

MARKET MONITORING REPORT

Market for Allocation of Cross-Border Capacities

December 2018

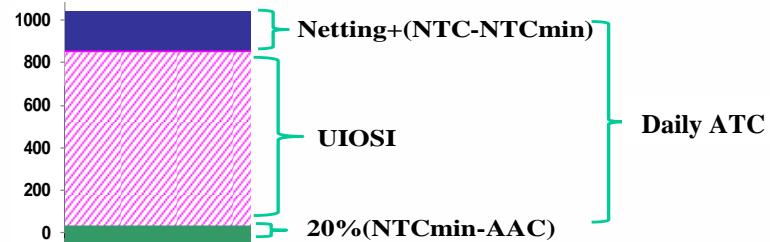
- ANRE - Romanian Energy Regulatory Authority
- HHI - Herfindahl-Hirschman Index
- BRP - Balance Responsible Party
- BM - Balancing Market
- DAM - Day Ahead Market
- TSO - Transmission System Operator
- DU – Dispatchable Unit
- PN – Physical Notification
- NDC - National Dispatching Center
- C1 – The 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) is published on the website **www.transelectrica.ro**

General Remarks

- According to the agreements between Transelectrica and neighbors for year 2018 :
 - ✓ on the Bulgarian border, the bilateral coordinated allocation is done for 100% of total capacity by Transelectrica for long term auctions and by ESO EAD for daily auctions. The “netting” principle is applied to daily allocation. Starting with 01.01.2015, intraday auctions are no longer organized on the Bulgarian border, since the Bulgarian market rules are not allowing intraday cross-border exchanges, modifications of the notified schedules after 15:30 (CET) in D-1 for day D are prohibited.
 - ✓ on the Hungarian border, the bilateral coordinated allocation, is done for 100% of total capacity by MAVIR for long term auctions (based on Allocation Rules for Forward Capacity Allocation (HAR) and border specific Annex) and by Transelectrica for intra-day auctions. Implicit daily allocations are held since the CZ-SK-HU-RO day-ahead market coupling. In the event of decoupling, MAVIR is in charge with the explicit daily auctions (shadow auctions) for RO-HU border. The “netting” is applied to daily and intra-day allocation.
 - ✓ on the Serbian border, the bilateral coordinated allocation, is done for 100% of total capacity by EMS (Serbia) for daily auctions and by Transelectrica for long term daily and intra-day auctions. The “netting” is applied to daily and intra-day allocation.
 - ✓ *The („use it or sell it“) principle is applied on Hungarian, Bulgarian and Serbian borders.*
 - ✓ on Hungarian and Bulgarian borders is applied:
 - ✓ reservation of a percentage of interconnection capacity for short term auction, offered capacity being calculated as 80% of the minimum of available capacities of all periods of the month;
 - ✓ introduction of UIOSI (*„use it or sell it“*) principle.
- Transelectrica's auctions are held on Damas platform, with euro currency trading.
- Starting with 1st of January 2018, on Romania – Bulgaria and Romania – Serbia borders and starting with 1st of February 2018 on Romania – Hungary border, the use of the physical transport rights is performed in accordance with the m:n nomination principle, for all time horizons.
- Long term auction results on the Hungarian border and daily auction results on the Bulgarian and Serbian borders (auction prices, allocated capacities) are provided by the respective TSO's.
- The intra-day allocation is done in six auction sessions for time intervals: 00:00-04:00, 04:00-08:00, 08:00-12:00, 12:00-16:00, 16:00-20:00, 20:00-00:00 CET.



General Remarks

- Usage of allocated capacity on Ukrainian and Moldavian border is restricted by Ukrainian TSO agreement and respectively by the approval of the distribution operator of the passive consumption islands.
- Monthly auctions for December 2018 (01.12 – 31.12.2018) were held as: import/export Hungary*; import/export Bulgaria*; import/export Serbia and import/export Ukraine.
- In December 2018 there were no auctions held on Moldavian border.

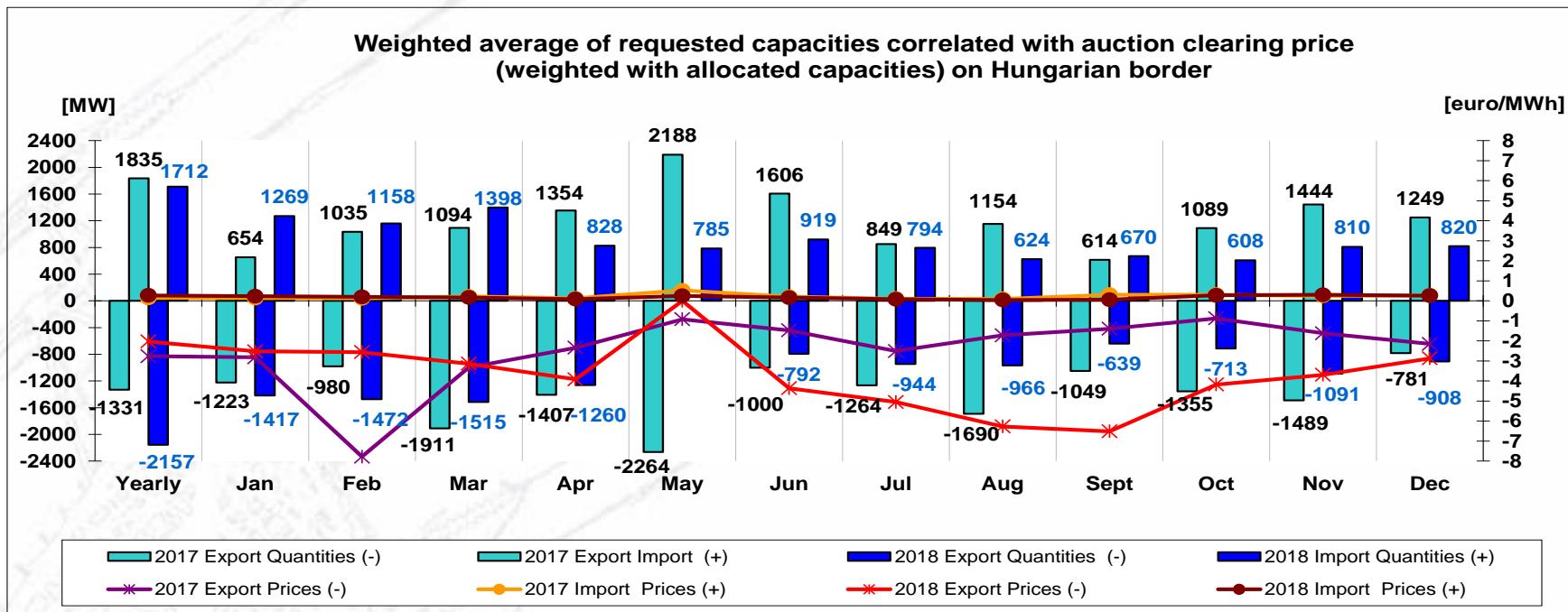
* according to the allocation rules, monthly offered capacity was calculated taking into account the minimum of NTC's monthly value.

Monthly auction Results of 01 – 31 December 2018

| | Prices [euro/MWh] | Capacities [MW] | | | | | | | | |
|------------------------------|-------------------|-----------------|-----|-----|-----|----------|---------|-----------|-----------|---------------|
| | | TTC | NTC | ATC | AAC | Reserved | Offered | Requested | Allocated | Final Rights* |
| Hungary export | | | | | | | | | | |
| 01 - 31 December 2018 | 2.87 | 600 | 500 | 150 | 350 | 0 | 120 | 908 | 119 | 469 |
| Hungary import | | | | | | | | | | |
| 01 - 31 December 2018 | 0.26 | 800 | 700 | 350 | 350 | 0 | 280 | 820 | 280 | 630 |
| Bulgaria export | | | | | | | | | | |
| 01 - 31 December 2018 | 0.22 | 450 | 350 | 250 | 100 | - | 200 | 470 | 200 | 300 |
| Bulgaria import | | | | | | | | | | |
| 01 - 31 December 2018 | 9.63 | 500 | 400 | 300 | 100 | - | 240 | 442 | 240 | 340 |
| Serbia export | | | | | | | | | | |
| 01 - 31 December 2018 | 2.12 | 600 | 500 | 300 | 200 | - | 300 | 751 | 300 | 500 |
| Serbia import | | | | | | | | | | |
| 01 - 31 December 2018 | 0.02 | 900 | 800 | 650 | 150 | - | 650 | 1076 | 650 | 800 |
| Ukraine export | | | | | | | | | | |
| 01 - 31 December 2018 | 0.26 | 150 | 50 | 50 | - | - | 50 | 96 | 50 | 50 |
| Ukraine import | | | | | | | | | | |
| 01 - 31 December 2018 | 0.03 | 400 | 300 | 300 | - | - | 300 | 436 | 300 | 300 |
| Moldavia export | | | | | | | | | | |
| 01 - 31 December 2018 | - | - | - | - | - | - | - | - | - | - |
| Moldavia import | | | | | | | | | | |
| 01 - 31 December 2018 | - | - | - | - | - | - | - | - | - | - |
| RO_Vulcanesti | | | | | | | | | | |
| 01 - 31 December 2018 | - | - | - | - | - | - | - | - | - | - |
| RO_Costesti | | | | | | | | | | |
| 01 - 31 December 2018 | - | - | - | - | - | - | - | - | - | - |
| RO_Cioara | | | | | | | | | | |
| 01 - 31 December 2018 | - | - | - | - | - | - | - | - | - | - |

* final rights = monthly allocated capacity + yearly allocated capacity after withdrawals.

Market for Allocation of Cross-Border Capacities

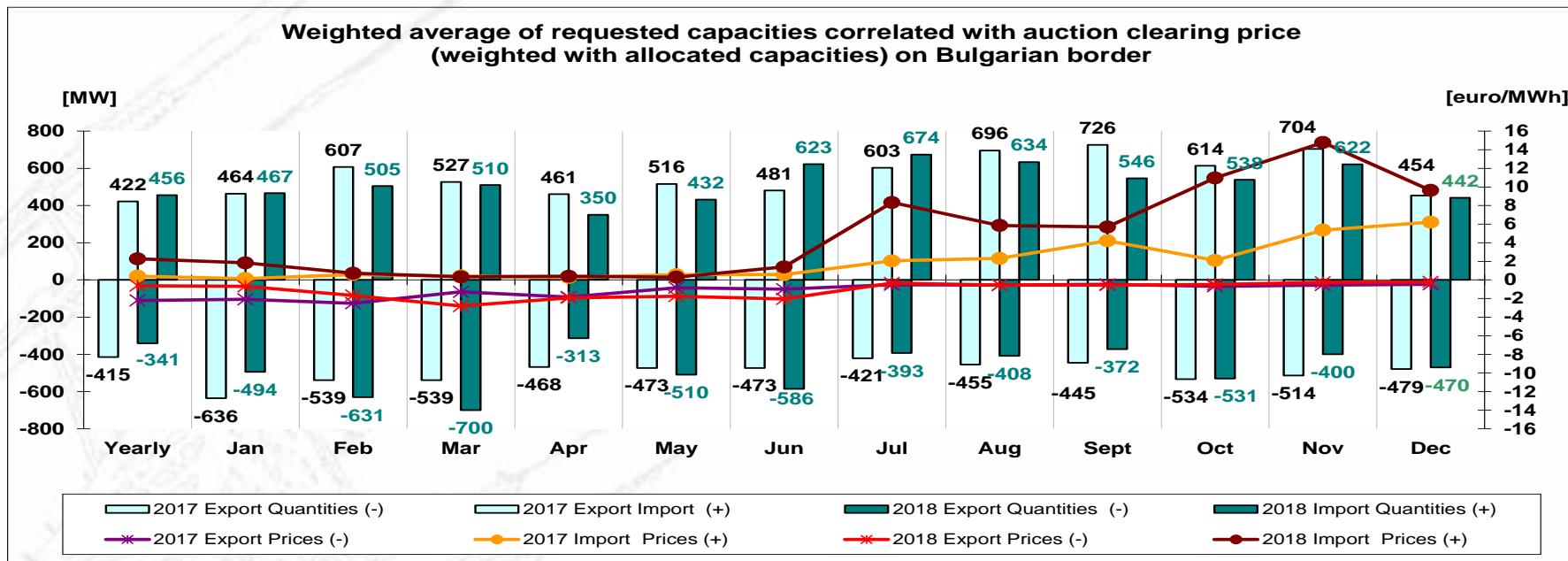


| Border | Yearly | Jan. 18 | Feb.18 | Mar.18 | Apr.18 | May 18 | Jun. 18 | Jul. 18 | Aug. 18 | Sept. 18 | Oct. 18 | Nov.18 | Dec. 18 |
|----------------|--------|---------|--------|--------|--------|--------|---------|---------|---------|----------|---------|--------|---------|
| Hungary export | 2.03 | 2.52 | 2.56 | 3.14 | 3.92 | - | 4.36 | 5.05 | 6.27 | 6.51 | 4.18 | 3.69 | 2.87 |
| Hungary import | 0.27 | 0.23 | 0.20 | 0.17 | 0.09 | 0.25 | 0.16 | 0.08 | 0.04 | 0.06 | 0.28 | 0.30 | 0.26 |

| Border | Yearly | Jan. 17 | Feb.17 | Mar.17 | Apr.17 | May 17 | Jun. 17 | Jul. 17 | Aug. 17 | Sept. 17 | Oct. 17 | Nov.17 | Dec. 17 |
|----------------|--------|---------|--------|--------|--------|--------|---------|---------|---------|----------|---------|--------|---------|
| Hungary export | 2.76 | 2.82 | 7.78 | 3.32 | 2.34 | 0.92 | 1.47 | 2.51 | 1.72 | 1.39 | 0.87 | 1.62 | 2.15 |
| Hungary import | 0.15 | 0.14 | 0.13 | 0.22 | 0.13 | 0.52 | 0.21 | 0.11 | 0.10 | 0.31 | 0.31 | 0.25 | 0.27 |

- Compared with the similar month of 2017, in December 2018 the auction price slightly increased on export direction, while offered capacity and capacity request were higher. On import direction, monthly auction price was comparable with the price from December 2017.

Market for Allocation of Cross-Border Capacities



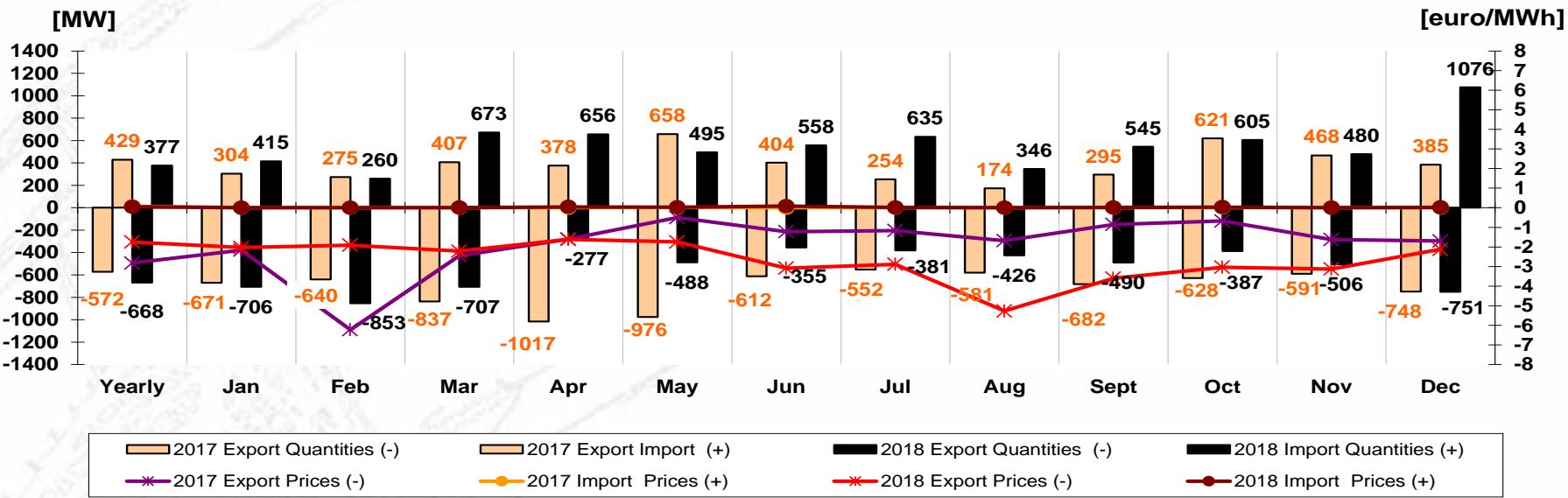
| Border | Yearly | Jan. 18 | Feb.18 | Mar.18 | Apr.18 | May 18 | Jun. 18 | Jul. 18 | Aug. 18 | Sept. 18 | Oct. 18 | Nov.18 | Dec. 18 |
|-----------------|--------|---------|--------|--------|--------|--------|---------|---------|---------|----------|---------|--------|---------|
| Bulgaria export | 0.62 | 0.69 | 1.67 | 2.81 | 1.92 | 1.75 | 2.05 | 0.33 | 0.55 | 0.55 | 0.49 | 0.26 | 0.22 |
| Bulgaria import | 2.27 | 1.83 | 0.72 | 0.33 | 0.40 | 0.30 | 1.40 | 8.33 | 5.85 | 5.69 | 10.96 | 14.78 | 9.63 |

| Border | Yearly | Jan. 17 | Feb.17 | Mar.17 | Apr.17 | May 17 | Jun. 17 | Jul. 17 | Aug. 17 | Sept. 17 | Oct. 17 | Nov.17 | Dec. 17 |
|-----------------|--------|---------|--------|--------|--------|--------|---------|---------|---------|----------|---------|--------|---------|
| Bulgaria export | 2.21 | 2.09 | 2.51 | 1.28 | 1.85 | 0.84 | 1.00 | 0.52 | 0.55 | 0.48 | 0.68 | 0.55 | 0.48 |
| Bulgaria import | 0.41 | 0.15 | 0.58 | 0.43 | 0.27 | 0.57 | 0.57 | 2.05 | 2.31 | 4.21 | 2.10 | 5.35 | 6.21 |

- Compared with previous year, in December 2018 the auction price maintained low on export direction, while offered capacity increased and capacity request was similar. Compared with previous year, the auction price significantly increased on import direction, while offered capacity increased and capacity request slightly decreased.

Market for Allocation of Cross-Border Capacities

Weighted average of requested capacities correlated with auction clearing price (weighted with allocated capacities) on Serbian border

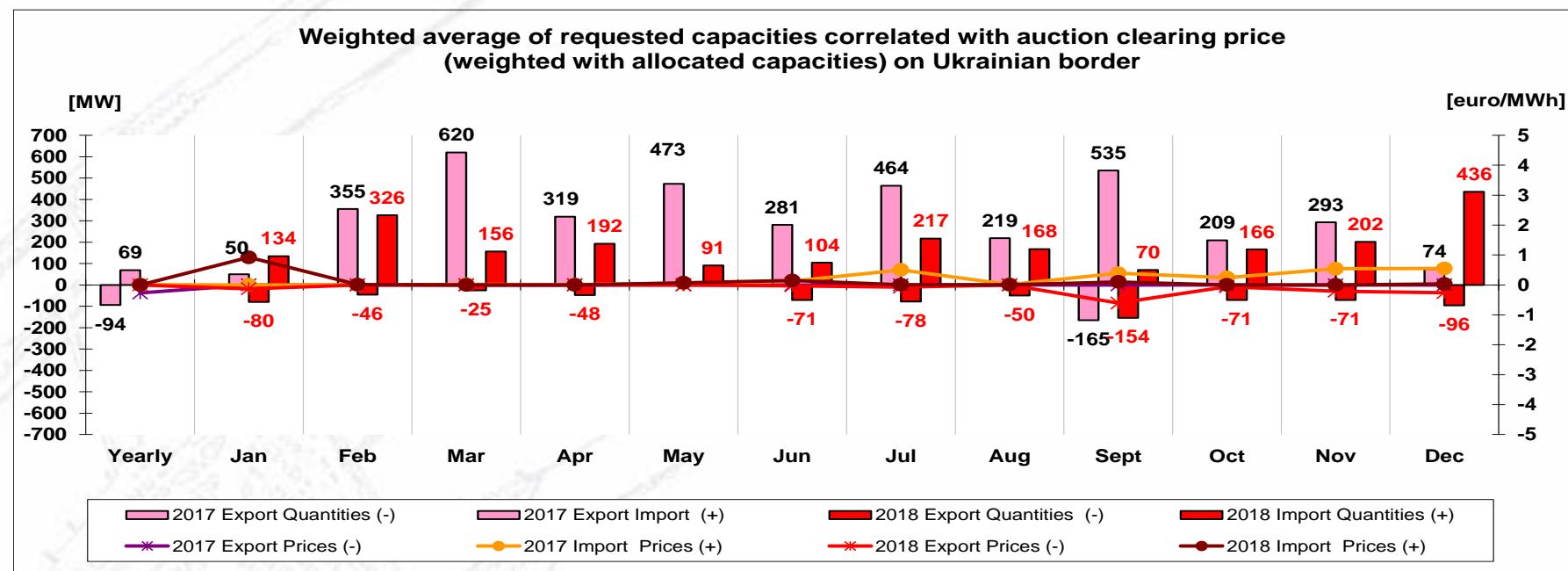


| Border | Yearly | Jan. 18 | Feb.18 | Mar.18 | Apr.18 | May 18 | Jun. 18 | Jul. 18 | Aug. 18 | Sept. 18 | Oct. 18 | Nov.18 | Dec. 18 |
|---------------|--------|---------|--------|--------|--------|--------|---------|---------|---------|----------|---------|--------|---------|
| Serbia export | 1.75 | 2.03 | 1.91 | 2.22 | 1.62 | 1.75 | 3.08 | 2.89 | 5.27 | 3.60 | 3.04 | 3.12 | 2.12 |
| Serbia import | 0.05 | 0.00 | 0.00 | 0.01 | 0.04 | 0.03 | 0.08 | 0.01 | 0.00 | 0.01 | 0.03 | 0.00 | 0.02 |

| Border | Yearly | Jan. 17 | Feb.17 | Mar.17 | Apr.17 | May 17 | Jun. 17 | Jul. 17 | Aug. 17 | Sept. 17 | Oct. 17 | Nov.17 | Dec. 17 |
|---------------|--------|---------|--------|--------|--------|--------|---------|---------|---------|----------|---------|--------|---------|
| Serbia export | 2.82 | 2.16 | 6.23 | 2.45 | 1.60 | 0.50 | 1.22 | 1.16 | 1.68 | 0.86 | 0.67 | 1.62 | 1.69 |
| Serbia import | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.00 |

- Compared with previous year, in December 2018 the auction price slightly increased on export direction, while offered capacity and capacity request did not vary significantly. In December 2018 monthly auction price was low on import direction, while offered capacity and capacity request were higher.

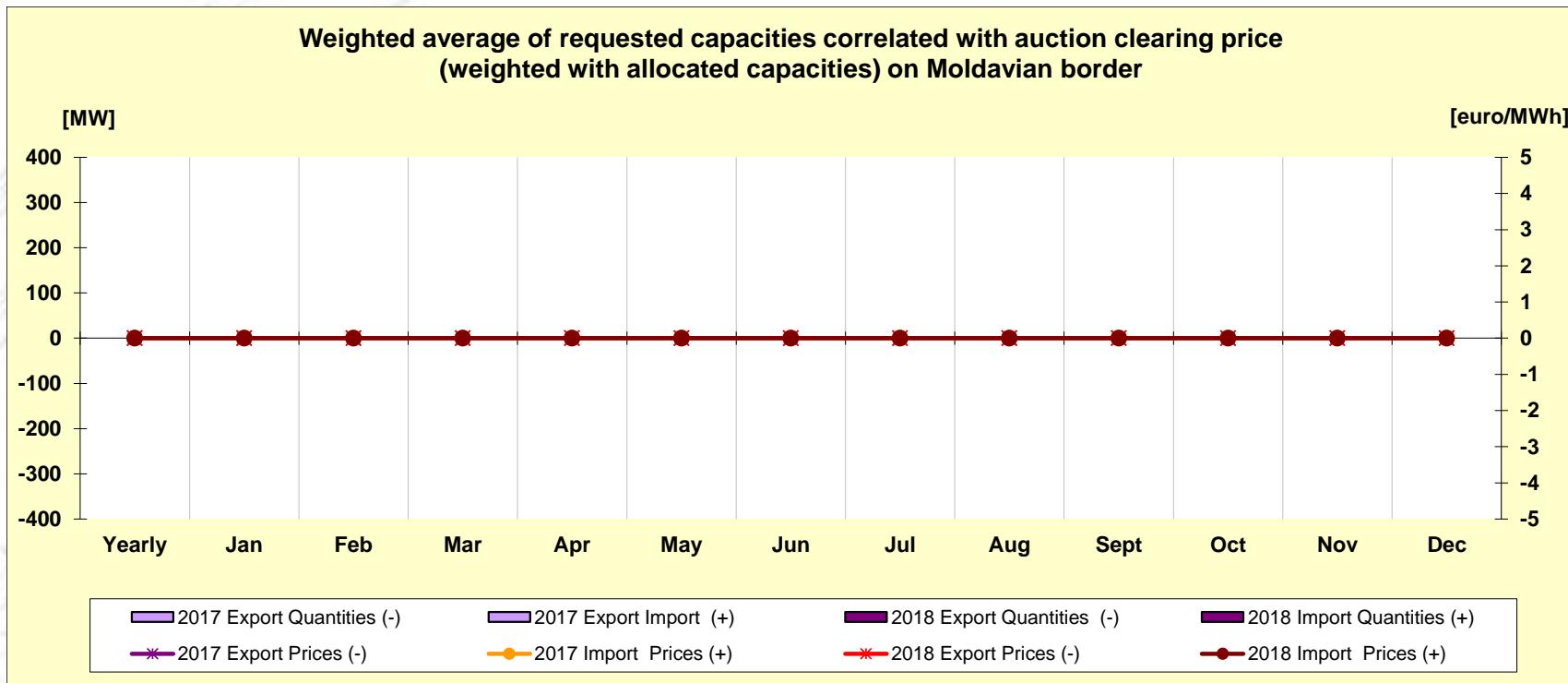
Market for Allocation of Cross-Border Capacities



| Border | Yearly | Jan. 18 | Feb.18 | Mar.18 | Apr.18 | May 18 | Jun. 18 | Jul. 18 | Aug. 18 | Sept. 18 | Oct. 18 | Nov.18 | Dec. 18 |
|----------------|--------|---------|--------|--------|--------|--------|---------|---------|---------|----------|---------|--------|---------|
| Ukraine export | - | 0.13 | 0.00 | 0.00 | 0.00 | - | 0.03 | 0.08 | 0.00 | 0.61 | 0.06 | 0.21 | 0.26 |
| Ukraine import | - | 0.92 | 0.01 | 0.00 | 0.00 | 0.07 | 0.15 | 0.01 | 0.01 | 0.10 | 0.00 | 0.00 | 0.03 |

| Border | Yearly | Jan. 17 | Feb.17 | Mar.17 | Apr.17 | May 17 | Jun. 17 | Jul. 17 | Aug. 17 | Sept. 17 | Oct. 17 | Nov.17 | Dec. 17 |
|----------------|--------|---------|--------|--------|--------|--------|---------|---------|---------|----------|---------|--------|---------|
| Ukraine export | 0.27 | - | - | - | - | - | - | - | - | 0.00 | - | - | - |
| Ukraine import | 0.01 | 0.00 | 0.00 | 0.02 | 0.01 | 0.06 | 0.13 | 0.50 | 0.01 | 0.39 | 0.24 | 0.54 | 0.55 |

- Compared with previous year, in December 2018 the capacity request increased and the auction price maintained low on import direction, while offered capacity was higher. Compared with similar month of the previous year, in December 2018 the offered capacity was different from zero on export direction, but the auction price had a low value.

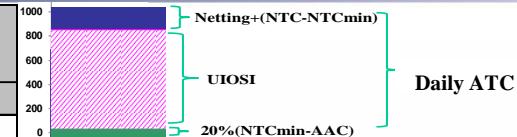


| Border | Yearly | Jan. 18 | Feb.18 | Mar.18 | Apr.18 | May 18 | Jun. 18 | Jul. 18 | Aug. 18 | Sept. 18 | Oct. 18 | Nov.18 | Dec. 18 |
|-----------------|--------|---------|--------|--------|--------|--------|---------|---------|---------|----------|---------|--------|---------|
| Moldavia export | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Moldavia import | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Border | Yearly | Jan. 17 | Feb.17 | Mar.17 | Apr.17 | May 17 | Jun. 17 | Jul. 17 | Aug. 17 | Sept. 17 | Oct. 17 | Nov.17 | Dec. 17 |
| Moldavia export | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Moldavia import | - | - | - | - | - | - | - | - | - | - | - | - | - |

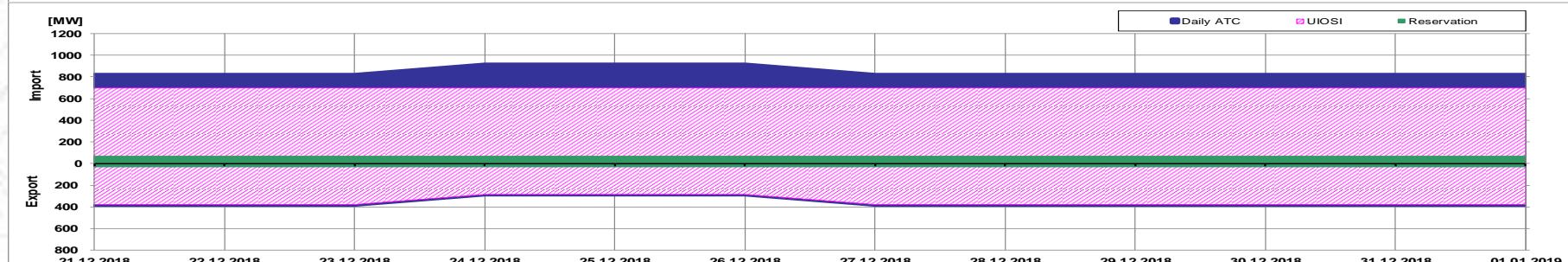
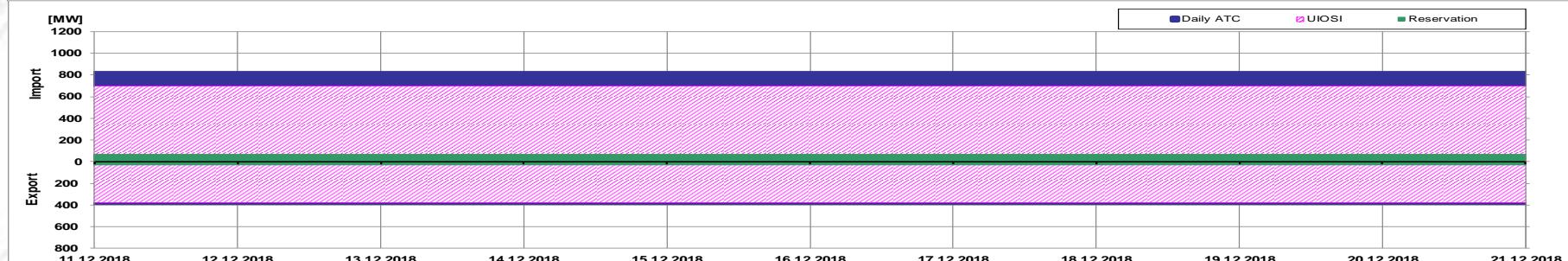
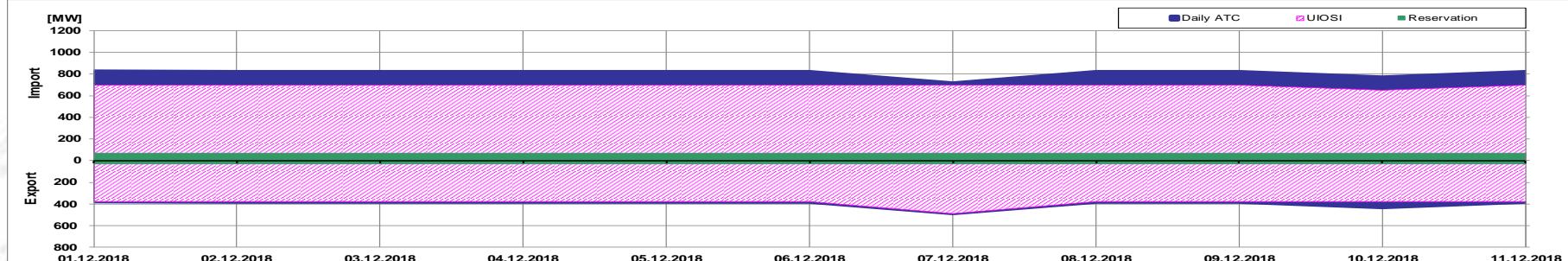
Market for Allocation of Cross-Border Capacities

Daily implicit Auctions on Romanian – Hungarian border

| Reserved Capacity [MW] average value | | Unused Capacity [MW] average value | |
|---|-------|---------------------------------------|-------|
| RO-HU | HU-RO | RO-HU | HU-RO |
| 30 | 70 | 361 | 629 |



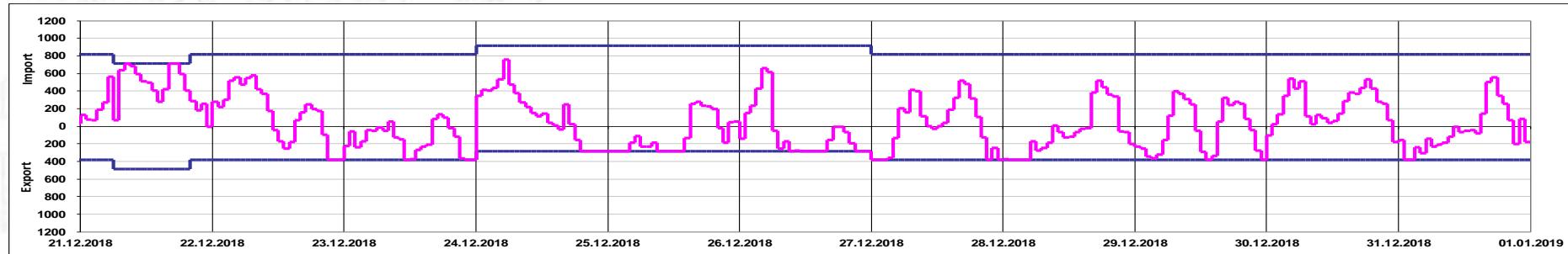
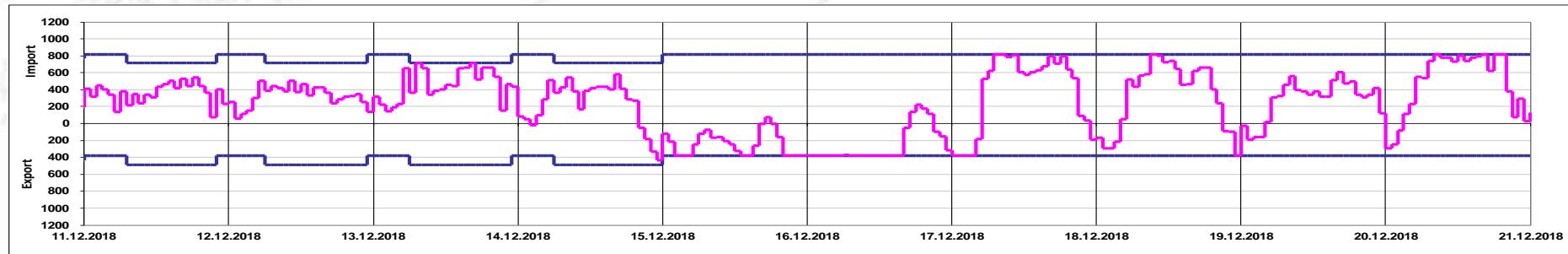
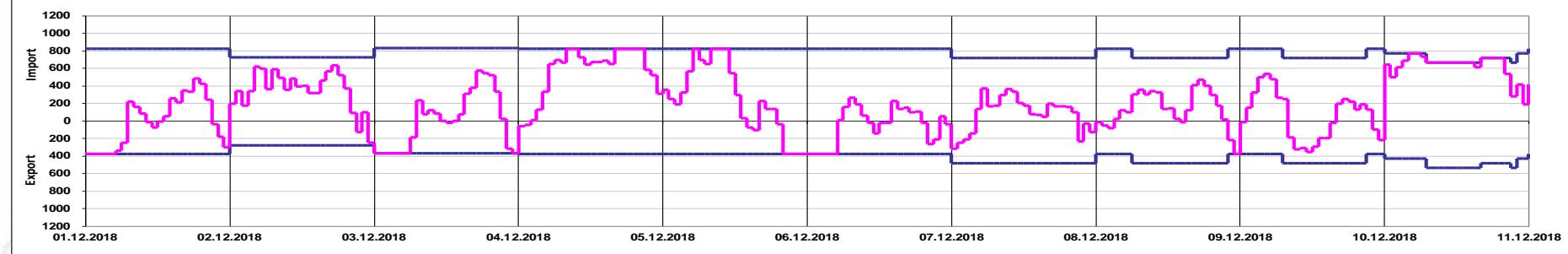
Hungary December 2018



Market for Allocation of Cross-Border Capacities

Daily implicit Auctions on Romanian – Hungarian border

Hungary December 2018



Offered Capacity on Daily Auction [MW]

Net Position Border RO – HU [MWh]

Public

Market for Allocation of Cross-Border Capacities

Daily implicit Auctions on Romanian – Hungarian border

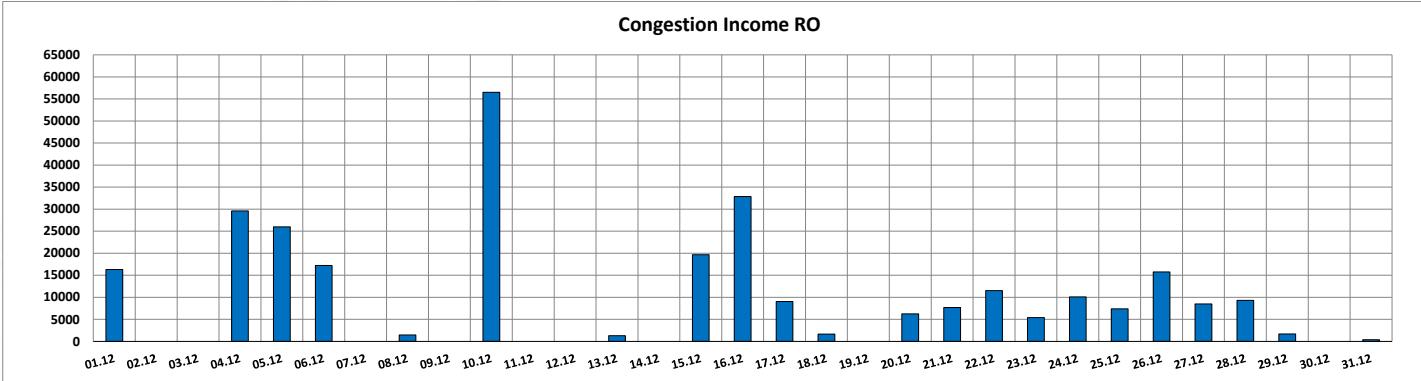
Congestion Prices [Euro/MWh]

| 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 | Max |
|-----|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|-------|-------|-------|-------|
| 1 | 29.80 | 23.58 | 19.09 | 9.62 | 4.83 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 29.80 | |
| 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0.00 | |
| 3 | 11.32 | 7.83 | 5.83 | 4.75 | 5.42 | 3.52 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 5.59 | 11.32 |
| 4 | - | - | - | - | - | - | - | - | 11.35 | 3.56 | - | - | - | - | - | - | 12.79 | 26.88 | 9.45 | 0.64 | 7.50 | - | - | - | 26.88 |
| 5 | - | - | - | - | - | 4.84 | - | - | 16.30 | 7.97 | 0.05 | - | - | - | - | - | - | - | - | - | 4.78 | 27.35 | 22.13 | 19.59 | 27.35 |
| 6 | 27.72 | 28.12 | 23.61 | 10.02 | 1.11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 28.12 | |
| 7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0.00 | |
| 8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 7.64 | |
| 9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0.00 | |
| 10 | - | - | - | 3.99 | 18.08 | - | 11.14 | 16.89 | 14.15 | 13.01 | 16.05 | 16.85 | 17.13 | 13.30 | - | 9.74 | 2.90 | 5.53 | 5.91 | - | - | - | - | 18.08 | |
| 11 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0.00 | |
| 12 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0.00 | |
| 13 | - | - | - | - | - | - | - | 2.98 | - | - | - | - | - | - | - | 0.66 | - | - | - | - | - | - | - | 2.98 | |
| 14 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0.00 | |
| 15 | - | - | 2.26 | 7.22 | 5.89 | - | - | - | - | - | - | - | - | 1.94 | 0.01 | - | - | - | - | - | 4.30 | 21.50 | 24.56 | 35.85 | 35.85 |
| 16 | 8.60 | 5.14 | 2.89 | 2.13 | 0.91 | 0.21 | - | 13.48 | 11.82 | 18.58 | 20.86 | 20.99 | 21.32 | 20.47 | 16.41 | 9.15 | - | - | - | - | - | - | - | - | 21.32 |
| 17 | 7.58 | 8.85 | 5.71 | 2.30 | - | - | - | 3.82 | 6.89 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 8.85 | |
| 18 | - | - | - | - | - | - | - | - | - | 1.13 | - | - | - | - | - | - | - | - | - | - | - | - | - | 6.34 | |
| 19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0.00 | |
| 20 | - | - | - | - | - | - | - | - | 3.76 | - | - | - | - | - | - | 1.52 | - | 9.52 | 0.43 | - | - | - | - | 9.52 | |
| 21 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 10.31 | 11.20 | - | - | - | - | - | - | 11.20 | |
| 22 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 8.13 | |
| 23 | - | - | - | - | - | - | - | - | - | - | 3.98 | - | - | - | - | - | - | - | - | - | - | - | - | 15.75 | |
| 24 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0.51 | 11.28 | 16.58 | 9.57 | 32.94 | |
| 25 | 7.54 | 10.24 | 2.64 | 0.18 | - | - | - | - | - | 4.45 | 11.15 | 12.00 | 3.75 | - | - | - | - | - | - | - | - | - | - | 12.00 | |
| 26 | - | - | - | - | - | - | - | - | - | 3.47 | - | 8.57 | 14.63 | 13.51 | 8.67 | 10.15 | - | - | - | - | - | - | - | 26.94 | |
| 27 | 6.08 | 4.23 | 6.04 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 21.62 | |
| 28 | - | 14.88 | 15.53 | 14.94 | 3.65 | - | - | - | - | - | - | - | - | - | - | - | 7.21 | - | - | - | - | - | - | - | 15.53 |
| 29 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1.71 | |
| 30 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0.00 | |
| 31 | - | - | 1.84 | 0.21 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1.84 | |

Average 10.59 EUR/MWh

Market for Allocation of Cross-Border Capacities

Daily implicit Auctions on Romanian – Hungarian border



| Daily Income [Euro] | | Remuneration UIOSI [Euro] | |
|---------------------|--------|---------------------------|--------|
| RO-HU | HU-RO | RO-HU | HU-RO |
| 354858 | 236297 | 324064 | 193449 |
| 591155 | | 517513 | |

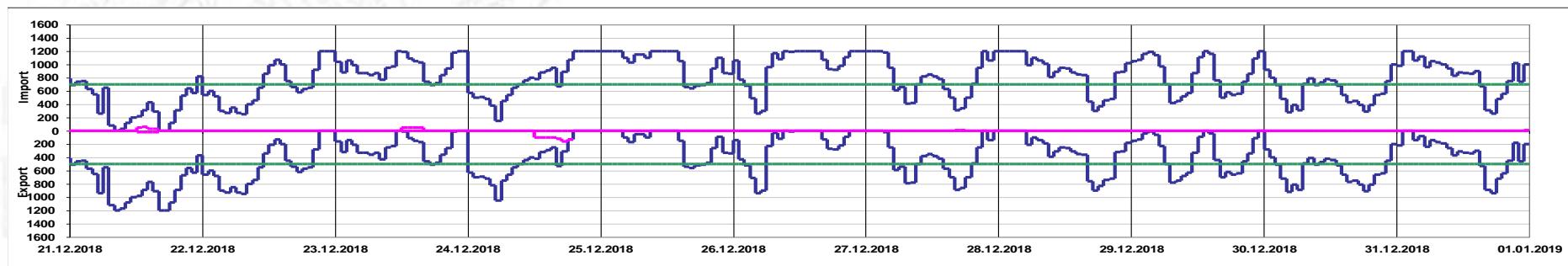
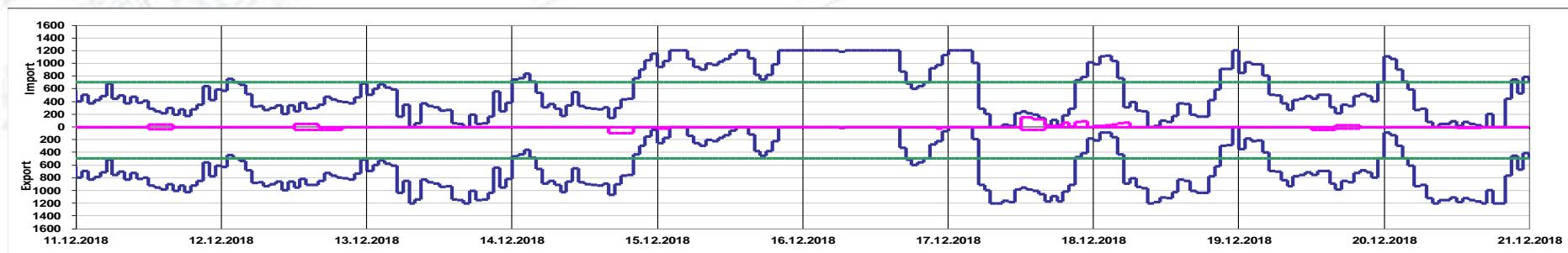
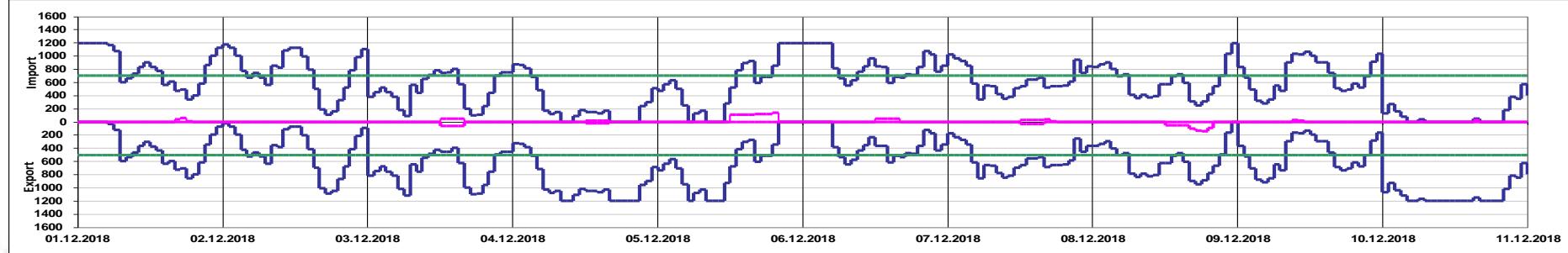
| TSO Income (Z-R) [Euro] | RO TSO Income (Z-R) [Euro] |
|-------------------------|----------------------------|
| 73642 | 36821 |

| Day | Congestion Income border RO-HU [Euro] | Congestion Income RO [Euro] |
|--------------|---------------------------------------|-----------------------------|
| 01.12 | 32595 | 16298 |
| 02.12 | 0 | 0 |
| 03.12 | 0 | 0 |
| 04.12 | 59179 | 29590 |
| 05.12 | 51974 | 25987 |
| 06.12 | 34420 | 17210 |
| 07.12 | 0 | 0 |
| 08.12 | 2903 | 1452 |
| 09.12 | 0 | 0 |
| 10.12 | 113027 | 56513 |
| 11.12 | 0 | 0 |
| 12.12 | 0 | 0 |
| 13.12 | 2603 | 1301 |
| 14.12 | 0 | 0 |
| 15.12 | 39341 | 19671 |
| 16.12 | 65725 | 32862 |
| 17.12 | 18069 | 9035 |
| 18.12 | 3336 | 1668 |
| 19.12 | 0 | 0 |
| 20.12 | 12489 | 6244 |
| 21.12 | 15380 | 7690 |
| 22.12 | 23024 | 11512 |
| 23.12 | 10769 | 5385 |
| 24.12 | 20201 | 10100 |
| 25.12 | 14806 | 7403 |
| 26.12 | 31535 | 15768 |
| 27.12 | 16990 | 8495 |
| 28.12 | 18620 | 9310 |
| 29.12 | 3390 | 1695 |
| 30.12 | 0 | 0 |
| 31.12 | 779 | 390 |
| Total | 591155 | 295577 |

Market for Allocation of Cross-Border Capacities

Intraday Auctions on Romanian – Hungarian border

Hungary December 2018



Offered Capacity on Intraday Auction Import (+) / Export (-) [MW]

Allocated Capacity on Intraday Auction Import (+) / Export (-) [MW]

Net Transfer Capacity (NTC) Import (+) / Export (-) [MW]

Public

Market for Allocation of Cross-Border Capacities

Intraday Auctions on Romanian – Hungarian border

Auction Price [Euro/MWh] - Export

| 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 | Max |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|------|------|------|-------|-----|
| 1 | - | - | - | - | - | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 6 | - | - | - | - | - | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | - | 0.00 | |
| 7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 8 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 9 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 15 | 0.00 | 0.00 | - | - | - | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | - | 0.00 | |
| 16 | - | - | - | - | - | 0.00 | - | - | - | - | - | - | - | - | - | - | - | - | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 17 | - | - | - | - | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | 0.00 | | |
| 23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | 0.00 | | |
| 24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.00 | - | - | - | 10.00 | |
| 25 | - | - | - | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | - | - | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | 0.00 | - | - | - | - | 0.00 | 0.00 | 0.00 | 0.00 | - | - | - | 0.00 | | |
| 27 | - | - | - | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | 0.00 | - | 0.00 | | |
| 28 | 0.00 | - | - | - | - | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | - | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 31 | 0.00 | - | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |

Hungary

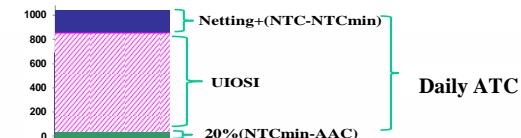
December 2018

Public

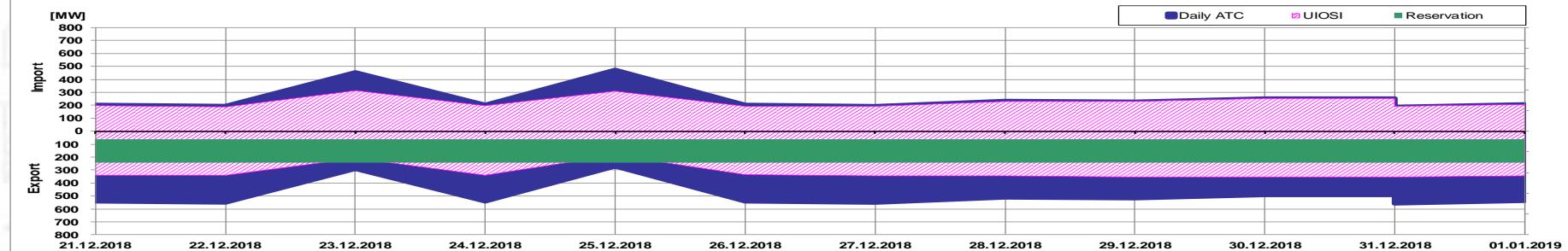
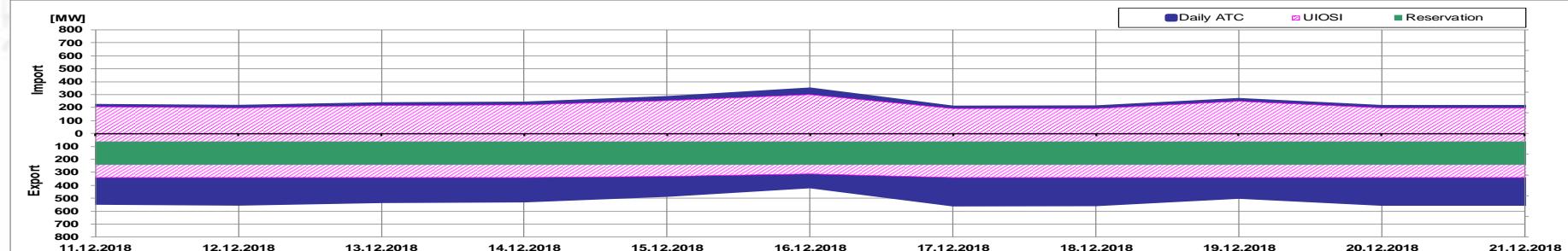
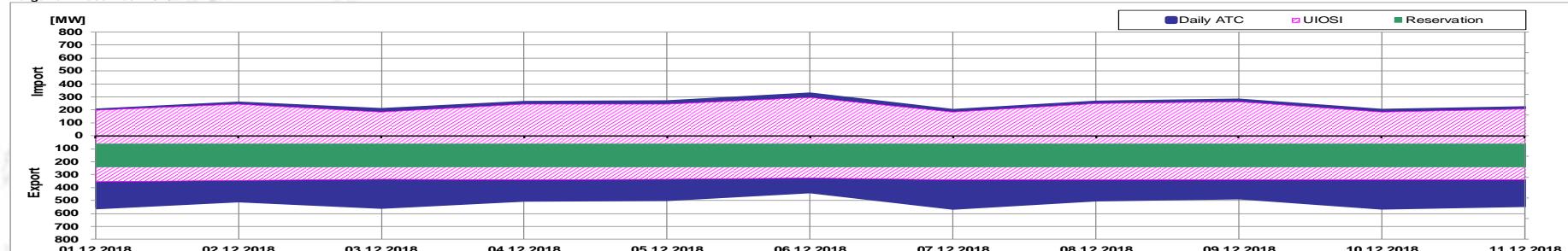
Market for Allocation of Cross-Border Capacities

Daily Auctions on Romanian – Bulgarian border

| Reserved Capacity [MW] average value | | Unused Capacity [MW] average value | |
|---|-------|---------------------------------------|-------|
| RO-BG | BG-RO | RO-BG | BG-RO |
| 50 | 60 | 287 | 141 |



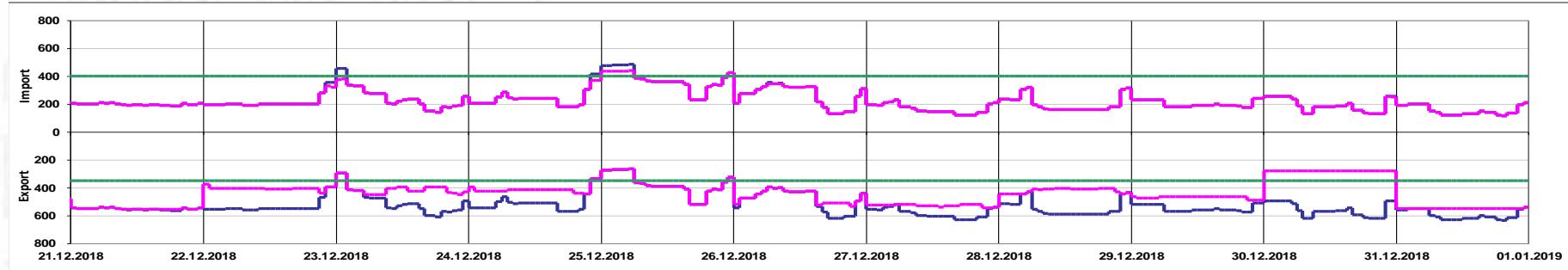
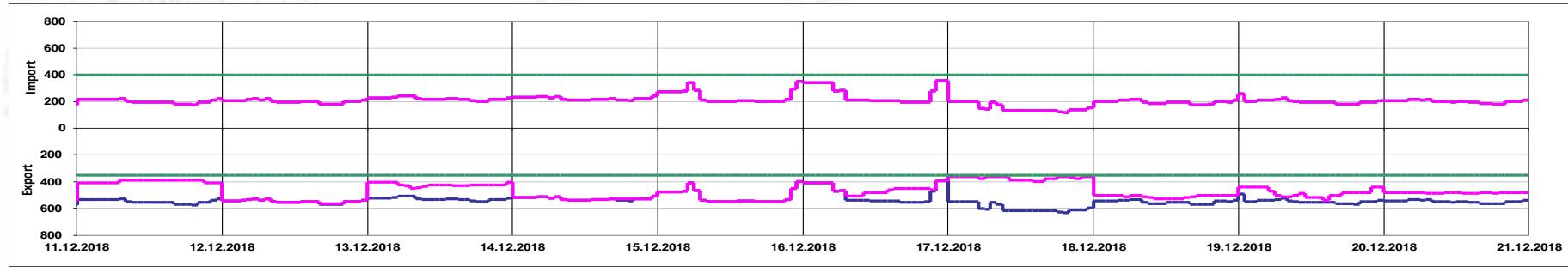
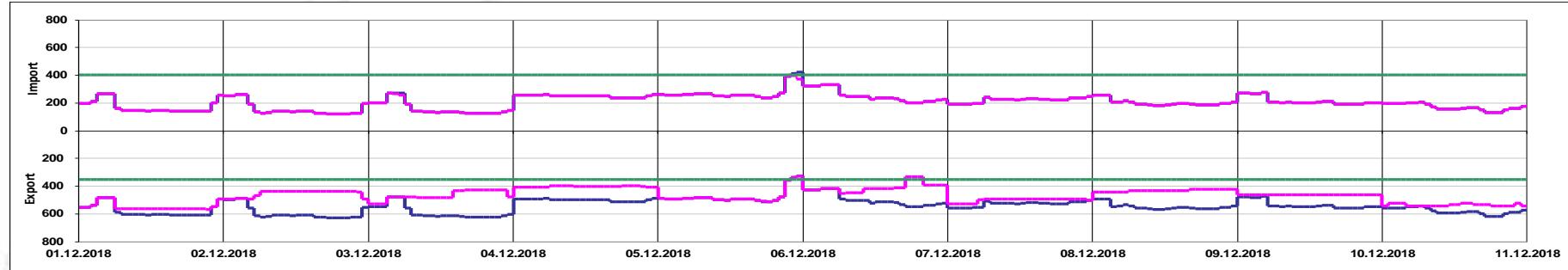
Bulgaria December 2018



Market for Allocation of Cross-Border Capacities

Daily Auctions on Romanian – Bulgarian border

Bulgaria December 2018

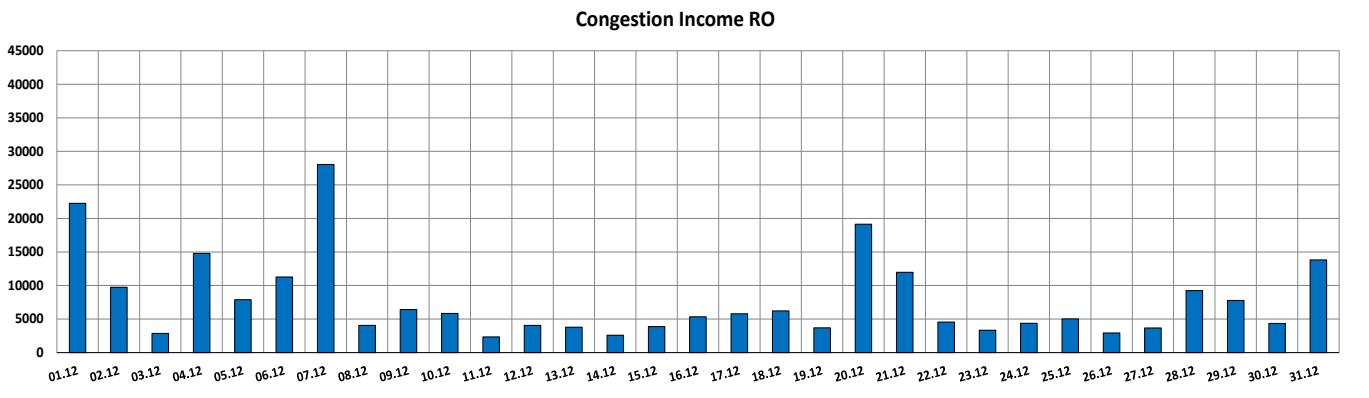


Allocated Capacity on Daily Auction Import (+) / Export (-) [MW]

Net Transfer Capacity (NTC) Import (+) / Export (-) [MW]

Market for Allocation of Cross-Border Capacities

Daily Allocation on Romanian – Bulgarian border



| Daily Income [Euro] | | Remuneration UIOSI [Euro] | |
|---------------------|--------|---------------------------|--------|
| RO-BG | BG-RO | RO-BG | BG-RO |
| 14386 | 467560 | 8182 | 304798 |
| 481946 | | 312980 | |

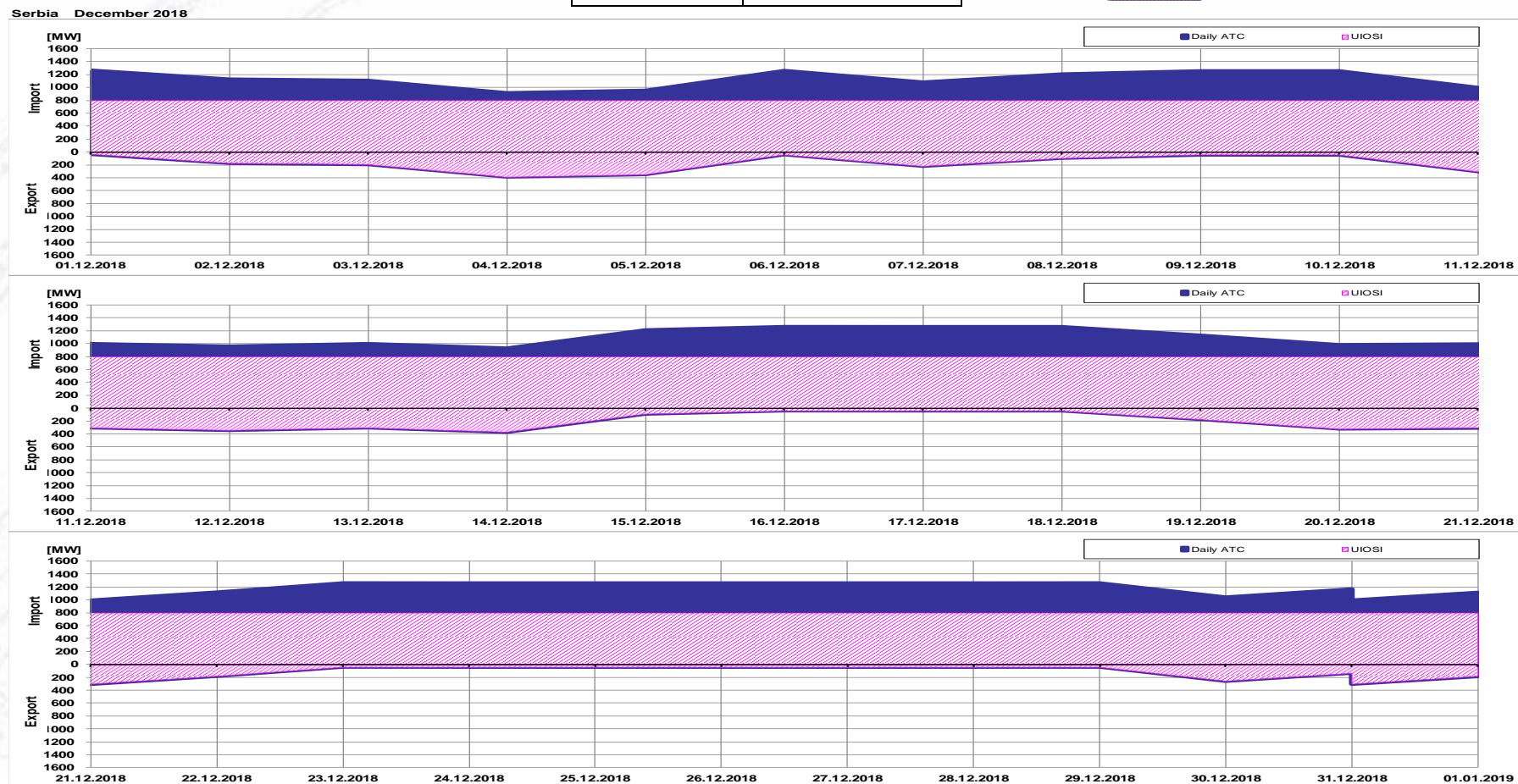
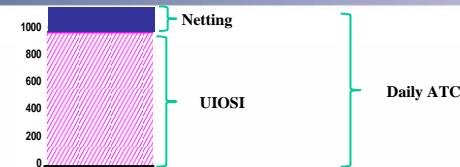
| TSO Income (Z-R) [Euro] | RO TSO Income (Z-R) [Euro] |
|-------------------------|----------------------------|
| 168966 | 84483 |

| Day | Congestion Income border RO-BG [Euro] | Congestion Income RO [Euro] |
|--------------|---------------------------------------|-----------------------------|
| 01.12 | 44479 | 22240 |
| 02.12 | 19476 | 9738 |
| 03.12 | 5738 | 2869 |
| 04.12 | 29576 | 14788 |
| 05.12 | 15773 | 7886 |
| 06.12 | 22542 | 11271 |
| 07.12 | 56097 | 28048 |
| 08.12 | 8095 | 4047 |
| 09.12 | 12829 | 6415 |
| 10.12 | 11651 | 5825 |
| 11.12 | 4697 | 2349 |
| 12.12 | 8106 | 4053 |
| 13.12 | 7565 | 3782 |
| 14.12 | 5172 | 2586 |
| 15.12 | 7734 | 3867 |
| 16.12 | 10682 | 5341 |
| 17.12 | 11565 | 5782 |
| 18.12 | 12429 | 6215 |
| 19.12 | 7392 | 3696 |
| 20.12 | 38286 | 19143 |
| 21.12 | 23941 | 11970 |
| 22.12 | 9111 | 4555 |
| 23.12 | 6688 | 3344 |
| 24.12 | 8723 | 4361 |
| 25.12 | 10053 | 5027 |
| 26.12 | 5870 | 2935 |
| 27.12 | 7335 | 3668 |
| 28.12 | 18480 | 9240 |
| 29.12 | 15555 | 7777 |
| 30.12 | 8686 | 4343 |
| 31.12 | 27622 | 13811 |
| Total | 481946 | 240973 |

Market for Allocation of Cross-Border Capacities

Daily Auctions on Romanian – Serbian border

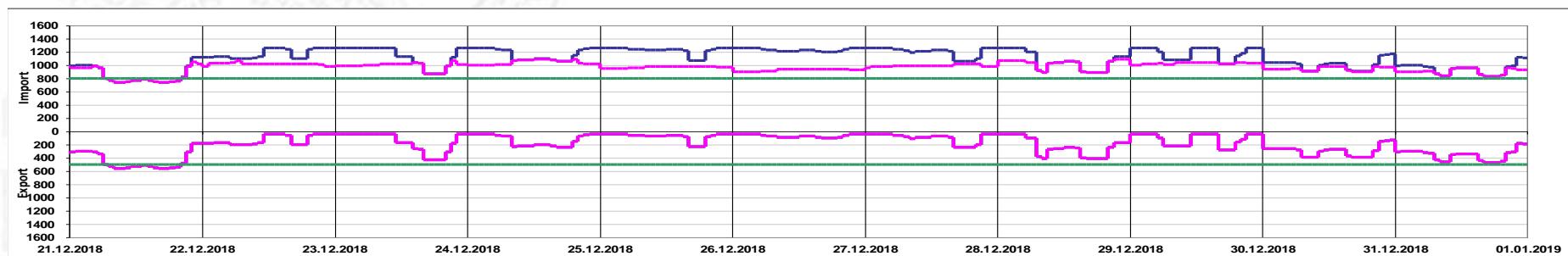
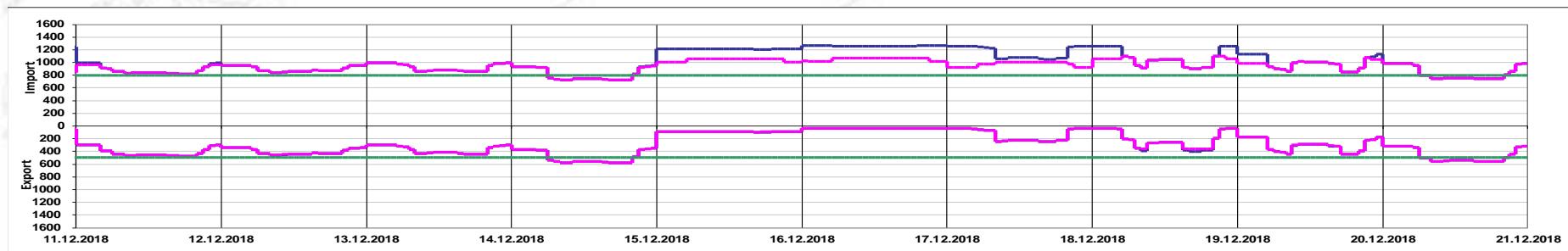
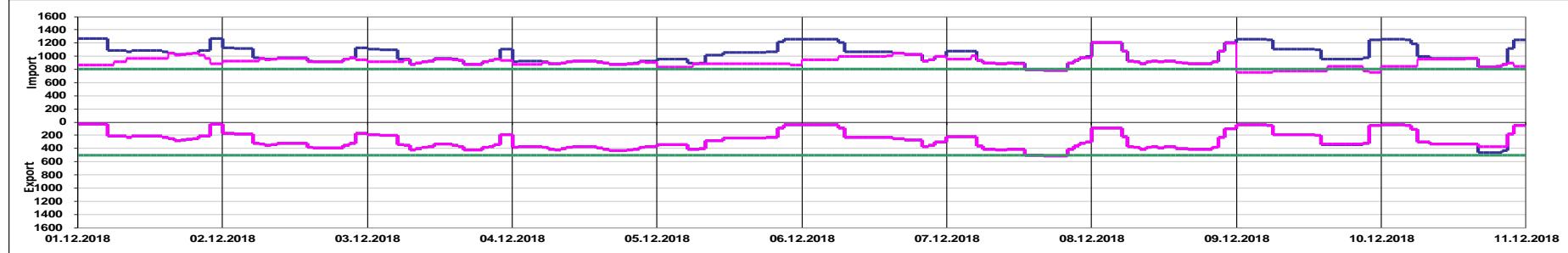
| Unused Capacity [MW] average value | |
|---------------------------------------|-------|
| RO-RS | RS-RO |
| 233 | 782 |



Market for Allocation of Cross-Border Capacities

Daily Auctions on Romanian – Serbian border

Serbia December 2018



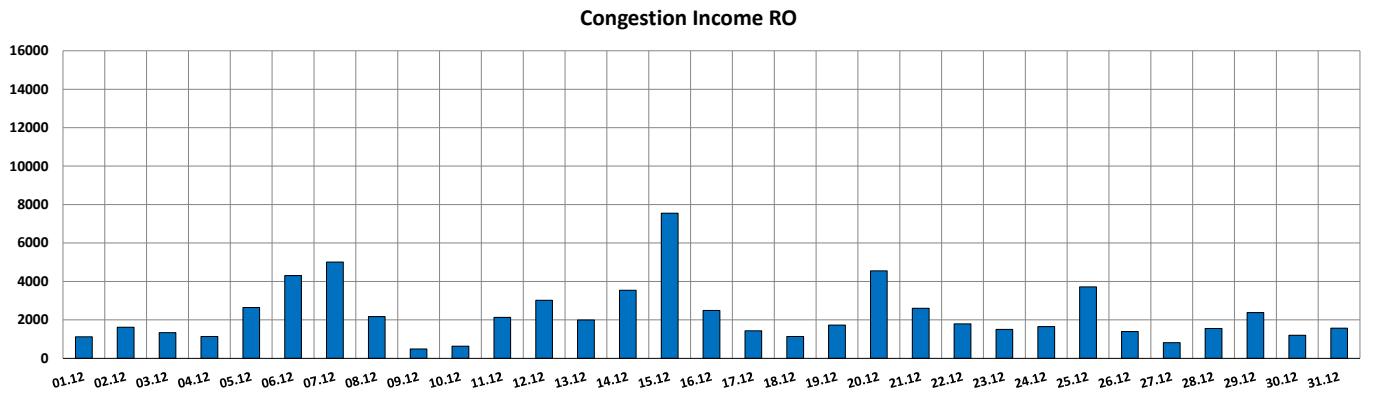
Offered Capacity on Daily Auction Import (+) / Export (-) [MW]

Allocated Capacity on Daily Auction Import (+) / Export (-) [MW]

Net Transfer Capacity (NTC) Import (+) / Export (-) [MW]

Market for Allocation of Cross-Border Capacities

Daily Allocation on Romanian – Serbian border



| Daily Income [Euro] | | Remuneration UIOSI [Euro] | |
|---------------------|-------|---------------------------|-------|
| RO-RS | RS-RO | RO-RS | RS-RO |
| 97222 | 43246 | 95338 | 37735 |
| 140469 | | 133073 | |

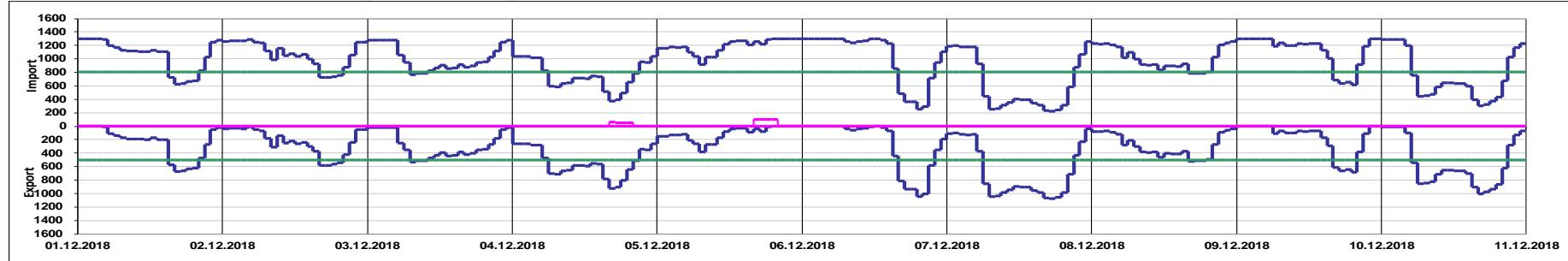
| TSO Income (Z-R) [Euro] | RO TSO Income (Z-R) [Euro] |
|-------------------------|----------------------------|
| 7396 | 3698 |

| Day | Congestion Income border RO-RS [Euro] | Congestion Income RO [Euro] |
|--------------|---------------------------------------|-----------------------------|
| 01.12 | 2246 | 1123 |
| 02.12 | 3239 | 1619 |
| 03.12 | 2676 | 1338 |
| 04.12 | 2279 | 1140 |
| 05.12 | 5287 | 2643 |
| 06.12 | 8612 | 4306 |
| 07.12 | 10021 | 5010 |
| 08.12 | 4338 | 2169 |
| 09.12 | 975 | 487 |
| 10.12 | 1270 | 635 |
| 11.12 | 4257 | 2129 |
| 12.12 | 6046 | 3023 |
| 13.12 | 3988 | 1994 |
| 14.12 | 7087 | 3543 |
| 15.12 | 15106 | 7553 |
| 16.12 | 4989 | 2495 |
| 17.12 | 2860 | 1430 |
| 18.12 | 2274 | 1137 |
| 19.12 | 3457 | 1729 |
| 20.12 | 9101 | 4551 |
| 21.12 | 5202 | 2601 |
| 22.12 | 3583 | 1791 |
| 23.12 | 3005 | 1503 |
| 24.12 | 3299 | 1650 |
| 25.12 | 7441 | 3720 |
| 26.12 | 2792 | 1396 |
| 27.12 | 1629 | 815 |
| 28.12 | 3108 | 1554 |
| 29.12 | 4754 | 2377 |
| 30.12 | 2403 | 1202 |
| 31.12 | 3143 | 1571 |
| Total | 140469 | 70234 |

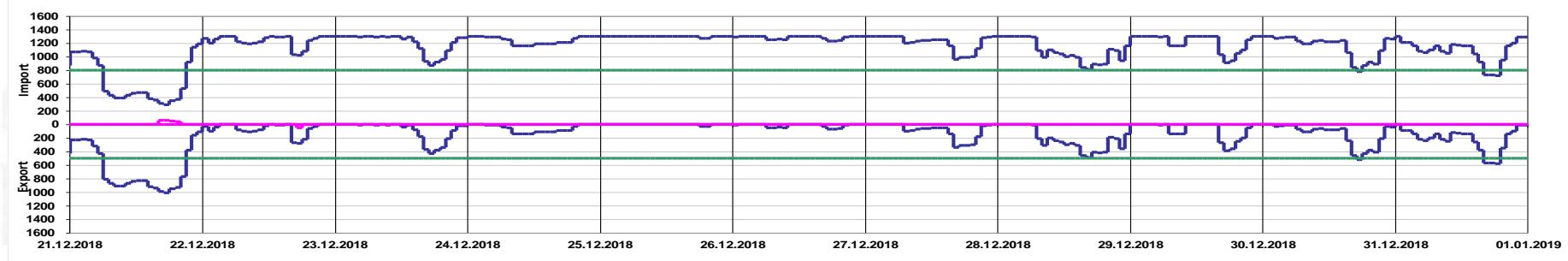
Market for Allocation of Cross-Border Capacities

Intraday Auctions on Romanian – Serbian border

Serbia December 2018



11.12.2018 12.12.2018 13.12.2018 14.12.2018 15.12.2018 16.12.2018 17.12.2018 18.12.2018 19.12.2018 20.12.2018 21.12.2018



Offered Capacity on Intraday Auction Import (+) / Export (-) [MW]

Allocated Capacity on Intraday Auction Import (+) / Export (-) [MW]

Net Transfer Capacity (NTC) Import (+) / Export (-) [MW]

Public

Statistics on Daily Auctions

| December 2018 | | Daily Auctions | | 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 |
|-----------------|---|----------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Serbia Export | Maximum Number of Capacity Traders | 9 | 7 | 7 | 9 | 10 | 10 | 8 | 8 | 6 | 7 | 9 | 8 | 8 | 8 | 10 | 6 | 7 | 8 | 9 | 8 | 9 | 9 | 8 | 8 | 9 | 8 | 7 | 7 | 7 | 6 | 6 | | |
| | Maximum Number of Capacity Holders | 6 | 6 | 6 | 6 | 6 | 5 | 7 | 5 | 6 | 7 | 8 | 8 | 7 | 7 | 5 | 3 | 6 | 8 | 7 | 7 | 5 | 7 | 5 | 5 | 5 | 6 | 7 | 5 | 6 | 6 | | | |
| | Maximum Number of Bids | 24 | 18 | 21 | 21 | 22 | 27 | 25 | 24 | 17 | 17 | 27 | 27 | 25 | 25 | 24 | 12 | 16 | 18 | 26 | 25 | 27 | 23 | 21 | 19 | 20 | 20 | 20 | 21 | 20 | 18 | 20 | | |
| Serbia Import | Maximum Number of Capacity Traders | 10 | 7 | 7 | 10 | 9 | 11 | 10 | 11 | 6 | 8 | 10 | 10 | 9 | 10 | 8 | 7 | 8 | 9 | 8 | 11 | 10 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 7 | 7 | | | |
| | Maximum Number of Capacity Holders | 10 | 7 | 7 | 10 | 9 | 11 | 10 | 10 | 6 | 8 | 8 | 9 | 8 | 9 | 8 | 7 | 8 | 9 | 8 | 10 | 9 | 8 | 8 | 8 | 8 | 9 | 9 | 7 | 7 | | | | |
| | Maximum Number of Bids | 27 | 23 | 24 | 29 | 24 | 32 | 33 | 35 | 19 | 23 | 26 | 37 | 27 | 31 | 24 | 22 | 21 | 25 | 25 | 36 | 31 | 25 | 24 | 24 | 23 | 21 | 24 | 26 | 23 | 21 | | | |
| Bulgaria Export | Maximum Number of Capacity Traders | 9 | 7 | 7 | 8 | 11 | 11 | 9 | 7 | 6 | 6 | 7 | 7 | 9 | 9 | 12 | 7 | 6 | 10 | 1 | 1 | 4 | 2 | 2 | 1 | 4 | 1 | 2 | 2 | 4 | 4 | | | |
| | Maximum Number of Capacity Holders | 8 | 7 | 7 | 8 | 9 | 10 | 9 | 7 | 6 | 6 | 7 | 7 | 9 | 9 | 11 | 7 | 6 | 10 | 10 | 8 | 8 | 7 | 9 | 8 | 7 | 8 | 8 | 8 | 5 | 6 | | | |
| | Maximum Number of Bids | 15 | 12 | 12 | 12 | 16 | 17 | 16 | 11 | 11 | 12 | 10 | 15 | 15 | 17 | 21 | 14 | 9 | 18 | 16 | 13 | 14 | 13 | 15 | 12 | 15 | 15 | 17 | 12 | 12 | 6 | 12 | | |
| Bulgaria Import | Maximum Number of Capacity Traders | 11 | 7 | 7 | 11 | 9 | 11 | 11 | 10 | 10 | 8 | 12 | 10 | 10 | 10 | 9 | 8 | 10 | 11 | 2 | 1 | 2 | 3 | 2 | 1 | 3 | 2 | 1 | 4 | 2 | 1 | 2 | | |
| | Maximum Number of Capacity Holders | 8 | 7 | 6 | 8 | 8 | 7 | 8 | 7 | 7 | 7 | 9 | 8 | 7 | 8 | 8 | 6 | 7 | 6 | 8 | 7 | 9 | 10 | 9 | 9 | 9 | 10 | 7 | 10 | 9 | 8 | 6 | | |
| | Maximum Number of Bids | 20 | 15 | 12 | 18 | 18 | 18 | 17 | 18 | 17 | 14 | 17 | 17 | 19 | 19 | 17 | 15 | 14 | 19 | 16 | 22 | 25 | 21 | 21 | 18 | 22 | 20 | 17 | 21 | 17 | 16 | 16 | | |

Note: In the table are presented the daily maximum hourly values.

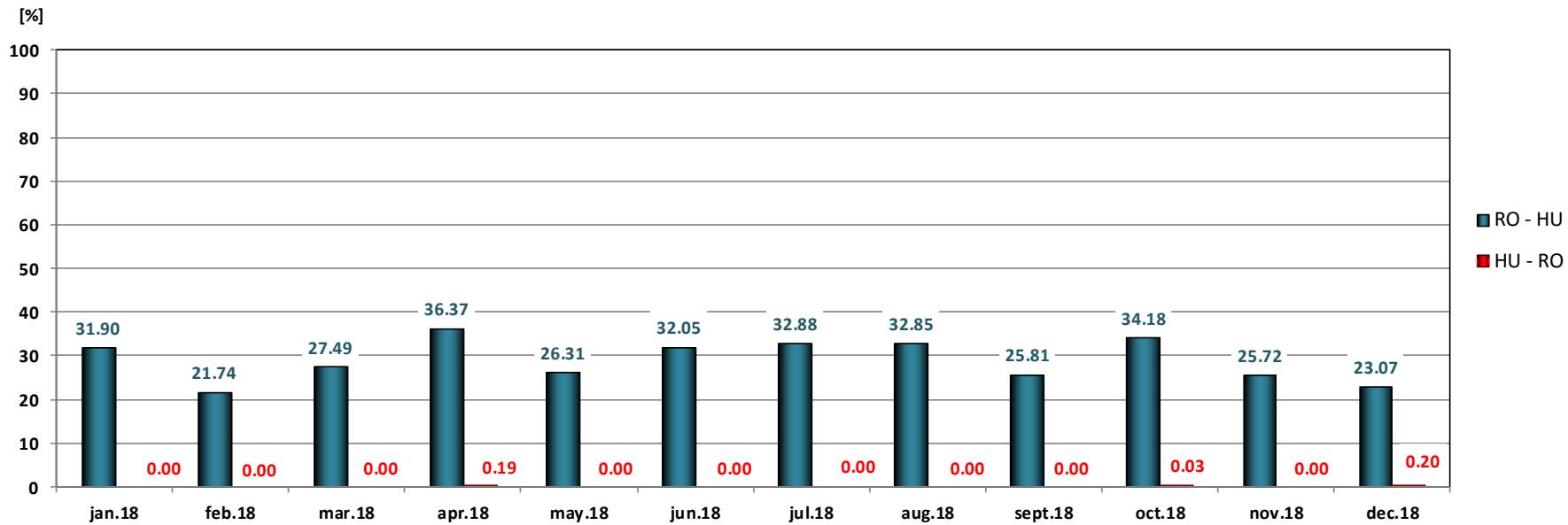
Statistics on Intraday Auctions

| December 2018 | | Intraday Auctions | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------|------------------------------------|-------------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | | 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 |
| Hungary Export | Maximum Number of Capacity Traders | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 1 | 0 | 2 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | Maximum Number of Capacity Holders | - | - | 2 | 1 | 0 | - | 1 | 2 | - | - | 1 | 1 | - | 2 | 1 | 1 | 1 | - | 1 | 1 | 1 | - | - | 2 | - | - | - | - | - | - | |
| Hungary Import | Maximum Number of Capacity Traders | 1 | 0 | 2 | 1 | 2 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| | Maximum Number of Capacity Holders | 1 | - | 2 | 1 | 2 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | - | - | - | - | 2 | 1 | 1 | - | 1 | - | 1 | - | - | 1 | 1 | - | - | 0 | 0 |
| Serbia Export | Maximum Number of Capacity Traders | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | Maximum Number of Capacity Holders | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | 1 | - | - | - |
| Serbia Import | Maximum Number of Capacity Traders | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Maximum Number of Capacity Holders | - | - | - | 1 | 1 | - | - | - | - | - | - | - | - | - | - | - | 2 | - | - | 1 | 1 | - | - | - | - | - | - | - | - | - | - |

Note: In the table are presented the daily maximum hourly values.

Usage Level of Allocated Capacity

Usage Level of Yearly and Monthly Allocated Capacity on Romanian - Hungarian border



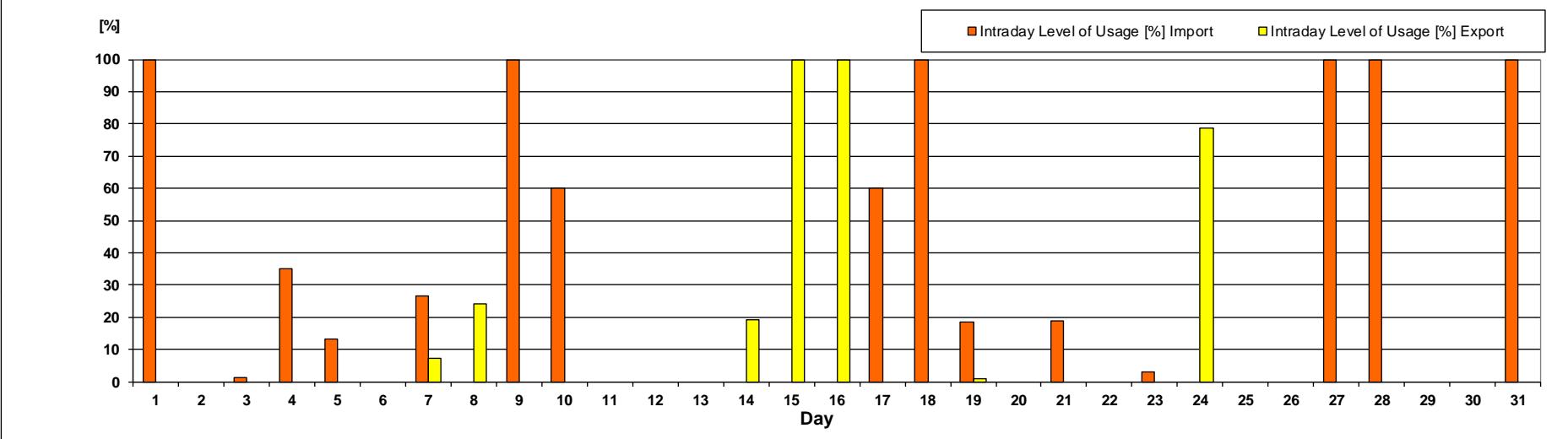
CET

Usage level of yearly and monthly allocated capacity was calculated as ratio between nominated capacity and sum of allocated capacity at yearly and monthly auctions. From the beginning of the year, the average values (arithmetic) of usage level are: 29.2 % on export direction and 0.04 % on import direction.

Intraday Auctions on Romanian – Hungarian border

Usage Level of Intraday Allocated Capacity

Hungary December 2018



Intraday Level of Usage [%]

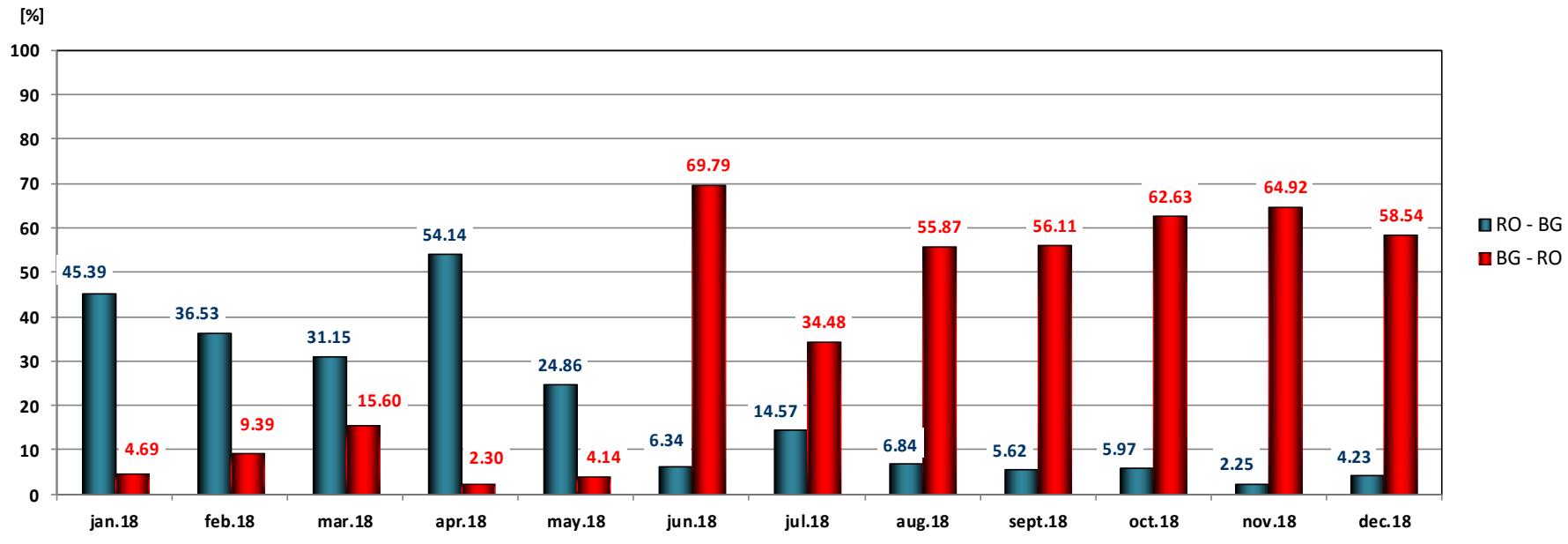
| December 2018 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|---------------|--------|---|------|-------|-------|------|-------|--------|-------|------|------|-------|--------|--------|------|-------|--------|-------|------|-------|-------|------|----|----|--------|--------|----|----|--------|----|----|
| Import | 100.00 | - | 1.36 | 35.00 | 13.19 | 0.00 | 26.70 | 100.00 | 60.00 | 0.00 | 0.00 | - | - | - | - | 60.05 | 100.00 | 18.33 | - | 18.82 | - | 3.00 | - | - | 100.00 | 100.00 | - | - | 100.00 | | |
| Export | - | - | 0.00 | 0.00 | - | 7.14 | 24.13 | - | 0.00 | 0.00 | - | 19.25 | 100.00 | 100.00 | 0.00 | - | 0.99 | 0.00 | 0.00 | - | 78.59 | - | - | - | - | - | - | - | - | | |

Level of usage of intraday allocated capacity, calculated at monthly level, as ratio between sum of nominated intraday capacities and sum of intraday allocated capacities, has the following values:

- Import 32.25 [%]
- Export 26.63 [%]

Usage Level of Allocated Capacity

Usage Level of Yearly and Monthly Allocated Capacity on Romanian - Bulgarian border



CET

Usage level of yearly and monthly allocated capacity was calculated as ratio between nominated capacity and sum of allocated capacity at yearly and monthly auctions. From the beginning of the year, the average values (arithmetic) of usage level are: 19.82 % on export direction and 36.54 % on import direction.

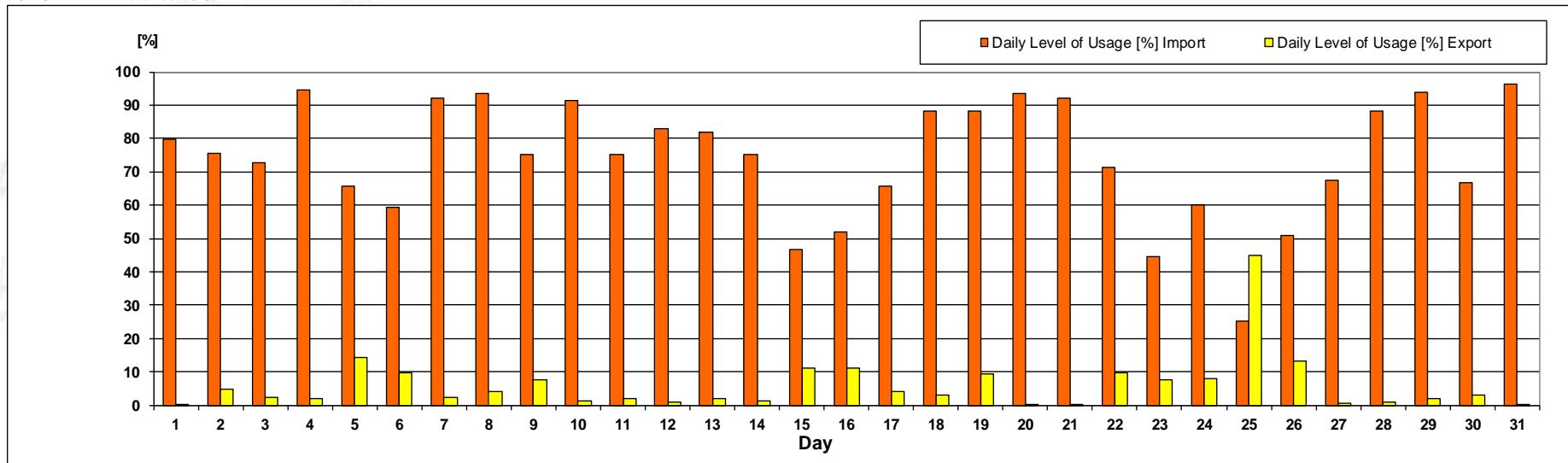
Market for Allocation of Cross-Border Capacities

Daily Auctions on Romanian – Bulgarian border

Usage Level of Daily Allocated Capacity

RO-BG

December 2018



Daily Level of Usage [%]

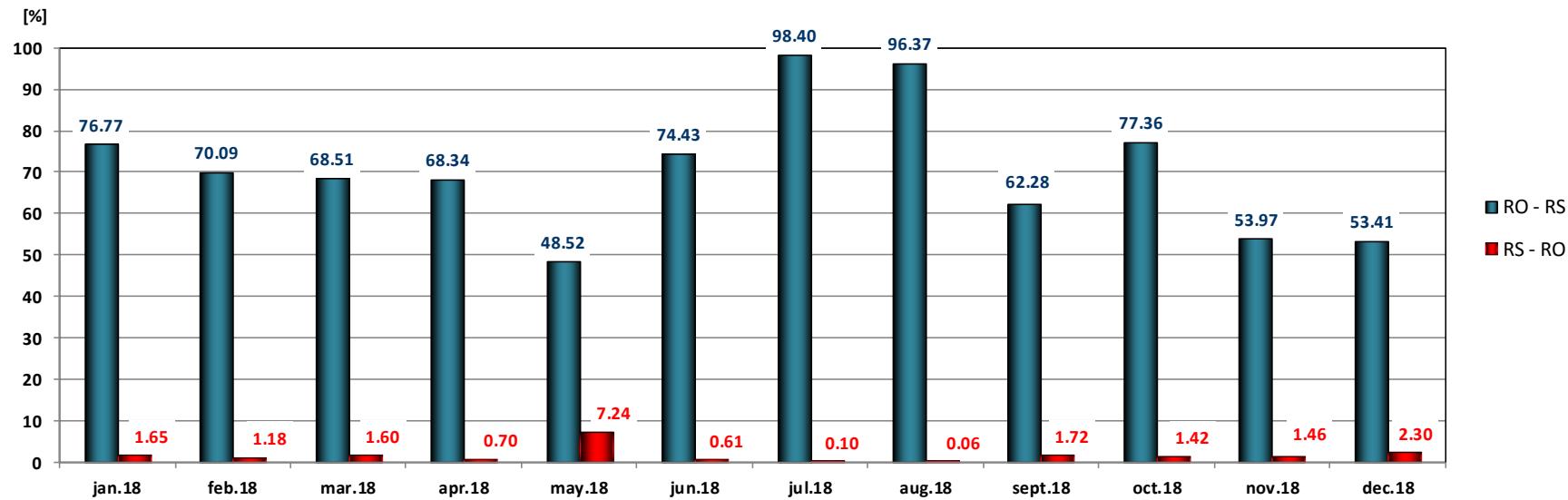
| December 2018 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Import | 79.85 | 75.45 | 72.58 | 94.56 | 65.74 | 59.25 | 92.20 | 93.60 | 75.32 | 91.45 | 75.06 | 82.81 | 81.88 | 75.26 | 46.76 | 51.86 | 65.78 | 88.36 | 88.33 | 93.55 | 92.16 | 71.30 | 44.40 | 60.05 | 25.05 | 50.87 | 67.29 | 88.04 | 93.99 | 66.89 | 96.34 |
| Export | 0.11 | 4.72 | 2.31 | 2.08 | 14.41 | 9.81 | 2.46 | 3.93 | 7.66 | 1.16 | 1.79 | 0.99 | 1.97 | 1.08 | 11.11 | 11.12 | 4.10 | 2.87 | 9.21 | 0.22 | 0.30 | 9.52 | 7.61 | 7.80 | 44.75 | 13.27 | 0.66 | 0.77 | 1.83 | 2.91 | 0.15 |

Level of usage of daily allocated capacity, calculated at monthly level, as ratio between sum of nominated daily capacities and sum of daily allocated capacities, has the following values:

- Import 72.20 [%]
- Export 5.52 [%]

Usage Level of Allocated Capacity

Usage Level of Yearly and Monthly Allocated Capacity on Romanian - Serbian border



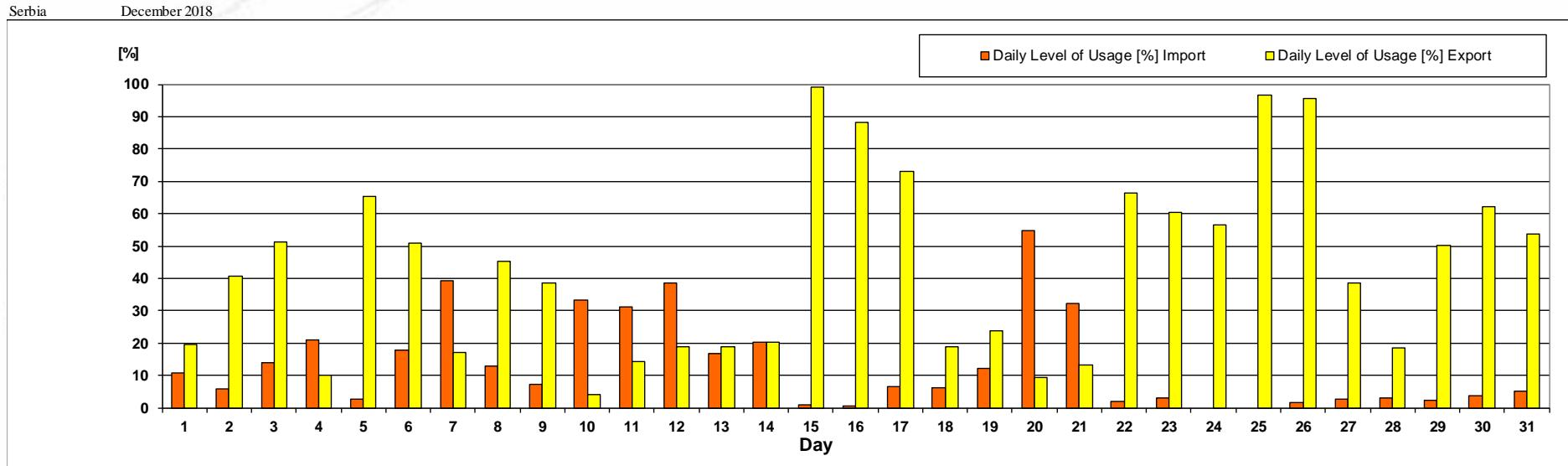
CET

Usage level of yearly and monthly allocated capacity was calculated as ratio between nominated capacity and sum of allocated capacity at yearly and monthly auctions. From the beginning of the year, the average values (arithmetic) of usage level are: 70.7 % on export direction and 1.67 % on import direction.

Market for Allocation of Cross-Border Capacities

Daily Auctions on Romanian – Serbian border

Usage Level of Daily Allocated Capacity



Daily Level of Usage [%]

| December 2018 | 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 |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Import | 10.69 | 5.95 | 13.93 | 21.01 | 2.48 | 17.78 | 39.24 | 12.95 | 7.38 | 33.41 | 31.28 | 38.50 | 16.81 | 20.37 | 0.71 | 0.41 | 6.40 | 5.99 | 12.16 | 54.89 | 32.04 | 1.99 | 3.03 | 0.00 | 0.00 | 1.62 | 2.73 | 2.93 | 2.13 | 3.59 | 5.27 |
| Export | 19.58 | 40.63 | 51.20 | 9.94 | 65.28 | 50.89 | 17.06 | 45.21 | 38.40 | 4.09 | 14.43 | 18.74 | 18.80 | 20.11 | 99.07 | 88.12 | 73.07 | 19.00 | 23.64 | 9.23 | 13.12 | 66.39 | 60.45 | 56.59 | 96.77 | 95.44 | 38.51 | 18.34 | 50.05 | 62.11 | 53.61 |

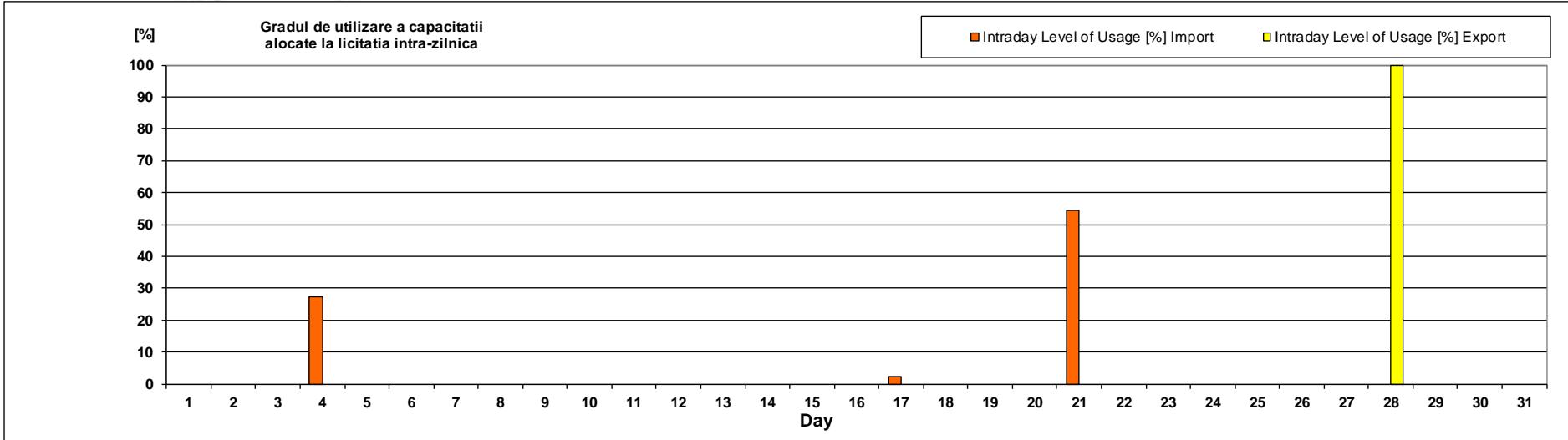
Level of usage of daily allocated capacity, calculated at monthly level, as ratio between sum of nominated daily capacities and sum of daily allocated capacities, has the following values:

- Import 12.52 [%]
- Export 32.92 [%]

Usage Level of Intraday Allocated Capacity

Serbia

December 2018



Intraday Level of Usage [%]

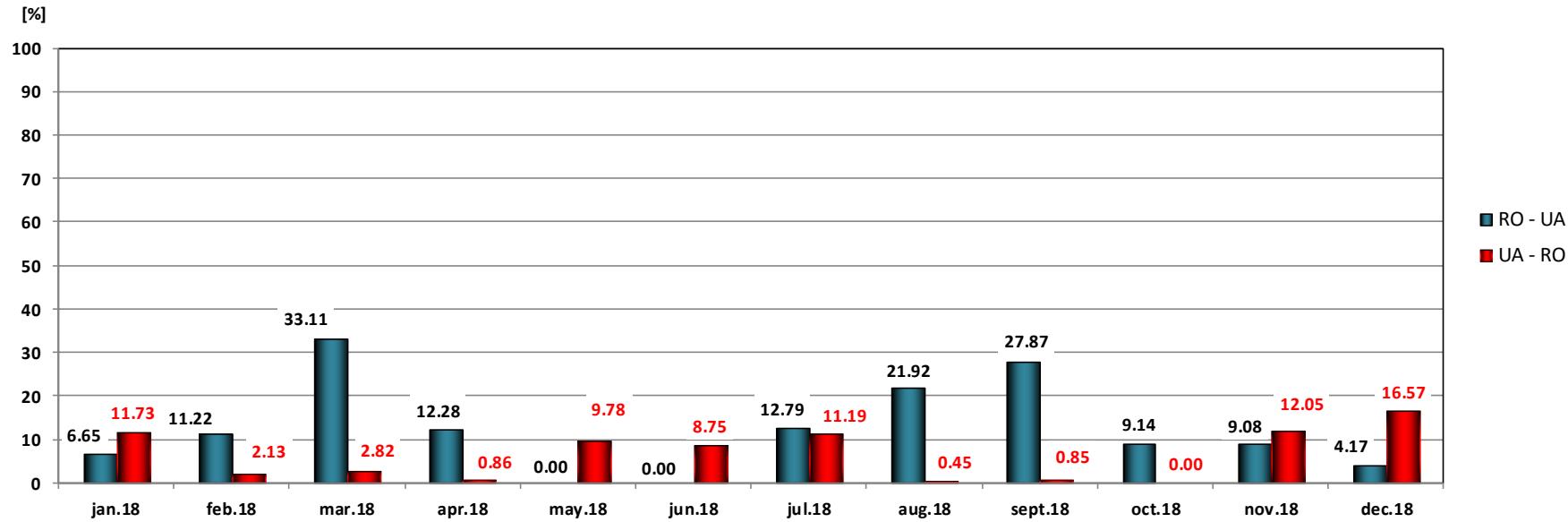
| December 2018 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|---------------|---|---|---|-------|------|---|---|---|---|----|----|----|----|----|----|------|----|----|------|-------|----|----|----|----|----|--------|----|----|----|----|----|
| Import | - | - | - | 27.36 | 0.00 | - | - | - | - | - | - | - | - | - | - | 2.42 | - | - | 0.00 | 54.46 | - | - | - | - | - | - | - | - | - | - | |
| Export | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0.00 | - | - | - | - | - | 100.00 | - | - | - | - | |

Level of usage of intraday allocated capacity, calculated at monthly level, as ratio between sum of nominated intraday capacities and sum of intraday allocated capacities, has the following values:

- Import 8.38 [%]
- Export 2.17 [%]

Usage Level of Allocated Capacity

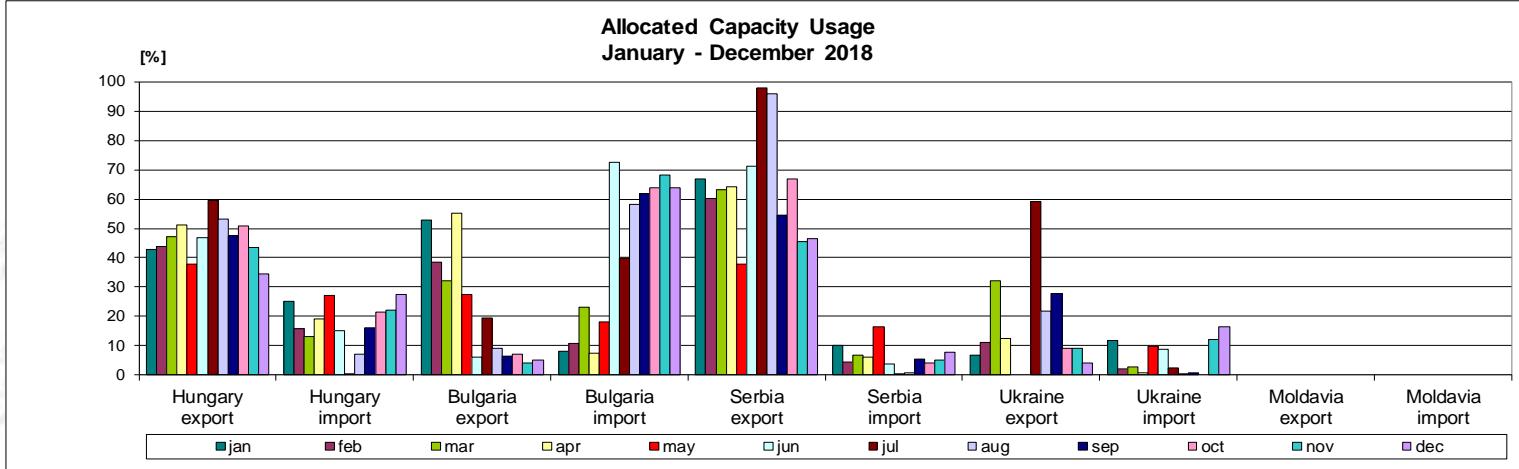
Usage Level of Yearly and Monthly Allocated Capacity on Romanian - Ukrainian border



CET

Usage level of yearly and monthly allocated capacity was calculated as ratio between nominated capacity and sum of allocated capacity at yearly and monthly auctions. From the beginning of the year, the average values (arithmetic) of usage level are: 13.48 % on export direction and 6.43 % on import direction.

Market for Allocation of Cross-Border Capacities



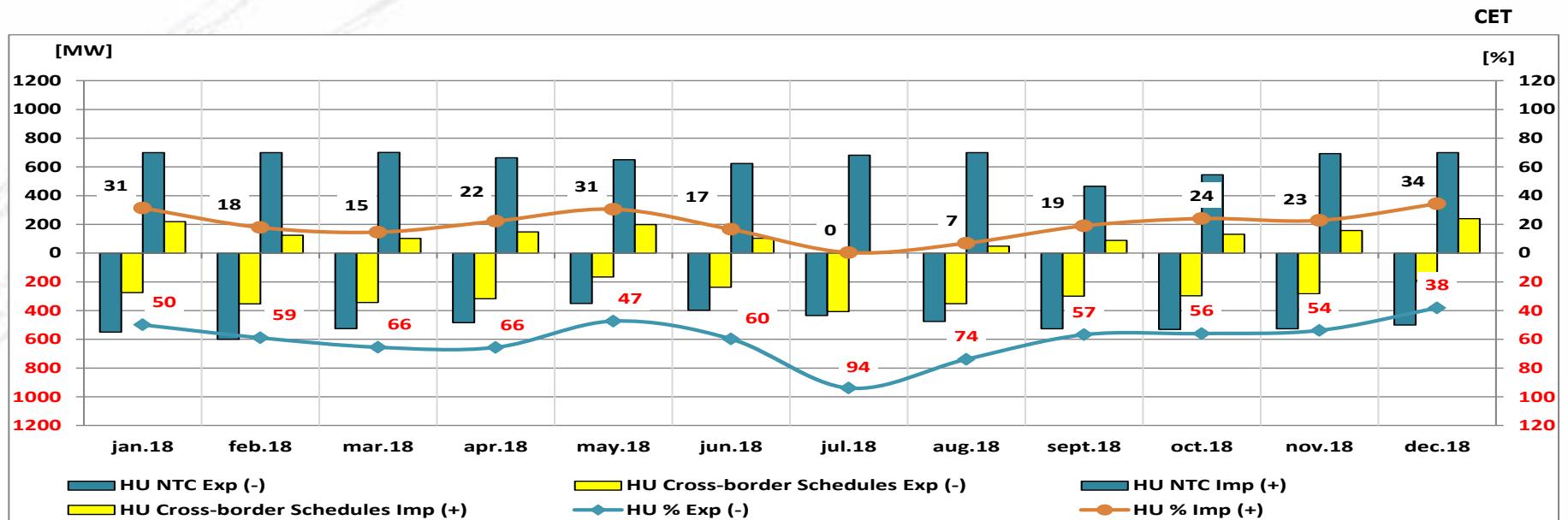
The allocated capacity level of usage on one border and direction represents the percentage ratio between the energy associated with the commercial transactions, nominated during a month, and the energy associated with the allocated capacity by the Romanian and by the neighbouring side, to all participants who have or not counterparties on the other side of the border.

| [%] | Hungary export | Hungary import | Bulgaria export | Bulgaria import | Serbia export | Serbia import | Ukraine export | Ukraine import | Moldavia export | Moldavia import |
|---------|----------------|----------------|-----------------|-----------------|---------------|---------------|----------------|----------------|-----------------|-----------------|
| jan | 42.85 | 25.06 | 52.91 | 8.06 | 66.82 | 10.22 | 6.65 | 11.73 | - | - |
| feb | 43.95 | 15.88 | 38.61 | 10.71 | 60.33 | 4.39 | 11.22 | 2.13 | - | - |
| mar | 47.22 | 13.18 | 32.02 | 23.10 | 63.24 | 6.71 | 32.07 | 2.73 | - | - |
| apr | 51.30 | 19.24 | 55.18 | 7.41 | 64.04 | 6.21 | 12.28 | 0.86 | - | - |
| may | 37.90 | 27.21 | 27.62 | 17.97 | 37.67 | 16.53 | - | 9.78 | - | - |
| jun | 46.67 | 15.04 | 6.04 | 72.46 | 71.06 | 3.85 | 0.00 | 8.75 | - | - |
| jul | 59.56 | 0.46 | 19.31 | 39.85 | 97.77 | 0.29 | 59.31 | 2.41 | - | - |
| aug | 53.33 | 7.04 | 9.10 | 58.17 | 95.87 | 0.63 | 21.92 | 0.45 | - | - |
| sep | 47.46 | 16.26 | 6.50 | 61.84 | 54.66 | 5.52 | 27.87 | 0.85 | - | - |
| oct | 50.71 | 21.55 | 7.06 | 63.91 | 67.02 | 4.18 | 9.14 | 0.00 | - | - |
| nov | 43.48 | 22.12 | 3.97 | 68.31 | 45.63 | 4.95 | 9.08 | 12.05 | - | - |
| dec | 34.37 | 27.55 | 5.01 | 63.80 | 46.57 | 7.82 | 4.17 | 16.57 | - | - |
| average | 46.57 | 17.55 | 21.94 | 41.30 | 64.22 | 5.94 | 17.61 | 5.69 | - | - |

Type B

In December and for the year 2018, the highest levels of usage on export direction were obtained on Serbian border and the highest level of usage on import direction was obtained on Bulgarian border.

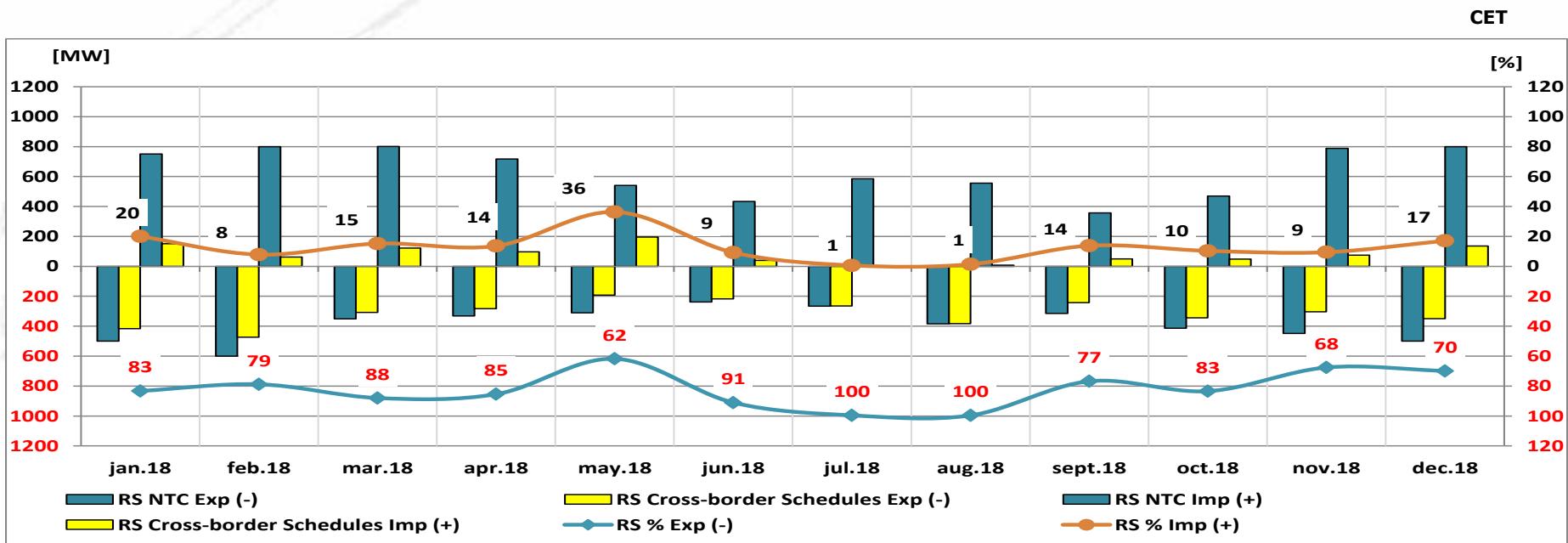
Usage Level of NTC on Romanian – Hungarian border



| Hungary (monthly averages values, MW) | jan.18 | feb.18 | mar.18 | apr.18 | may.18 | jun.18 | jul.18 | aug.18 | sept.18 | oct.18 | nov.18 | dec.18 |
|---------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|--------|
| HU NTC Exp (-) | -550 | -600 | -525 | -483 | -350 | -397 | -434 | -476 | -527 | -531 | -527 | -500 |
| HU Cross-border Schedules Exp (-) | -274 | -354 | -344 | -317 | -166 | -237 | -408 | -351 | -299 | -297 | -283 | -191 |
| HU NTC Imp (+) | 700 | 700 | 701 | 663 | 650 | 623 | 682 | 700 | 465 | 545 | 693 | 700 |
| HU Cross-border Schedules Imp (+) | 219 | 125 | 102 | 148 | 199 | 103 | 3 | 48 | 88 | 131 | 158 | 240 |

The level of usage was calculated as ratio between total cross-border schedules (capacity nominated on long and short term) and NTC. From the beginning of the year, the average values (arithmetic) of usage level are: 59.96 % on export direction and 20.06 % on import direction.

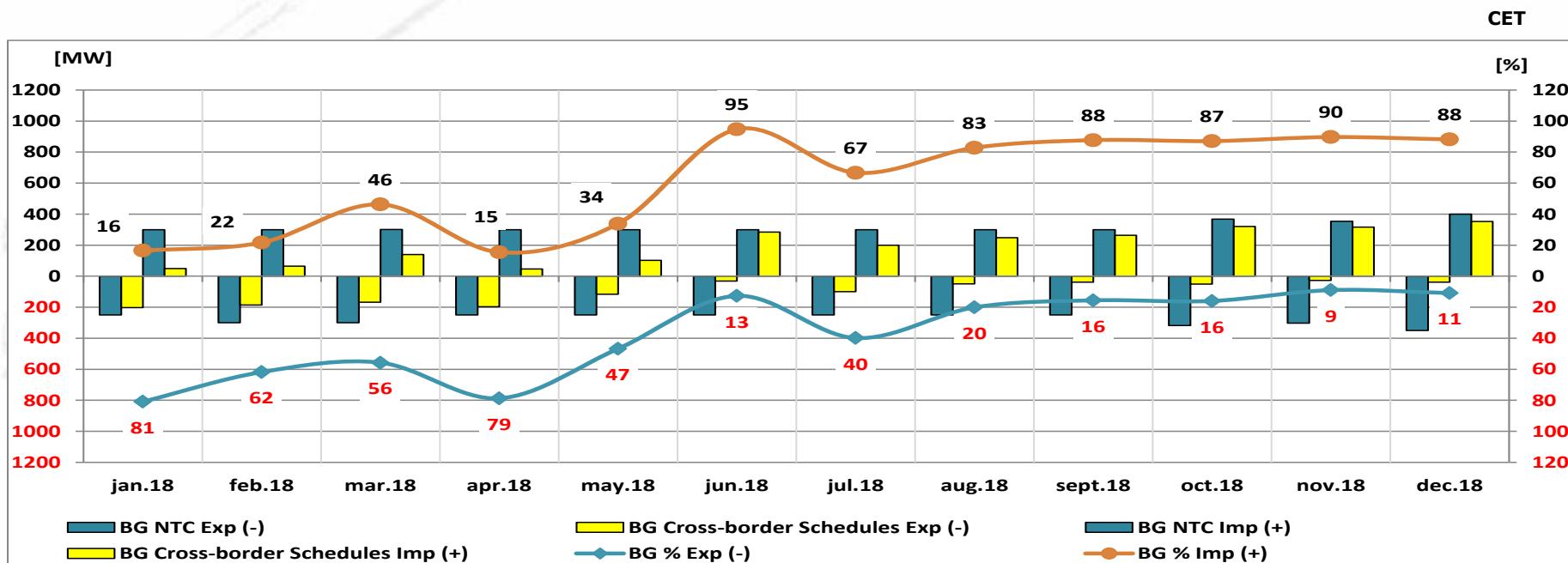
Usage Level of NTC on Romanian – Serbian border



| Serbia (monthly averages values, MW) | jan.18 | feb.18 | mar.18 | apr.18 | may.18 | jun.18 | jul.18 | aug.18 | sept.18 | oct.18 | nov.18 | dec.18 |
|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|--------|
| RS NTC Exp (-) | -500 | -600 | -350 | -332 | -311 | -238 | -266 | -384 | -315 | -413 | -448 | -500 |
| RS Cross-border Schedules Exp (-) | -416 | -473 | -308 | -283 | -192 | -217 | -265 | -382 | -242 | -345 | -303 | -349 |
| RS NTC Imp (+) | 750 | 800 | 801 | 717 | 540 | 433 | 585 | 556 | 357 | 470 | 788 | 800 |
| RS Cross-border Schedules Imp (+) | 151 | 63 | 122 | 97 | 196 | 40 | 4 | 8 | 49 | 49 | 74 | 137 |

The level of usage was calculated as ratio between total cross-border schedules (capacity nominated on long and short term) and NTC.
 From the beginning of the year, the average values (arithmetic) of usage level are: 82.1 % on export direction and 12.91 % on import direction.

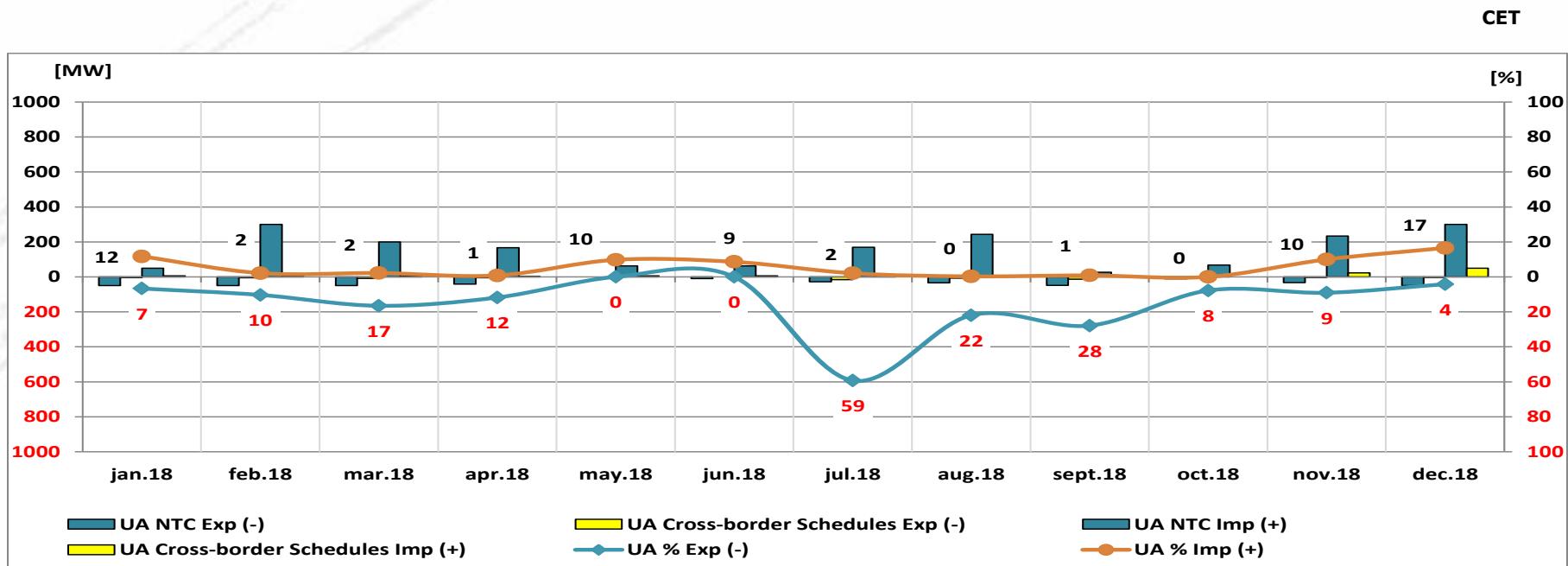
Usage Level of NTC on Romanian – Bulgarian border



| Bulgaria (monthly averages values, MW) | jan.18 | feb.18 | mar.18 | apr.18 | may.18 | jun.18 | jul.18 | aug.18 | sept.18 | oct.18 | nov.18 | dec.18 | |
|--|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|--------|------|
| BG NTC Exp (-) | -250 | -300 | -300 | -250 | -250 | -250 | -250 | -250 | -250 | -250 | -318 | -303 | -350 |
| BG Cross-border Schedules Exp (-) | -202 | -185 | -167 | -197 | -117 | -32 | -100 | -50 | -39 | -51 | -27 | -38 | |
| BG NTC Imp (+) | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 368 | 353 | 400 | |
| BG Cross-border Schedules Imp (+) | 49 | 65 | 139 | 46 | 101 | 284 | 200 | 248 | 263 | 320 | 317 | 353 | |

The level of usage was calculated as ratio between total cross-border schedules (capacity nominated on long and short term) and NTC.
 From the beginning of the year, the average values (arithmetic) of usage level are: 37.33 % on export direction and 60.88 % on import direction.

Usage Level of NTC on Romanian – Ukrainian border



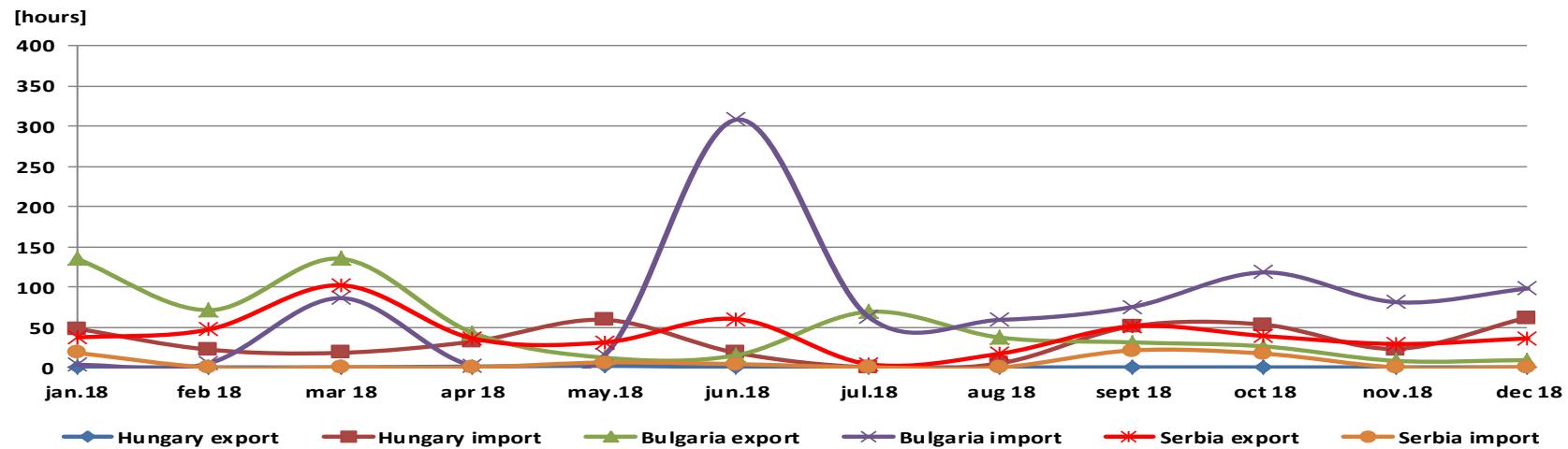
| Ukraine (monthly averages values, MW) | jan.18 | feb.18 | mar.18 | apr.18 | may.18 | jun.18 | jul.18 | aug.18 | sept.18 | oct.18 | nov.18 | dec.18 |
|---------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|--------|
| UA NTC Exp (-) | -50 | -50 | -50 | -42 | 0 | -10 | -27 | -34 | -48 | -11 | -33 | -50 |
| UA Cross-border Schedules Exp (-) | -3 | -5 | -8 | -5 | - | 0 | -16 | -7 | -13 | -1 | -3 | -2 |
| UA NTC Imp (+) | 50 | 300 | 200 | 167 | 63 | 63 | 169 | 244 | 27 | 68 | 233 | 300 |
| UA Cross-border Schedules Imp (+) | 6 | 6 | 4 | 1 | 6 | 5 | 4 | 1 | 0 | 0 | 23 | 50 |

The level of usage was calculated as ratio between total cross-border schedules (capacity nominated on long and short term) and NTC. From the beginning of the year, the average values (arithmetic) of usage level are: 15.95 % on export direction and 5.42 % on import direction.

Maximization of NTC Usage

CET

Number of hours in which the sum of nominated cross-border schedules is higher than NTC



| Number of hours | jan.18 | feb 18 | mar 18 | apr 18 | may.18 | jun.18 | jul.18 | aug 18 | sept 18 | oct 18 | nov.18 | dec 18 |
|-----------------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|--------|
| Hungary export | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hungary import | 48 | 22 | 18 | 32 | 59 | 18 | 0 | 5 | 51 | 53 | 23 | 62 |
| Bulgaria export | 135 | 71 | 135 | 43 | 12 | 15 | 69 | 37 | 31 | 26 | 8 | 9 |
| Bulgaria import | 3 | 5 | 86 | 2 | 15 | 308 | 63 | 59 | 75 | 118 | 81 | 98 |
| Serbia export | 37 | 47 | 102 | 36 | 31 | 60 | 4 | 17 | 51 | 39 | 29 | 36 |
| Serbia import | 18 | 0 | 0 | 0 | 6 | 4 | 0 | 0 | 21 | 17 | 0 | 0 |

By making efficient use of the interconnection (applying “netting” principle in daily and intra-day offered capacity calculation) there are some hours in which sum of nominated cross-border schedules is higher than the NTC. In 2018, the most of such situations were registered on Bulgarian border.

Synthesis (C1, C3, HHI) on type of auction and total values

December 2018

| Border | Auction | | | | | | | | | | | | Total | | |
|------------------------|---------|--------|------|---------|--------|------|--------|--------|------|----------|--------|-------|--------|--------|------|
| | Yearly | | | Monthly | | | Daily | | | Intraday | | | | | |
| | C1 [%] | C3 [%] | HHI | C1 [%] | C3 [%] | HHI | C1 [%] | C3 [%] | HHI | C1 [%] | C3 [%] | HHI | C1 [%] | C3 [%] | HHI |
| Hungary import | 31.14 | 65.71 | 1919 | 18.21 | 53.93 | 1459 | - | - | - | 51.08 | 97.37 | 4165 | 21.41 | 52.12 | 1275 |
| Hungary export | 30.00 | 73.14 | 1983 | 34.45 | 73.95 | 2211 | - | - | - | 46.27 | 91.81 | 3262 | 22.16 | 60.20 | 1530 |
| Bulgaria import | 21.00 | 51.00 | 1332 | 20.42 | 48.75 | 1195 | 31.29 | 68.58 | 1909 | - | - | - | 21.63 | 51.36 | 1191 |
| Bulgaria export | 32.00 | 63.00 | 1834 | 29.50 | 57.00 | 1508 | 40.98 | 78.23 | 2473 | - | - | - | 30.59 | 68.67 | 1797 |
| Serbia import | 59.33 | 82.67 | 3881 | 38.92 | 62.00 | 2079 | 33.32 | 75.02 | 2186 | 64.53 | 100.00 | 5422 | 22.28 | 53.87 | 1329 |
| Serbia export | 36.50 | 76.00 | 2323 | 27.67 | 58.33 | 1558 | 40.73 | 78.55 | 2576 | 100.00 | 100.00 | 10000 | 25.44 | 55.68 | 1350 |
| Ukraine import | - | - | - | 40.00 | 85.00 | 2960 | - | - | - | - | - | - | 40.00 | 85.00 | 2960 |
| Ukraine export | - | - | - | 40.00 | 100.00 | 3400 | - | - | - | - | - | - | 40.00 | 100.00 | 3400 |
| Moldavia import | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Note:

- Starting with 20.11.2014, on Hungarian border the implicit daily allocation is done through the market coupling mechanism of CZ-SK-HU day-ahead electricity markets.
- Starting with 01.01.2015, intraday auctions are no longer organized on the Bulgarian border, since the Bulgarian market rules do not allow intraday cross-border exchanges.

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