3	13.3
of which, through coupled DAM			
traded volume (GWh)	104	94	109
average price (lei/MWh)	172.52	169.13	82.42
% from internal consumption	2.2	2.2	2.6
Import			
traded volume (GWh)	290	286	180
average price (lei/MWh)	213.87	236.39	159.09
% from internal consumption	6.1	6.6	4.4
of which, through coupled DAM			
traded volume (GWh)	107	114	104
average price (lei/MWh)	186.88	249.96	156.22
% from internal consumption	2.3	2.6	2.5

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



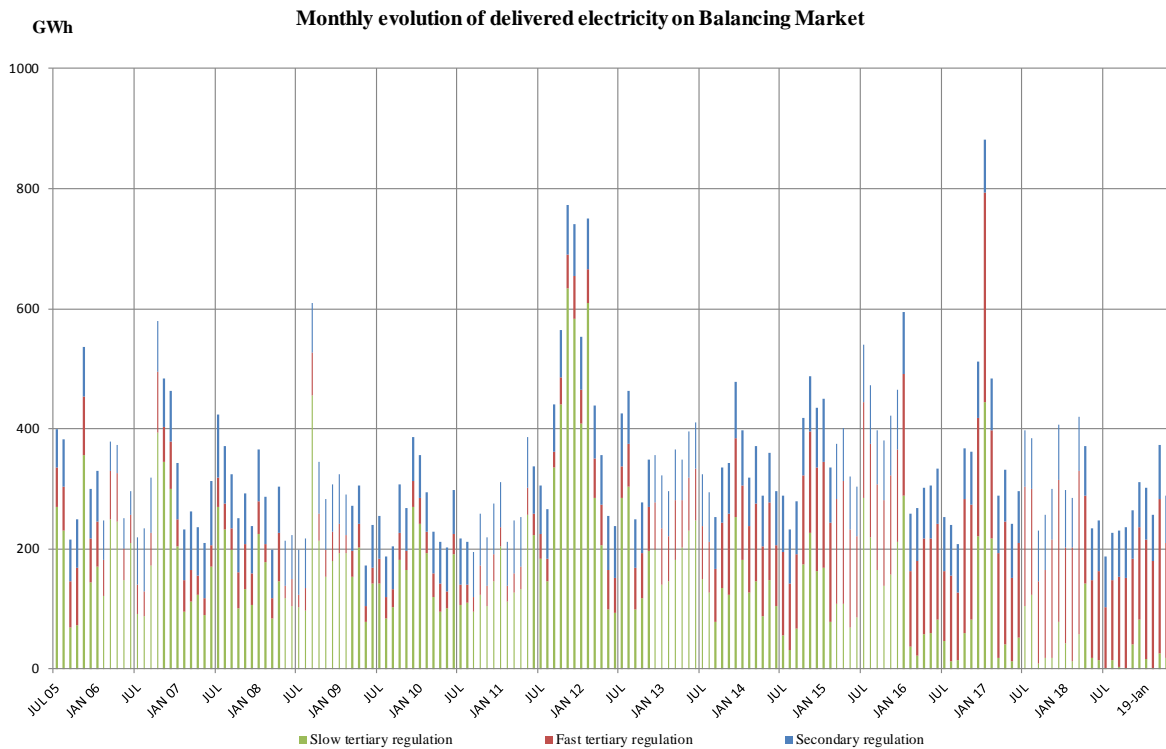
Source: Monthly reports of Opcom SA and CNTEE Tranelectrica SA – Electricity Market Monitoring Unit assessment

Dispatch orders (accepted offers) received by generators determine the committed electricity on the Balancing Market. After settlement, the actual electricity delivered by generators on the Balancing Market is determined based on the measured (approved) values; the relation between the committed and delivered electricity in April 2019 is presented in the following table:

April 2019	Dispatch order (GWh)	Delivered electricity (GWh)	Deviation (%)
Secondary regulation	78	78	
<i>upward</i>	27	27	
<i>downward</i>	51	51	
Fast tertiary regulation	199	192	3
<i>upward</i>	26	25	4
<i>downward</i>	172	167	3
Slow tertiary regulation	18	18	0
<i>upward</i>	0	0	0
<i>downward</i>	18	18	0
TOTAL	295	288	
<i>upward</i>	53	52	
<i>downward</i>	242	236	
INTERNAL CONSUMPTION		4351	
% share of traded volumes from internal consumption		6.6%	

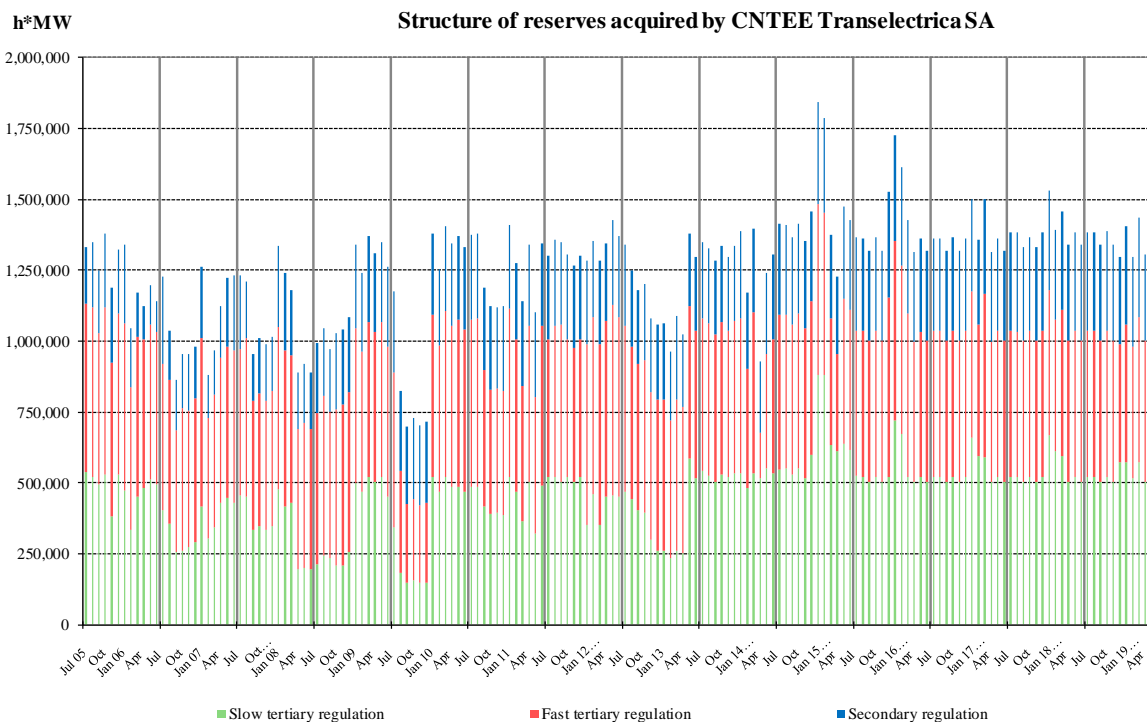
Source: Monthly reports of CNTEE Tranelectrica SA – Electricity Market Monitoring Unit assessment

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



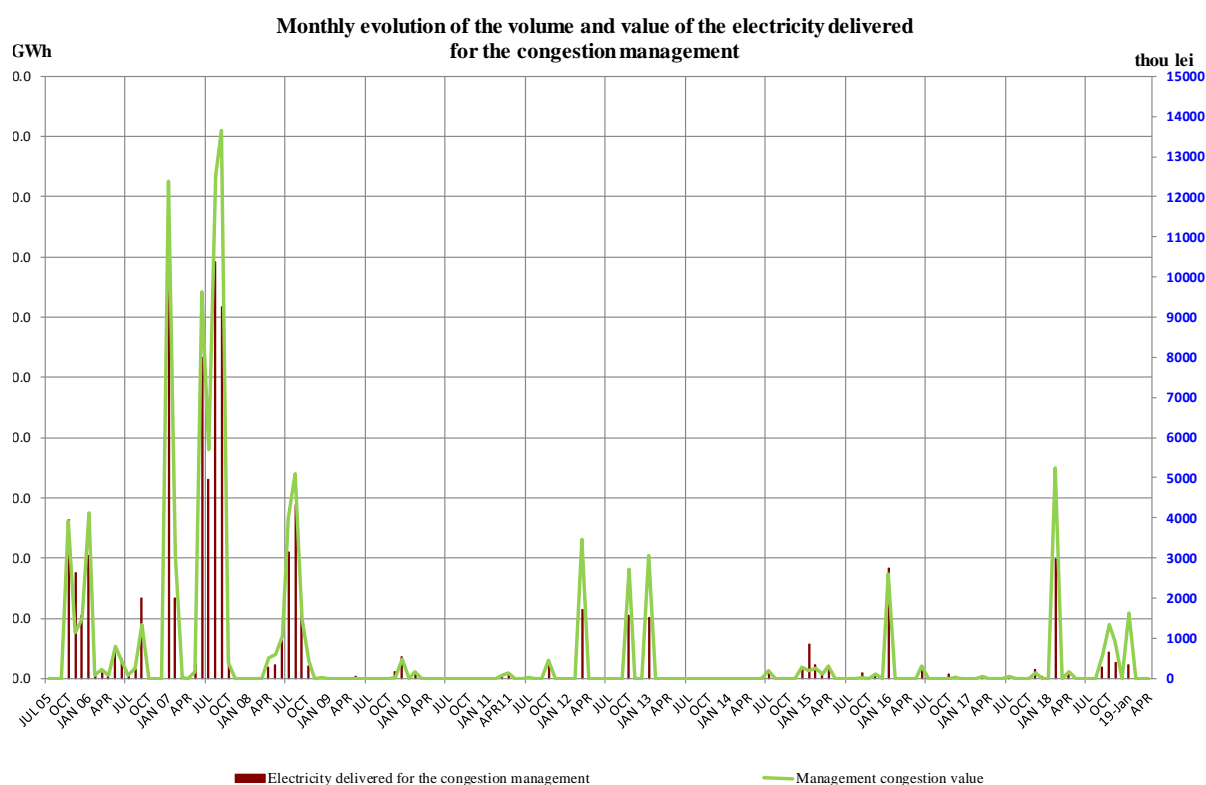
Source: Monthly reports of CNTEE Tranelectrica SA – Electricity Market Monitoring Unit assessment

The following chart shows the evolution of the reserves (ancillary services representing obligations of the producers to keep available to the dispatcher or to offer on the balancing market the contracted capacities) bought/settled by CNTEE Tranelectrica S.A. for the period July 2005 - April 2019:



Source: Monthly reports of CNTEE Tranelectrica SA – Electricity Market Monitoring Unit assessment

The following graph presents the monthly evolution of the electricity traded by CNTEE Tranelectrica SA on the Balancing Market for congestion management and the evolution of the values of these trades starting with July 2005.



Source: Monthly reports of CNTEE Tranelectrica SA – Electricity Market Monitoring Unit assessment

5. Structure of trades on the wholesale electricity market of different market participant categories

Producers

In April 2019, the structure of electricity sale obligations contracted before the delivery interval by the electricity generators with dispatchable units was the following:

Trade type	April 2018	April 2019
Thermal, hydro and nuclear producers, regulated contracts with last resort suppliers	-	314.00
Negotiated contracts, to suppliers	40.23	22.26
Contracts concluded on the Opcom centralized markets:	3619.51	2795.55
<i>CMBC-EA</i>	1727.32	1408.12
<i>CMBC-CN</i>	648.93	794.80
<i>CM-OTC</i>	1243.25	592.63
CMUS	87.65	7.38
DAM	1008.82	1205.42
ID	4.14	23.25
Supply contracts to final customers, from which:	435.01*	411.26
<i>Households</i>	0.61	0.26
<i>Non-households</i>	434.41*	410.99
Total	5195.36*	4779.11

Source: Monthly reports of generators – Electricity Market Monitoring Unit assessment

* The differences with the April 2018 Electricity Market Monitoring Report are determined by the corrections reported by the market participants that were included in the current report.

Suppliers

In April 2019, on the electricity market there were active 94 undertakings having as the main activity that of electricity supply; out of these, 32 are suppliers that only operate on the wholesale electricity market (some of which have a license for electricity trading) and 62 are suppliers that are also active on the retail electricity market (including the last resort suppliers, that are active both on the regulated and the competitive segments of the REM).

Suppliers acting exclusively on WEM

The following table illustrates the activity carried out by suppliers active only on WEM, presenting the structure by market segments/participants of the total acquisitions and sales made by these suppliers in April 2019, compared to the similar period in 2018:

-GWh-

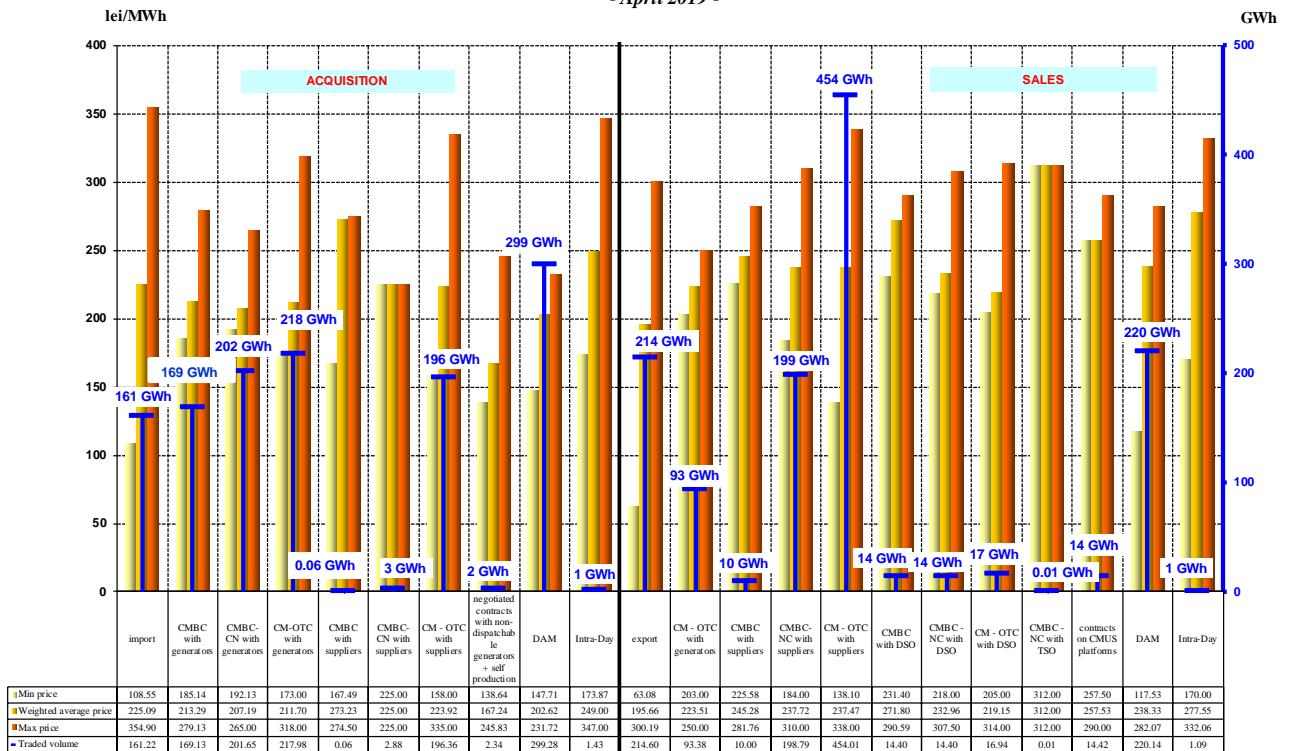
Trades structure of suppliers acting exclusively on WEM	April 2018	April 2019
Buy		
Import	72.72	161.22
Contracts concluded on Opcom centralized markets, out of which:	1095.75	788.05
- on CMBC-EA with producers	121.13	169.13
- on CMBC-CN with producers	75.48	201.65
- on CM-OTC with producers	463.47	217.98
- on CMBC-EA with other suppliers	69.86	0.06
- on CMBC-CN with other suppliers	46.77	2.88
- on CM-OTC with other suppliers	319.06	196.36
- production from own sources	3.01	2.34
DAM	352.39	299.28
ID	0.33	1.43
Sell		
Export	418.78	214.60
Contracts concluded on Opcom centralized markets, out of which:	744.09	801.93
- on CMBC-EA with producers	0.00	0.00
- on CM-OTC with producers	93.25	93.38
- on CMBC-EA with suppliers	2.93	10.00
- on CMBC-NC with other suppliers	81.53	198.79
- on CM-OTC with other suppliers	548.32	454.01
- on CMBC-EA with DO	0.01	14.40
- on CMBC-CN with DO	10.85	14.40
- on CM-OTC with DO	7.21	16.94
- on CMBC-CN with TSO	0.00	0.01
CMUS with last resort suppliers	9.60	14.42
DAM	349.40	220.14
ID	1.32	1.09

Source: Monthly reports of suppliers – Electricity Market Monitoring Unit assessment

Note: * The differences with the April 2018 Electricity Market Monitoring Report are determined by the corrections reported by the market participants that were included in the current report.

The following graph presents the lowest, average and highest prices by categories of trades concluded by the suppliers acting exclusively on WEM (traders), in April 2019.

Trades concluded by suppliers acting exclusively on WEM
- April 2019 -



Source: Monthly reports of the suppliers – Electricity Market Monitoring Unit assessment

Suppliers active on REM (suppliers of last resort not included)

The table below provides aggregated data regarding the structure by market segments/REM participants of total purchases and sales made by these market participants in April 2019 compared with the similar period of 2018:

	-GWh -	
Trades structure of suppliers acting on REM (suppliers of last resort not included)	April 2018	April 2019
Buy		
Import	4.19	10.78
Negotiated trades with producers	45.56	27.06
Trades concluded on Opcom centralized markets, out of which:	2088.22	1700.86
- on CMBC-EA with producers	984.71	561.40
- on CMBC-CN with producers	314.61	383.78
- on CM-OTC with producers	276.91	189.42
- on CMBC-EA with other suppliers	82.11	9.39
- on CMBC-CN with other suppliers	66.45	160.15
- on CM-OTC with other suppliers	363.44	396.73
production from own sources	42.15	41.74
Negotiated trades with non-dispatchable producers (others than under Law 220/2008)*	11.69	7.67
Negotiated trades with non-dispatchable producers (amendments and additions to Law 220/2008)**	35.85	25.44
DAM	409.10	639.07
ID	12.38	27.60

Trades structure of suppliers acting on REM (not including suppliers of last resort)	April 2018	April 2019
Sell		
Export	20.74	8.39
Trades concluded on Opcom centralized markets, out of which:	937.84	996.94
- on CMBC-EA with producers	9.16	6.97
- on CMBC-NC with producers	16.35	29.50
- on CM-OTC with producers	49.69	122.39
- on CMBC-EA with other suppliers	175.71	34.56
- on CMBC-CN with other suppliers	146.26	134.23
- on CM-OTC with other suppliers	474.49	605.69
- on CMBC-EA with DO	19.24	14.32
- on CMBC-CN with DO	25.54	20.54
- on CMBC-OTC with DO	0.00	14.33
- on CMBC-EA with TSO	20.66	7.20
- on CMBC-CN with TSO	0.72	7.20
CMUS with last resort suppliers	30.01	7.21
DAM	240.58	75.04
ID	1.03	0.37
Households	23.27	26.13
Non-households	1308.71***	1323.22

Source: Monthly reports of the competitive suppliers – Electricity Market Monitoring Unit assessment

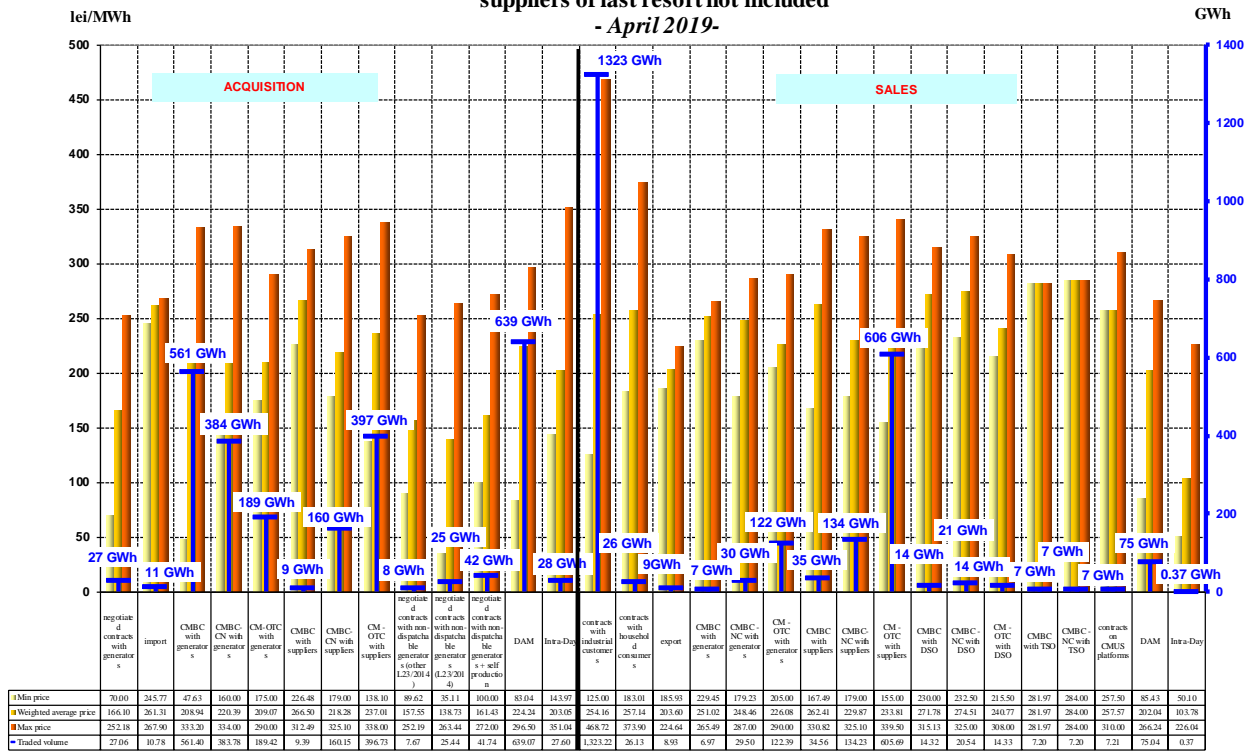
Note: *negotiated trades with non-dispatchable producers that do **not** fall under the provisions of Law no. 220/2008, with subsequent modifications and additions.

** negotiated trades with non-dispatchable producers that fall under the provisions of Law no. 220/2008, with subsequent modifications and additions.

***The differences with April 2018 Electricity Market Monitoring Report are determined by the corrections reported by the market participants that were included in the current report.

The breakdown by sources type/destination of the volumes traded, the average and extreme prices (highest and lowest) for April 2019, for suppliers active on the REM and WEM are shown in the following graph:

**Trades concluded by suppliers active on WEM and REM
suppliers of last resort not included
- April 2019-**



Source: Monthly reports of the suppliers – Electricity Market Monitoring Unit assessment

Suppliers of last resort

Trades’ structure on the WEM of suppliers of last resort (made before the delivery interval) to supply final clients under the US regime, last resort regime and inactive clients is shown in the table below for April 2019, compared with the similar period of 2018:

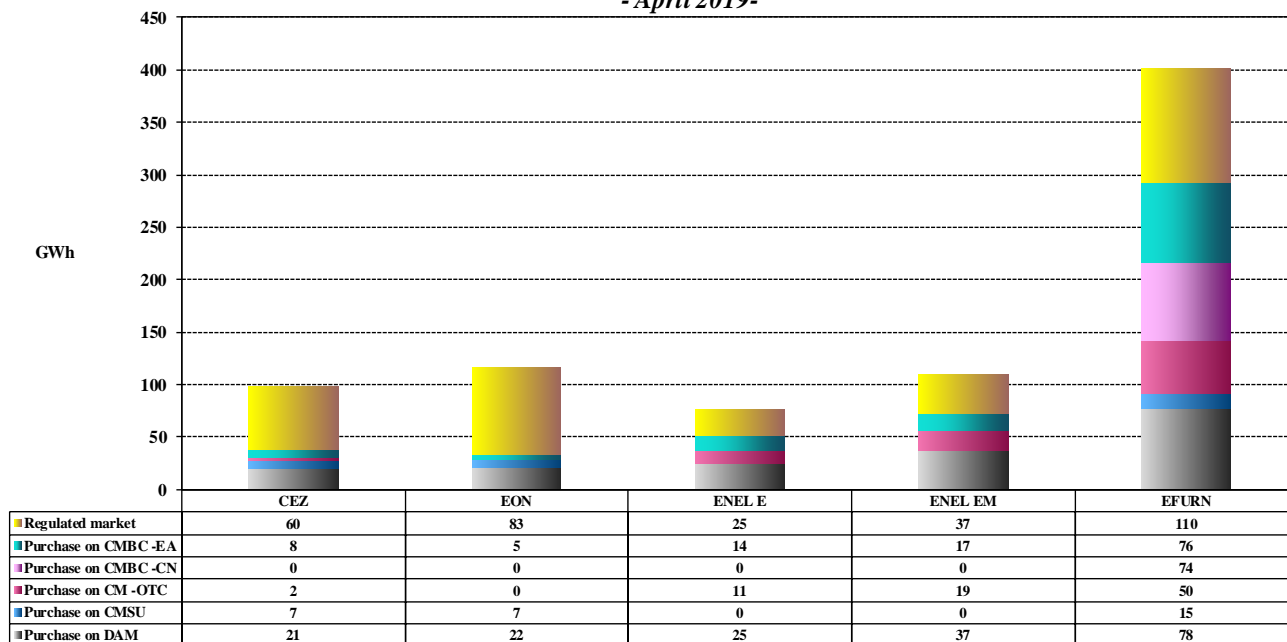
- GWh -

Structure of trades concluded by suppliers of last resort to supply final clients (Universal Service and last resort regime and inactive clients)	April 2018	April 2019
Regulated contracts with producers	-	314.00
Negotiated trades with non-dispatchable producers (changes and additions to Law 220/2008)*	2.14	0.01
Trades concluded on Opcom centralized markets, out of which:	605.99	276.41
- trades on CMBC-EA with producers	69.88	111.77
- trades on CMBC-CN with producers	60.05	29.00
- trades on CM-OTC with producers	185.85	14.61
- trades on CMBC-EA with other suppliers	22.43	7.29
- trades on CMBC-CN with other suppliers	92.96	45.59
- trades on CM-OTC with other suppliers	174.82	68.15
Trades with prosumers	-	0.0099
Trades on CMUS:	127.26	29.00
- trades on CMUS with producers	87.65	7.38
- trades on CMUS with suppliers	39.61	21.63
Trades concluded on DAM:	163.16	162.14
- buy	168.98	182.43
- sell	5.82	20.29
Trades concluded on ID:	0.00	0.0004
- buy	0.00	0.0004
- sell	0.00	0.00

Note: *negotiated trades with non-dispatchable producers that fall under the provisions of Law no. 220/2008, with subsequent amendments and additions.

The structure of the electricity bought by the suppliers of last resort for the final consumers supplied under US and last resort regime and for inactive clients for April 2019 is presented in the following graph:

Structure of trades made by suppliers of last resort to supply final clients (Universal Service, last resort regime and inactive clients)
- April 2019 -



Source: Monthly reports of the suppliers of last resort – Electricity Market Monitoring Unit assessment

In accordance with the provisions of the *Regulation for competitive selection to designate suppliers of last resort*, approved by ANRE Order no. 26/2018 as amended by ANRE Order no. 17/2019, ANRE has designated, as obligated 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 Vanzare SA. Also, ANRE has designated as optional suppliers of last resort Electrica Furnizare, CEZ Vanzare SA, E.ON Energie Romania SA, Enel Energie SA, Engie Romania SA, Getica 95 Com SRL, SPEEH Hidroelectrica SA, MET Romania Energy SA, Restart Energy One SRL and Tinmar Energy SRL, for the period between 1 March 2019 and 28 February 2020, for different network areas. Also, Enel Energie Muntenia SA held, since 1 July 2018, the status of optional supplier of last resort for the areas of Moldova, Oltenia, North of Muntenia, North of Transylvania and South of Transylvania.

According to the *Methodology for setting the regulated tariffs and the prices applied by suppliers of last resort to final clients* (approved by ANRE Order no. 11/2019), during 1 March 2019 – 28 February 2022, the electricity consumption of household clients that have concluded regulated energy supply contracts with suppliers of last resort is to be paid at regulated tariffs on voltage levels approved by ANRE by Order no. 32/2019 for all network areas in the case of optional suppliers of last resort.

Therefore, starting with 1 March 2019, for every network area and voltage level, suppliers of last resort apply in the household and non-household final clients bills from their portfolio, the following types of approved tariffs/ endorsed prices by ANRE, to which are added the regulated tariffs for the transmission service, ancillary services and distribution service:

- *obligated suppliers of last resort – regulated tariffs* to household clients, *Universal Service price* to non-household final clients that benefit from Universal Service, *inactive clients price* to non-household final clients that did not use their eligibility right and do not fulfill the conditions or did not request to be supplied under the Universal Service regime and the *last*

resort price to non-household final clients taken over because of not having secured the supply from any other source.

Universal Service price and *inactive clients price* are determined by adding the electricity acquisition components and the supply component for that client category to which is added the adjustment component related to the Universal Service price or inactive clients price. *The last resort price* is determined monthly, starting from the weighted average price on DAM for the month for which it is calculated, plus the supply component.

- *optional suppliers – regulated tariffs* to household clients and *Universal Service price* to non-household final clients that benefit from Universal Service (price formula determined by applying a discount on the Universal Service price of the obligated supplier of last resort for that network area).

Based on the provisions of the ANRE Order no. 10/2019, in order to ensure the consumption of household clients at regulated tariffs, suppliers of last resort buy the necessary electricity on the basis of regulated sale and purchase contracts concluded with the electricity producers for which ANRE has established (through decisions, for the period 1 March 2019 – 31 December 2019) obligations to sell fixed quantities at a regulated price. Suppliers of last resort ensure household clients consumption needs also through acquisitions from prosumers, through contracts concluded on the centralized markets, DAM, ID and BM.

ANRE Order no. 27/2018 for the approval of the *Regulation for organizing and conducting the auctions on the centralized market for the universal service* amended the terms of participation of the suppliers of last resort to CMUS for the purchase of electricity intended to cover the consumption of final clients supplied under a regulated and Universal Service regime, the participation in the auction sessions becoming, thus, voluntary.

The structure of electricity trades of suppliers of last resort on the WEM made before the delivery interval for Universal Service/regulated supply is presented in the following table for April 2019, compared with the similar period of 2018:

Trades structure of suppliers of last resort for Universal Service/regulated supply	April 2018		April 2019	
	Quantity [GWh]	Average price [lei/MWh]	Quantity [GWh]	Average price [lei/MWh]
Regulated contracts with producers	-	-	314.00	113.52
Negotiated trades with non-dispatchable producers (amendments and additions to Law 220/ 2008)*	2.11	208.61	0.00	-
Trades on Opcom centralized markets:	551.67	179.70	222.83	246.13
- trades on CMBC-EA with producers	68.21	198.90	93.51	240.67
- trades on CMBC-CN with producers	55.78	190.41	21.60	218.96
- trades on CM-OTC with producers	167.24	158.80	7.23	259.13
- trades on CMBC-EA with other suppliers	22.35	197.08	7.20	231.48
- trades on CMBC-CN with other suppliers	89.36	186.00	43.93	258.76
- trades on CM-OTC with other suppliers	148.72	183.99	49.37	257.34
Trades with prosumers	-	-	0.01	222.85
Trades on CMUS, out of which:	127.26	166.68	29.00	257.79
- with producers	87.65	158.39	7.38	258.50
- with other suppliers	39.61	185.02	21.63	257.55
Trades on DAM:	152.86**	-	150.73	257.62
- buy	158.18**	149.19	169.20	248.46
- sell	5.31	89.75	18.48	173.69
TOTAL	833.87**	172.57	716.57	190.91

Note: *negotiated trades with non-dispatchable producers that fall under the provisions of Law no. 220/2008, with subsequent amendments and additions.

**The differences with April 2018 Electricity Market Monitoring Report are determined by the corrections reported by the market participants that were included in the current report.

WEM trades structure of suppliers of last resort made before the delivery interval, for supplying electricity to inactive clients in April 2019 is shown in the following table:

- GWh -

Trades structure of suppliers of last resort to supply inactive clients	April 2019	
	Quantity [GWh]	Average price [lei/MWh]
Negotiated contracts with non-dispatchable producers (changes and additions to Law 220/2008)*	0.01	69.36
Trades on centralized contracts markets:	52.31	246.05
- on CMBC-EA with producers	18.23	237.82
- on CMBC-CN with producers	7.40	226.80
- on CM-OTC with producers	7.19	260.88
- on CMBC-EA with other suppliers	0.09	305.95
- on CMBC-CN with other suppliers	1.67	267.23
- on CM-OTC with other suppliers	17.73	254.24
Trades with prosumers	0.0001	219.83
Trades on DAM, of which:	10.57	263.40
- buy	12.37	247.38
- sell	1.80	153.61
Trades on ID, of which:	0.0004	317.30
- buy	0.0004	317.30
- sell	0.00	-
TOTAL	62.89	248.94

*Note: *negotiated trades with non-dispatchable producers that fall under the provisions of Law no. 220/2008, with subsequent amendments and additions.*

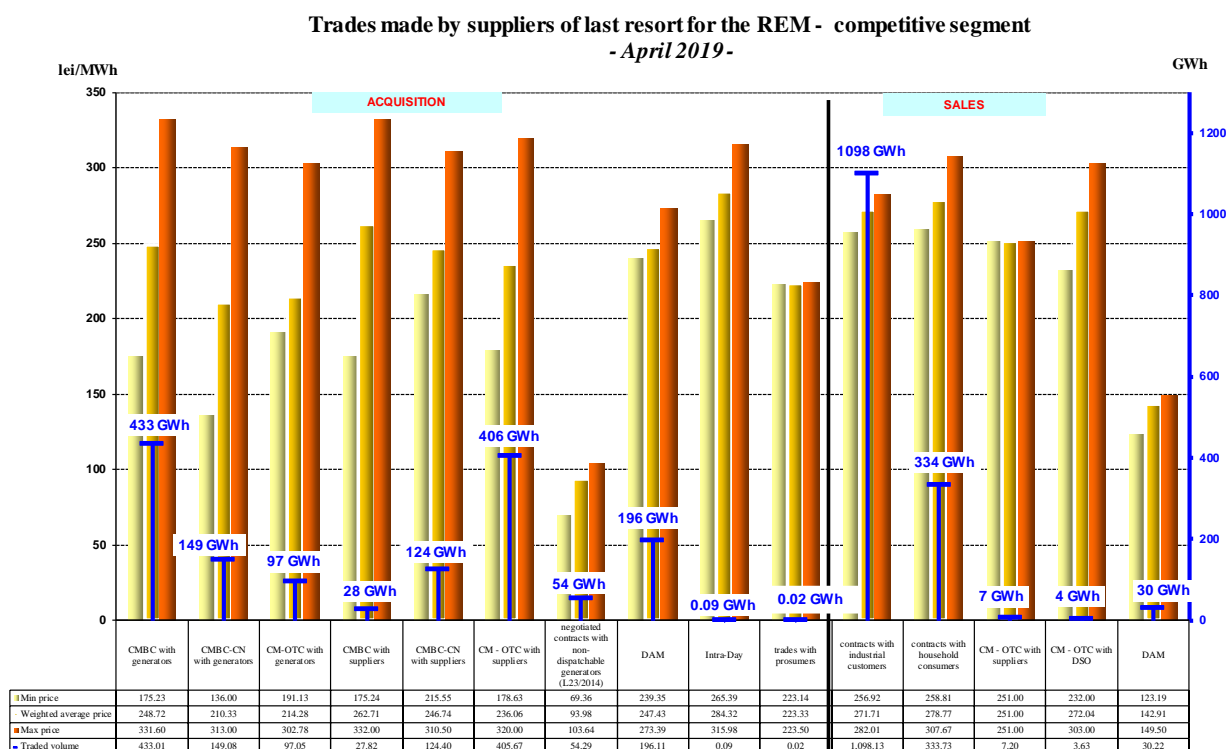
The following table presents the electricity acquisition structure of suppliers of last resort before the delivery interval, corresponding to the competitive segment of REM for April 2019, compared to the similar period of 2018:

-GWh-

Structure of trades made by suppliers of last resort for the competitive segment of REM	April 2018	April 2019
Buy		
Trades on centralized contracts markets, of which:	880.11	1237.02
- on CMBC-EA with producers	302.25	433.01
- on CMBC-CN with producers	151.28	149.08
- on CM-OTC with producers	196.36	97.05
- on CMBC-EA with other suppliers	4.24	27.82
- on CMBC-CN with other suppliers	21.62	124.40
- on CM-OTC with other suppliers	204.37	405.67
Negotiated trades with non-dispatchable producers (amendments and additions to Law 220/2008)*	38.82	54.29
Trades with prosumers	-	0.02
Trades on DAM	365.46	196.11
Trades on ID	0.00	0.09
Sell		
Trades on centralized contracts markets:	38.88	10.83
- on CM-OTC with other suppliers	38.88	7.20
- on CMBC-OTC with DO	0.00	3.63
Trades on DAM	2.03	30.22
Household clients	190.61	333.73
Non-household final clients	1035.86	1098.13

*Note: *negotiated trades with non-dispatchable producers that fall under the provisions of Law no. 220/2008, with subsequent amendments and additions.*

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 April 2019:



Source: Monthly reports of the suppliers of last resort – Electricity Market Monitoring Unit assessment

Main distribution operators

The following table shows the electricity acquisition structure of the main distribution operators made before the delivery interval to cover the distribution networks losses, for April 2019 compared with the similar previous period:

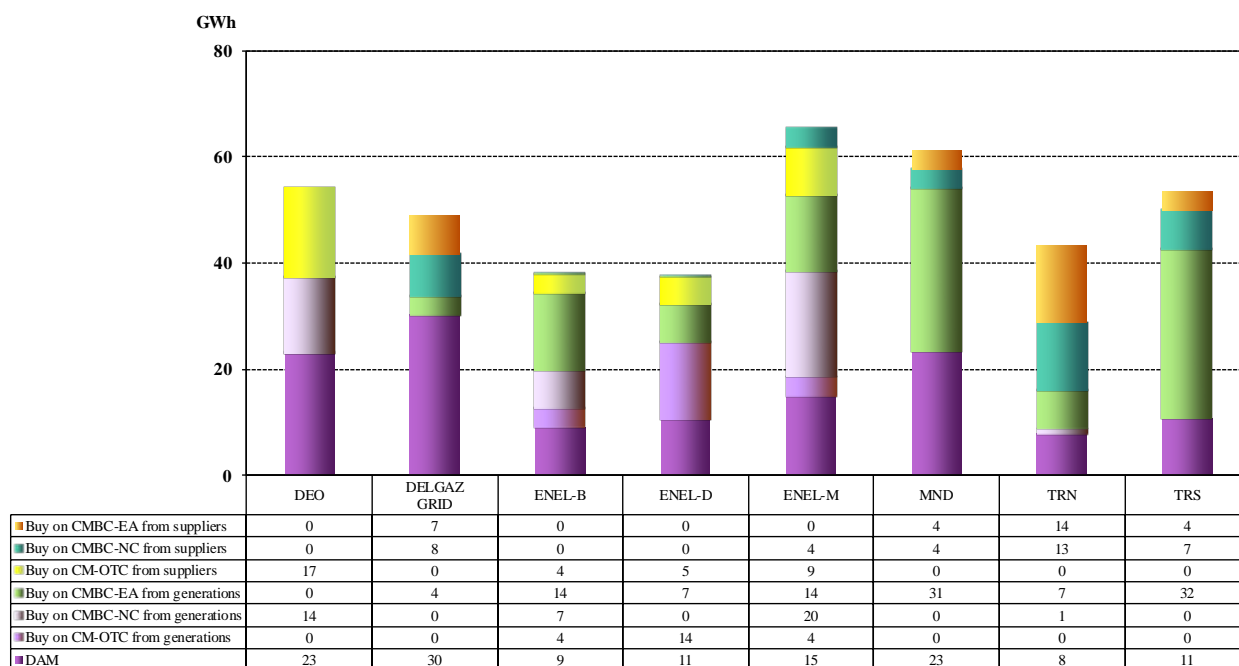
- GWh -

Structure of trades	April 2018	April 2019
Trades on centralized contracts markets:	339.77	271.98
- CMBC-EA with producers	232.31	109.40
- CMBC-CN with producers	28.80	42.43
- CM-OTC with producers	15.82	21.60
- CMBC-EA with suppliers	19.25	28.72
- CMBC-CN with suppliers	36.39	34.93
- CM-OTC with suppliers	7.21	34.90
Trades on ID	0.06	0.15
- buy	0.06	0.15
- sell	0.00	0.00
Trades on DAM:	79.29	129.50
- buy	82.14	129.94
- sell	2.85	0.44

Source: Monthly reports of the distribution operators – Electricity Market Monitoring Unit assessment

Electricity acquisition structure of the main distribution operators in April 2019 is presented in the following graph:

**Structure of electricity trades of distribution operators to cover distribution network losses
APRIL 2019**



Source: Monthly reports of the distribution operators – Electricity Market Monitoring Unit assessment

6. Concentration indicators for the wholesale electricity market and its components

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

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

The indicator values signify:

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

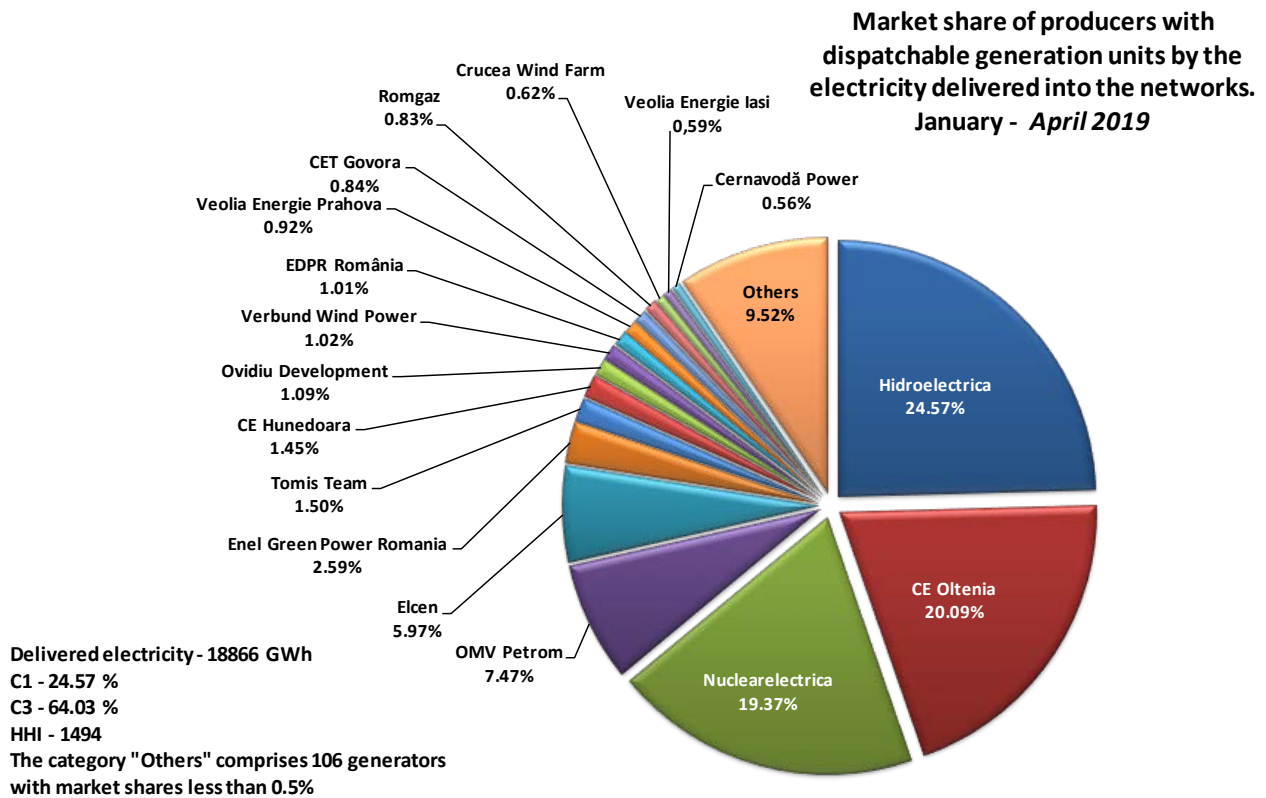
These concentration indicators may be defined for the entire wholesale market (electricity market or ancillary services market) or for each of its components where direct competition takes place.

Concentration indicators and market shares of electricity producers

The market structure regarding the electricity generation offers an initial basis for the analysis on the degree of competitiveness that is possible on the electricity market.

The following table presents the concentration indicators of electricity generation for April 2019 and the graph presents the market shares of electricity producers with dispatchable generation units, determined based on the electricity delivered into the networks for 4 month-period.

Concentration indicators - April 2019 -	C1 (%)	C3 (%)	HHI
Value	30.24	72.82	1865



Source: Monthly reports of producers – Electricity Market Monitoring Unit assessment

A component of the WEM on which direct competition between generators is manifested is the Balancing Market (BM). The values of concentration indicators on this market for April 2019 are determined based on effectively delivered electricity, for each type of regulation defined within the Commercial Code and they are presented in the following table:

Structure/concentration indicators of BM - APRIL - 2019 -	Regulation					
	Secondary		Fast tertiary		Slow tertiary	
	upward	downward	upward	downward	upward	downward
C1 - % -	71	73	55	81	0	100
C3 - % -	100	100	96	99	0	100
HHI	5857	6023	4448	6824	0	10000

Source: Monthly reports of CNTEE Transelectrica SA – Electricity Market Monitoring Unit assessment

Under EGO no. 26/2018 on the adoption of certain measures for the safety and security of electricity supply of the NPS, it was approved ANRE President Decision np. 2047/2018 regarding the acquisition at a regulated price for the period between 1 January – 31 December 2019 from the producer CE Hunedoara SA of a quantity of ancillary services representing slow tertiary reserve for a capacity of 400 MW. Also, CNTEE Transelectrica SA organized auctions to buy reserves on all types of regulation.

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

Concentration indicators on Ancillary Services Market - April 2019 -		Secondary reserve	Fast tertiary reserve	Slow tertiary reserve
regulated component	contracted quantity (h*MW)	-	-	288000
	C1 (%)	-	-	100.0
	C3 (%)	-	-	100.0
competitive component	contracted quantity (h*MW)	305450	498000	216000
	C1 (%)	71.7	84.8	40.5
	C3 (%)	100.0	94.6	100.0
	HHI	5943	7259	5106

Source: Monthly reports of CNTEE Transelectrica SA – Electricity Market Monitoring Unit assessment

Concentration Indicators for the Day Ahead Market

The Day Ahead Market (DAM) is a voluntary market, opened for both buying and selling, for all licensees and for foreign economic operators who have been granted by ANRE Decision the confirmation of the right to supply or trade electricity in Romania, under the conditions established by the applicable regulations.

The concentration indicators on this market reflect 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 the buying and for the selling side of DAM, based on quantities traded by participants on this market.

Concentration indicators on DAM - April 2019 -	C1 (%)	C3 (%)	HHI
Selling	14.20	37.49	622
Buying	9.84	28.39	461

Source: Monthly reports of Opcom SA

7. Prices evolution on wholesale electricity market

Starting with November 2014, the Romanian DAM is coupled with the spot markets from Hungary, Slovakia and the Czech Republic based on the price coupling mechanism, project known as 4M MC. This coordinated correlation mechanism uses an unique pan-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 the coupling algorithm recommended by ACER (Euphemia) and its goal is maximizing the social welfare of the entire area of the coupled markets.

The coupling mechanism is developed through the coupling operators OTE-Czech Republic, EPEX Spot (operating as services supplier for OKTE-Slovakia and HUPX-Hungary) and, from 17 January 2017, OPCOM-Romania (who became PCR member starting with 1 January 2016). After successfully implementing the changes and tests performed, OPCOM operates in its own name the coupling solution implemented in the 4M MC operational mechanism, all processes being performed under the security conditions of the coupled functioning of the day-ahead markets. Coupling operators are acting as *Coordinators* on a monthly rotation basis.

According to EU legislation, coordinated cross-border capacity allocation is under the governance of the TSOs from the 4 countries and the allocation model used is that of implicit allocation on DAM of the available interconnection capacity.

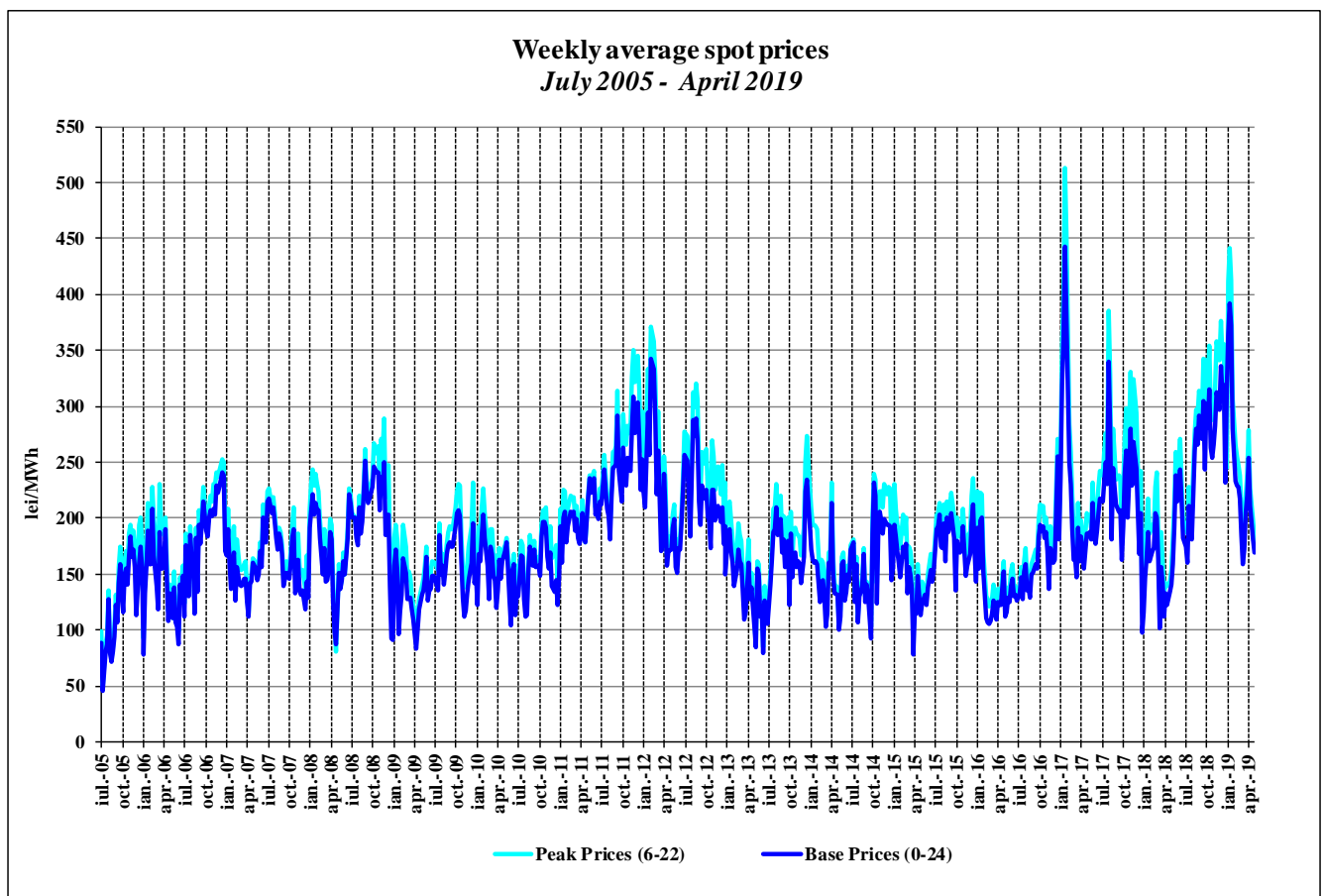
To better meet the purpose of the DAM coupling mechanism, respectively the electricity transfer at the level and direction determined by the known conditions of generation and consumption and based on the coupled markets prices - starting with 1 January 2016, TSO operators from Romania and Hungary (CNTEE Transelectrica SA and Mavir ZRt) under the recommendations of the regulators from both countries, ANRE and MEKH, agreed to reserve a quota of the interconnection capacity for DAM allocation. The same rule was adopted for interconnection capacity allocation on the Bulgarian border.

Therefore, for each month of the year, reserved capacity for DAM allocation is determined as a difference between available transmission capacity (ATC) calculated monthly for each subperiod and 80% from the lowest ATC value resulted for the subperiods of the respective month, plus the capacity allocated at the annual auction, returned to TSO.

Particularly, for the Hungarian border, if 80% of the lowest value of the ATC calculated monthly for subperiods is lower than 80 MW, interconnection capacity for monthly allocation will be 80% from the ATC calculated for each subperiod, to which is added the allocated capacity at the yearly auction returned to TSO.

The next graph presents the monthly average spot prices of the 4 markets involved in the 4M MC coupling mechanism starting with 1 January 2014, before and after the onset of coupled operation.

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



Source: Daily reports of Opcom SA – Electricity Market Monitoring Unit assessment

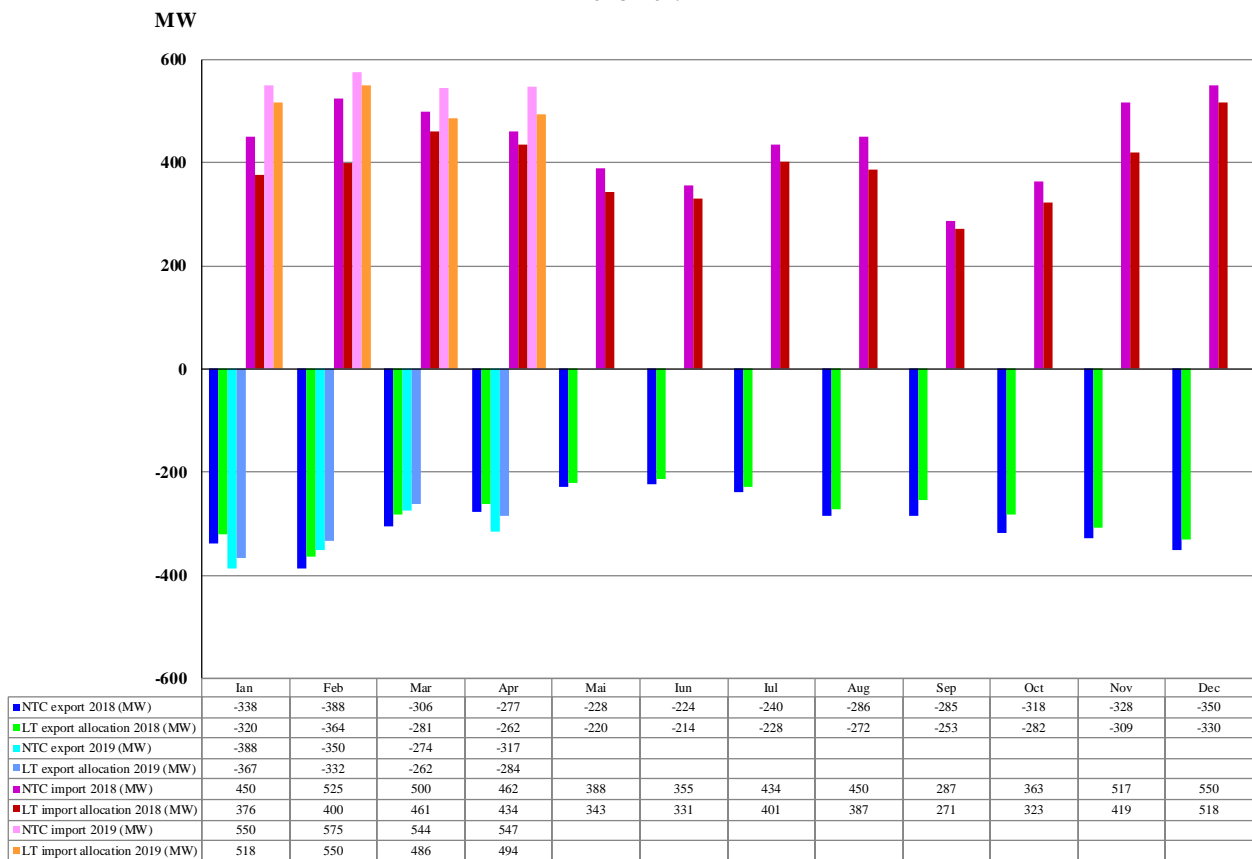
On Romania's borders with Hungary, Bulgaria and Serbia, interconnection capacity allocation is done through market mechanisms, coordinated bilaterally on both directions, for 100% of the allocation capacity through long and short term auctions.

On the border with Serbia, the allocation is made through auctions organized by CNTEE Transelectrica SA for annual, monthly and intraday allocation, and through daily auctions organized by the EMS (Serbian TSO), in accordance with the agreements signed between the two TSOs. On the border with Ukraine the allocation is made by CNTEE Transelectrica SA through auctions for annual and monthly allocation, the use of interconnection capacities being conditional on the written agreement of Ukrenergo (Ukraine TSO).

Starting with 2019, on the borders with Bulgaria and Hungary, the auctions for the annual and monthly allocation are made by the Joint Allocation Office (JAO), which has become, starting with 1 October 2018, the Single Allocation Platform (SAP) that organizes auctions for cross-border capacity allocation for all European TSOs. Daily auctions on the border with Bulgaria are organized by CNTEE Transelectrica SA.

The following chart shows the monthly average values of the net transfer capacity (NTC) of the NPS with the aforementioned neighboring energy systems and the average transfer capacity allocated at long-term export and import auctions.

Evolution of the average NTC and the average cross border capacities allocated on long term auctions
2018-2019

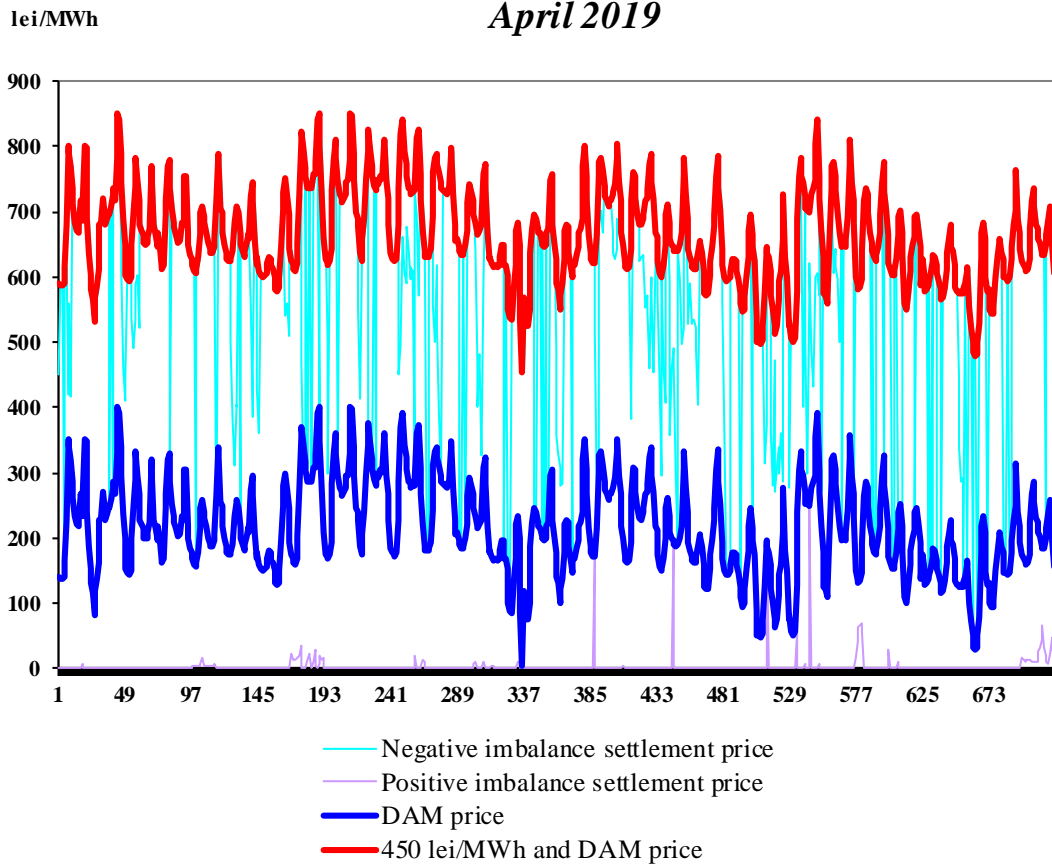


Source: Monthly reports of CNTEE Tranelectrica SA – Electricity Market Monitoring Unit assessment

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

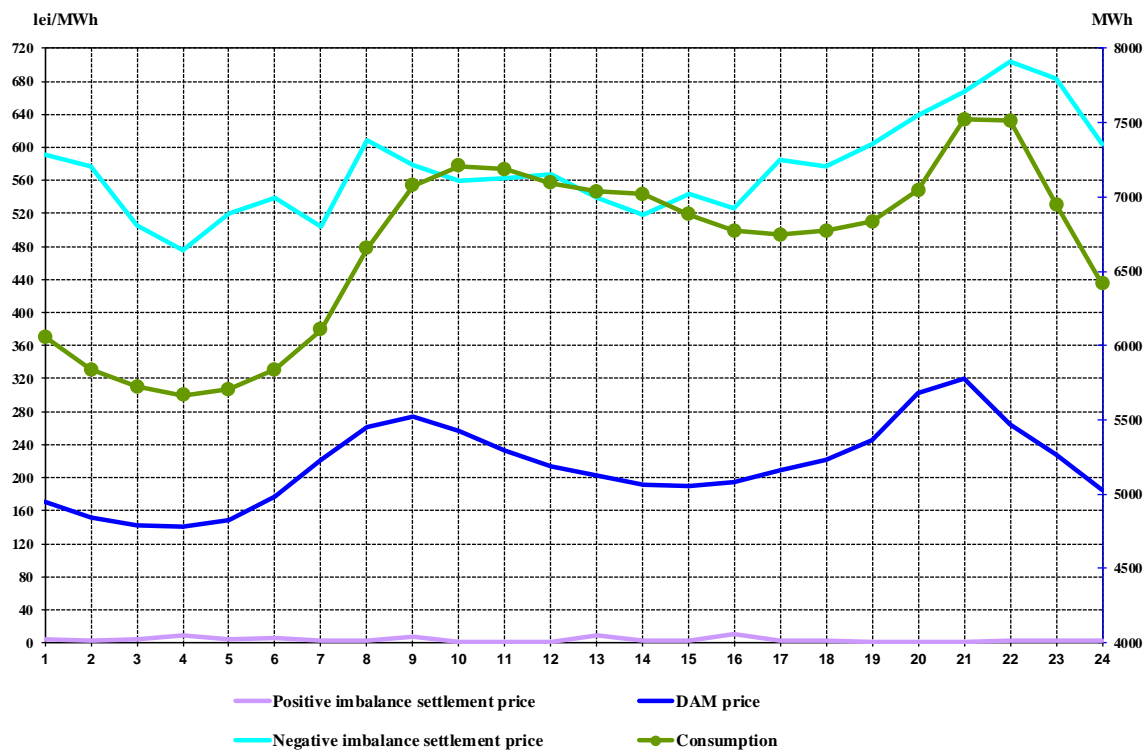
The settlement prices (market closing price on DAM, negative imbalance price and positive imbalance price) are represented on the same graph, thus showing the two markets correlation degree. In the first graph the settlement prices are expressed in hourly values, in the second graph in hourly average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

Hourly settlement prices April 2019



Source: Daily/monthly reports of Opcom SA – Electricity Market Monitoring Unit assessment

Hourly average settlement prices and internal consumption April 2019

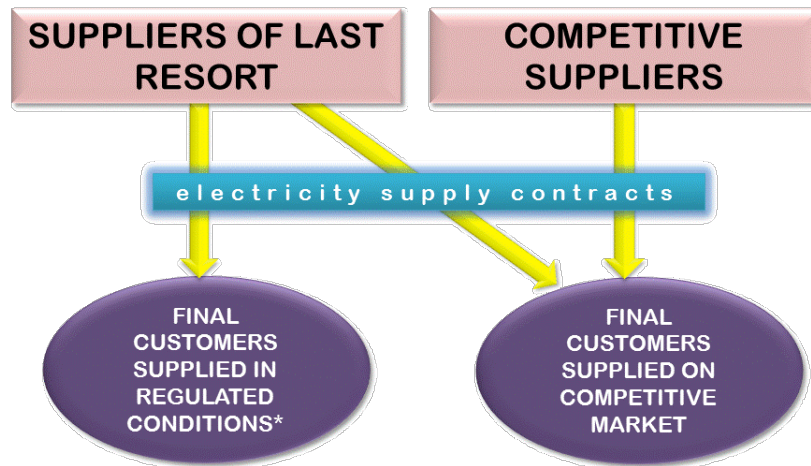


Source: Monthly reports of Opcom SA and CNTEE Transselectrica SA – Electricity Market Monitoring Unit assessment

Source: Monthly/daily reports of Opcom SA – Electricity Market Monitoring Unit assessment

III. RETAIL ELECTRICITY MARKET

1. Structure of the retail electricity market

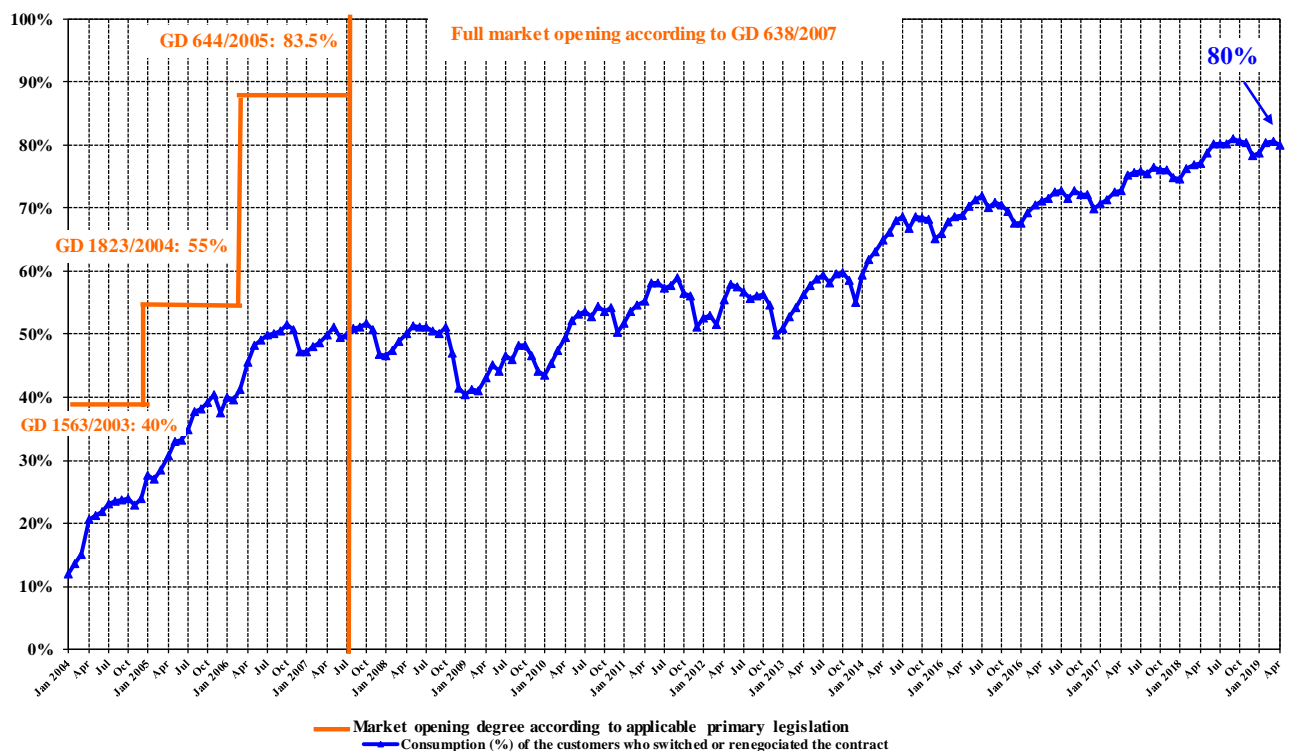


* according to art. 53 (2) and art. 55 (1) from Electricity and Gas Law no. 123/2012

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 of last resort, between January 2004 – April 2019. The values presented are cumulated from the beginning of the market opening process and are presented monthly:

Evolution of the opening degree of the electricity market
January 2004 - April 2019

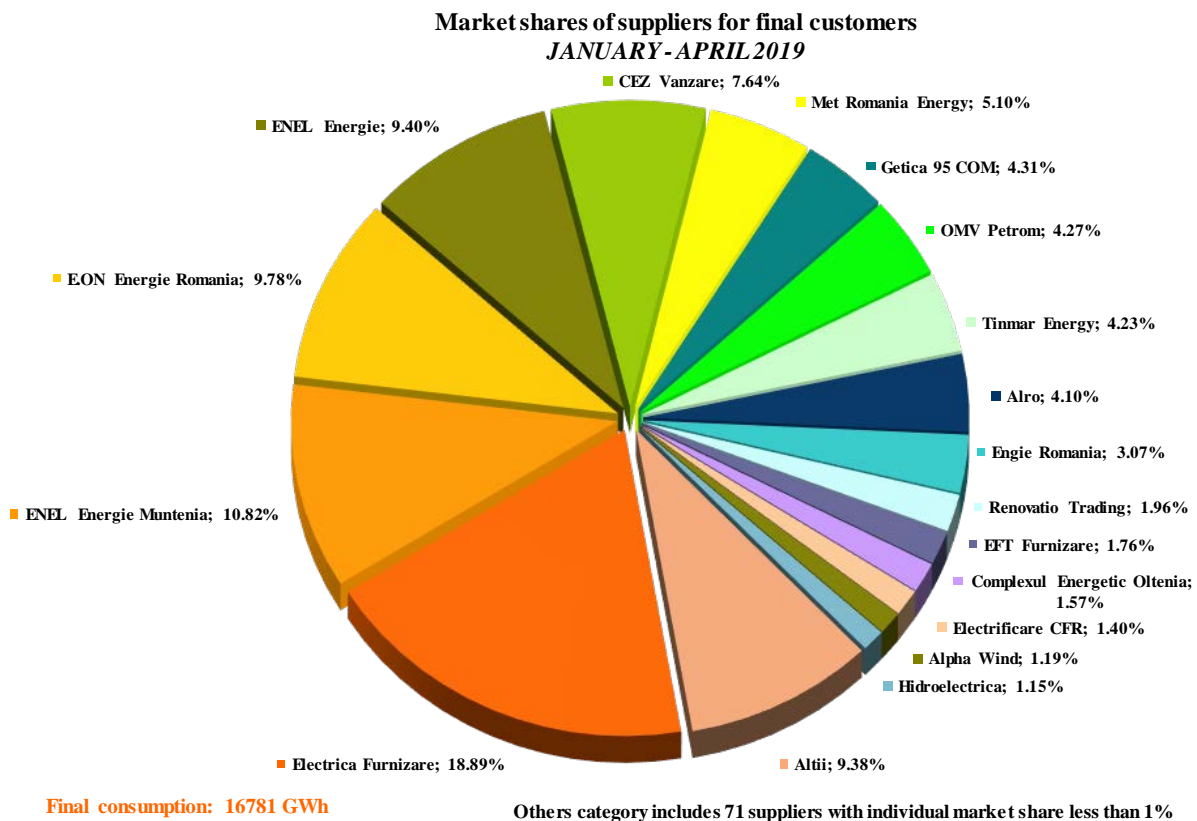


Source: Monthly reports of the final customers suppliers – Electricity Market Monitoring Unit assessment

3. Market shares of electricity suppliers

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

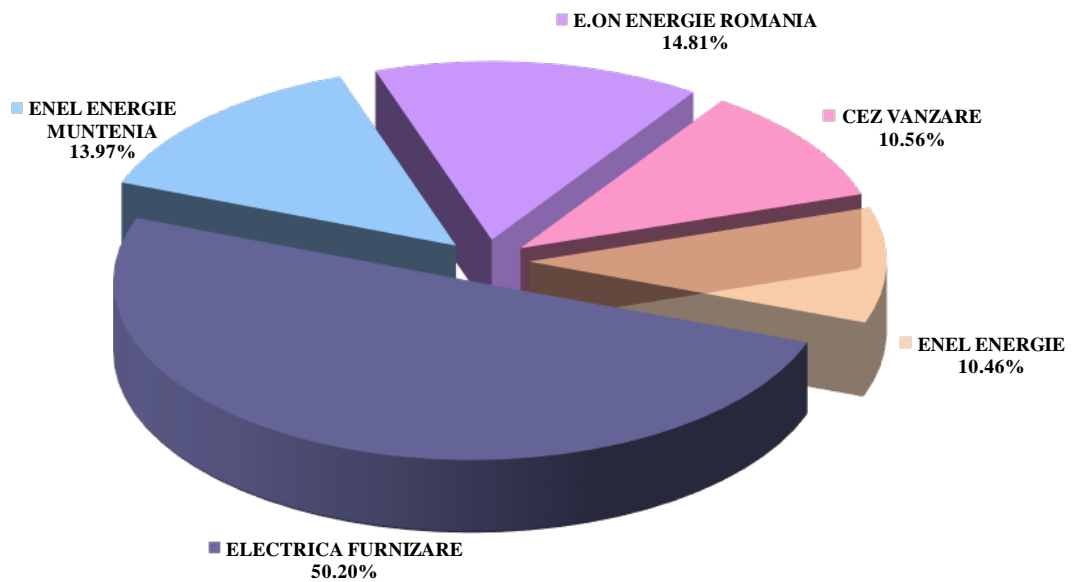
- a) for all licensees monitored, suppliers and producers active on REM, including suppliers of last resort, in terms of electricity supplied to final clients under regulated, Universal Service and last resort regime and inactive clients and to consumers who have switched their supplier or have negotiated their contract;



Source: Monthly reports of suppliers for final customers – Electricity Market Monitoring Unit assessment

- b) for suppliers of last resort - based on the electricity supplied to final clients under regulated, Universal service and last resort regime as well as to inactive clients;

**Market shares of suppliers of last resort for the electricity supplied to regulated, Universal service and last resort regime and inactive clients
- JANUARY - APRIL 2019**

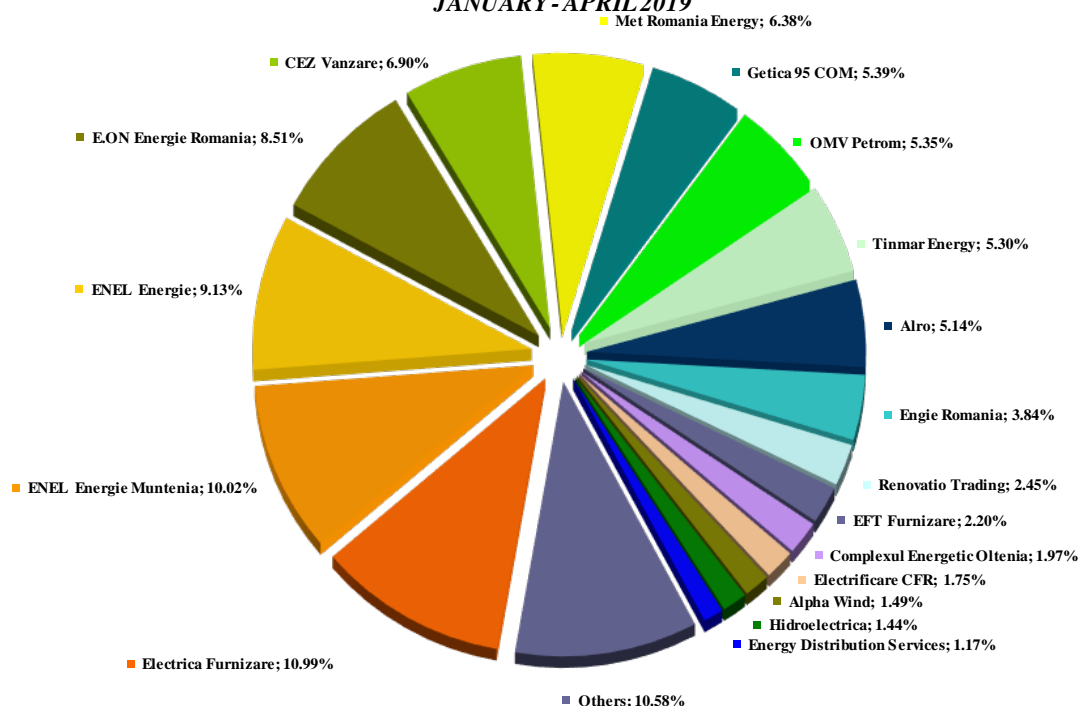


Consumption of Universal service, last resort and inactive clients: 3380 GWh

Source: Monthly reports of the suppliers of last resort – Electricity Market Monitoring Unit assessment

- c) for all licensees monitored, suppliers and producers, active on the competitive segment of the REM, including suppliers of last resort - depending on the electricity supplied to clients who have switched suppliers or negotiated their contracts.

**Market shares of suppliers delivering electricity on the competitive market
JANUARY - APRIL 2019**



Consumption on competitive market: 13401 GWh

Structure indicators:

HHI - 621; C3 - 30%; C1 - 11%

Others category includes 70 suppliers with individual market share less than 1%

Source: Monthly reports of suppliers – Electricity Market Monitoring Unit assessment

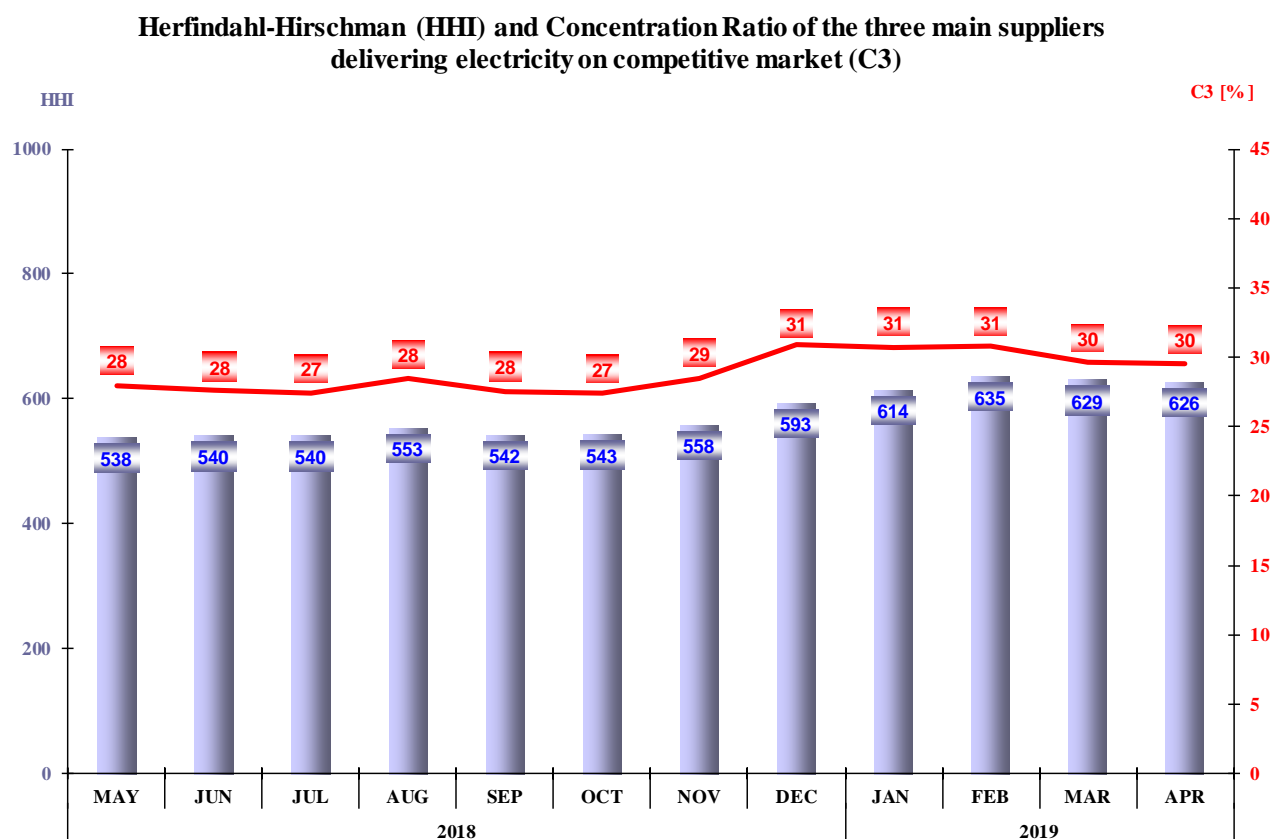
It is noted that in the calculation of the market indicator values the principle of dominance was not taken into account and the electricity supplied on the basis of which each supplier's market share was established includes the self-consumption of the large industrial consumers who also hold a supply license and who have decided to buy the necessary electricity on the wholesale market as competitive suppliers. Quantification of suppliers' activity within the competitive segment of REM compared to that on the WEM can be done by determining the share of sales to final consumers in total sales trades. Therefore, the following table shows the number of suppliers active on the REM, structured according to the size of the activity on this market in April 2019.

Number of suppliers	Share of sales to final customers from total sales trades			
	100%	75% - 100%	50% - 75%	<50%
Competitive	11	20	6	20
Of last resort	0	5	0	0

Source: Monthly reports of the suppliers – Electricity Market Monitoring Unit assessment

4. Concentration indicators of the competitive retail electricity market

The monthly evolution of the concentration indicators (C3, HHI) determined on the competitive component of the REM is presented for April 2019 in the following graph:



Source: Monthly reports of the suppliers – Electricity Market Monitoring Unit assessment

The tables below show the values of market structure indicators for the competitive component of REM and the number of active suppliers in April 2019, calculated for each consumption band defined by the Regulation (EU) 2016/1952, for household clients and non-household final clients:

Indicators - April 2019	Consumption bands - Non-household customers							
	IA	IB	IC	ID	IE	IF	IG	Total
C1 - % -	31	22	20	11	15	13	20	11
C3 - % -	77	50	42	31	42	31	50	28
HHI	2151	1273	947	671	907	697	1206	595
Consumption - GWh -	141	359	291	621	383	213	824	2832
No. of SUPPLIERS	61	71	62	58	24	19	15	82
No. of suppliers of last resort	5	5	5	5	5	4	3	5
No. of competitive suppliers	41	49	43	42	13	11	6	56
No. of producers	15	17	14	11	6	4	6	21

Source: Monthly reports of the suppliers – Electricity Market Monitoring Unit assessment

Indicators -April 2019	Consumption bands - Household customers					
	DA	DB	DC	DD	DE	Total
C1 - % -	47	32	30	32	36	36
C3 - % -	89	79	76	73	70	81
HHI	3511	2260	2132	2220	2136	2489
Consumption - GWh -	124	115	63	43	15	360
No. of SUPPLIERS	36	34	36	35	34	45
No. of suppliers of last resort	5	5	5	5	5	5
No. of competitive suppliers	27	26	27	27	26	34
No. of producers	4	3	4	3	3	6

Source: Monthly reports of the suppliers – Electricity Market Monitoring Unit assessment

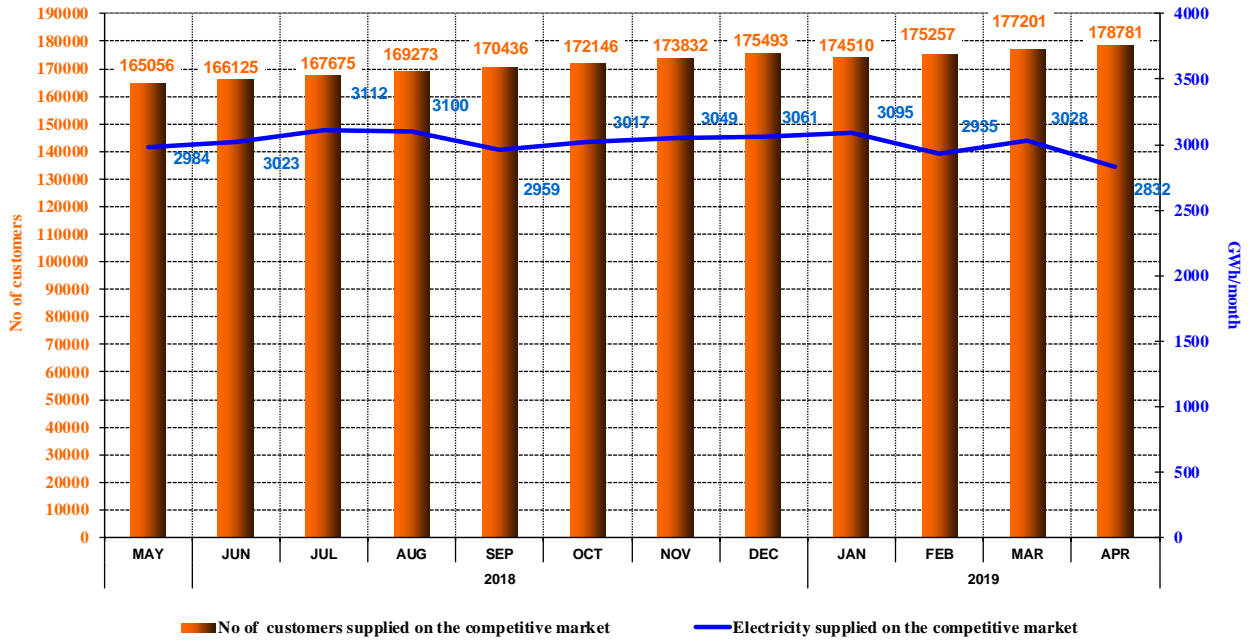
5. The evolution of the number of clients and of the electricity delivered

The number of final clients supplied under competitive conditions is shown on a monthly basis over the last 12 months. Also, it is presented the structure on categories of clients for April 2019, according to the provisions of Regulation (EU) no. 2016/1952 of the European Parliament and of the Council. The tables below present in detail the consumption ranges corresponding to each consumption band:

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	

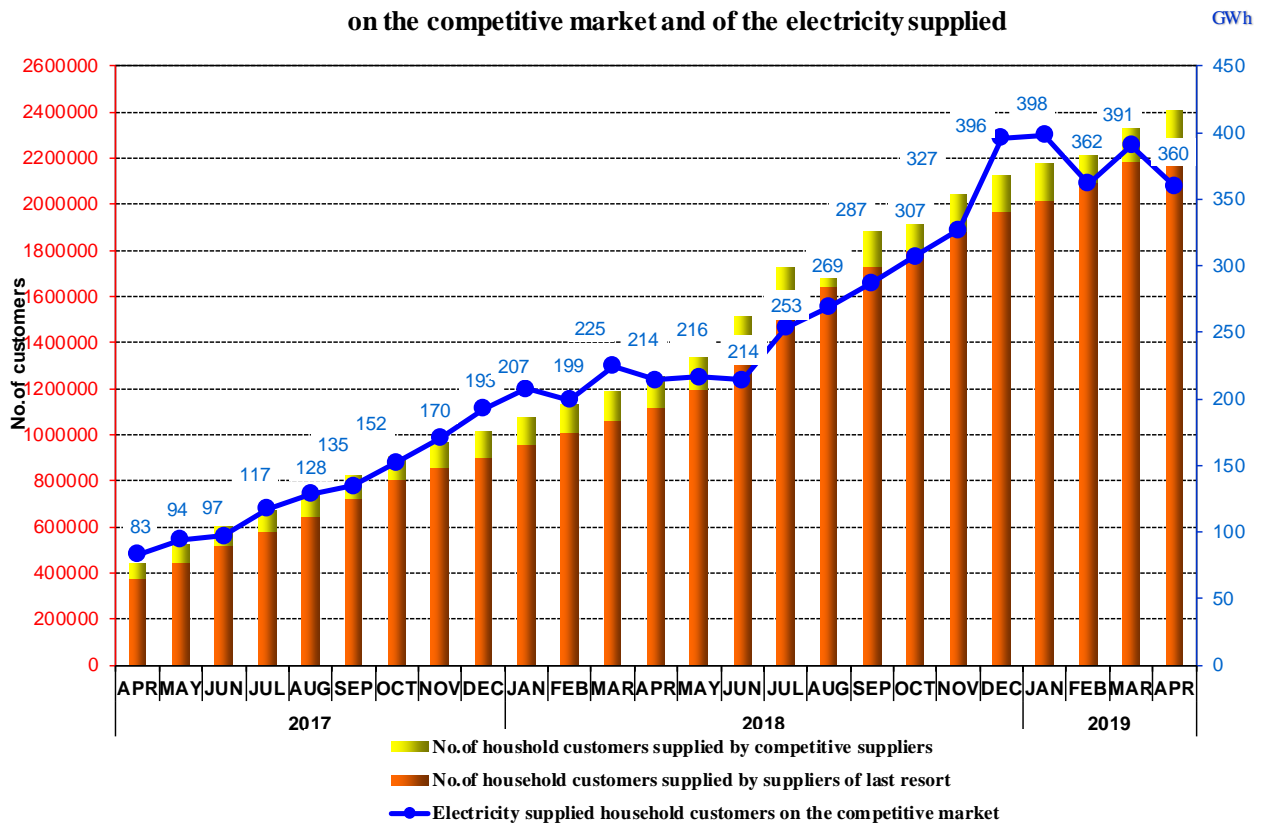
Evolution of the number of non-household customers on the competitive market and of the electricity supplied



Source: Monthly reports of the competitive suppliers – Electricity Market Monitoring Unit assessment

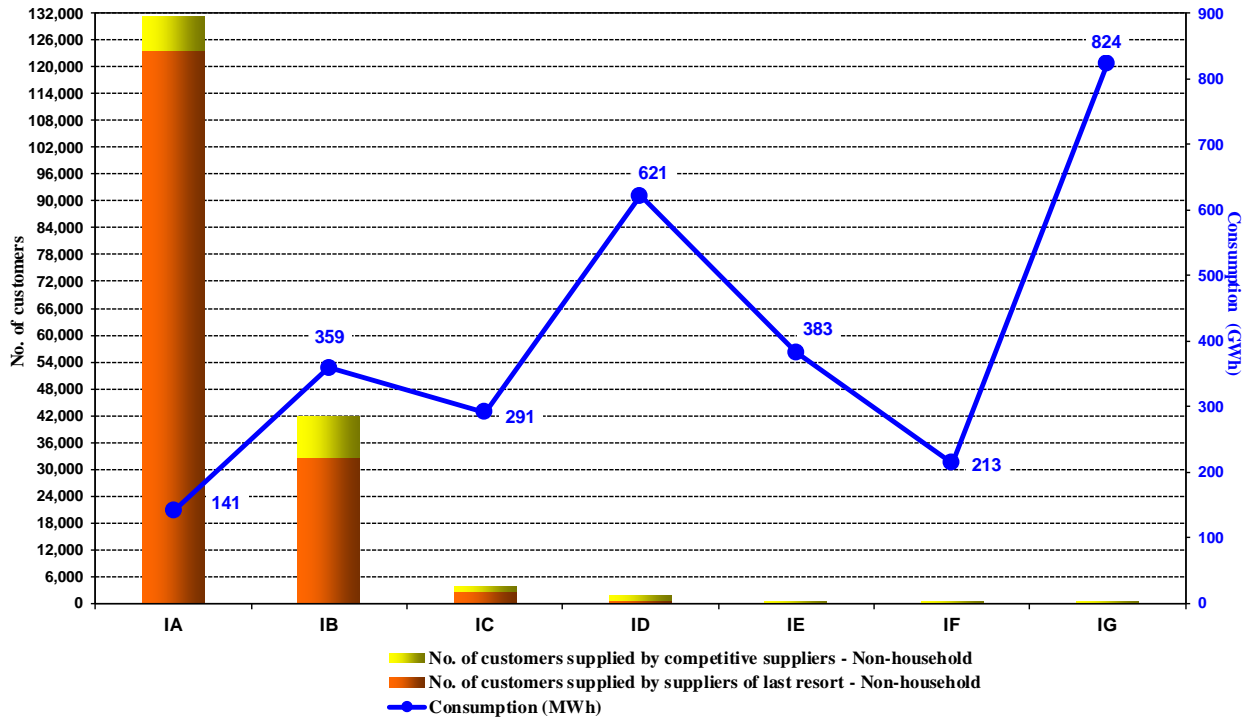
Electricity sales under competitive conditions to household clients between April 2017 and April 2019 are shown in the following graph:

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



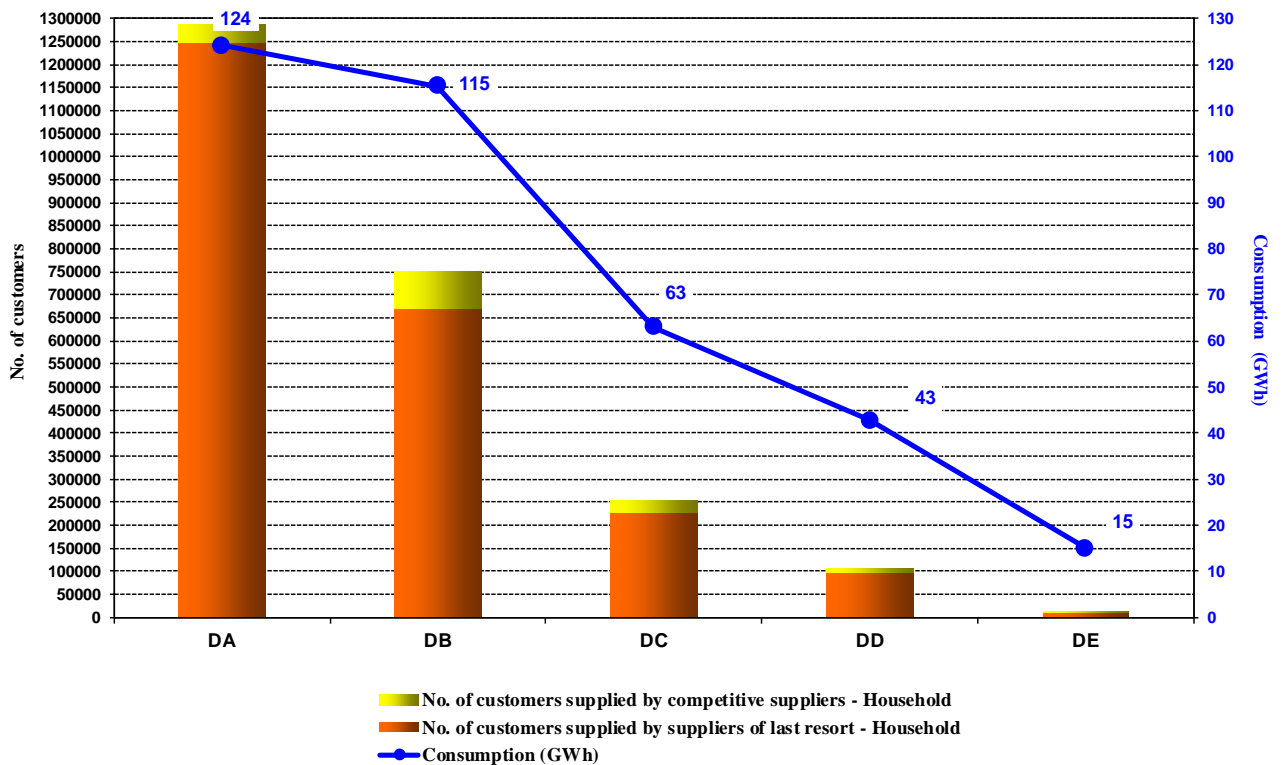
Source: Monthly reports of the suppliers – Electricity Market Monitoring Unit assessment

Number of non-household clients on the competitive market and their consumption broken down into consumption bands and type of supplier
-APRIL 2019-



Source: Monthly reports of the suppliers – Electricity Market Monitoring Unit assessment

Number of households on the competitive market and their consumption broken down into consumption bands and type of supplier
- APRIL 2019 -

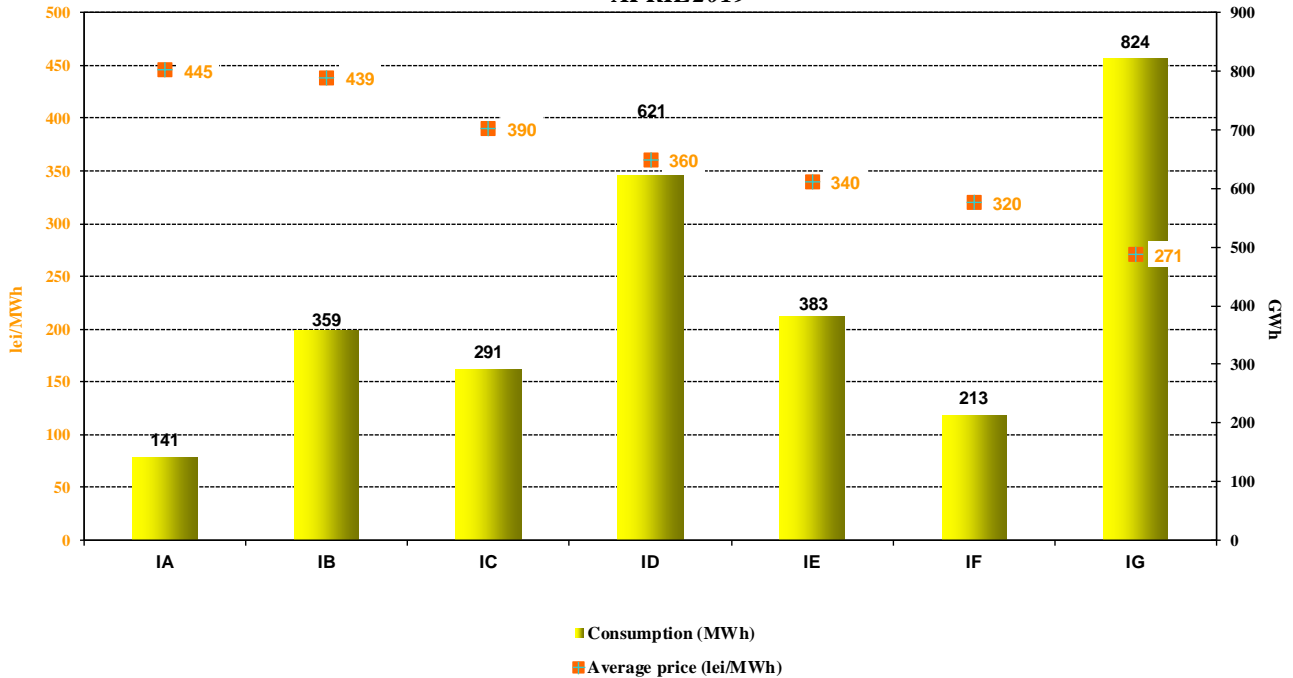


Source: Monthly reports of the suppliers – Electricity Market Monitoring Unit assessment

6. Average selling prices to final clients on the competitive market

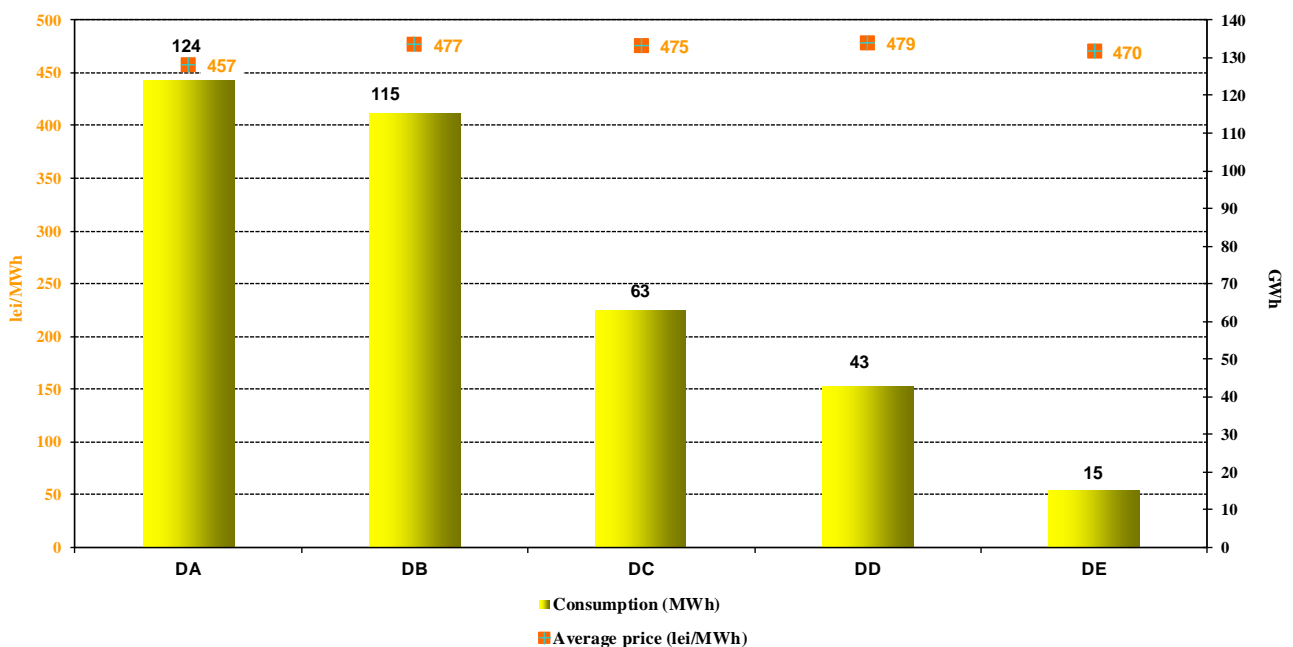
The following graphs present the average selling prices for April 2019 to household clients and non-household final clients supplied on the competitive market, based on the structure defined according to the Regulation (EU) no. 2016/1952.

Average price and electricity consumption broken down on consumption bands for non-household clients on the competitive segment of REM - APRIL 2019-



Source: Monthly reports of the competitive suppliers – Electricity Market Monitoring Unit assessment

Average price and electricity consumption broken down on consumption bands for households customers on the competitive segment of REM - APRIL 2019 -



Source: Monthly reports of the competitive suppliers – Electricity Market Monitoring Unit assessment

Disclaimer: The average selling price for each consumption band was determined as an average of the prices applied by suppliers weighted with the quantities supplied by them to the respective consumption band 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 and distribution tariffs, system services, imbalances, BRP aggregation taxes, measurement). Classification of customers into consumption bands was based on their annual consumption forecast.

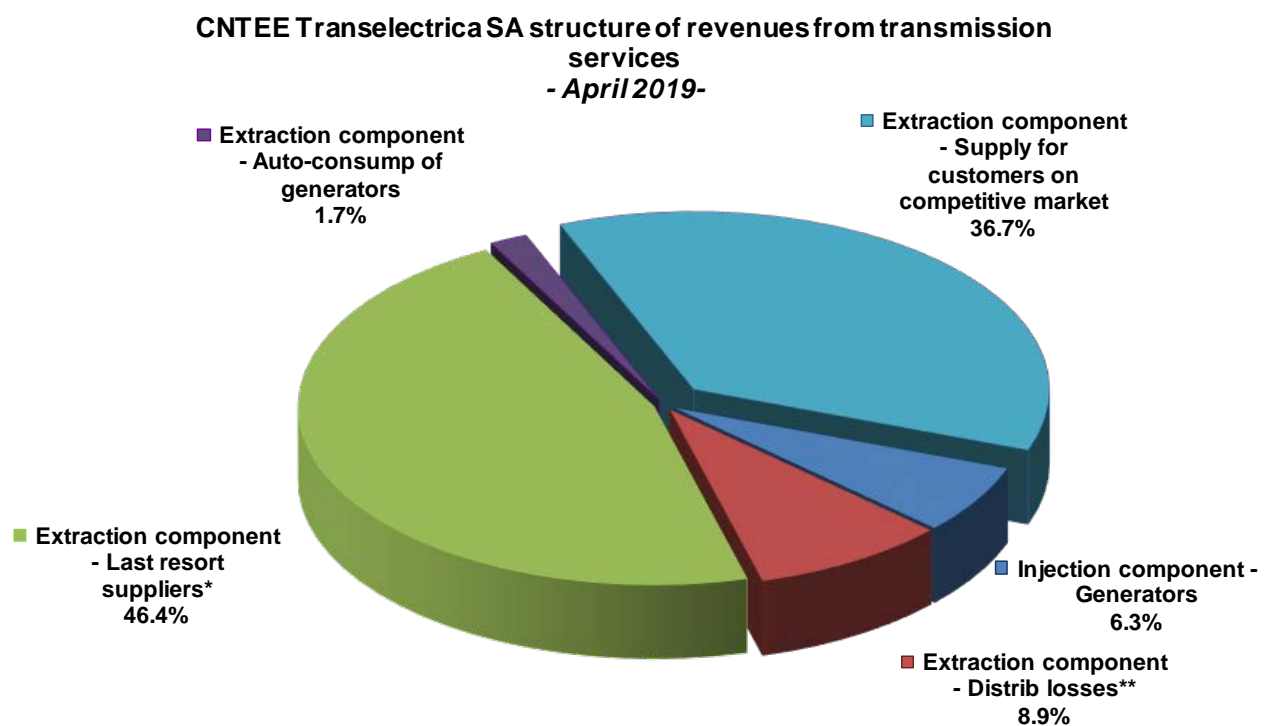
IV. TRANSMISSION AND SYSTEM OPERATOR CNTEE TRANSELECTRICA SA

TSO performs the electricity transmission service at regulated tariffs.

Starting with July 2017, the tariff setting methodological principles for the transmission service were modified, eliminating the zonal tariffs for the introduction or extraction of electricity in/out of the network, establishing a single NPS value for each of these tariffs.

Therefore, the injection tariff covers some of the network losses costs and the costs of eliminating congestion by redispatching, while the extraction tariff covers the average cost of the transmission service.

The following graph presents the structure of the revenues for April 2019, following the provision of the transmission service.



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

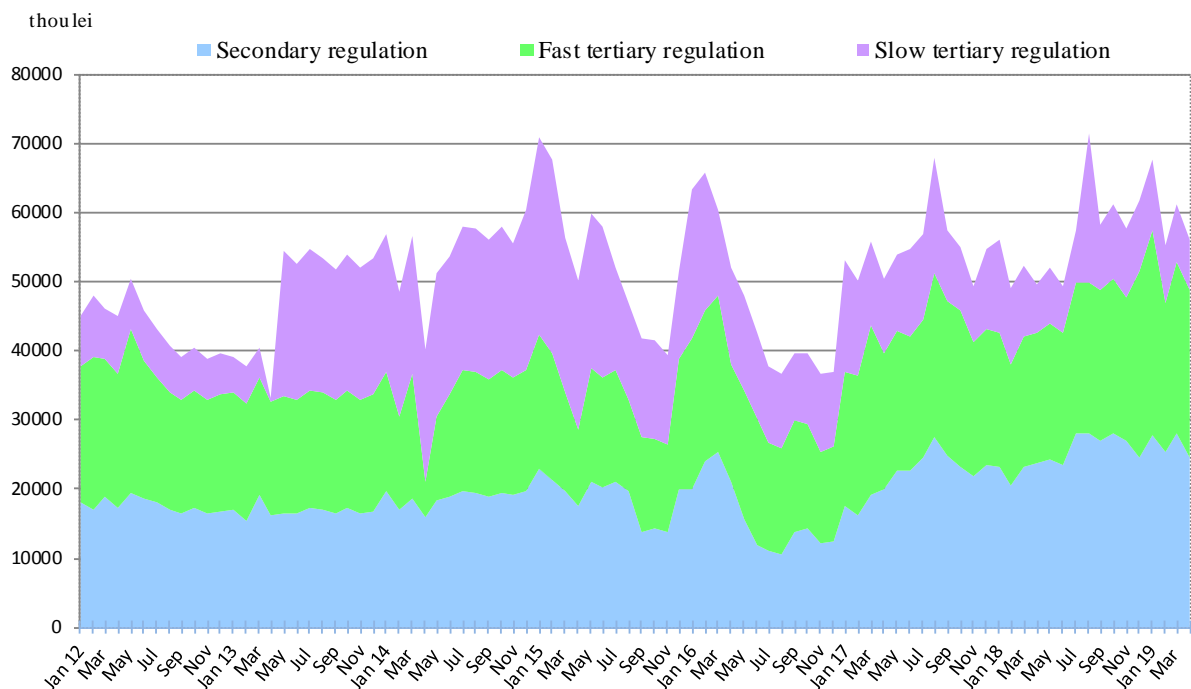
** includes the electricity with which some distribution operators supply their own self-consumption places

Source: Monthly reports of CNTEE Transelectrica SA – Electricity Market Monitoring Unit assessment

In order to perform the system operator tasks, CNTEE Transelectrica SA assesses and contracts reserves (ancillary services) from qualified participants, which are integrated on BM. The ancillary services which may be used are reserves for secondary, fast tertiary, slow tertiary and reactive energy. The following graph represents the evolution of the costs of the transmission and system operator, starting with January 2012, for the acquisition (regulated and/or through market mechanisms) of ancillary services. In order to cover the costs corresponding to the contracts for the provision of

ancillary services, as well as to cover its own operating costs, the TSO applies the regulated tariff for the system service.

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



Source: Monthly reports of CNTEE Transelectrica SA – Electricity Market Monitoring Unit assessment

V. MARKET RULES EVOLUTION IN APRIL 2019

In April 2019, ANRE issued the following regulations with an impact on the wholesale and retail markets:

- ANRE President Order no. 49/10 April 2019 approving the modification and supplementation of the Regulation establishing the way of collecting the contribution for high efficiency cogeneration and payment of the bonus for electricity produced in high efficiency cogeneration, approved by ANRE Order no. 116/2013;
- ANRE President Order no. 50/10 April 2019 regarding the amendment of the Annex to the ANRE Order no. 78/2014 for the approval of the Regulation on the way of concluding the bilateral electricity contracts through extended auction and continuous negotiation and through processing contracts;
- ANRE President Order no. 56/24 April 2019 approving the regulated tariff for electricity exchanges with the third countries of National Electricity Transport Company "Transelectrica" S.A. ;
- ANRE president Decision no. 703/17 April 2019 regarding the approval of the quantities produced in high efficiency cogeneration units benefiting from the bonus scheme for March 2019.

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 clients supplied on consumption regulated by SU and IU** is the consumption of final clients supplied by suppliers of last resort at regulated prices, prices for universal service, last resort and prices for inactive clients;
- **Consumption of final clients on competitive market** represents the consumption of clients supplied at negotiated prices or prices 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.

2. Abbreviations

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

