



Transelectrica®
Societate Administrată în Sistem Dualist

MARKET MONITORING REPORT

Balancing Market

March 2023

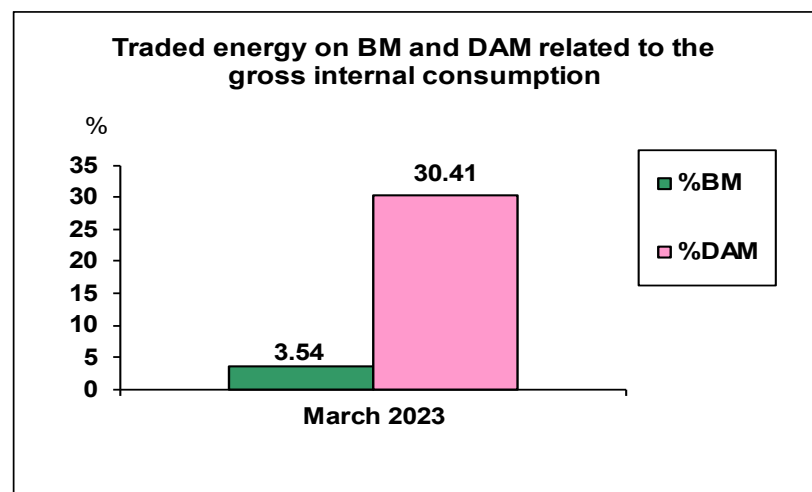
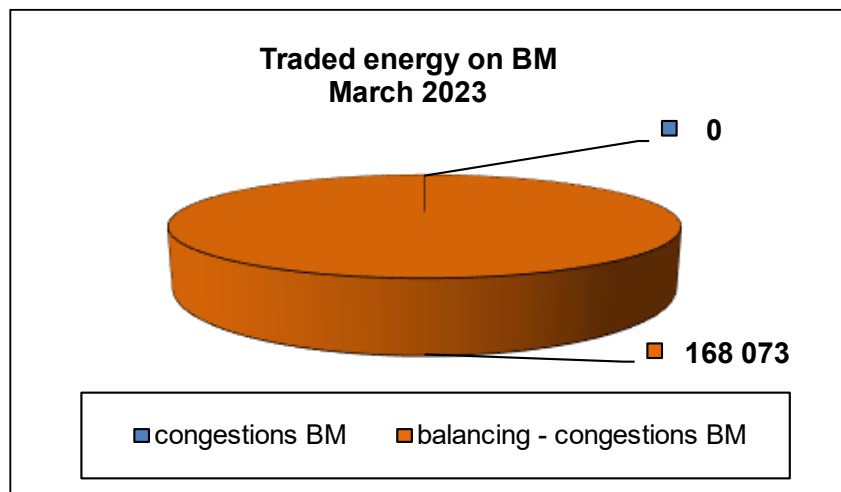
ANRE - Romanian Energy Regulatory Authority
HHI - Herfindahl-Hirschman Index
BRP - Balance Responsible Party
BM - Balancing Market
DAM - Day Ahead Market
TSO - Transmission System Operator
DU – Dispatchable Unit
PN – Physical Notification
NDC - National Dispatching Center
C1 – The market share of the 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).

The Balance Generation/Consumption

- The average monthly value of generated power was 6 704 MW and the actual internal gross consumption was 6 394 MW.
- The NDC consumption forecast was close to the actual consumption, the standard deviation being **2.12%**. 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 **4.99%**. The greatest daily deviation regarding the notifications was registered on 25th of March (**11.48%**).
- The energy used in March 2023 for balancing the power system and congestion management was 168 073 MWh (with an average power of 226 MW, which means **3.54%** from the internal gross consumption).
- There was no energy used for congestion management, nor for transactions outside BM (with financial compensation).
- The energy used in March 2023 on Day Ahead Market was de 1 444 784 MWh (with an average power of 1 945 MW, which means **30.41%** from the internal gross consumption). Data are shown in EET hours.
- The total cost of the energy traded on the Balancing Market was 71 906 249 lei (with an average weighted price of 427.83 lei/MWh).





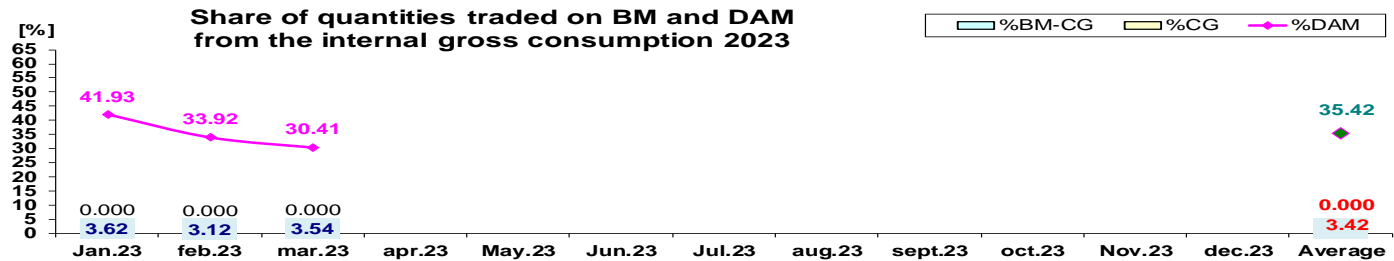
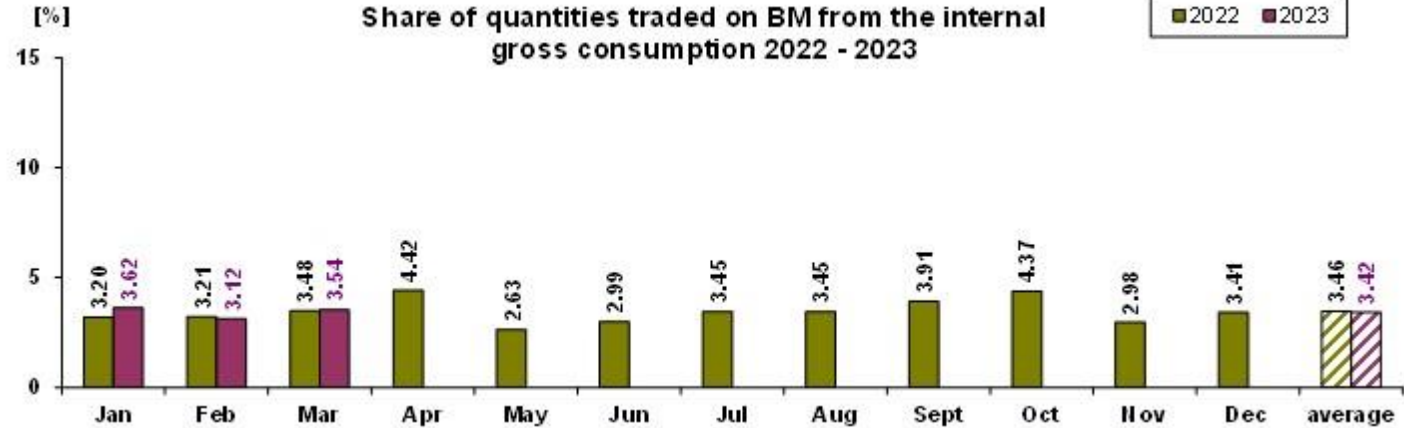
Transelectrica®

Societate Administrată în Sistem Dualist

Balancing Market

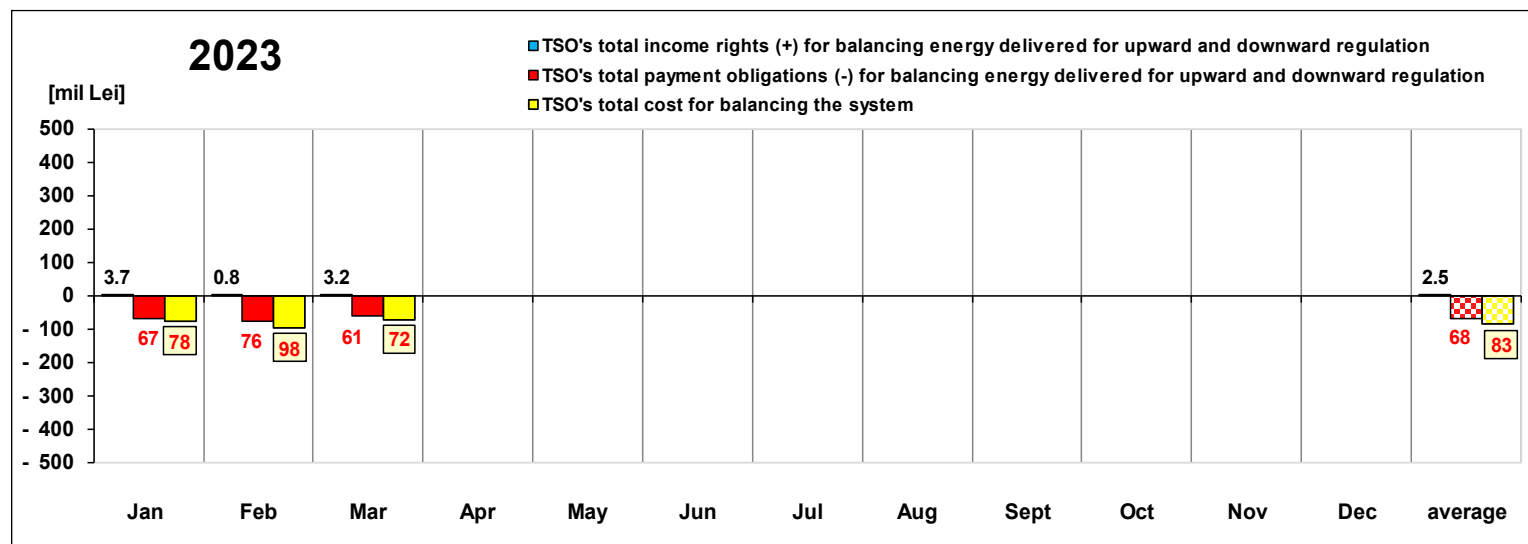
The Balance Generation / Consumption

• 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).



2023													
	Jan.23	feb.23	mar.23	apr.23	May.23	Jun.23	Jul.23	aug.23	sept.23	oct.23	Nov.23	dec.23	Average
%BM	3.62	3.12	3.54										3.42
%DAM	41.93	33.92	30.41										35.42
%CG	0.000	0.000	0.000										0.000
%BM-CG	3.620	3.117	3.538										3.425
% outside BM	0.00	0.00	0.00										0.00

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	incomes (+) prices ≥ 0	3 671 254	764 288	3 191 826										2 542 456	7 627 368
	payments (-) prices < 0	-18 058 105	-13 750 607	-2 780 494										-11 529 735	- 34 589 206
TSO's payment obligations / income rights for balancing energy delivered for upward regulation	payments (-) prices ≥ 0	-48 959 475	-62 157 235	-57 883 797										-56 333 502	- 169 000 506
	incomes (+) prices < 0	0	0	0										0	0
TSO's total income rights (+) for balancing		3 671 254	764 288	3 191 826										2 542 456	7 627 368
TSO's total payment obligations (-) for		-67 017 580	-75 907 841	-60 664 291										-67 863 237	- 203 589 712
TSO's total cost for balancing the system		-78 018 832	-97 917 681	-71 922 686										-82 619 733	- 247 859 199
Value of transactions outside BM (with		0	0	0										0	0
Congestion Cost on BM		0	0	0										0	0
Congestion Cost outside BM		0	0	0										0	0

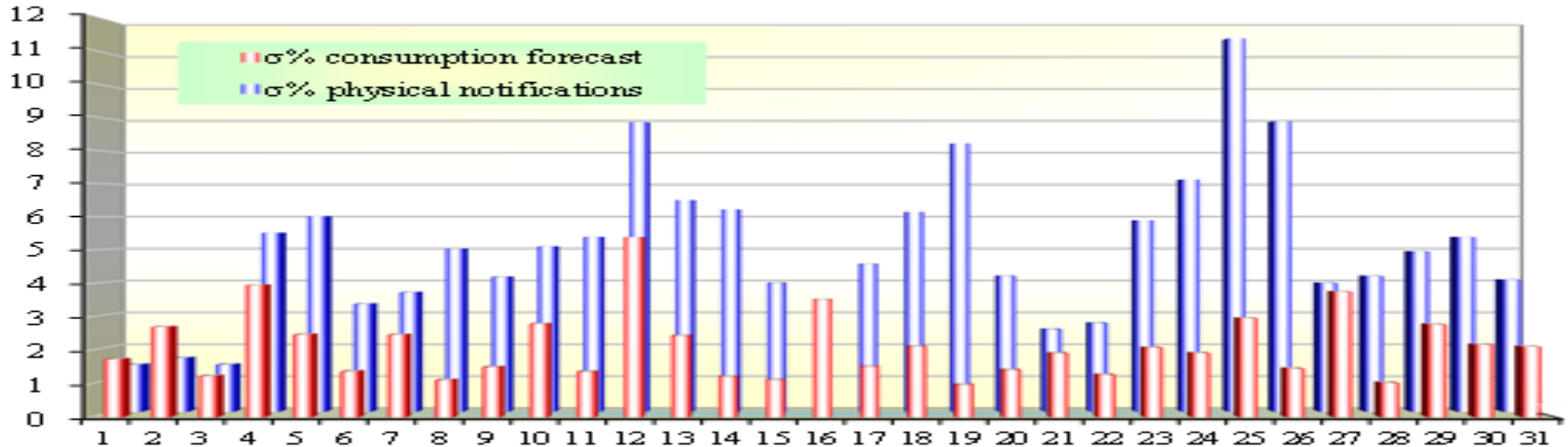
* The annual average value was obtained as arithmetic average of the monthly values.



Transelectrica®
Societate Administrată în Sistem Dualist

Balancing Market

Standard deviation of physical notifications and consumption forecast against the actual consumption in March 2023



mar 2023

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	1.73	2.70	1.23	3.95	2.47	1.37	2.47	1.11	1.50	2.79	1.36	5.39	2.44	1.21	1.12	3.52	1.51	2.12	0.97	1.41	1.91	1.26	2.08	1.92	2.96	1.45	3.76	1.03	2.78	2.17	2.11
σ% physical notifications	1.44	1.65	1.44	5.50	6.01	3.31	3.67	5.01	4.15	5.08	5.37	8.90	6.51	6.22	3.96	2.03	4.54	6.15	8.25	4.17	2.53	2.72	5.89	7.14	11.48	8.93	3.96	4.17	4.93	5.37	4.06

σ_{average% consumption forecast} = 2.12

σ_{average % physical notifications} = 4.99

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

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

R = Realized Consumption;

N = Physical Notifications;

P = Consumption Forecast.

Public



Transelectrica®

Societate Administrată în Sistem Dualist

Balancing Market

Balancing energy – Selected prices and quantities

- At the beginning of the month on the Balancing Market operated 77 BRPs, 90 market participants, holding 179 commercially operating dispatchable units. Starting with 15th of March 2023, according to NRA Order no 213/2020, with subsequent amendments and completions, BRP TREMALZO (PROBE) (30XROTREMALZO--E), was permanently withdrawn from BM as a result of the termination of the trial period at the solar production unit TREMALZO_PROBE. BRP SIRIA SOLAR (PROBE) (30XROSIRIASOLAR3) joined BM as solar production unit SIRIA_PROBE started its trial period.

March 2023

Downward Regulation

Downward Regulation	Prices			Quantities			Participants						
	Weighted				Actually								
	Average	Maximum	Minimum	Selected	Delivered	Deviation	C1	C3	C1	C3	HHI	HHI	
	[lei/MWh]	[lei/MWh]	[lei/MWh]	[MWh]	[MWh]	[%]	Number	(selected)	(actually delivered)	(selected)	(actually delivered)	(actually delivered)	
Secondary	0.17	201.10	-10.00	34704.14	34704.14	0.00%	2	75.21%	100%	75.21%	100%	6271	6271
Fast Tertiary	5.66	255.00	-285.00	92603.05	89283.36	3.58%	8	52.98%	94.59%	52.46%	94.71%	4393	4386
Slow Tertiary	-	-	-	0.00	-	-	0	-	-	-	-	-	-
				127307.19	123987.50	2.61%							

Upward Regulation

	<div>Weighted Average</div>			<div>Actually Delivered</div>									
	Maximum	Minimum		Selected	Deviation		C1	C3	C1	C3	HHI	HHI	
	[lei/MWh]	[lei/MWh]	[lei/MWh]	[MWh]	[MWh]	[%]	Number	(selected)	(actually delivered)	(selected)	(actually delivered)	(actually delivered)	
Secondary	1972.41	2000.00	700.97	12802.10	12802.10	0.00%	2	75.45%	100%	75.45%	100%	6295	6295
Fast Tertiary	1042.55	1508.41	486.99	31996.26	31283.05	2.23%	5	87.20%	95.49%	87.36%	95.51%	7649	7677
Slow Tertiary	-	-	-	0.00	-	-	0	-	-	-	-	-	-
				44798.36	44085.15	1.59%							



Transelectrica®

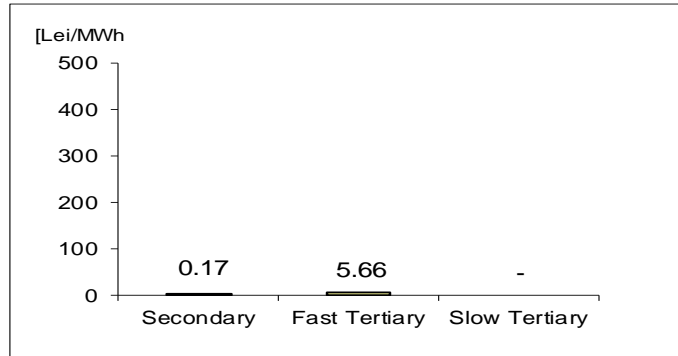
Societate Administrată în Sistem Dualist

Balancing Market

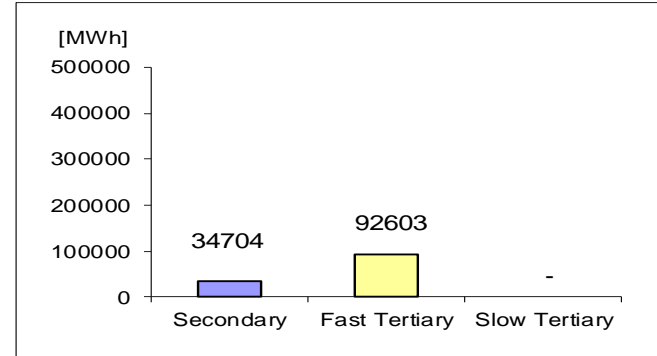
Balancing energy – Selected prices and quantities in March 2023

March 2023

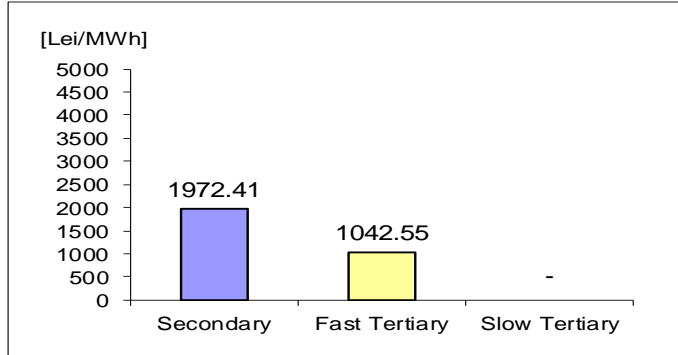
Downward regulation - average price [lei/MWh]



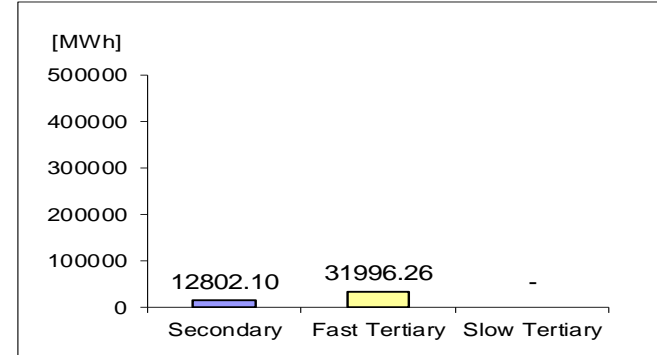
Downward regulation - selected quantities



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 .

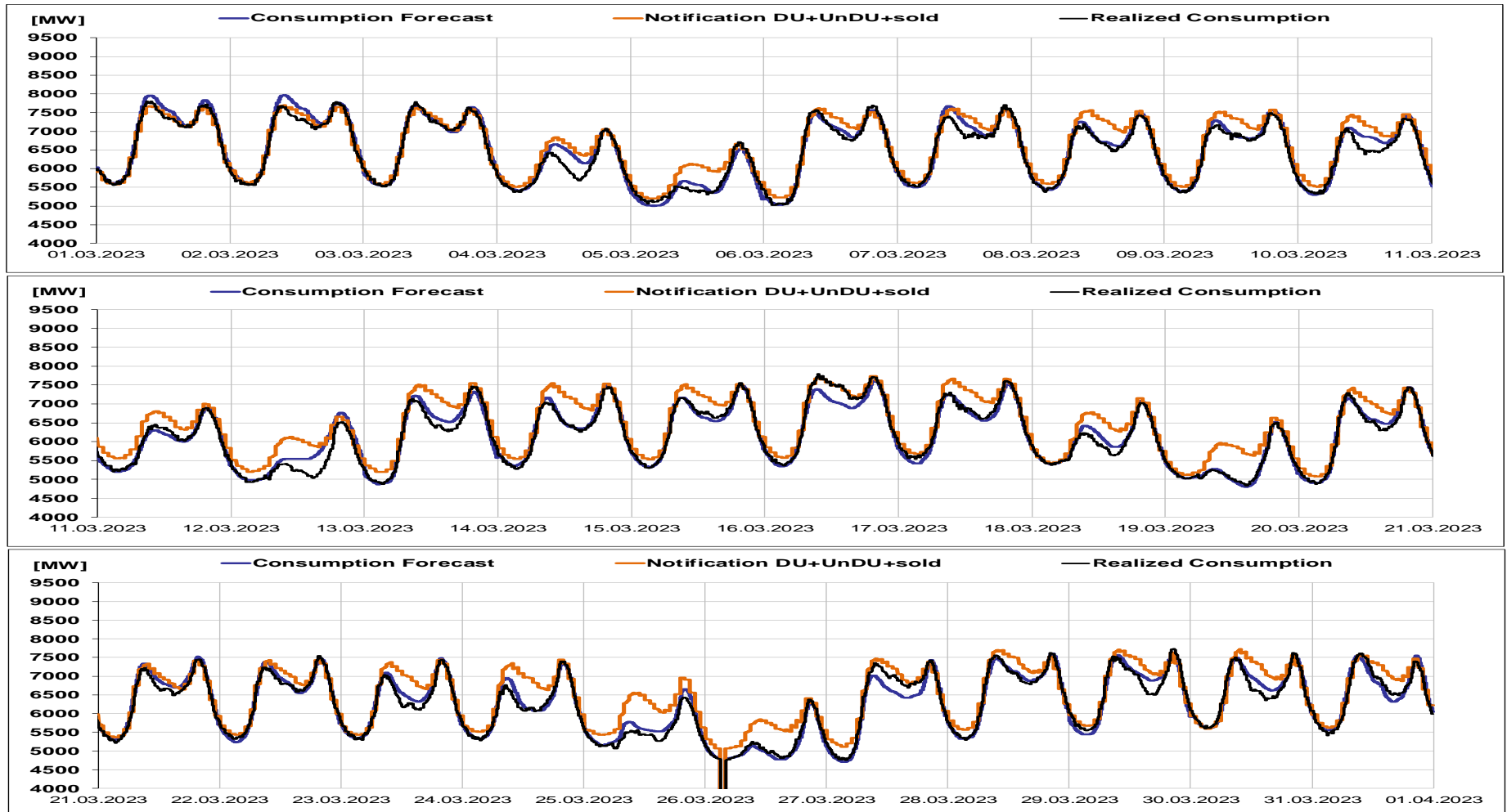


Transelectrica®

Societate Administrată în Sistem Dualist

Balancing Market

Realized consumption, forecast, notifications in D-1



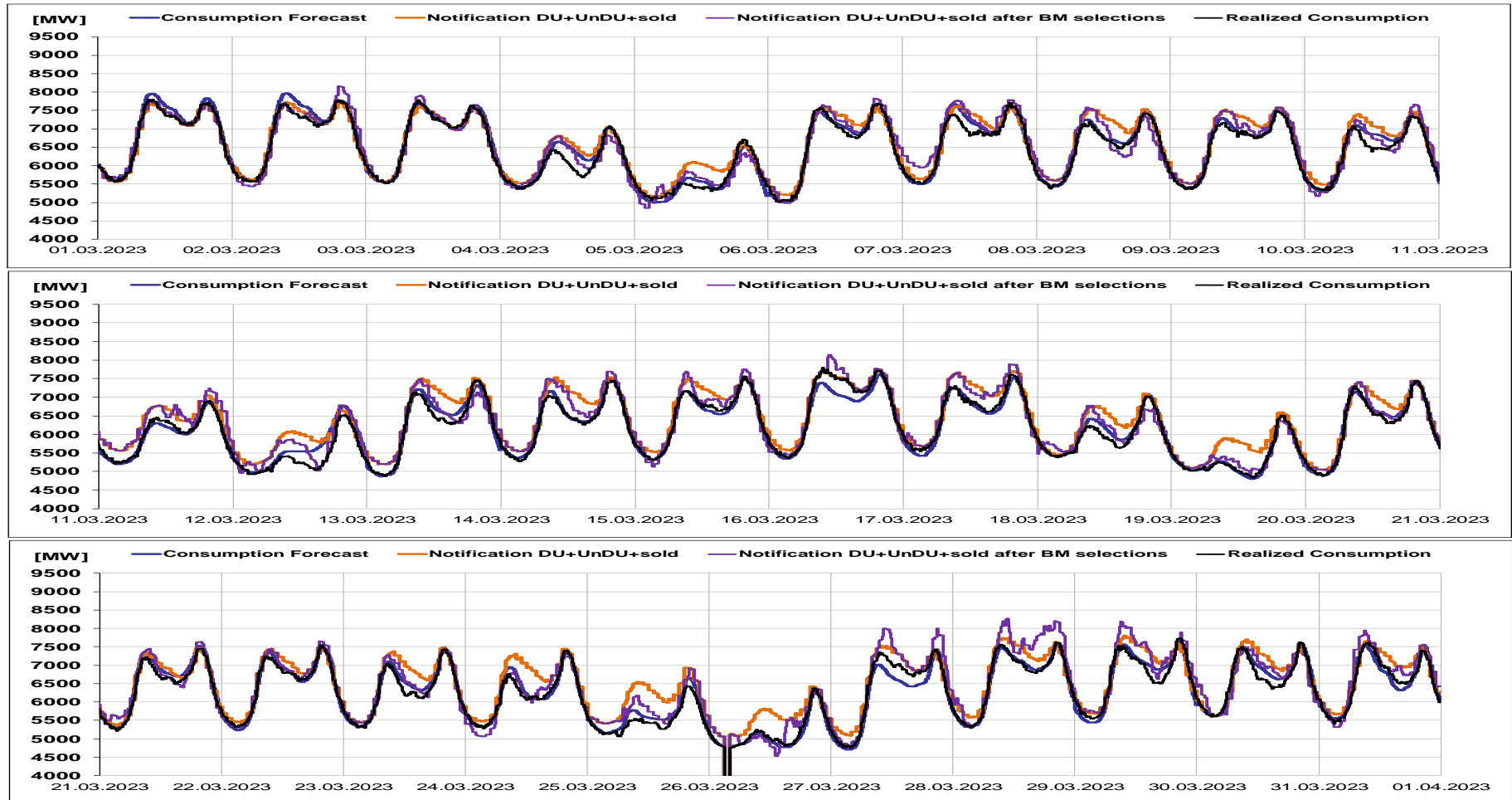


Transelectrica®

Societate Administrată în Sistem Dualist

Balancing Market

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





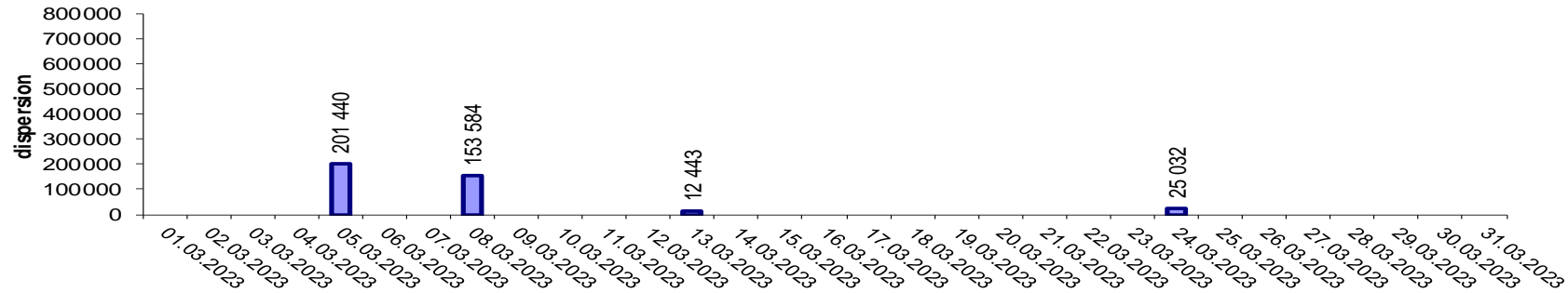
Transelectrica®

Societate Administrată în Sistem Dualist

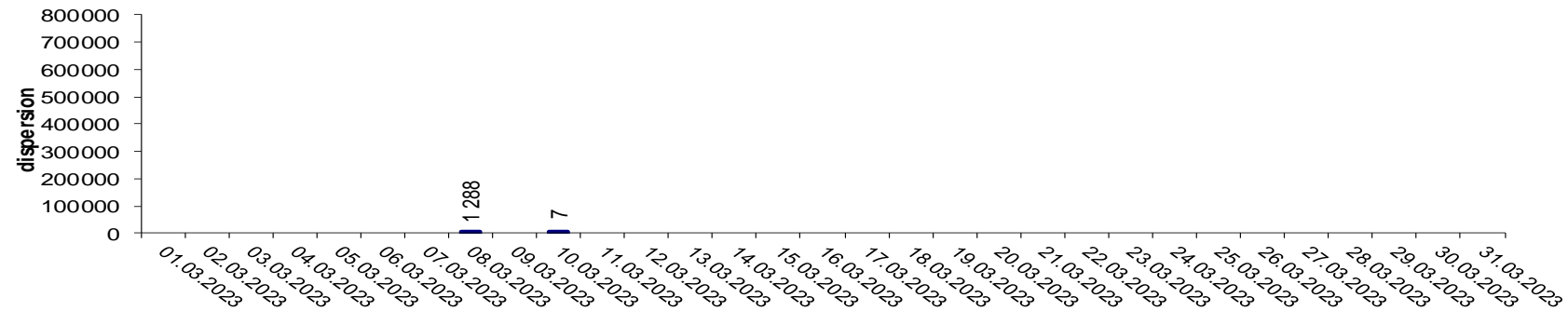
Balancing Market

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



Email: Monitorizare.Piata@transelectrica.ro

Fax: 021 3035630