



**Transelectrica®**  
Societate Administrată în Sistem Dualist

# MARKET MONITORING REPORT

## Balancing Market

### January 2017



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## Abbreviations

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



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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).

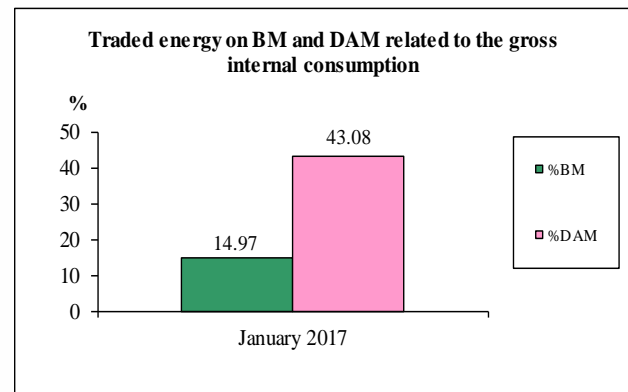
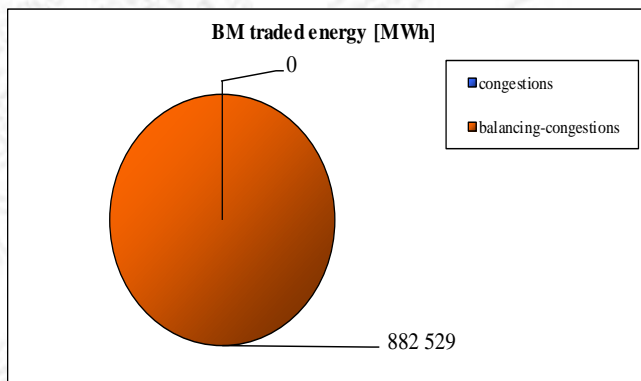


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# Balancing Market

## The Balance Generation/Consumption

- The average monthly value of generated power was 8 693 MW and the actual internal gross consumption was 7 925 MW.
- The NDC consumption forecast was close to the actual consumption, the standard deviation being 1,65 %. 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 11,57 %. The greatest daily deviation, regarding the notifications, was registered in 09.01 (23,19 %).
- The energy used in January 2017 for balancing the power system and congestion management was 882 529 MWh (with an average power of 1 186 MW, which means **14,97** % from the internal gross consumption).
- The energy traded in January 2017 on Day Ahead Market was 2 540 187 MWh (with an average power of 3 414 MW, which means **43,08** % from the internal gross consumption). Data are shown in EET hours.
- The total cost of the energy traded on the Balancing Market was 418 206 681 lei (with an average weighted price of 474 lei/MWh).





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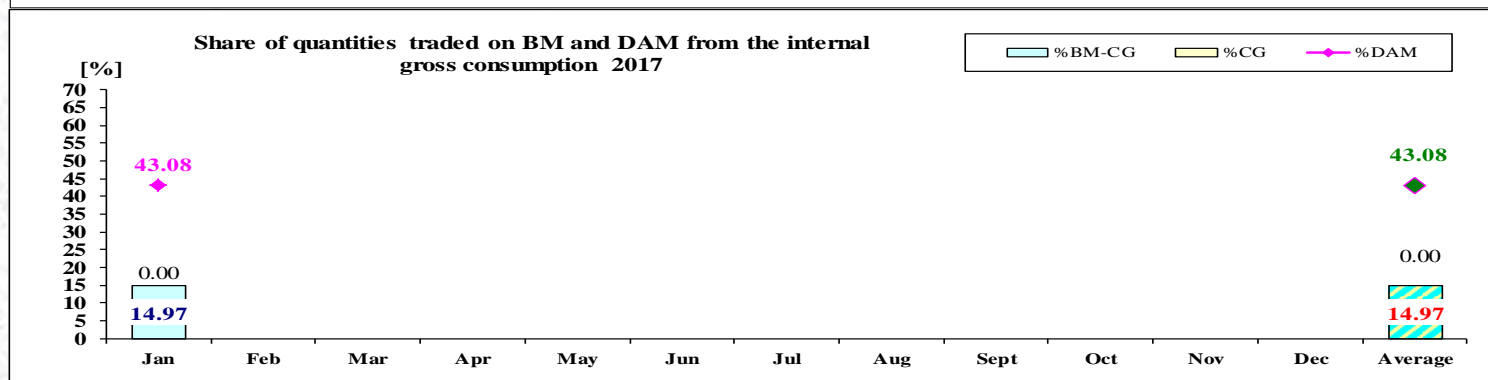
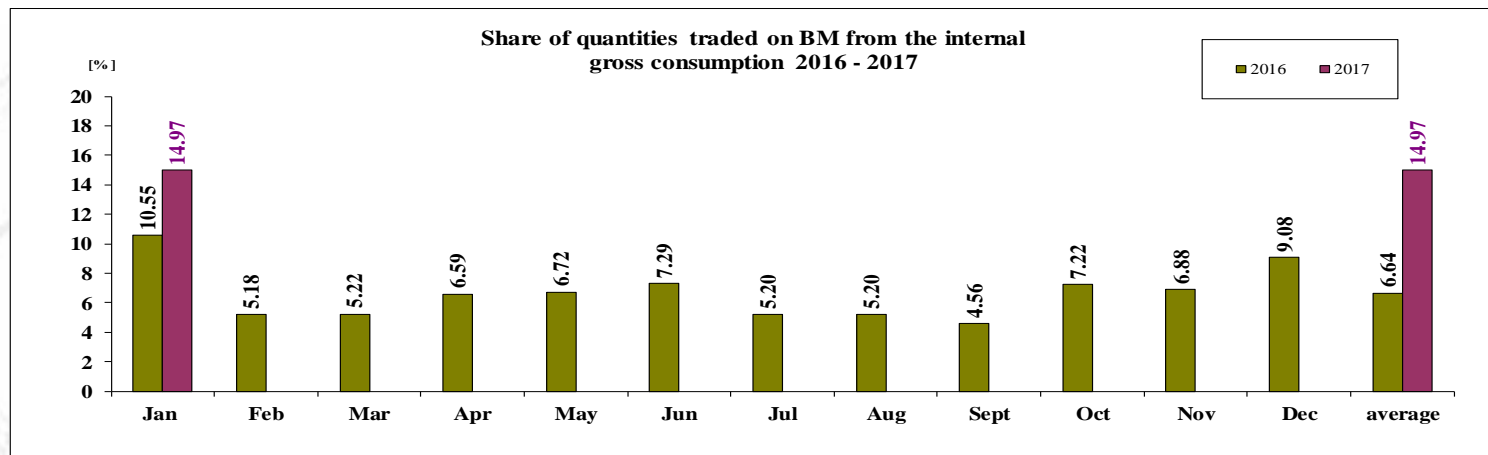
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# Balancing Market

## 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).



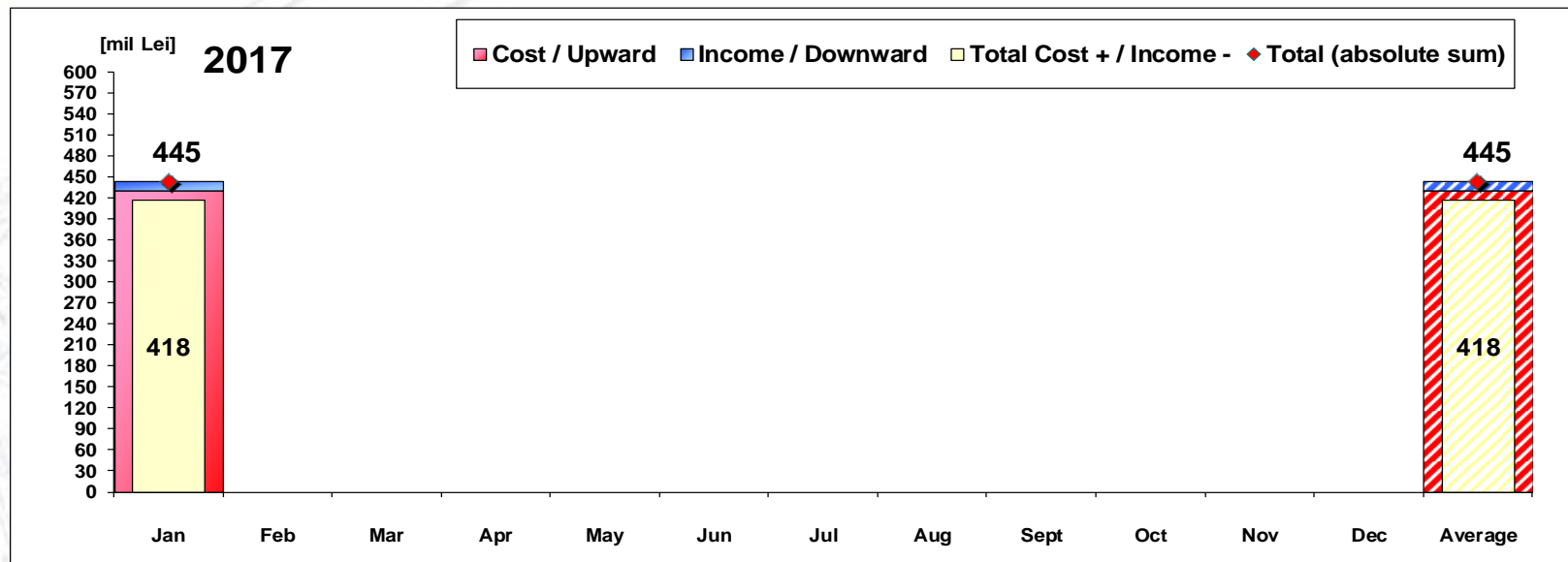
	2017												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Average
%BM	14.97												14.97
%DAM	43.08												43.08
%CG	0.00												0.00
%BM-CG	14.97												14.97



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# Balancing Energy Market Transactions



[Lei]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Average	Total
Cost / Upward	431 393 249												431 393 249	431 393 249
Income / Downward	13 186 568												13 186 568	13 186 568
CE Cost	0												0	0
Total Cost + / Income -	418 206 681												418 206 681	418 206 681
Total (absolute sum)	444 579 817												444 579 817	444 579 817

## CE – Congestion Energy

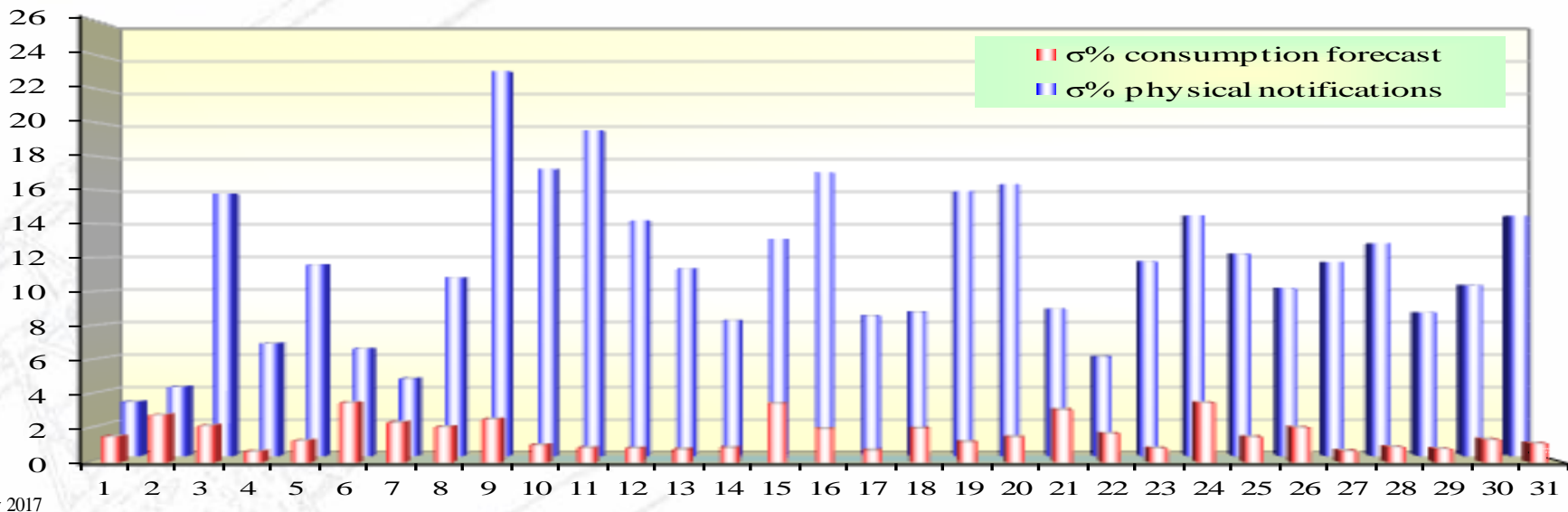
\* The average annual value of BM transactions (the absolute sum of upward and downward transactions) was calculated as average of monthly values.



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# Balancing Market

**Standard deviation of physical notifications and consumption forecast against the actual consumption in January 2017**



January 2017

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	1.51	2.77	2.14	0.63	1.26	3.49	2.34	2.08	2.52	1.01	0.84	0.81	0.75	0.85	3.45	1.95	0.69	1.99	1.19	1.49	3.08	1.68	0.81	3.48	1.49	2.03	0.67	0.90	0.79	1.34	1.11
σ% physical notifications	3.27	4.17	15.84	6.79	11.56	6.48	4.67	10.76	23.19	17.31	19.65	14.23	11.31	8.18	13.10	17.10	8.47	8.70	15.99	16.40	8.87	5.99	11.75	14.51	12.21	10.13	11.71	12.83	8.66	10.31	14.49

**σ average % consumption forecast = 1.65**

**σ average % physical notifications = 11.57**

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

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

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**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 98 BRPs, 120 market participants, holding 235 commercially operating dispatchable units. Starting with 10.01.2017 production units ONESTI (30W-ONESTI-----M) (photovoltaic) and CURCUBATA (30W-CURCUBATA--W) (wind) were registered as dispatchable units after trial period. SKYBASE ENERGY SRL (30XROSKYBASE---I) and ENERGO PROIECT SRL (30XRO-ENP-----7) registered as provisional BRPs according to NRA Order no. 59/2015, was removed from the BRP list. Taking into account the non-fulfillment of the contractual obligations assumed by Convention no. C71/25.03.2016, SC ELSACO ENERGY SRL was revoked from Balancing Market starting with 16.01.2017.

### January 2017

#### Downward regulation

	Prices [lei/MWh]			Quantities [MWh]		
	Monthly	Maximum	Minimum	Total	Actually	Deviation
	average			selected	delivered	%
Secondary	142.73	450.10	0.10	47450.57	47450.57	0.00%
Fast Tertiary	141.48	1012.96	0.10	51114.22	45250.67	11.47%
Slow Tertiary	65.63	400.00	0.10	1632.13	1507.72	7.62%
				100196.93	94208.96	5.98%

Participants					
	C1	C3	C1	C3	HHI
					HHI
Number	(selected)		(actually delivered)	(selected)	(actually delivered)
6	56.65%	96.01%	56.65%	96.01%	4534
11	50.58%	94.57%	49.32%	95.20%	3598
6	71.07%	87.88%	76.01%	93.66%	5256

#### Upward regulation

	Prices [lei/MWh]			Quantities [MWh]		
	Monthly	Maximum	Minimum	Total	Actually	Deviation
	average			selected	delivered	%
Secondary	570.43	893.14	250.00	40840.03	40840.03	0.00%
Fast Tertiary	517.55	850.00	0.10	310784.04	304647.52	1.97%
Slow Tertiary	554.25	1102.78	0.10	449192.48	442832.24	1.42%

Participants					
	C1	C3	C1	C3	HHI
					HHI
Number	(selected)		(actually delivered)	(selected)	(actually delivered)
6	57.00%	96.77%	57.00%	96.77%	4580
14	90.56%	96.41%	91.49%	96.68%	8220
11	30.75%	77.14%	31.12%	77.15%	2265





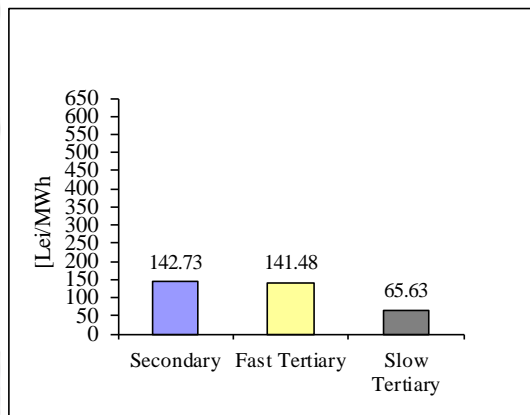
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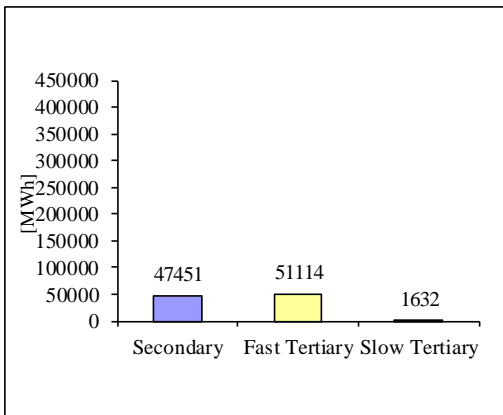
# Balancing Market

## Balancing energy – Selected prices and quantities in January 2017

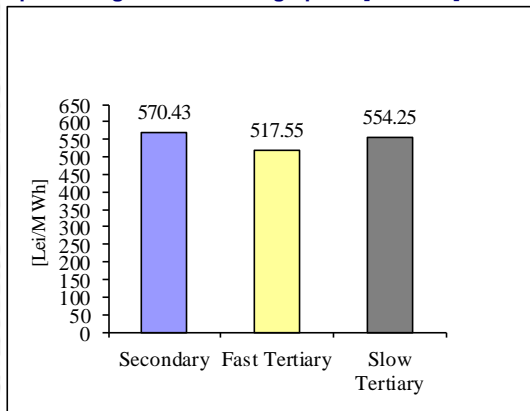
Downward regulation - average price [lei/MWh]



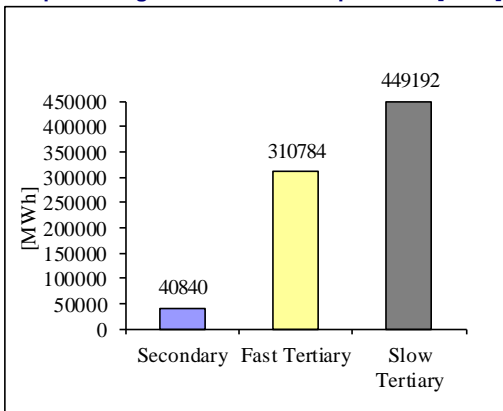
Downward regulation - selected quantities [MWh]



Upward regulation - average price [lei/MWh]



Upward regulation - selected quantities [MWh]



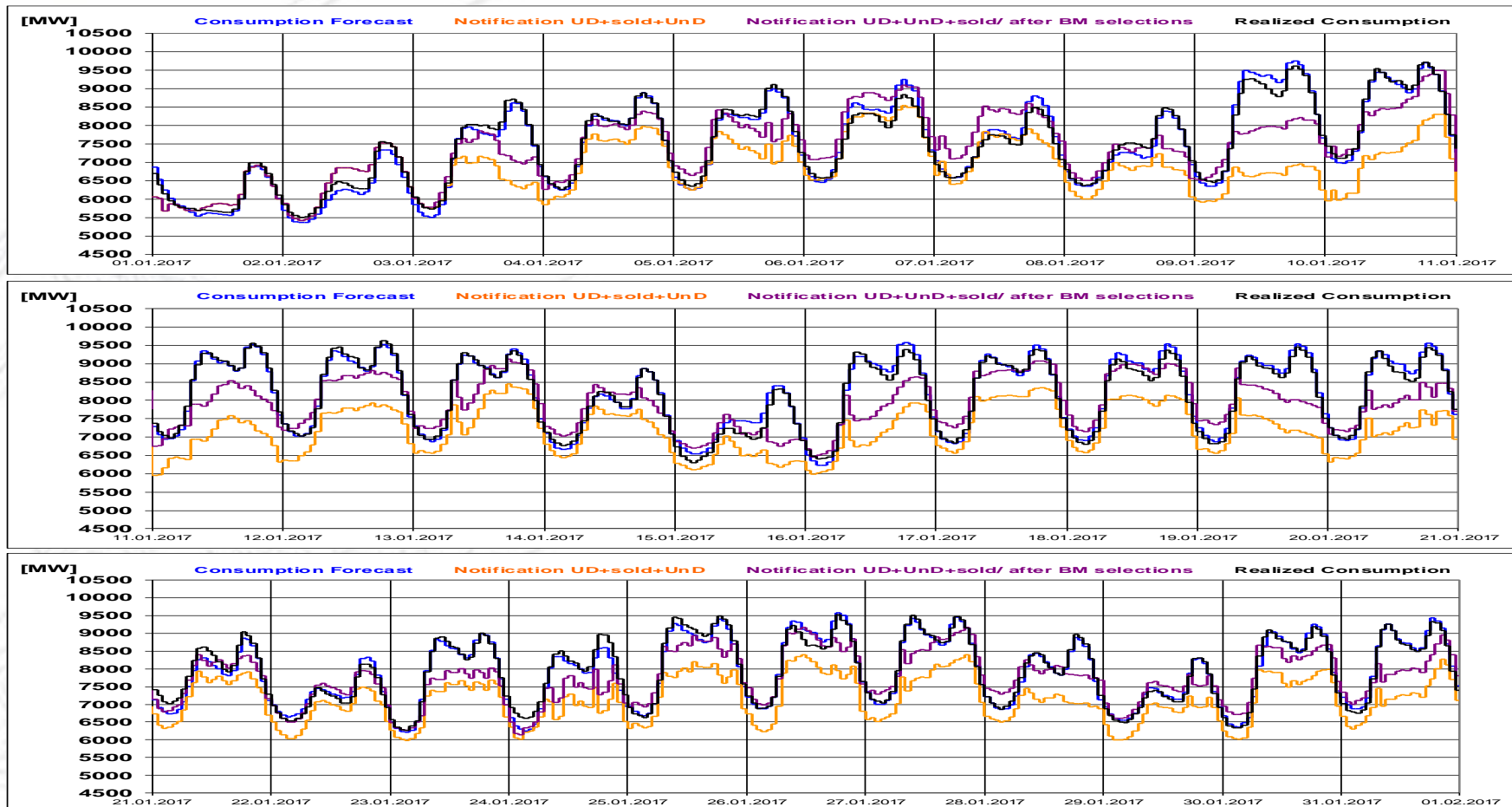


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**Realized consumption. forecast. notifications.  
notifications after BM selections in D-1**



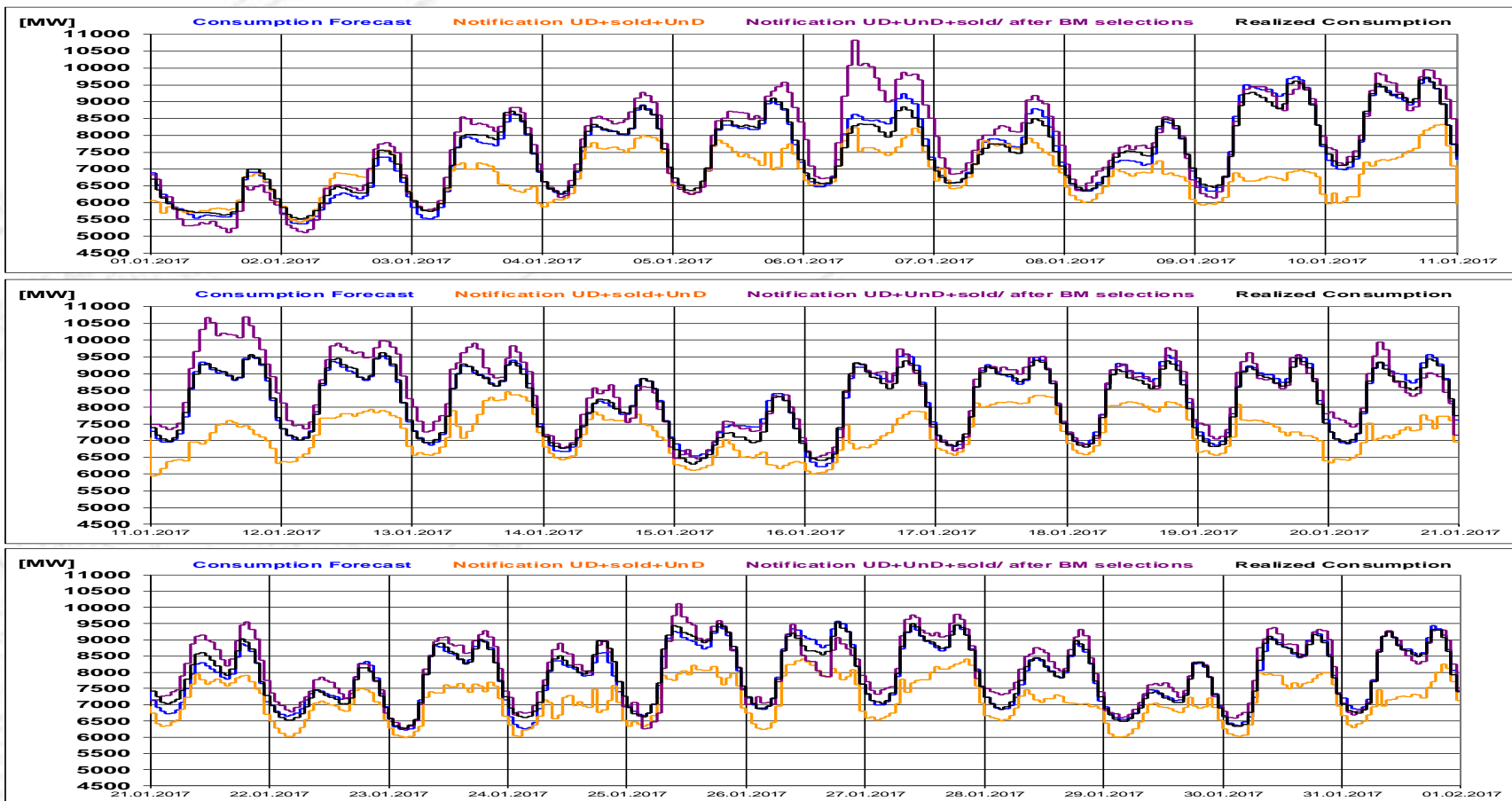


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# Balancing Market

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



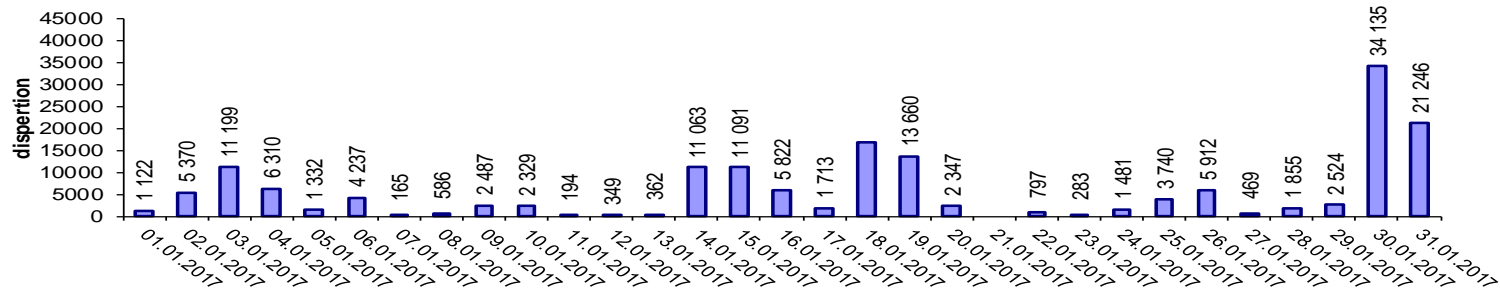


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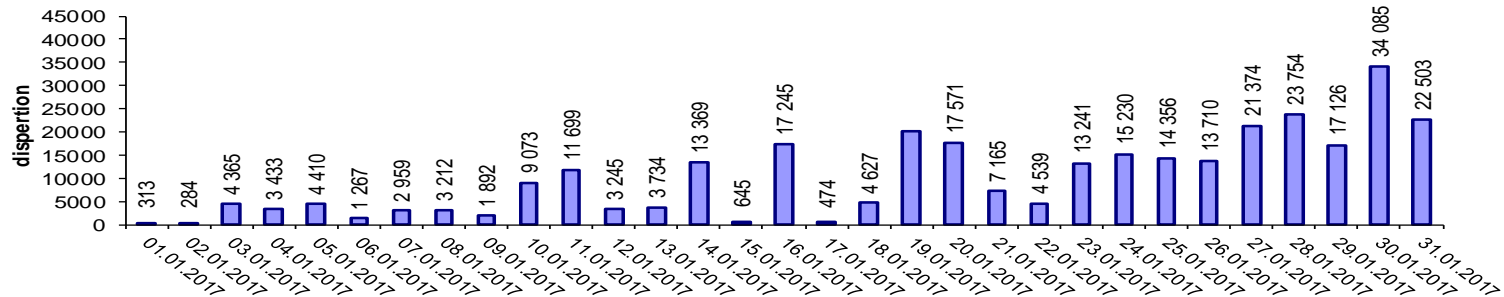
# Balancing Market

## 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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## Contact persons

### Transelectrica - Market Monitoring Department

**Contact persons:**

*Octavia Unguroiu - Phone: 021 3035636;*

*Mihaela Petrescu - Phone: 021 3035633;*

### Transelectrica - Operational Planning and Analysis Department

**Contact person:**

*Emanuel Ionita - Phone: 021 3035655*

**Email: [monitorizare@transelectrica.ro](mailto:monitorizare@transelectrica.ro)**

**Fax: 021 3035630**