



Transelectrica®
Societate Administrată în Sistem Dualist

MARKET MONITORING REPORT

Balancing Market

May 2024

ANRE - Romanian Energy Regulatory Authority
HHI - Herfindahl-Hirschman Index
BRP - Balance Responsible Party
BMP - Balancing Market Participant
BM - Balancing Market
DAM - Day Ahead Market
TSO - Transmission System Operator
DU – Dispatchable Unit
PN – Physical Notification
NDC - National Dispatching Center
C1 – The market share of the largest market participant
C3 – Total market share of top 3 market participants
NPS – Minimum number of residual generators
TTC – Total Transfer Capacity
NTC – Net Transfer Capacity
ATC – Available Transfer Capacity
NRA – National Regulatory Authority

According to the Commercial Code, Transelectrica, the Romanian Transmission System Operator, operates and monitors the activity of 3 types of markets: Balancing Market, Ancillary Services Market and Market for Allocation of Cross-Border Capacities.

Using the records from the markets data bases, Transelectrica prepares daily, weekly and monthly monitoring reports. A part of the data included in these reports (those data which are not confidential) are published on the website www.transelectrica.ro (section Transparency).

- At the beginning of the month on the Balancing Market operated 141 BRPs, 90 market participants, holding 179 commercially operating dispatchable units. According to the provisions of ANRE Order no. 213/2020, as subsequently amended and supplemented during the month, the following changes were made:
 - were registered in the BM during the probationary period, the following BRPs:
 - ✓ APA NOVA (PROBE) (30XRO-ANB-P----3) (01.05) following the start of the trial period for the solar production unit APANOVA_PROBE;
 - ✓ CLARITA RO SOLAR (PROBE) (30XROCLARITA--PU) (01.05), following the start of the trial period for the solar production unit CLARITA_PROBE;
 - ✓ GIULIA SOLAR PARC (PROBE) (30XROGIULIAPARC6) (01.05), following the start of the trial period for the solar production unit GIULIA_PROBE;
 - ✓ JRD SOLAR (PROBE) (30XROJRDSOLAR-PB) (01.05), following the start of the trial period for the solar production unit MERENI_PROBE;
 - ✓ ENVOLTECO ENERGY (PROBE) (30XROENVOLTECOPP) (13.05), following the start of the trial period for storage unit GALBIORI2_PROBE and for the solar production unit ENVOLTECO_PROBE;
 - ✓ CRIPVSOL ENERGY (PROBE) (30XROCRIPVSOL-P4) (21.05), following the start of the trial period for the solar production unit CRIPVSOL_PROBE;
 - ✓ CTPARK GAMMA (PROBE) (30XROCTPGAMMA--N) (21.05), following the start of the trial period for solar production unit CTPARKGAMMA_PROBE;
 - ✓ FORUM DEVELOPMENT (PROBE) (30XROFORDEV---PY) (21.05), following the start of the trial period for solar production unit FORDEV_PROBE;
 - ✓ GALICSUD (PROBE)(30XRO-GALI----PP) (21.05), following the start of the trial period for solar production unit GALICSUD_PROBE;
 - ✓ solar production unit SATCHINEZ_PROBE (10.05) was registered during the testing period, having as BRP ESPE ENERGIA (PROBE) (30XROESPEPROBE-I).



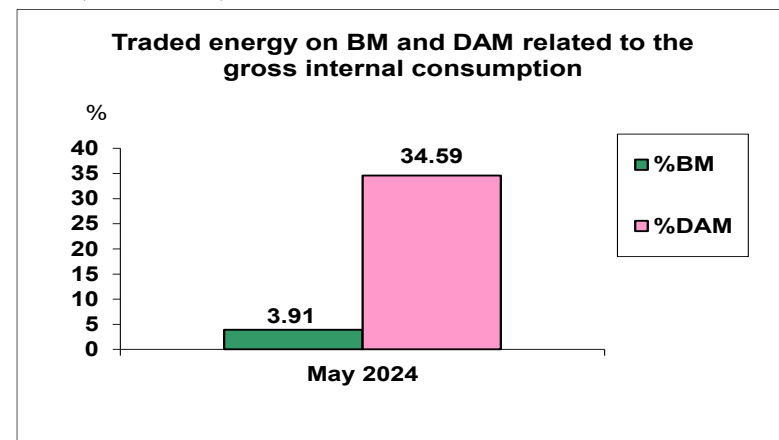
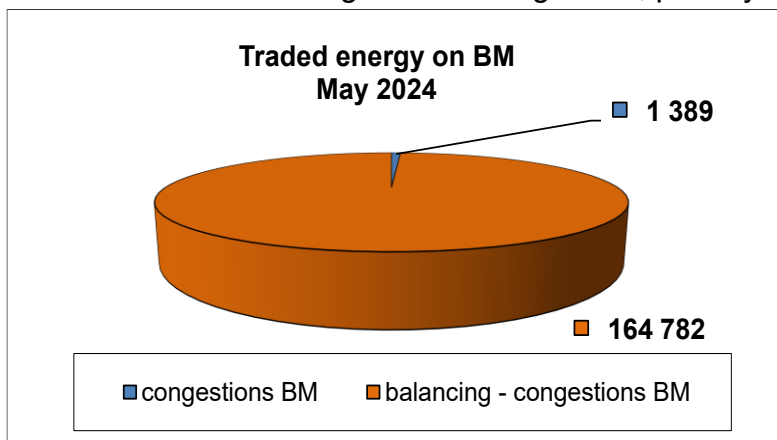
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- ✓ ENERGY INNOVATIVE SOLUTIONS (PROBE) (30XRO-EIS-----S) (23.05) was removed from BM as a result of the termination of the testing period for hydrocarbon production unit RACARI_PROBE.
- During the month, the following changes were made to the BM platform:
 - ✓ starting with 1st of May, BIOENERGY SUCEAVA (30XROBIOENERGY-9) was removed from the BMP list, and the dispatchable unit BIOEN was registered as a non-dispatchable biomass production unit with the name UnD BIOEN, having as BRP ENEL-CIGA (30XROENEL-CIGA-Z);
 - ✓ starting with 23rd of May, the non-dispatchable hydrocarbon production unit RACARI was registered, having as BRP ENEL-CIGA (30XROENEL-CIGA-Z), after the end of the trial period of the production unit RACARI_PROBE;
 - ✓ starting with 25th of May, BMP ELECTRICA SERV (30XROELSERV----J) was removed from the BMP list, and the dispatchable unit ELSERV was registered as a non-dispatchable wind production unit, having as BRP CINTAENERGY (30XROCINTAEN---N).

The Balance Generation/Consumption

- The average monthly value of generated power was 5 101 MW and the actual internal gross consumption was de 5 710 MW.
- The NDC consumption forecast was close to the actual consumption, the standard deviation being 3.28%. Bigger differences were registered in case of consumption values resulted as the sum between notified production and total scheduled exchanges with the neighbouring power systems. In this case the standard monthly deviation value was **9.17%**. The greatest daily deviation regarding the notifications was registered on the 6th of May (**21.74%**).
- The energy used in May 2024 for balancing the power system and congestion management was 166 171 MWh (with an average power of 223 MW, which means 3.91% from the internal gross consumption).
- For the network congestion management, the actual energy delivered corresponding to the final transactions was 1 388.77 MWh (with an average power of 1.87 MW, which means 0,033% of gross domestic consumption).
- There were no transactions outside the balancing market (with financial compensation).
- The energy used in May 2024 on Day Ahead Market was de 1 469 560 MWh (with an average power of 1 975 MW, which means 34.59% from the internal gross consumption). Data are shown in EET hours.
- The total cost of the energy traded on the Balancing Market was 283 192 354 lei (with an average weighted price of 1 704,22 lei/MWh).
- The cost for network congestion management, paid by CNTEE Transelectrica S.A., was 107,222 lei





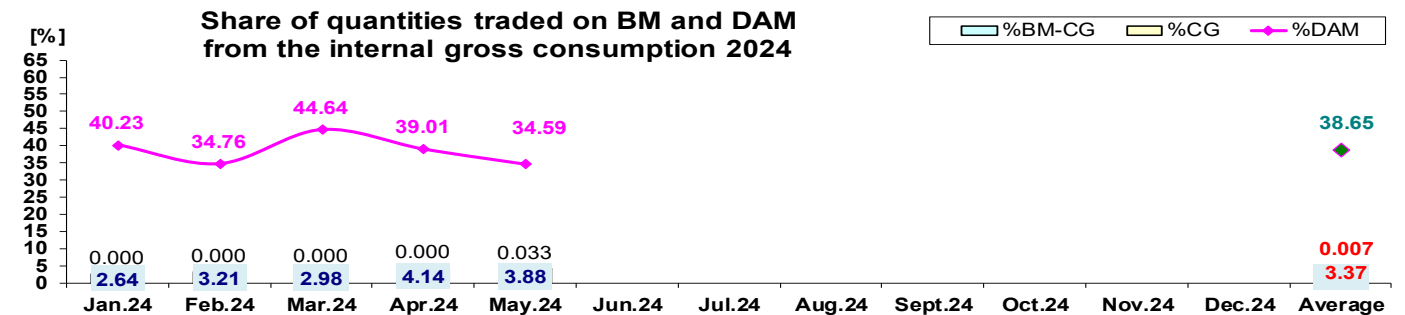
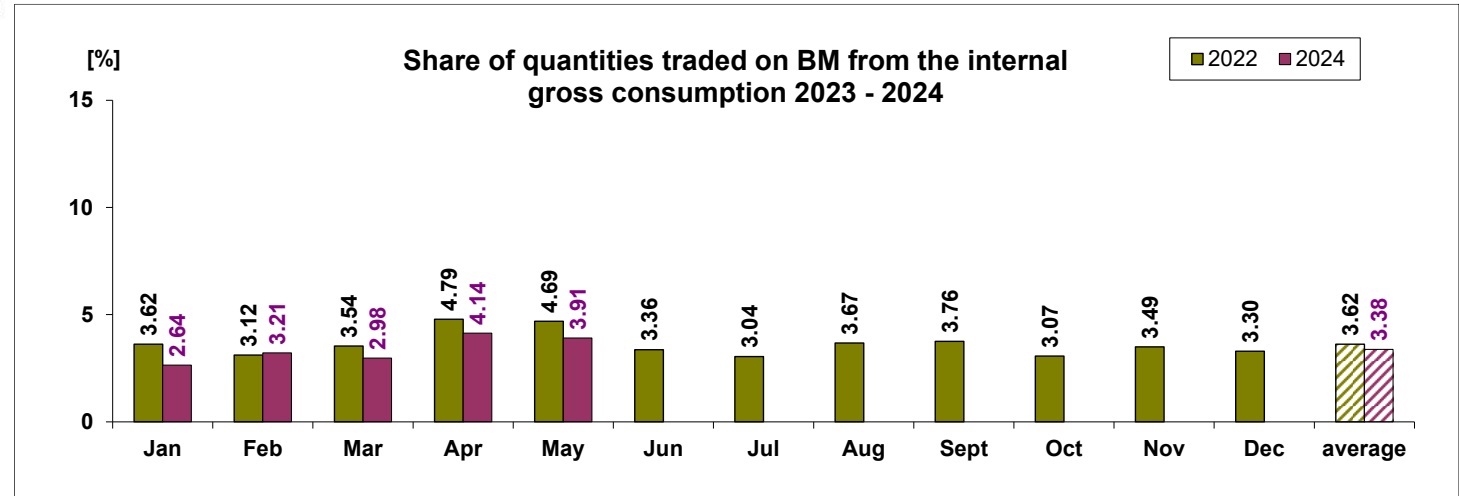
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Balancing Market

The Balance Generation / Consumption

• Monthly percentage values resulted are calculated as ratio between traded volumes on BM / outside BM with financial compensation and gross internal consumption. The annual average value was calculated as average of monthly values. (BM – Balancing Market, DAM – Day Ahead Market, BM-CG – difference between Balancing Market and traded volume on congestion).



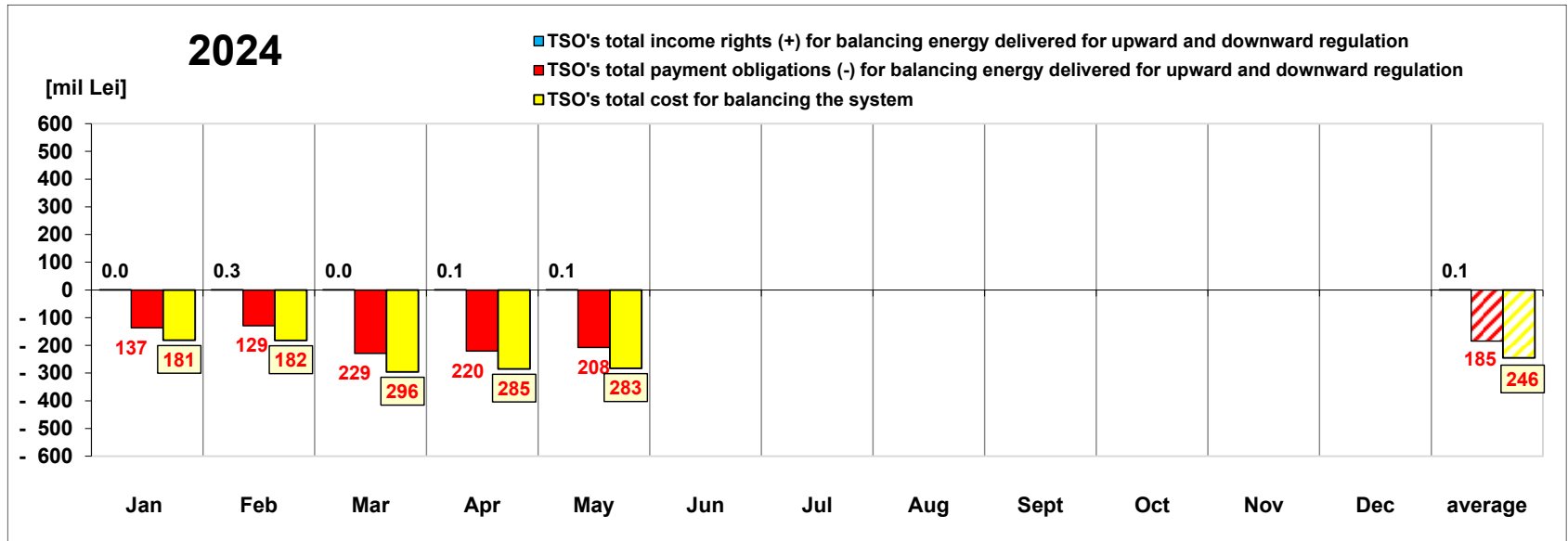
	2024												
	Jan.24	Feb.24	Mar.24	Apr.24	May.24	Jun.24	Jul.24	Aug.24	Sept.24	Oct.24	Nov.24	Dec.24	Average
%BM	2.64	3.21	2.98	4.14	3.91								3.38
%DAM	40.23	34.76	44.64	39.01	34.59								38.65
%CG	0.000	0.000	0.000	0.000	0.033								0.0065
%BM-CG	2.644	3.215	2.977	4.139	3.879								3.371
% outside BM	0.00	0.00	0.03	0.18	0.00								0.04



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Balancing Energy Market Transactions



[Lei]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	average	Sum
TSO's income rights / payment obligations for balancing energy delivered for downward regulation	18 140	278 638	35 910	87 468	69 205								97 872	489 362
TSO's payment obligations / income rights for balancing energy delivered for upward regulation	-35 668 475	-76 223 402	-173 433 646	-119 087 479	-99 218 257								-100 726 252	- 503 631 260
TSO's total income rights (+) for balancing	18 140	278 638	35 910	87 468	69 205								97 872	489 362
TSO's total payment obligations (-) for	-137 317 196	-129 125 931	-229 036 585	-220 478 663	-207 720 241								-184 735 723	- 923 678 616
TSO's total cost for balancing the system	-181 297 377	-182 475 562	-296 213 092	-284 999 109	-283 192 354								-245 635 499	-1 228 177 493
Value of transactions outside BM (with Congestion Cost on BM)	0	0	0	0	0								0	0
Congestion Cost outside BM	0	0	0	0	0								0	0

* The annual average value was obtained as arithmetic average of the monthly values.

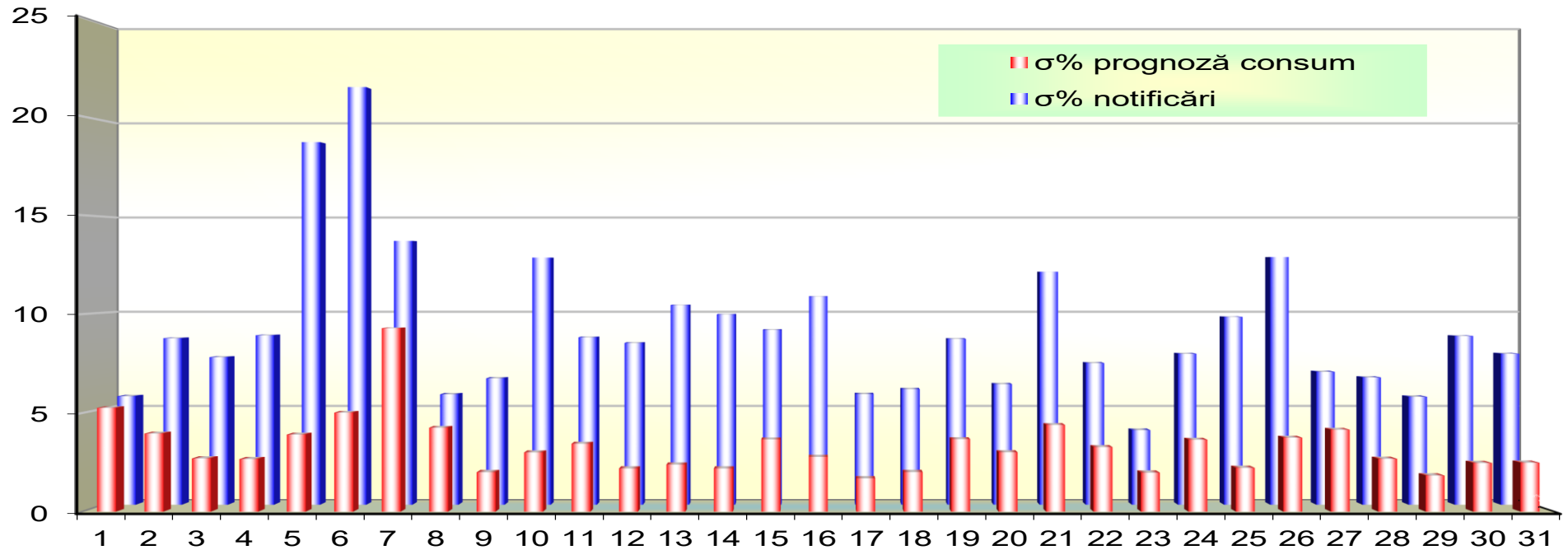


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Balancing Market

Standard deviation of physical notifications and consumption forecast against the actual consumption in May 2024



May 2024

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
σ% consumption forecast	5.25	3.95	2.69	2.66	3.90	5.01	9.29	4.25	1.99	3.00	3.44	2.19	2.38	2.18	3.66	2.77	1.68	2.00	3.67	3.00	4.39	3.27	1.97	3.64	2.21	3.74	4.15	2.67	1.83	2.46	2.48
σ% physical notifications	5.65	8.67	7.68	8.82	18.88	21.74	13.74	5.75	6.58	12.87	8.72	8.42	10.40	9.91	9.10	10.84	5.76	6.02	8.63	6.28	12.13	7.37	3.88	7.86	9.78	12.90	6.92	6.63	5.62	8.79	7.86

σ_{medie}% prognoză consum = 3.28

σ_{medie}% notificări = 9.17

$$\sigma_{average\%consumptionforecast} = \frac{\sqrt{\frac{1}{n} \sum_{i=1}^n (R - P)^2}}{\bar{R}} \cdot 100$$

$$\sigma_{average\%notifications} = \frac{\sqrt{\frac{1}{n} \sum_{i=1}^n (R - N)^2}}{\bar{R}} \cdot 100$$

Public

R = Realized Consumption;

N = Physical Notifications;

P = Consumption Forecast.



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Balancing energy – Selected prices and quantities in May 2024

May 2024

Downward Regulation

Downward Regulation	Prices			Quantities			Participants						
	Weighted	Maximum	Minimum	Selected	Actually	Deviation	C1	C3	C1	C3	HHI	HHI	
	Average				Delivered								
	[lei/MWh]	[lei/MWh]	[lei/MWh]	[MWh]	[MWh]	[%]	Number	(selected)	(actually delivered)	(selected)	(actually delivered)		
	Secondary	-4320.78	0.10	-5000.00	22680.40	22680.40	0.00%	5	71.87%	96.91%	71.87%	96.91%	5636
Fast Tertiary	-17.65	31.00	-285.00	66802.99	64891.41	2.86%	11	60.28%	93.72%	61.22%	93.83%	4582	4647
Slow Tertiary	-	-	-	0.00	-	-	0	-	-	-	-	-	-
				89483.39	87571.81	2.14%							

Upward Regulation

	Prices			Quantities			Participants						
	Weighted Average	Maximum	Minimum	Selected	Actually Delivered	Deviation		C1	C3	C1	C3	HHI	HHI
	[lei/MWh]	[lei/MWh]	[lei/MWh]	[MWh]	[MWh]	[%]		Number	(selected)	(actually delivered)	(selected)	(actually delivered)	
Secondary	3286.90	4000.00	684.79	16252.24	16252.24	0.00%	5	71.67%	97.07%	71.67%	97.07%	5649	5649
Fast Tertiary	883.69	1450.00	446.01	64042.58	62346.73	2.65%	6	80.50%	94.88%	80.73%	94.83%	6603	6639
Slow Tertiary	-	-	-	0.00	-	-	0	-	-	-	-	-	-
				80294.82	78598.97	2.11%							



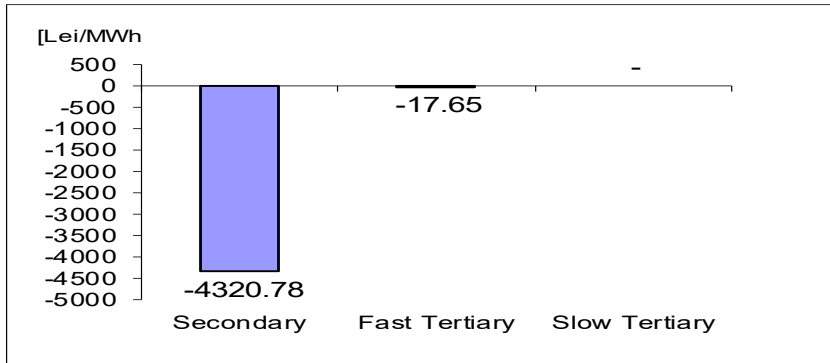
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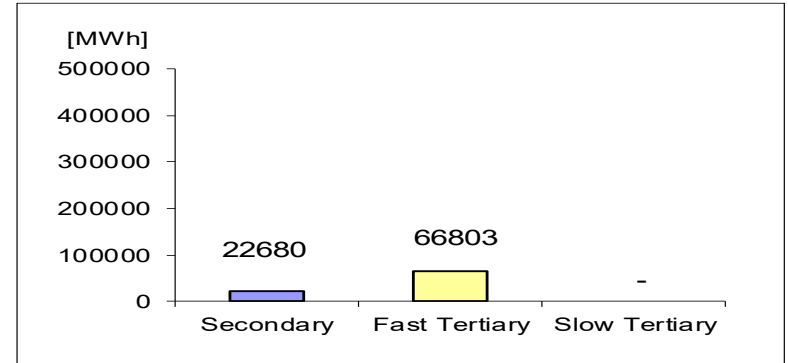
Balancing energy – Selected prices and quantities in May 2024

May 2024

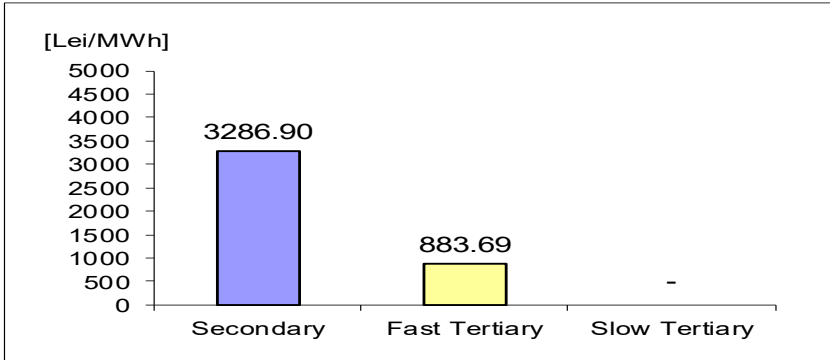
Downward regulation - average price [lei/MWh]



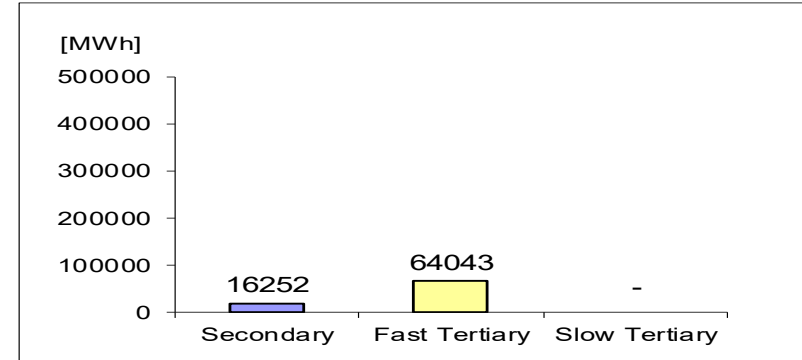
Downward regulation - selected quantities



Upward regulation - average price [lei/MWh]



Upward regulation - selected quantities



$$\text{Price}_{\text{average weighted, regulation type, direction}} = \frac{\sum (Q_{i,j} * P_{i,j})}{\sum Q_{i,j}}$$

where $Q_{i,j}$, $P_{i,j}$ represents the quantity, respectively the price of the energy selected, corresponding to the selected transaction j in the dispatching interval i .

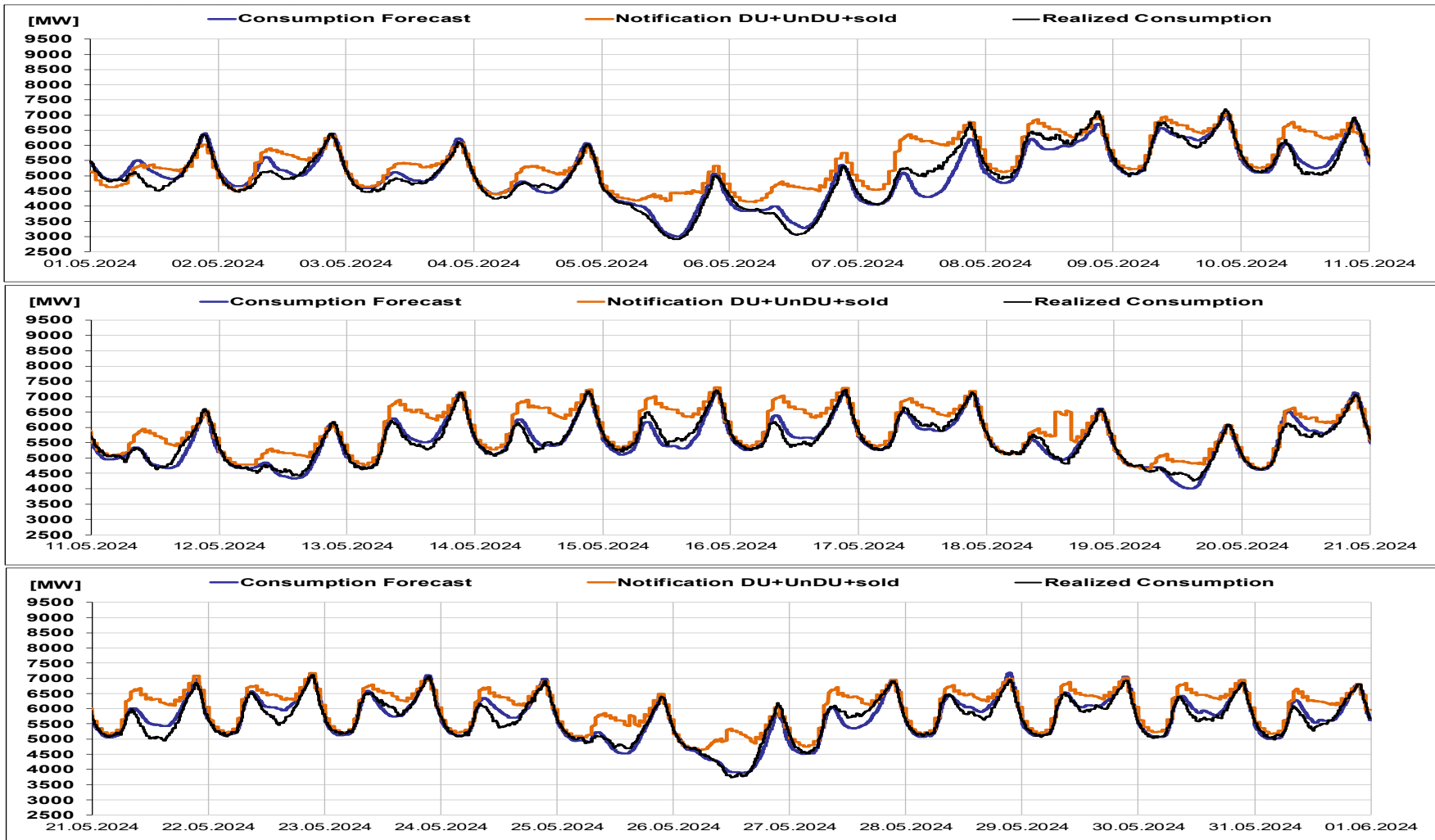


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Realized consumption, forecast, notifications in D-1



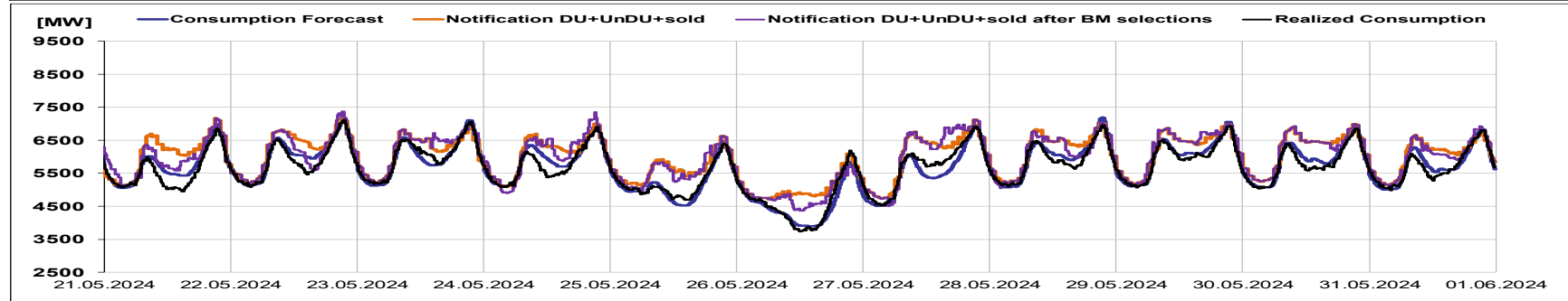
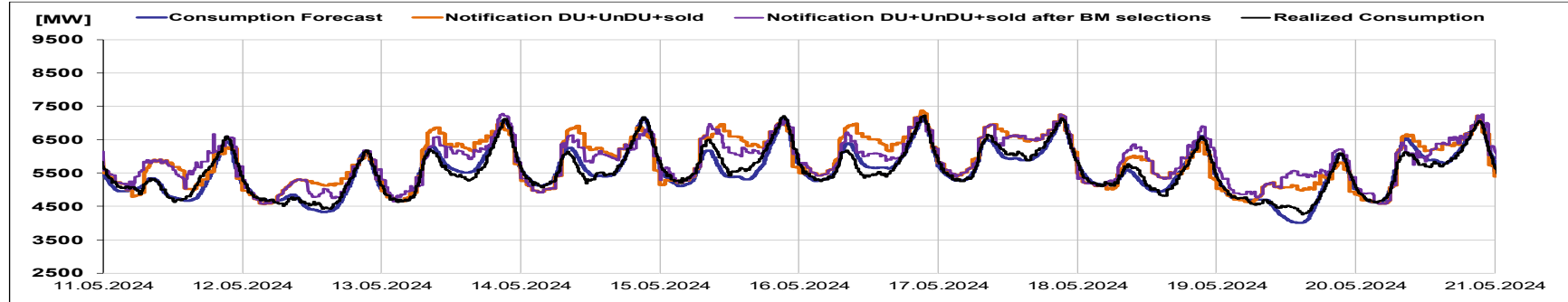
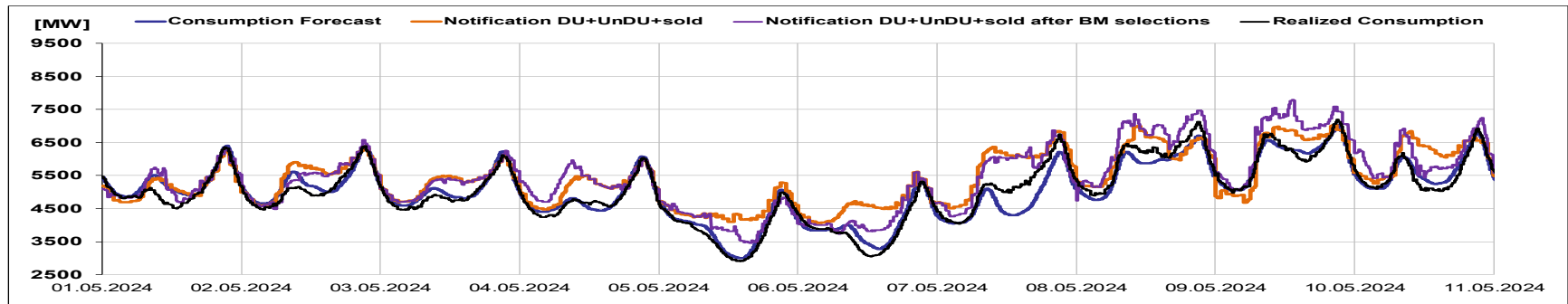


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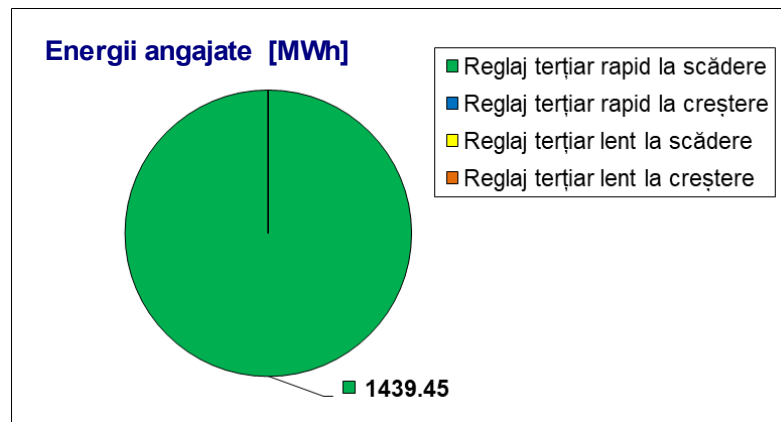
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Realized consumption, forecast, notifications, notifications after BM selections in D (end of delivery day)



Cantități și prețuri

	mai.24	Cantități PE	Participanți
	Angajate [MWh]	Ef. Livrate [MWh]	Număr
Reglaj terțiar rapid la scădere	1439.45	1388.77	4
Reglaj terțiar rapid la creștere	0.00	-	0
Reglaj terțiar lent la scădere	0.00	-	0
Reglaj terțiar lent la creștere	0.00	-	0
	1439.45	1388.77	



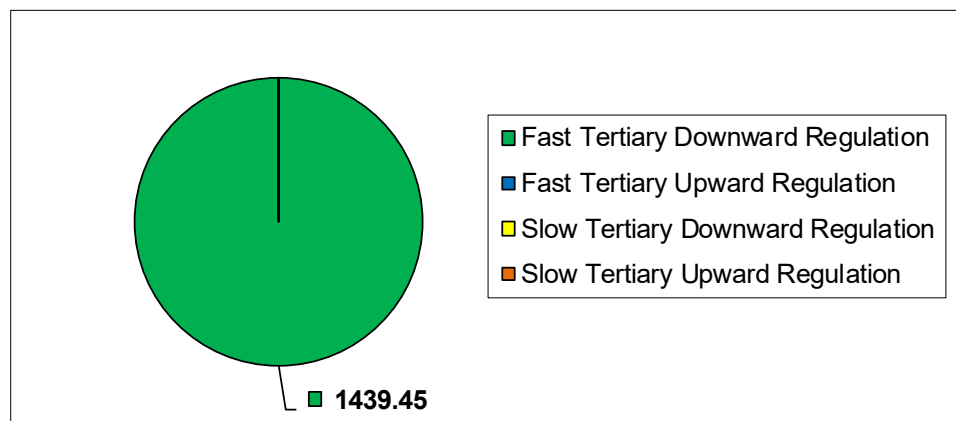
Notă: valoarea energiei angajate/livrate aferentă tranzacțiilor definitive pentru managementul congestiilor interne (care induce costuri pentru managementul congestiilor interne) este cea rezultată după aplicarea algoritmului de determinare a costurilor pentru echilibrarea sistemului și pentru managementul congestiilor interne din etapa de decontare pe piața de echilibrare.

May 2024

Fast Tertiary Downward Regulation
Fast Tertiary Upward Regulation
Slow Tertiary Downward Regulation
Slow Tertiary Upward Regulation

Quantities [MWh]		Participants
Selected [MWh]	Actually Delivered [MWh]	Number
1439.45	1388.77	4
0.00	-	0
0.00	-	0
0.00	-	0
1439.45	1388.77	

Selected energy [MWh]



Note: the value of selected/delivered energy related to final transactions for internal congestion management (which induces costs for internal congestion management) is the one resulting after applying the algorithm for determining costs for system balancing and for internal congestion management from the settlement stage on the balancing market.



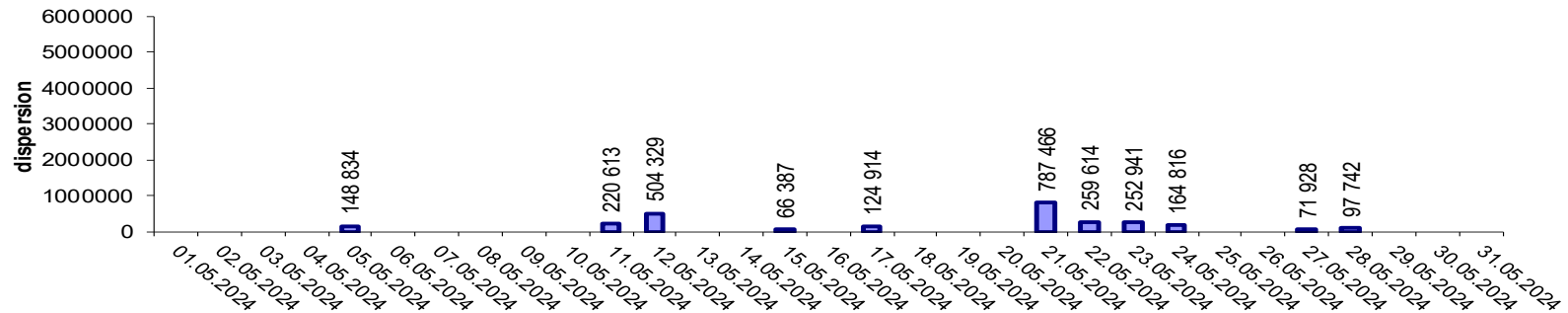
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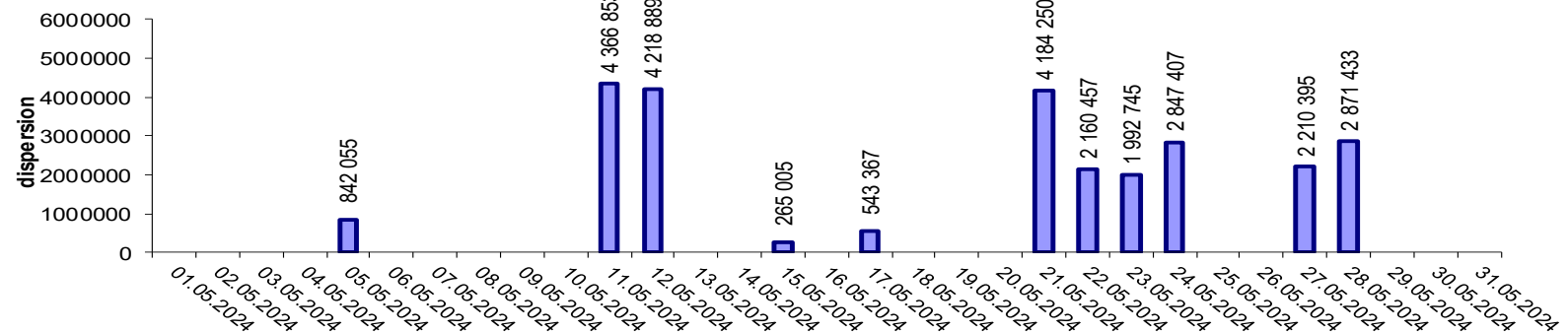
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Indicators – Price Volatility for Secondary Regulation

Price Volatility for Secondary Upward Regulation



Price Volatility for Secondary Downward Regulation



Volatility = price dispersion on studied interval:

$$\frac{1}{n-1} \sum_{i=1}^n (x_i - \bar{x})^2$$

Public



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