

Transelectrica®

Societate Administrată în sistem Dualist

MARKET MONITORING REPORT

Balancing Market

March 2019



romania2019.eu
Președinția României la Consiliul Uniunii Europene

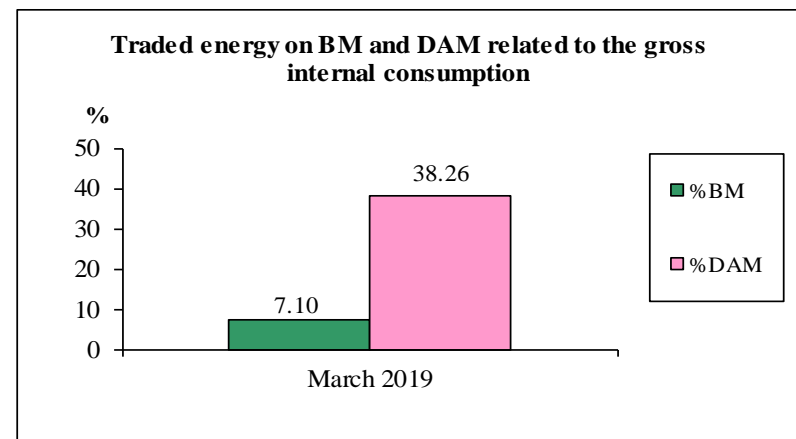
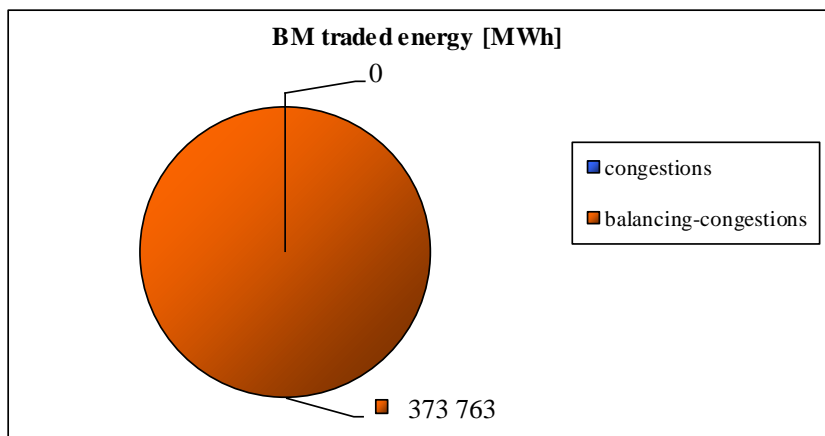
ANRE - Romanian Energy Regulatory Authority
HHI - Herfindahl-Hirschman Index
BRP - Balance Responsible Party
BM - Balancing Market
DAM - Day Ahead Market
TSO - Transmission System Operator
DU – Dispatchable Unit
PN – Physical Notification
NDC - National Dispatching Center
C1 – The market share of the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

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).

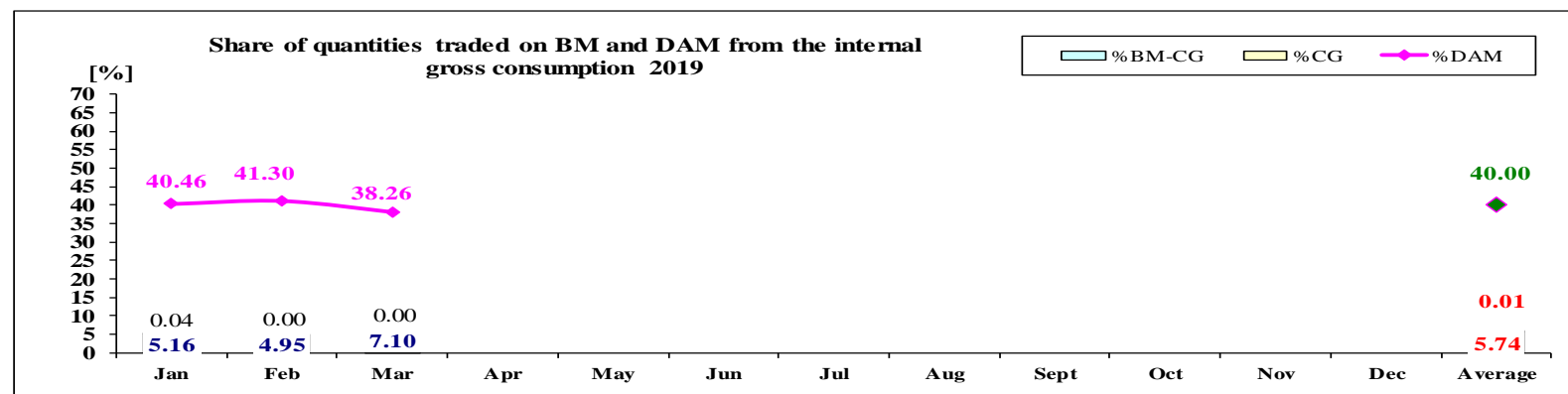
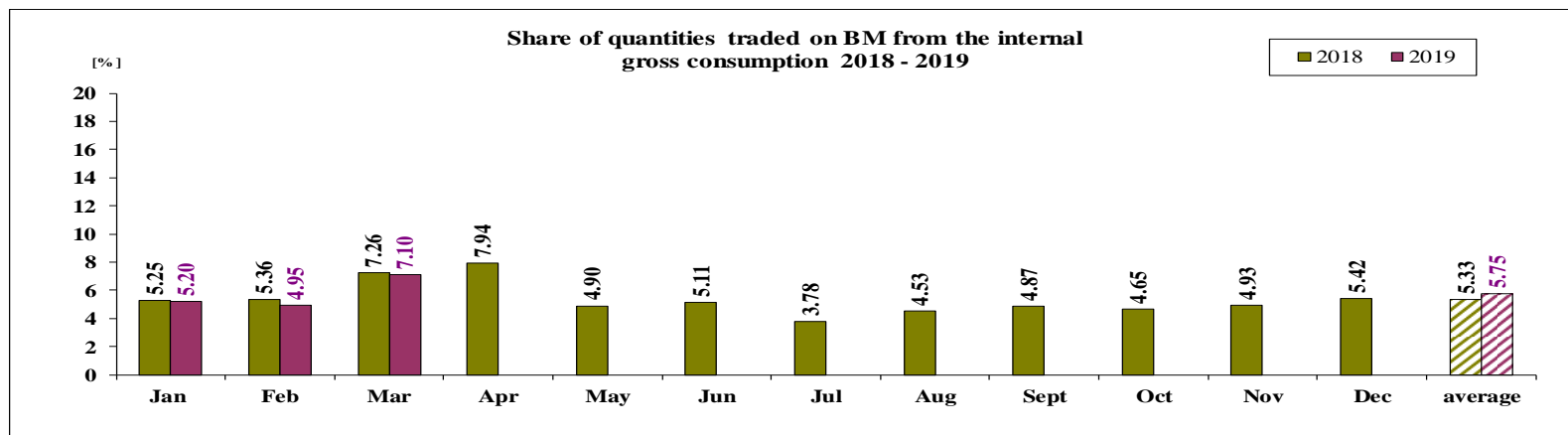
The Balance Generation/Consumption

- The average monthly value of generated power was 7 139 MW and the actual internal gross consumption was 7 087 MW.
- The NDC consumption forecast was close to the actual consumption, the standard deviation being **1.68%**. 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 **4,18%**. The greatest daily deviation regarding the notifications was registered in **25.03 (8.21%)**.
- The energy used in March 2019 for balancing the power system and congestion management was 373 763 MWh (with an average power of 503 MW, which means **7.10%** from the internal gross consumption). No transactions were made for congestion management.
- The energy traded in March 2019 on Day Ahead Market was de 2 014 486 MWh (with an average power of 2 711 MW, which means **38,26%** from the internal gross consumption). Data are shown in EET hours.
- The total cost of the energy traded on the Balancing Market was **28 767 248 lei** (with an average weighted price of 77 lei/MWh), from which:
 - the cost for energy traded on the Balancing Market was 28 767 248 lei (from which 0 lei startup cost);
 - the cost of the energy paid by C.N.T.E.E. Transelectrica S.A. for congestion management was 0 lei.



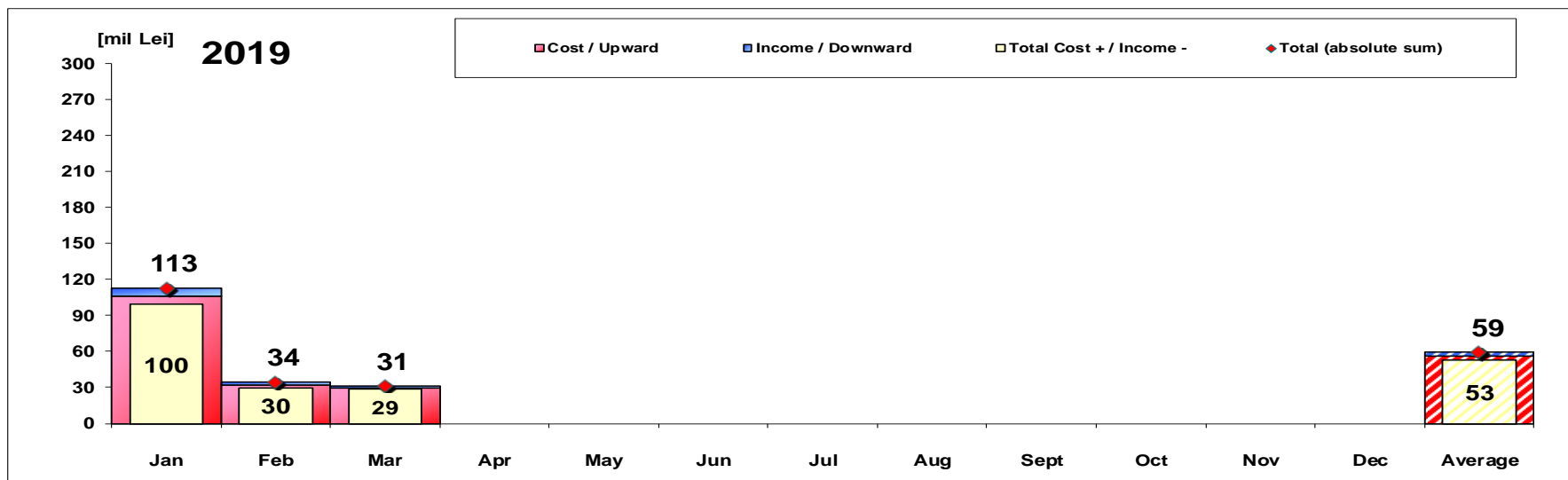
The Balance Generation / Consumption

• Monthly percentage values resulted are calculated as ratio between traded volumes on BM 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).



	2019												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Average
%BM	5.20	4.95	7.10										5.75
%DAM	40.46	41.30	38.26										40.00
%CG	0.04	0.00	0.00										0.01
%BM-CG	5.16	4.95	7.10										5.74

Balancing Energy Market Transactions

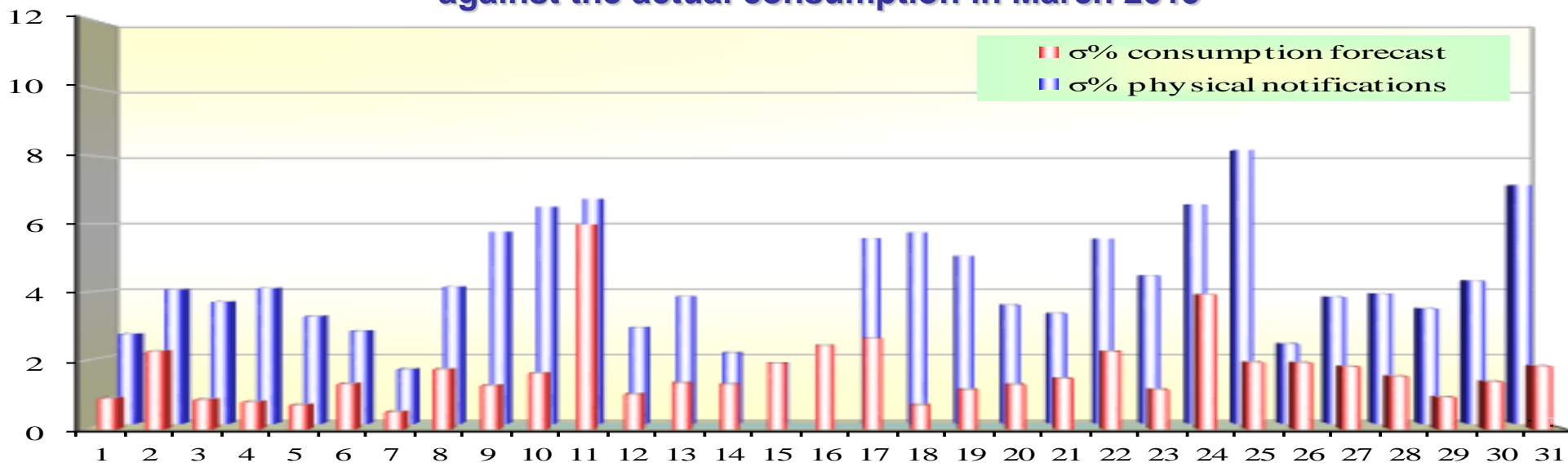


[Lei]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Average	Total
Cost / Upward	106 045 870	32 017 367	29 926 340										55 996 526	167 989 577
Income / Downward	6 528 407	2 166 232	1 159 092										3 284 577	9 853 731
CE Cost	1 639 293	0	0										546 431	1 639 293
Cost for energy traded on the Balancing Market (includes startup cost)	97 878 170	29 851 135	28 767 248										52 165 518	156 496 553
Cost+/Income- (BE and CE)	99 517 463	29 851 135	28 767 248										52 711 949	158 135 846
Total (absolute sum) (BE and CE)	112 574 277	34 183 599	31 085 432										59 281 102	177 843 307

CE – Congestion Energy

* The average annual value of BM transactions (the absolute sum of upward and downward transactions) was calculated as average of monthly values.

Standard deviation of physical notifications and consumption forecast against the actual consumption in March 2019



March 2019

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	0.90	2.28	0.86	0.80	0.71	1.32	0.50	1.75	1.27	1.63	5.98	1.02	1.35	1.31	1.92	2.44	2.65	0.71	1.15	1.30	1.48	2.27	1.16	3.93	1.95	1.94	1.83	1.54	0.93	1.39	1.84
σ% physical notifications	2.68	4.02	3.65	4.06	3.22	2.78	1.63	4.10	5.76	6.51	6.75	2.88	3.81	2.12	1.80	0.90	5.57	5.74	5.03	3.56	3.30	5.55	4.44	6.58	8.21	2.39	3.80	3.90	3.45	4.29	7.16

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

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

R = Realized Consumption;
N = Physical Notifications;
P = Consumption Forecast.

σ_{average}% consumption forecast = 1.68

σ_{average} % physical notifications = 4.18

Balancing energy – Selected prices and quantities

• At the beginning of the month on the Balancing Market operated 65 BRPs, 112 market participants, holding 221 commercially operating dispatchable units. Starting with 10th of March dispatchable unit BAIA3 ((30W-BAIA3-----7) was removed from DU's list, the reason being the final withdrawal from operation. Also, BMP BLUE PLANET INVESTMENTS S.R.L. (30XROBLUEPLAN--V) was removed from BMP's list, the reason stated by the participant is that it no longer exploits dispatchable units.

March 2019

Downward regulation

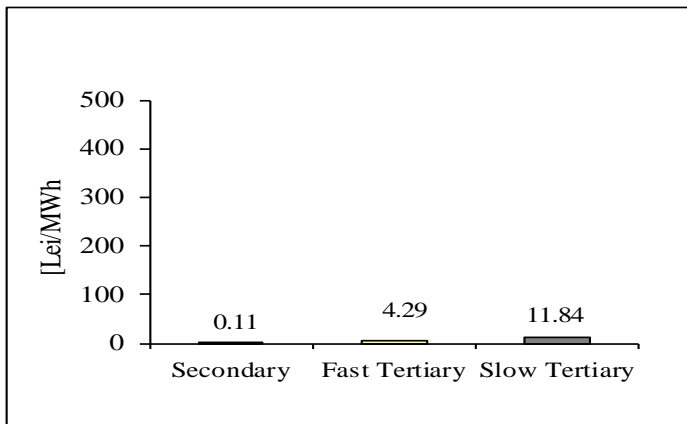
Downward regulation	Prices [lei/MWh]			Quantities [MWh]			Participants						
	Monthly	Maximum	Minimum	Total	Actually	Deviation	C1	C3	C1	C3	HHI	HHI	
	average			selected	delivered	%	Number	(selected)	(actually delivered)	(selected)	(actually delivered)		
Secondary	0.11	1.00	0.10	61047.12	61047.12	0.00%	4	67.79%	98.73%	67.79%	98.73%	5446	5446
Fast Tertiary	4.29	817.49	0.10	239232.25	229021.59	4.27%	11	49.21%	96.25%	49.29%	96.57%	3558	3584
Slow Tertiary	11.84	785.00	0.10	26666.17	25485.39	4.43%	4	59.54%	95.42%	61.54%	98.99%	4379	4675
				326945.53	315554.09	3.48%							

Upward regulation

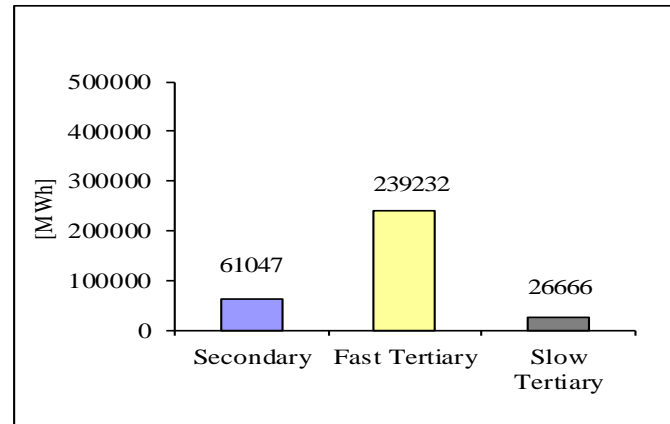
	Monthly	Maximum	Minimum	Total	Actually	Deviation	C1	C3	C1	C3	HHI	HHI
	average			selected	delivered	%	Number	(selected)	(actually delivered)	(selected)	(actually delivered)	
Secondary	643.34	819.49	461.74	30262.18	30262.18	0.00%	4	67.78%	98.29%	67.78%	98.29%	5427
Fast Tertiary	373.61	801.71	0.10	28671.33	27946.91	2.53%	8	62.50%	96.63%	63.12%	96.69%	4953
Slow Tertiary	-	-	-	-	-	-	-	-	-	-	-	-
				58933.51	58209.09	1.23%						

Balancing energy – Selected prices and quantities in March 2019

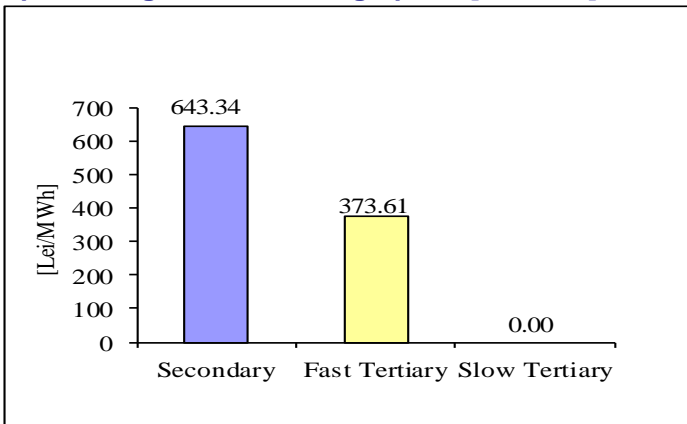
Downward regulation - average price [lei/MWh]



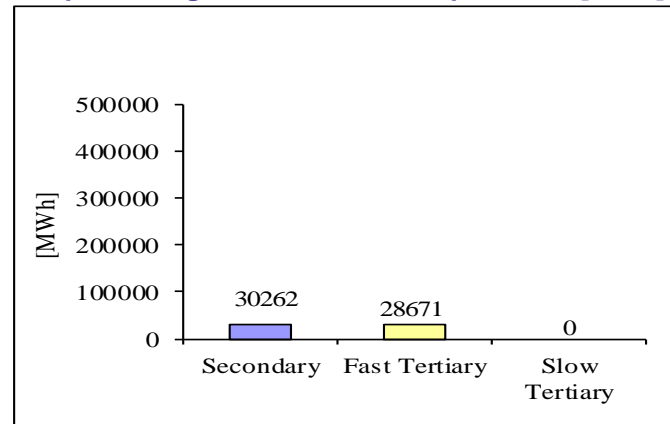
Downward regulation - selected quantities [MWh]



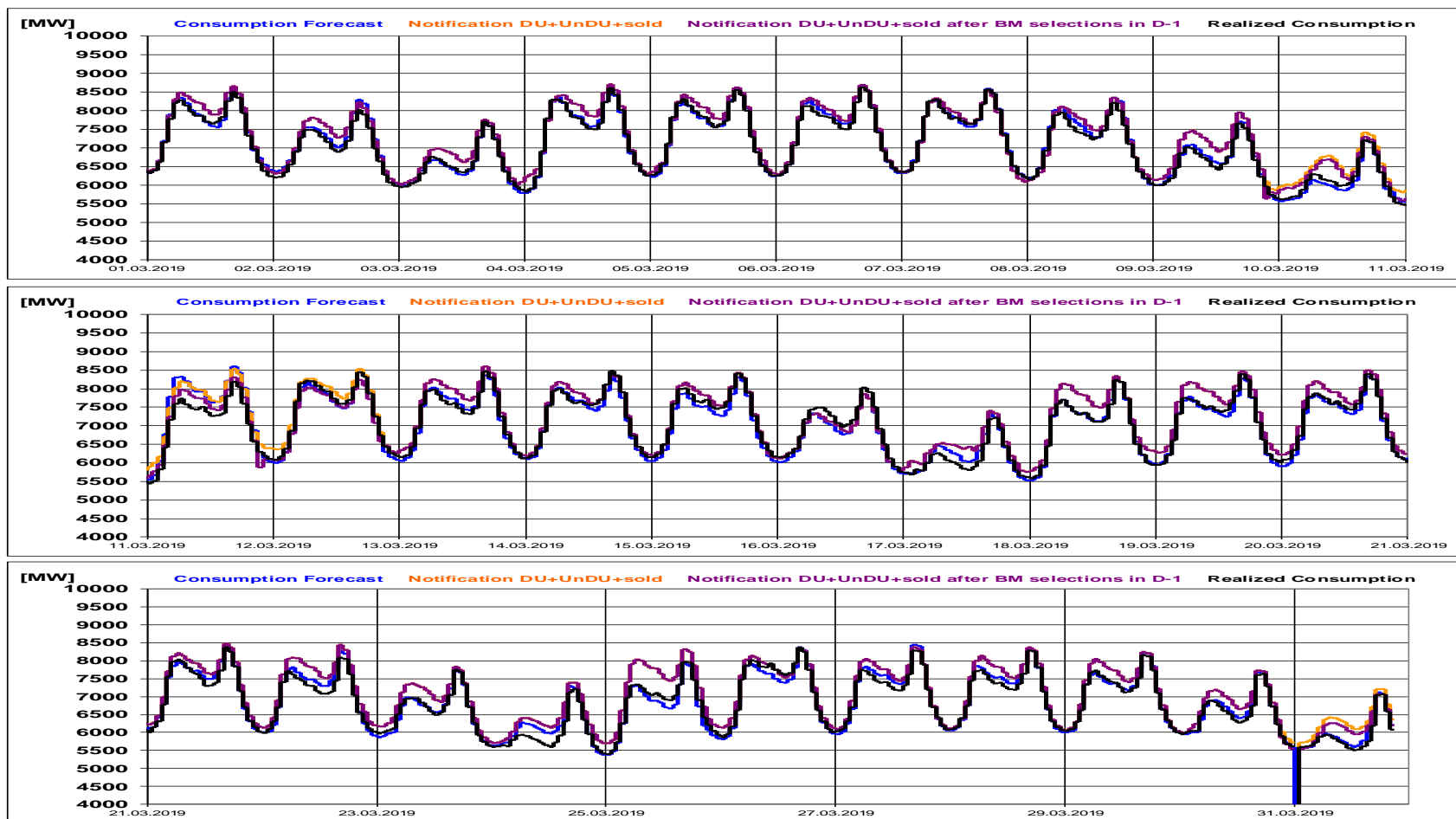
Upward regulation - average price [lei/MWh]



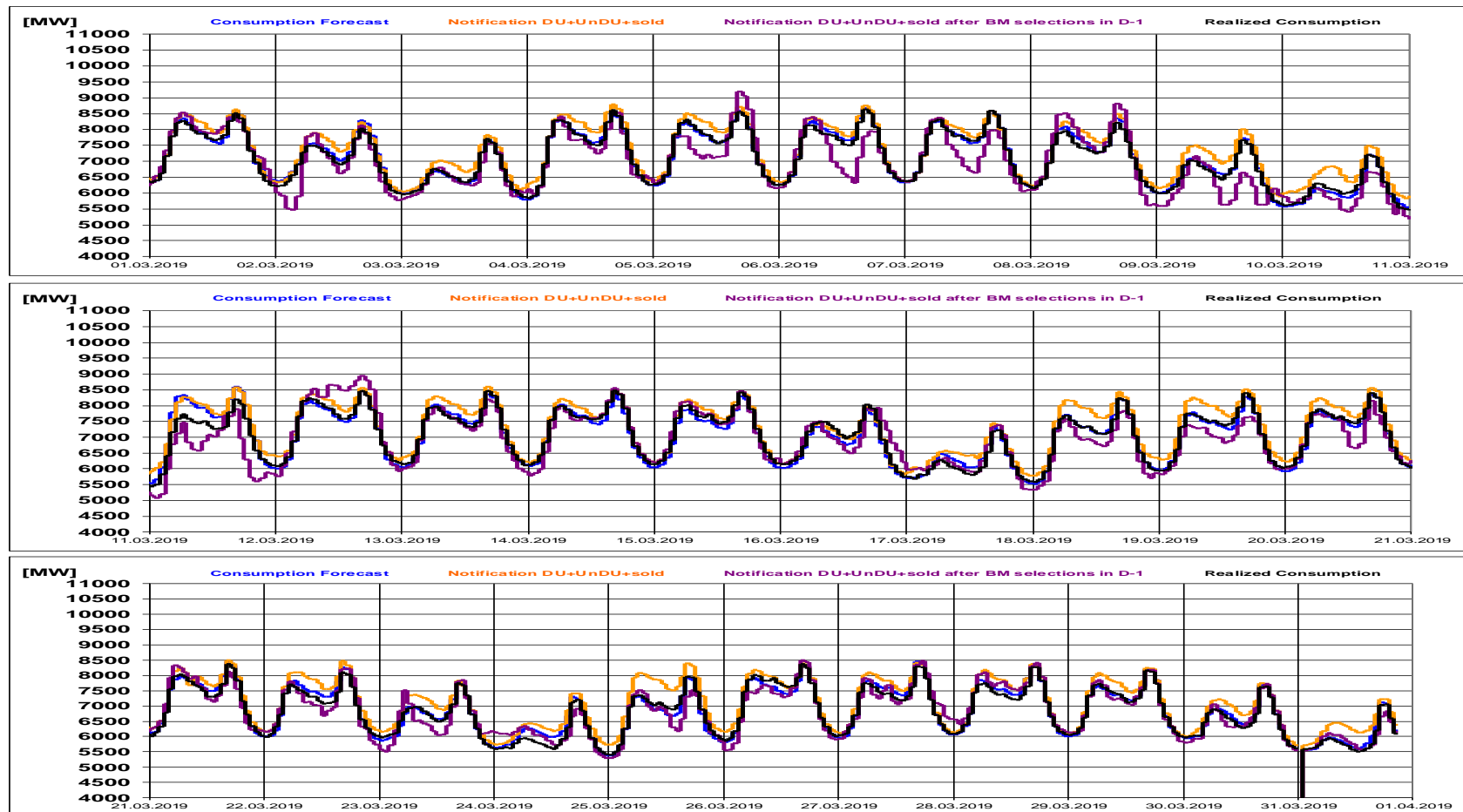
Upward regulation - selected quantities [MWh]



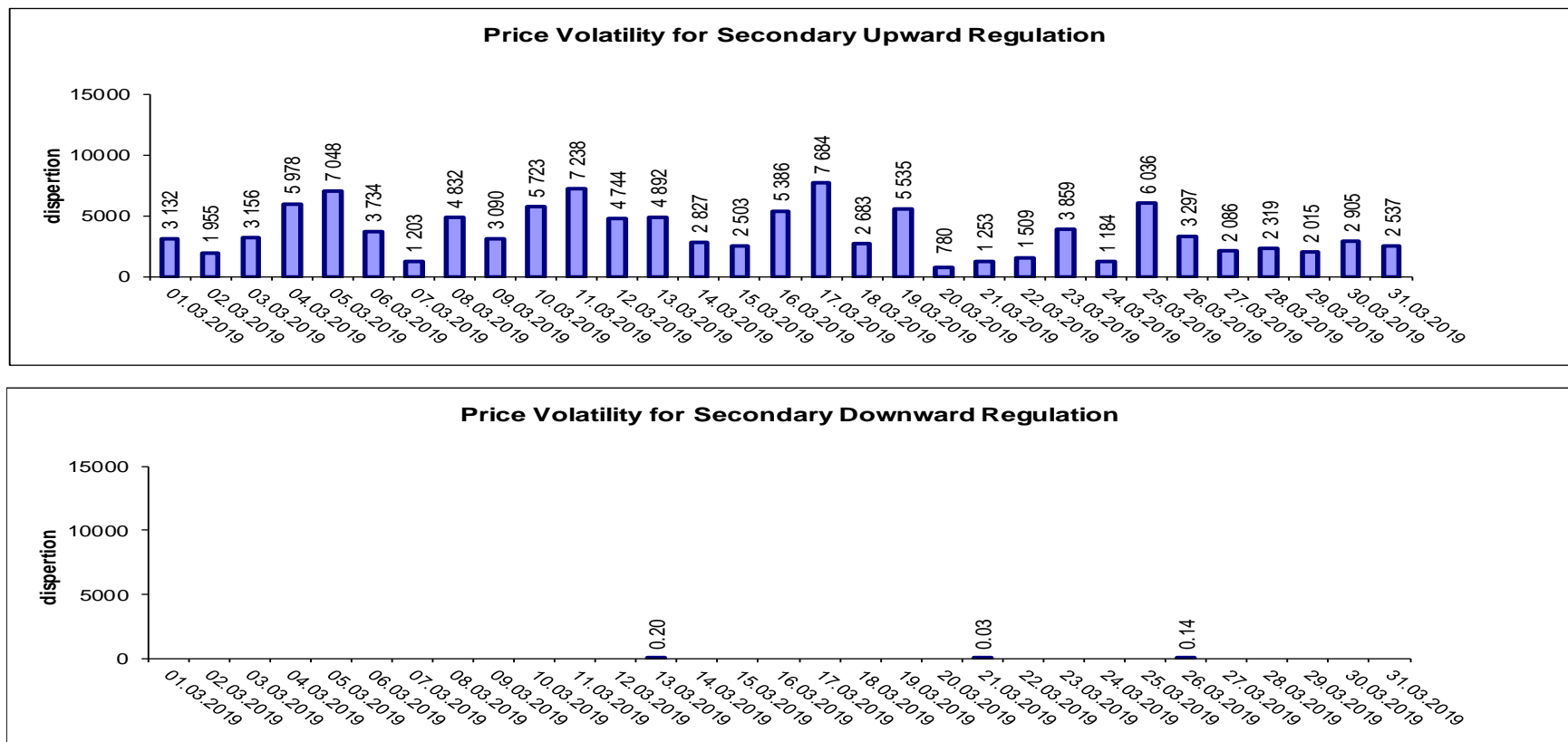
Realized consumption. forecast. notifications. notifications after BM selections in D-1



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



Indicators – Price Volatility for Secondary Regulation



Volatility = price dispersion on studied interval:

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

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