



**Transelectrica®**  
Societate Administrată în Sistem Dualist

# **MARKET MONITORING REPORT**

## **Balancing Market**

### **February 2022**

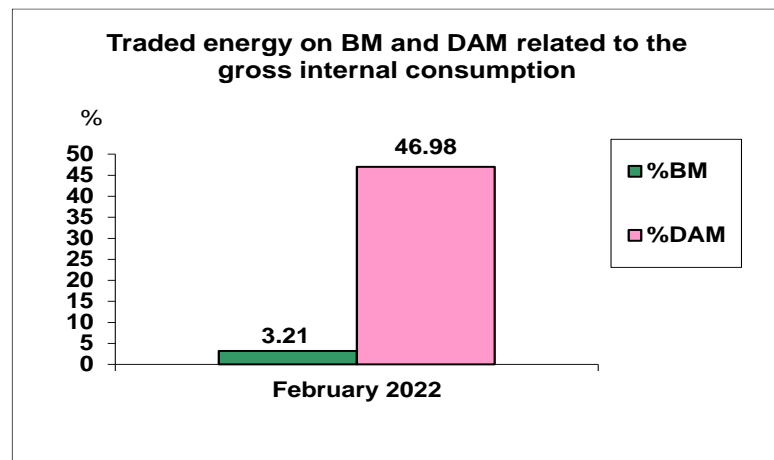
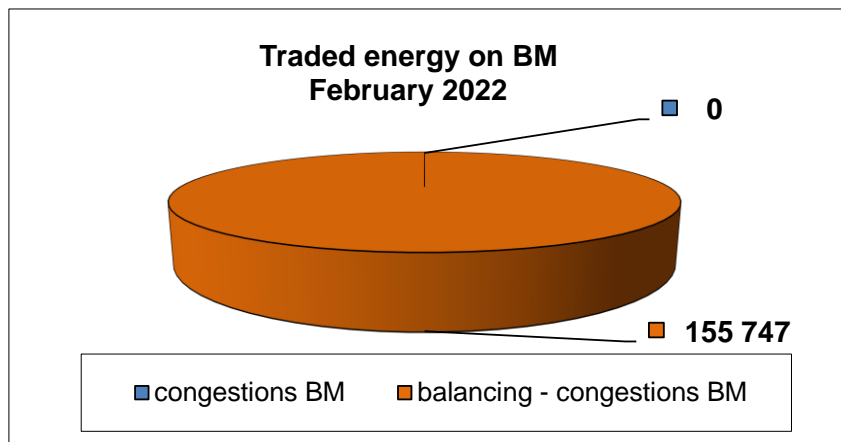
ANRE - Romanian Energy Regulatory Authority  
HHI - Herfindahl-Hirschman Index  
BRP - Balance Responsible Party  
BM - Balancing Market  
DAM - Day Ahead Market  
TSO - Transmission System Operator  
DU – Dispatchable Unit  
PN – Physical Notification  
NDC - National Dispatching Center  
C1 – The market 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](http://www.transelectrica.ro) (section Transparency).

## The Balance Generation/Consumption

- The average monthly value of generated power was 6933 MW and the actual internal gross consumption was 7 229 MW.
- The NDC consumption forecast was close to the actual consumption, the standard deviation being **1.87%**. 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 **3.18%**. The greatest daily deviation regarding the notifications was registered on the 20<sup>th</sup> of February (**5.53%**).
- The energy used in February 2022 for balancing the power system and congestion management was 155 747 MWh (with an average power of 232 MW, which means **3.21%** from the internal gross consumption). There was no energy used for congestion management, nor transactions outside BM (with financial compensation).
- The energy used in February 2022 on Day Ahead Market was 2 281 995 MWh (with an average power of 3 396 MW, which means **46.98%** from the internal gross consumption). Data are shown in EET hours.
- The total cost of the energy traded on the Balancing Market was 86 965 620 lei (with an average weighted price of 558.38 lei/MWh).





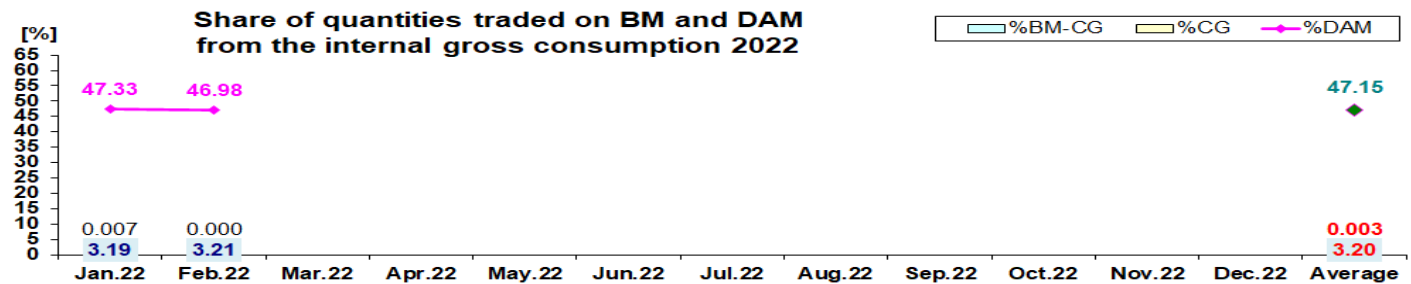
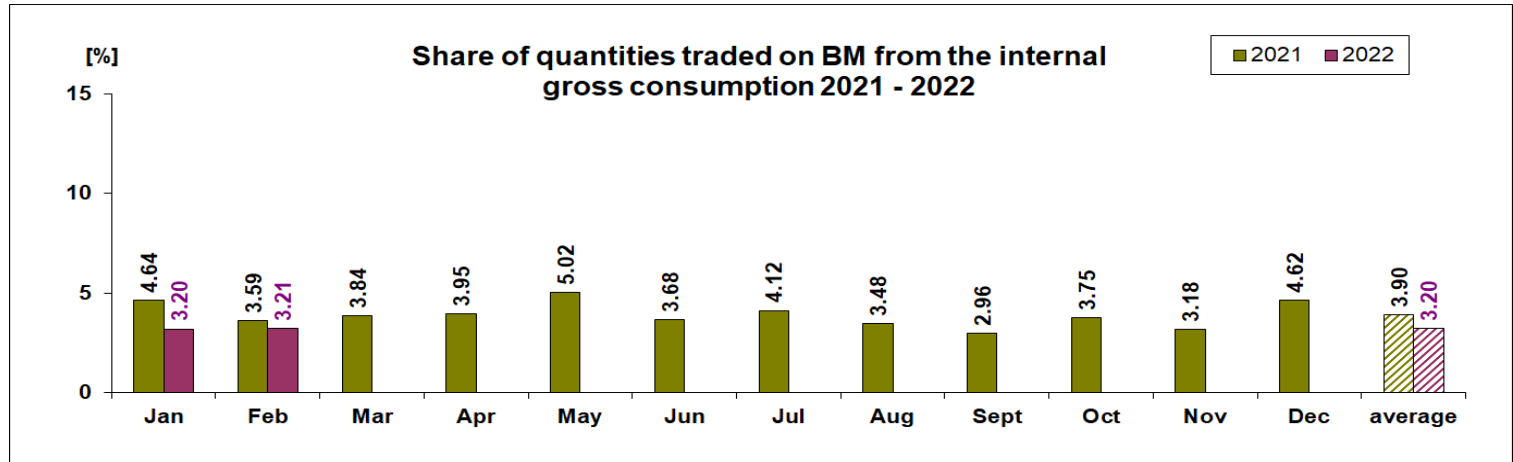
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# Balancing Market

## 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).



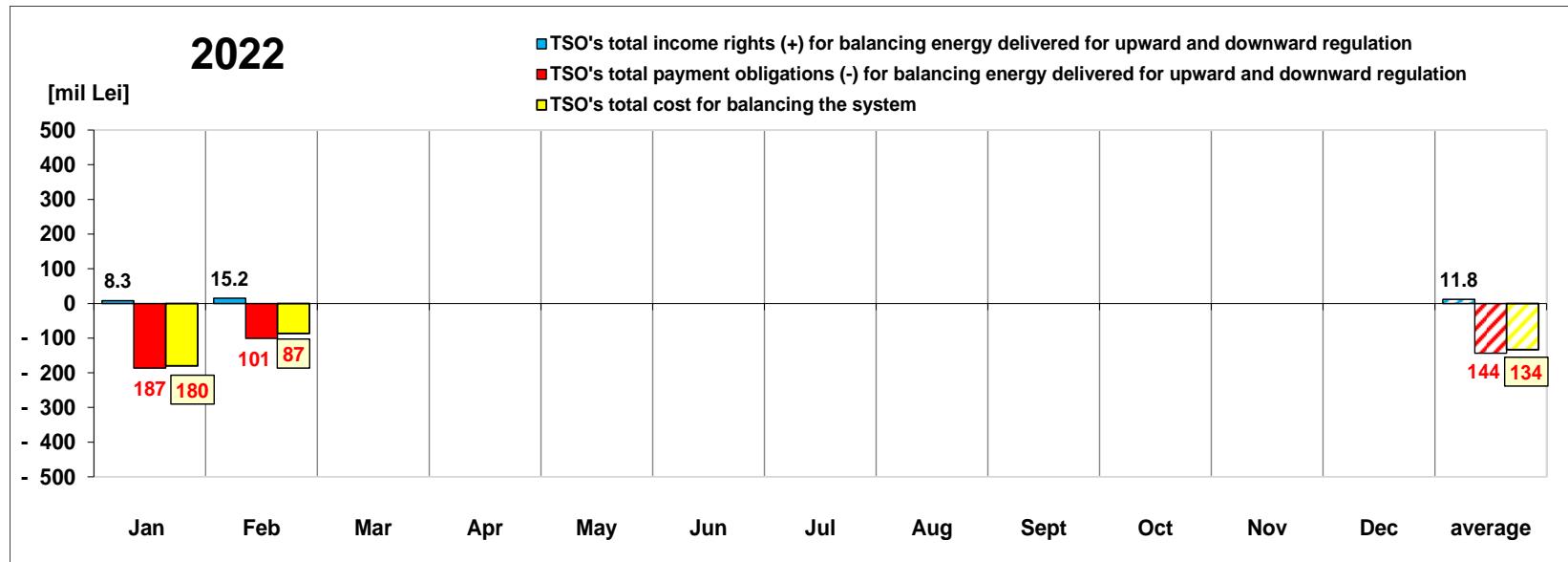
	2022												
	Jan.22	Feb.22	Mar.22	Apr.22	May.22	Jun.22	Jul.22	Aug.22	Sep.22	Oct.22	Nov.22	Dec.22	Average
%BM	3.20	3.21											3.20
%DAM	47.33	46.98											47.15
%CG	0.01	0.00											0.0034
%BM-CG	3.191	3.206											3.198
% outside BM	0.00	0.00											0.00



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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 downward regulation	incomes (+) prices ≥ 0	8 344 244	15 164 350											11 754 297	23 508 594
	payments (-) prices < 0	- 40 999	- 12 132											- 26 565	- 53 131
TSO's payment obligations / income rights for balancing energy delivered for upward regulation	payments (-) prices ≥ 0	-186 598 444	-100 703 503											-143 650 974	-287 301 947
	incomes (+) prices < 0	0	0											0	0
TSO's total income rights (+) for balancing		8 344 244	15 164 350											11 754 297	23 508 594
TSO's total payment obligations (-) for		-186 639 443	-100 715 635											-143 677 539	-287 355 078
TSO's total cost for balancing the system		-180 209 876	-86 965 620											-133 587 748	-267 175 497
Value of transactions outside BM (with		0	0											0	0
Congestion Cost on BM		- 157 055	0											- 78 527	- 157 055
Congestion Cost outside BM		0	0											0	0

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

Public

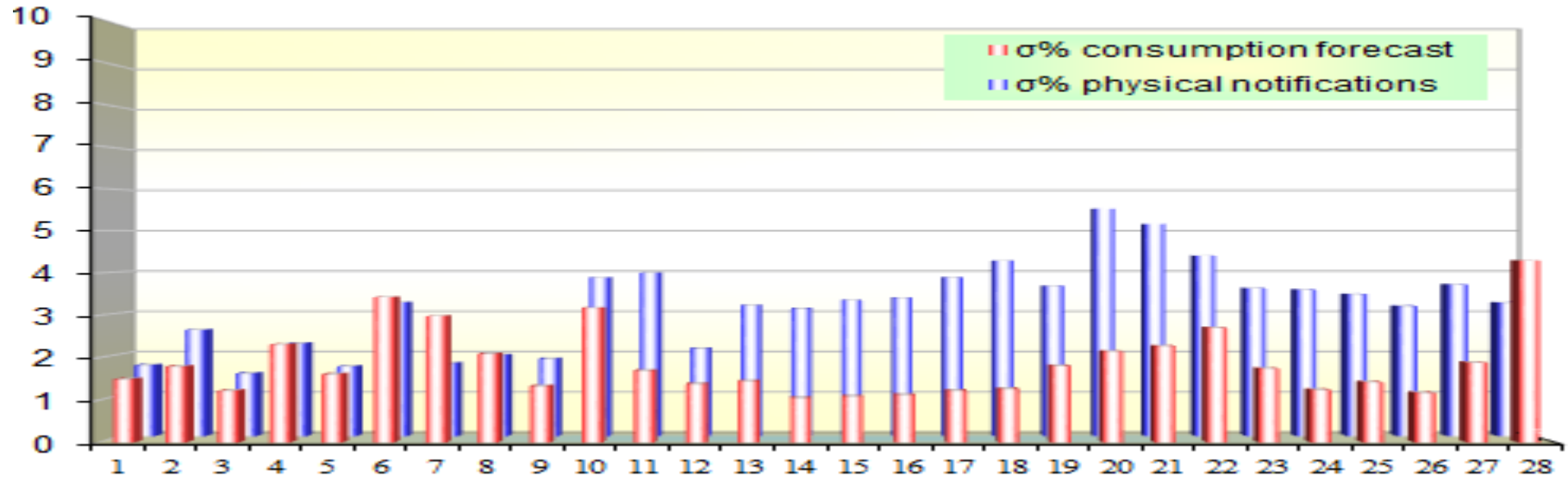


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# Balancing Market

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



feb 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
σ% consumption forecast	1.49	1.79	1.22	2.31	1.61	3.43	2.99	2.09	1.33	3.17	1.69	1.38	1.45	1.05	1.09	1.12	1.22	1.26	1.81	2.15	2.27	2.71	1.74	1.24	1.42	1.17	1.89	4.30
σ% physical notifications	1.73	2.58	1.53	2.26	1.69	3.26	1.77	1.97	1.88	3.86	3.98	2.13	3.18	3.11	3.31	3.37	3.86	4.26	3.65	5.53	5.16	4.39	3.60	3.56	3.45	3.16	3.69	3.25

σ<sub>average % consumption forecast</sub> = 1.87

σ<sub>average % physical notifications</sub> = 3.18

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

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

**R = Realized Consumption;**

**N = Physical Notifications;**

**P = Consumption Forecast.**

Public

# Balancing Market

## Balancing energy – Selected prices and quantities

- At the beginning of the month on the Balancing Market operated 66 BRPs, 95 market participants, holding 187 commercially operating dispatchable units.

### February 2022

#### Downward Regulation

Downward Regulation	Prices			Quantities			Participants						
	Weighted				Actually		C1		C3		HHI	HHI	
	Average	Maximum	Minimum	Selected	Delivered	Deviation							
	[lei/MWh]	[lei/MWh]	[lei/MWh]	[MWh]	[MWh]	[%]	Number	(selected)	(actually delivered)	(selected)	(actually delivered)		
Secondary	-0.23	0.10	-10.00	37082.41	37082.41	0.00%	3	70.76%	100%	70.76%	100%	5612	5612
Fast Tertiary	189.93	300.00	0.10	84286.80	79914.29	5.19%	6	43.5%	95.14%	44.05%	95.15%	3861	3858
Slow Tertiary	-	-	-	0.00	-	-	0	-	-	-	-	-	-
				121369.20	116996.69	3.60%							

#### 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)	(selected)	(actually delivered)
Secondary	3500.00	3500.00	3500.00	21597.42	21597.42	0.00%	3	72.37%	100%	72.37%	100%	5847	5847
Fast Tertiary	1462.31	2247.00	228.00	17387.83	17153.18	1.35%	7	78.12%	91.01%	78.37%	91.21%	6216	6252
Slow Tertiary	-	-	-	0.00	-	-	0	-	-	-	-	-	-
				38985.25	38750.60	0.60%							



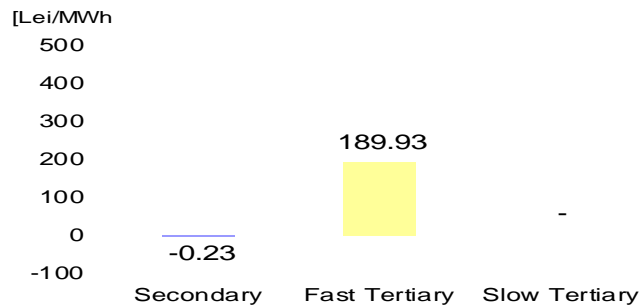
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# Balancing Market

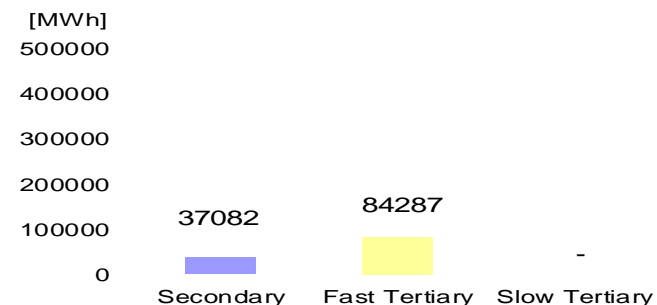
## Balancing energy – Selected prices and quantities in February 2022

February 2022

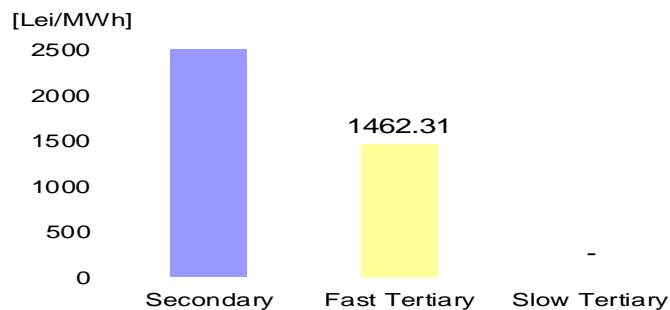
Downward regulation - average price [lei/MWh]



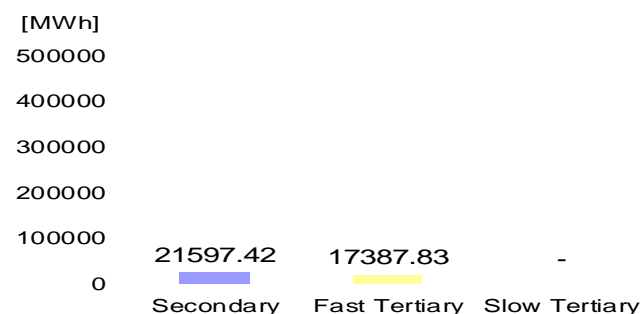
Downward regulation - selected quantities



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  $i$ .

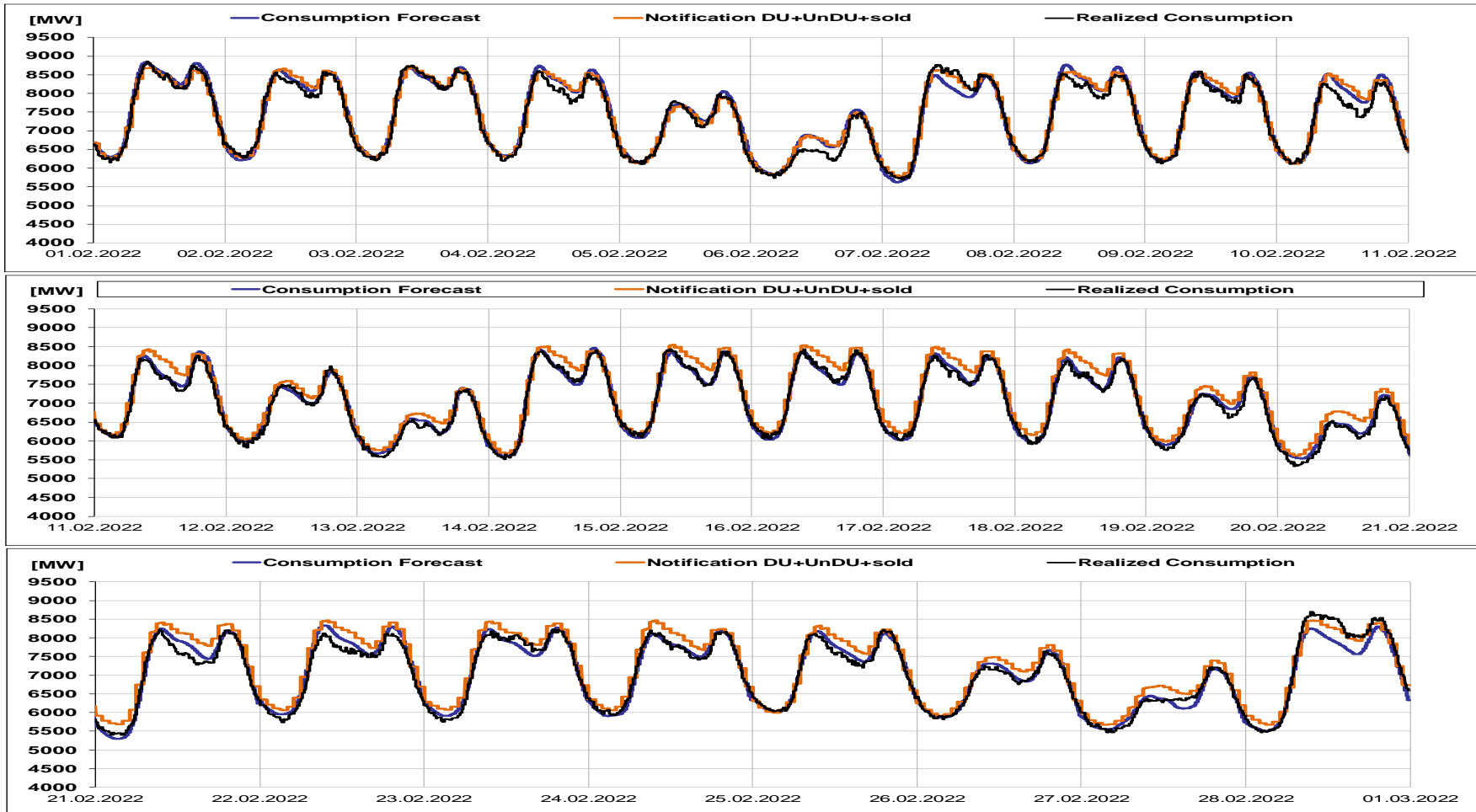


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# Balancing Market

## Realized consumption, forecast, notifications in D-1



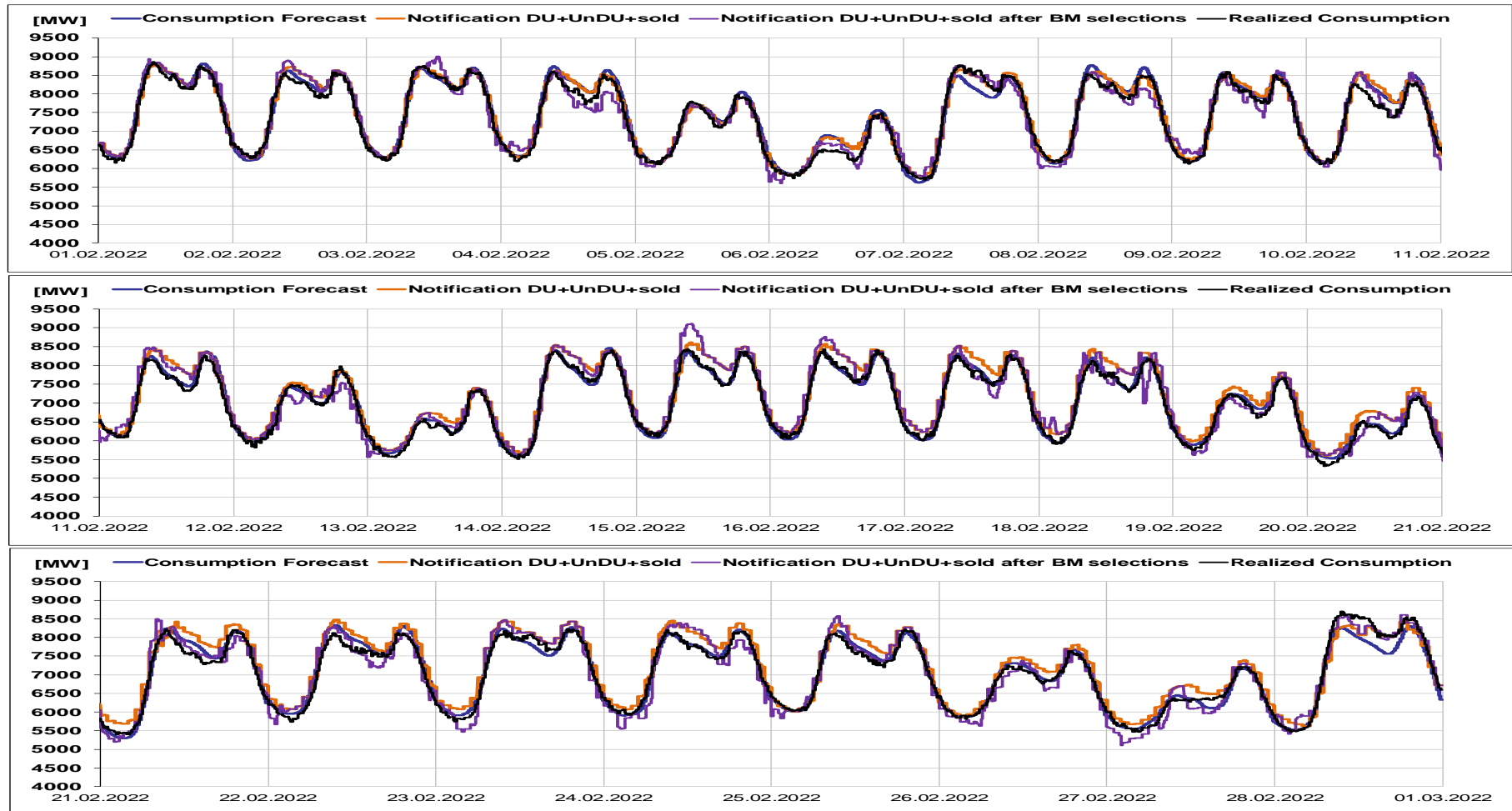


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# Balancing Market

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



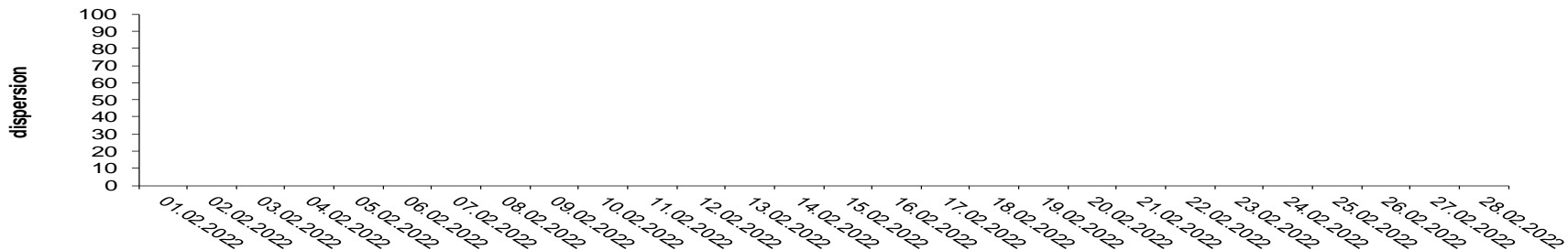


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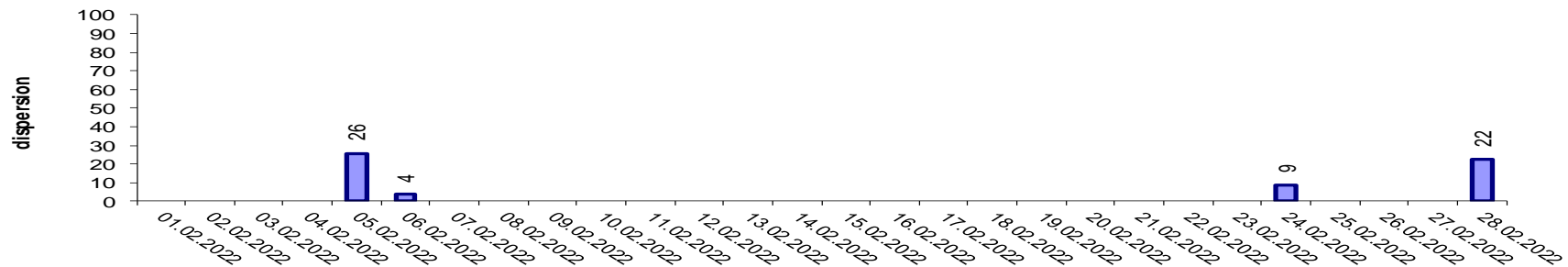
# Balancing Market

## Indicators – Price Volatility for Secondary Regulation

**Price Volatility for Secondary Upward Regulation**



**Price Volatility for Secondary Downward Regulation**



The price volatility for Secondary regulation, determined as the daily price dispersion, recorded zero values at the increase throughout the course of the month and the decrease on most days of the month, the cause being the constant price from one hour to another.

**Volatility = price dispersion on studied interval:**

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



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