



**Transelectrica®**  
Societate Administrată în Sistem Dualist

# **MARKET MONITORING REPORT**

## **Balancing Market**

### **May 2022**

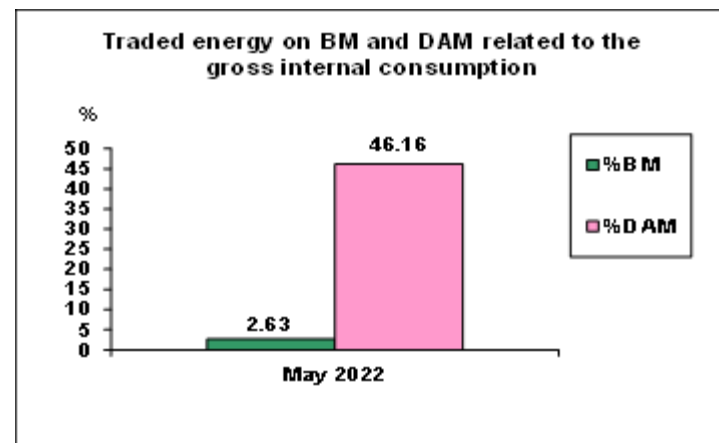
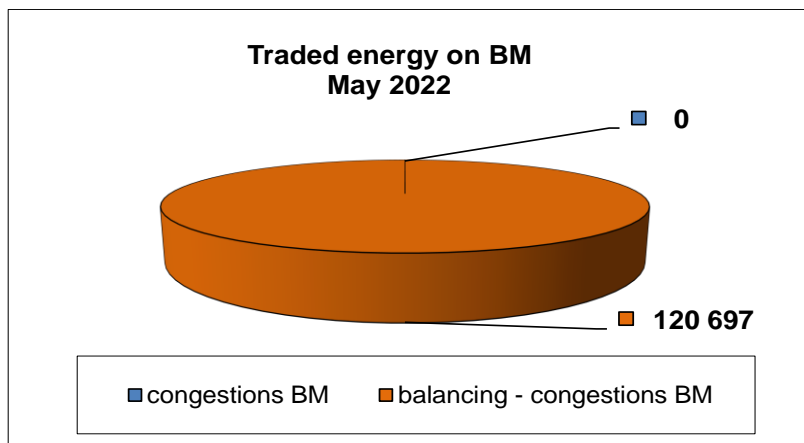
ANRE - Romanian Energy Regulatory Authority  
HHI - Herfindahl-Hirschman Index  
BRP - Balance Responsible Party  
BM - Balancing Market  
BMP – Balancing Market Participant  
DAM - Day Ahead Market  
TSO - Transmission System Operator  
DU – Dispatchable Unit  
PN – Physical Notification  
NDC - National 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](http://www.transelectrica.ro) (section Transparency).

## The Balance Generation/Consumption

- The average monthly value of generated power was 6 238 MW and the actual internal gross consumption was 6 165 MW.
- The NDC consumption forecast was close to the actual consumption, the standard deviation being **1.64%**. 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 **5.70%**. The greatest daily deviation regarding the notifications was registered on the 1<sup>st</sup> of May (**11.86%**).
- The energy used in May 2022 for balancing the power system and congestion management was 120 697 MWh (with an average power of 162 MW, which means **2.63%** from the internal gross consumption). There was no energy used for congestion management, nor transactions outside BM (with financial compensation).
- There were no transactions outside BM (with financial compensation).
- The energy used in May 2022 on Day Ahead Market was 2 117 213 MWh (with an average power of 2 846 MW, which means **46.16%** from the internal gross consumption). Data are shown in EET hours.
- The total cost of the energy traded on the Balancing Market was 64 511 950 lei (with an average weighted price of 534.5 lei/MWh).





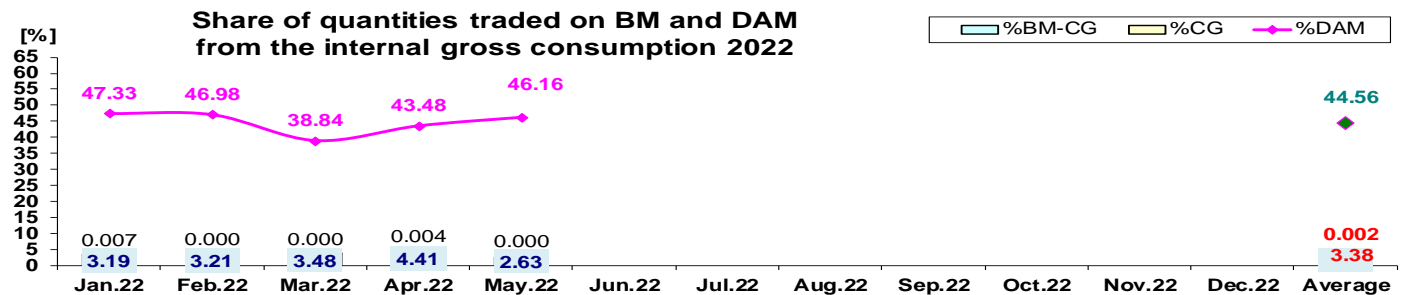
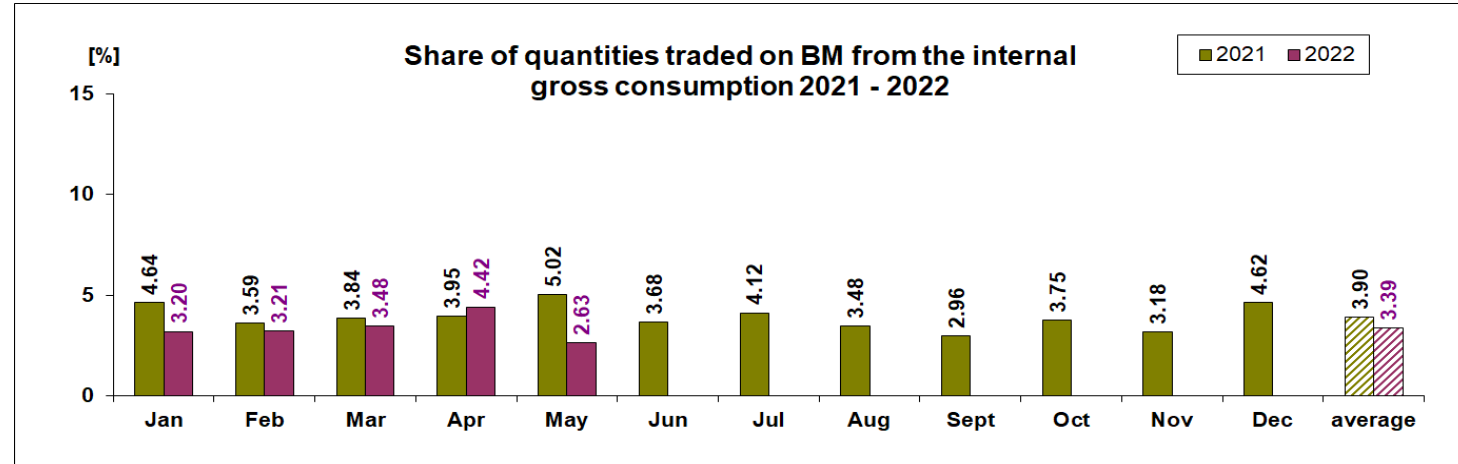
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# Balancing Market

## 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).



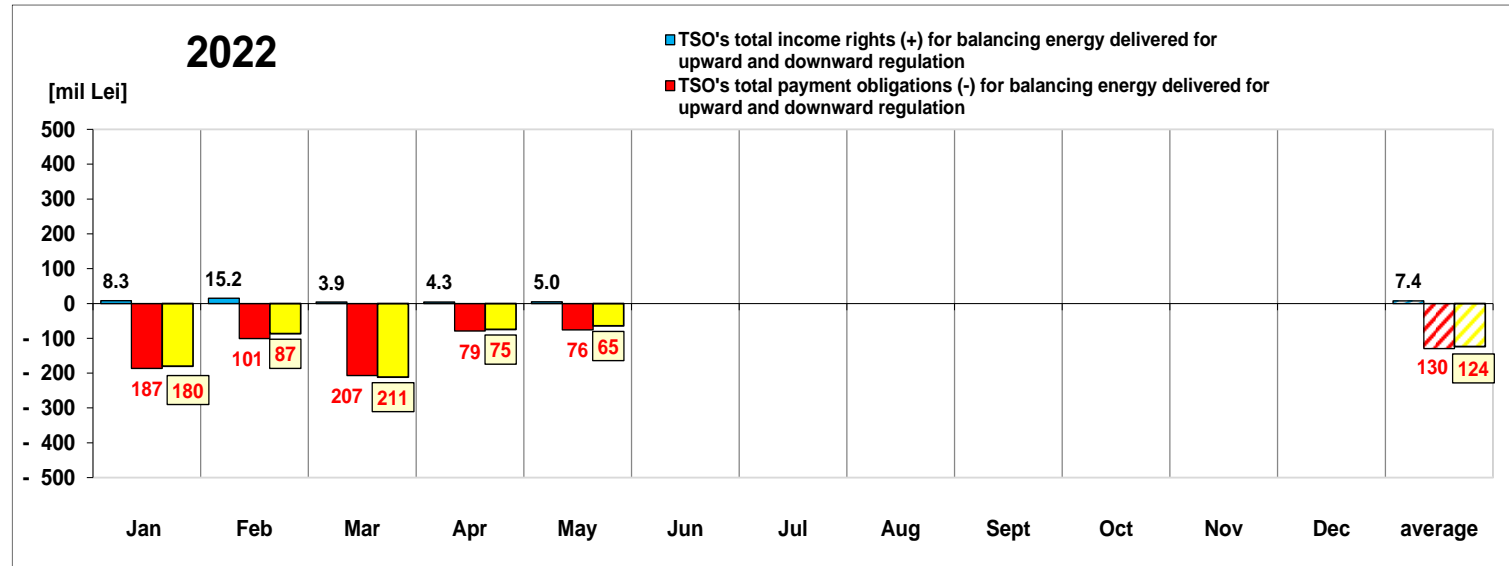
	2022												
	Jan.22	Feb.22	Mar.22	Apr.22	May.22	Jun.22	Jul.22	Aug.22	Sep.22	Oct.22	Nov.22	Dec.22	Average
%BM	3.20	3.21	3.48	4.42	2.63								3.39
%DAM	47.33	46.98	38.84	43.48	46.16								44.56
%CG	0.01	0.00	0.00	0.00	0.00								0.0023
%BM-CG	3.191	3.206	3.479	4.412	2.631								3.384
% outside BM	0.00	0.00	0.00	0.00	0.00								0.00



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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 balancing energy delivered for downward regulation														
incomes (+) prices ≥ 0	8 344 244	15 164 350	3 932 020	4 322 327	4 990 345								7 350 657	36 753 285
payments (-) prices < 0	- 40 999	- 12 132	- 96 136	- 131 045	- 1 648								- 56 392	- 281 960
TSO's payment obligations / income rights for balancing energy delivered for balancing energy delivered for upward regulation														
payments (-) prices ≥ 0	-186 598 444	-100 703 503	-206 992 197	-78 969 465	-75 510 505								-129 754 823	-648 774 114
incomes (+) prices < 0	0	0	0	0	0								0	0
TSO's total income rights (+) for balancing energy delivered for	8 344 244	15 164 350	3 932 020	4 322 327	4 990 345								7 350 657	36 753 285
TSO's total payment obligations (-) for balancing energy delivered for	-186 639 443	-100 715 635	-207 088 333	-79 100 510	-75 512 153								-129 811 215	-649 056 075
TSO's total cost for balancing the system	-180 209 876	-86 965 620	-211 125 690	-74 719 809	-64 511 950								-123 506 589	-617 532 945
Value of transactions outside BM (with	0	0	0	0	0								0	0
Congestion Cost on BM	- 157 055	0	- 3 224	- 30 924	0								- 38 240	- 191 202
Congestion Cost outside BM	0	0	0	0	0								0	0

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

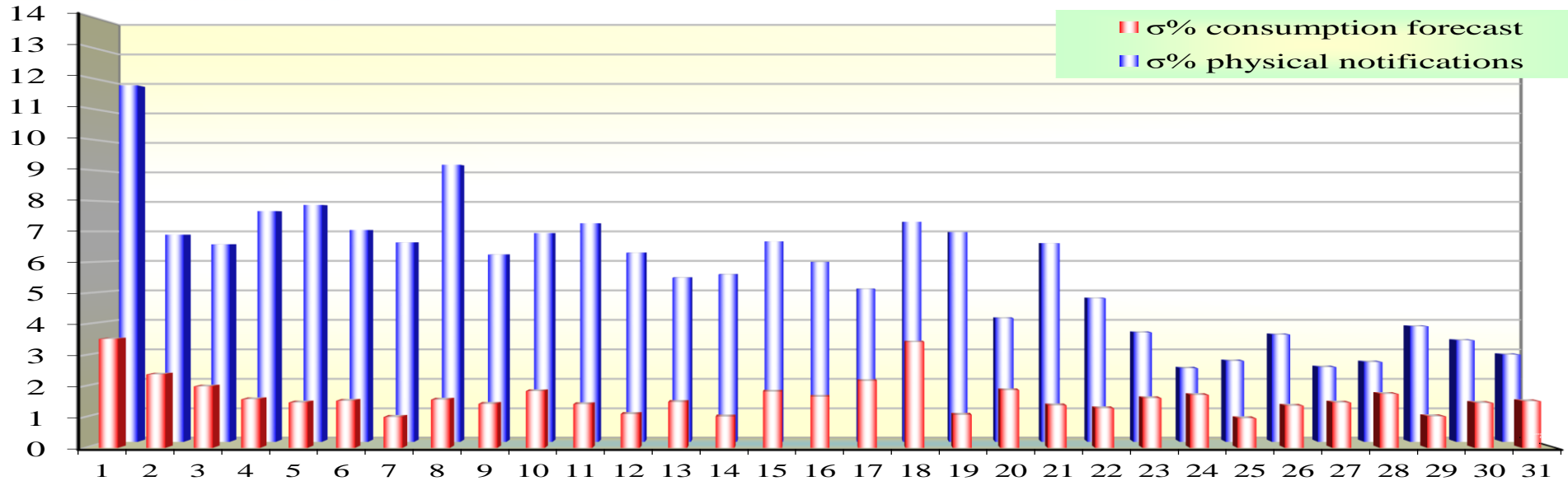


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# Balancing Market

Standard deviation of physical notifications and consumption forecast against the actual consumption in May 2022



May 2022

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	3.52	2.38	1.99	1.57	1.47	1.52	1.00	1.56	1.42	1.84	1.41	1.09	1.49	1.01	1.82	1.65	2.17	3.42	1.07	1.87	1.37	1.28	1.61	1.71	0.96	1.36	1.47	1.75	1.02	1.45	1.51
σ% physical notifications	11.86	6.89	6.57	7.67	7.88	7.05	6.63	9.22	6.23	6.94	7.27	6.29	5.46	5.57	6.66	5.98	5.08	7.32	6.98	4.11	6.61	4.77	3.64	2.45	2.69	3.57	2.49	2.65	3.84	3.38	2.90

σ<sub>average% consumption forecast</sub> = 1.64

σ<sub>average % physical notifications</sub> = 5.70

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

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

**R = Realized Consumption;**

**N = Physical Notifications;**

**P = Consumption Forecast.**

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# Balancing Market

## Balancing energy – Selected prices and quantities

• At the beginning of the month on the Balancing Market operated 69 BRPs, 94 market participants, holding 186 commercially operating dispatchable units. Starting with the 14<sup>th</sup> of May 2022, the dispatchable production units BRAZ5, BRAZ6 and BRAZ8 were removed from the DU list, and PPE VEOLIA ENERGIE PRAHOVA SRL (formerly Dalkia Termo Prahova S.A.) (30XRODALKIA---B) withdrew from the status of BMP. During the month, according to the provisions of NRA Order no. 213/2020, amended and supplemented by NRA Order no. 33/2021, were registered in the balancing market BRP TREMALZO SRL (PROBE) (30XROTREMALZO--E), having as a production unit during the trial period TREMALZO\_PROBE (starting with the 12<sup>th</sup> of May 2022) and BRP FRAVORT SRL (PROBE) (30XROFRAVORT---H), having as a production unit during the trial period F\_ROSIORI (starting with the 20<sup>th</sup> of May 2022).

### May 2022

#### Downward Regulation

Downward Regulation	Prices			Quantities			Participants						
	Weighted	Maximum	Minimum	Selected	Actually	Deviation	C1	C3	C1	C3	HHI	HHI	
	Average				Delivered								(actually delivered)
	[lei/MWh]	[lei/MWh]	[lei/MWh]	[MWh]	[MWh]	[%]	Number	(selected)	(actually delivered)	(selected)	(actually delivered)		
Secondary	0.03	0.10	-10.00	25424.16	25424.16	0.00%	3	65.49%	100%	65.49%	100%	5081	5081
Fast Tertiary	79.53	250.00	0.10	66889.76	63316.16	5.34%	5	54.07%	95.49%	53.21%	95.48%	3916	3860
Slow Tertiary	-	-	-	0.00	-	-	0	-	-	-	-	-	-
				92313.92	88740.32	3.87%							

#### 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)	(selected)	(actually delivered)	
Secondary	3532.03	5000.00	3500.00	14368.44	14368.44	0.00%		3	68.26%	100%	68.26%	100%	5452	5452
Fast Tertiary	1407.92	2103.91	850.00	17745.59	17587.84	0.89%		6	97.58%	99.34%	97.67%	99.37%	9524	9542
Slow Tertiary	-	-	-	0.00	-	-		0	-	-	-	-	-	-
				32114.03	31956.28	0.49%								

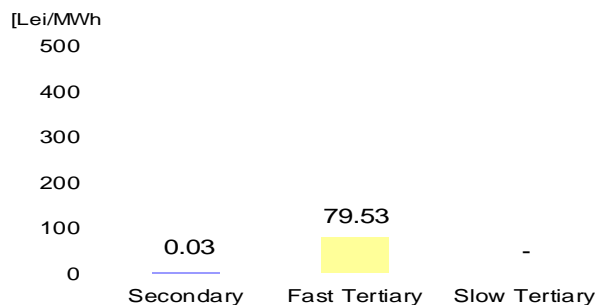


# Balancing Market

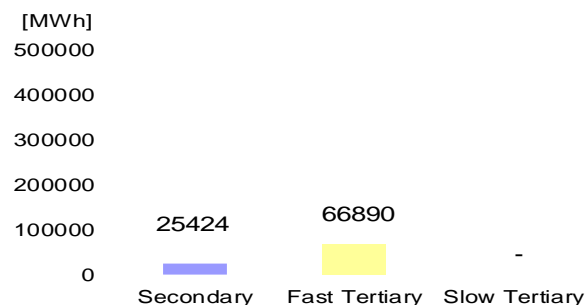
## Balancing energy – Selected prices and quantities in May 2022

May 2022

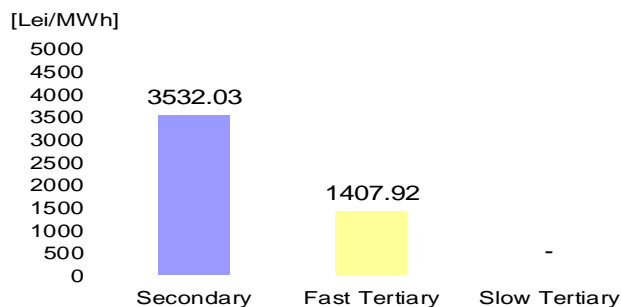
Downward regulation - average price [lei/MWh]



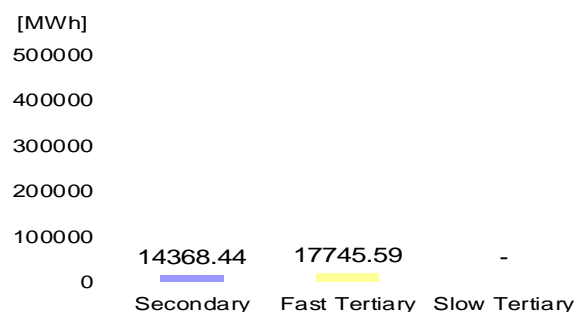
Downward regulation - selected quantities



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  $i$ .

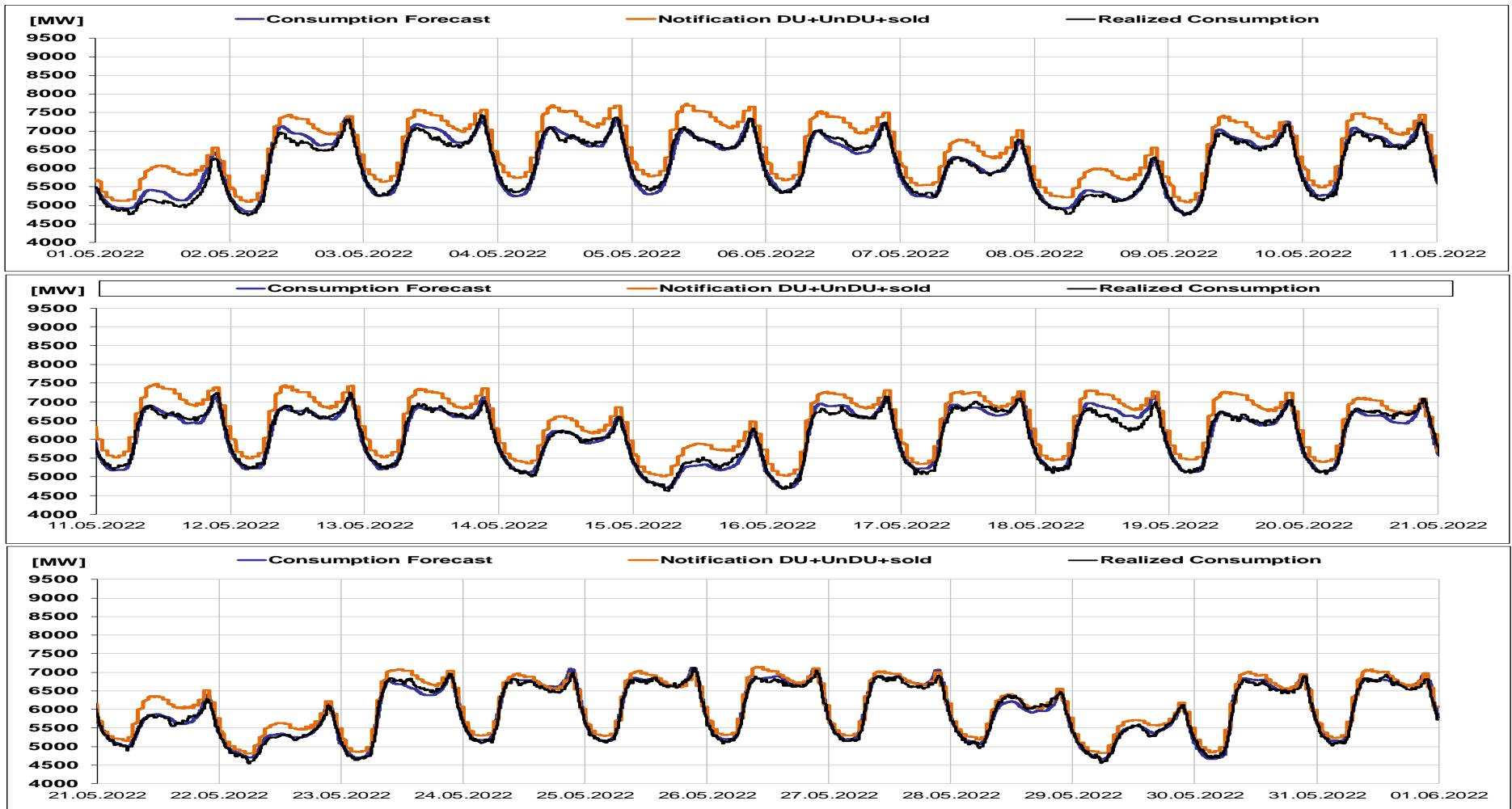


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# Balancing Market

Realized consumption, forecast, notifications in D-1



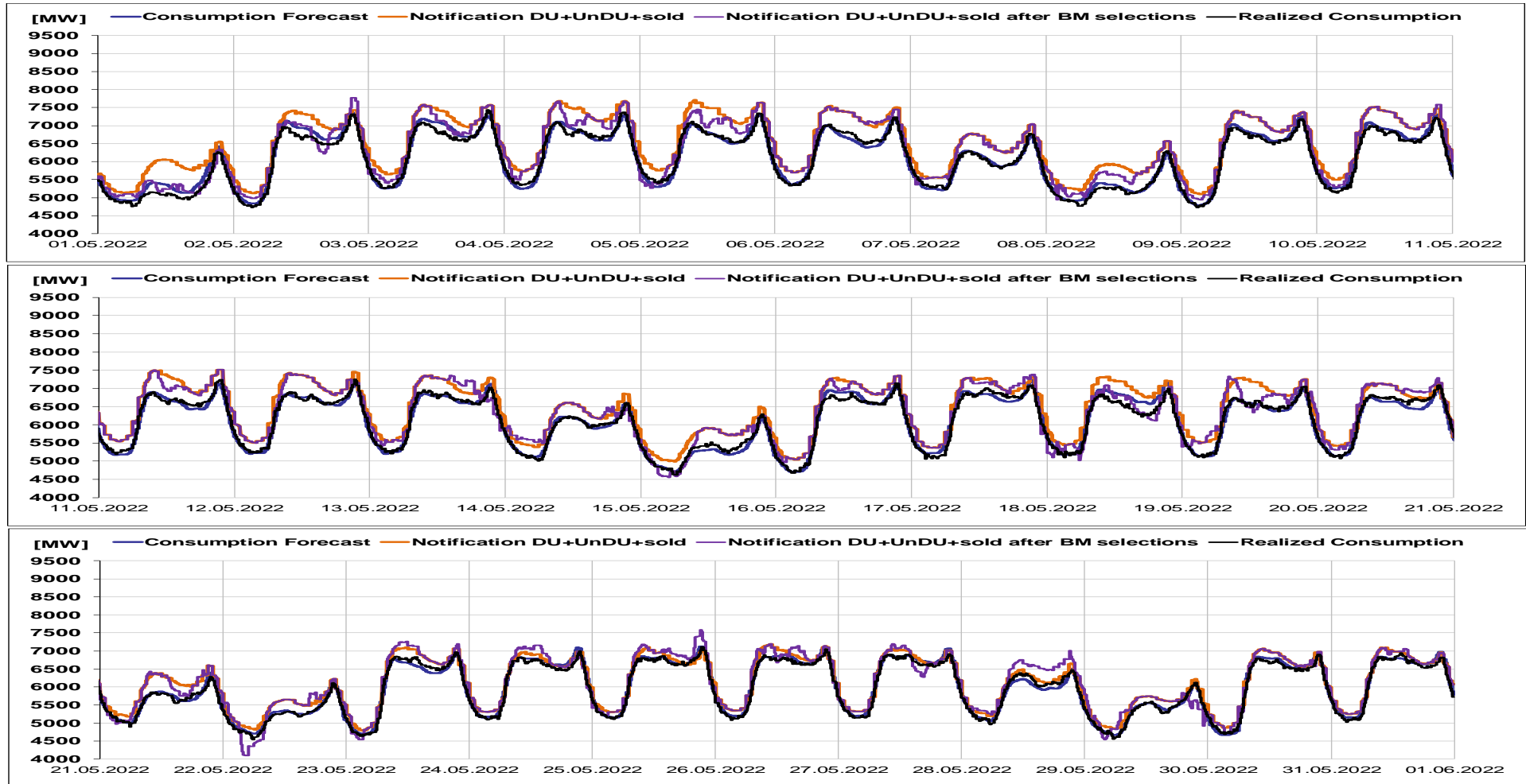


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# Balancing Market

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



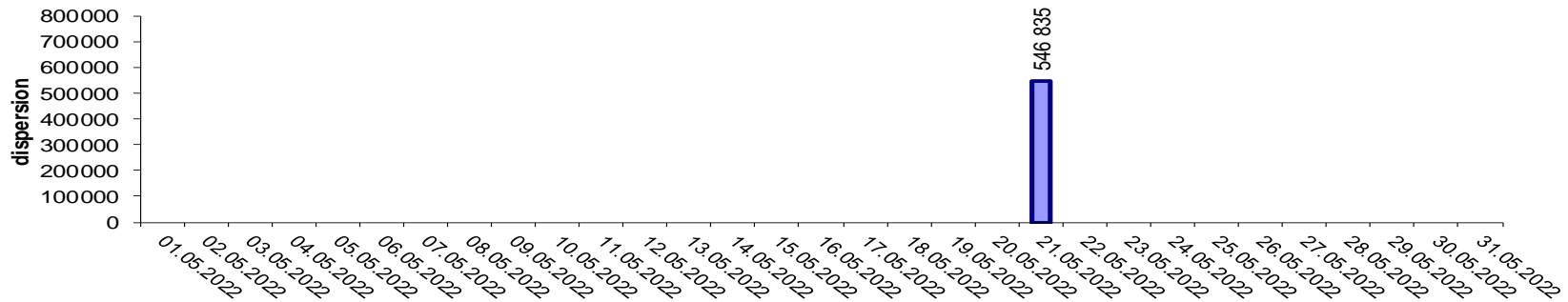


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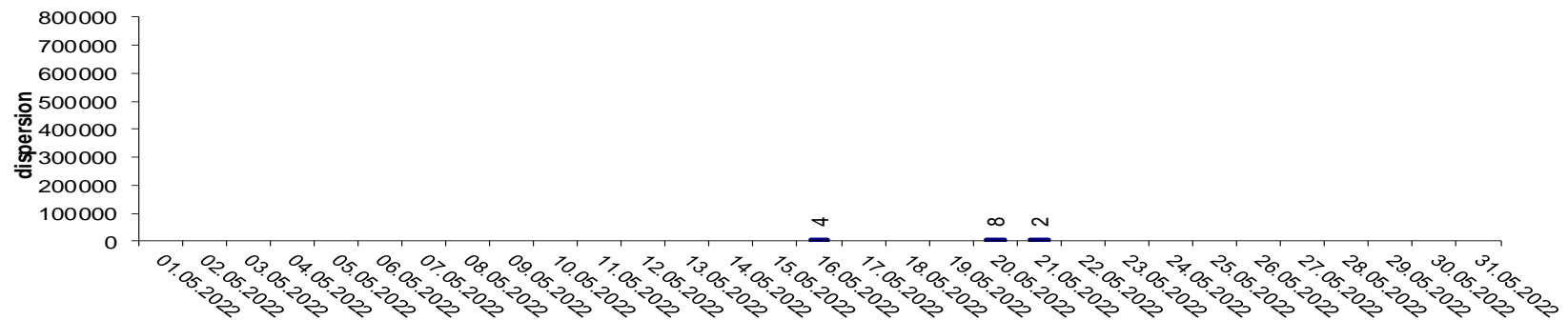
# Balancing Market

## Indicators – Price Volatility for Secondary Regulation

Price Volatility for Secondary Upward Regulation



Price Volatility for Secondary Downward Regulation



Volatility = price dispersion on studied interval:

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



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