Hungary + SEE MONTHLY POWER REVIEW

For October 2023 - published on 08.11.2023

www.BalkanEnergy.com

PRICES | | CONSUMPTION | COAL | GAS | HYDRO | NUCLEAR | RES | MAINTENANCES | TRANSMISSION | FLOWS

1. October 2023: short recap

Power balance of SEE was excellent for October, although SEE was strong importer. One of the biggest surprises were record-breaking high temperatures, which led to the scenario where October had even lower consumption than September 2023. 2nd biggest surprise was outage of NPP Krsko, which remains offline since 5th of October, resulting with 690 MW of missing base-load energy in the region. Also, this October was the first month since November 2022 to have below average hydro generation - which was not the game changer.

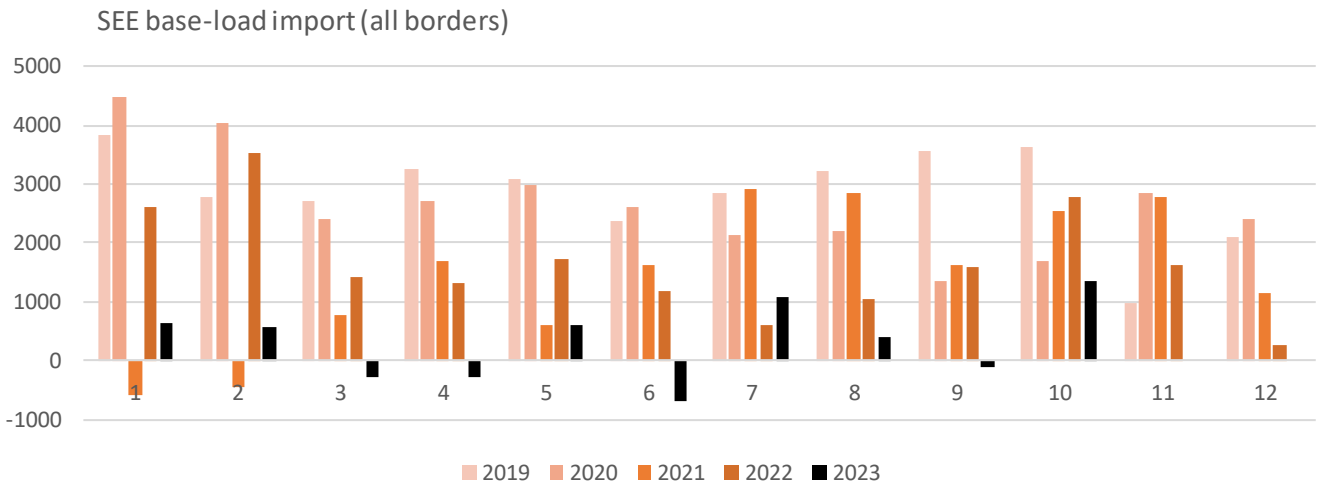
HUPX settlement was higher than in September, but for just 1.2 EUR/MWh. This does not look surprising, as spot gas prices have risen also. But, as region was on average importing over 1,400 MW more in total, and even 1,800 MW more from Core (AT+SK), Hungarian-German price difference increased strongly, and October in Hungary settled much higher in relation to CWE markets than it was the case in September.

Aside worsening of SEE power balance, there were other elements which contributed to higher HU-DE spot price difference: improvement of German exports and French market being closer to German market, which has negative impact on HUPX in Flow Based Market Coupling. Also, there were less ITA>SEE>CORE transits, contributing to higher HU-DE spot difference. Decoupling of HUPX-OPCOM-IBEX-HENEX was mostly a result of daily fluctuations of wind generation, which was on daily settlement the biggest price driver this month.

October 2023		September 2023	Change	Change %
Settlement price	***EUR/MWh***			
HUPX price	105.03	103.81	1.2	1.2%
HU-DE spread	17.54	3.09	14.4	467.5%
ITA-HU spread	29.25	11.88	17.4	146.2%
AT GAS (CEGH)	42.58	36.64	5.9	16.2%
* EUA – CO2 (Dec23)	81.65	82.94	-1.3	-1.6%
Last forward price 30.09.,31.08.	***EUR/MWh***	***EUR/MWh***		
HU price	102.22	103.16	-0.9	-0.9%
HU-DE spread	8.50	6.18	2.3	37.5%
ITA-HU spread	-16.43	10.93	-27.4	-250.3%
AT GAS (CEGH)	40.18	37.84	2.3	6.2%
EUA – CO2 (Dec23)	81.67	85.76	-4.1	-4.8%
SPOT PX Prices	***EUR/MWh***			
SK - OKTE	102.82	103.59	-0.8	-0.7%
HR - CROPEX	104.17	102.69	1.5	1.4%
SI - BSP	103.59	102.56	1.0	1.0%
RO - OPCOM	106.14	103.19	3.0	2.9%
BG - IBEX	106.97	101.65	5.3	5.2%
GR - HENEX	111.06	101.95	9.1	8.9%
RS - SEEPEX	106.23	103.07	3.2	3.1%
SEE Power	***MW AVG***			
Consumption	28,672	28,773	-101	-0.4%
Hydro generation	4,851	4,995	-144	-2.9%
Coal generation	8,617	7,920	697	8.8%
Gas generation	4,449	4,581	-132	-2.9%
Nuclear generation	4,702	5,901	-1199	-20.3%
RES	4,695	5,512	-817	-14.8%
SEE Import	***MW AVG***			
Base-load	1,362	-98	1460	-1493.2%
Peak-load	1,144	-271	1415	-521.5%

2. Spot markets in September 2023

Power balance of SEE was excellent for October, although SEE was strong importer. As it can be seen from the charts below, imports of SEE were by far the lowest for the past five years. However, in comparison to September 2023, power imports were much worse. SEE was net exporter in September in both base and peak, while in October 2023, imports were over 1,400 MW stronger, in both base-load and peak-load profiles. Also, this October was the month with the highest import for the past 12 months— since November 2022.



In past 11 months, above-average hydro generation was the main price driver, but not this October. Since December 2022, hydro generation in the region was above average, and this November was the first month with below average hydro generation in past 11 months.

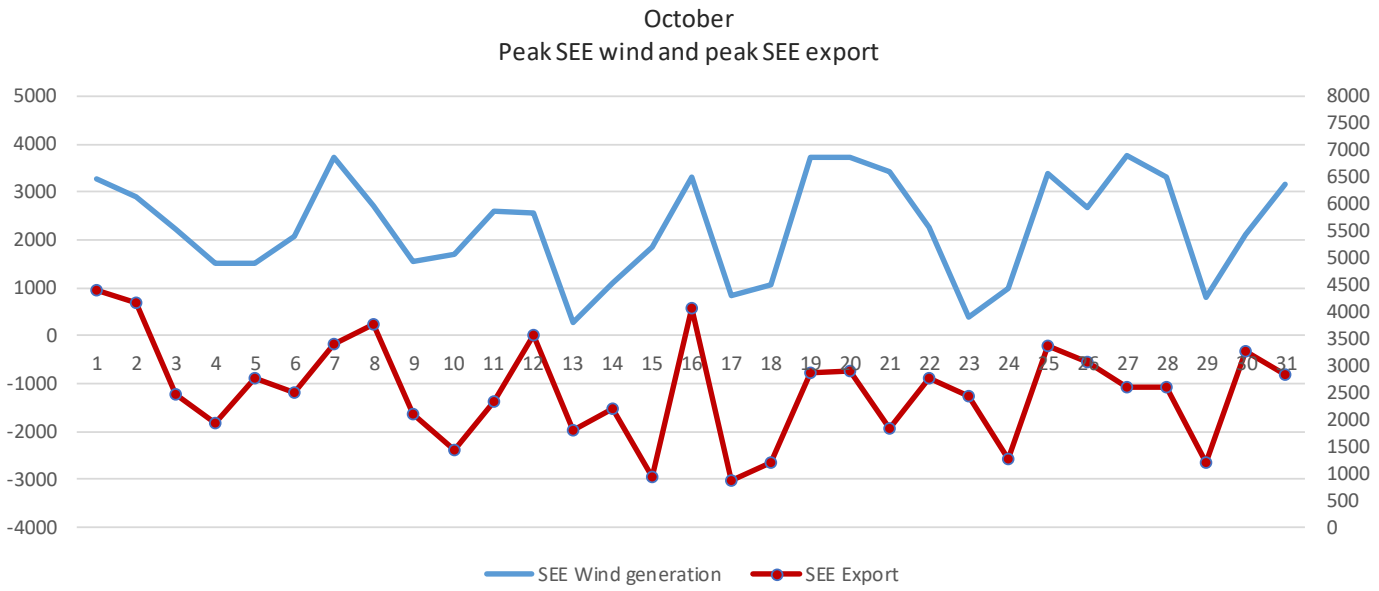
- Hydro generation was just 144 MW lower than in September, but imports were 1,400 MW higher
- Hydro generation was just 200 MW higher than in October 2022, but imports were 1,480 MW lower

There are many elements which were different in comparison to both September 2023 and October 2022.

Before each individual element is explained, it is important to see how power flows affected the power prices in the region.

October 2023		October 2022	Change	Change %
Settlement price				
HUPX price	105.03	194.07	-89.0	-45.9%
HU-DE spread	17.54	41.39	-23.8	-57.6%
ITA-HU spread	29.25	17.56	11.7	66.6%
AT GAS (CEGH)	34.52	87.89	-53.4	-60.7%
* EUA – CO2	85.97	70.48	15.5	22.0%
Last forward price 30.09.	***EUR/MWh***	***EUR/MWh***		
HU price	102.22	360.56	-258.3	-71.6%
HU-DE spread	8.50	72.23	-63.7	-88.2%
ITA-HU spread	-16.43	11.50	-27.9	-242.9%
AT GAS (CEGH)	40.18	186.98	-146.8	-78.5%
* EUA – CO2	81.67	66.73	14.9	22.4%
SPOT PX Prices				
SK - OKTE	102.82	188.44	-85.6	-45.4%
HR - CROPEX	104.17	196.83	-92.7	-47.1%
SI - BSP	103.59	197.03	-93.4	-47.4%
RO - OPCOM	106.14	206.19	-100.1	-48.5%
BG - IBEX	106.97	206.09	-99.1	-48.1%
GR - HENEX	111.06	232.79	-121.7	-52.3%
RS - SEEPEX	106.23	204.58	-98.3	-48.1%
SEE Power				
Consumption	28,672	28,766	-94	-0.3%
Hydro generation	4,851	4,655	197	4.2%
Coal generation	8,617	9,232	-615	-6.7%
Gas generation	4,449	4,048	402	9.9%
Nuclear generation	4,702	4,239	463	10.9%
RES	4,695	4,045	649	16.1%
SEE Import				
Base-load	1,362	2,842	-1480	-52.1%
Peak-load	1,144	2,714	-1571	-57.9%

From the chart below, it can be seen that by far the biggest price driver in the region was wind generation. Only with extremely high wind region was having positive power balance. In peaks, only on one day SEE had positive power balance. In Offpeak, not one day. Also, on daily level wind generation was the most important element in decoupling of HUPX-OPCOM, HENEX-IBEX but also spiking potential of HUPX above other CWE markets. Such days are presented in our Weekly Reviews.



Power flows on important borders did change strongly compared to September, due to 1460 MW worse power balance of SEE as base-load and 1415 MW in peaks. Main reasons for such decline of power balance were nuclear generation (maintenance of NPP Kozloduy 1,000 MW unit and outage in 696 MW NPP Krsko). Also, 465 MW lower wind generation contributed to much higher imports of SEE. Power imports of SEE were almost fully correlated with wind output in the region, which was strongly volatile during the month.

This over 1,400 MW worse balance did impact HU-DE price difference, as HUPX settled 17.5 EUR/MWh above EPEX-DE in October, while in September 2023 it settled just 3.09 EUR/MWh. During September, HUPX on many days settled below EPEX-DE, while in October, just in 4 days.

Aside worsening of SEE power balance, German exports improved in October, by even 4,300 MW (although Germany remained importer on average). Simplified rule due to Flow Based Market Coupling mechanism is: the higher German imports are and the higher German market settles above French market, HUPX has higher chance to settle closer to German price level or below. In October, German spot settlement was 3.1 EUR/MWh above French settlement, while in September it settled 12.02 EUR/MWh above French market. Thus, even if SEE in October had the same imports from Core as in September, that import would come at the higher price.

Also, in September German market was frequently settling above Italian Nord, and despite high power balance, HUPX had difficulties to settle below EPEX-DE when EPEX-DE was settling above Italian market. This was especially occurring in hours H7-H9 and H18-H22, and region was frequently importing from Italy while delivering to Core - and by that although HUPX was settling above Italy Nord, it was settling at EPEX-DE or below in case of favorable wind generation (some of the SEE > CORE flows were actually ITA > SEE > CORE flows).

But in October 2023 situation was different as German market had strong improvement of power balance and less occurrences of settling above Italian market. Due to that, delivery of SEE to Italy was higher and HUPX was settling much more below Italy than in September.

Total SEE base-load imports from Core were 1,800 MW higher than in September (imports from Austria and Slovakia), due to less occurrences of ITA>SEE>Core transit and worsening of SEE power balance. Observing peak, SEE imports from Core were 1,600 MW higher than in September.

Romania—Moldova flows were not important price factors during this October, as they were low and on average, Moldova was delivering to Romania just 50 MW. Also, exchanges with Turkey were quite low, and amounted to just 58 MW (Bulgaria + Greece > Turkey). But, SEE > TR NTC is much higher than TR > SEE NTC, and certain hours (usually offpeak and weekends) flows to Turkey were even 500 MW, while imports were 156 MW at Max, which are NTC limits. In expensive hours, SEE had limited benefit from imports from Turkey, but in night hours, in case that SEE prices were “pulled down” by CWE markets, SEE had increased spiking potential above low CWE due to 500 MW outflow of energy toward Turkey.

Comparing individual elements which contributed to strong change of power imports:

Comparing to September 2023

Nuclear generation was by far the most important element resulting with stronger power imports comparing to September 2023. Due to NPP Krsko outage and NPP Kozloduy maintenance, nuclear generation was 1,200 MW lower than in September 2023.

- NPP Kozloduy should have started with maintenance in last 10 days of September, but maintenance was postponed two times. 1,000 MW of Kozloduy was fully available in September, but fully missing in October.

- NPP Krsko experienced outage (696 MW), and it was out since 5th of October

Wind generation was significantly lower. It was 465 MW lower than in September 2023, where most of the drop was in Greece (-403 MW). Although total SEE generation was 465 MW lower than in September 2023, outside Greece it was just 60 MW lower (September 2023 had exceptional wind generation). Wind generation was especially high in Romania and Croatia. Low wind generation in Greece also contributed to higher HU-GR price difference - Greek HENEX settled below HUPX in September, but above HUPX in October.

Solar generation was, as expected, significantly lower, by 769 MW in peaks, but still exceptionally high. Solar generation was high especially in Greece which did not have heavy rainfalls as it was the case in September 2023. October vs September peak solar generation drop in Greece is on average 18%, but this year drop was just 3%. In rest of the region, solar drop was a bit stronger than usually, due to higher cloud coverage in Hungary and Adriatic region. October vs September peak solar generation drop in SEE outside Greece is on average 20%, but this year drop was 25%. On average, drop of solar generation October vs September was in line with statistics. Common drop of solar generation October vs September is 20%, while this year it was 17%, observing entire region.

Power consumption was the biggest surprise. October 2023 was warmer than any October ever recorded in our region so consumption was very stable and at similar level as in September 2023. Power consumption was actually 100 MW lower than in September, which is exceptional case. Depending on temperature setup, consumption can be even 2,000 MW higher than in September, as it was the case in 2021. But it was not the case this year, as temperatures were extreme and the highest for October in the past 50 years in SEE outside Greece. In Greece, temperatures were also strongly above average but not record breaking for October.

Due to above average temperatures, this October behaved similarly as September with respect to consumption. September is temperature-average month, and although consumption-weighted temperatures in SEE outside Greece were 5 degrees lower than in September, they were on average above 15.5 degrees - which resulted with no sensitivity of consumption on temperatures. Only daily temperatures below 12 degrees Celsius lead to high sensitivity of consumption on temperatures.

However, two elements should be taken in account:

- October last year had spot prices on HUPX of 194 EUR/MWh, while this October had 105.0 EUR/MWh spot prices. This did impact consumption, as there was much less power saving than last year.
- Increased number of solar installations connected on distribution level (rooftop, prosumers), which is on data visible not as solar generation, but as reduced (negative) power consumption in peaks.

Coal-fired generation was much higher. Compared to September this year, maintenance plan of coal-fired units was actually 600 MW less intensive (excluding Bosnia and Herzegovina), and actual coal-fired generation was 700 MW higher (excluding Bosnia and Herzegovina), mostly due to 180 MW higher coal-fired generation in Bulgaria and 187 MW higher in Serbia. Only in Romania coal-fired generation was lower, but by just 25 MW.

Gas-fired generation was lower, which is usually not the case as heating season starts. But, gas-fired generation was just 130 MW lower, which is not a game changer. Most important is drop of gas-fired generation in Greece. Greek gas fired generation was significantly lower than in September, by some 305 MW. The reason is not more intensive maintenance plan, as it was even slightly less intensive. Price level was not sufficient for Greek gas units, and generation remained low, although new Agios Nicolaos unit with 832 MW installed output was in operation this summer.

Hydro generation was indeed slightly lower, by 144 MW on average, but this drop was negligible in comparison to other elements. This October had 9% below average hydro generation or 490 MW below average (23-year average for October). September 2023 had 1% above average hydro generation, so hydro generation drop was not strong, as October on average has higher hydro generation than September

This over 1,400 MW worse balance did impact HU-DE price difference, as HUPX settled 17.5 EUR/MWh above EPEX-DE in October, while in September 2023 it settled just 3.09 EUR/MWh. During September, HUPX on many days settled below EPEX-DE, while in October, just in 4 days.

Comparing to October 2023

Changes of October 2023 compared to October 2022 were also extreme, but much different than comparing September 2023 versus October 2023. Contrary to the September when October had 1,460 MW worse power balance, it had close to 1,500 MW better balance than October 2022.

Nuclear generation was higher, despite outage of NPP Krsko. Nuclear generation was 650 MW higher than in October 2022, and there are 3 reasons why:

1. NPP Kozloduy 1,000 MW unit goes into maintenance every year in October. But this year, maintenance was delayed several times, and started on 9th of October instead in September. This has resulted with higher coal-fired generation in Bulgaria than usually.
2. NPP Paks usually has two 250 MW units in maintenance in October—which was not the case this year and resulted with higher than usual nuclear generation in Hungary
3. NPP Krsko goes into maintenance every 3 years for entire October. Although this October Krsko was out (unplanned), it was in operation during first 5 days.

Gas-fired generation was higher, by 400 MW. But, most of this increase came from Greece, where gas-fired generation was 700 MW higher. This change has came from different price calculation formula for gas expenses in Greece.

Solar generation was much stronger. Observing year-on-year, peak solar generation was 1,184 MW higher, where highest increase was in Bulgaria (+441 MW), Greece (+421 MW), Hungary (+263 MW), Slovenia (+31 MW). In Croatia was just 11 MW increase, and in Romania, surprisingly just 15 MW increase of peak solar generation.

Wind generation was higher than in October last year, but for just 100 MW. One of the reasons is generally low wind generation in Greece, which was 400 MW lower than in October 2021 and October 2022. Outside Greece, wind generation was actually excellent, add highest than any previous October. Compared to last year, wind generation rise was the highest in Romania (+312 MW), Croatia (+111 MW), Bulgaria (+40 MW) and Hungary (+36 MW).

Coal-fired generation was 615 MW lower, due to 2 reasons:

- Unprofitable coal-fired generation in Bulgaria (in Bulgaria alone, coal-fired generation was 830 MW lower)
- Shutting down of two coal-fired units in Romania (195 MW lower generation)
- 220 MW lower generation in Hungary, as one Matrai unit was fully out (224 MW output)

Consumption was almost at the same level. Consumption weighted average temperature of October 2023 was 2.3°C higher than in October 2022, which also had strongly above average temperatures. In H7-H14, which still have strong solar generation consumption was lower than last year October, but lower price level and recovery of industrial consumption has resulted with higher consumption in late-peak hours, despite prosumer effect (accounted as negative consumption, as solar generation was missing in those hours)

Observing net positions (exports) per country compared to last year October, there was strong change of power balance in most of SEE countries (only major changes are listed).

Greece: Net position was 744 MW worse - mostly due to decline of gas-fired generation, which was 700 MW lower and wind generation which was 410 MW lower. Consumption was also slightly higher, by 124 MW. However, hydro generation was 315 MW higher, peak solar generation 420 MW higher and coal-fired generation 97 MW higher.

Bulgaria: Net position was 350 MW worse, mostly due to 828 MW lower coal-fired generation. Consumption was lower than last year, by 165 MW, but so was hydro generation, by 130 MW. However, nuclear generation was 220 MW higher, as NPP Kozloduy 1000 MW unit had a delayed start of maintenance. Wind generation was higher by 40 MW, but solar generation was exceptional and 440 MW higher.

Slovenia: Net position was 505 MW better - as a result of 120 MW higher hydro generation, 45 MW lower consumption, 245 MW higher coal-fired generation and 30 MW higher peak solar generation. Although NPP Krsko was shut down on 5th of October due to outage, it was unavailable for entire month last year.

Bosnia and Herzegovina: Net position was 207 MW better, due to 137 MW higher coal-fired generation

Croatia: Net position was 203 MW better - as a result of 112MW higher wind generation and 185 MW higher coal-fired generation. Consumption was higher, but for just 40 MW.

Serbia: Net position was 145 MW better than last year, mostly due to 116 MW higher coal-fired generation. Consumption was lower for 70 MW, but consumption was also slightly higher.

Hungary: Net position was 89 MW worse, mostly due to 220 MW lower coal-fired generation, as one TPP Matra unit was fully unavailable. Gas-fired generation was also 100 MW lower, but nuclear was 100 MW higher. However, peak solar generation was 264 MW higher than in October last year.

North Macedonia: Net position was 154 MW better - as a result of higher thermal generation, hydro and wind generation. Consumption was higher.

Kosovo: Net position was 59 MW worse - as a result of 54 MW lower thermal generation.

Romania: Net position was 4 MW better, although consumption was 70 MW lower. Generation structure changed strongly compared to previous year. Coal fired generation was 195 MW lower, but gas-fired generation was 69 MW higher. Wind generation was 312 MW stronger, and solar 15 MW stronger in peaks.

Montenegro: Net position was 24 MW worse - as a result of lower coal and hydro generation.

Albania: Net position was 40 MW better - as hydro generation was somewhat higher.

3. Natural gas prices

Spot gas prices were in rising trend during October (as they were in August and September), trading on spot at around 30-35 EUR/MWh in early September, reaching over 50 EUR/MWh in mid October and staying at the range between 45-50 EUR/MWh in last two weeks on October. On average, CEGH spot gas prices were higher than in September for 5.9 EUR/MWh or 16.2%. Average CEGH spot gas price was 42.6 EUR/MWh, while Greek HENEX spot gas was 35.7 EUR, around 6.9 EUR/MWh lower. Greek gas price was also on the rise during October, but with less intensity and volatility than CEGH. As Greek gas price was lower, this made Greek units more competitive (but it is important to note Greek tax if gas is used for electricity generation). Comparing first and last Working day on Spot, gas price on CEGH was 29.5% higher or some 10.8 EUR/MWh. Compared to October last year, average spot gas price was on complete different level: over 53 EUR/MWh lower (60.7 % down).

Compared to September, the rise pf of natural gas prices itself did not have major impact on HUPX. Absolute price level was 1.2 EUR/MWh higher, it is not related to local dependency on gas, but much more power imports from CWE. HU-DE price difference was 3.1 EUR/MWh in September, but 17.5 EUR/MWh in October, which renders impact of revenues of gas units irrelevant. Average natural gas price was 5.9 EUR/MWh higher, but EUA (CO2) price was 1.3 EUR/t lower resulting with around 10.0 EUR/MWh more expensive generation outside Greece (base load after CEGH and EUA costs). But, as mentioned, more relevant is correlation with CWE markets, where Clean Spark Spread was much lower than in September.

High efficiency gas units had negative profit in base-load product, amounting to –10.5 EUR/MWh (after EUA and gas costs), while they had 14.8 EUR/MWh positive margin in peak product. Low efficiency units were strongly unprofitable in base-load product (some 21 EUR/MWh loss) but 4.3 EUR/MWh profit in peaks.

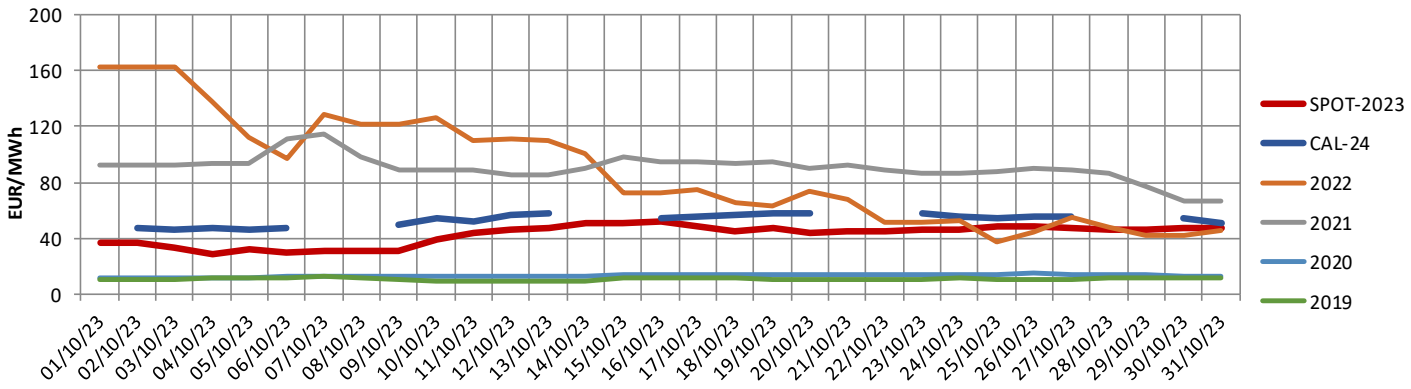
Front month and Front year natural gas prices had a certain rise during October. Cal-24 Price was on the rise during first 2 weeks of October, and stayed relatively stable till the end of October, when some 10% drop was recorded. Comparing first and last trading day, front-year gas price was 2.7 EUR/MWh higher, which is 5.7 % rise (from 47.6 EUR/MWh up to 50.36 EUR/MWh). Contrary to front-year, November-23 price had much sharper rise, with no drop at the end of October. Comparing first and last trading day, front-month gas price was 10.2 EUR/MWh higher, which is 25.7 % rise (from 39.6 EUR/MWh up to 49.73 EUR/MWh).

More on local gas-fired generation in "Gas generation in SEE segment"

- Due to the the high temperatures in early October as well as the high demand for natural gas in the first week of October, a drop in natural gas prices was recorded. With reserves over 95% and forecasts that the warm weather will continue throughout the month, the price at the TTF gas hub in Amsterdam fell by 2.4% to 40.86 EUR/MWh on October 2.
- On October 2nd, a memorandum on cooperation between Slovenia and Hungary was signed, which defines cooperation in the construction of a gas interconnection between Slovenia and Hungary. The planned interconnection should have a capacity of 50,000 cubic meters of natural gas per hour and transport can be carried out in both directions, the Slovenian part of the interconnection will be 75 km.

- In the first week of October, on the occasion of the final works on the gas interconnection between Serbia and Bulgaria, the Serbian Minister of Mining and Energy, Dubravka Djedovic, stated "the project is strategic for Serbia, for diversifying gas supply sources, as it is in the final stages of negotiations with Azerbaijan for the delivery of 300-400 million cubic meters." The project was financed to the greatest extent from EU funds in order to enable easier energy solidarity between countries as well as diversification of supply.
- With increasing deliveries of Azerbaijani natural gas to the European market, especially the Balkans, Azerbaijan is increasingly interested in investments in the oil and gas industry. Thus, on October 10, the Minister of Energy and Mining of the Republic of Srpska (RS) Petar Djokic said that Azerbaijan has shown some interest in cooperation regarding the oil refinery in Bosanski Brod. Although the refinery is currently not operational, the plan is to build a gas connection from Croatia to the refinery and increase its production from 900,000 tons per year, which was before the closure, to 1.3 to 1.9 million tons in order to be profitable.
- According to the Vice-President of the European Commission Maros Sefcovic, on the third tender EU Energy Platform for the common purchase, gas was brought a record in aggregated demand - 16.49 billion cubic meters, based on requests submitted by 39 European companies. Sefcovic said that this proves that companies are interested in the joint purchase of gas as an opportunity to improve the security of supply and negotiate better prices. The supplies offered amounted to 18.1 billion cubic meters of gas. This is similar to the first round where the amount reached 18.7 billion and represents an increase on the second round, which reached 15.19 billion cubic meters. In turn, the Platform matched 11.86 billion cubic meters of demand.
- Although the EU presented a plan to completely eliminate the supply of of Russian gas by 2027, the share of Russian natural gas in total consumption in Greece was 72% for the month of September. The increase in imports from Russia began at the beginning of the year, when it was 35.7% at the beginning of the year, and in the period from January to September 2023, it rose to 45%, compared to last year, when there were almost no such imports. Russia is currently in second place in terms of LNG exports to the EU with over 5.3 billion euros in 2023.

CEGH SPOT/Cal23 prices during October, 2019-2023 (EUR/MWh)



- In mid-October, according to the European gas operator association, natural gas stocks in storages reached a level of 97.89%, which is a new record. In preparation for the coming winter, EU members are filling their storages with the intention of reducing imports from Russia as much as possible. Currently, storages in Romania and Spain are at their maximum level, while in Poland, Slovakia, Germany and the Czech Republic they are at over 98%.
- In mid-October Bulgaria has imposed a tax on Russian gas supplied through the BalkanStream pipeline to Central Europe. The new legislation introduces a tax of some 10.5 euros/MWh of Russian natural gas transited through the country. The fee makes up about 20 % of the current cost of gas futures at the TTF hub in the Netherlands, Europe's gas benchmark. Until 2022, Russian gas company Gazprom was one of the key suppliers of pipeline gas to Bulgaria. However, after the local authorities refused to pay for supplied gas in rubles, direct exports to the Balkan country were halted.
- Bulgarian Prime Minister Nikolai Denkov said to the ambassadors of the countries of the European Union that the recently introduced tax for the import and transit of Russian gas through Bulgaria will not have a negative impact on European consumers. It will only affect Gazprom's profits.
- Hungary and Serbia are opposing the new Bulgarian fee, claiming that it would increase the price they pay for the Russian gas. Bulgarian President Rumen Radev has joined the critics of the fee, saying that with it the Government is acting against the interests of an EU and its neighbors, threatens to undermine Bulgaria's role as a gas transiting country and will bring financial instability to Bulgarian gas transmission system operator Bulgartransgaz.
- In the last week of October, Qatar signed a gas supply contract with the Italian company Eni. The contract envisages the delivery of over one million tons of gas per year, with LNG deliveries beginning in early 2026.
- With the outbreak of armed conflicts between Palestine and Israel, the EU considered the possibility of extending the natural gas price limitation to 180 EU/MWh. The recent explosion on the Balticconnector gas pipeline may also have a negative impact on prices, while the extension of price restrictions would provide a favorable climate for the development of energy production from renewable sources.
- At the end of the month, Bulgarian Bulgartransgaz CEO Vladimir Malinov said that the main factor for the increase in demand for transmission capacity through Bulgaria's network is the rising role of liquefied natural gas in the EU and the envisaged new LNG terminals in Greece, as well as the plans to increase the flows along the Southern Gas Corridor. This project would increase the interconnection between Bulgaria and Greece from the existing 66.6 GWh to 155.9 GWh, while the capacities between Bulgaria and Romania would increase from the existing 185.2 GWh to 302.2 GWh.

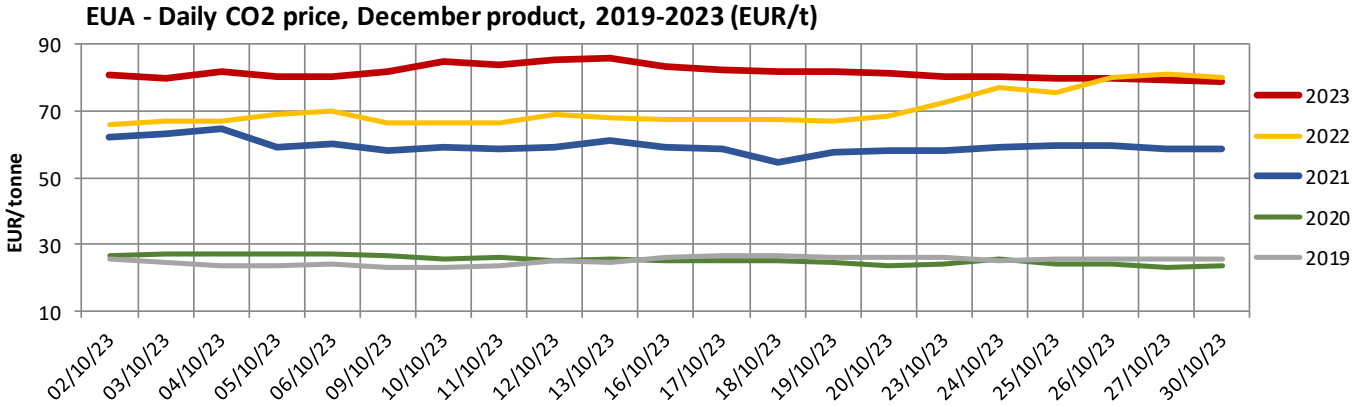
4. Emissions price: EUA (CO2)

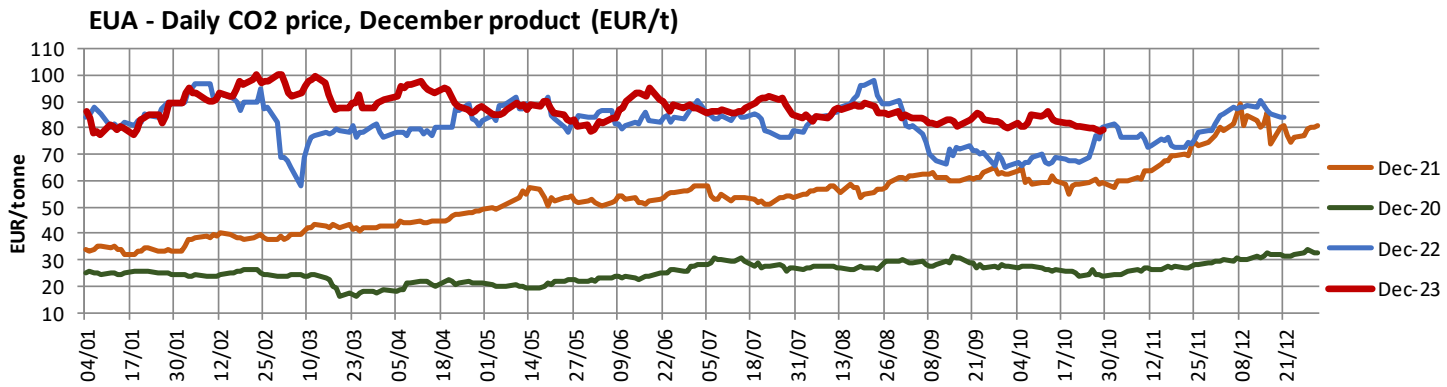
During October 2023, EUA price was volatile, and traded within 7 EUR range. Still, average daily price was 1.75 EUR/t or 2.1% lower than in in September, and even 4.4 EUR/t lower than in August. During October, average EUA price was 81.5 EUR/t, while on last day of October, Dec-23 product price was 79.05 EUR/t.

During October 2023, EUA price was again quite volatile, due to the upcoming colder weather and heating season. With colder weather, EUAs started October with 80.61 EUR/t to strengthen during the second week to 85.66 with a somewhat wide trading range of 6.60 EUR/t, to return to 81.67 EU/t during the middle of the month and 79.36 EU/t at the end of the month.

With natural gas stocks at 98% and a short-term drop in temperatures that caused increased consumption, there was volatility in EUAs, but from mid-month the market stabilized due to stable deliveries from Norway and Chevron as well as high average temperatures for this time of year.

In early October, the European Union launched the first phase of the world's first system to impose CO2 emissions tax on imported steel, cement and other goods as it tries to stop more polluting foreign products from undermining its green transition. However, The EU will not begin collecting any CO2 emission charges at the border until 2026.This marks the start of an initial phase of the Carbon Border Adjustment Mechanism (CBAM) when EU importers will have to report the greenhouse gas emissions embedded during the production of imported volumes of iron and steel, aluminium, cement, electricity, fertilizers and hydrogen.





Importers will from 2026 need to purchase certificates to cover these CO2 emissions to put foreign producers on a level footing with EU industries that must buy permits from the EU carbon market when they pollute.

European Economy Commissioner Paolo Gentiloni said the aim was to encourage a worldwide shift to greener production and to prevent European manufacturers relocating to countries with lower environmental standards. It is also meant to prevent them from losing out to foreign competitors while they invest to contribute to meeting EU targets to cut the EU's net emissions by 55 % by 2030 from 1990 levels.

On 20th of October, the European Commission (EC) announced that it has adopted a delegated regulation establishing a new Auctioning Regulation, following a revision of the Emissions Trading System (ETS) Directive related to the Fit for 55 legislative package and REPowerEU plan.

The statement from the EC said that the Auctioning Regulation continues to set out the technical elements necessary for the good organization of EU ETS auctions, such as the format, timing, frequency of auctions, rules about the auction calendars, eligibility of bidders to participate in auctions, rules on the selection and responsibilities of auction platforms, as well as on market oversight and transparency.

The new regulation will see changes related to the extension of the scope of the Emissions Trading System (ETS) to cover maritime, which includes the reevaluation of the eligibility criteria for admission to auctions of shipping companies. The scope has also been extended to include the auctioning of allowances for a new and separate ETS for buildings, road transport and other sectors.

Additionally, there have been adjustments in provisions for the auctioning of aviation auction volumes. The regulation also entails provisions for the auctioning of allowances for the Innovation Fund, along with the introduction of new provisions for the auctioning of allowances for the Recovery and Resilience Facility in the context of REPowerEU and for the Social Climate Fund.

The changes also focus on improvements IN market oversight and transparency. There are also alterations concerning the rules on the notification of the voluntary cancellation of allowances by member states under the ETS Directive.

Upon entry into force, this act will repeal and replace the old auctioning regulation. Further information is expected to be provided on the publication of the 2024 auction calendars in an upcoming regulatory update.

5. Coal prices

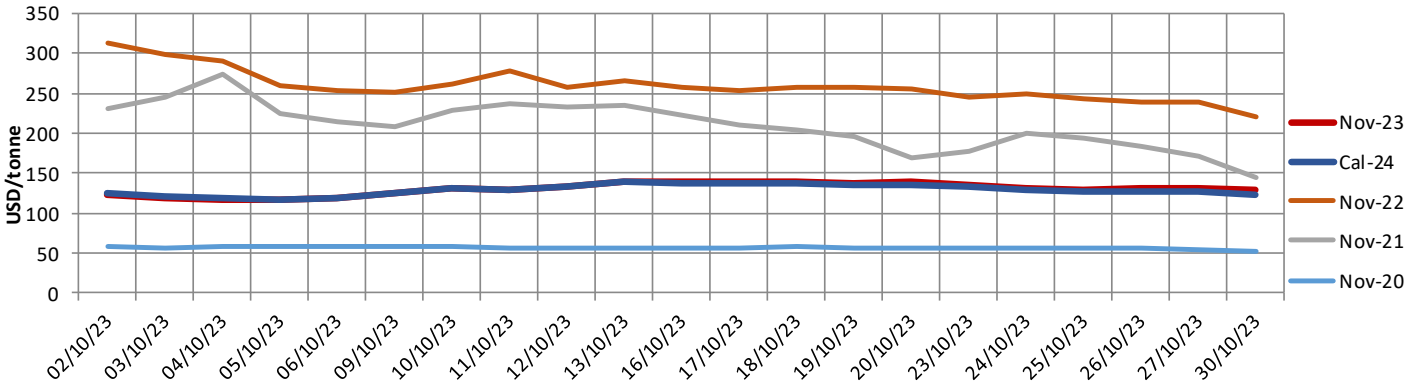
API-2 coal prices (front-month and other forward products) were quite volatile during October. Although price were on the rise due to Gaza conflict and reduced supply from Indonesia and South Africa, prices on last trading day were lower than on first trading day. In first two weeks, coal prices had rising trend (for November-2023 delivery, from 123.9 USD/t up to 140.25 USD/t). But from 16th of October, coal prices were in almost linear declining trend and dropped by 12-15% from mid month till the end of the month. With respect to Cal-24 prices—they behaved ad quite similar trend and followed November-2023 price with just few USD/t difference.

At the end of the month, November-2023 price was 123.15 USD/t, which is 0.8 USD/t lower than on first trading day, or less than 1%. Cal-24 coal prices had a sharper drop, and on last trading day were traded at 119.2 USD/t, which is 5.7 USD/t drop or 4.5%

- In the first week of October, there was a slight decline in coal prices in the EU due to high temperatures, stable gas supply and high inventories. Decline in coal prices was also influenced by the high generation from renewable sources in Germany. Following EU prices, South Africa's HIGH-CV 6000 also weakened to settle at 127 USD/t due to reduced demand from China due to the holidays and lower traffic through the Richard Bay Coal Terminal.
- In China, there is a public holiday from September 29 to October 6, as a result of which prices remained unchanged, but this affected other markets. During the first week in India, strikes were announced in coal mines, which led to a decrease in warehouses by 5%, so the increased demand from India affected the Indonesian 5900 GAR, which strengthened by 3 USD/t to 95 USD/t.
- In the second week of October, due to the outbreak of conflicts in the Middle East, concerns about the supply in the EU appeared, with the increase in gas prices, coal prices strengthened to 136 USD/t. South Africa's HIGH-CV 6000 firmed to 135 USD/t following EU prices as standard.
- Second week was also marked by the end of Chinese holidays and trade resumed, 5500 NAR strengthened to 144 USD/t due to reduced inventories and deliveries from local mines which are under strict controls due to several incidents in last few weeks.
- In the middle of the month, Indonesia's 5900 GAR slightly strengthened to 96 USD/t due to increased demand from Southeast Asia. Indonesia is expected to face a crisis in the form of reduced supply as most companies have not received an extension of their production quotas which may lead some firms to completely stop production. At the end of the second week, the Australian HIGH-CV 6000 weakened to 140 USD/t due to reduced demand.
- In the third week of October in the EU, coal prices strengthened to over 145 USD/t, as a result of increase in gas prices, increased coal consumption and reduced stocks at ARA terminals, which contributed to volatility.
- In the third week of October in China there was a slight drop by 5500 NAR to 142 USD/t, as increased production with increased stocks in the ports had a favorable effect on prices.

- The end of the month in the EU brought stabilization with diplomatic efforts to end the conflict in the Middle East as well as increased stocks at ARA terminals, the price ended the week at USD 140 USD/t.
- Following the EU market South African HIGH-CV 6000 fell to 130 USD/t. South Africa is facing supply problems due to the inability of state-owned firms to handle rail supply. One of the proposed measures is the involvement of private capital to solve the problem, the cost of transporting coal from the mines to the port has raised from 34 USD/t to 50 USD/t in the last two months.
- In the fourth week of October in China, the price of 5500 NAR fell to 141 USD/t due to the increase in production from local companies as well as the completion of maintenance on the supply railway.
- In the last week of October, Indonesian 5900 GAR strengthened to 99 USD/t even though the demand from Southeast Asia decreased, the prices were additionally affected by the government's non-decision on the expansion of quotas due to technical reasons.
- The end of the month, reduced demand from China and India affected the Australian HIGH-CV 6000 to finish trading below 130 USD/t.

API-2 Coal futures during October, 2020-2023 (USD/tonne)



- *Although SEE markets not directly driven by international coal prices, they are driven by Western markets which are dependent on international coal prices. In past years, just one power plants was using imported coal at market prices in SEE: TPP Plomin in Croatia with 200 MW output, which represent less than 2% of coal generation in SEE. In recent months, Serbia and Slovenia started using Indonesian coal, mixing it with locally sourced lignite.*

6. Power generation in Hungary and SEE in September 2023

Coal generation

Coal-fired generation this October continues to be extremely low, and observing October in past two decades - it was the lowest. Reasons for such low coal-fired generation were the same as in previous months: quite low revenues of coal-fired units in EU, lower consumption, and shutting down of units (mainly in Romania). With just EUA (CO2) observed (no fixed and no fuel costs), revenues of coal units were just 24 EUR/MWh. Comparing to the 2005-2017 period when EUA costs were approximately 5 EUR/t, this would be equivalent to revenues as if monthly average spot power prices were in a range of 30 EUR/MWh.

Although price level was still sufficient for coal-fired units in Bosnia and Herzegovina, North Macedonia, Kosovo and Serbia, it was visible that coal-fired generation was not much higher than in previous years. Most of the coal units in SEE follow consumption and not prices, meaning that consumption was the most important driver of coal-fired generation. But consumption was very low due to record-breaking temperatures. This might have also induced certain coal saving for Q4 and Q1.

Revenues of EU coal-fired units against HUPX were in fact 2.5 EUR/MWh higher than in September 2023, but around 100 EUR/MWh lower than in October-2022, which was under impact of high natural gas prices and high spot prices. (observing CO2 cost change and average HUPX price). Since 2015, only October 2020 had lower revenues of coal units than this October.

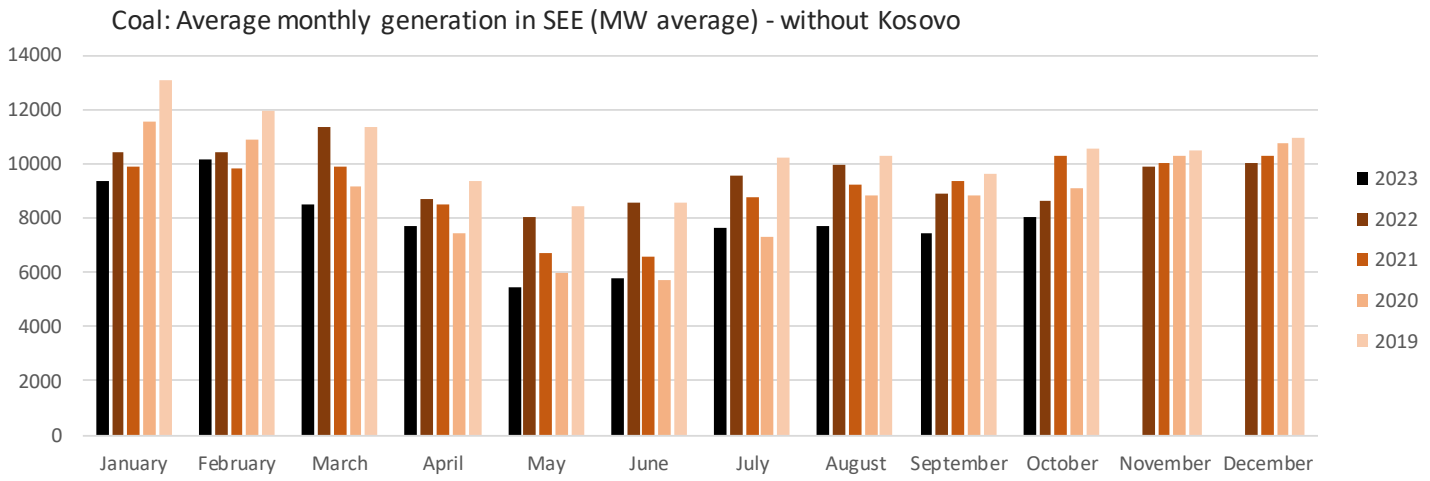
Compared to September this year, maintenance plan of coal-fired units was actually 600 MW less intensive (excluding Bosnia and Herzegovina), and actual coal-fired generation was 700 MW higher (excluding Bosnia and Herzegovina), mostly due to 180 MW higher coal-fired generation in Bulgaria and 187 MW higher in Serbia. . Only in Romania coal-fired generation was lower, but by just 25 MW.

Compared to October last year, coal-fired generation was 615 MW lower, due to 2 reasons:

- Unprofitable coal-fired generation in Bulgaria (in Bulgaria alone, coal-fired generation was 830 MW lower)
- Shutting down of two coal-fired units in Romania (195 MW lower generation)
- 220 MW lower generation in Hungary, as one Matrai unit was fully out (224 MW output)

But, compared to last year October, coal-fired generation was actually not lower in all countries. It was 245 MW higher in Slovenia which is difficult to explain due to much lower revenues of Sostanj 6 unit (one explanation can be outage of NPP Krsko), 137 MW higher in Bosnia and Herzegovina (due to more availability of coal), 95 MW higher in North Macedonia and 97 MW higher in Greece (despite newly constructed unit being commissioned this year).

Total year-on-year coal-fired generation drop in the region was 615 MW, or 6.7%. But availability of coal units was also 600 MW lower.



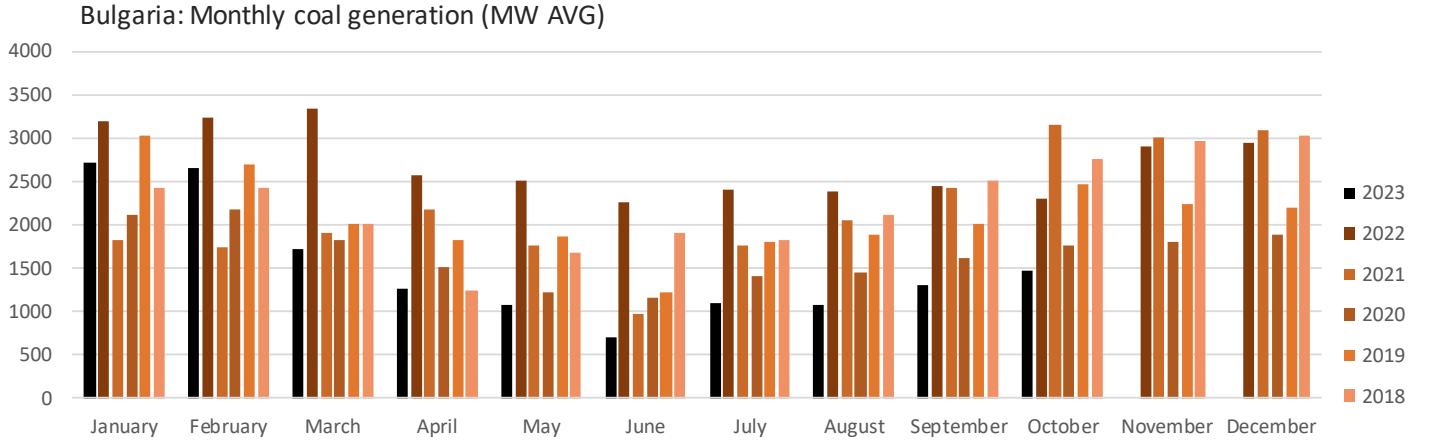
*Kosovo not included due to incomplete data for 2019-2021

Coal-fired generation **Bulgaria** was exceptionally low, and 180 MW higher than in September, for 200 MW higher availability. Usually, there is a certain increase of coal-fired generation in Bulgaria when NPP Kozloduy goes into maintenance, but it was not visible this year.

For October, it was the lowest October generation in decades. Since July 2021, when natural gas prices started with sharp rise, Bulgarian coal fired generation rose strongly and kept that trend - until this March. Reasons for such low generation were strongly unprofitable coal-fired generation, but also strong consumption drop as well as pressures regarding CO2 and SO2 emissions. TPP Maritsa 3 had to stop with operation in early October due to emissions. Also, extremely warm weather resulted with low consumption and no strong pressure for high generation. Comparing to October last year, coal generation was on average 830 MW lower, for even 200 MW more relaxed maintenance plan. Contrary to previous months, IBEX was not able to settle below HUPX as Bulgarian exports dropped by 660 MW compared to September. Bulgarian exports in October were just 160 MW, which is 350 MW lower than last year October, while BG-GR NTC has increased.

Coal-fired generation in Bulgaria was:

- 178 MW higher than in October 2023
- 828 MW lower than in October 2022
- 1,732 MW lower than in October 2021

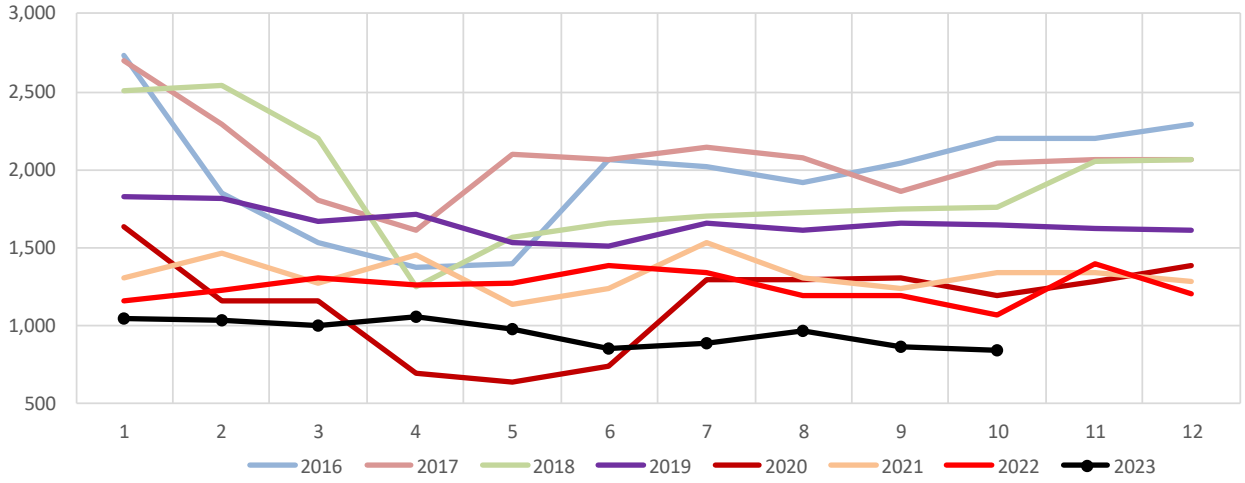


In **Romania**, coal-fired generation continues to be low. was similar to June-July period, but 30 MW lower than in September this year. If Covid-affected Q2-2020 is excluded, this was 2nd lowest monthly generation in decades (just June 2023 had lower coal-fired generation). Observing peak only, it was the lowest monthly generation (aside Q2-2020). Low generation was mostly a result of low price level, as Romanian coal-fired units were at strongly negative profit margin and shutting down of two coal fired units. 300 MW more intensive maintenance plan of coal-fired units in October comparing to September did not affect actual generation. OPCOM was most of the time coupled with Bulgarian IBEX, but still settled below IBEX (but still slightly above HUPX).

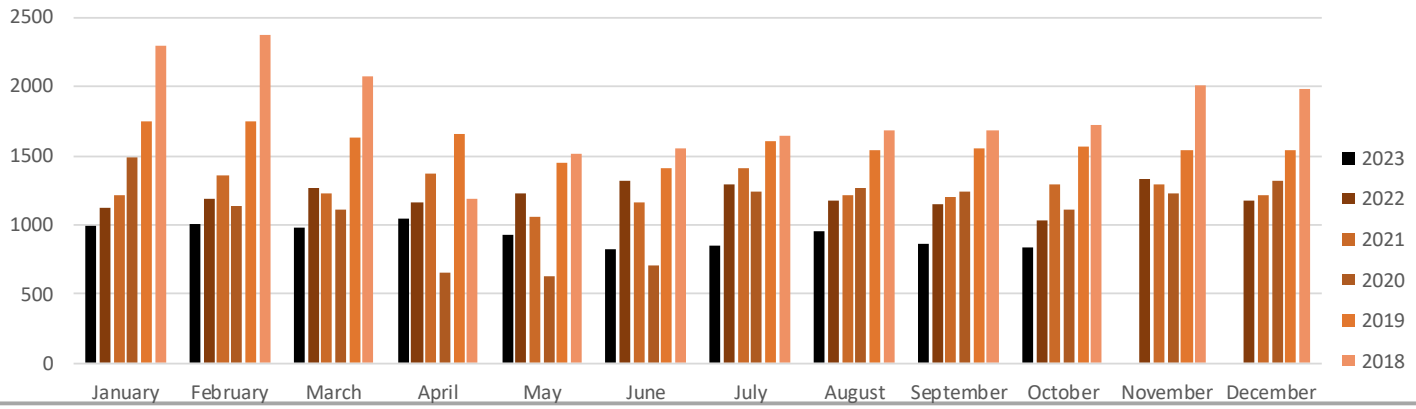
Coal-fired generation was as base-load 194 MW lower than in October-2022. It is true that availability was 560 MW lower, but in recent year Romanian coal-fired generation is the same no matter the mainteinance plan. Coal-fired generation was also 460 MW lower than in October 2021 and 280 MW lower than in October 2020. Compared to October 2019, coal-fired generation was even 730 MW lower.

Under an emergency ordinance passed by the Romanian Government in order to meet the targets set under the decarbonization calendar under the National Relaunch and Resilience Program (PNRR), two coal-fired power units with a combined installed capacity of 660 MW at Energy Complex (EC) Oltenia were placed under conservation in June this year for three years, or they may even be closed permanently. The two units in question are TPP Rovinari 3 and TPP Turceni 7, with installed capacity of 330 MW each, both operated by Energy Complex (EC) Oltenia. In June 2022, the Romanian Government decided to delay its planned decarbonization goals for the energy sector, maintaining the use of coal for an extra two years. The initial plan would have had mines and coal-related activities shut down by 31 December 2030.

RO: Coal generation (MW average, WD peak)

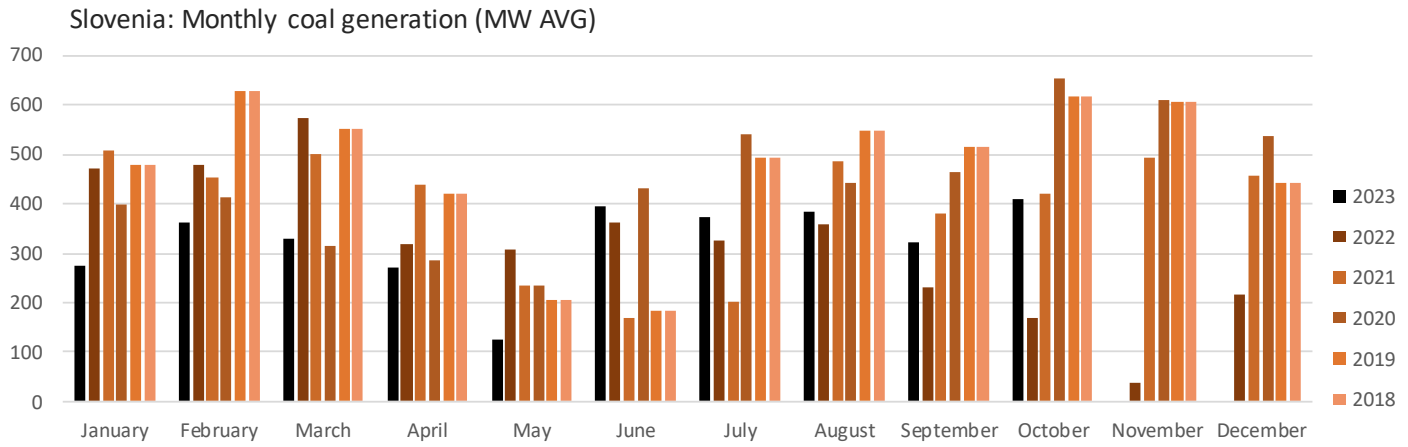


Romania: Monthly coal generation (MW AVG)



In Slovenia, coal-fired generation was surprisingly high taking into account low market prices to support operation of the power plant. Contrary to September when Unit 6 in TPP Sostanj was offline during 4 days, in October 2023 it worked without interruptions. One of the reasons for coal-fired generation which was above expectation for this price level was outage of NPP Krsko (696 MW) and TPP Sostanj 6 covering for physical energy injection into the grid.

Slovenian coal fired power generation has issues with local coal sourcing, so last year additional coal quantities from Indonesia, which is not a typical sourcing of coal. Costs of operation of Slovenian coal fired units are higher than in previous years.



Although unit is highly unprofitable at current price level, coal fired generation was 245 MW higher than in October last year, which was one of the best Octobers with respect to revenues for coal-fired generation. Also, coal-fired generation was 85 MW higher lower than in September 2023, as TPP Sostanj fully available.

According to the President of the Management Board of Velenje mine, the mine plans to produce 300,000 tons of lignite more than originally planned this year, to a total of 2.5 million tons. With this production dynamic, there would no longer be a need for importing foreign coal. In early May, CEO of Slovenian energy company HSE Tomaz Stokelj, which manages operation of TPP Sostanj said that the only remaining coal-fired power plant in the country will likely be in operation only in case of electricity shortages or extremely high prices on the market, until its final decommissioning following Slovenia's coal phase-out in 2033.

In North Macedonia, which still has state of energy crisis in force, thermal generation (coal+gas) was actually high and by 94 MW higher than last year. Although total thermal generation was 15 MW higher than in September, coal-fired generation was just 8 MW higher. Also, total thermal generation was just 17 MW higher than last year although last year one Bitola unit was out due to transformer issue. But, generation was also higher than in October 2021, as gas-unit TE-TO worked much more in past months than last year. Coal generation this October stood at 268 MW, and gas at 185 MW.

In North Macedonia, there are four coal-fired units: Bitola 3x220 MW and Oslomej 1x125 MW) .

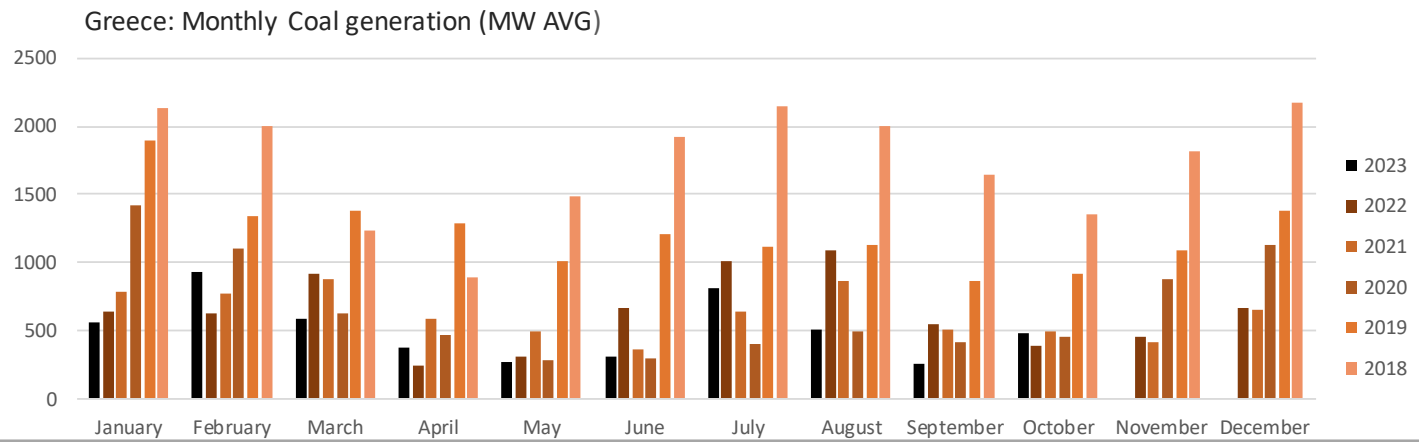
In **Greece,** coal generation was significantly higher than September 2023, for even 220 MW, despite significantly stronger maintenance plan. But, since Greece has 2,000 MW in coal units and actual generation this year was on average just 500 MW, maintenance plan does not play a role in total coal generation. Despite new TPP Ptolemaida V unit being in operation this year, actual generation was just 97 MW higher than last year. But, despite 15 EUR/MWh higher EUA price, power prices were 120 EUR/MWh lower in Greece this year comparing to previous year. What is interesting is that coal-fired generation in Greece stood at 0 MW during first 3 and a half days of October. Also, Max hourly generation in October stood at 860 MW, while in September, it stood at 1,000 MW.

Generally, coal-fired generation in Greece was at similar level as in 2020-2022 period. But, it was 439 MW lower than in October 2019. (intensive coal phase-out plan started in 2019/2020.

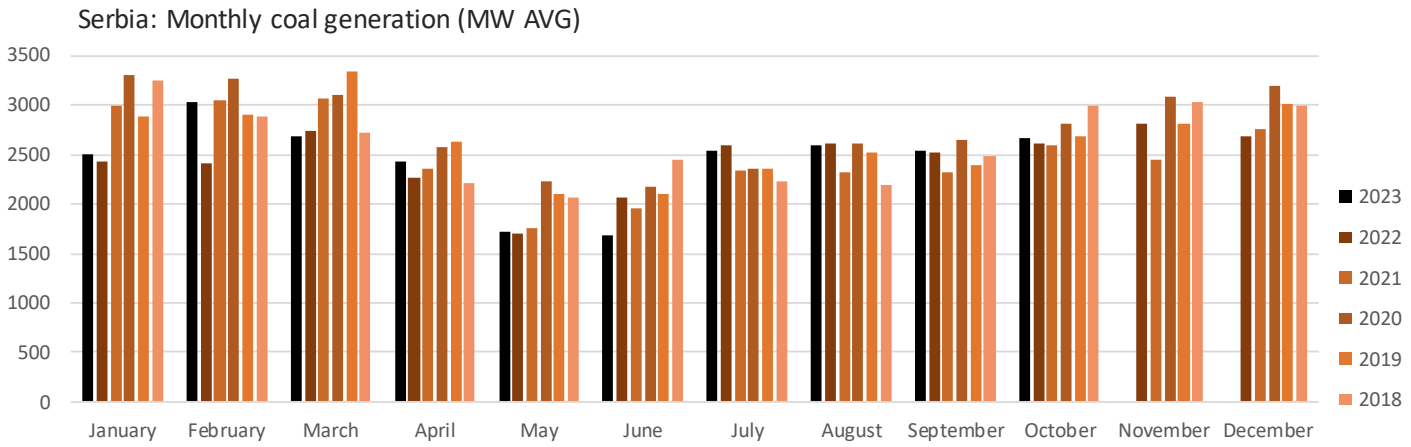
Observing individual coal-fired units in Greece, Agios Dimitrios unit 4 (283 MW) worked for 12 days, unit 1 (274 MW) and unit 2 (274 MW) and unit 5 (342 MW) did not work at all, unit 3 (283 MW) worked for just 2 days. Megalopoli unit 4 (256 MW) and Meliti (289 MW) did not work at all while Ptolemaida V (620 MW) worked for 28 days.

Newly constructed 660 MW coal fired unit Ptolemaida V has started with 1.5 months continuous operation test on 31st of January 2023, but had frequent disconnections during February, March and April and did not complete it. During May 2023, it did not work at all, while in June, unit was in operation from 8th of June, but again with frequent disconnections in late June. During July unit worked with much less disconnections while in August it was out as of 19.08.2023. Unit remained offline till 11th of September, and it was again out as of 26.09.2023. According to the owner of the power plant (state owned PPC), unit was planned to wait until July or August to fully stress the facility before the official launch. Previously, local press reported that the unit experienced some issues during its trial run, mainly due to insufficient amounts and quality of excavated lignite. Still, problems seem to be related mostly due to low market prices. Ptolemaida V unit requires only 1.5 tons of lignite to generate one MW of electricity, compared to 2.2 tons required by existing units elsewhere, thus producing electricity at 30 euros/MWh, compared to 45 euros/MWh for older units. Its CO2 emissions are also 40 % lower. Ptolemaida V was designed in 2007 and its construction started in 2015. The cost of the 660 MW power plant was around 2 billion euros.

Greek Minister of Energy Kostas Skrekas announced that three coal-fired thermal units operated by state-controlled Public Power Corporation (PPC) will continue to operate until the end of 2025. The three units in question are: unit 1 at TPP Meliti and units 3 and 4 at TPP Agios Dimitrios.



In **Serbia,** coal-fired generation was slightly higher than in September, by 187 MW, which is not a surprise as availability of coal-fired units was 200 MW higher. Coal-fired generation was also 116 MW higher than in October last year, despite some 100 MW more intensive maintenance plan. Generation was also 130 MW higher than in October 2021, but 90 MW lower than in October 2020.



In early October, acting Director of Serbian state-owned power utility EPS Dusan Zivkovic has assessed that the current quantities of available coal in stockpiles, as well quantities ready to be excavated, are entirely sufficient for stable production of electricity during the winter season.

On 20 October 2023, the Energy Community (EnC) Secretariat sent an Opening Letter to Serbia to address its breach of the Large Combustion Plants Directive in the case of coal-fired thermal power plant Morava, which continues to operate despite the expiry of their limited lifetime derogation period.

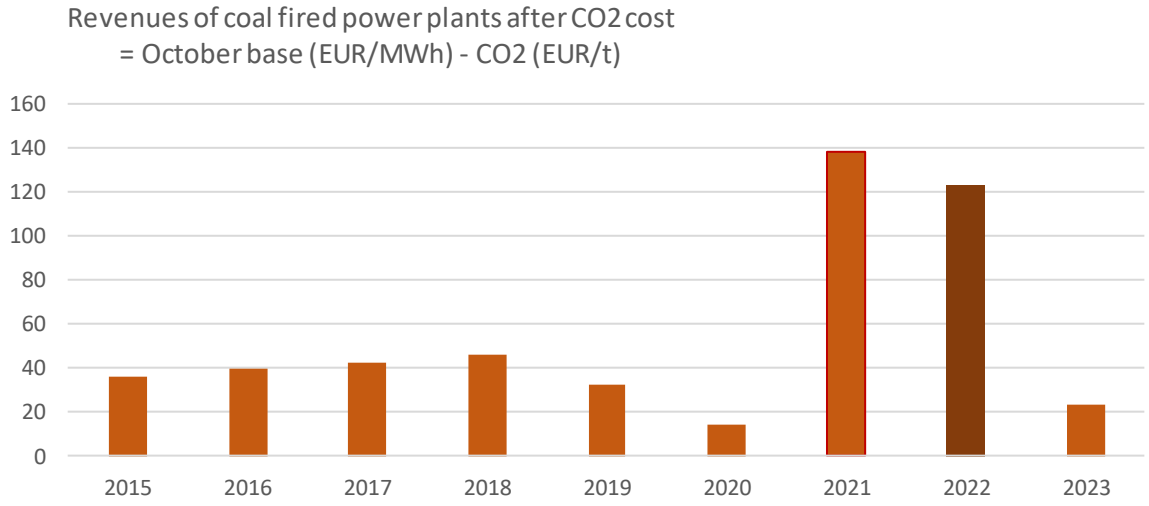
According to state-owned power utility EPS, in first 7 months of 2023, Serbia has imported 2.5 million tons of coal, and it is planned to import a total of 4.2 million tons of coal this year. In early August, EPS launched a tender for the transport of 577,500 tons of brown coal on the route between the port of Ploce in Croatia and its TPP Nikola Tesla B (TENT B), worth some 33.5 million euros. The required delivery dynamics is 2,400 tons per day. The origin of the coal is Indonesia. Earlier this year, EPS held a tender for the transport of 500,000 tons of coal from the Romanian port of Constanta worth 21 million euros.

Last year in August, Serbian EPS struggled with coal quality and availability of units, but several arrangement for coal imports have been made, and EPS is currently importing coal from Montenegro, Bosnia and Herzegovina (by trains), and via Bulgaria imported coal from Indonesia and Bulgarian coal from Maritsa East mines via Danube. Still, EPS would have profitable coal-fired generation even at price level in May (with own lignite as fuel), as EPS is not under EUA scheme and has 80-100 EUR/MWh lower generation costs than EU countries. However, due to high transport costs and cost of Indonesian coal which is mixed with local coal, it seems that it was more feasible for EPS to save coal for higher priced period. Also, low demand and strongly above average hydro generation have resulted with strong improvement of Serbian export, which was 550 MW stronger than last year in June.

In Bosnia and Herzegovina, coal fired generation was slightly better than in previous years, but maintenance plan of coal units in Bosnia and Herzgovina is not public. Although coal-fired generation was at similar level as in September 2023, it was 137 MW higher than in October 2022, and at similar level as in period of 2019-2021. Production of coal was significantly higher than last year.

In early 2023, performance of mines in Bosnia and Herzrgovina significantly improved, but Q2 and Q3 performance was below 2022 levels (BiH coal units are profitable as this price level as BiH is not subjected to EUA).

- In August production of brown coal was 2% higher compared to same month of 2022
- In August production of Lignite coal was 6% lower compared to same month of 2022
- In July production of brown coal was 10% lower compared to same month of 2022
- In July production of Lignite coal was 22% lower compared to same month of 2022
- In June production of brown coal was 20% lower compared to same month of 2022
- In June Lignite production was 27% lower compared to same month of 2022
- In May production of brown coal was 24% lower compared to same month of 2022
- In May Lignite production was 25% lower compared to same month of 2022



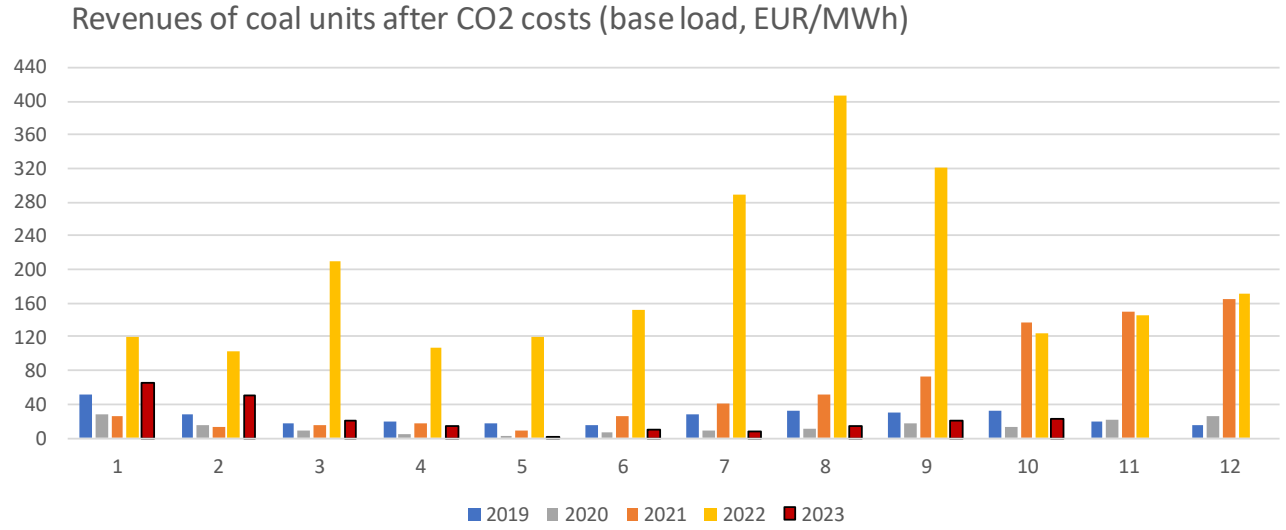


Chart shows revenues of coal-fired power plants after CO2 costs, but without coal price included - all coal-fired power plants in SEE use locally excavated coal, except TPP Plomin in Croatia.

Gas fired generation

Spot gas prices were in rising trend during October (as they were in August and September), trading on spot at around 30-35 EUR/MWh in early September, reaching over 50 EUR/MWh in mid October and staying at the range between 45-50 EUR/MWh in last two weeks on October. On average, CEGH spot gas prices were higher than in September for 5.9 EUR/MWh or 16.2%. Average CEGH spot gas price was 42.6 EUR/MWh, while Greek HENEX spot gas was 35.7 EUR, around 6.9 EUR/MWh lower. Greek gas price was also on the rise during October, but with less intensity and volatility than CEGH. As Greek gas price was lower, this made Greek units more competitive (but it is important to note Greek tax if gas is used for electricity generation). Comparing first and last Working day on Spot, gas price on CEGH was 29.5% higher or some 10.8 EUR/MWh. Compared to October last year, average spot gas price was on complete different level: over 53 EUR/MWh lower (60.7 % down).

Compared to September, the rise pf of natural gas prices itself did not have major impact on HUPX. Absolute price level was 1.2 EUR/MWh higher, it is not related to local dependency on gas, but much more power imports from CWE. HU-DE price difference was 3.1 EUR/MWh in September, but 17.5 EUR/MWh in October, which renders impact of revenues of gas units irrelevant. Average natural gas price was 5.9 EUR/MWh higher, but EUA (CO2) price was 1.3 EUR/t lower resulting with around 10.0 EUR/MWh more expensive generation outside Greece (base load after CEGH and EUA costs). But, as mentioned, more relevant is correlation with CWE markets, where Clean Spark Spread was much lower than in September.

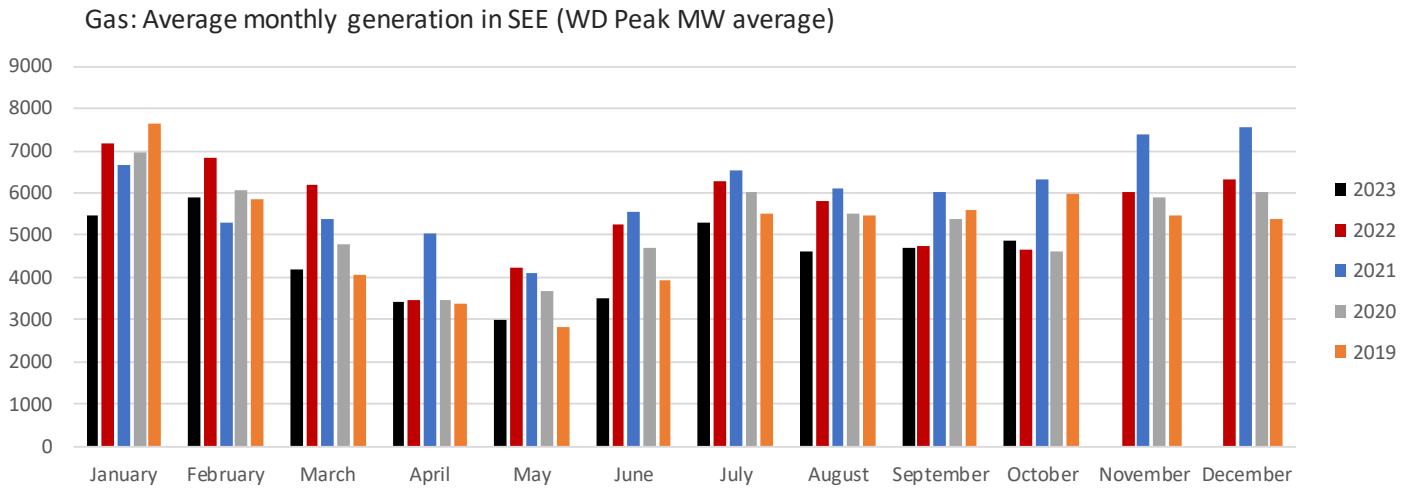
High efficiency gas units had negative profit in base-load product, amounting to –10.5 EUR/MWh (after EUA and gas costs), while they had 14.8 EUR/MWh positive margin in peak product. Low efficiency units were strongly unprofitable in base-load product (some 21 EUR/MWh loss) but 4.3 EUR/MWh profit in peaks.

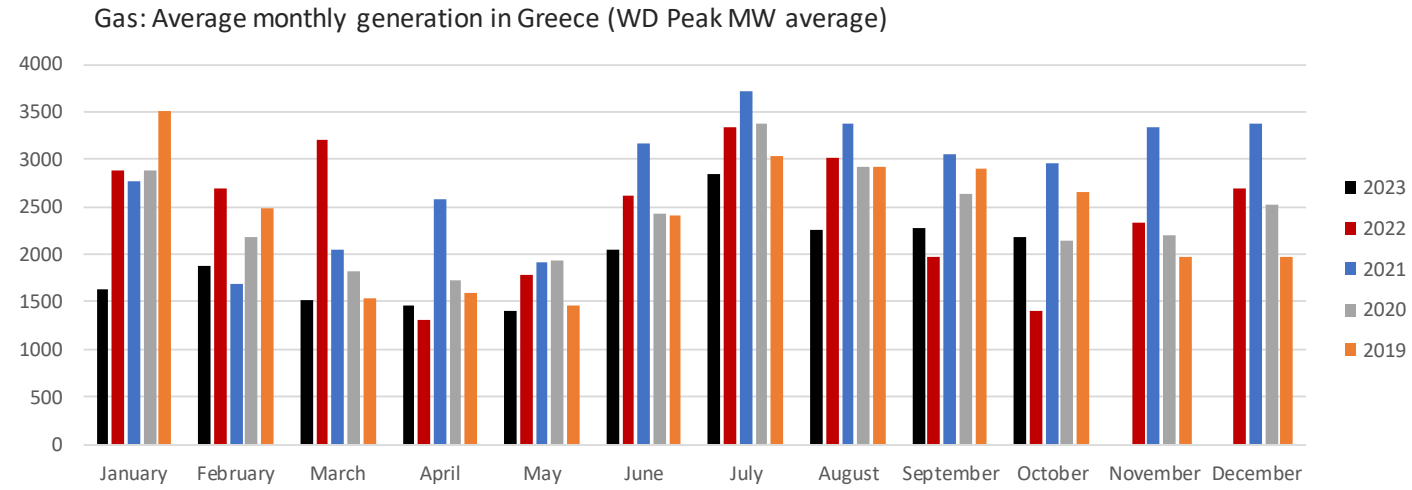
Observing SEE without Greece, there some maintenances of gas units, but significantly less than in September 2023. In Romania Bucuresti Sud and Bucuresti West, and in Hungary just Kelefondli GT unit (125 MW) for 19 days. Comparing to September, gas-fired generation was higher in Hungary by some 47 MW, as maintenance plan was less intensive. In Serbia, gas-fired generation was 142 MW higher as heating season has started. Similar was in Romania, where gas-fired generation was 140 MW higher. But in Croatia, gas-fired generation was 56 MW lower, and even 305 MW lower in Greece. This drop was driven by lower revenues.

Greek gas fired generation was significantly lower than in September, by some 305 MW. The reason is not more intensive maintenance plan, as it was even slightly less intensive. Price level was not sufficient for Greek gas units, and generation remained low, although new Agios Nicolaos unit with 832 MW installed output was in operation this summer. Gas-fired generation was just not needed in Greece, as renewable generation was high. Greece was on average net exporter in October.

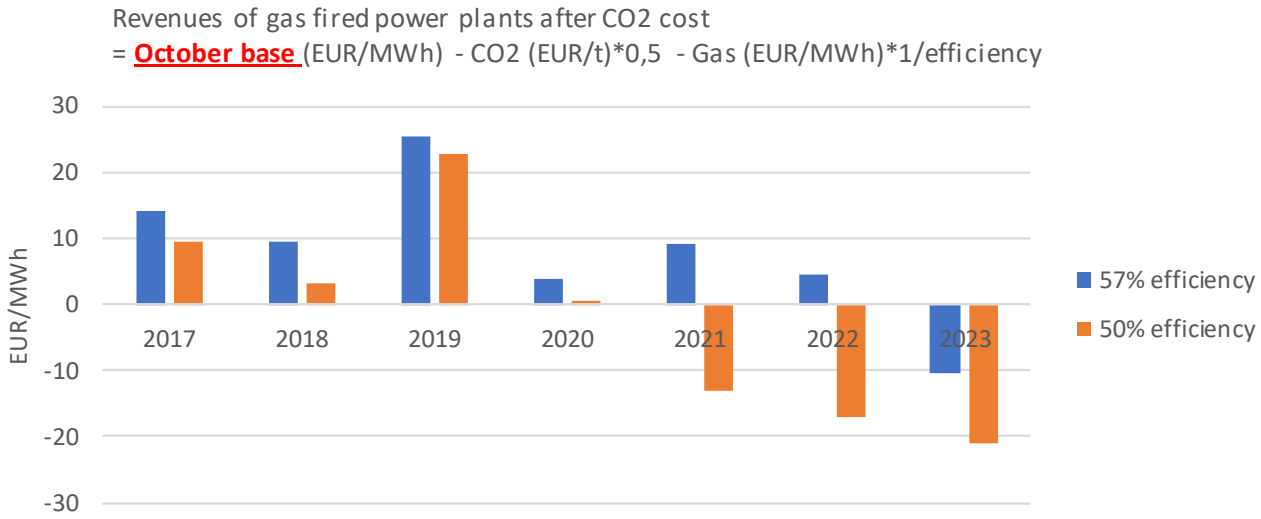
Compared to October-2022 gas fired generation was higher by 401 MW as base load, but mostly in Greece, where gas-fired generation was 700 MW higher. But, gas-fired generation was lower in Serbia (-157 MW), Hungary (-100 MW), Croatia (-70 MW) and Bulgaria (-30 MW), as weather was very warm and did not require strong Combined Heat and Power Generation.

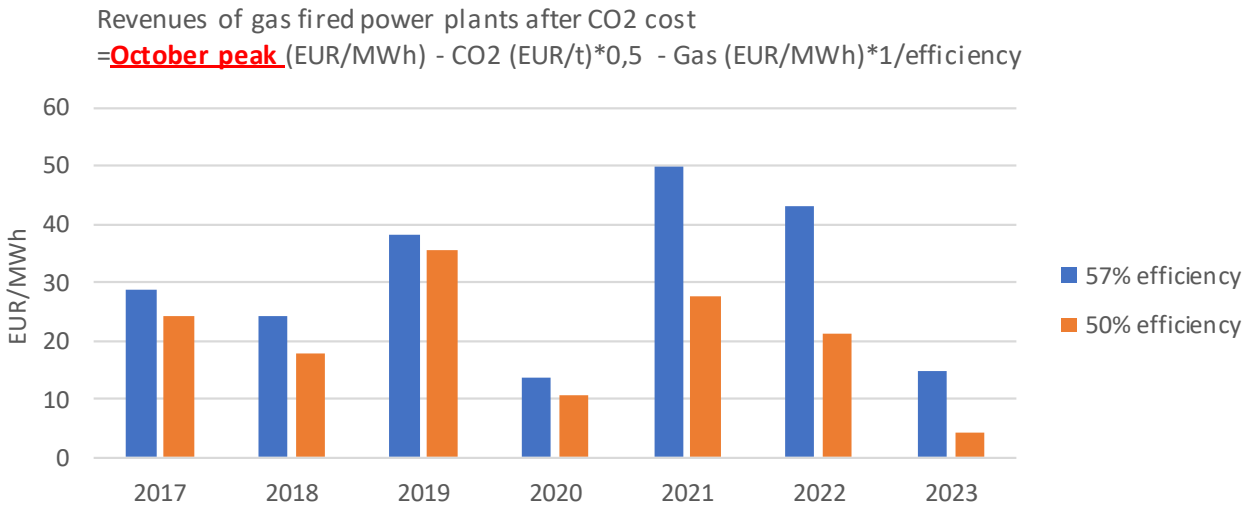
In Greece, the formula of the levy on gas used for electricity production, introduced in November 2022, was revised in May this year and set at 5 % of the TTF index, replacing a previous fixed charge of 10 euros/MWh.



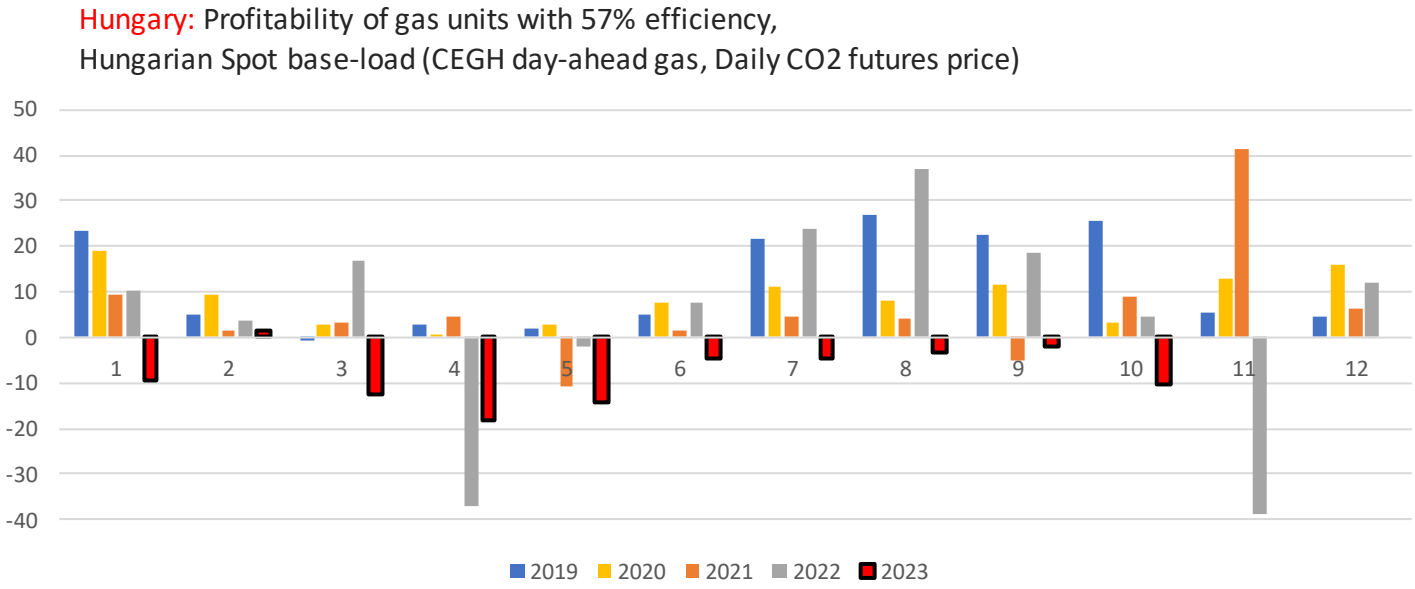


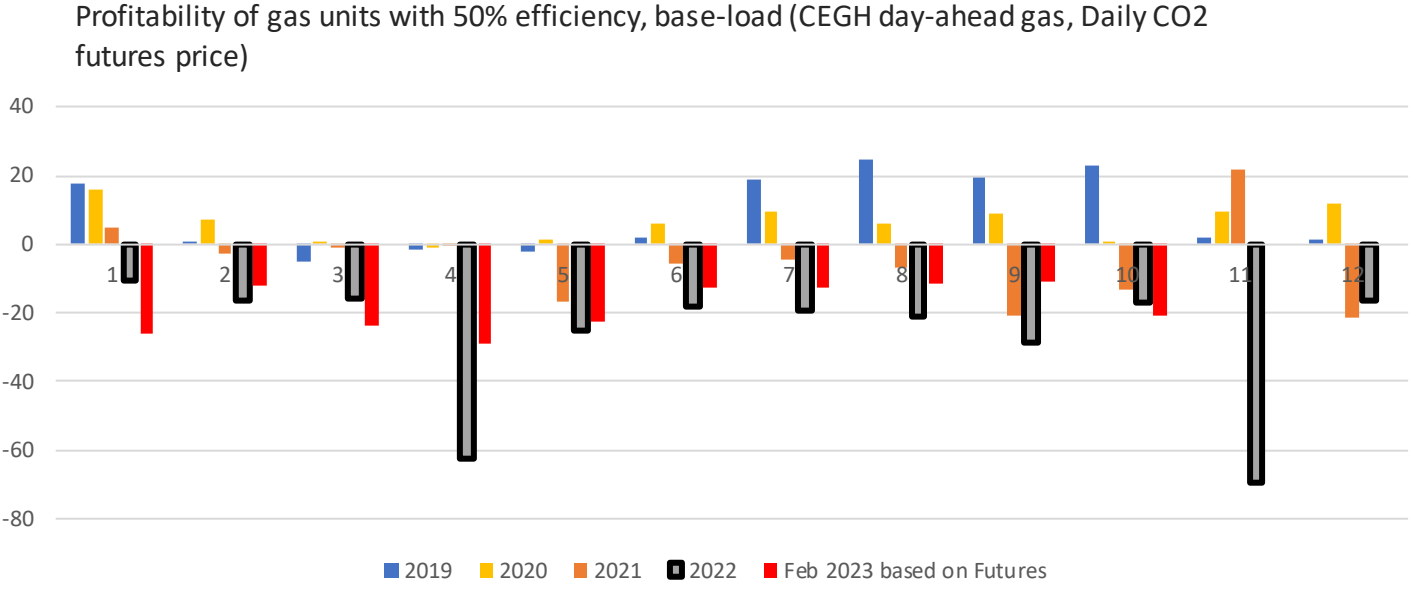
Revenues of gas fired units in October





Revenues of gas fired units, 2019 - 2023





Nuclear generation

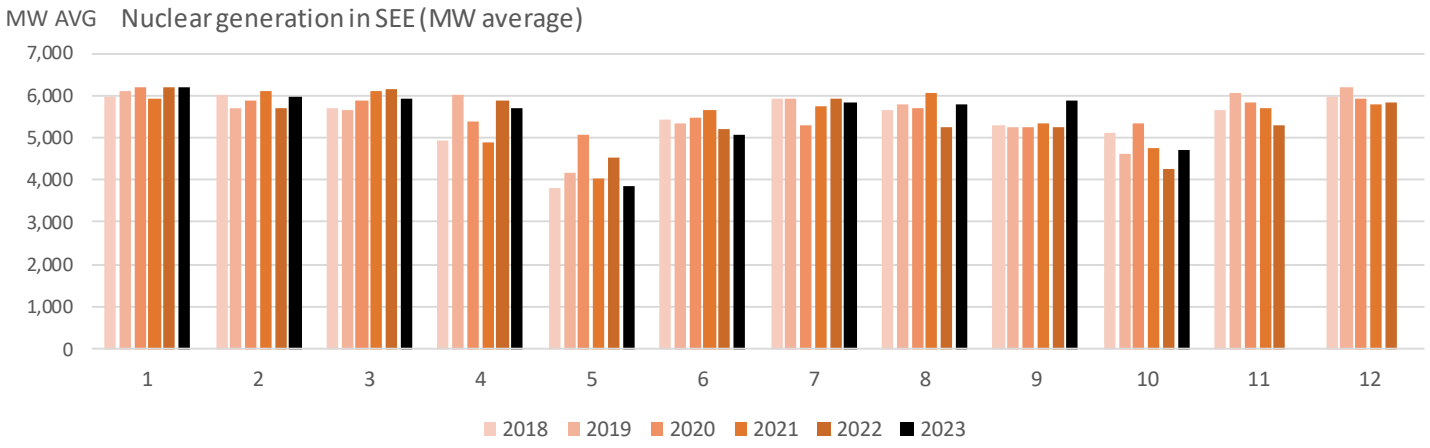
Nuclear power generation was lower than 5-year average - but just for 100 MW, although NPP Kozloduy was in maintenance and NPP Krsko experienced forced shut down. There are 3 reasons why Nuclear generation was not much lower than average

1. NPP Kozloduy 1,000 MW unit goes into maintenance every year in October. But this year, maintenance was delayed several times, and started on 9th of October instead in September. This has resulted with higher coal-fired generation in Bulgaria than usually.
2. NPP Paks usually has two 250 MW units in maintenance in October—which was not the case this year and resulted with higher than usual nuclear generation in Hungary
3. NPP Krsko goes into maintenance every 3 years for entire October. Although this October Krsko was out (unplanned), it was in operation during first 5 days.

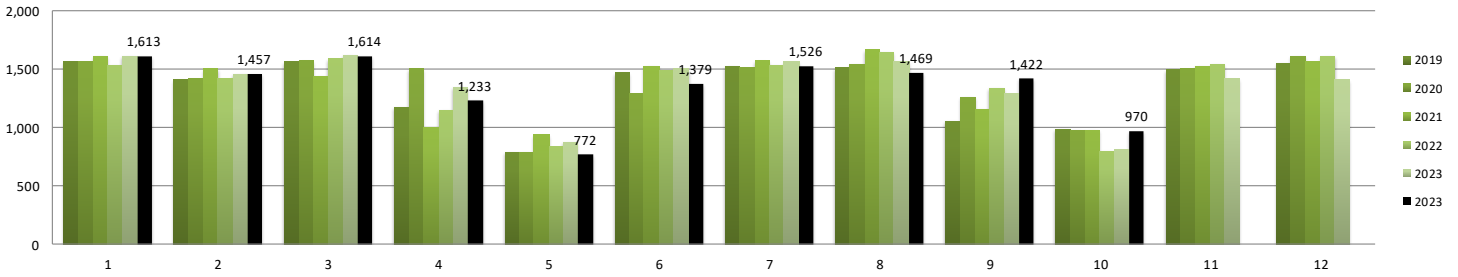
As a result, Nuclear generation was 460 MW higher than at the same time last year. Nuclear generation amounted to 4,700 MW (base-load equivalent). But, due to NPP Krsko outage and NPP Kozloduy maintenance, nuclear generation was 1,200 MW lower than in September 2023.

In early October, a leak in the primary system was discovered at the nuclear power plant, and a decision was made to shut down the plant as a preventive measure. Nuclear power Krsko was offline since 5th of October 2023 and remained offline throughout the month. In order to perform inspection and repair, all 121 fuel elements from the reactor vessel were moved to the spent fuel pool. US company Westinghouse, the original equipment supplier, with the support of the domestic industry, has initiated the removal of some existing pipelines while simultaneously preparing for the replacement of new sections of the pipelines. The shutdown of NPP Krsko will also be utilized for some maintenance work, which is expected to shorten the regular maintenance and fuel replacement scheduled for 2024. The power plant's management expects to be able to reconnect to the network in November.

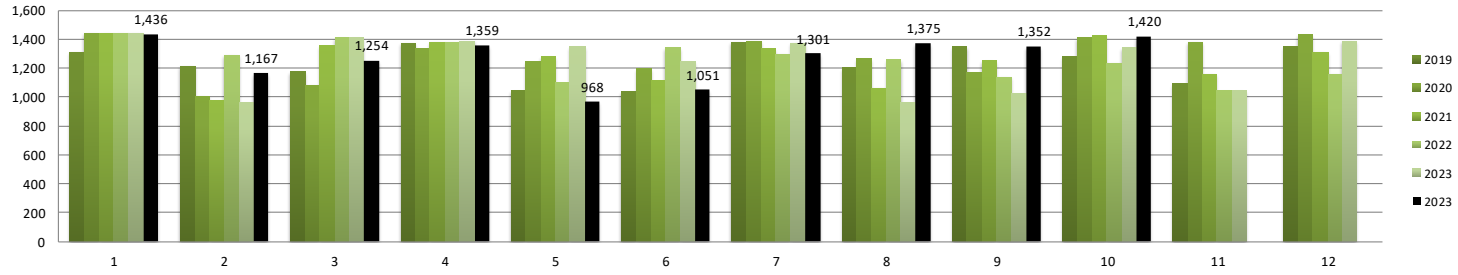
It is also worth mentioning that aside NPP Krsko, there were no many outages. Only one other outage was present: 250 MW NPP Paks unit G1 was working with reduced output for 26 hours.



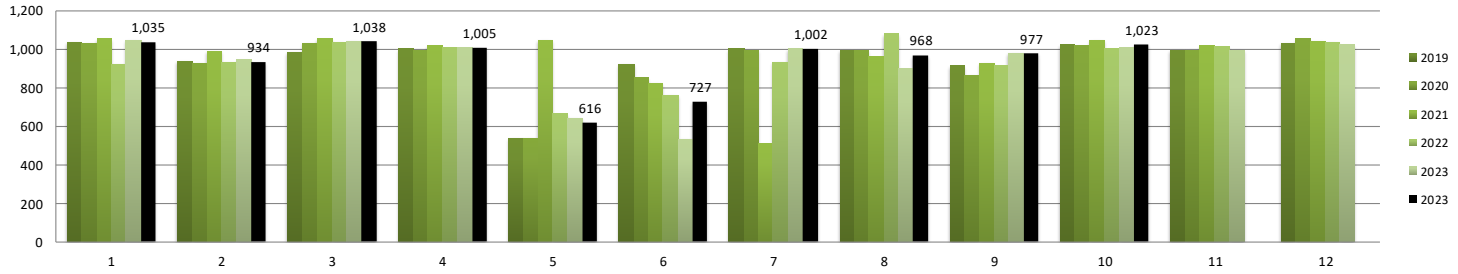
GWh **Bulgaria - Nuclear generation**



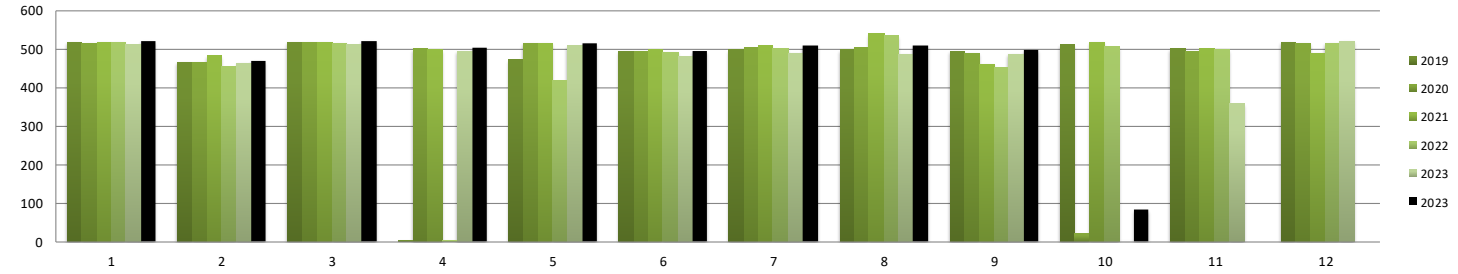
GWh **Hungary - Nuclear generation**



GWh **Romania - Nuclear generation**

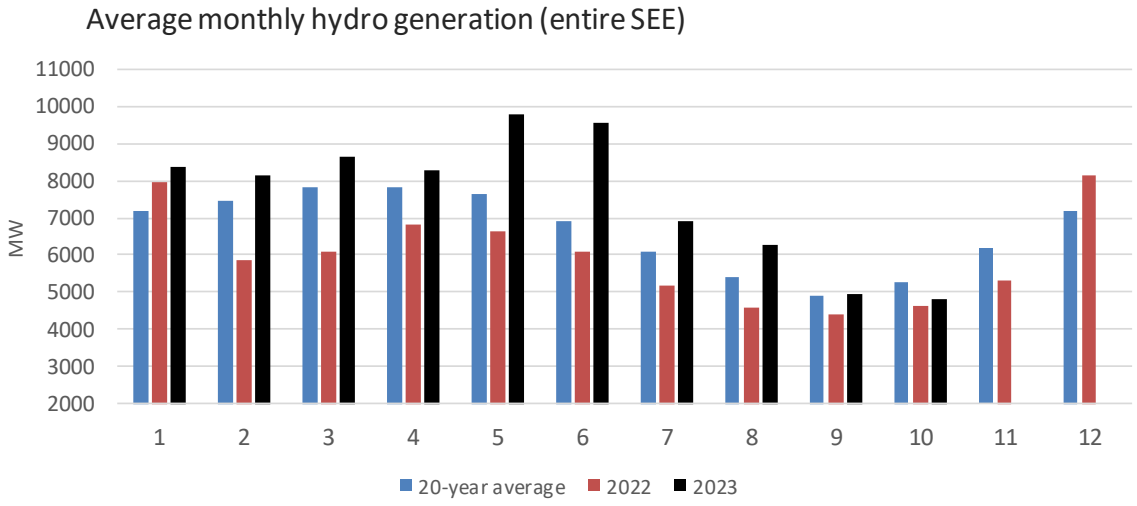


GWh **Slovenia - Nuclear generation**



Hydro generation

October is the month with the 2nd lowest hydro generation within the year (only September has lower hydro generation). This October was the 1st month to have below average hydro generation after 10 months of above average hydro generation (November 2022 was the last month with below average hydro generation). This October had 9% below average hydro generation or 490 MW below average (23-year average for October). September 2023 had 1% above average hydro generation, so hydro generation drop was not strong, as October on average has higher hydro generation than September (just 144 MW lower than September 2023).



October is the driest month within the year, and this October was not especially dry. There was some precipitation in Adriatic region, especially in mid and the end of October. This precipitation did improve hydro generation in Slovenia and Croatia, but not in other countries. Also, Danube flow remained at very low level.

Precipitation forecasts for October during summer showed strongly above average precipitation, but as August and September progressed, forecasts changed to strongly below average precipitation.

As October has very low hydro generation and generally very low precipitation - the highest impact on hydro generation has Danube flow. Without very high Danube flow, hydro generation in October cannot be above average. Also, above-average hydro generation during summer does not have impact on October hydro generation. Only extremely strong precipitation in October can result with high October hydro generation, which was not the case this year.

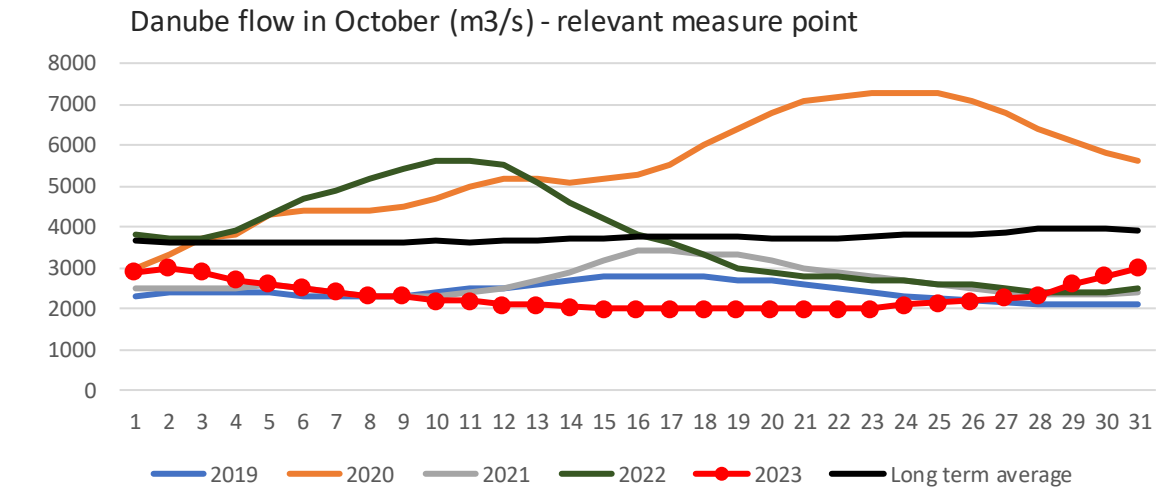
Although very volatile throughout October, hydro generation was not a major price driver—wind was. 10% deviation of hydro generation amounts to just 530 MW in October.

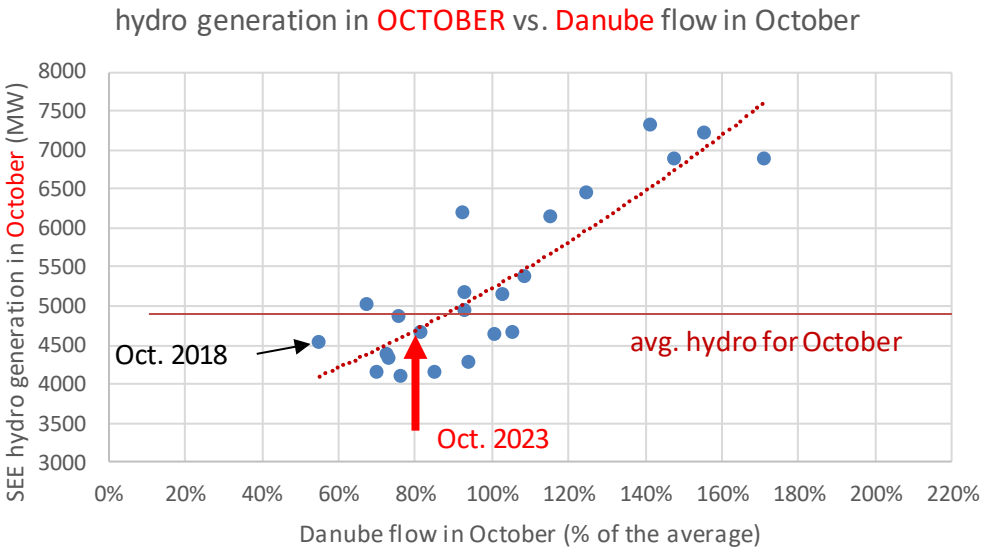
Although hydro generation was below average, it was above average in average in Greece (+60%), Albania (+10%) and Slovenia (+23%). But, it was strongly below average in Serbia (-28%), Romania (-20%), Bulgaria (-48%), Bosnia and Herzegovina (-24%) and Montenegro (-38%).

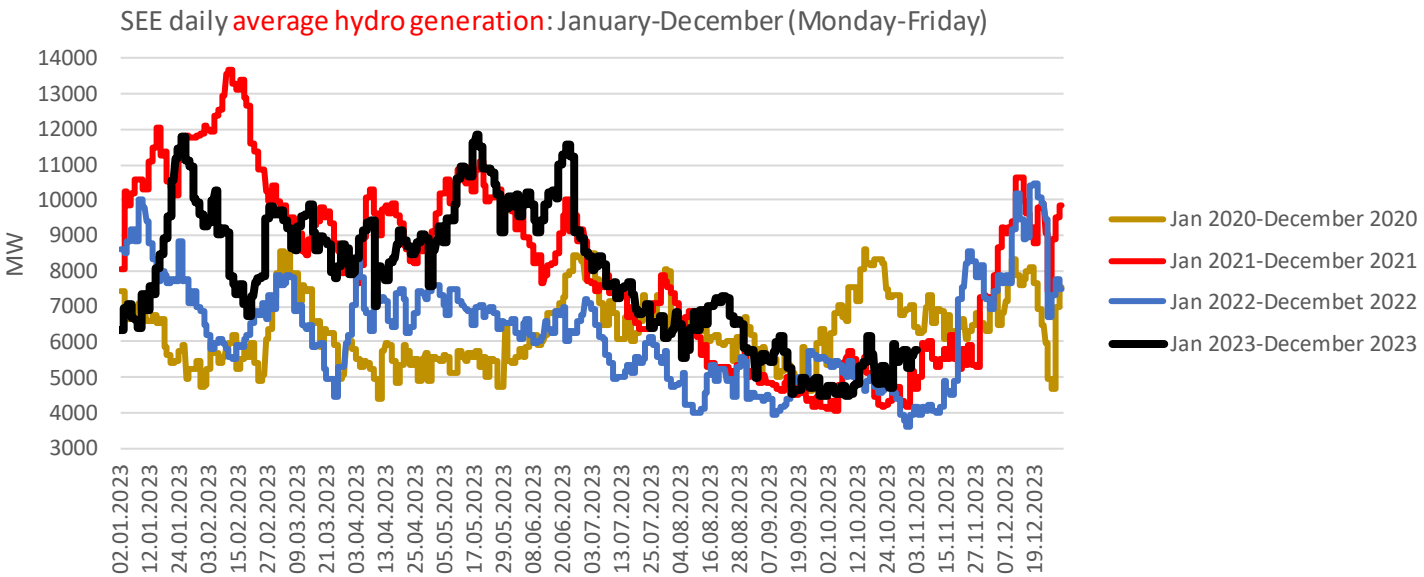
In total, hydro generation was 490 MW lower than average for October and 160 MW lower than in September 2023. Comparing to last year, hydro generation was 170 MW higher, as last year October had 12% below average hydro generation. Also, hydro generation was 400 MW higher than in October 2022, but 2,090 MW lower than in October 2020.

Danube flow in October is dominant element determining hydro generation of October. Low precipitation during Q3 and October has resulted with very low Danube flow, which amounted to just 2,300 cbm/s. Danube flow forecasts suggested some 20% below average flow for October, while actual flow was 38% below average, resulting with the lowest Danube flow.

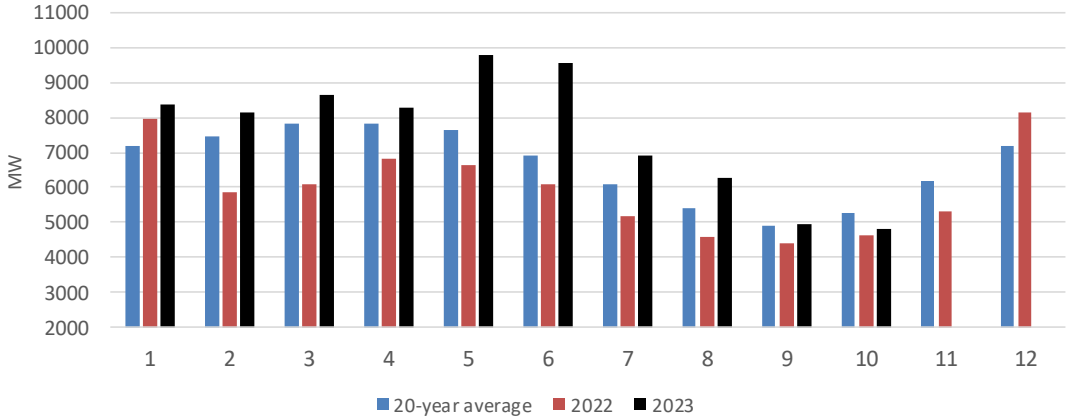
In past 23 years, only October 2018 had lower Danube flow than this October.



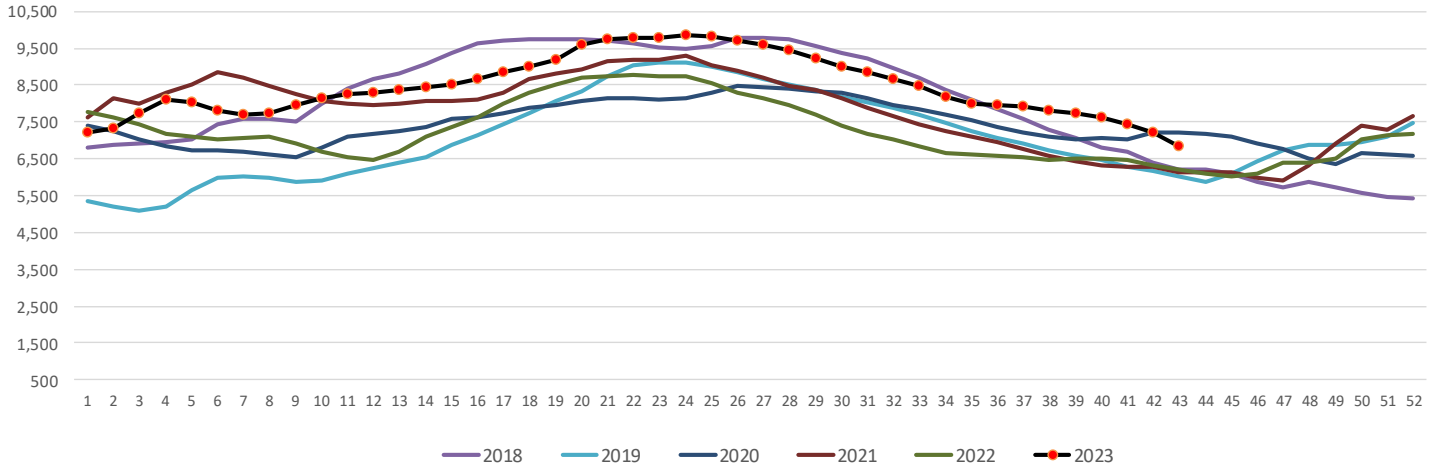




Average monthly hydro generation (entire SEE)



SEE reservoirs level (GWh) per week week (RO+BG+HR+RS+ME+GR)



Renewable generation

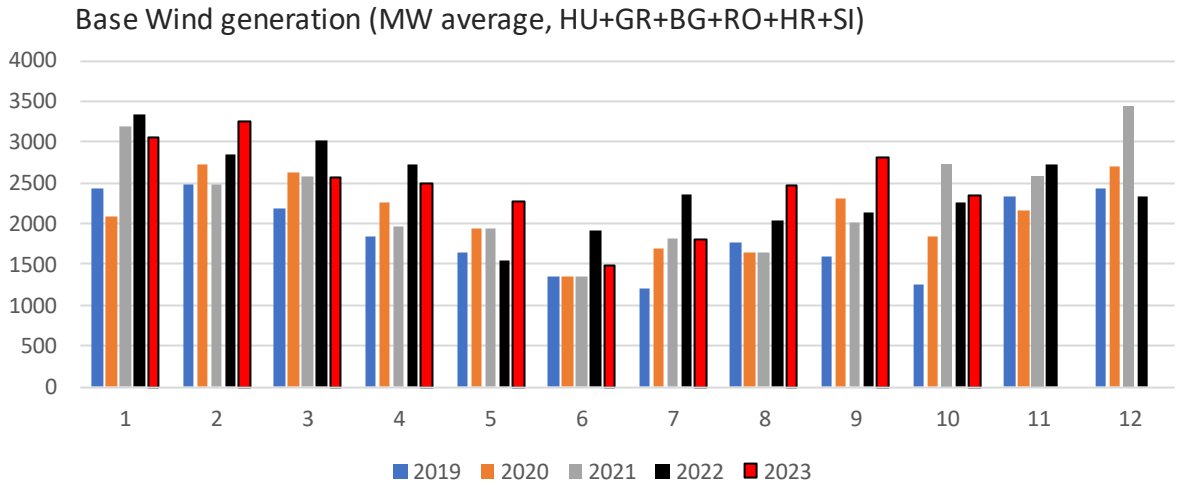
Wind generation this October was average, but significantly lower than in September 2023. Although it was 100 MW higher than in October 2022, it was 395 MW lower than in October 2021. One of the reasons is generally low wind generation in Greece, which was 400 MW lower than in October 2021 and October 2022.

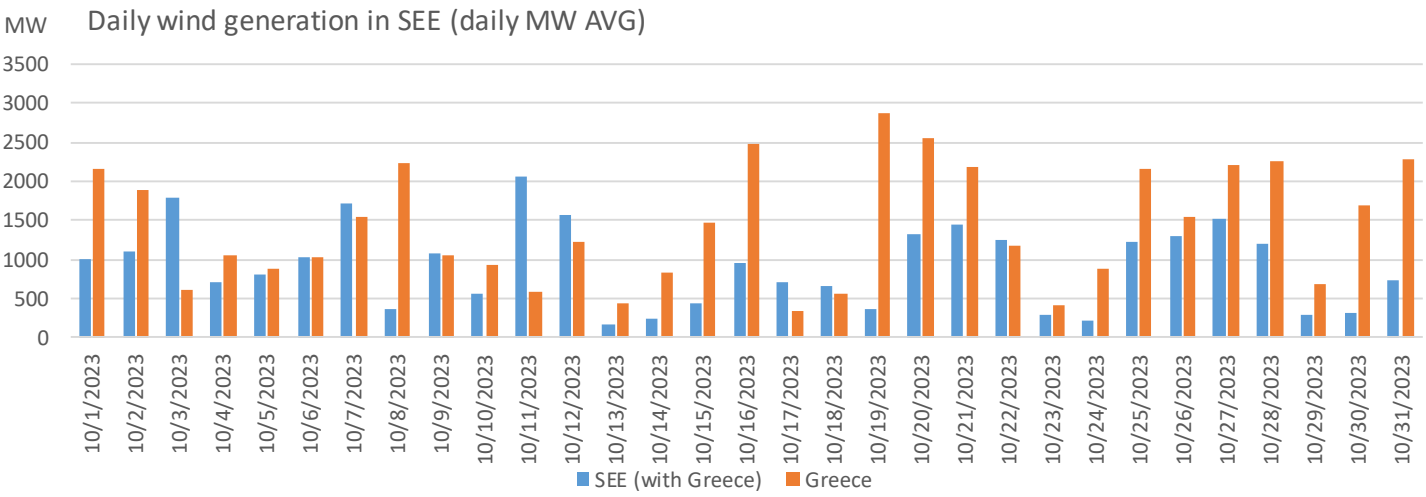
Outside Greece, wind generation was actually excellent, add highest than any previous October. Also, although total SEE generation was 465 MW lower than in September 2023, outside Greece it was just 60 MW lower (September 2023 had exceptional wind generation).

Wind generation was especially high in Romania and Croatia. Low wind generation in Greece also contributed to higher HU-GR price difference - Greek HENEX settled below HUPX in September, but above HUPX in October.

Wind generation had strong impact on HU-DE spread and it was the major price driver on daily spot. But, periods of low wind in Romania resulted with strong decoupling of Hungary and Romania on several occasions. Despite excellent wind and just 20 MW lower exports of Romania than in September, RO-HU spot spread increased by 3.3 EUR - as delivery to Bulgaria was much higher. In case of exceptional wind generation, Greek HENEX had on several days settlement even below IBEX.

Compared to September this year, wind generation was higher only in Hungary by 32 MW and in North Macedonia, by 7 MW. Compared to last year, wind generation rise was the highest in Romania (+312 MW), Croatia (+111 MW), Bulgaria (+40 MW) and Hungary (+36 MW).





Solar generation was exceptionally high, especially in Greece which did not have heavy rainfalls as it was the case in September 2023. October vs September peak solar generation drop in Greece is on average 18%, but this year drop was just 3%.

In rest of the region, solar drop was a bit stronger than usually, due to higher cloud coverage in Hungary and Adriatic region. October vs September peak solar generation drop in SEE outside Greece is on average 20%, but this year drop was 25%.

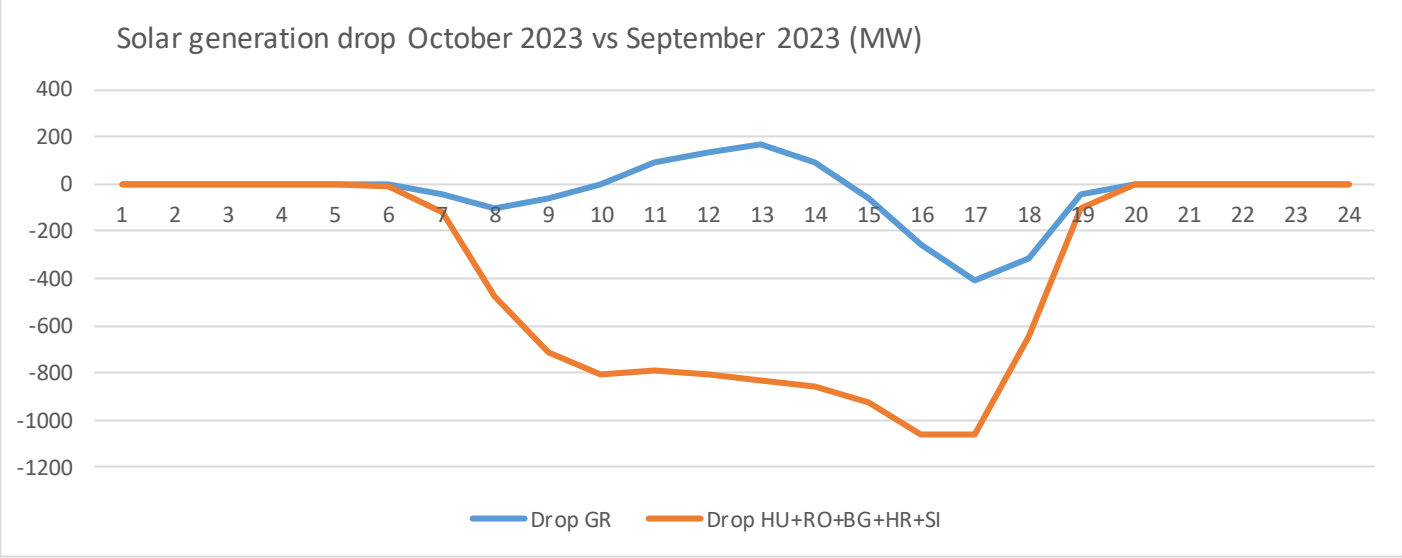
As expected, this October had record-high solar generation for October. Year-on-Year growth was entirely different compared to September, as in September there was high cloud coverage in Greece, and in October in rest of the SEE. In Greece, observing October year on year rise was 32%, while in September, just 20%. But in rest of the SEE, year-on-year rise this October was 55%, while in September, 96.3%.

Low Hungarian solar generation has pushed the whole region average to "just" 44%. As comparison, September had 57.3% Year-on-Year rise, and August 54.4%.

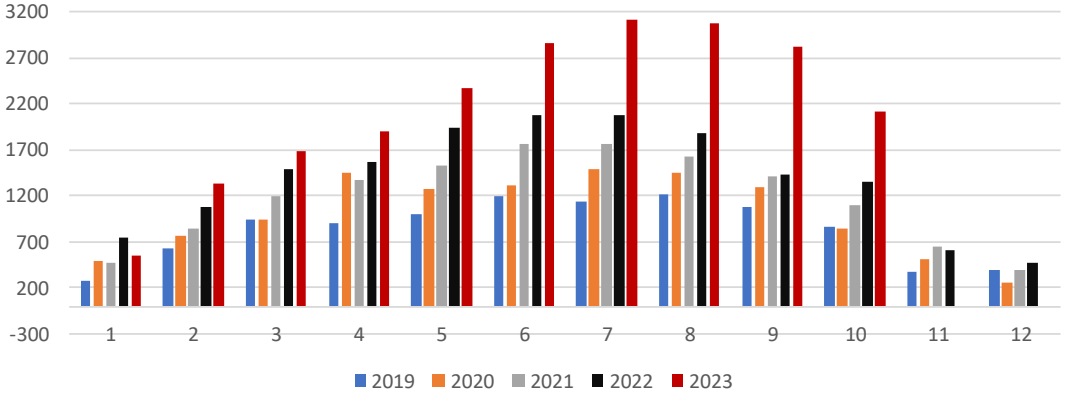
On average, drop of solar generation October vs September was in line with statistics. Common drop of solar generation October vs September is 20%, while this year it was 17%, observing entire region.

Comparing to September, solar generation was as expected lower in all countries, by 769 MW. Highest peak solar generation drop was in Hungary, 403 MW, followed by Bulgaria (-163 MW) and Romania (-101 MW).

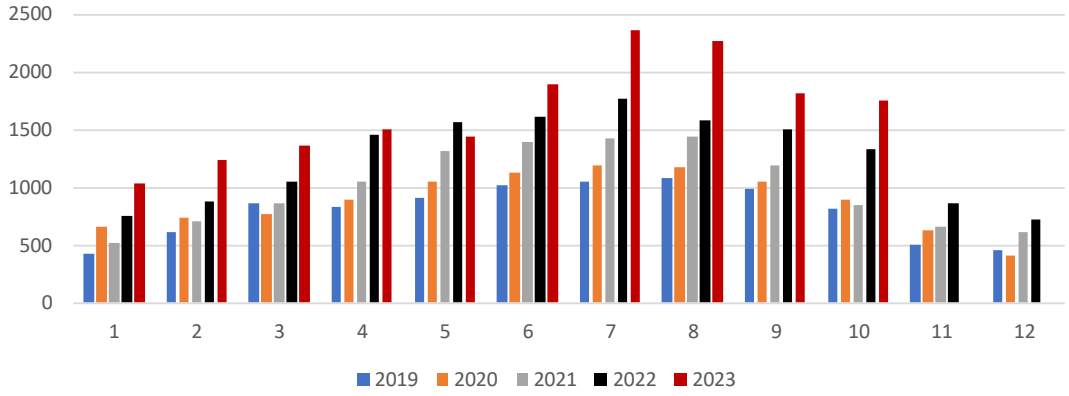
Observing year-on-year, peak solar generation was 1,184 MW higher, where highest increase was in Bulgaria (+441 MW), Greece (+421 MW), Hungary (+263 MW), Slovenia (+31 MW). In Croatia was just 11 MW increase, and in Romania, surprisingly just 15 MW increase of peak solar generation.



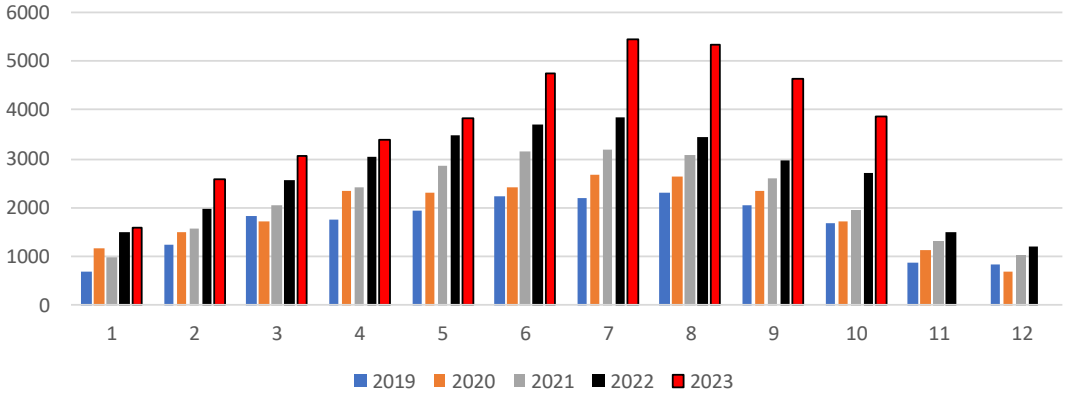
Peak Solar generation (MW average, HU+BG+RO+HR+SI) - NO GR



Greece - Peak Solar generation (MW average)



Peak Solar generation (MW average, HU+BG+RO+HR+SI**+GR**)



7. Electricity consumption in Hungary and SEE in October

Consumption weighted average temperature of October 2023 was 2.3°C higher than in October 2022, which also had strongly above average temperatures. October 2023 was warmer than any October ever recorded in our region so consumption was very stable and at similar level as in September 2023.

Power consumption in October was always higher than in September, on average by 800 MW, except in October 2022, when high power prices led to destruction of industrial consumption and power saving measures. Depending on temperature setup, consumption can be even 2,000 MW higher than in September, as it was the case in 2021.

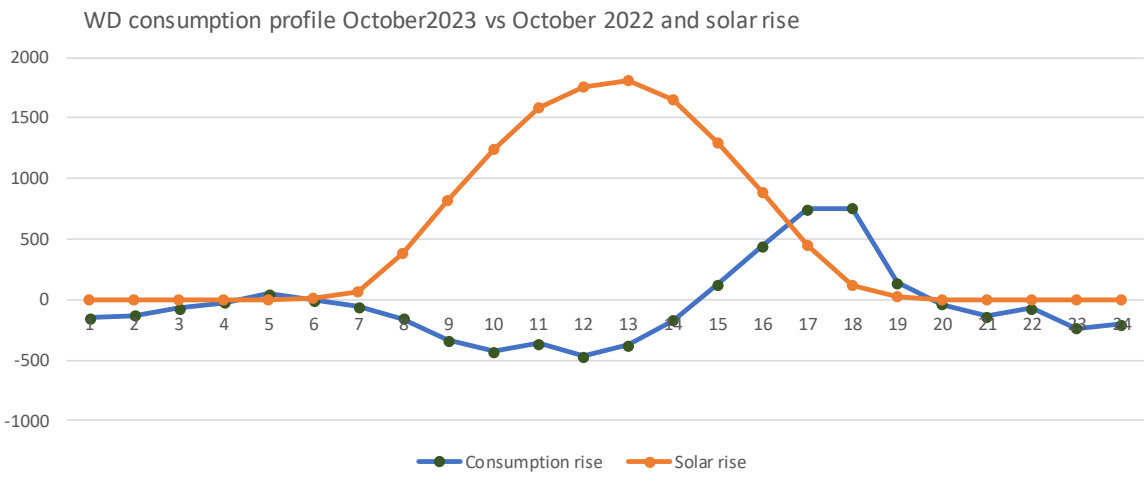
But it was not the case this year, as temperatures were extreme and the highest for October in the past 50 years in SEE outside Greece. In Greece, temperatures were also strongly above average but not record breaking for October.

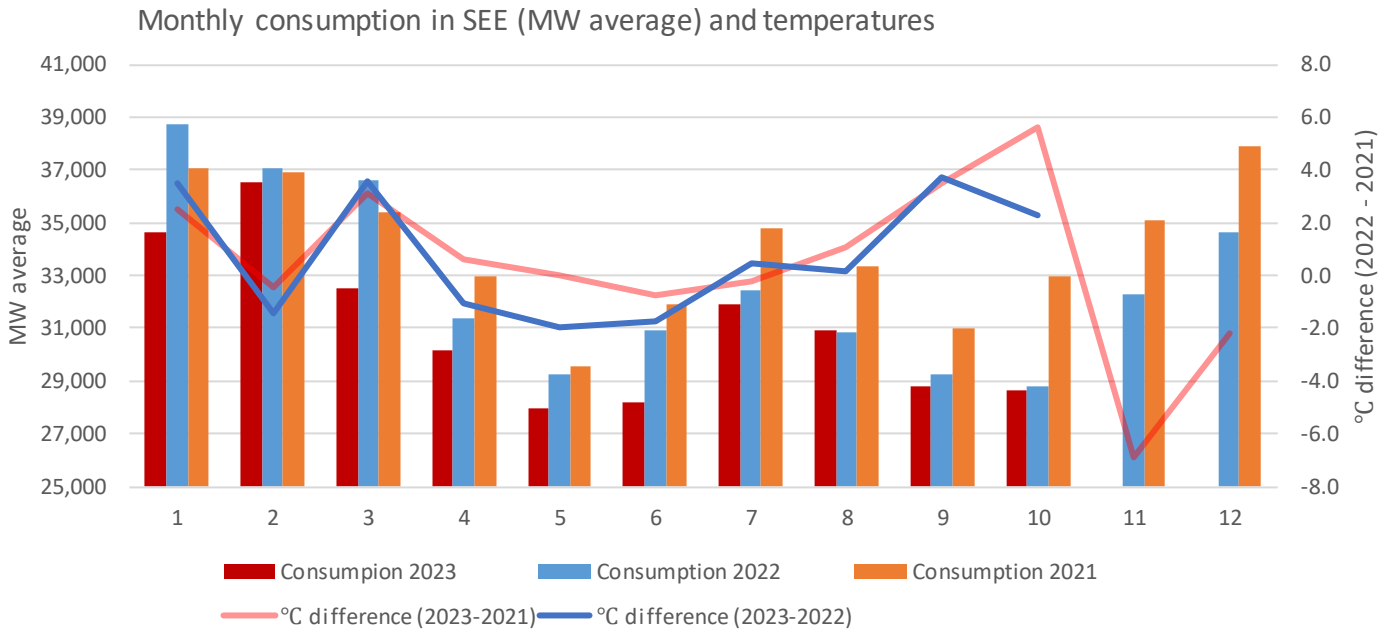
Due to above average temperatures, this October behaved similarly as September with respect to consumption. September is temperature-average month, and although consumption-weighted temperatures in SEE outside Greece were 5 degrees lower than in September, they were on average above 15.5 degrees - which resulted with no sensitivity of consumption on temperatures. Only daily temperatures below 12 degrees Celsius lead to high sensitivity of consumption on temperatures.

However, two elements should be taken in account:

- October last year had spot prices on HUPX of 194 EUR/MWh, while this October had 105.0 EUR/MWh spot prices. This did impact consumption, as there was much less power saving than last year.
- Increased number of solar installations connected on distribution level (rooftop, prosumers), which is on data visible not as solar generation, but as reduced (negative) power consumption in peaks.

On a chart below it can be seen that in in night hours (no solar present), power consumption was actually quite similar as in September last year. In H7-H14, which still have strong solar generation consumption was lower than last year October. But in Hours 16-H19, which have little to no benefit of solar generation, consumption was actually higher, which shows rise of industrial generation in working hours.





- In Romania, State Secretary at the Ministry of Energy said that prosumers in Romania have reached a total of 1 GW in renewable energy capacity at the end of September 2023.
- Albanian Minister of Infrastructure and Energy said that installed capacity for self-consumption reached 120 MW at the end of June.
- In Hungary, MAVIR said that in September home solar panel capacity stood at 2,080 MW.

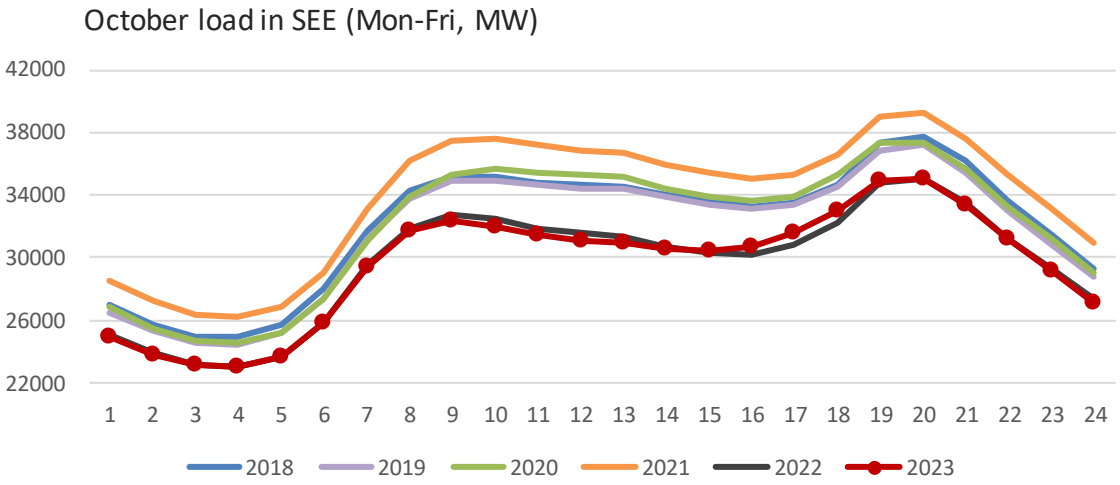
In Albania, Minister of Infrastructure and Energy said that installed capacity for self-consumption reached 120 MW at the end of June 2022.

On following chart, it can be clearly visible that from June-2022 each month (except August 2023) has lower consumption than the corresponding month of previous year. October 2023 did have 94 MW lower consumption than October last year on average, however weekend consumption was 480 MW lower on average. Conclusion can be made that temperature-neutral and solar-neutral consumption started to slowly increase (economical recovery), but effect of prosumer solar generation is clearly visible in sunny hours.

Compared to October last year, consumption was on average 94 MW lower, but for 2.3 degree higher average temperature. This consumption drop was solely a result of photovoltaics, and consumption will be actually much higher due to economical recovery. Observing SEE without Greece, consumption was actually 220 MW lower, but Greek consumption was 124 MW higher, for 2.0 degrees higher temperature than last year.

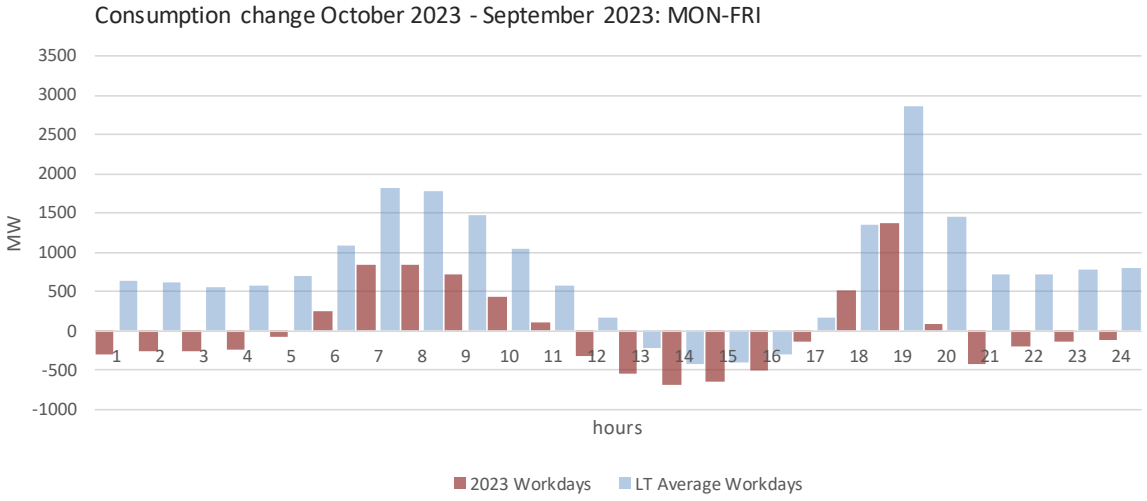
Compared to October last year, consumption drop was high in countries with high amount of solar capacity, but due to extreme temperatures, it is difficult to evaluate if either high solar generation or high temperatures were leading to consumption drop.

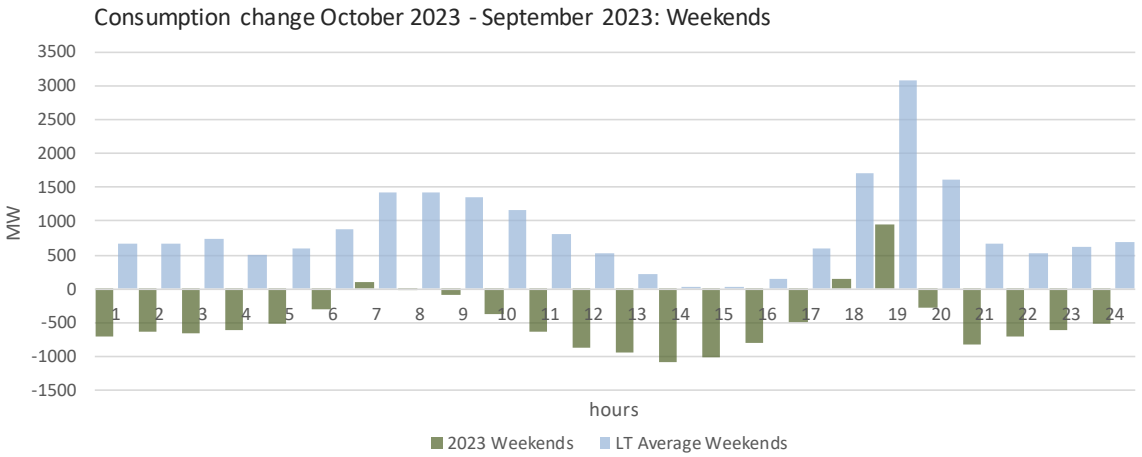
Compared to October 2021, consumption drop is astonishing and amounts to 4,270 MW. 5.6 degrees higher temperatures this year had strong impact on lower consumption, but consumption drop is mostly emphasized in countries which have highest amount of solar prosumers: Greece (-530 MW), Hungary (-395 MW), Romania (-970 MW) and Bulgaria (-710 MW).



To exclude temperature effect, it is interesting to observe September 2023, which is temperature neutral and had 2,255 MW lower than in September 2021. Part of this drop is due to decline of industrial performance, but some 1,500 MW is due to prosumer effect.

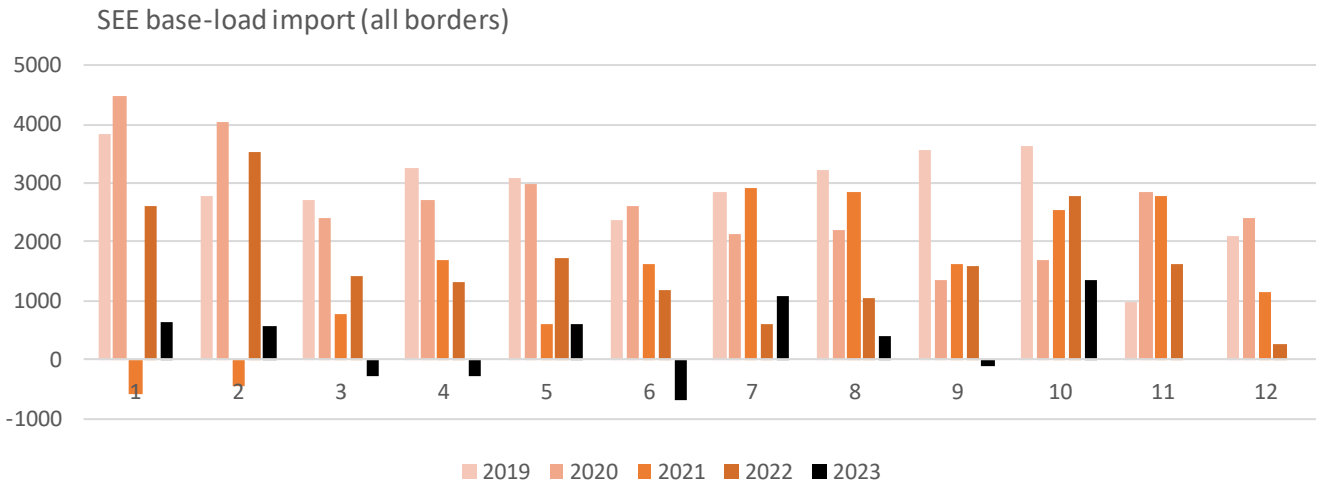
As it can bee seen from the charts below, consumption rise compared to September 2023 was much lower than 6-year average.

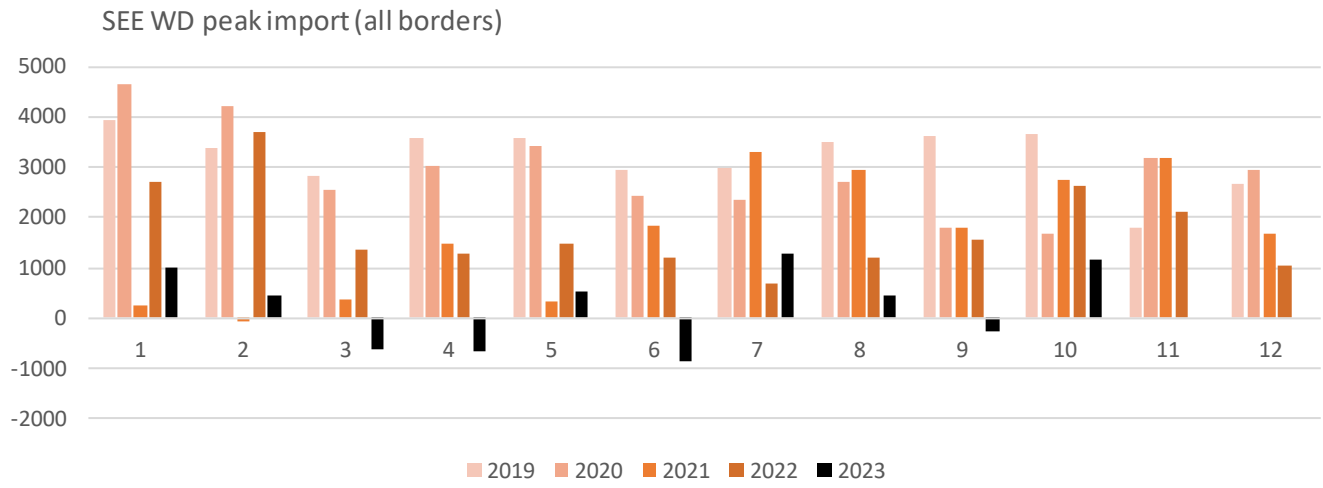




8. Power balance and transmission grid

Power balance of SEE was excellent for October, although SEE was strong importer. As it can be seen from the charts below, imports of SEE were by far the lowest for the past five years. However, in comparison to September 2023, power imports were much worse. SEE was net exporter in September in both base and peak, while in October 2023, imports were over 1,400 MW stronger, in both base-load and peak-load profiles. Also, this October was the month with the highest import for the past 12 months— since November 2022.



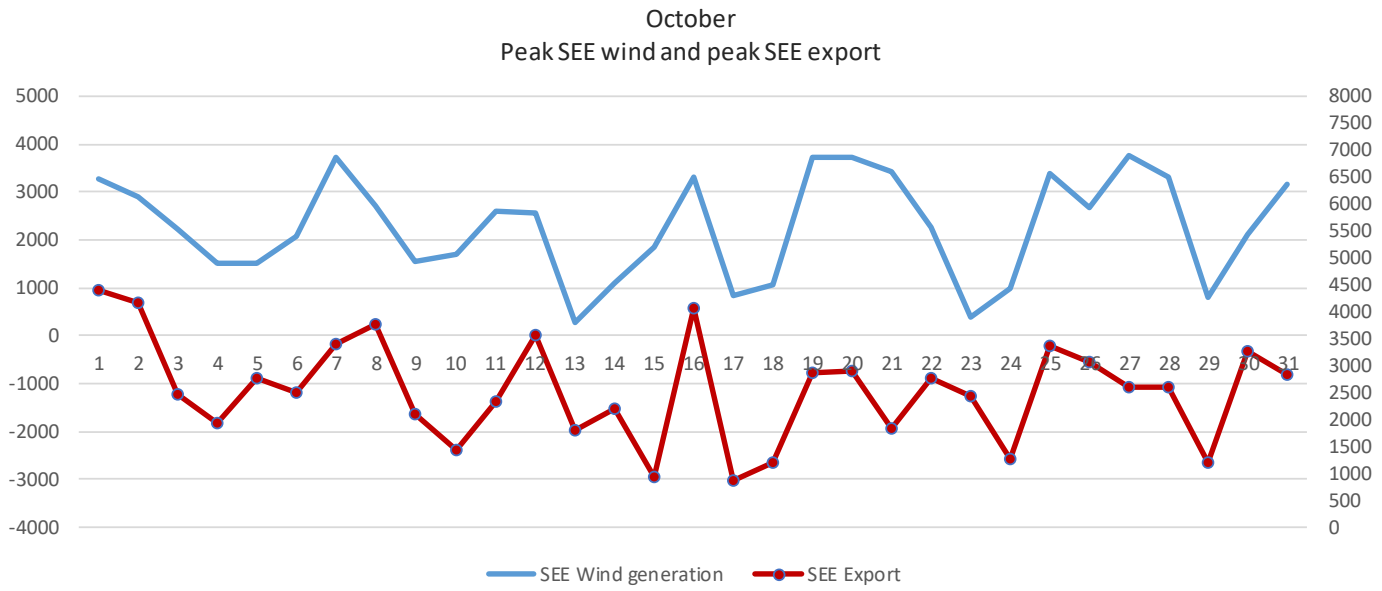


In past 11 months, hydro generation was the main price driver, but not this October. Since December 2022, hydro generation in the region was above average, and this November was the first month with below average hydro generation in past 11 months.

- Hydro generation was just 144 MW lower than in September, but imports were 1,400 MW higher
- Hydro generation was just 200 MW higher than in October 2022, but imports were 1,480 MW lower

There are many elements which were different in comparison to both September 2023 and October 2022

From the chart below, it can be seen that by far the biggest price driver in the region was wind generation. Only with extremely high wind region was having positive power balance. In peaks, only on one day SEE had positive power balance. In Offpeak, not one day. Also, on daily level wind generation was the most important element in decoupling of HUPX-OPCOM, HENEX-IBEX but also spiking potential of HUPX above other CWE markets. Such days are presented in our Weekly Reviews.



Comparing to September 2023

Nuclear generation was by far the most important element resulting with stronger power imports comparing to September 2023. Due to NPP Krsko outage and NPP Kozloduy maintenance, nuclear generation was 1,200 MW lower than in September 2023.

- NPP Kozloduy should have started with maintenance in last 10 days of September, but maintenance was postponed two times. 1,000 MW of Kozloduy was fully available in September, but fully missing in October.

- NPP Krsko experienced outage (696 MW), and it was out since 5th of October

Wind generation was significantly lower. It was 465 MW lower than in September 2023, where most of the drop was in Greece (-403 MW). Although total SEE generation was 465 MW lower than in September 2023, outside Greece it was just 60 MW lower (September 2023 had exceptional wind generation). Wind generation was especially high in Romania and Croatia. Low wind generation in Greece also contributed to higher HU-GR price difference - Greek HENEX settled below HUPX in September, but above HUPX in October.

Solar generation was, as expected, significantly lower, by 769 MW in peaks, but still exceptionally high. Solar generation was high especially in Greece which did not have heavy rainfalls as it was the case in September 2023. October vs September peak solar generation drop in Greece is on average 18%, but this year drop was just 3%. In rest of the region, solar drop was a bit stronger than usually, due to higher cloud coverage in Hungary and Adriatic region. October vs September peak solar generation drop in SEE outside Greece is on average 20%, but this year drop was 25%. On average, drop of solar generation October vs September was in line with statistics. Common drop of solar generation October vs September is 20%, while this year it was 17%, observing entire region.

Power consumption was the biggest surprise. October 2023 was warmer than any October ever recorded in our region so consumption was very stable and at similar level as in September 2023. Power consumption was actually 100 MW lower than in September, which is exceptional case. Depending on temperature setup, consumption can be even 2,000 MW higher than in September, as it was the case in 2021. But it was not the case this year, as temperatures were extreme and the highest for October in the past 50 years in SEE outside Greece. In Greece, temperatures were also strongly above average but not record breaking for October.

Due to above average temperatures, this October behaved similarly as September with respect to consumption. September is temperature-average month, and although consumption-weighted temperatures in SEE outside Greece were 5 degrees lower than in September, they were on average above 15.5 degrees - which resulted with no sensitivity of consumption on temperatures. Only daily temperatures below 12 degrees Celsius lead to high sensitivity of consumption on temperatures.

However, two elements should be taken in account:

- October last year had spot prices on HUPX of 194 EUR/MWh, while this October had 105.0 EUR/MWh spot prices. This did impact consumption, as there was much less power saving than last year.
- Increased number of solar installations connected on distribution level (rooftop, prosumers), which is on data visible not as solar generation, but as reduced (negative) power consumption in peaks.

Coal-fired generation was much higher. Compared to September this year, maintenance plan of coal-fired units was actually 600 MW less intensive (excluding Bosnia and Herzegovina), and actual coal-fired generation was 700 MW higher (excluding Bosnia and Herzegovina), mostly due to 180 MW higher coal-fired generation in Bulgaria and 187 MW higher in Serbia. Only in Romania coal-fired generation was lower, but by just 25 MW.

Gas-fired generation was lower, which is usually not the case as heating season starts. But, gas-fired generation was just 130 MW lower, which is not a game changer. Most important is drop of gas-fired generation in Greece. Greek gas fired generation was significantly lower than in September, by some 305 MW. The reason is not more intensive maintenance plan, as it was even slightly less intensive. Price level was not sufficient for Greek gas units, and generation remained low, although new Agios Nicolaos unit with 832 MW installed output was in operation this summer.

Hydro generation was indeed slightly lower, by 144 MW on average, but this drop was negligible in comparison to other elements. This October had 9% below average hydro generation or 490 MW below average (23-year average for October). September 2023 had 1% above average hydro generation, so hydro generation drop was not strong, as October on average has higher hydro generation than September

This over 1,400 MW worse balance did impact HU-DE price difference, as HUPX settled 17.5 EUR/MWh above EPEX-DE in October, while in September 2023 it settled just 3.09 EUR/MWh. During September, HUPX on many days settled below EPEX-DE, while in October, just in 4 days.

Comparing to October 2023

Changes of October 2023 compared to October 2022 were also extreme, but much different than comparing September 2023 versus October 2023. Contrary to the September when October had 1,460 MW worse power balance, it had close to 1,500 MW better balance than October 2022.

Nuclear generation was higher, despite outage of NPP Krsko. Nuclear generation was 650 MW higher than in October 2022, and there are 3 reasons why:

1. NPP Kozloduy 1,000 MW unit goes into maintenance every year in October. But this year, maintenance was delayed several times, and started on 9th of October instead in September. This has resulted with higher coal-fired generation in Bulgaria than usually.
2. NPP Paks usually has two 250 MW units in maintenance in October—which was not the case this year and resulted with higher than usual nuclear generation in Hungary
3. NPP Krsko goes into maintenance every 3 years for entire October. Although this October Krsko was out (unplanned), it was in operation during first 5 days.

Gas-fired generation was higher, by 400 MW. But, most of this increase came from Greece, where gas-fired generation was 700 MW higher. This change has came from different price calculation formula for gas expenses in Greece.

Solar generation was much stronger. Observing year-on-year, peak solar generation was 1,184 MW higher, where highest increase was in Bulgaria (+441 MW), Greece (+421 MW), Hungary (+263 MW), Slovenia (+31 MW). In Croatia was just 11 MW increase, and in Romania, surprisingly just 15 MW increase of peak solar generation.

Wind generation was higher than in October last year, but for just 100 MW. One of the reasons is generally low wind generation in Greece, which was 400 MW lower than in October 2021 and October 2022. Outside Greece, wind generation was actually excellent, add highest than any previous October. Compared to last year, wind generation rise was the highest in Romania (+312 MW), Croatia (+111 MW), Bulgaria (+40 MW) and Hungary (+36 MW).

Coal-fired generation was 615 MW lower, due to 2 reasons:

- Unprofitable coal-fired generation in Bulgaria (in Bulgaria alone, coal-fired generation was 830 MW lower)
- Shutting down of two coal-fired units in Romania (195 MW lower generation)
- 220 MW lower generation in Hungary, as one Matrai unit was fully out (224 MW output)

Consumption was almost at the same level. Consumption weighted average temperature of October 2023 was 2.3°C higher than in October 2022, which also had strongly above average temperatures. In H7-H14, which still have strong solar generation consumption was lower than last year October, but lower price level and recovery of industrial consumption has resulted with higher consumption in late-peak hours, despite prosumer effect (accounted as negative consumption, as solar generation was missing in those hours)

Observing net positions (exports) per country compared to last year October, there was strong change of power balance in most of SEE countries (only major changes are listed).

Greece: Net position was 744 MW worse - mostly due to decline of gas-fired generation, which was 700 MW lower and wind generation which was 410 MW lower. Consumption was also slightly higher, by 124 MW. However, hydro generation was 315 MW higher, peak solar generation 420 MW higher and coal-fired generation 97 MW higher.

Bulgaria: Net position was 350 MW worse, mostly due to 828 MW lower coal-fired generation. Consumption was lower than last year, by 165 MW, but so was hydro generation, by 130 MW. However, nuclear generation was 220 MW higher, as NPP Kozloduy 1000 MW unit had a delayed start of maintenance. Wind generation was higher by 40 MW, but solar generation was exceptional and 440 MW higher.

Slovenia: Net position was 505 MW better - as a result of 120 MW higher hydro generation, 45 MW lower consumption, 245 MW higher coal-fired generation and 30 MW higher peak solar generation. Although NPP Krsko was shut down on 5th of October due to outage, it was unavailable for entire month last year.

Bosnia and Herzegovina: Net position was 207 MW better, due to 137 MW higher coal-fired generation

Croatia: Net position was 203 MW better - as a result of 112MW higher wind generation and 185 MW higher coal-fired generation. Consumption was higher, but for just 40 MW.

Serbia: Net position was 145 MW better than last year, mostly due to 116 MW higher coal-fired generation. Consumption was lower for 70 MW, but consumption was also slightly higher.

Hungary: Net position was 89 MW worse, mostly due to 220 MW lower coal-fired generation, as one TPP Matra unit was fully unavailable. Gas-fired generation was also 100 MW lower, but nuclear was 100 MW higher. However, peak solar generation was 264 MW higher than in October last year.

North Macedonia: Net position was 154 MW better - as a result of higher thermal generation, hydro and wind generation. Consumption was higher.

Kosovo: Net position was 59 MW worse - as a result of 54 MW lower thermal generation.

Romania: Net position was 4 MW better, although consumption was 70 MW lower. Generation structure changed strongly compared to previous year. Coal fired generation was 195 MW lower, but gas-fired generation was 69 MW higher. Wind generation was 312 MW stronger, and solar 15 MW stronger in peaks.

Montenegro: Net position was 24 MW worse - as a result of lower coal and hydro generation.

Albania: Net position was 40 MW better - as hydro generation was somewhat higher.

Transmission grid and flows

With respect to transmission grid, there were multiple maintenances but they did not affect power prices, as most important maintenances were ending at the beginning of the month or starting in the end of the month.

- The most important is BG-MK line which was in maintenance for 12 days, resulting with 0 MW NTC between Bulgaria and North Macedonia. But, this line maintenance has resulted with 100 MW increase of BG-RS NTC in both directions. This 100 MW increase did not bring strong benefit to either Bulgarian or Serbian market, as NTC was rarely fully utilized, Bulgaria was not an exporter due to NPP Kozloduy being out, and there is no market coupling on this border to optimize the exchanges between IBEX and SEEPEX.
- Maintenance of BG-RO line (Varna—Stupina) did not lead to reduction of flows between Bulgaria and Romania, and NTC was not affected.
- GR-TR line was in maintenance for 3 days for October, but as TR>GR flow is 50 MW, there was no effect of this maintenance on power prices. GR-TR NTC is just 50 MW on TR>GR direction, and 166 MW on GR>TR direction.
- Polish-Slovak line (2nd) was again in maintenance during Wk40. This had a rather bullish effect on SK and SEE prices, as Poland was a strong exporter in peaks in Wk40.
- Maintenance of HR-SI line was not favorable for SEE as region was strong importer from Core.
- SK-HU maintenance would have bullish impact on HUPX, but the line was offline only on 1 day in October
- RO-HU line maintenance also ended on 1st of October, but if extended it would be bullish for HUPX as OPCOM settlement was below HUPX in first week of October.

Maintenances in transmission grid:

- BG-MK (Chervena Moglia - Shtip) 09.10.2023 - 20.10.2023 - NTC 0 MW
- BG-RO (Varna - Stupina) 16.10.2023 - 17.10.2023
- SK-HU (Gabcikovo - Gyor) 04.09.2023. - 01.10.2023
- RO-HU (Arad - Sandorfalva) 04.09.2023 - 01.10.2023
- GR-TR (Nea Santa - Babaeski) 26.09.2023 - 03.10.2023 - NTC 0 MW
- MK-KS (Skoplje - Urosevac) 02.10.2023 - 06.10.2023 - NTC 0 MW
- BA-HR (Trebinje - Plat) 16.10.2023 - 17.10.2023 - 220 kV
- SK-UA (V. Kapusany - Mukachevo) 30.10.2023 - 03.11.2023 - NTC 0 MW
- PL-SK (Krosno Iskrzynia - Lemesany) 02.10.2023 - 05.10.2023 - one out of two 400 kV lines
- HR-SI (Tumbri - Krsko 2) 02.10.2023 - 06.10.2023

Power flows on important borders did change strongly compared to September, due to 1460 MW worse power balance of SEE as base-load and 1415 MW in peaks. Main reasons for such decline of power balance were nuclear generation (maintenance of NPP Kozloduy 1,000 MW unit and outage in 696 MW NPP Krsko). Also, 465 MW lower wind generation contributed to much higher imports of SEE. Power imports of SEE were almost fully correlated with wind output in the region, which was strongly volatile during the month.

This over 1,400 MW worse balance did impact HU-DE price difference, as HUPX settled 17.5 EUR/MWh above EPEX-DE in October, while in September 2023 it settled just 3.09 EUR/MWh. During September, HUPX on many days settled below EPEX-DE, while in October, just in 4 days.

Aside worsening of SEE power balance, German exports improved in October, by even 4,300 MW (although Germany remained importer on average). Simplified rule due to Flow Based Market Coupling mechanism is: the higher German imports are and the higher German market settles above French market, HUPX has higher chance to settle closer to German price level or below. In October, German spot settlement was 3.1 EUR/MWh above French settlement, while in September it settled 12.02 EUR/MWh above French market. Thus, even if SEE in October had the same imports from Core as in September, that import would come at the higher price.

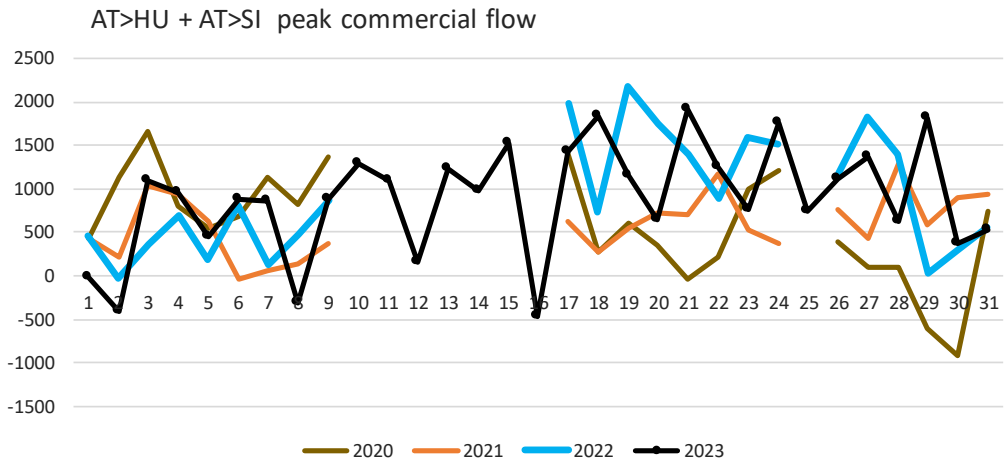
Also, in September German market was frequently settling above Italian Nord, and despite high power balance, HUPX had difficulties to settle below EPEX-DE when EPEX-DE was settling above Italian market. This was especially occurring in hours H7-H9 and H18-H22, and region was frequently importing from Italy while delivering to Core - and by that although HUPX was settling above Italy Nord, it was settling at EPEX-DE or below in case of favorable wind generation (some of the SEE > CORE flows were actually ITA > SEE > CORE flows).

But in October 2023 situation was different as German market had strong improvement of power balance and less occurrences of settling above Italian market. Due to that, delivery of SEE to Italy was higher and HUPX was settling much more below Italy than in September.

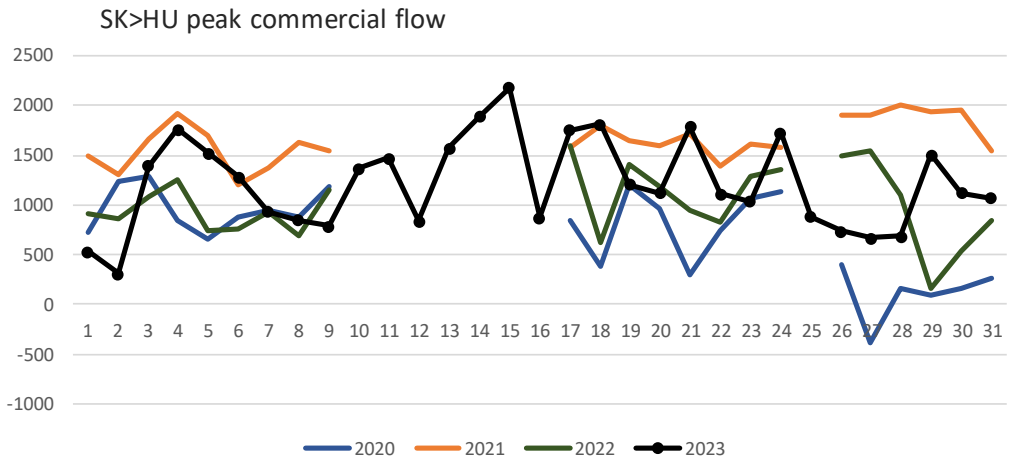
Total SEE base-load imports from Core were 1,800 MW higher than in September (imports from Austria and Slovakia), due to less occurrences of ITA>SEE>Core transit and worsening of SEE power balance. Observing peak, SEE imports from Core were 1,600 MW higher than in September.

Imports from Austria (HU+SI) were some 735 MW higher in peaks than in September, but lower than last year—bu just for 40 MW, which is negligible. Imports from Slovakia were over 900 MW higher in peaks than in September. , and over 2,00 MW higher than in October last year.

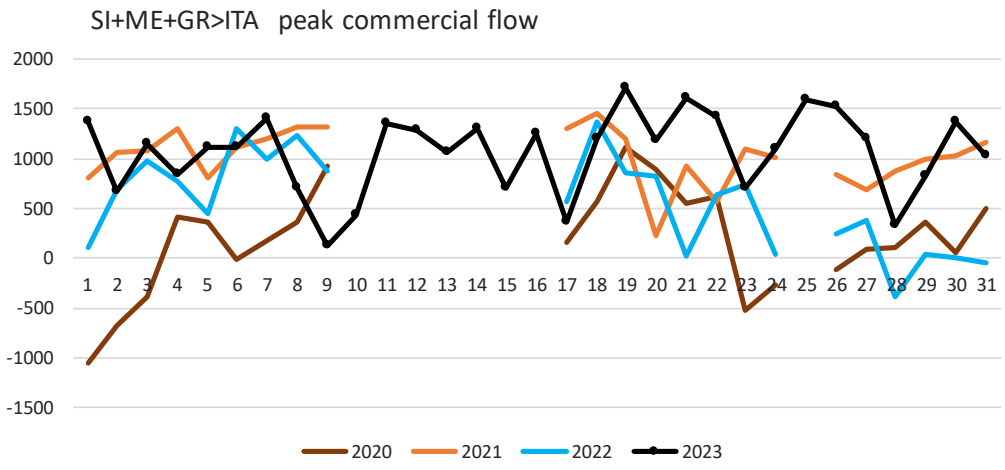
Higher peak imports from Core were major contributor to low HU-DE price difference. Also, 1,300 MW higher imports of Austria have created conditions for more grid constrains when SEE was importing from Core. Austrian imports were also 500 MW higher than last year. EPEX-AT settled at just 0.65 EUR/MWh above EPEX-DE in September, while in October it settled 11.88 EUR/MWh above EPEX-DE.



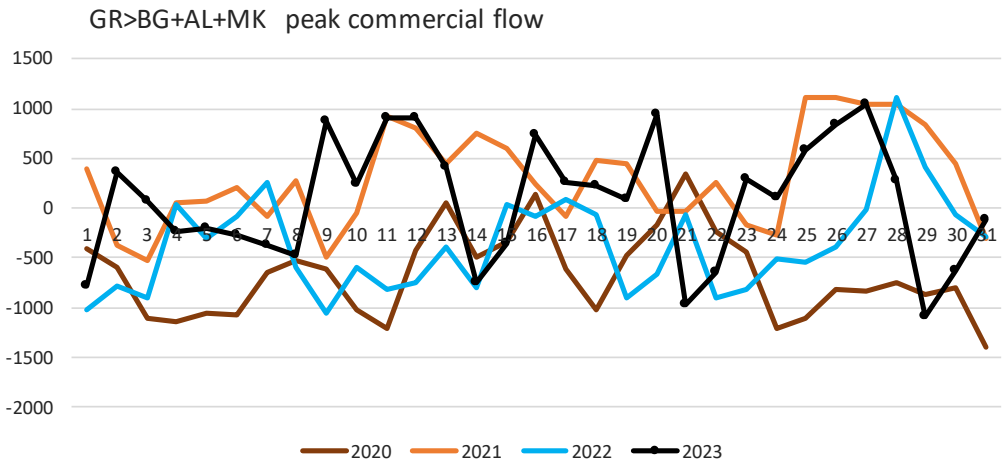
Also, imports from Slovakia in peaks stood on average at 1220 MW (907 MW more than in Septemer), and inevitably, HUPX settled much more above OKTE-SK than in September. SK-HU flows were quite high, and only in October 2021 imports from Slovakia were higher—but NTC system was in place in 2021.



As Italian settlement was much higher than in SEE and CWE, SEE>ITA flows were again high, except in mentioned hours H7-H9 and H18-H22, when region was frequently importing from Italy. Despite worsening of SEE power balance, SEE>ITA flows were 240 MW higher in peaks than in September and HUPX settled some 29 EUR/MWh below Italian markets. Reasons for such settlement and increased flows were partially impacted by no maintenance of MNE-ITA line (which was present in September), but also due to less ITA>SEE>CORE transits.

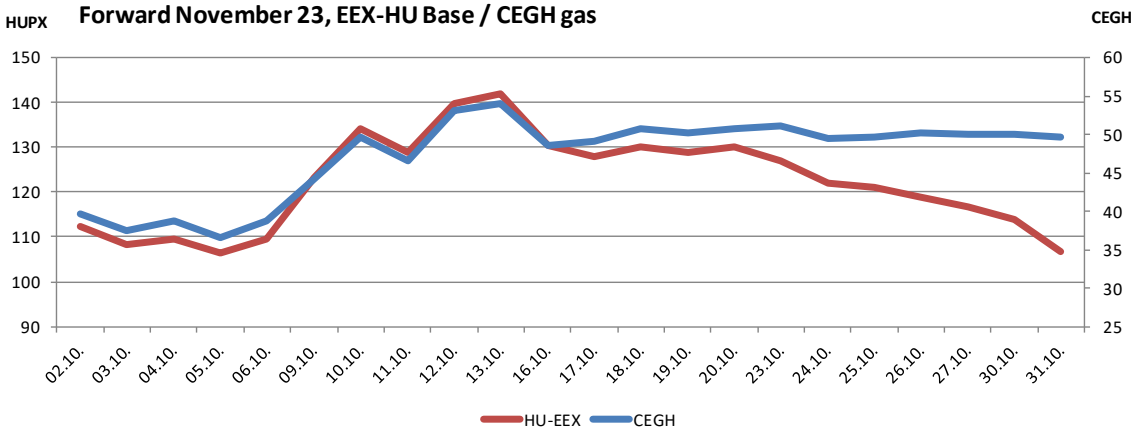


Greek exports to Bulgaria, Albania and North Macedonia were positive, as Greek market was under impact of high RES generation. Greece was in peaks was exporting 72 MW on average to the region, which is 110 MW more than in September 2023. However, last year in October Greece was importing 370 MW on average from SEE.



9. Front-month and front-year prices during October-2023

Hungarian front-month futures were quite volatile during September - as a result of volatile German and other CWE power prices, which were driven by gas price and fear of supply due to Gaza conflict. November-2023 product was traded in quite wide range of 106.6—141.8 EUR/MWh, depending on gas prices but also spot sentiment. Observing first and last trading day, Hungarian October-2023 price was 5.8 EUR/MWh lower (5.8 % drop), while Cal-24 was on the rise, by 2.2 EUR/MWh, or 2.8%.



Observing HU-DE price spread, market was bullish under much higher than expected spot settlement of October. HU-DE price difference was on the rise during first 2 weeks of October, going from 10.5 EUR/MWh to 15.5 EUR/MWh. HU-DE price difference was table and even had slight declining trend as wind in the region was extremely high, but again increased in last several days of the month. Observing entire month, HU-DE price difference increased by 3.9 EUR/MWh or 37%, observing first and last trading day, as traders became aware of the risks due to below average hydrology. October was not in panic mode just due to record-breaking temperatures across SEE, but also very high wind and solar generation.

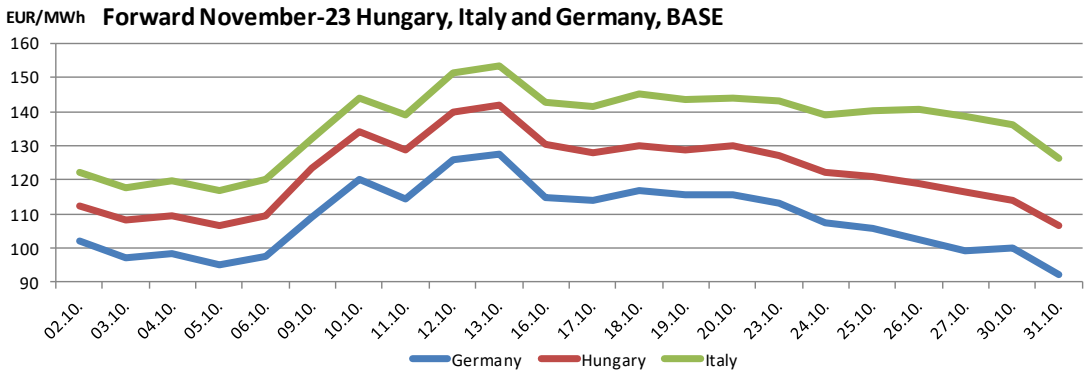
However, Cal-24 product had higher price on last trading day comparing to first trading day of October - although German price was lower. Reason is similar as in November - rise of premium over German market due to higher than expected spot settlement during October. But as German price dropped by just 0.4 EUR/MWh, it was not a difficult task for Hungarian futures to have higher settlement. Although Cal-24 futures followed German price level to some extent, due to more visible risks of solar drop, price on last trading day was 3.2 EUR/MWh higher than on first trading day, which is 30% increase of Hungarian-German price difference.

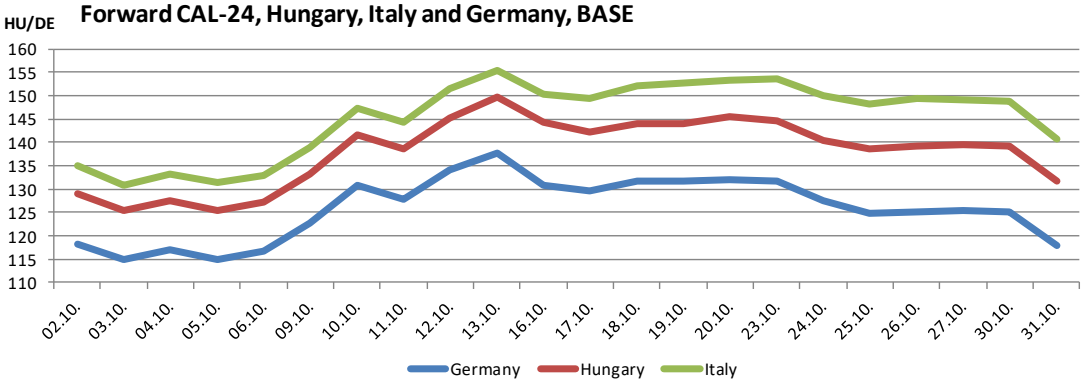
Front month and Front year natural gas prices had a certain rise during October. Cal-24 Price was on the rise during first 2 weeks of October, and stayed relatively stable till the end of October, when some 10% drop was recorded. Comparing first and last trading day, front-year gas price was 2.7 EUR/MWh higher, which is 5.7 % rise (from 47.6 EUR/MWh up to 50.36 EUR/MWh). Contrary to front-year, November-23 price had much sharper rise, with no drop at the end of October. Comparing first and last trading day, front-month gas price was 10.2 EUR/MWh higher, which is 25.7 % rise (from 39.6 EUR/MWh up to 49.73 EUR/MWh).

During October 2023, EUA price was volatile, and traded within 7 EUR range. Still, average daily price was 1.75 EUR/t or 2.1% lower than in in September, and even 4.4 EUR/t lower than in August. During October, average EUA price was 81.5 EUR/t, while on last day of October, Dec-23 product price was 79.05 EUR/t.

API-2 coal prices (front-month and other forward products) were quite volatile during October. Although price were on the rise due to Gaza conflict and reduced supply from Indonesia and South Africa, prices on last trading day were lower than on first trading day. In first two weeks, coal prices had rising trend (for November-2023 delivery, from 123.9 USD/t up to 140.25 USD/t). But from 16th of October, coal prices were in almost linear declining trend and dropped by 12-15% from mid month till the end of the month. With respect to Cal-24 prices—they behaved ad quite similar trend and followed November-2023 price with just few USD/t difference.

At the end of the month, November-2023 price was 123.15 USD/t, which is 0.8 USD/t lower than on first trading day, or less than 1%. Cal-24 coal prices had a sharper drop, and on last trading day were traded at 119.2 USD/t, which is 5.7 USD/t drop or 4.5%

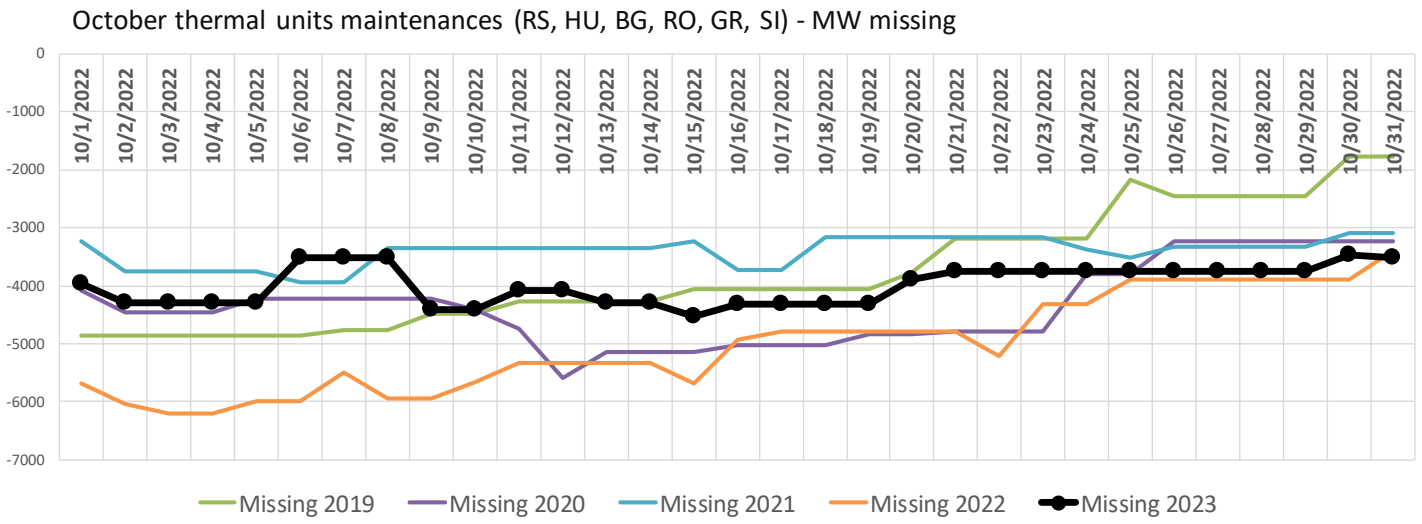




10. Maintenances and outages of thermal units in October 2023

October-2023 maintenance plan was slightly less intensive than average, and even 1,000 MW less intensive than in October 2022. But, some 700 MW of that "better" availability is due to NPP Krsko being in scheduled maintenance for the whole October 2022. But, NPP Krsko was out since 6th of October 2023 due to un-planned outage, so this "improvement" was not visible. Maintenance plan was just 500 MW more intensive than in September 2023—the biggest contribution was NPP Kozloduy 1000 MW units going into maintenance. Initially, NPP Kozloduy 1000 MW unit was planned to be in maintenance from 23.09.2023, but it was later postponed to 03.10.2023 and later on, to 09.10.2023.

Comparing to September 2023, availability was visibly increased only in Serbia, by some 450 MW in coal-fired units. But, this was not entirely reflected on coal-fired generation, as actual coal-fired generation was just 130 MW higher than in September.



Scheduled maintenances in October 2023

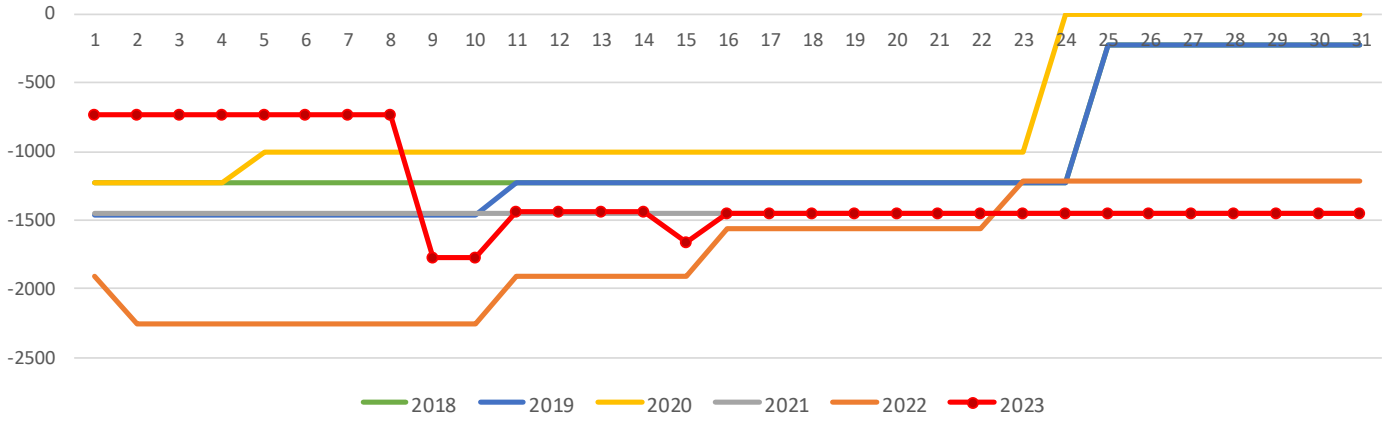
Country	P. Plant	Unit	MW	Start - end date
Hungary	Matrai	G4	224	01.05.2023-15.11.2023
Hungary	Kelenfoldi	GT	125	02.10.2023-21.10.2023
Bulgaria	Kozloduy	G10	1040	09.10.2023-20.11.2023
Bulgaria	Galabovo	G2	343	24.08.2023-10.10.2023
Bulgaria	Maritsa 2	G4	177	03.09.2023-31.10.2023
Bulgaria	Maritsa 2	G3	177	21.07.2023-15.10.2023
Bulgaria	Maritsa 2	G7	218	15.10.2023-10.12.2023
Greece	Aliveri	G5	417	19.08.2023-18.11.2023
Greece	K.Power	G1	433	17.08.2023-10.12.2023
Greece	AG Dimitrios	G5	342	16.09.2023-15.11.2023
Greece	Megalopoli	G4	256	01.10.2023-30.11.2023
Greece	Alouminio	GT01	197	09.10.2023-12.10.2023
Greece	Alouminio	GT02	197	02.10.2023-05.10.2023
Greece	Heron	CC	422	13.10.2023-19.10.2023
Greece	Heron	GT01	49	30.10.2023-10.11.2023
Greece	Elpedison	THISVI	410	30.09.2023-05.10.2023

Country	P. Plant	Unit	MW	Start - end date
Romania	Turceni	G7	267	31.05.2023-31.12.2023
Romania	Bucuresti V	G3+4	171	07.08.2023-06.10.2023
Romania	Isalnita G7	G7	292	30.09.2023-31.10.2023
Romania	Bucuresti S	G3	84	03.7.2023-12.11.2023
Serbia	TENT A	G5	340	11.06.2023-08.10.2023

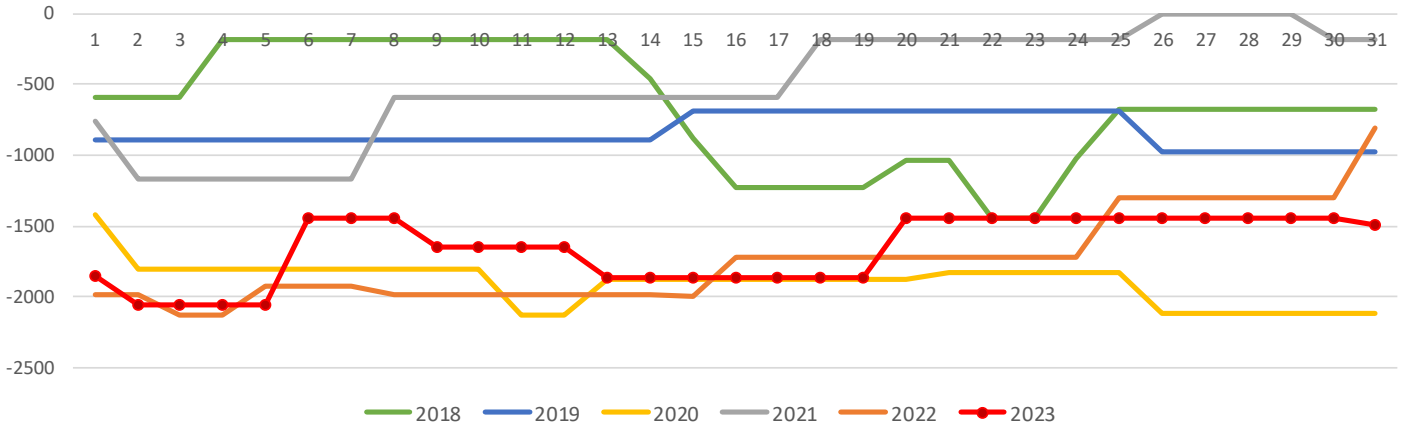
Scheduled IN-OUT days of important generation units

Date	Unit	MW	Country	Going
30.09.2023	Elpedison Thisvi	410	Greece	OUT
30.09.2023	Isalnita G7	292	Romania	OUT
01.10.2023	Megalopoli G4	256	Greece	OUT
02.10.2023	Kelenfoldi GT	125	Hungary	OUT
02.10.2023	Alouminio GT02	197	Greece	OUT
05.10.2023	Alouminio GT02	197	Greece	IN
05.10.2023	Elpedison THISVI	410	Greece	IN
06.10.2023	Bucuresti V G3+4	171	Romania	IN
08.10.2023	TENT A G5	340	Serbia	IN
09.10.2023	Alouminio GT01	197	Greece	OUT
09.10.2023	Kozloduy G10	1040	Bulgaria	OUT
10.10.2023	Galabovo G2	343	Bulgaria	IN
12.10.2023	Alouminio GT01	197	Greece	IN
13.10.2023	Heron CC	422	Greece	OUT
15.10.2023	AG Dimitrios G5	342	Greece	IN
15.10.2023	Maritsa 2 G3	177	Bulgaria	IN
15.10.2023	Maritsa 2 G7	218	Bulgaria	OUT
15.10.2023	Malzenice TG1	420	Slovakia	IN
19.10.2023	Heron CC	422	Greece	IN
21.10.2023	Kelenfoldi GT	125	Hungary	IN
30.10.2023	Heron GT01	49	Greece	OUT
31.10.2023	Isalnita G7	292	Romania	IN
31.10.2023	Maritsa 2 G4	177	Bulgaria	IN

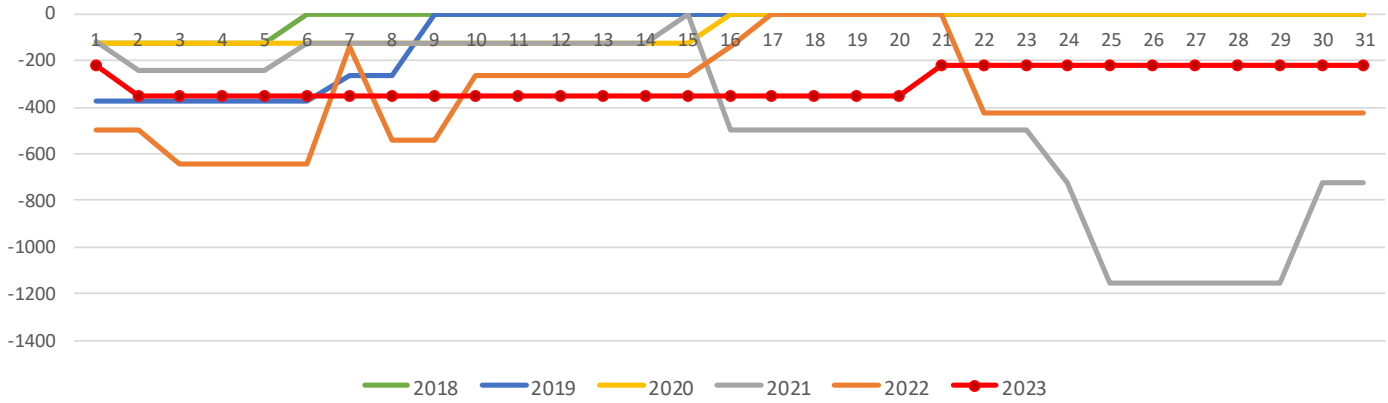
October, Bulgaria: Scheduled maintenances of thermal units (MW out of operation)



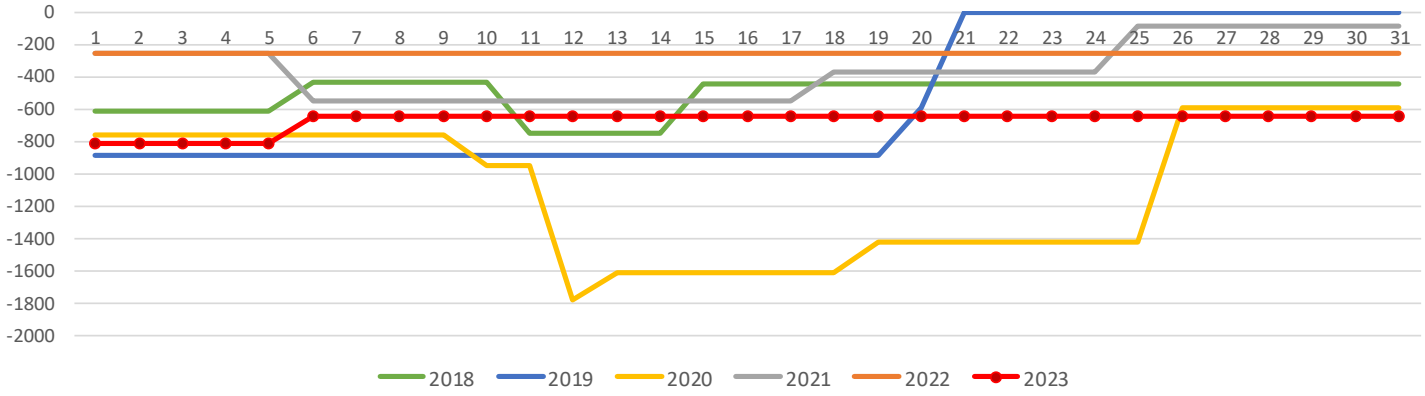
October, Greece: Scheduled maintenances of thermal units (MW out of operation)



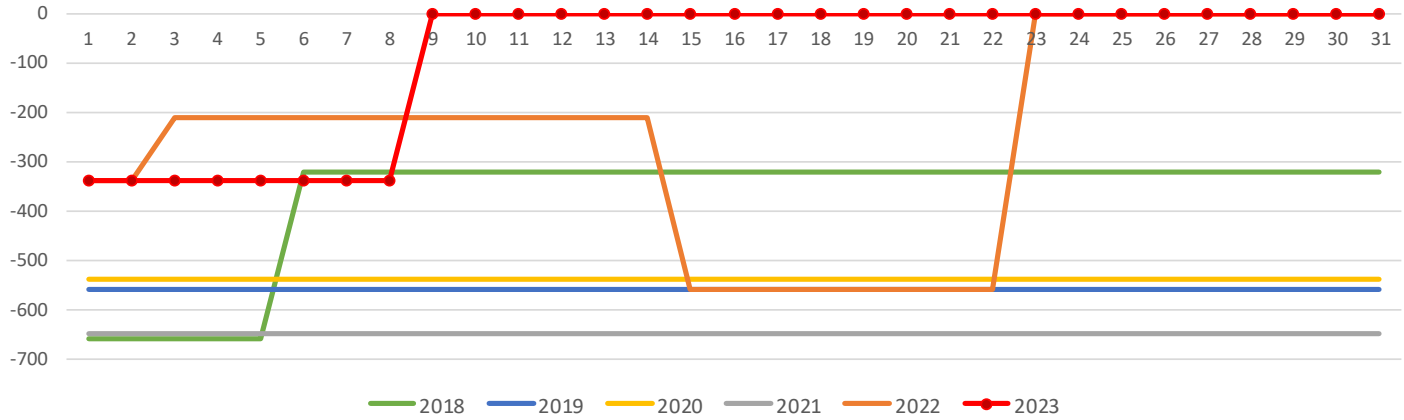
October, Hungary: Scheduled maintenances of thermal units (MW out of operation)



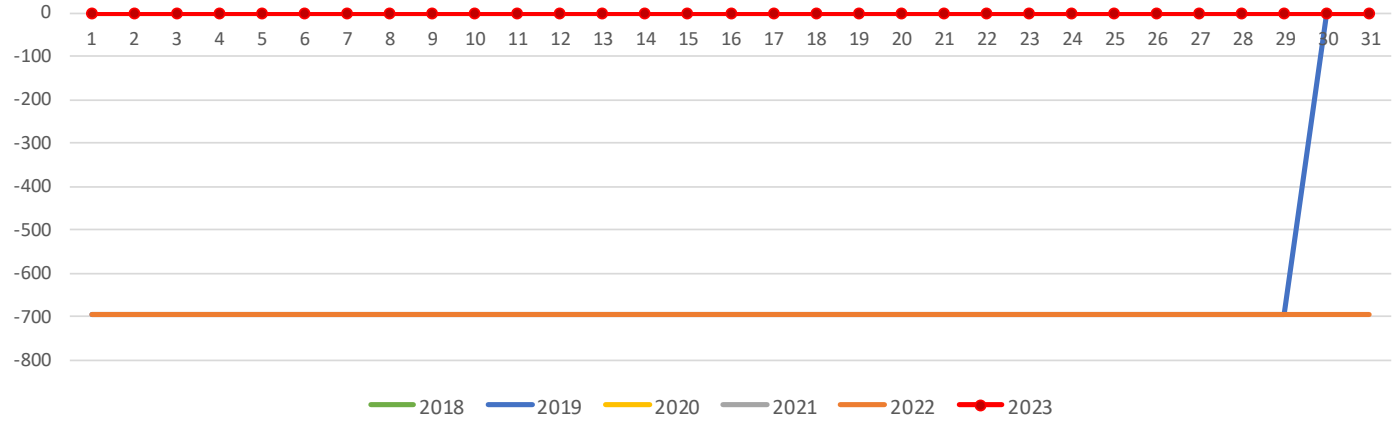
October, Romania: Scheduled maintenances of thermal units (MW out of operation)



October, Serbia: Scheduled maintenances of thermal units (MW out of operation)



October, Slovenia: Scheduled maintenances of thermal units (MW out of operation)



Unplanned outages of important generation units in October 2023

TPPs		Type	MW	Event	From	To
Kakanj G6	BA	Coal	100	Outage	22.09.2023, 22:00	01.10.2023, 16:00
Turceni G5	RO	Coal	253	Outage	24.09.2023, 04:00	01.10.2023, 23:59
Matrai G3	HU	Coal	220	Outage	27.09.2023, 01:00	02.10.2023, 03:00
Craiova 2 G2	RO	Coal	120	Outage	30.09.2023, 01:00	02.10.2023, 23:59
Kostolac B G2	RS	Coal	349	Outage	02.10.2023, 21:00	03.10.2023, 10:30
TENT A G6	RS	Coal	348	Outage	30.09.2023, 23:30	03.10.2023, 23:59
Craiova 2 G2	RO	Coal	120	Outage	30.09.2023, 01:00	04.10.2023, 23:59
Stanari G1	BA	Coal	300	Outage	25.09.2023, 17:00	08.10.2023, 07:00
Matrai G3	HU	Coal	220	Outage	05.10.2023, 23:00	08.10.2023, 11:00
Iernut G5	RO	Coal	-94	Outage	01.10.2023, 00:00	08.10.2023, 23:59
Tuzla G4	BA	Coal	200	Outage	01.10.2023, 00:00	11.10.2023, 06:00
Turceni G4	RO	Coal	265	Outage	07.10.2023, 23:00	12.10.2023, 23:59
Bucuresti S G4	RO	Gas	84	Outage	10.10.2023, 09:00	18.10.2023, 23.59
NEK Krsko	SLO	Nuclear	539	Outage	06.10.2023, 05:00	16.11.2023, 00:00
Matrai G3	HU	Coal	220	Outage	05.10.2023, 23:00	08.10.2023, 11:00
Iernut G5	RO	Coal	-94	Outage	01.10.2023, 00:00	08.10.2023, 23:59
Turceni G4	RO	Coal	265	Outage	07.10.2023, 23:00	12.10.2023, 23:59
Matrai G3	HU	Coal	220	Outage	12.10.2023, 02:00	15.10.2023, 13:00
Matrai G5	HU	Coal	-104	Outage	17.10.2023, 07:00	17.10.2023, 18:00
Gacko G1	BA	Coal	300	Outage	17.10.2023, 09:00	17.10.2023, 23:00
Bucuresti S G4	RO	Gas	84	Outage	10.10.2023, 09:00	17.10.2023, 23.59
Paks G1	HU	Nuclear	-154	Outage	18.10.2023, 14:00	19.10.2023, 04:00
Rovinari G4	RO	Coal	294	Outage	18.10.2023, 00:00	20.10.2023, 23.59
Kakanj G7	BA	Coal	200	Outage	20.10.2023, 15:00	24.10.2023, 11:00
TENT A G2	RS	Coal	210	Outage	22.10.2023, 14:00	24.10.2023, 14:00
Bobov Dol G2	BG	Coal	190	Outage	23.10.2023, 14:30	24.10.2023, 14:30
Matrai G5	HU	Coal	224	Outage	21.10.2023, 02:00	24.10.2023, 15:00
Turceni G5	RO	Coal	253	Outage	23.10.2023, 12:00	25.10.2023, 23:59
TENT A G1	RS	Coal	210	Outage	25.10.2023, 21:30	27.10.2023, 14:30
Kostolac B G2	RS	Coal	349	Outage	26.10.2023, 09:30	28.10.2023, 06:30
TENT B G1	RS	Coal	650	Outage	27.10.2023, 00:00	28.10.2023, 15:30
Matrai G5	HU	Coal	224	Outage	21.10.2023, 02:00	24.10.2023, 15:00
Matrai G3	HU	Coal	220	Outage	25.10.2023, 08:00	28.10.2023, 16:30
Kostolac B G2	RS	Coal	349	Outage	26.10.2023, 09:30	28.10.2023, 06:30
TENT B G1	RS	Coal	650	Outage	27.10.2023, 00:00	28.10.2023, 15:30
CCCC P. Brazi	RO	Gas	-416	Outage	28.10.2023, 10:00	29.10.2023, 07:30
CCCC P. Brazi	RO	Gas	832	Outage	29.10.2023, 07:30	29.10.2023, 14:00
Dunamenti G7	HU	Gas	269	Outage	30.10.2023, 12:15	30.10.2023, 17:30
Maritsa2 G2	BG	Coal	165	Outage	28.10.2023, 05:30	31.10.2023, 22:59
Craiova 2 G2	RO	Coal	120	Outage	27.10.2023, 20:00	01.11.2023, 23:59
Galabovo G2	BG	Coal	343	Outage	17.10.2023, 23:00	02.11.2023, 23:00
TENT A G4	RS	Coal	329	Outage	28.10.2023, 23:00	05.11.2023, 13:00
Paroseni CA	RO	Coal	130	Outage	25.10.2023, 00:00	05.11.2023, 23:59
Tuzla G6	BA	Coal	200	Outage	16.06.2023, 23:00	
Kakanj G5	BA	Coal	100	Outage	25.08.2023, 23:00	
Kakanj G7	BA	Coal	200	Outage	28.10.2023, 09:00	

11. Specific days on SPOT markets

13.10.2023 HUPX settled 72.7 EUR/MWh above EPEX-DE, but below IT-Nord (Friday)

16.10.2023 HUPX settled 3.3 EUR/MWh below EPEX-DE (Monday)

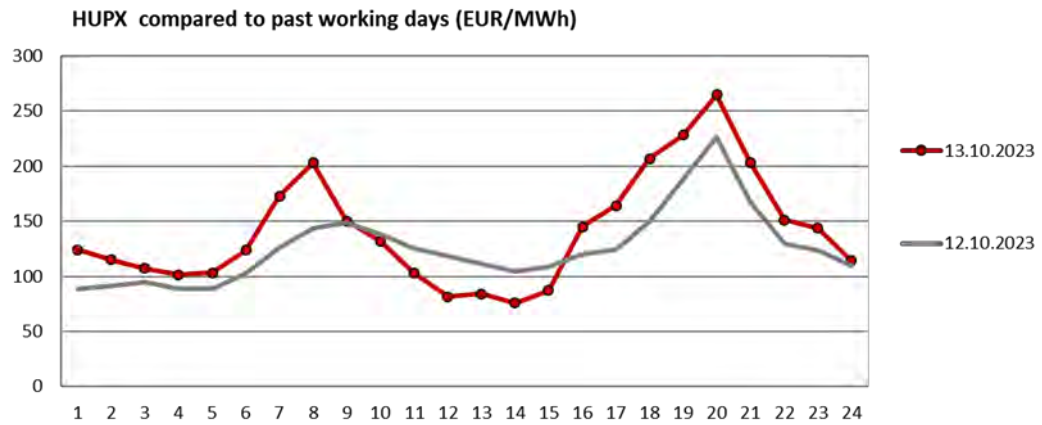
17.10.2023 OPCOM, HENEX and IBEX settled significantly above HUPX (Tuesday)

27.10.2023 HENEX settled 13.2 EUR/MWh below HUPX and 9.4 EUR/MWh below EPEX-DE (Friday)

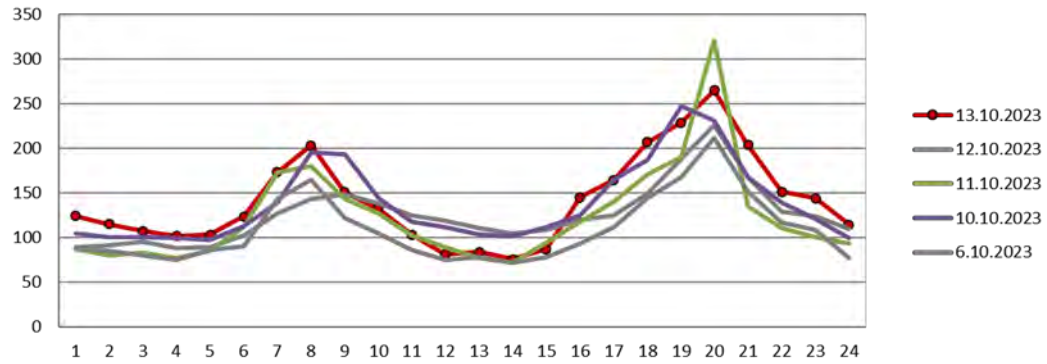
13.10.2023 HUPX settled 72.7 EUR/MWh above EPEX-DE, but below IT-Nord (Friday)

- HUPX price was the highest in the SEE Region and it was the highest in over a month. The spread be tween HUPX and German market was the highest since the end of January.
- The net export of the SEE Region sharply dropped on sharp drop of wind output and lower solar out put.
- The overall wind output in the region was the lowest since the end of May.
- The solar output dropped in Romania, Bulgaria and Hungary.
- The gas generation considerably rose in Greece.
- The net commercial flows from Austria and Slovakia considerably rose compared to previous day.

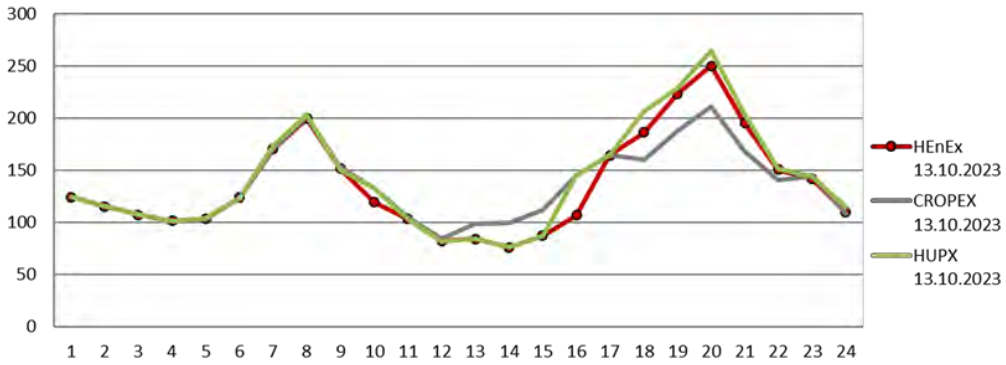
HUPX price was the highest in the SEE Region and it was the highest in over a month. The spread between HUPX and German market was the highest since the end of January. HENEX price was below HUPX for the third day in a row. German and French market settled sharply below previous day, while Austrian price was noticeably lower, unlike prices on SEE markets and Italy. The wind generation sharply rose in Germany and France. In Germany, the solar output also noticeably rose compared to previous day.



HUPX (EUR/MWh)

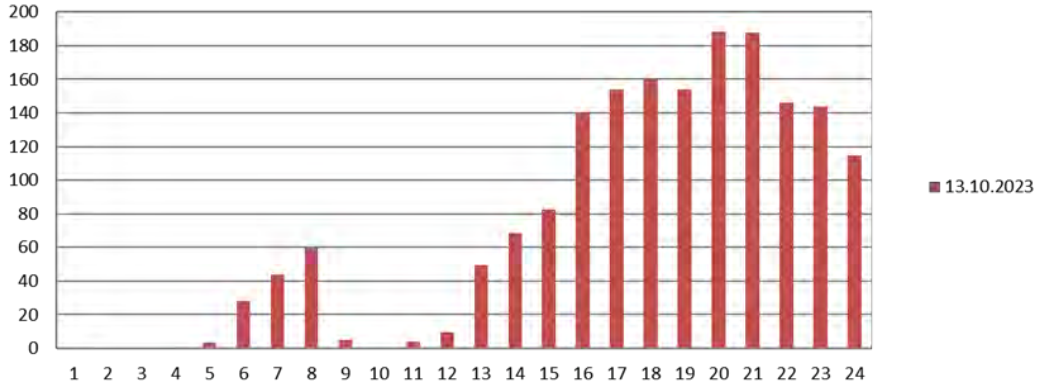


HUPX and CROPEX compared to Greek prices (EUR/MWh)

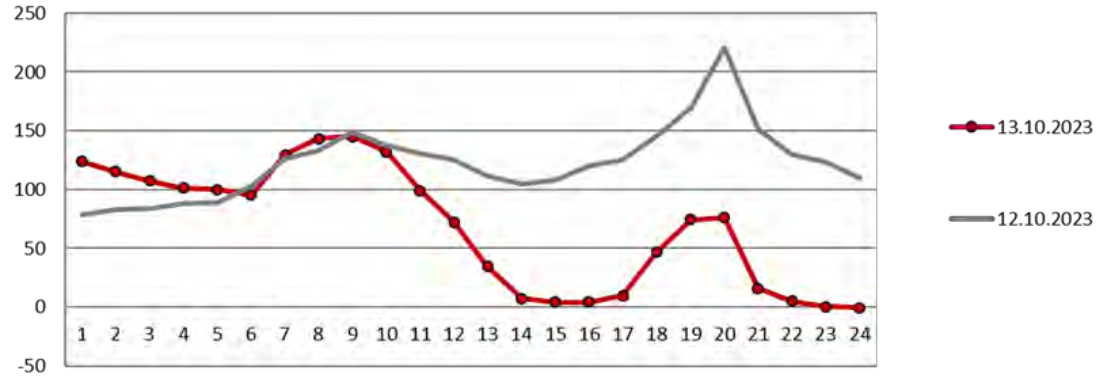


HUPX/OPCOM price spread with IBEX(EUR/MWh)

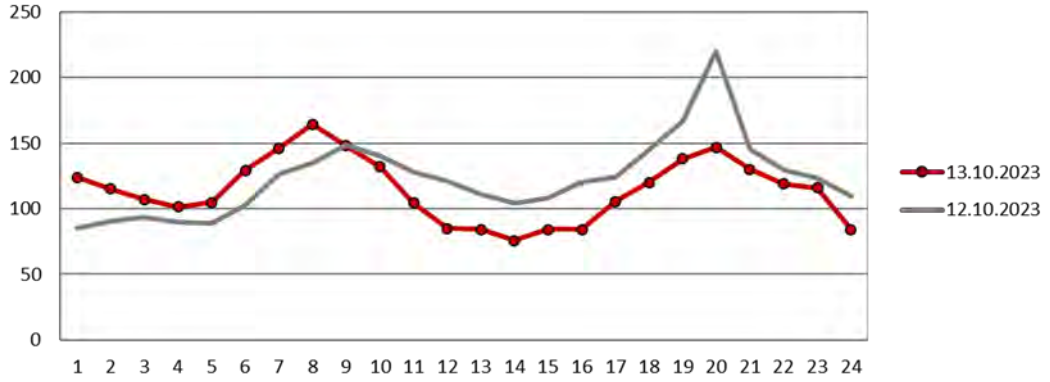
HUPX-DE price spread (EUR/MWh)



German price compared to past working days (EUR/MWh)

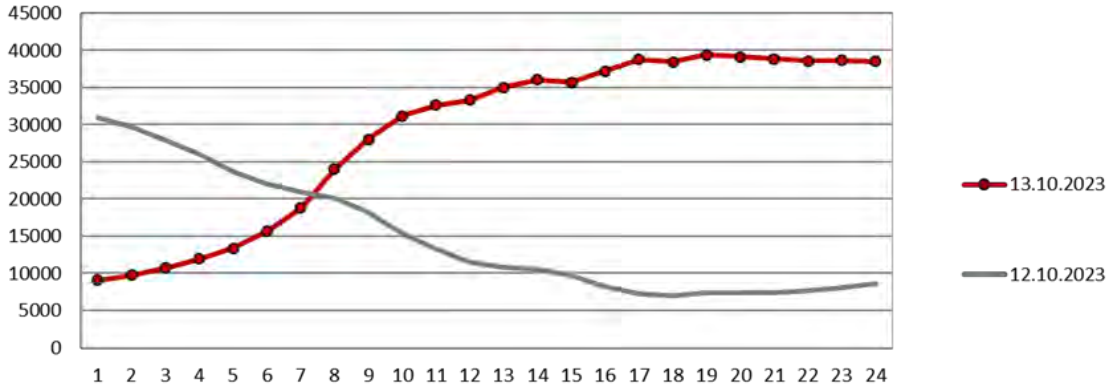


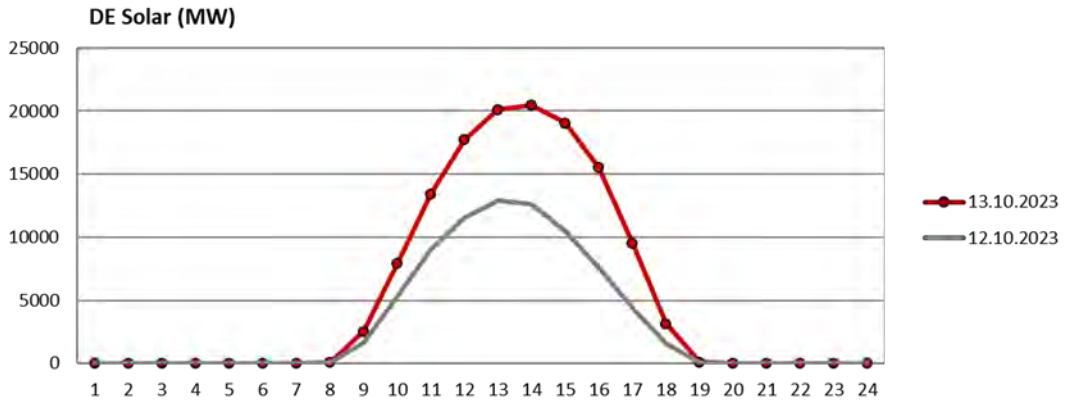
Austrian price compared to past working days (EUR/MWh)



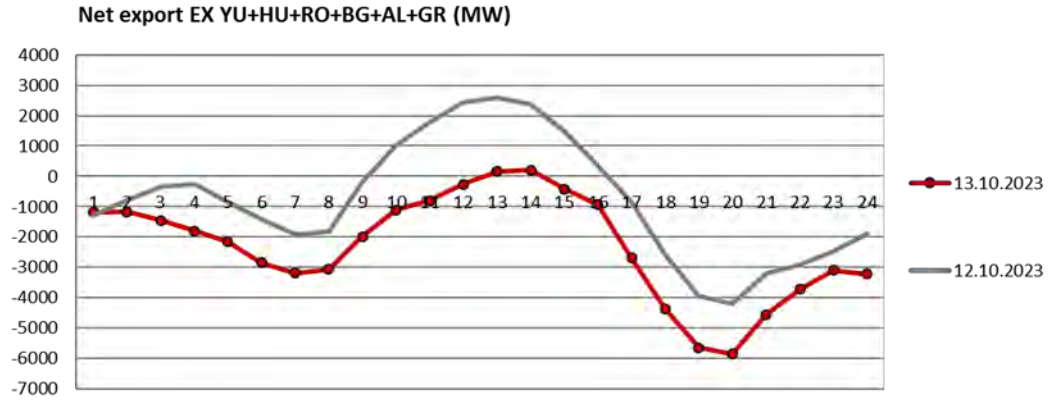
Italy North compared to past working days (EUR/MWh)

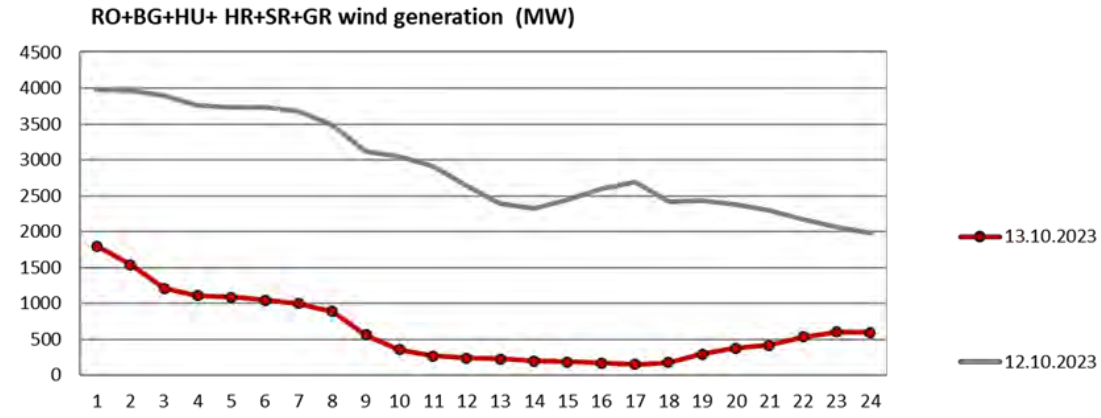
DE-Wind (MW)

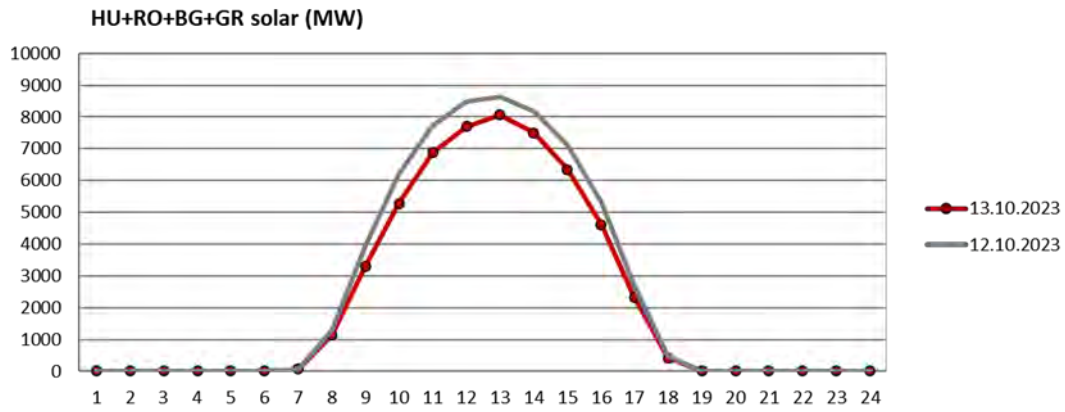


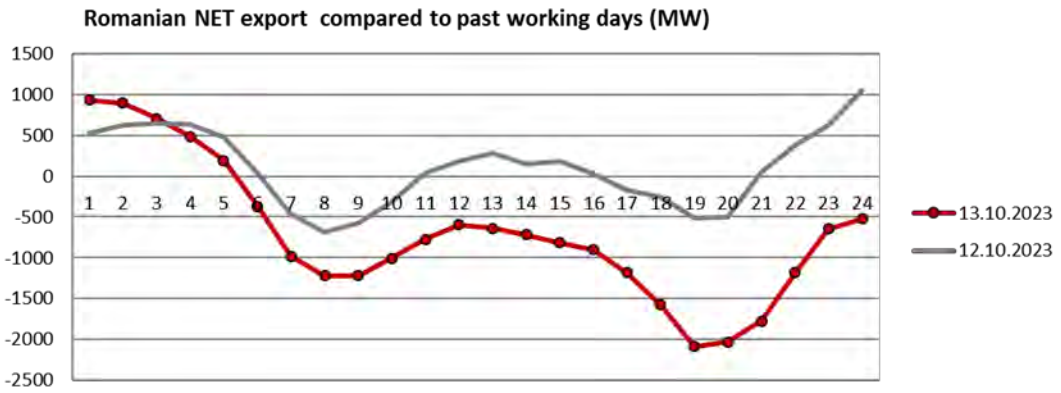


The net export of the SEE Region sharply dropped on sharp drop of wind output and lower solar output. The net export considerably dropped in Romania (turned into a net importer) and Greece (although it remained a net exporter for the fifth day in a row).

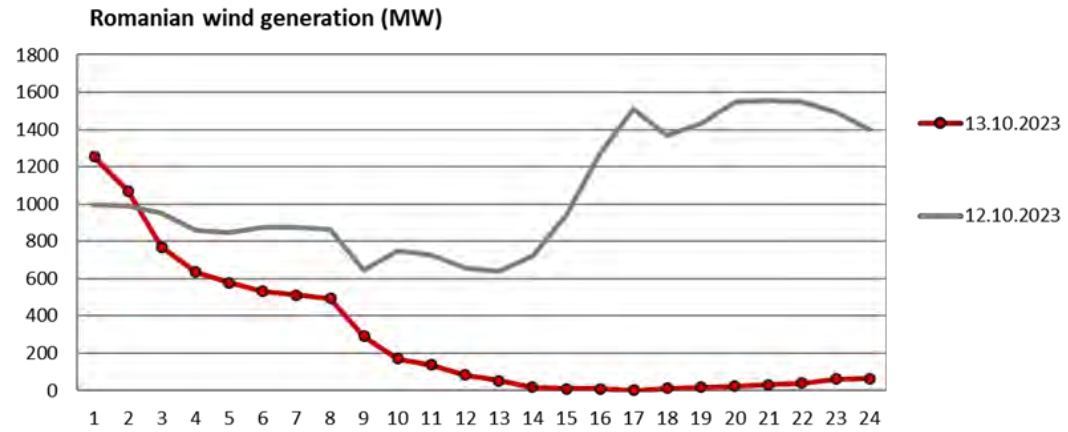


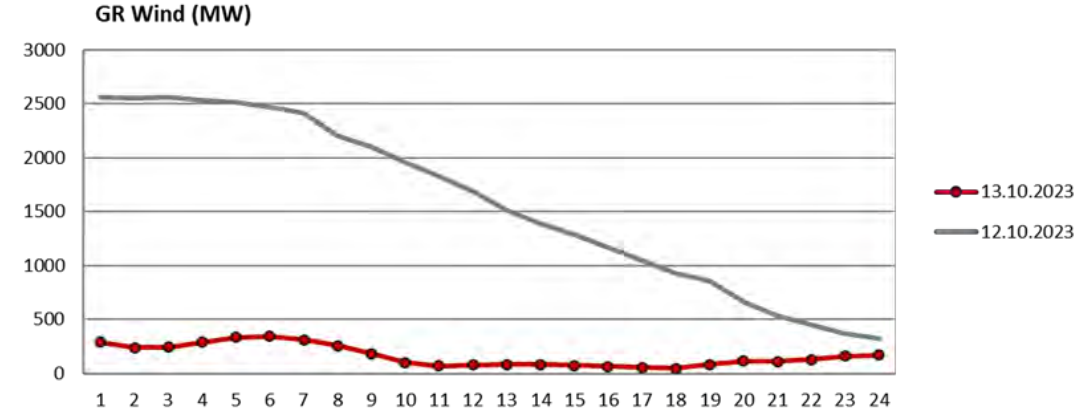


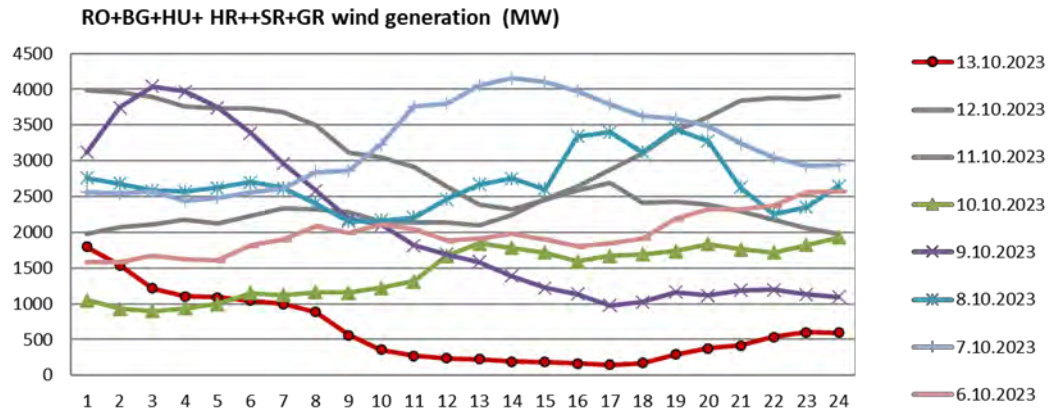




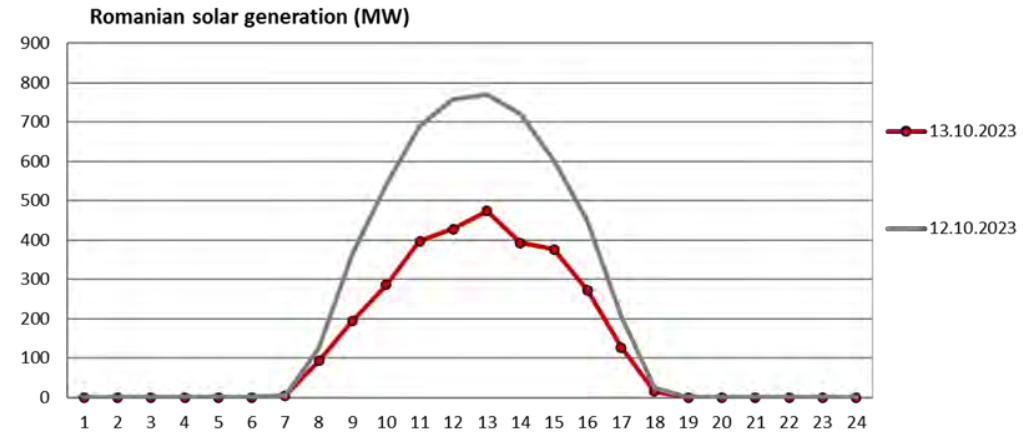
The wind generation fell to the extremely low level in Romania and Greece. The wind output was very low in Bulgaria, Hungary and Serbia. The overall wind output in the region was the lowest since the end of May.

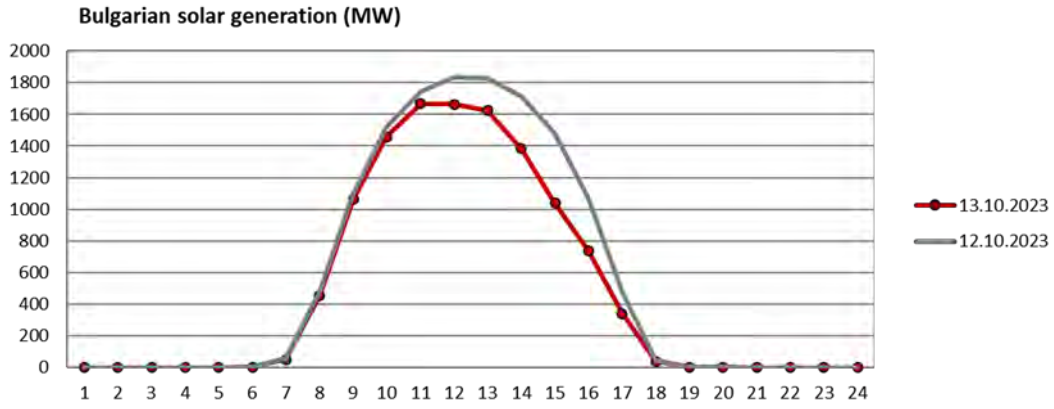


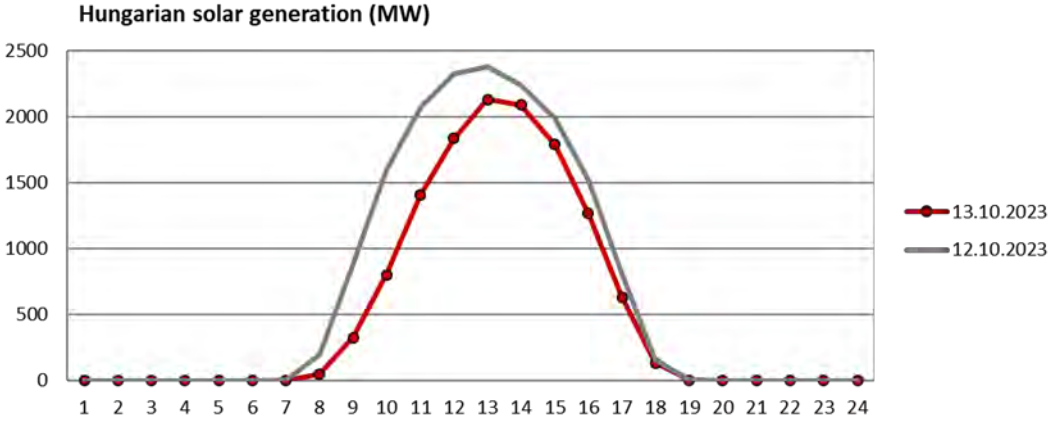




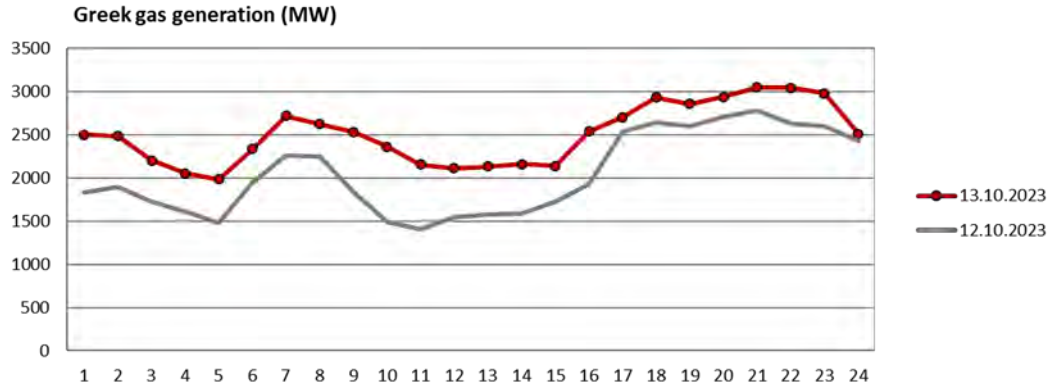
The solar output dropped in Romania, Bulgaria and Hungary.

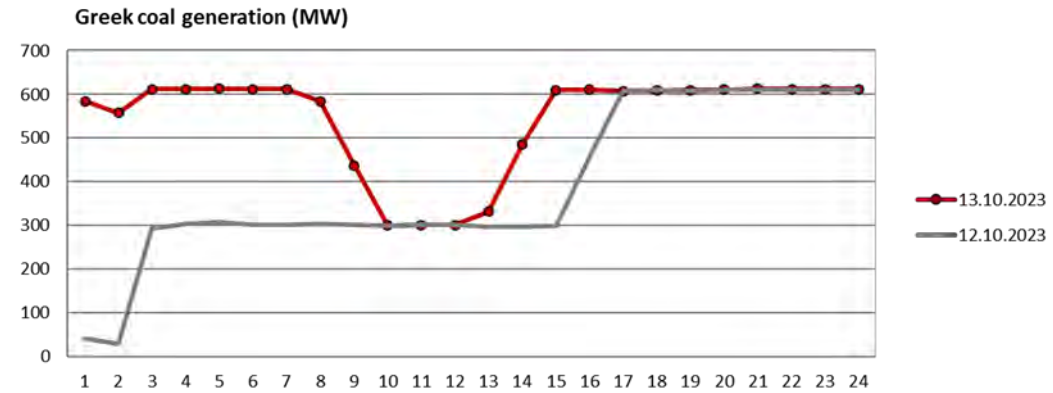




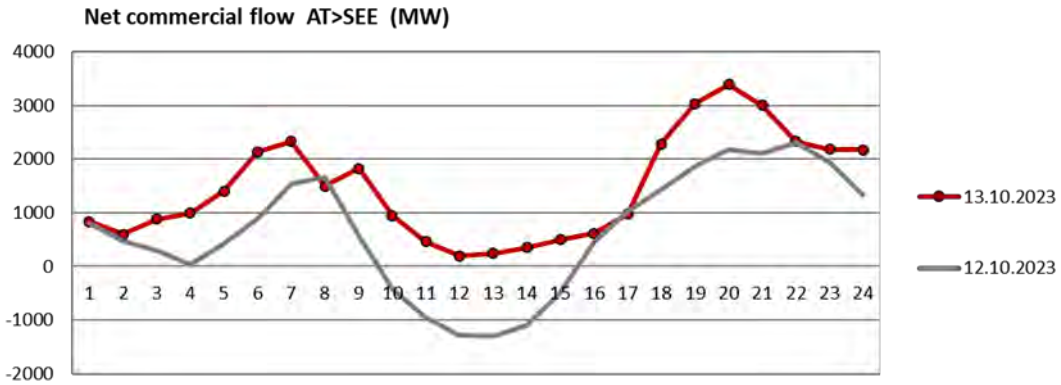


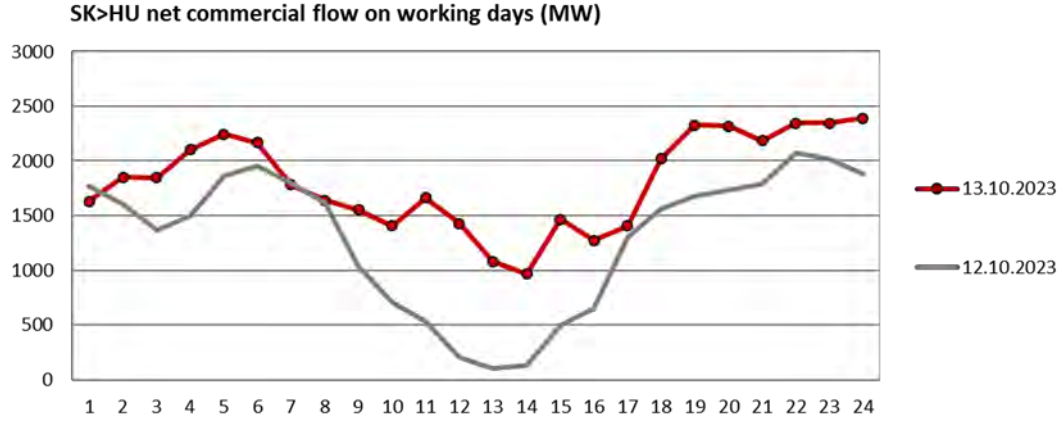
The gas generation considerably rose in Greece. In Greece, the coal output was also higher.



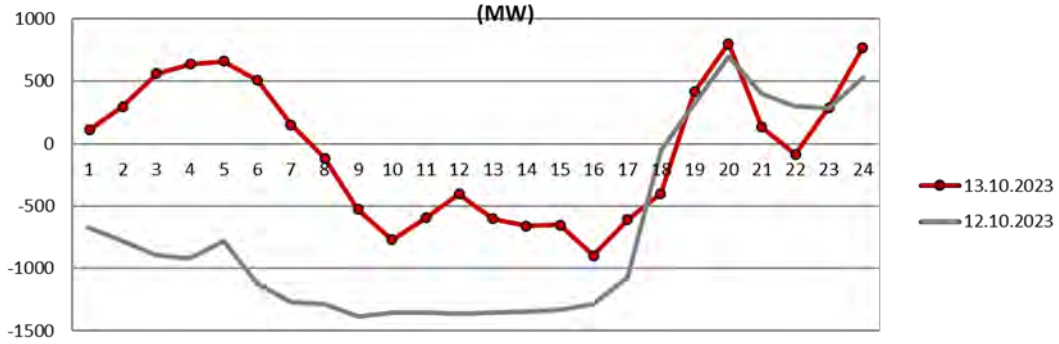


The net commercial flows from Austria and Slovakia to SEE Region considerably rose compared to previous day, which offset lower flows from Greece and Romania.

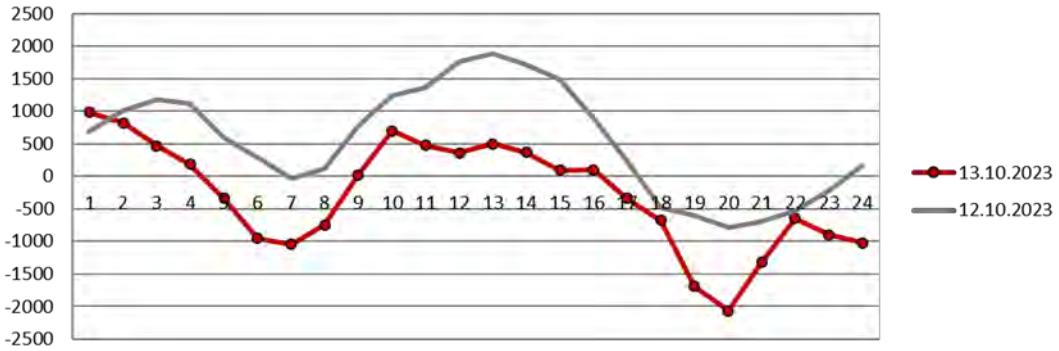




Delivery to Greece from Bulgaria, Albania and Northern Macedonia , BG+AL+MK > GR (MW)



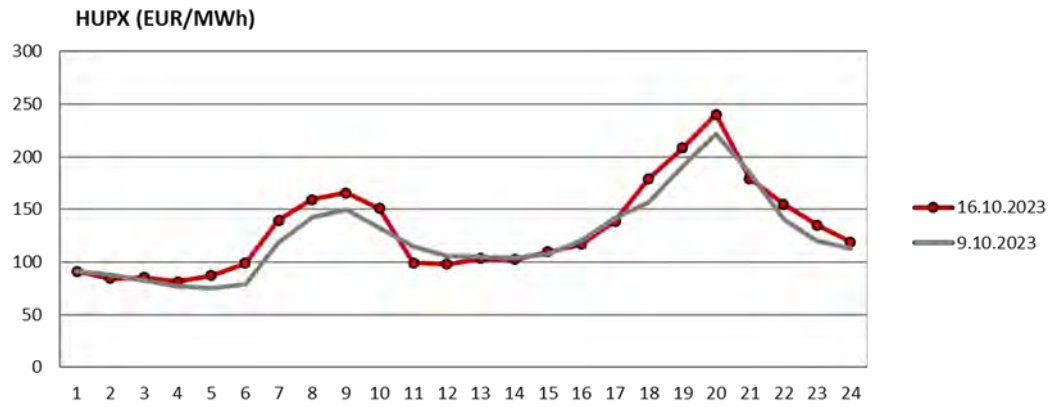
RO>HU net commercial flow on past working days (MW)



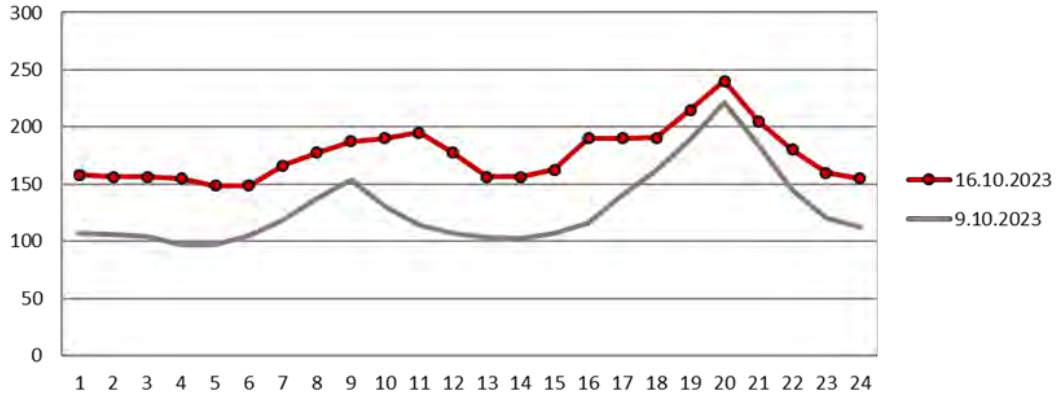
16.10.2023 HUPX settled 3.3 EUR/MWh below EPEX-DE (Monday)

- The markets settled above previous Monday. All SEE markets, apart from BSP and CROPEX, settled below German and Austrian market. HUPX settled below Austrian market for the first time on Monday since mid-August and it settled below CROPEX for the first time on Monday after six weeks.
- SEE Region turned into a net exporter and the net export was almost 1,800 MW higher compared to previous Monday, namely due to sharp rise of wind output and higher hydro output.
- The wind output in the region was the second highest for Monday in the past six weeks.
- The overall hydro output in the region was at 5-week high for Monday.
- The overall coal output in the region was at 7-week high for Monday.
- The gas generation in Greece was the highest for Monday since the end of August.
- The net commercial flow from Hungary to Austria turned positive.
- The net commercial flow from SEE Region towards Italy was the highest for Monday since the beginning of April.

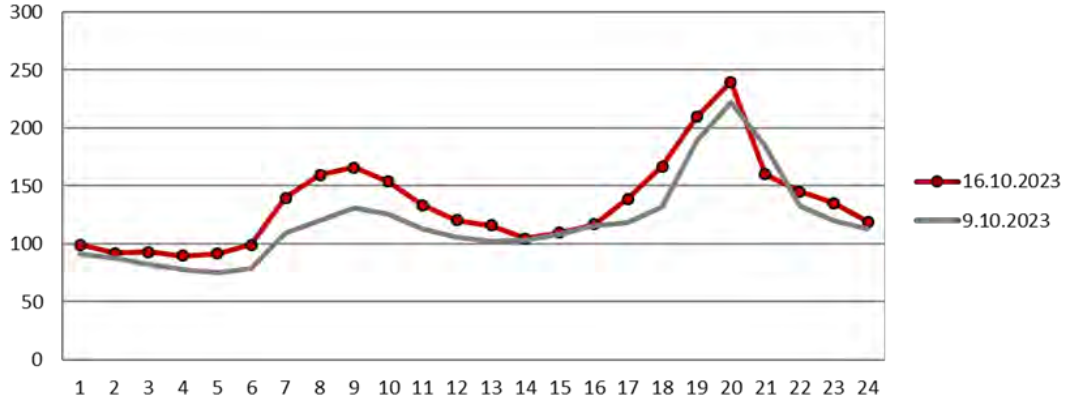
The markets settled above previous Monday. All SEE markets, apart from BSP and CROPEX, settled below German and Austrian market. HUPX settled below Austrian market for the first time on Monday since mid-August and it settled below CROPEX for the first time on Monday after six weeks. HENEX price was the lowest in the region, while BSP was the highest. SEE markets settled in close range. In Italy, the prices sharply rose to the highest level since the end of January, on low renewable and hydro output and reduced flows from France. The rise of prices in Germany was supported by the rise of consumption and lower wind output. On the other hand, the wind and nuclear output considerably rose in France.



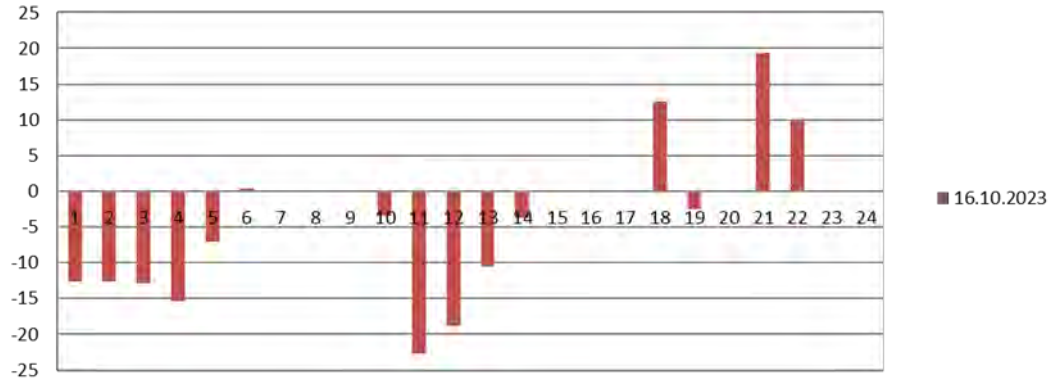
Italy North (EUR/MWh)



Austrian Price (EUR/MWh)

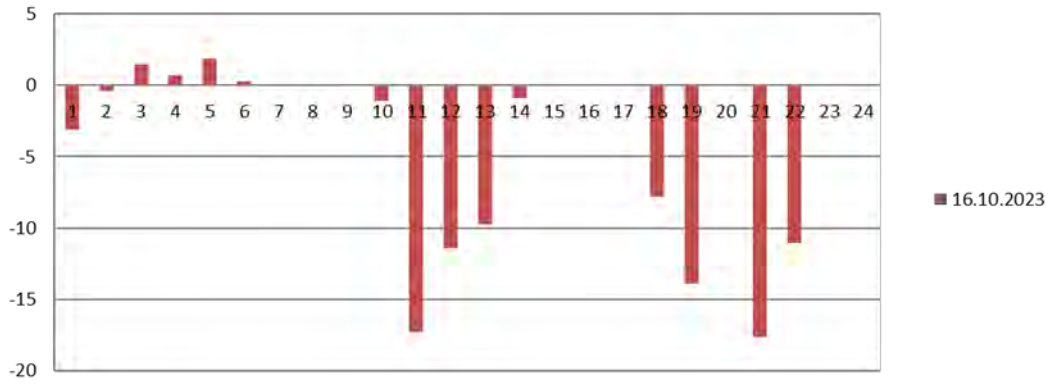


HUPX-DE price spread (EUR/MWh)



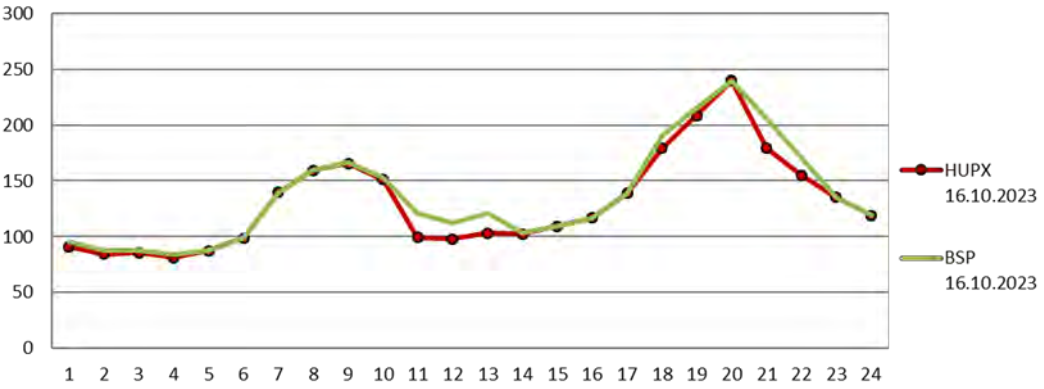
Hourly price spread with Austrian market (EUR/MWh)

HUPX-CROPEX price spread (EUR/MWh)

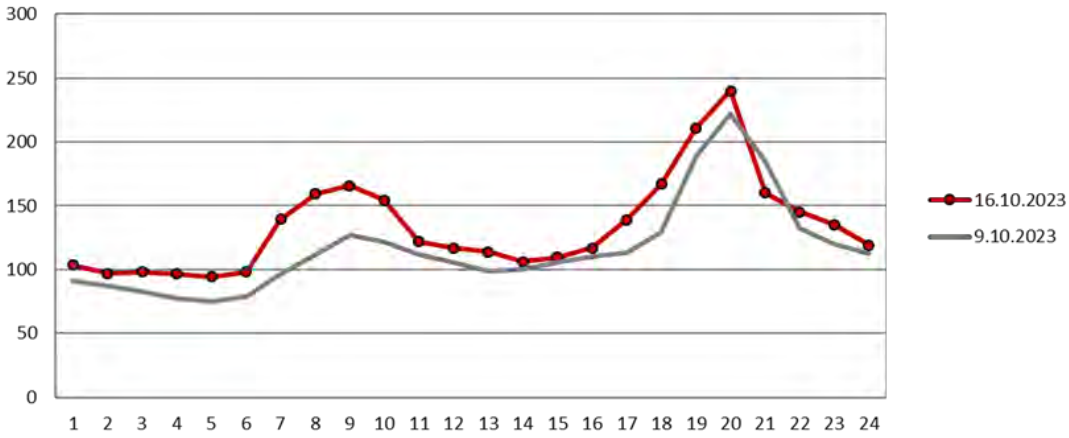


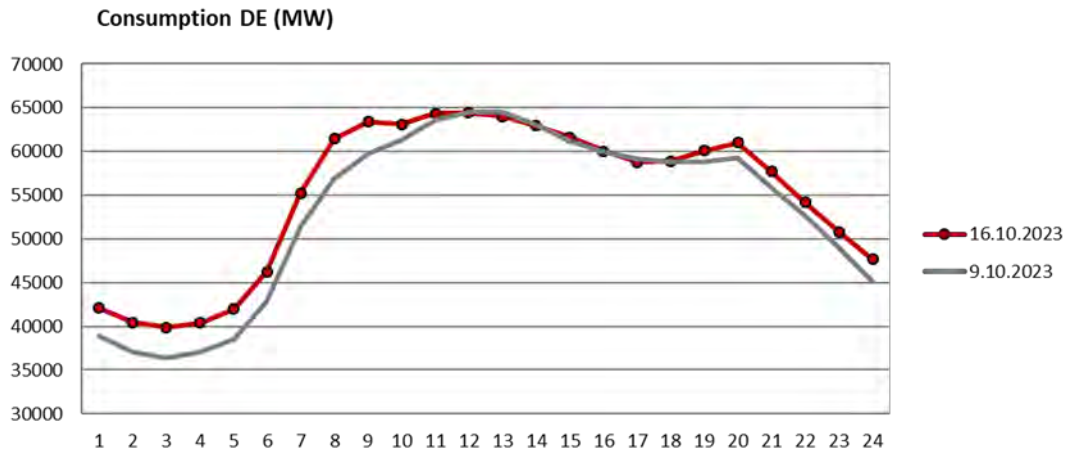
HUPX and CROPEX compared to Greek prices (EUR/MWh)

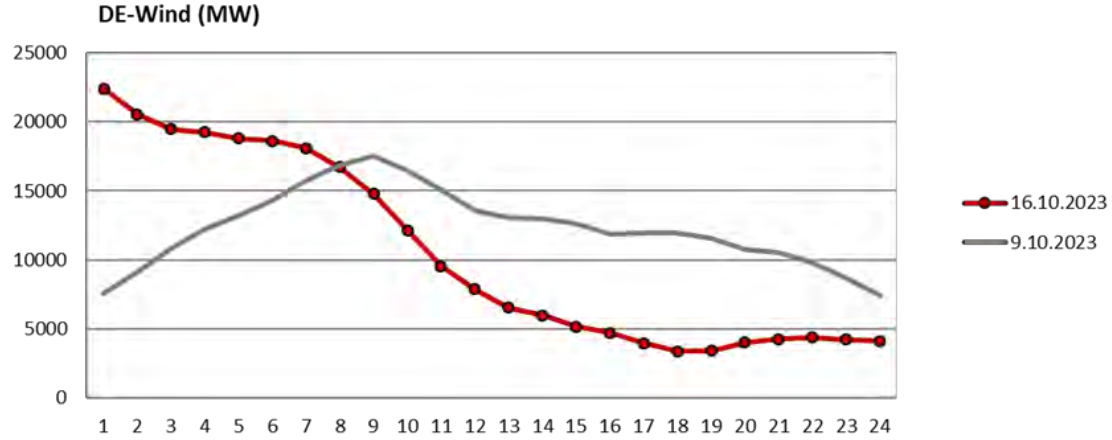
HUPX compared to BSP EUR/MWh)



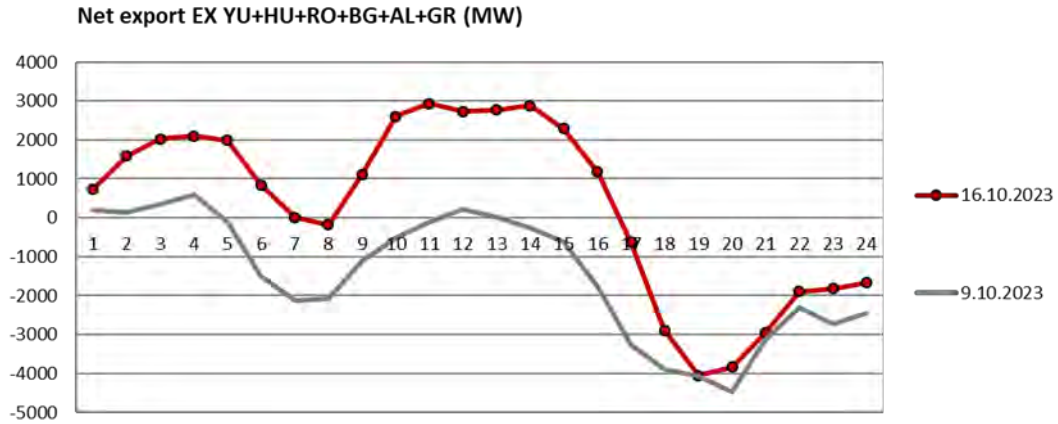
German price (EUR/MWh)



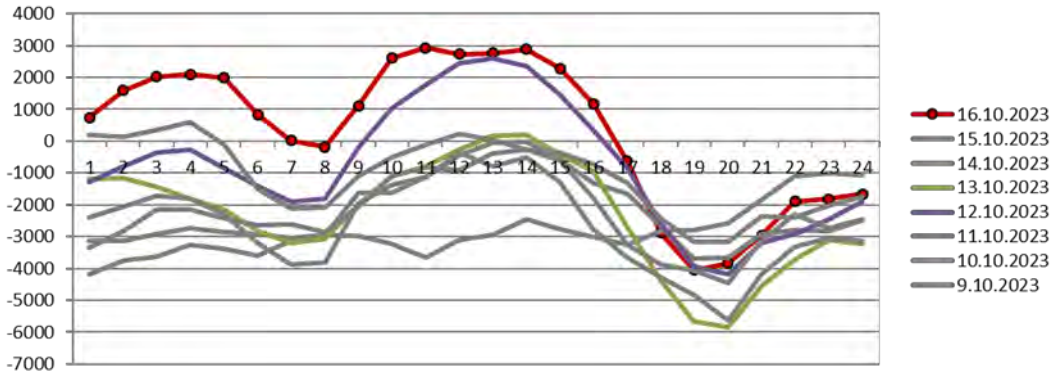




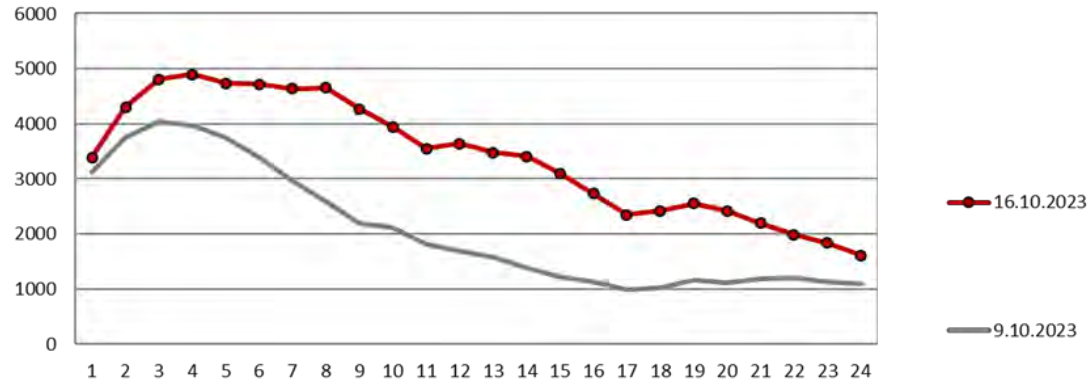
SEE Region turned into a net exporter (only time this week) and the net export was almost 1,800 MW higher compared to previous Monday namely due to sharp rise of wind output and higher hydro output. In addition, the coal and solar generation rose across the region. However, the region was mostly exporting during the first half of the day, and it turned into a net importer during second half of the day, namely in the evening hours. The export considerably rose in Romania (turned into a net exporter), Croatia (6-week high for Monday) and it was higher in Hungary, Greece (net exporter for a third Monday in a row and the largest net exporter in the SEE region for the second Monday in a row) and Albania (6-week high for Monday).



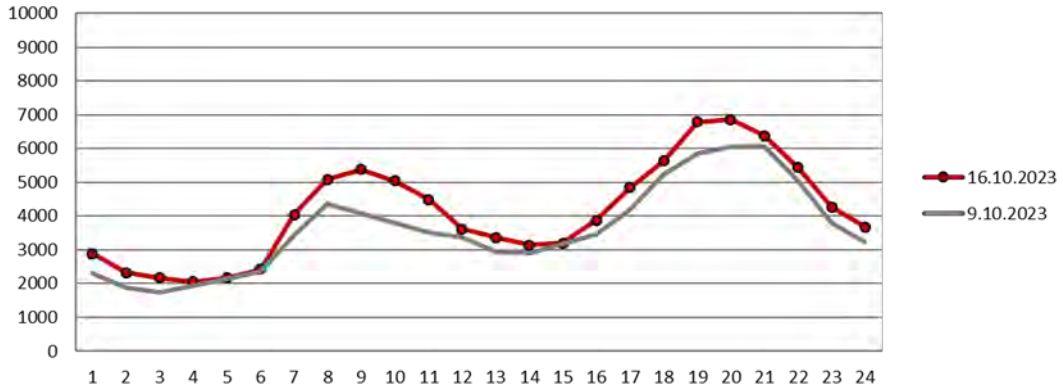
Net export EX YU+HU+RO+BG+AL+GR (MW)



RO+BG+HU+ HR+SR+GR wind generation (MW)

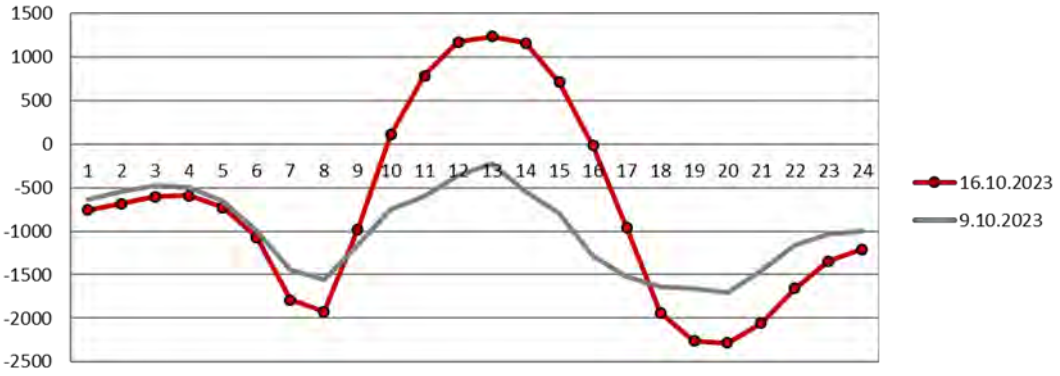


SEE (SI, BA, ME, RS,HR, AL, RO, BG) hydro generation (MW)

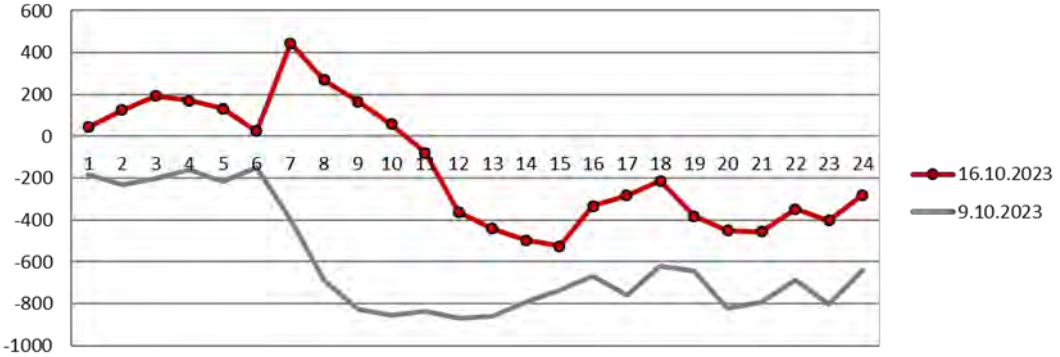


Romanian NET export (MW)

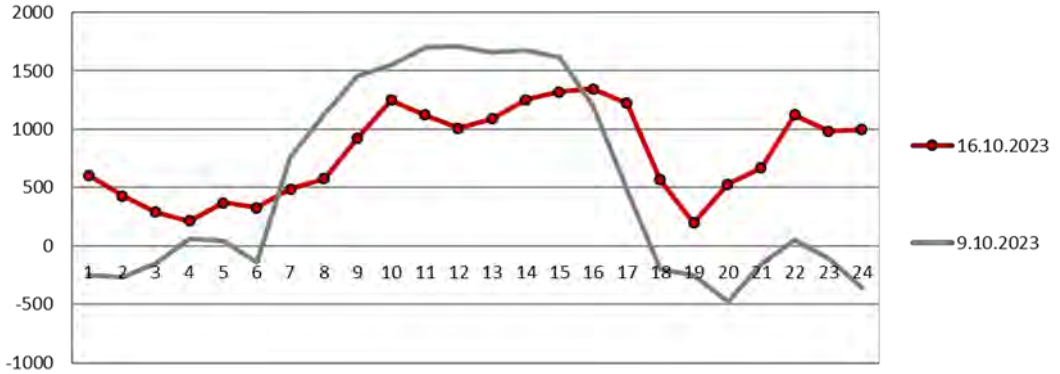
Hungarian NET export position (MW)



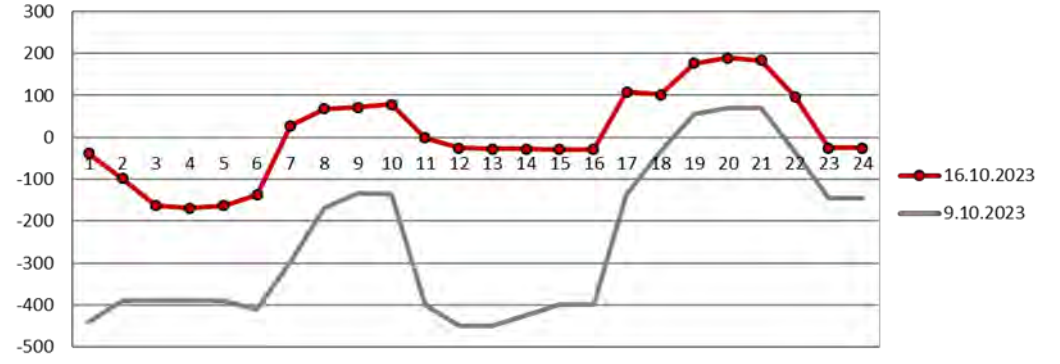
Croatian NET export(MW)



Net export Greece (MW)

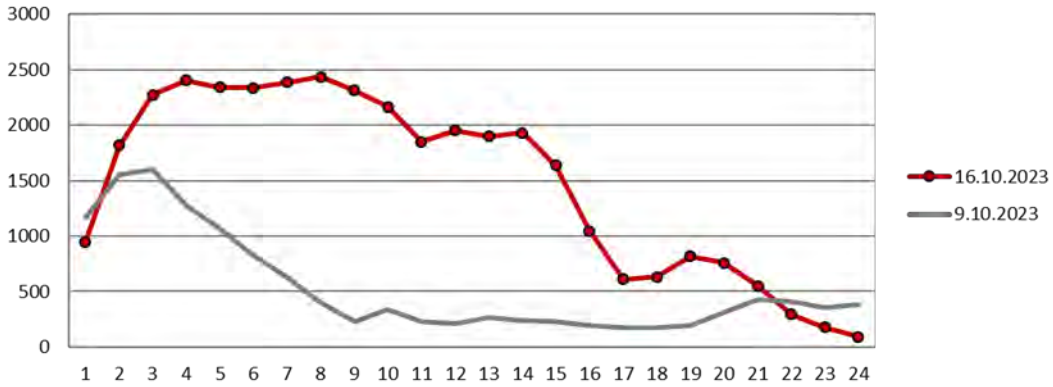


Albania NET export (MW)

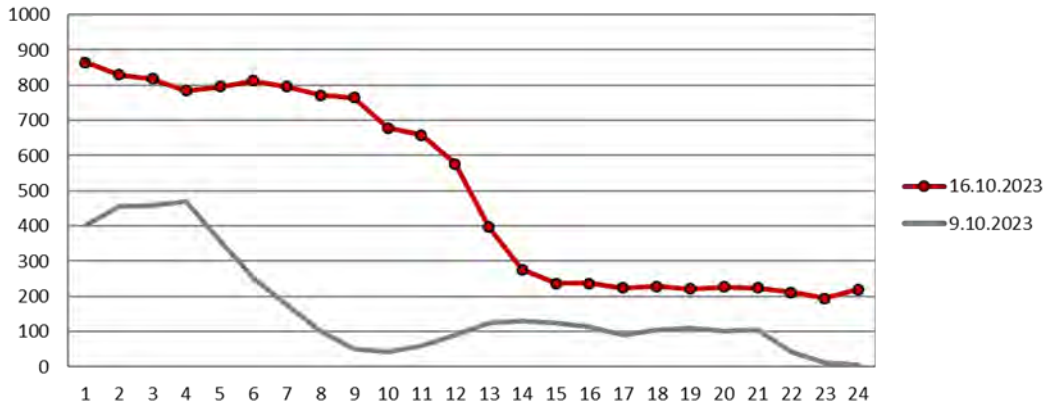


The wind generation sharply rose in Romania, Bulgaria and Croatia, while solar output sharply rose in Hungary. The wind output in the region was the second highest for Monday in the past six weeks.

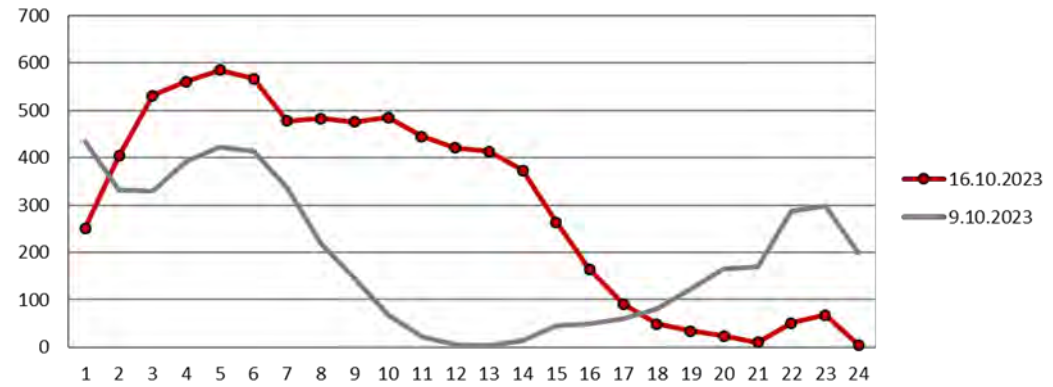
Romanian wind generation (MW)



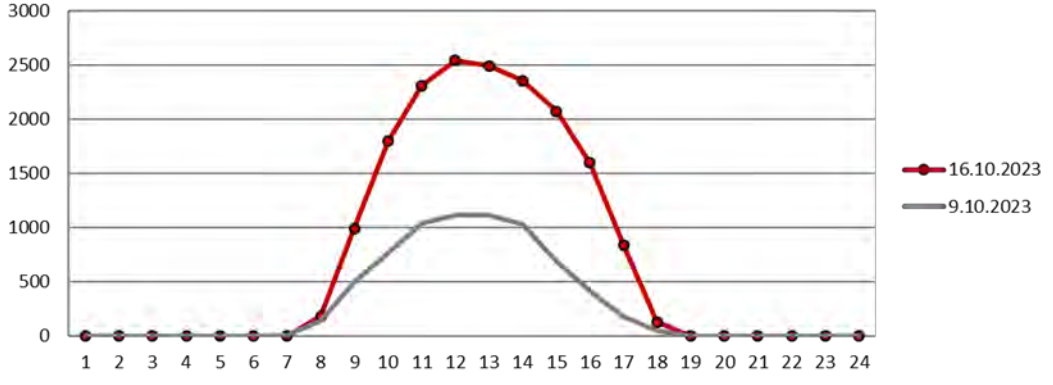
Croatian wind generation (MW)



Bulgarian wind generation (MW)

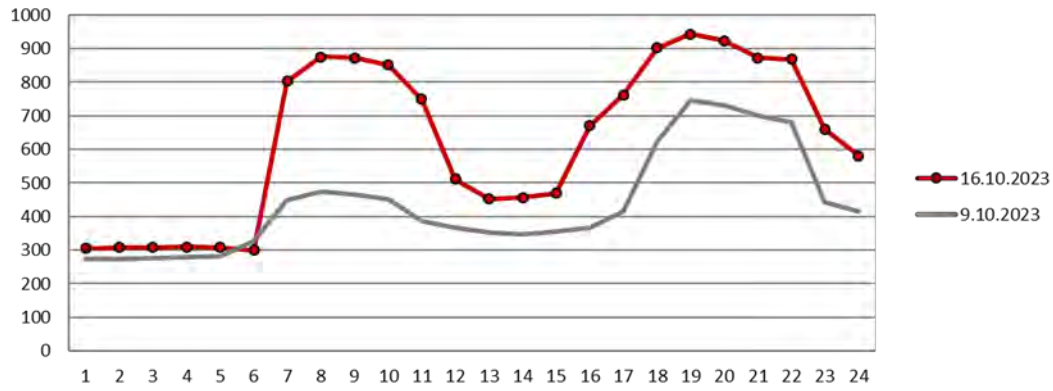


Hungarian solar generation (MW)

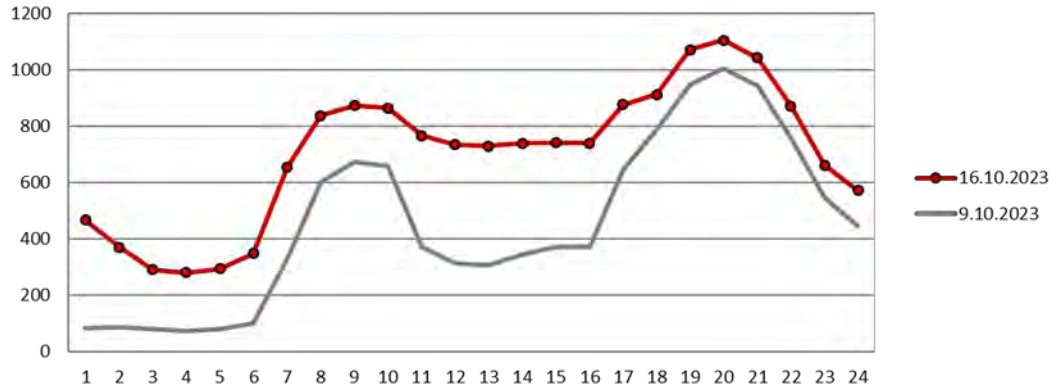


The hydro output considerably rose in Serbia, Albania, Croatia and Greece. The overall hydro output in the region was at 5-week high for Monday.

Croatian hydro generation (MW)

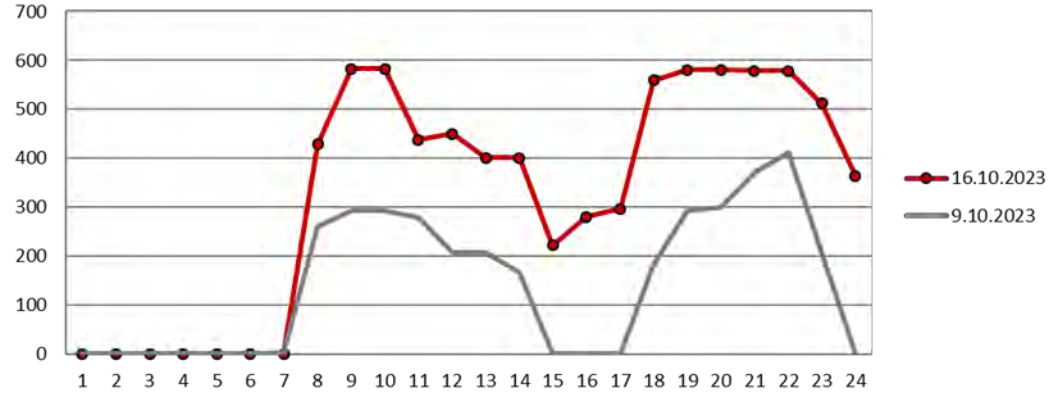


Albanian hydro generation (MW)

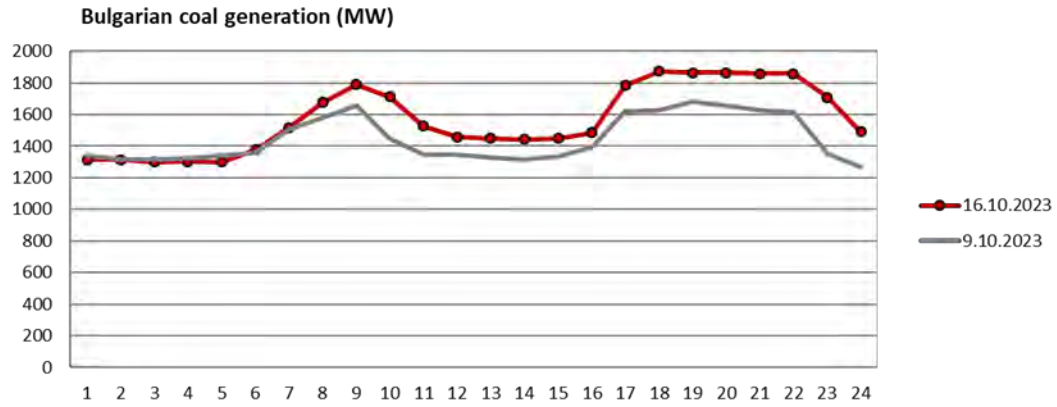


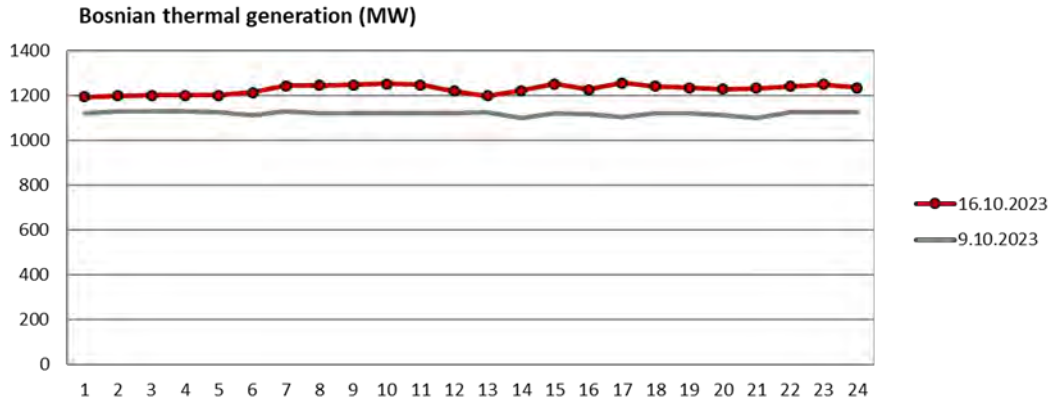
Greek hydro generation (MW)

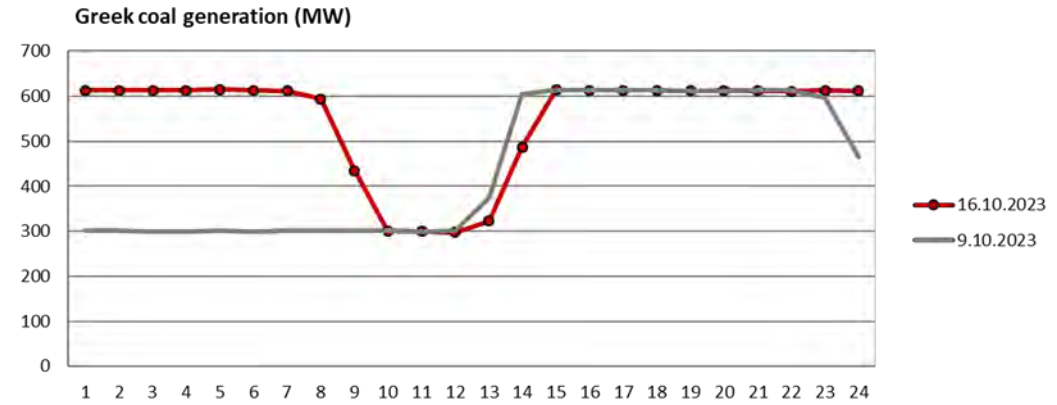
Serbian pump storage generation (MW)



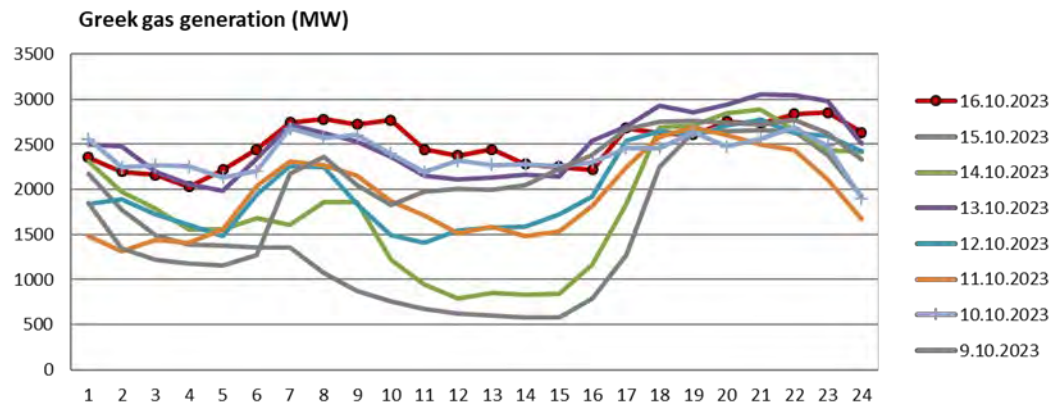
The coal output rose in Bulgaria, Greece and BiH. The overall coal output in the region was at 7-week high for Monday.





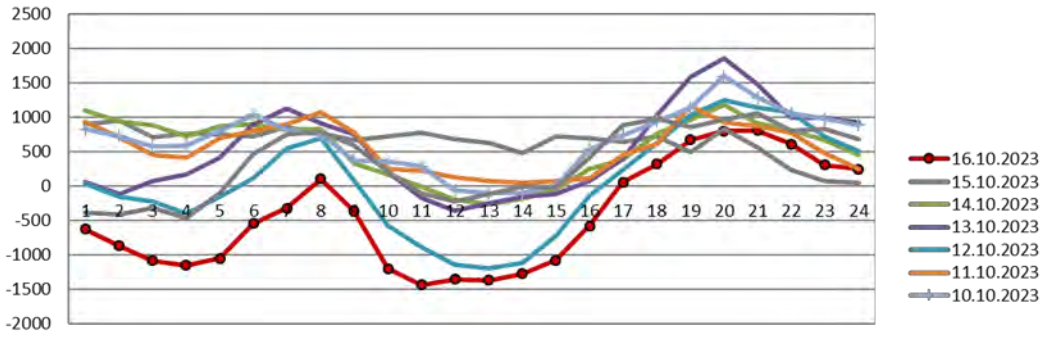


The gas generation in Greece was the highest for Monday since the end of August.

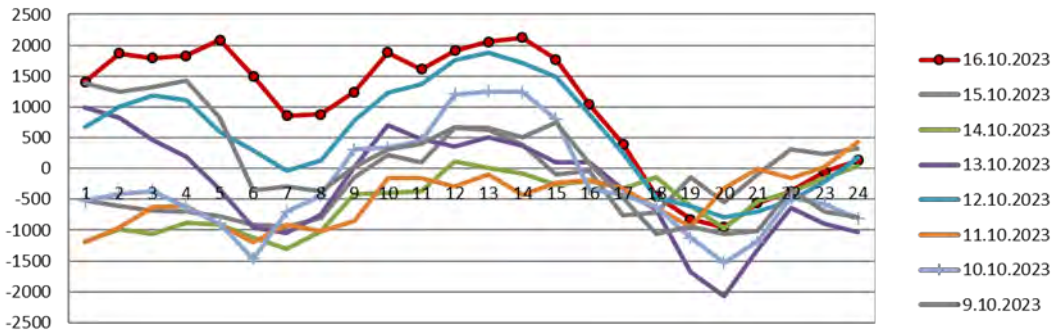


The net commercial flow from Hungary to Austria turned positive. This was supported by the sharp rise of flows from Romania to Hungary (the highest for Monday since mid-June) and from Greece to HUPX zone (positive for the second Monday in a row). The net commercial flow from Hungary to Slovenia was the highest for Monday this year, while the flow from Hungary to Serbia turned positive on Monday for the first time after six weeks.

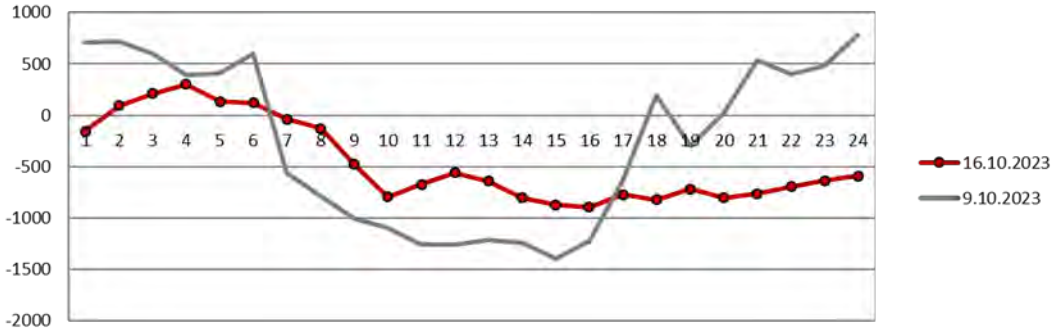
AT>HU net commercial flow (MW)



RO>HU net commercial flow (MW)

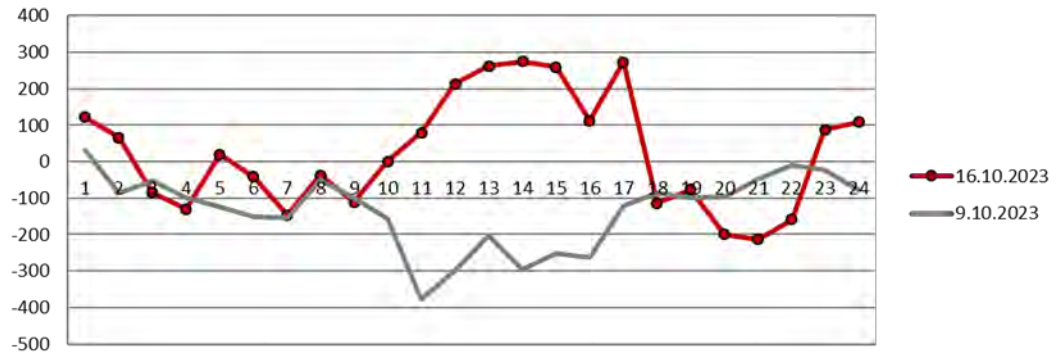


Delivery to Greece from Bulgaria, Albania and Northern Macedonia , BG+AL+MK > GR (MW)



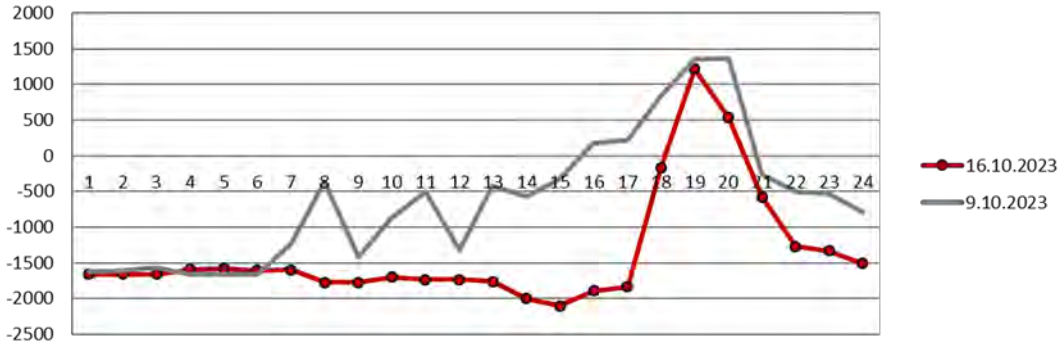
HU>SI net commercial flow (MW)

HU>RS net commercial flow (MW)



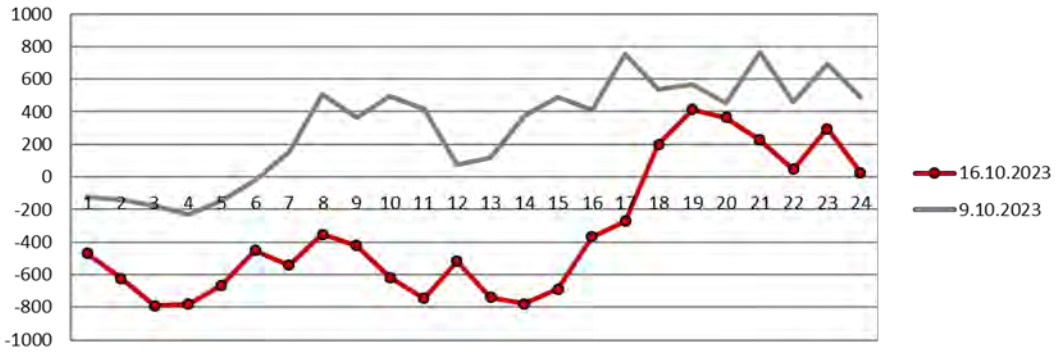
The net commercial flow from SEE Region towards Italy was the highest for Monday since the beginning of April. Despite this, the flows were in direction from Italy to SEE Region in evening hours. Due to rise of flows from Slovenia to Italy, the net commercial flow from Croatia to Slovenia turned positive on Monday for the first time since mid-June

IT>SEE Region net commercial flow (MW)



SI>ITA net commercial flow (MW)

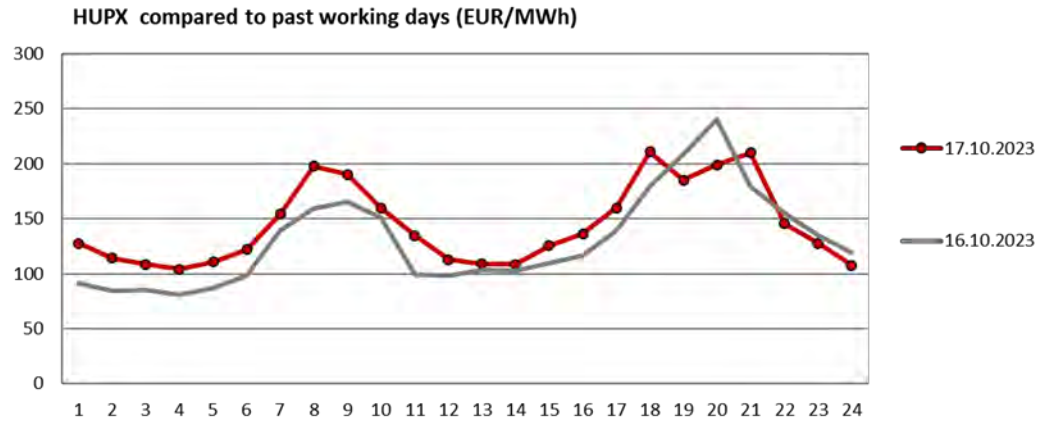
SI>HR net commercial flow (MW)

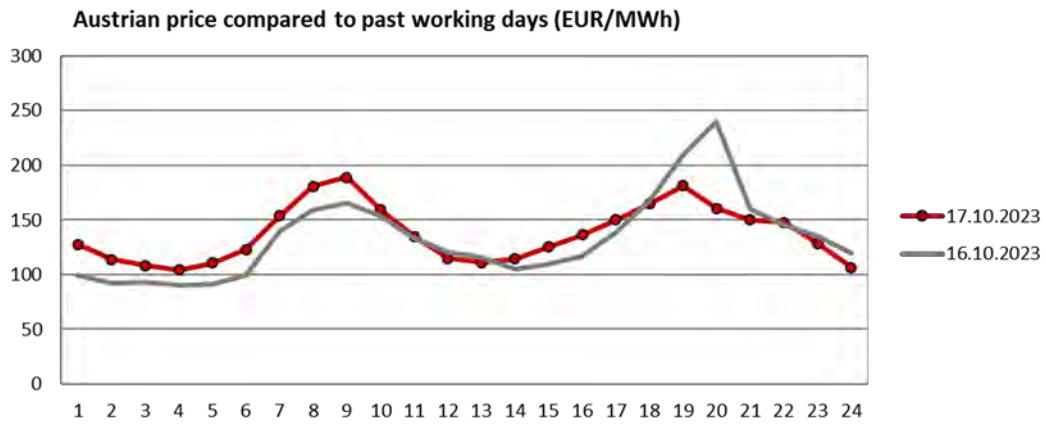


17.10.2023 OPCOM, HENEX and IBEX settled significantly above HUPX (Tuesday)

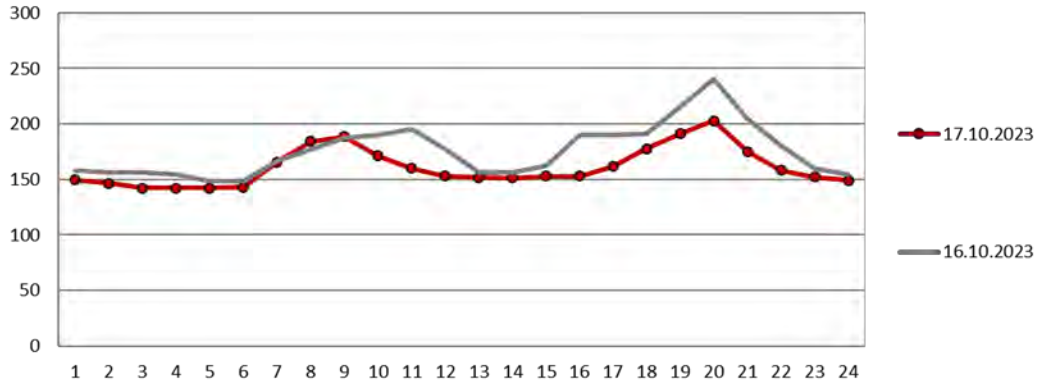
- The prices continued to rise across SEE markets and Austria, unlike in Germany, France and Italy. IBEX and OPCOM settled considerably above other markets, including Italy. The spread between OPCOM/IBEX and HUPX was the highest since January.
- The net export of the SEE Region sharply dropped compared to Monday on sharp drop of wind generation and significant drop of solar generation and rise of consumption.
- The wind generation considerably declined across the region.
- The solar output declined in Greece.
- Consumption in the region was the highest since the end of August.
- The coal output further rose in Bulgaria, while the gas output rose in Greece.
- The hydro output in the region was the highest this week and since the end of August.
- The net commercial flows from Austria and Slovakia sharply rose compared to previous day, while the net commercial flow from SEE Region toward Italy was the lowest this week.

The prices continued to rise across SEE markets and Austria, unlike in Germany, France and Italy. IBEX and OPCOM settled considerably above other markets, including Italy. HENEX price was also at high level and above Italy, due to frequent coupling with IBEX and OPCOM. The spread between OPCOM/IBEX and HUPX was the highest since January. In Germany, the gas and lignite generation was the highest this week, which partially countered further drop of renewable output.

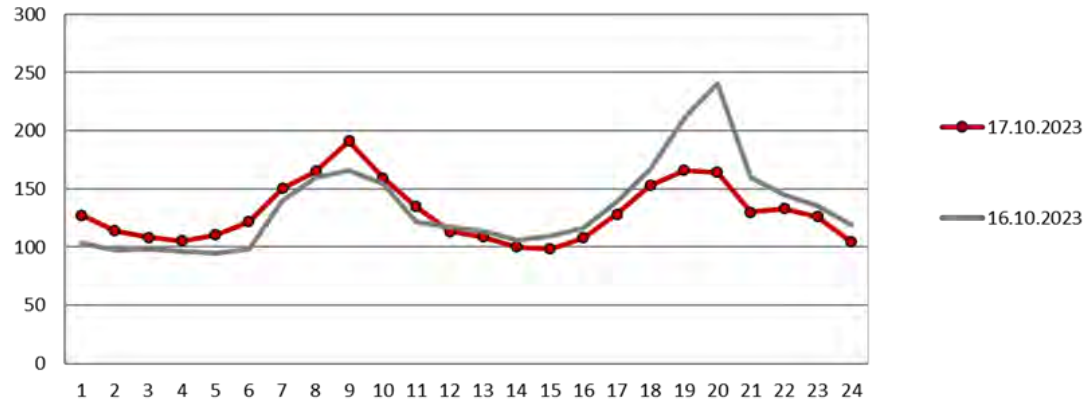




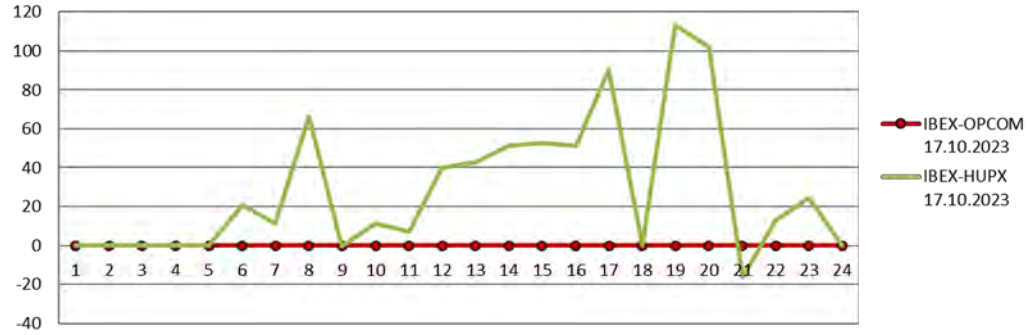
Italy North compared to past working days (EUR/MWh)



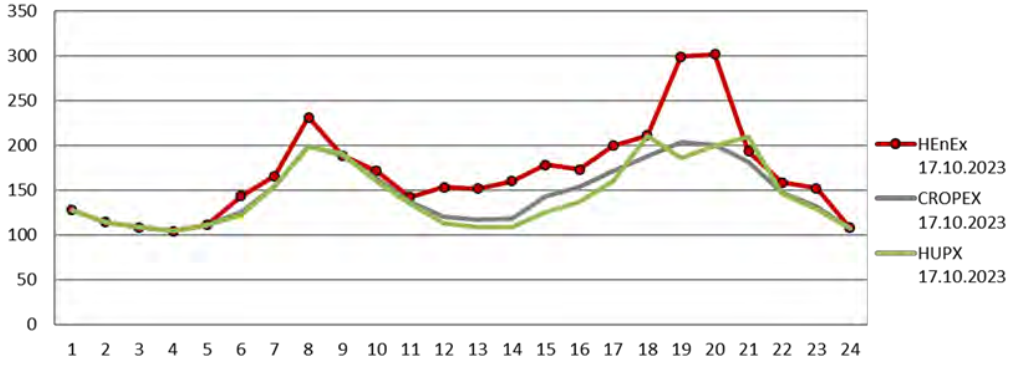
German price compared to past working days (EUR/MWh)

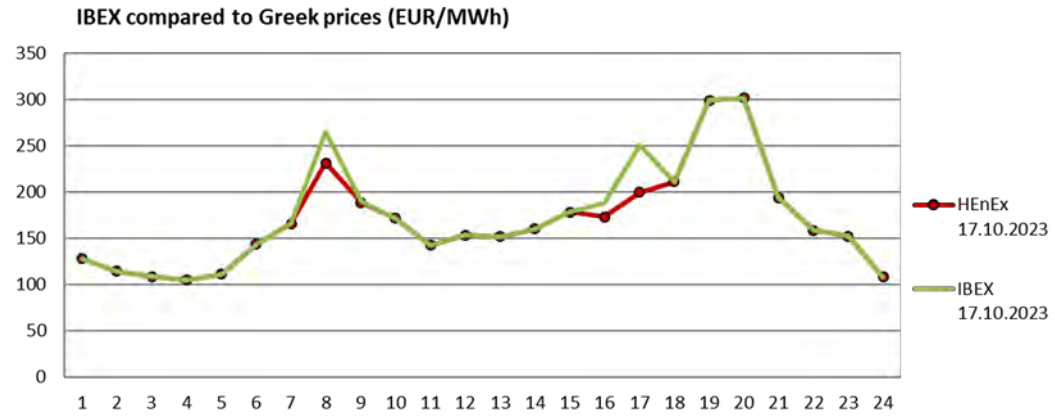


HUPX/OPCOM price spread with IBEX(EUR/MWh)

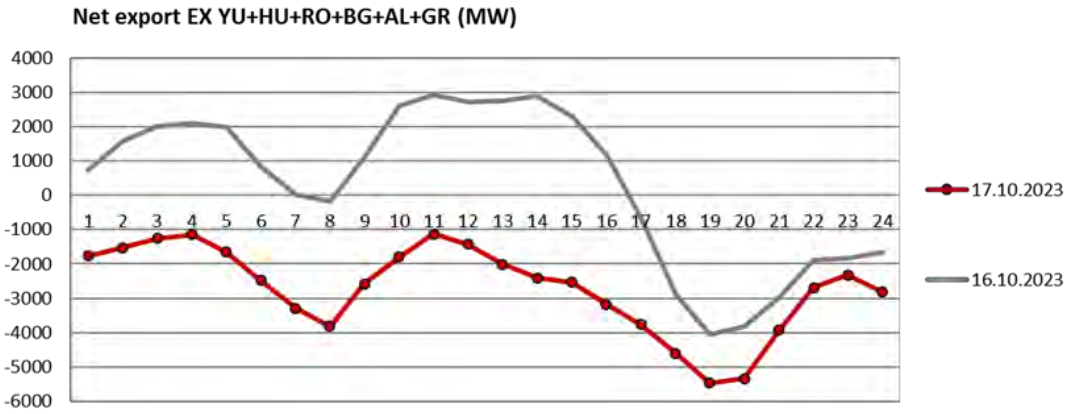


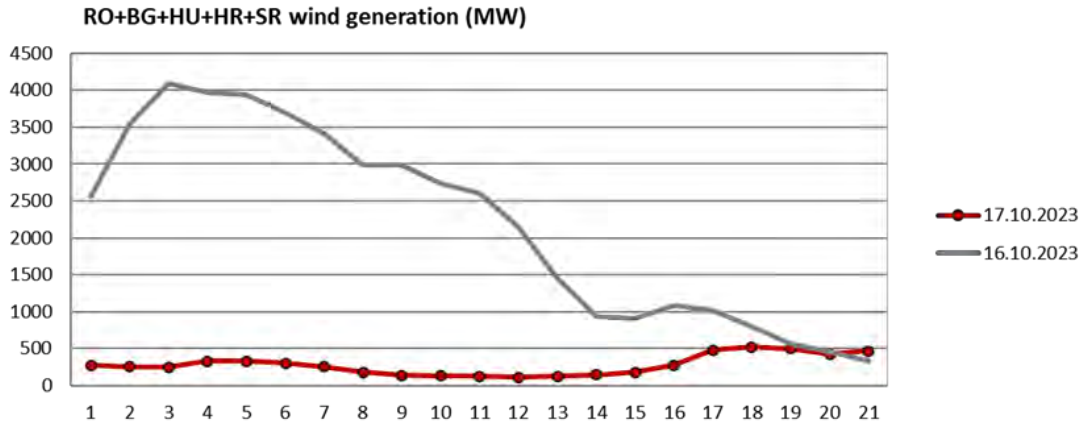
HUPX and CROPEX compared to Greek prices (EUR/MWh)



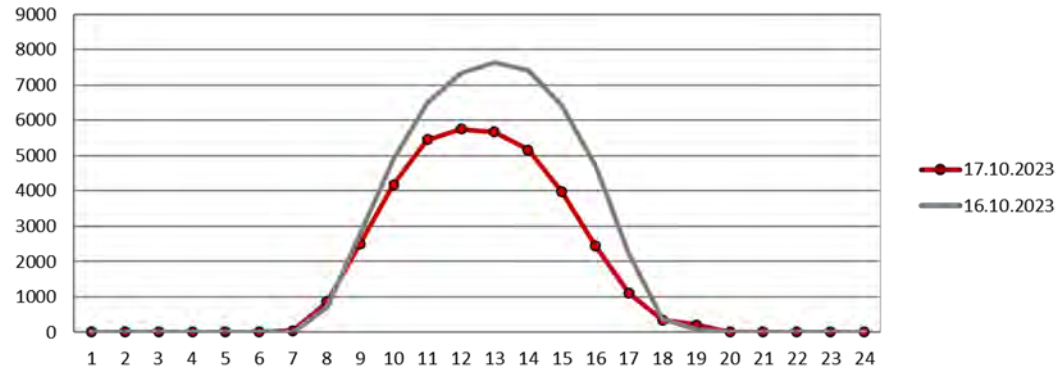


The net export of the SEE Region sharply dropped (by 3,000 MW) compared to Monday on sharp drop of wind generation and significant drop of solar generation and rise of consumption. This could not be offset by further rise of hydro, gas and coal generation. The net export sharply dropped in Romania (1,400 MW drop, turned into a net importer) and it was lower in Bulgaria (turned into net importer, the net position of Bulgaria the lowest since the end of May), Croatia and Greece (but Greece remained a net exporter).

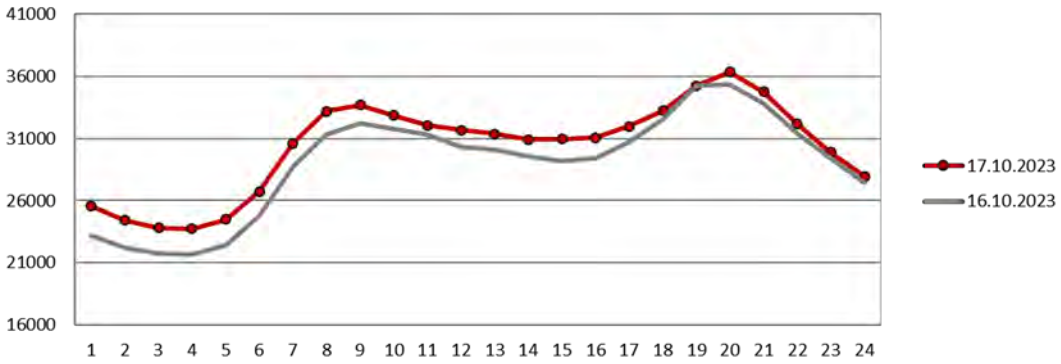




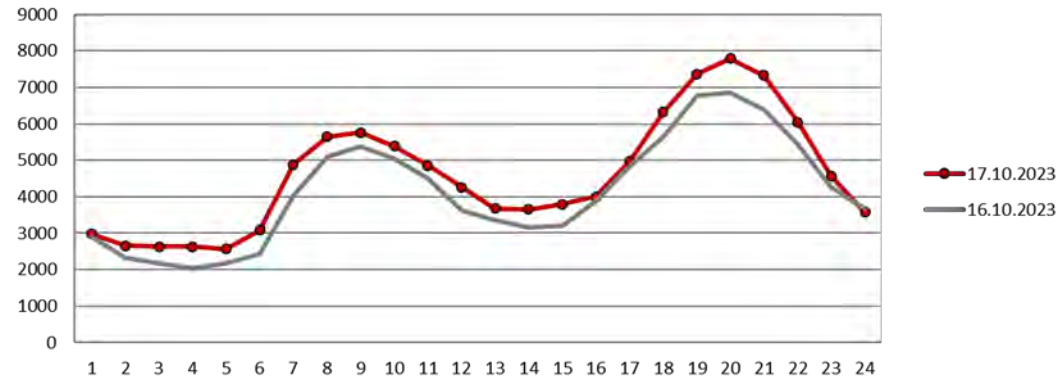
HU+RO+BG+GR solar (MW)



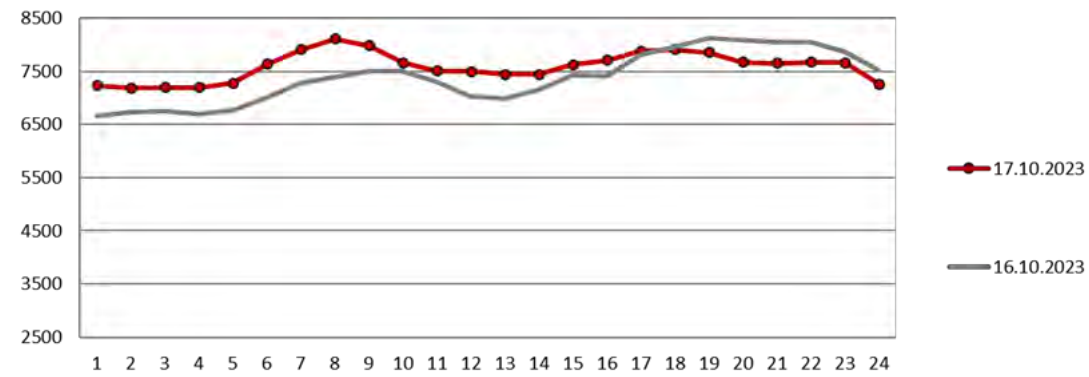
Consumption EX YU+AL+HU+RO+BG+GR (MW)



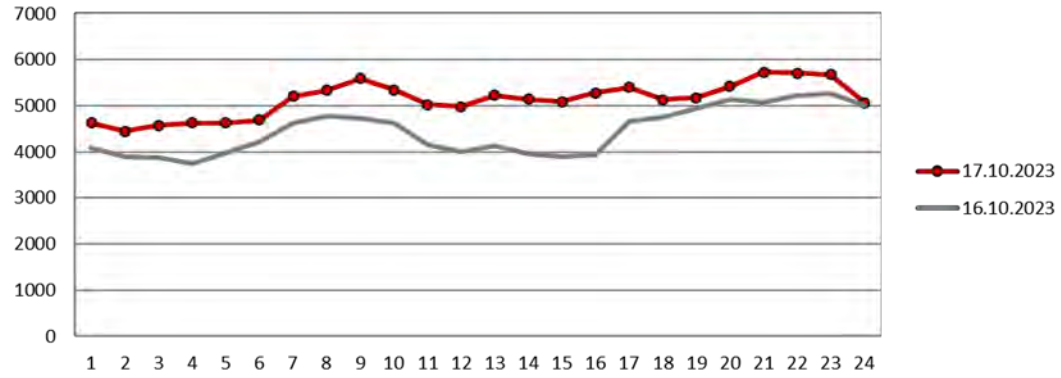
SEE (SI, BA, ME, RS,HR, AL, RO, BG) hydro generation (MW)



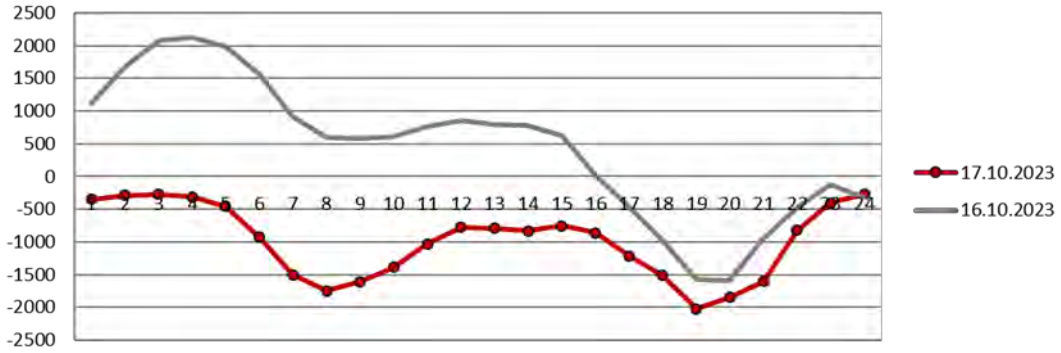
HU, RO, SR, BG, BA,ME and Slo coal (MW)



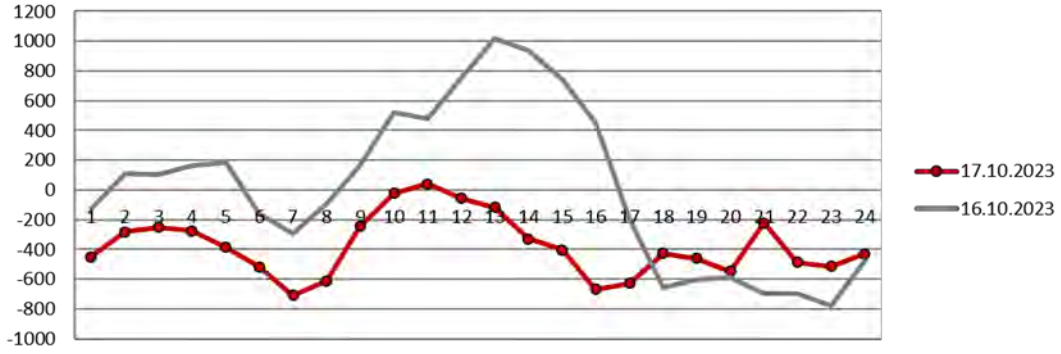
HU+RO+GR gas generation (MW)



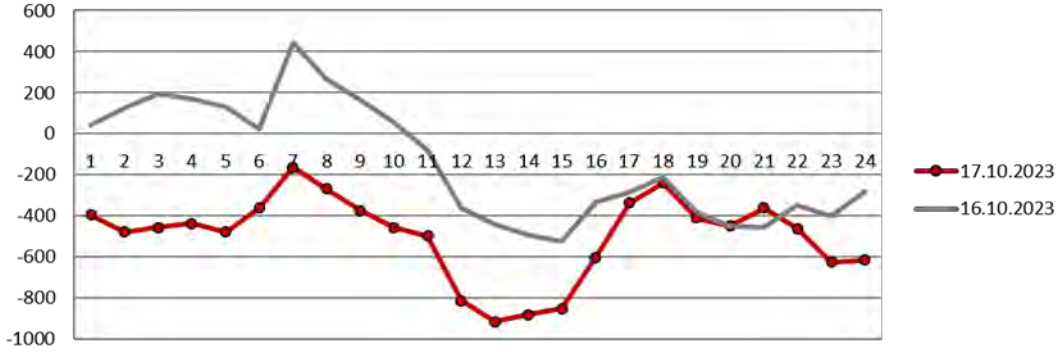
Romanian NET export compared to past working days (MW)

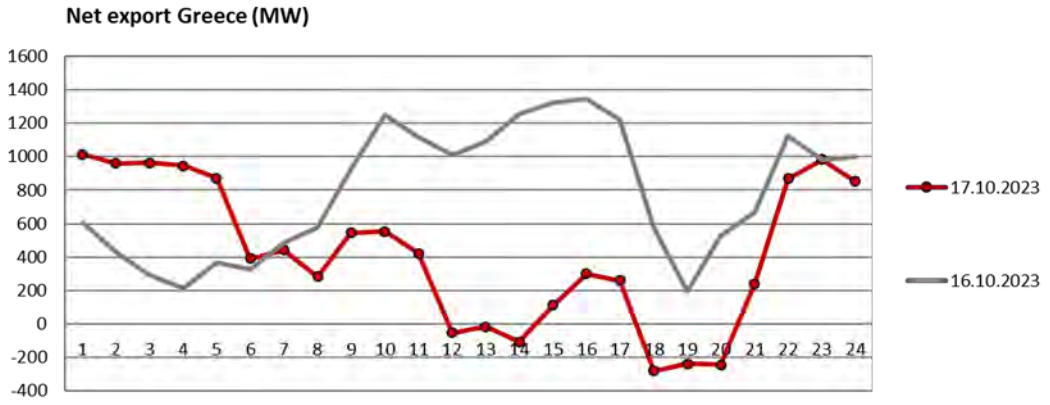


BG NET export compared to past working days (MW)

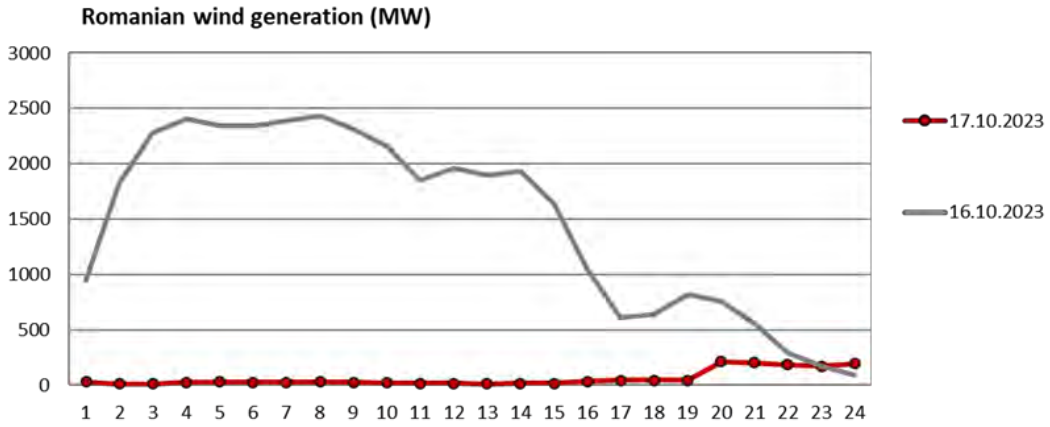


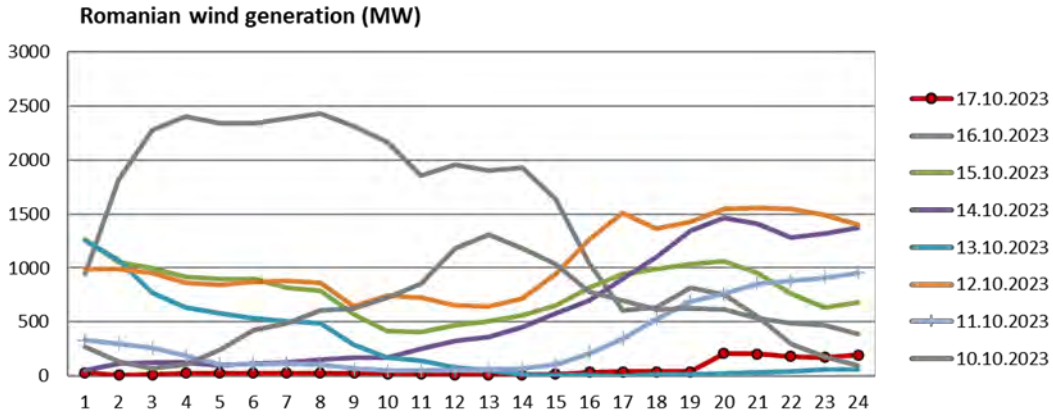
Croatian NET export compared to past working days (MW)

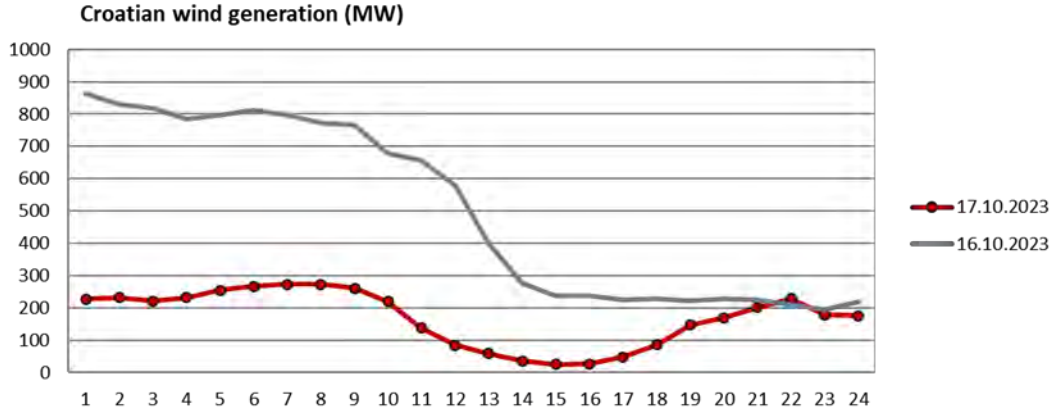


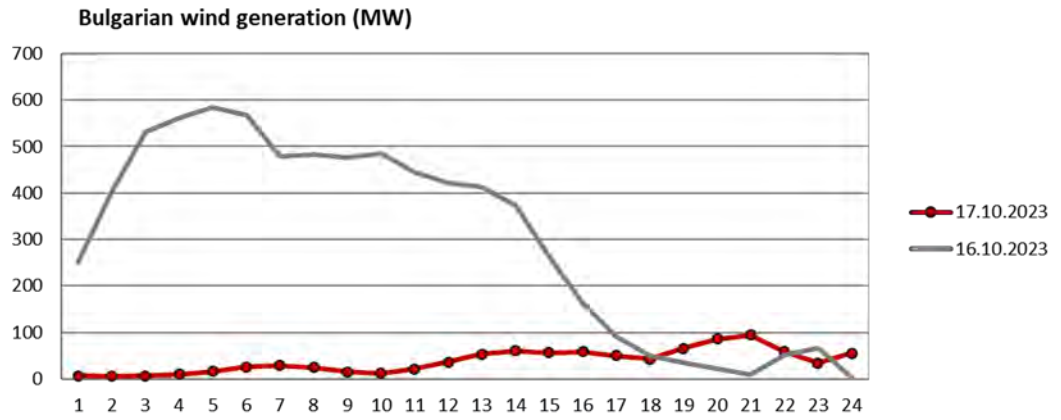


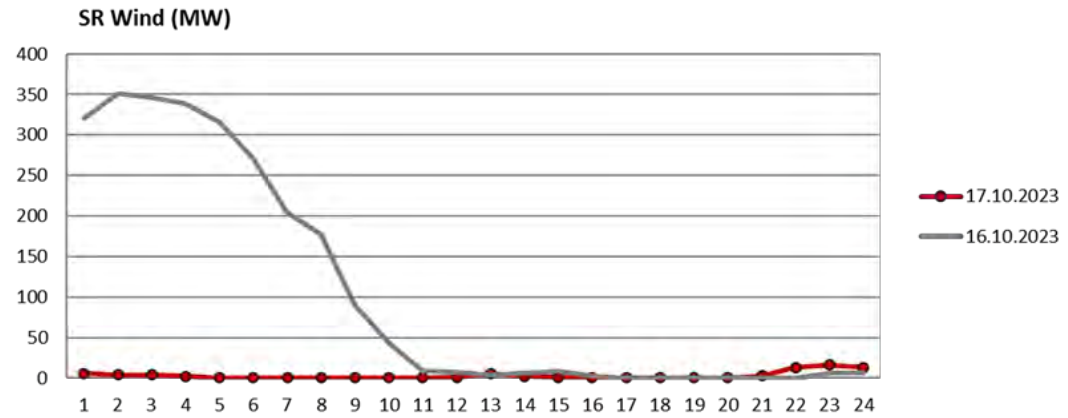
The wind generation considerably declined across the region, namely in Romania (the lowest since the beginning of April), Bulgaria, Croatia and Serbia. The wind output was extremely low in Romania and Serbia.



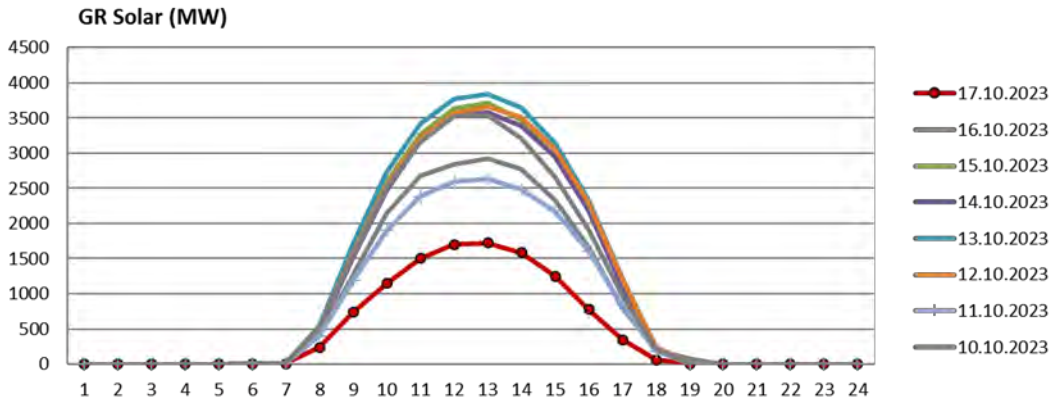


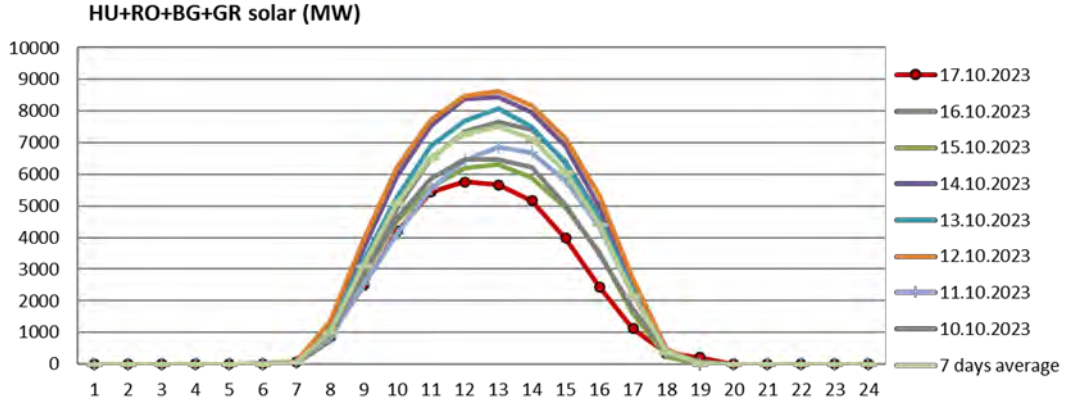




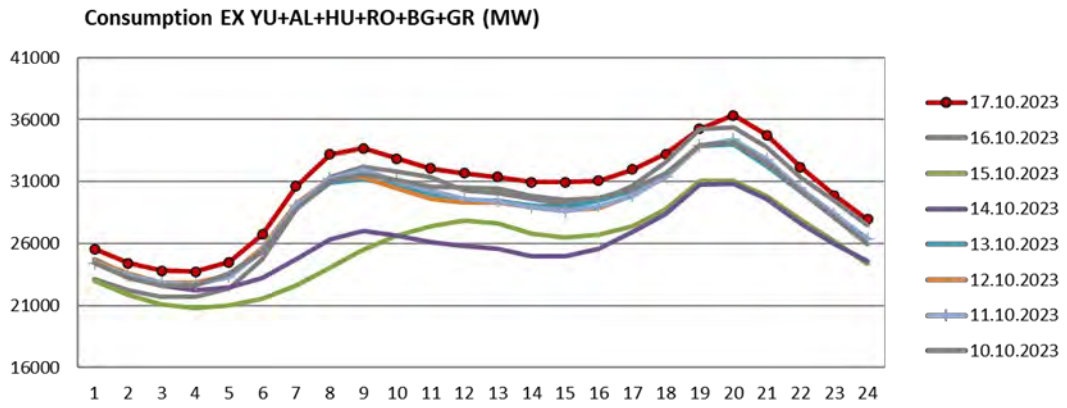


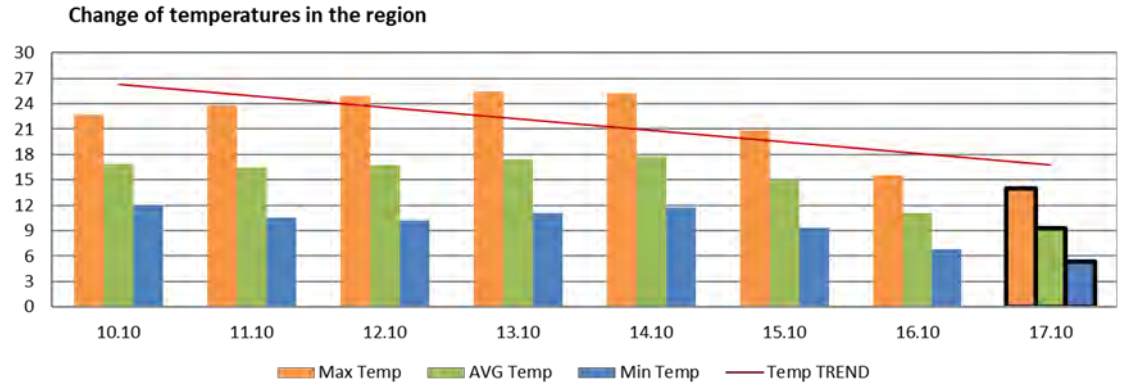
The solar output declined in Greece to the lowest level in a month The overall solar generation in the region was the lowest this week and since mid-May.



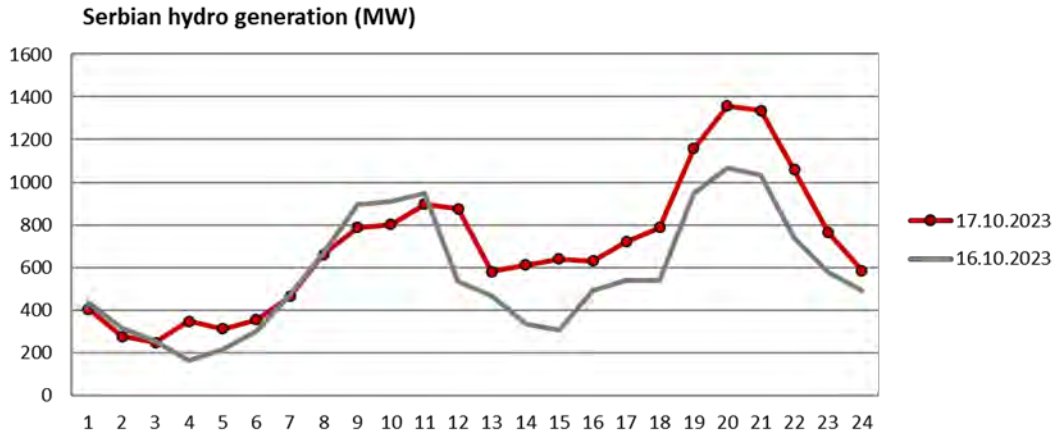


Consumption in the region was the highest since the end of August. Consumption noticeably rose across entire region on lower temperatures and cloudy weather.



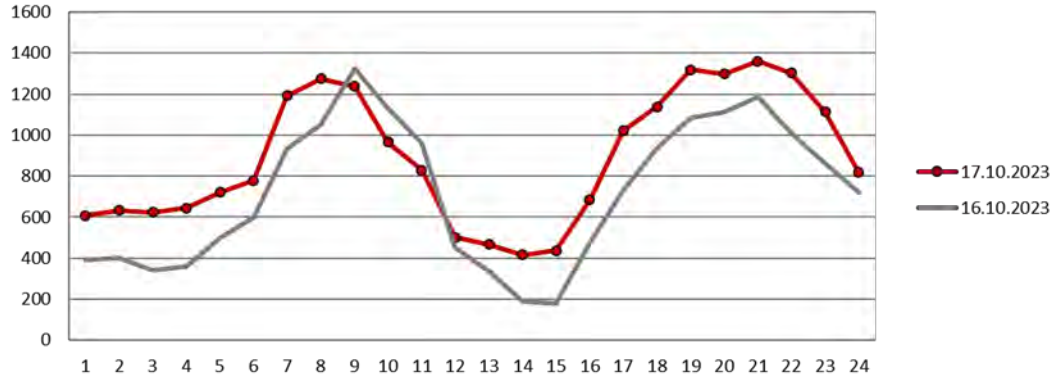


The gas output in Greece noticeably rose compared to previous days. The overall gas generation in the region was the highest this week.

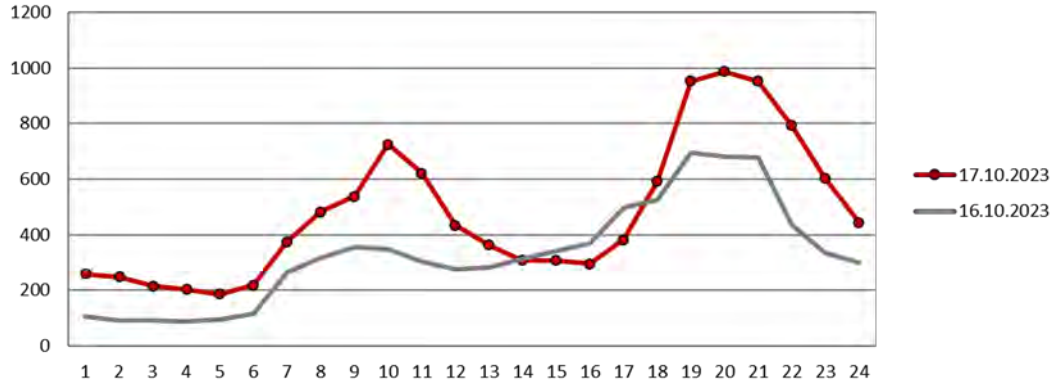


Romanian hydro generation (MW)

Greek hydro generation (MW)

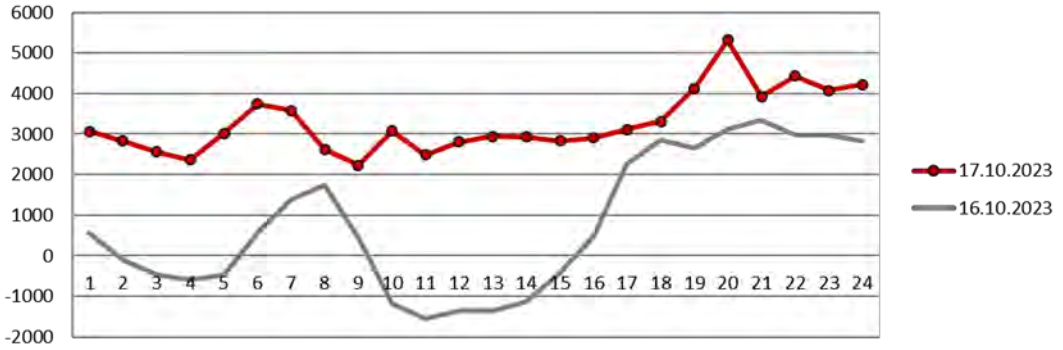


Bosnian hydro generation (MW)

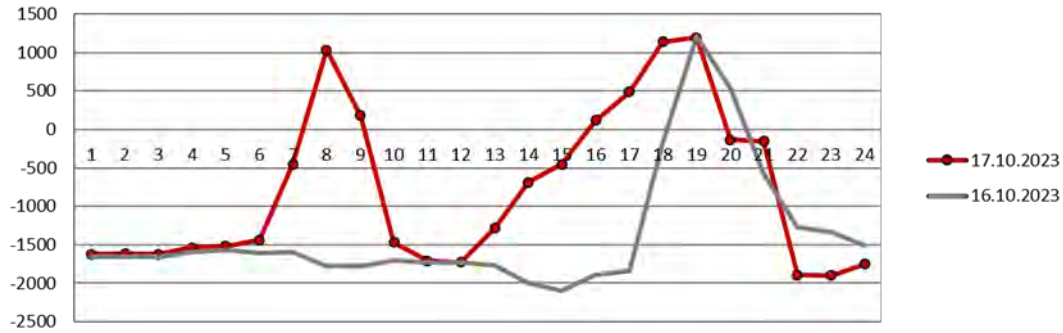


The net commercial flows from Austria and Slovakia sharply rose compared to previous day, while the net commercial flow from SEE Region toward Italy was the lowest this week and considerably below previous days. The net commercial flow from Hungary to Romania sharply rose and turned positive.

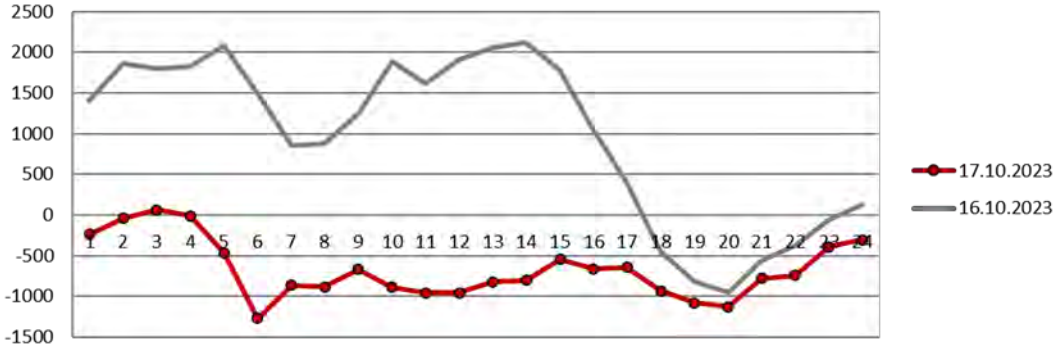
SK+AT> SEE region net commercial flow on past working days (MW)



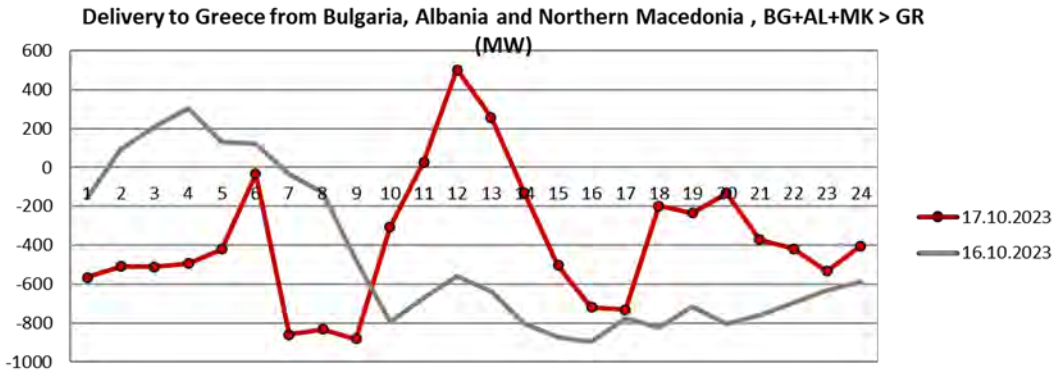
IT>SEE Region net commercial flow (MW)



RO>HU net commercial flow on past working days (MW)



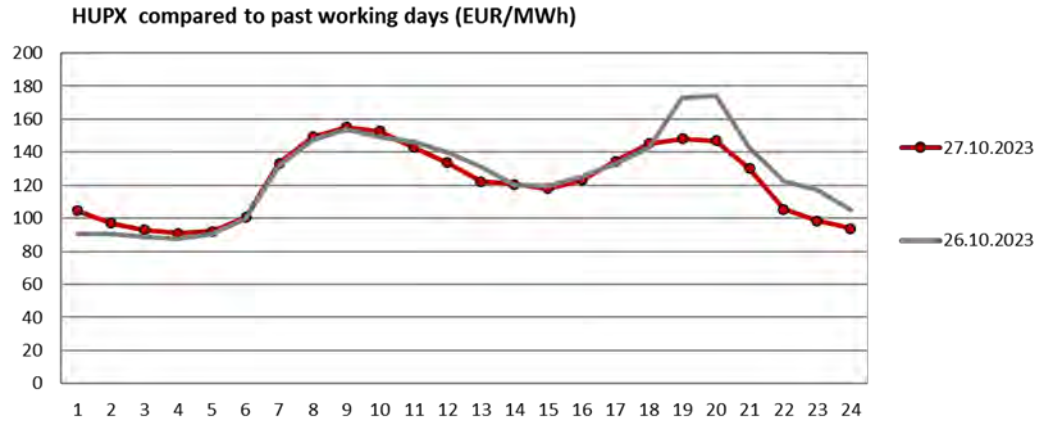
The net commercial flow from Greece to HUPX zone stayed positive, as Greece remained the largest net exporter in the region for the second day in a row.

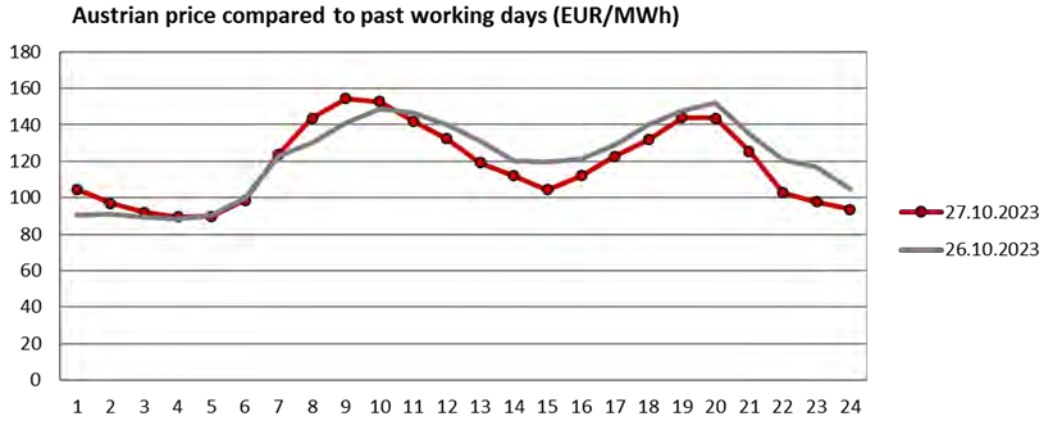


27.10.2023 HENEX settled 13.2 EUR/MWh below HUPX and 9.4 EUR/MWh below EPEX-DE (Friday)

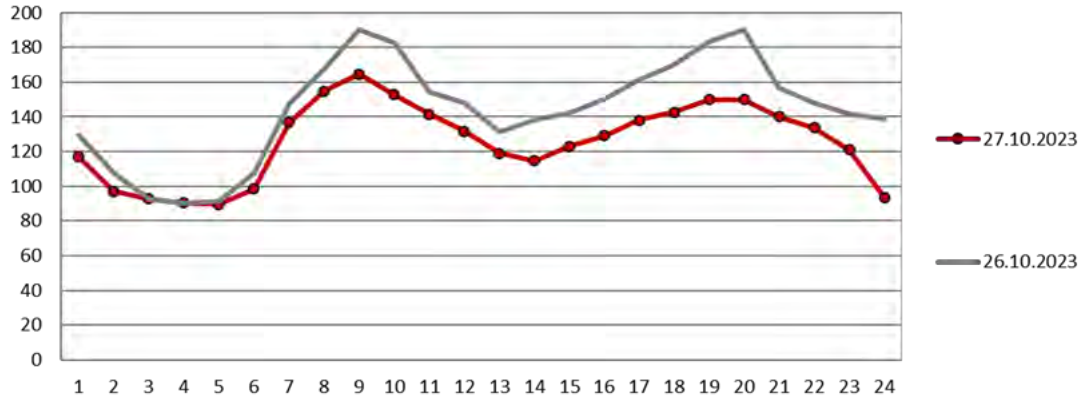
- The prices declined across all markets. SEE markets settled at similar level. Only HENEX settled noticeably below other markets, including Germany and Austria.
- The net export of the SEE Region was slightly lower compared to previous two days despite the sharp rise of wind output.
- The coal generation sharply dropped in Serbia due to outage of one 600 MW unit in TPP Nikola Tesla B.
- The overall solar output in the region was the lowest since the beginning of April.
- The overall wind generation was the highest this week.
- The net commercial flow from Serbia to Hungary was the highest since the end of September.

The prices declined across all markets. SEE markets settled at similar level. Only HENEX settled noticeably below other markets, including Germany and Austria. HUPX price was the highest in the SEE Region for the second day in a row. The spread between HUPX and HENEX was the highest since the beginning of October.





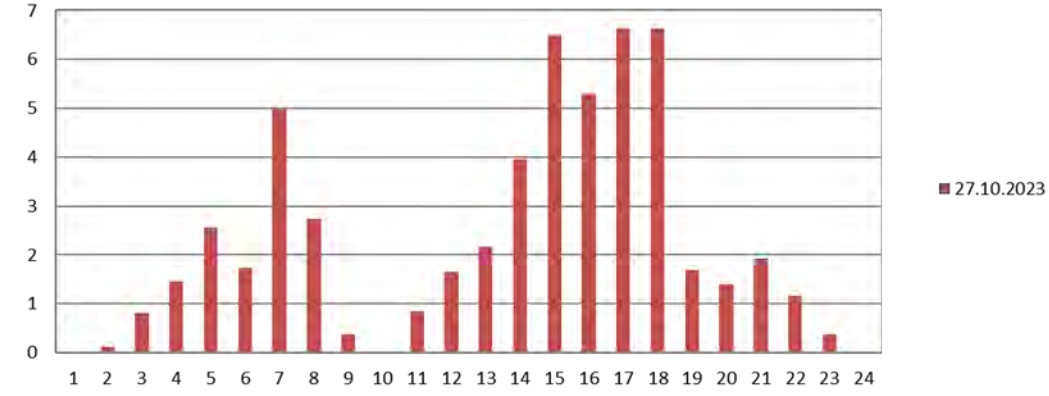
Italy North compared to past working days (EUR/MWh)

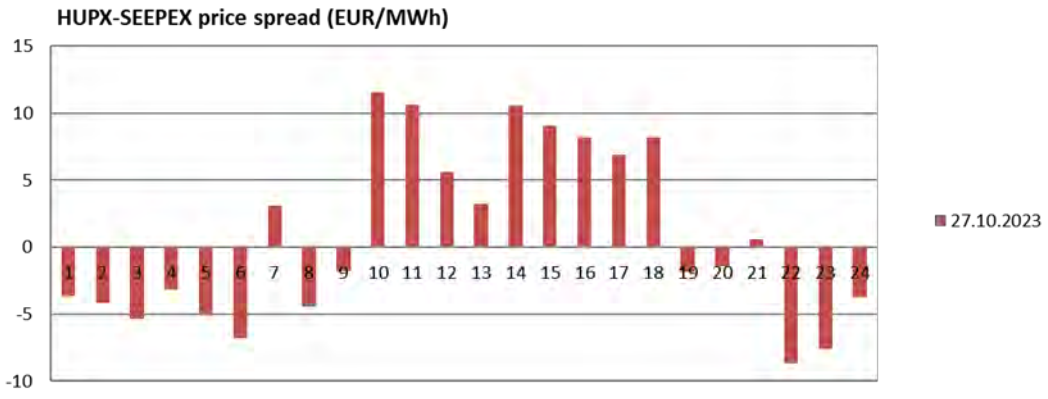


HUPX and CROPEX compared to Greek prices (EUR/MWh)

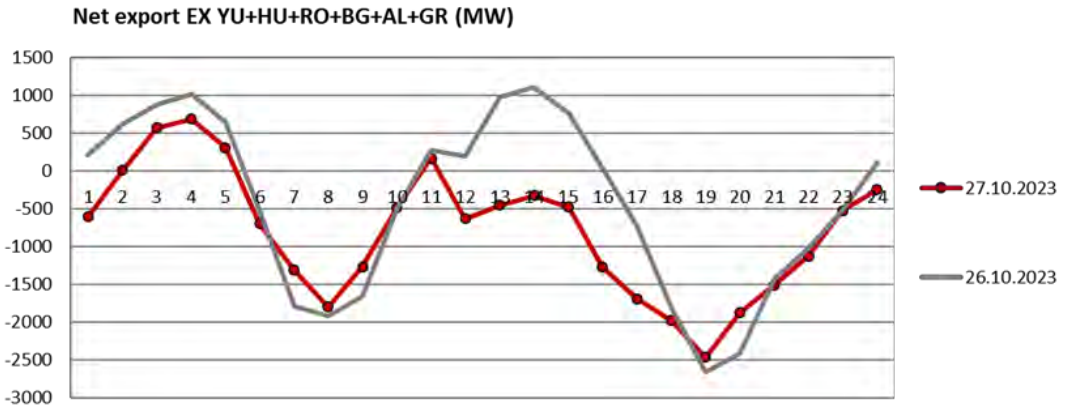
HUPX/OPCOM price spread with IBEX(EUR/MWh)

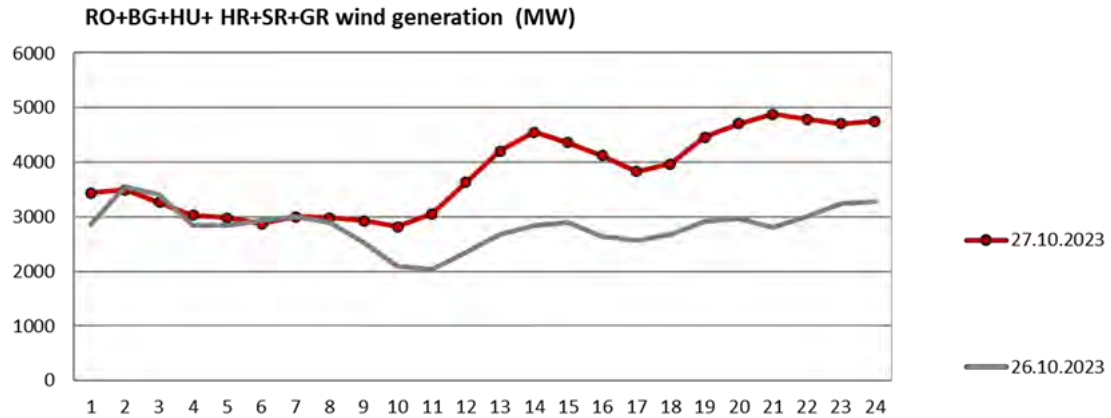
HUPX-CROPEX price spread (EUR/MWh)



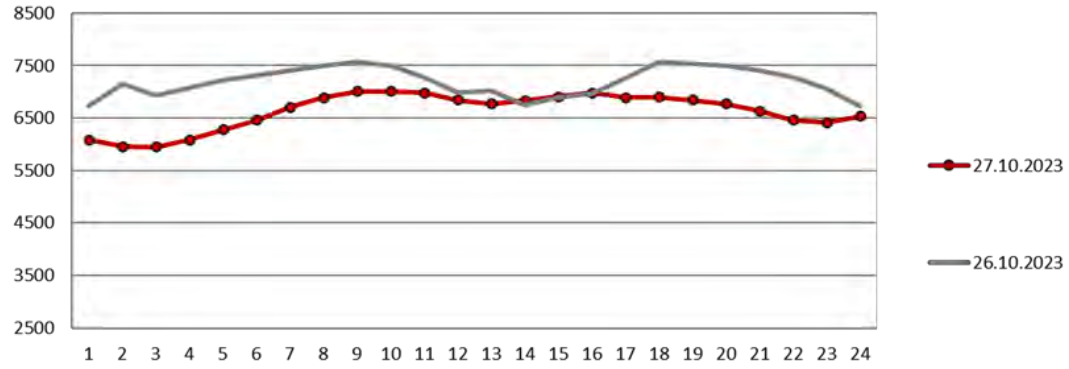


The net export of the SEE Region was slightly lower compared to previous two days despite the significant rise of wind output. However, the coal generation was considerably below previous day, the hydro generation was lower, while the solar output further declined. The net export considerably dropped in Hungary (the lowest since the beginning of June) and it was noticeably lower in Serbia (although Serbia was a net exporter for almost two weeks) and Slovenia. On the other hand, the net export further rose in Greece (the second highest since mid-September).

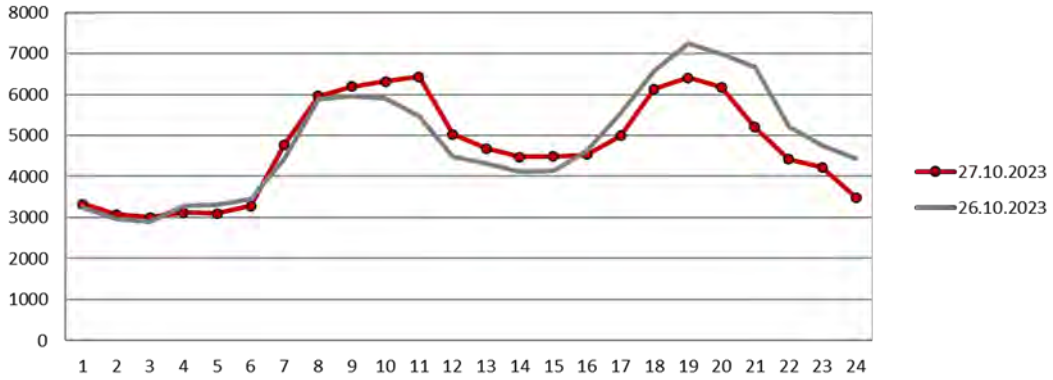




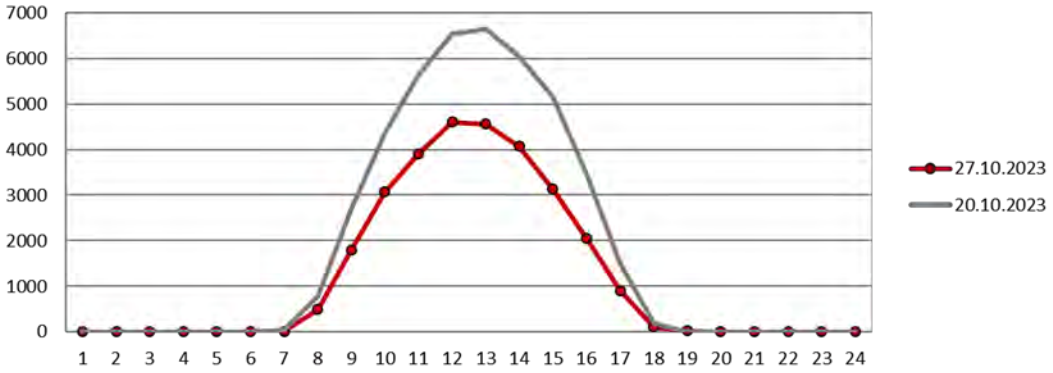
HU, RO, SR, BG, BA,ME and Slo coal (MW)



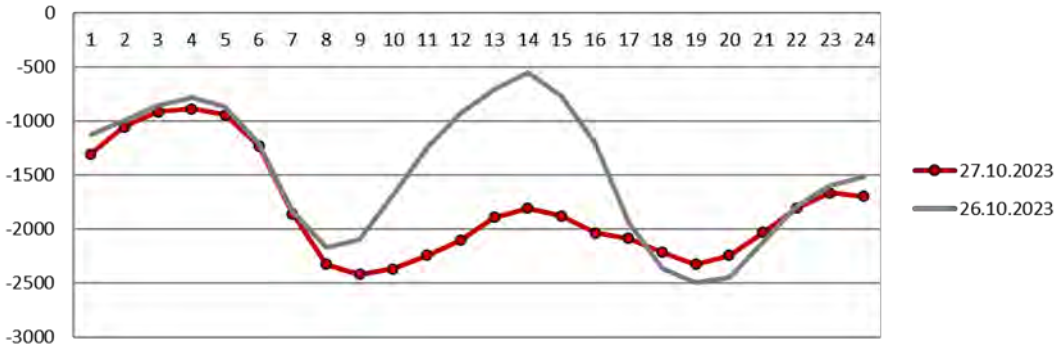
SEE (SI, BA, ME, RS,HR, AL, RO, BG) hydro generation (MW)



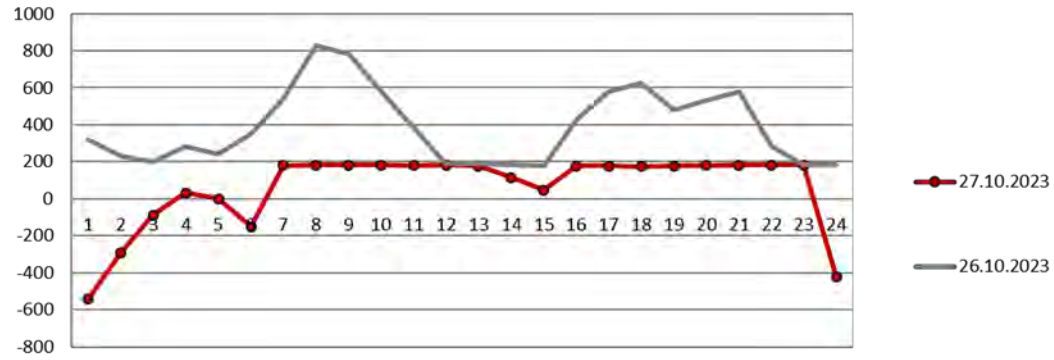
HU+RO+BG+GR solar (MW)



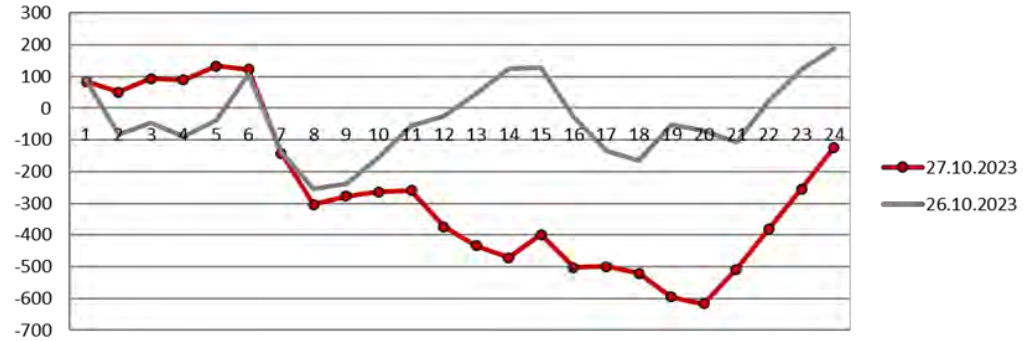
Hungarian NET export position on working days (MW)



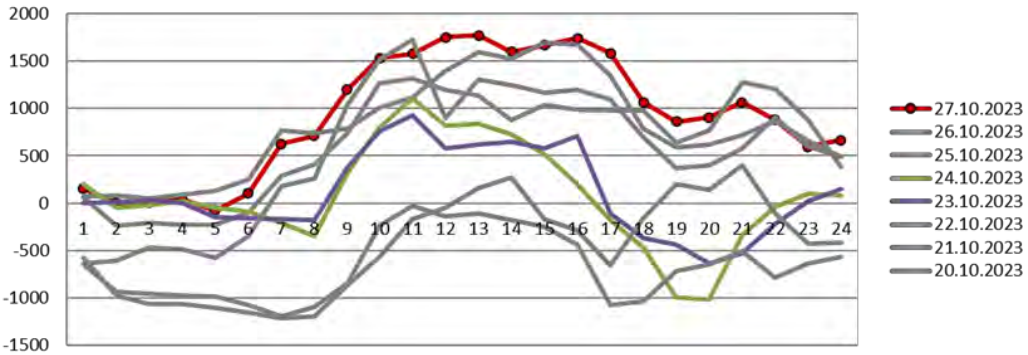
Serbian NET export compared to past working days (MW)



Slovenia net export compared to past working days (MW)

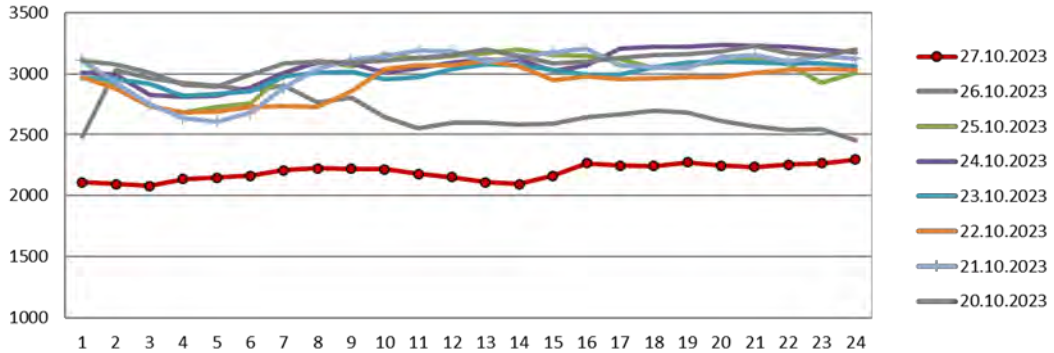


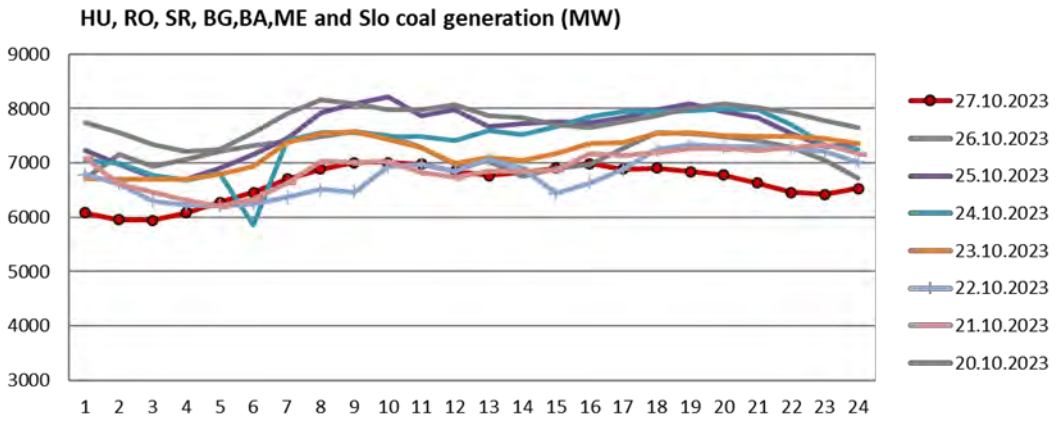
Net export Greece (MW)



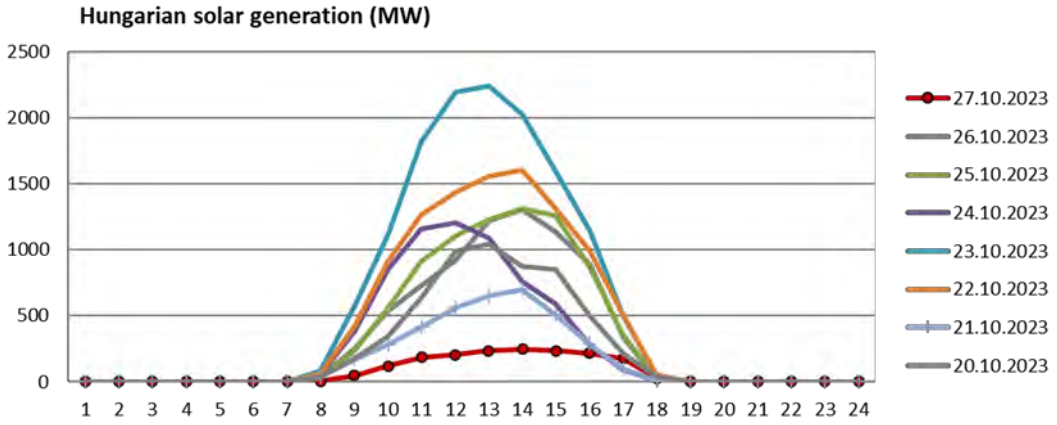
The coal generation sharply dropped in Serbia due to outage of one 600 MW unit in TPP Nikola Tesla B. Due to this, the overall coal output in the region was the lowest in almost two weeks.

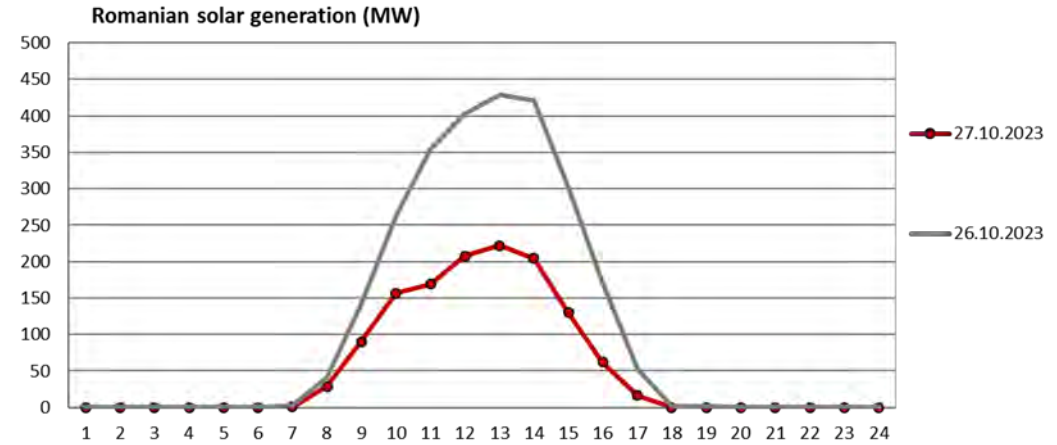
Serbian coal generation (MW)





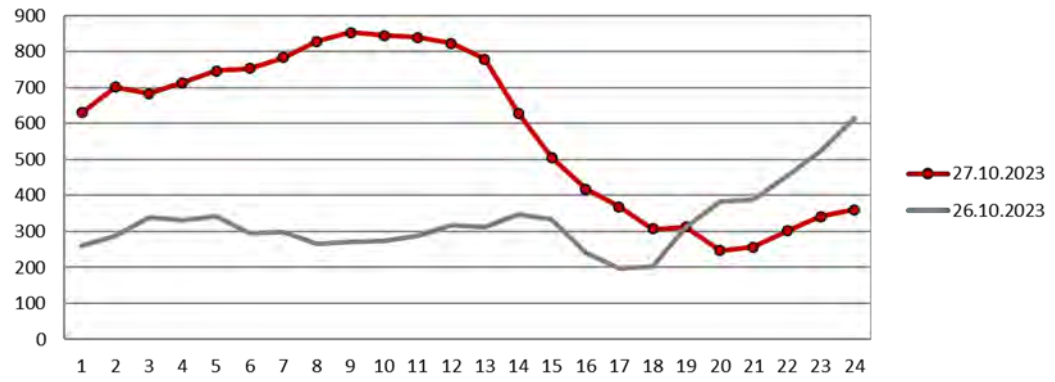
The solar generation sharply dropped in Hungary (the lowest since January), and it was lower in Romania (the lowest since the beginning of April). The overall solar output in the region was the lowest since the beginning of April.



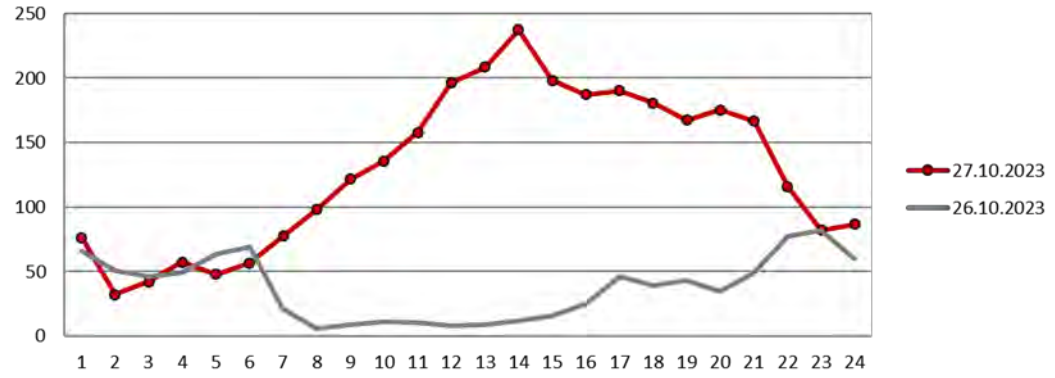


The wind generation considerably rose in Greece, Bulgaria, Serbia, Croatia and Hungary and the overall wind generation was the highest this week.

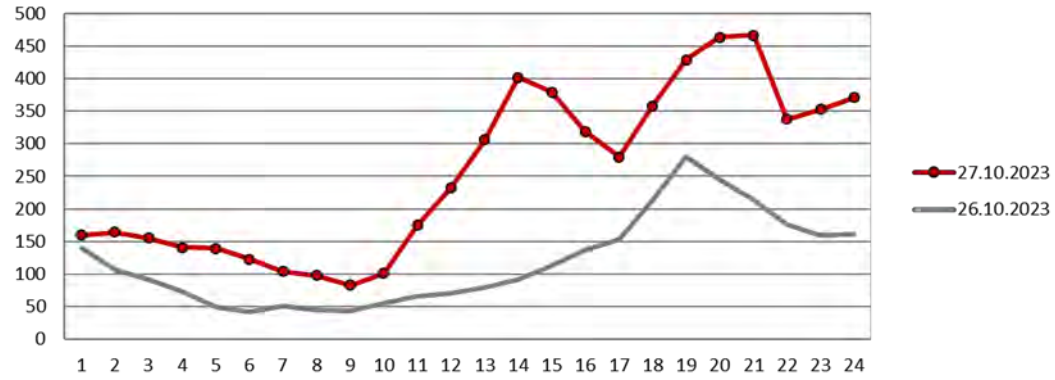
Croatian wind generation (MW)



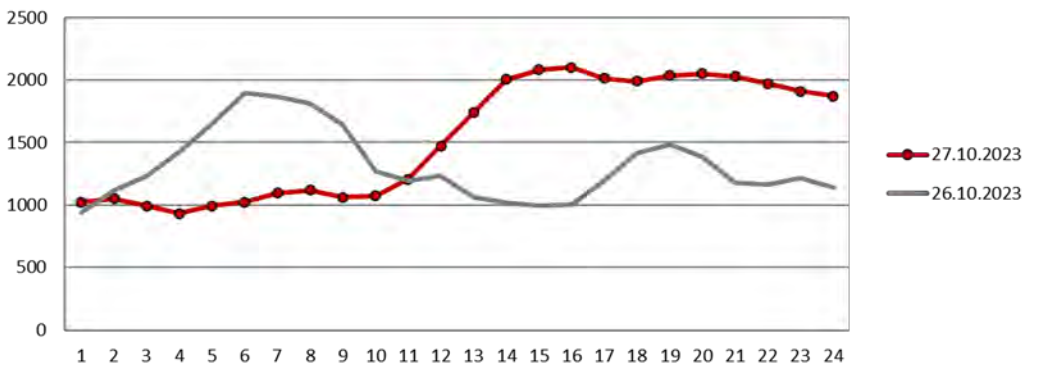
Hungarian wind generation (MW)

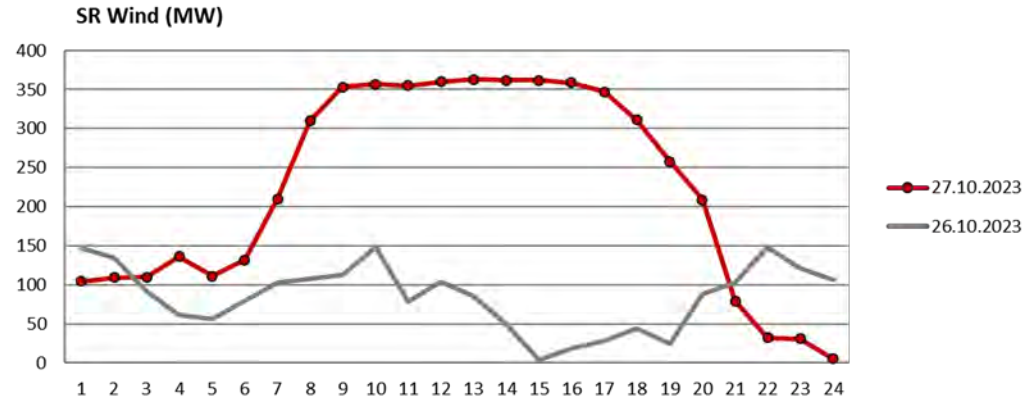


Bulgarian wind generation (MW)

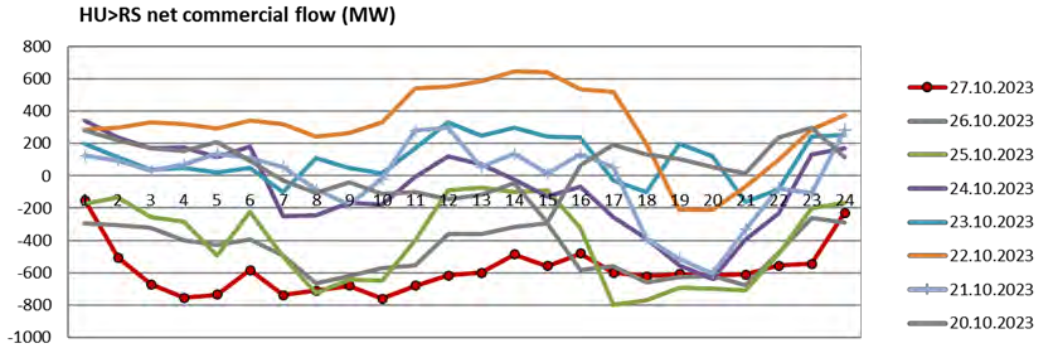


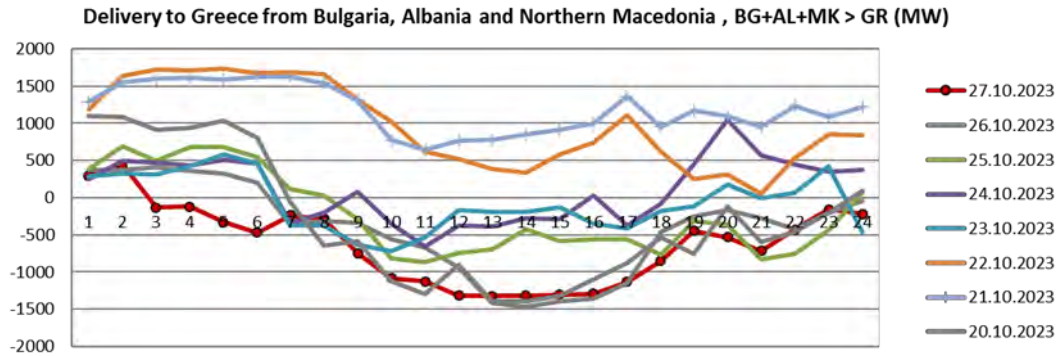
GR Wind (MW)





The net commercial flow from Serbia to Hungary was the highest since the end of September, which was supported by the rise of flows from Greece to HUPX zone (the second highest since mid-September).

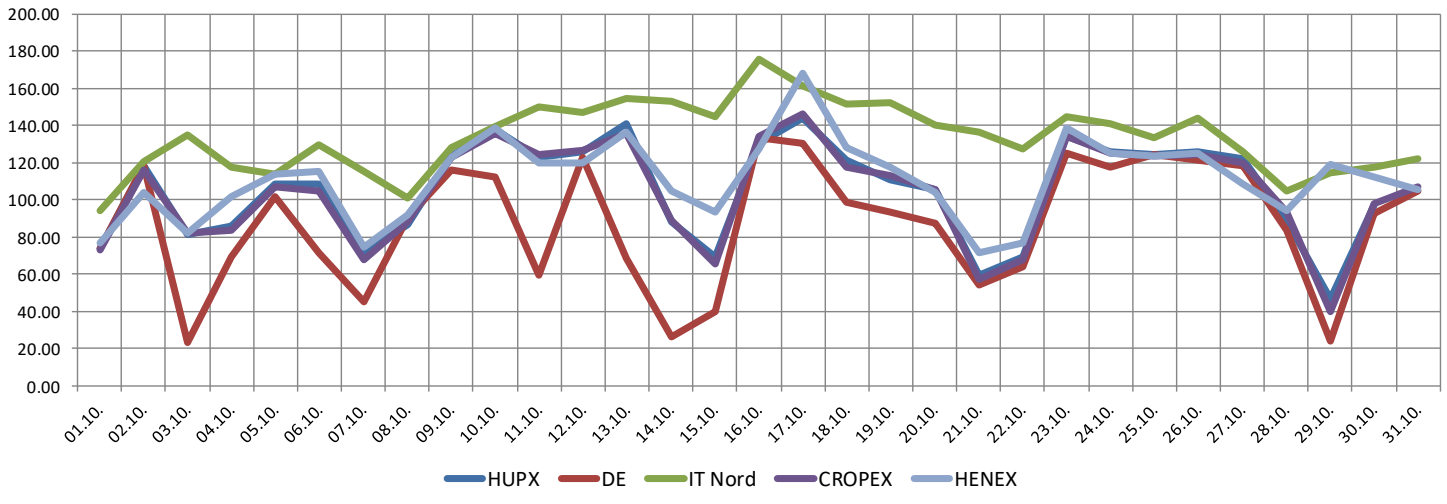




12. SPOT prices during October 2023

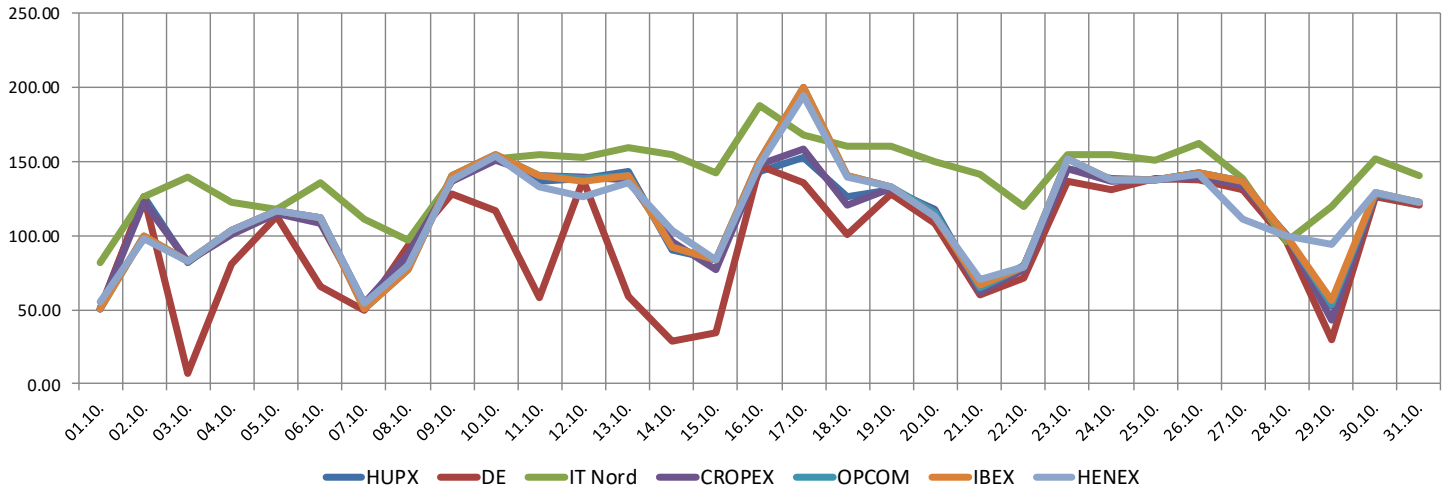
		Spot results - BASE Load							Spread					
BASE		HUPX	DE	IT Nord	CROPEX	OPCOM	IBEX	HENEX	DE	IT Nord	CROPEX	OPCOM	IBEX	HENEX
SUN	01.10.	73.65	74.04	94.27	73.34	73.58	73.58	76.98	0.39	20.62	-0.31	-0.07	-0.07	3.33
MON	02.10.	118.15	118.15	120.32	116.18	104.94	104.94	104.38	0.00	2.17	-1.97	-13.21	-13.21	-13.77
TUE	03.10.	81.23	22.96	134.78	82.03	82.26	82.26	82.26	-58.27	53.55	0.80	1.03	1.03	1.03
WED	04.10.	85.57	69.49	117.41	83.98	85.99	85.99	102.10	-16.08	31.84	-1.59	0.42	0.42	16.53
THU	05.10.	108.34	101.61	113.73	106.85	109.26	109.26	113.54	-6.73	5.39	-1.49	0.92	0.92	5.20
FRI	06.10.	108.68	71.60	129.69	104.52	109.00	109.00	115.18	-37.08	21.01	-4.16	0.32	0.32	6.50
SAT	07.10.	71.25	44.95	115.39	67.56	70.98	70.98	74.43	-26.30	44.14	-3.69	-0.27	-0.27	3.18
SUN	08.10.	86.83	90.64	100.98	88.07	82.55	82.55	91.60	3.81	14.15	1.24	-4.28	-4.28	4.77
MON	09.10.	123.41	116.01	128.37	123.03	124.84	124.84	123.27	-7.40	4.96	-0.38	1.43	1.43	-0.14
TUE	10.10.	138.16	112.39	139.47	135.75	138.71	138.71	138.62	-25.77	1.31	-2.41	0.55	0.55	0.46
WED	11.10.	123.20	59.80	150.33	124.58	125.91	125.91	119.73	-63.40	27.13	1.38	2.71	2.71	-3.47
THU	12.10.	125.75	122.71	147.02	126.40	125.94	124.73	119.62	-3.04	21.27	0.65	0.19	-1.02	-6.13
FRI	13.10.	141.09	68.41	154.75	135.62	138.48	138.48	136.33	-72.68	13.66	-5.47	-2.61	-2.61	-4.76
SAT	14.10.	88.19	26.53	153.32	88.93	89.08	89.08	104.60	-61.66	65.13	0.74	0.89	0.89	16.41
SUN	15.10.	69.48	39.62	145.04	65.54	69.59	70.77	93.49	-29.86	75.56	-3.94	0.11	1.29	24.01
MON	16.10.	130.35	133.70	175.76	134.10	129.57	129.57	127.75	3.35	45.41	3.75	-0.78	-0.78	-2.60
TUE	17.10.	144.25	130.12	161.05	146.29	172.59	172.59	168.43	-14.13	16.80	2.04	28.34	28.34	24.18
WED	18.10.	121.17	98.44	151.65	117.48	128.61	128.61	127.89	-22.73	30.48	-3.69	7.44	7.44	6.72
THU	19.10.	111.12	93.41	152.28	113.07	117.31	117.31	117.31	-17.71	41.16	1.95	6.19	6.19	6.19
FRI	20.10.	105.63	87.24	139.91	105.22	105.38	103.87	103.82	-18.39	34.28	-0.41	-0.25	-1.76	-1.81
SAT	21.10.	59.26	54.32	136.63	57.54	59.29	66.41	71.51	-4.94	77.37	-1.72	0.03	7.15	12.25
SUN	22.10.	69.22	63.95	127.69	67.76	68.92	73.40	76.62	-5.27	58.47	-1.46	-0.30	4.18	7.40
MON	23.10.	134.54	125.02	144.59	134.57	138.61	138.61	138.42	-9.52	10.05	0.03	4.07	4.07	3.88
TUE	24.10.	125.65	117.99	140.90	124.88	125.33	125.33	125.27	-7.66	15.25	-0.77	-0.32	-0.32	-0.38
WED	25.10.	124.18	124.31	133.58	123.48	124.01	124.01	123.79	0.13	9.40	-0.70	-0.17	-0.17	-0.39
THU	26.10.	125.91	121.35	144.24	124.30	125.60	125.60	125.41	-4.56	18.33	-1.61	-0.31	-0.31	-0.50
FRI	27.10.	122.14	118.35	125.98	119.85	121.65	121.65	108.92	-3.79	3.84	-2.29	-0.49	-0.49	-13.22
SAT	28.10.	88.86	83.37	104.67	93.19	90.74	93.36	94.15	-5.49	15.81	4.33	1.88	4.50	5.29
SUN	29.10.	46.37	23.99	114.38	39.95	46.87	47.99	119.19	-22.38	68.01	-6.42	0.50	1.62	72.82
MON	30.10.	97.57	92.89	117.52	97.92	99.73	111.77	112.15	-4.68	19.95	0.35	2.16	14.20	14.58
TUE	31.10.	106.78	104.95	122.31	107.36	105.03	105.03	105.63	-1.83	15.53	0.58	-1.75	-1.75	-1.15
Average		**105.03**	**87.49**	**133.48**	**104.17**	**106.14**	**106.97**	**111.04**	**-17.54**	**28.45**	**-0.86**	**1.11**	**1.94**	**6.01**

Base prices, October 2023



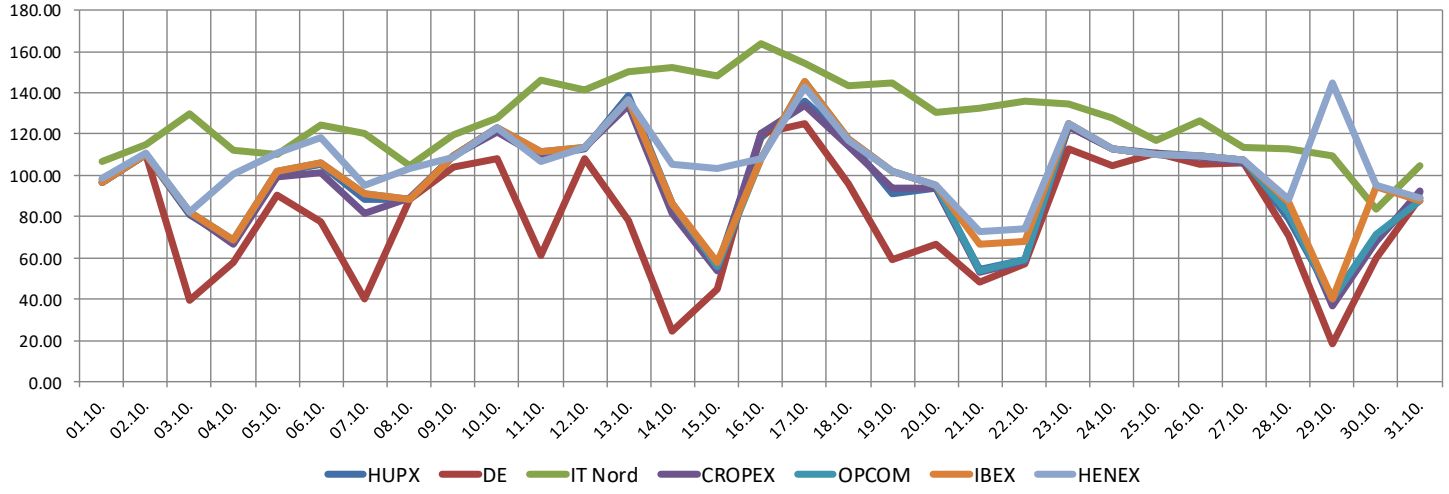
		Spot results - PEAK Load							Spread					
PEAK		HUPX	DE	IT Nord	CROPEX	OPCOM	IBEX	HENEX	DE	IT Nord	CROPEX	OPCOM	IBEX	HENEX
SUN	01.10.	50.45	50.42	81.51	50.42	50.44	50.44	55.64	-0.03	31.06	-0.03	-0.01	-0.01	5.19
MON	02.10.	125.97	125.96	125.96	122.10	99.57	99.57	97.71	-0.01	-0.01	-3.87	-26.40	-26.40	-28.26
TUE	03.10.	81.67	6.77	139.73	82.43	82.52	82.52	82.52	-74.90	58.06	0.76	0.85	0.85	0.85
WED	04.10.	103.22	81.05	122.53	101.04	103.62	103.62	103.62	-22.17	19.31	-2.18	0.40	0.40	0.40
THU	05.10.	115.57	113.10	117.50	114.52	116.62	116.62	116.62	-2.47	1.93	-1.05	1.05	1.05	1.05
FRI	06.10.	111.93	65.91	135.14	107.85	111.84	111.84	111.84	-46.02	23.21	-4.08	-0.09	-0.09	-0.09
SAT	07.10.	53.92	49.90	110.58	53.88	50.76	50.76	54.03	-4.02	56.66	-0.04	-3.16	-3.16	0.11
SUN	08.10.	85.12	93.14	97.14	87.35	76.51	76.51	80.05	8.02	12.02	2.23	-8.61	-8.61	-5.07
MON	09.10.	137.51	127.78	137.26	136.97	140.37	140.37	137.61	-9.73	-0.25	-0.54	2.86	2.86	0.10
TUE	10.10.	153.16	117.01	151.48	150.69	154.19	154.19	153.91	-36.15	-1.68	-2.47	1.03	1.03	0.75
WED	11.10.	136.89	58.48	154.53	140.09	140.30	140.30	132.64	-78.41	17.64	3.20	3.41	3.41	-4.25
THU	12.10.	138.50	137.27	152.74	139.03	138.47	136.05	125.84	-1.23	14.24	0.53	-0.03	-2.45	-12.66
FRI	13.10.	143.59	58.80	159.23	137.50	140.26	140.26	135.95	-84.79	15.64	-6.09	-3.33	-3.33	-7.64
SAT	14.10.	90.11	28.57	154.70	96.04	91.90	91.90	103.77	-61.54	64.59	5.93	1.79	1.79	13.66
SUN	15.10.	83.28	34.52	142.06	77.25	83.49	83.49	83.49	-48.76	58.78	-6.03	0.21	0.21	0.21
MON	16.10.	142.74	146.84	187.59	147.91	151.07	151.07	147.43	4.10	44.85	5.17	8.33	8.33	4.69
TUE	17.10.	152.66	135.53	167.91	158.46	199.43	199.43	193.87	-17.13	15.25	5.80	46.77	46.77	41.21
WED	18.10.	125.69	100.74	159.90	120.81	139.91	139.91	138.90	-24.95	34.21	-4.88	14.22	14.22	13.21
THU	19.10.	131.10	127.86	159.93	132.20	132.78	132.78	132.78	-3.24	28.83	1.10	1.68	1.68	1.68
FRI	20.10.	117.60	108.05	149.65	116.62	115.94	112.92	112.82	-9.55	32.05	-0.98	-1.66	-4.68	-4.78
SAT	21.10.	64.19	60.32	140.86	61.97	64.54	66.19	70.23	-3.87	76.67	-2.22	0.35	2.00	6.04
SUN	22.10.	79.39	71.02	119.47	76.97	78.86	78.86	78.86	-8.37	40.08	-2.42	-0.53	-0.53	-0.53
MON	23.10.	145.23	136.92	154.49	145.15	151.91	151.91	151.52	-8.31	9.26	-0.08	6.68	6.68	6.29
TUE	24.10.	138.20	131.05	153.99	136.77	137.55	137.55	137.42	-7.15	15.79	-1.43	-0.65	-0.65	-0.78
WED	25.10.	137.85	138.13	150.34	137.18	137.69	137.69	137.30	0.28	12.49	-0.67	-0.16	-0.16	-0.55
THU	26.10.	142.33	137.17	161.90	139.60	141.86	141.86	141.46	-5.16	19.57	-2.73	-0.47	-0.47	-0.87
FRI	27.10.	136.91	130.61	138.13	133.82	136.23	136.23	110.76	-6.30	1.22	-3.09	-0.68	-0.68	-26.15
SAT	28.10.	98.67	96.27	96.34	100.89	99.60	99.60	99.60	-2.40	-2.33	2.22	0.93	0.93	0.93
SUN	29.10.	51.93	29.63	119.37	43.33	53.71	55.94	93.61	-22.30	67.44	-8.60	1.78	4.01	41.68
MON	30.10.	127.03	126.14	151.31	127.76	128.35	128.90	129.25	-0.89	24.28	0.73	1.32	1.87	2.22
TUE	31.10.	122.08	120.59	140.11	122.48	122.08	122.08	122.08	-1.49	18.03	0.40	0.00	0.00	0.00
Average		**113.69**	**95.02**	**139.79**	**112.87**	**115.24**	**115.21**	**115.26**	**-18.68**	**26.09**	**-0.82**	**1.54**	**1.51**	**1.57**

Peak prices, October 2023

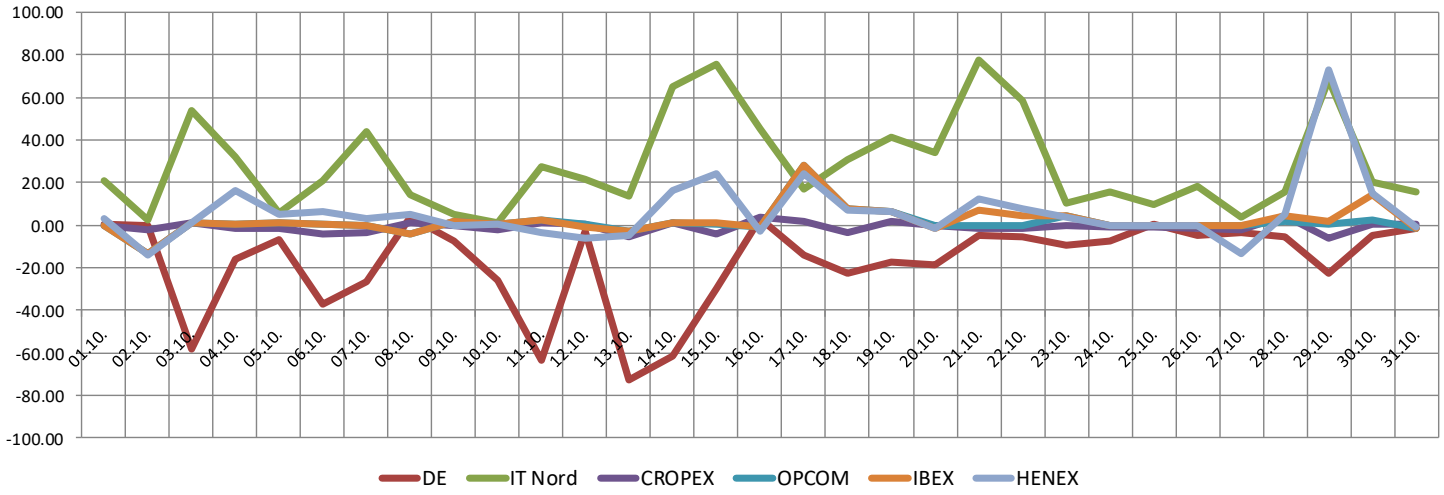


		Spot results -OFFPEAK Load							Spread					
OFFPEAK		HUPX	DE	IT Nord	CROPEX	OPCOM	IBEX	HENEX	DE	IT Nord	CROPEX	OPCOM	IBEX	HENEX
SUN	**01.10.**	96.85	97.67	107.02	96.25	96.73	96.73	98.31	0.82	10.17	-0.60	-0.12	-0.12	1.46
MON	**02.10.**	110.33	110.34	114.68	110.26	110.32	110.32	111.05	0.01	4.35	-0.07	-0.01	-0.01	0.72
TUE	**03.10.**	80.80	39.14	129.84	81.63	82.01	82.01	82.01	-41.66	49.04	0.83	1.21	1.21	1.21
WED	**04.10.**	67.93	57.93	112.28	66.92	68.37	68.37	100.58	-10.00	44.35	-1.01	0.44	0.44	32.65
THU	**05.10.**	101.12	90.12	109.97	99.17	101.90	101.90	110.47	-11.00	8.85	-1.95	0.78	0.78	9.35
FRI	**06.10.**	105.42	77.29	124.24	101.18	106.15	106.15	118.52	-28.13	18.82	-4.24	0.73	0.73	13.10
SAT	**07.10.**	88.58	40.01	120.19	81.24	91.20	91.20	94.83	-48.57	31.61	-7.34	2.62	2.62	6.25
SUN	**08.10.**	88.54	88.15	104.81	88.80	88.59	88.59	103.14	-0.39	16.27	0.26	0.05	0.05	14.60
MON	**09.10.**	109.30	104.24	119.49	109.09	109.31	109.31	108.93	-5.06	10.19	-0.21	0.01	0.01	-0.37
TUE	**10.10.**	123.16	107.76	127.46	120.81	123.23	123.23	123.33	-15.40	4.30	-2.35	0.07	0.07	0.17
WED	**11.10.**	109.51	61.11	146.14	109.07	111.53	111.53	106.82	-48.40	36.63	-0.44	2.02	2.02	-2.69
THU	**12.10.**	113.00	108.15	141.30	113.76	113.41	113.41	113.41	-4.85	28.30	0.76	0.41	0.41	0.41
FRI	**13.10.**	138.59	78.01	150.27	133.75	136.70	136.70	136.70	-60.58	11.68	-4.84	-1.89	-1.89	-1.89
SAT	**14.10.**	86.27	24.48	151.95	81.83	86.26	86.26	105.42	-61.79	65.68	-4.44	-0.01	-0.01	19.15
SUN	**15.10.**	55.68	44.72	148.01	53.82	55.70	58.05	103.50	-10.96	92.33	-1.86	0.02	2.37	47.82
MON	**16.10.**	117.97	120.55	163.93	120.29	108.08	108.08	108.08	2.58	45.96	2.32	-9.89	-9.89	-9.89
TUE	**17.10.**	135.85	124.72	154.18	134.12	145.75	145.75	142.98	-11.13	18.33	-1.73	9.90	9.90	7.13
WED	**18.10.**	116.64	96.15	143.40	114.16	117.32	117.32	116.89	-20.49	26.76	-2.48	0.68	0.68	0.25
THU	**19.10.**	91.15	58.96	144.64	93.93	101.83	101.83	101.83	-32.19	53.49	2.78	10.68	10.68	10.68
FRI	**20.10.**	93.65	66.43	130.18	93.82	94.82	94.82	94.82	-27.22	36.53	0.17	1.17	1.17	1.17
SAT	**21.10.**	54.33	48.32	132.40	53.11	54.05	66.63	72.80	-6.01	78.07	-1.22	-0.28	12.30	18.47
SUN	**22.10.**	59.06	56.87	135.92	58.56	58.97	67.94	74.38	-2.19	76.86	-0.50	-0.09	8.88	15.32
MON	**23.10.**	123.85	113.13	134.69	123.98	125.32	125.32	125.32	-10.72	10.84	0.13	1.47	1.47	1.47
TUE	**24.10.**	113.10	104.92	127.80	112.99	113.11	113.11	113.11	-8.18	14.70	-0.11	0.01	0.01	0.01
WED	**25.10.**	110.51	110.48	116.81	109.79	110.34	110.34	110.28	-0.03	6.30	-0.72	-0.17	-0.17	-0.23
THU	**26.10.**	109.49	105.52	126.59	109.01	109.35	109.35	109.35	-3.97	17.10	-0.48	-0.14	-0.14	-0.14
FRI	**27.10.**	107.37	106.09	113.83	105.88	107.07	107.07	107.07	-1.28	6.46	-1.49	-0.30	-0.30	-0.30
SAT	**28.10.**	79.05	70.46	113.00	85.49	81.87	87.12	88.69	-8.59	33.95	6.44	2.82	8.07	9.64
SUN	**29.10.**	40.81	18.35	109.40	36.57	40.03	40.03	144.76	-22.46	68.59	-4.24	-0.78	-0.78	103.95
MON	**30.10.**	68.12	59.64	83.72	68.08	71.10	94.63	95.05	-8.48	15.60	-0.04	2.98	26.51	26.93
TUE	**31.10.**	91.48	89.31	104.50	92.25	87.98	87.98	89.18	-2.17	13.02	0.77	-3.50	-3.50	-2.30
Average		**96.37**	**79.97**	**127.18**	**95.47**	**97.05**	**98.74**	**106.83**	**-16.40**	**30.81**	**-0.90**	**0.67**	**2.37**	**10.45**

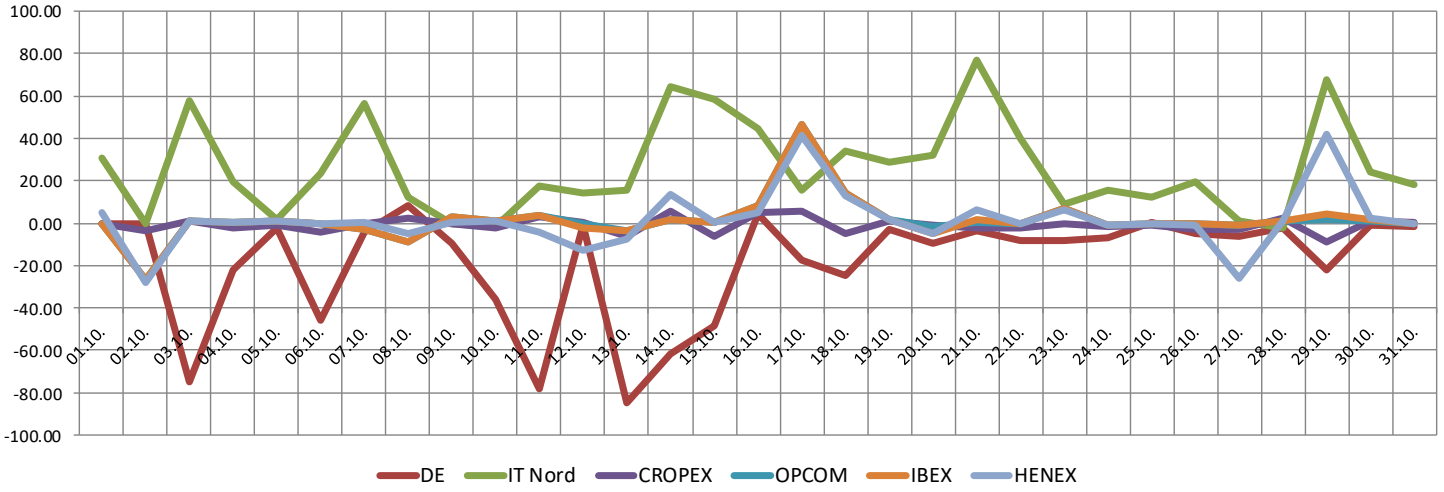
Offpeak prices, October 2023



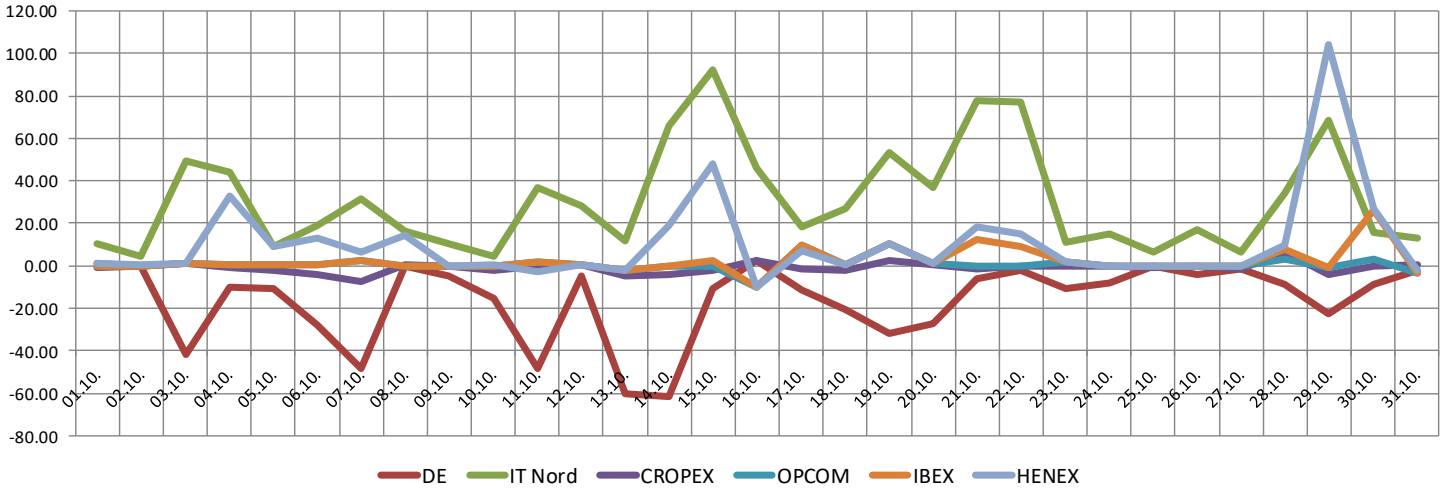
HUPX spread, October 2023, BASE



HUPX spread, October 2023, PEAK



HUPX spread, October 2023, OFFPEAK



13. Electricity related news

Region

MCSC initiated investigation of partial decoupling on 28 October – Region, 31.10.

During the market coupling process on 28 October a technical issue was experienced that led to a partial decoupling. Interconnectors that experience issues leading to decoupling from SDAC process were GR-BG and GR-IT.

The incident was caused by a technical issue at HEnEx local trading system. HEnEx reported that experienced a severe technical issue at its local trading system impending the validation process of submitted orders in DAM relevant to the day-light saving time additional MTU for delivery day of 29 October. The issue could not be fixed within the time allocated by the SDAC procedures and partial decoupling was declared. The final market coupling results for the remaining coupled parties were published at 14:05 CET. The common coupling system worked as expected and ensured the coupling of the remaining part of SDAC.

The Market Coupling Steering Committee (MCSC) has initiated an in-depth investigation. A decoupling report summarizing the outcome of the investigation and potential lessons learned is expected to be published within a month time.

EC presented European Wind Power Action Plan – Region, 24.10.

The European Commission (EC) presented its European Wind Power Action Plan in an effort to speed up project permitting and boost investment and financing, while also increasing the competitiveness of the EU wind manufacturing industry.

The statement from the EC said that the EU will need to increase its installed wind power generation capacity significantly, from 204 GW in 2022 to more than 500 GW in 2030, if it is to achieve its target of having at least 42.5 % renewable energy by the end of the decade. Although EU member states added a record 16 GW of wind capacity in 2022, this is still well below the 37 GW of annual additions needed in order to achieve the 2030 target.

The plan outlines the main difficulties obstructing the growth of the wind turbine production sector, including the under-utilization of production capacities due to insufficient and uncertain demand, and the poor design of national tenders based solely or mostly on price criteria. More importantly, it sets out 15 actions for the EC, the member states and the industry itself to undertake so that, together, they can deal with those issues.

When it comes to permitting, the EC plans to launch the so-called Accele-RES initiative envisaging the digitalization of the national permitting procedures across the EU and the launch of a dedicated online tool to support member states in the process.

The EC will also work with member states to ensure the visibility and predictability of national plans for renewables deployment so that equipment manufacturers can have a better plan for their investments in manufacturing capacity. It will establish an interactive EU digital platform that details the auction planning of each country and will require that member states make concrete pledges on wind energy deployment volumes for at least the period 2024-2026.

Regarding financing, the EC intends to double the Innovation Fund's budget for financing clean technology manufacturing projects to 1.4 billion euros in the next call for proposals scheduled for late November. In the meantime, the European Investment Bank (EIB) will provide de-risking tools and guarantees for EU wind companies.

EC adopted new ETS regulation for Fit for 55 – Region, 20.10.

The European Commission (EC) announced that it has adopted a delegated regulation establishing a new Auctioning Regulation, following a revision of the Emissions Trading System (ETS) Directive related to the Fit for 55 legislative package and REPowerEU plan.

The statement from the EC said that the Auctioning Regulation continues to set out the technical elements necessary for the good organization of EU ETS auctions, such as the format, timing, frequency of auctions, rules about the auction calendars, eligibility of bidders to participate in auctions, rules on the selection and responsibilities of auction platforms, as well as on market oversight and transparency.

The new regulation will see changes related to the extension of the scope of the Emissions Trading System (ETS) to cover maritime, which includes the reevaluation of the eligibility criteria for admission to auctions of shipping companies. The scope has also been extended to include the auctioning of allowances for a new and separate ETS for buildings, road transport and other sectors.

Additionally, there have been adjustments in provisions for the auctioning of aviation auction volumes. The regulation also entails provisions for the auctioning of allowances for the Innovation Fund, along with the introduction of new provisions for the auctioning of allowances for the Recovery and Resilience Facility in the context of REPowerEU and for the Social Climate Fund.

The changes also focus on improvements IN market oversight and transparency. There are also alterations concerning the rules on the notification of the voluntary cancellation of allowances by member states under the ETS Directive.

Upon entry into force, this act will repeal and replace the old auctioning regulation. Further information is expected to be provided on the publication of the 2024 auction calendars in an upcoming regulatory update.

EU reached agreement on electricity market reforms – Region, 18.10.

EU member states reached a wider agreement on electricity market reforms after Germany has taken a step back allowing France to use state subsidies to fund its nuclear power plants.

EU member states backed the reforms almost unanimously, with Hungary being the only member state to vote against the electricity market revisions.

As part of the new EU rules, national Governments will be free to use funding structures known as contracts for difference (CfD). These set a minimum price guarantee for electricity suppliers, as well as a price ceiling, above which the state can recover any revenue. It was agreed that CfD contracts will be mandatory, with certain exceptions, when public funds are used in long-term contracts.

Also, CfDs will be used for electricity generation investments using solar, geothermal, hydro and nuclear technologies, in order to provide predictability and stability.

The EU Energy Council agreed to provide flexibility in how member states can distribute revenues generated by CfD contracts. As a result, these revenues will be able to be distributed to consumers and also to finance mechanisms reducing electricity costs.

CfD regulations will be implemented following a three-year transitional period for all electricity production sectors except offshore wind farms, to be given a five-year transitional period.

EU ministers have been negotiating reforms to the bloc's electricity market for months, the objective being to offer RES developers better investment signals and secure consistent electricity supply to prevent price spikes.

EIB to support Western Balkans in green transition – Region, 17.10.

Vice-President of the European Investment Bank (EIB) Teresa Czerwinska reiterated the bank's commitment to green transition in Western Balkans at the Berlin Process Summit in Tirana.

She said that, as a part of the EU Economic and Investment Plan for the Western Balkans, EIB Global will support the new Growth Plan for the Western Balkans by increasing the efforts under the Just Transition Initiative. This support contributes to greater connectivity and a smoother green transition, benefiting fully from the digital agenda and strengthening education and health systems. Since 2009, the EIB has provided nearly 11 billion euros in public and private sector investment finance in the Western Balkans. It has financed trans-European energy networks and provided inclusive finance for small and medium businesses (SMEs) — investments that link the region physically and economically with the European Union and boost convergence.

In close cooperation with the European Commission and other partners under the Western Balkans Investment Framework (WBIF), EIB Global is actively pursuing sustainable investments including the deployment of clean and renewable energy projects in the public sector and among SMEs.

In 2023, the EIB has thus far signed 700 million euros of investments, including a credit line for 100 million euros to finance energy efficiency and renewable energy projects by SMEs in North Macedonia.

SolarPower argues against import tariffs – Region, 05.10.

SolarPower Europe said in response to reports that EU is considering introducing tariffs for solar products imported into the single market, that trade barriers are not the solution to the challenges currently faced by the European solar industry.

Namely, Germany is considering various options, including subsidies and trade laws protection, to safeguard its solar manufacturers from the drop in module prices.

SolarPower Europe states that overcapacity on the supply side and overordering on the demand side has led to sharp drops in the price of solar modules. The organization urged EU to focus on constructive solutions, rather than risking slowing down the solar-led energy transition.

The solutions SolarPower is proposing include: adjusting the EU State Aid framework to allow member states to support running costs of factories; allowing for specific resilience auctions within member states under a swiftly-adopted EU Net-Zero Industry Act; and setting up an EU-level financing instrument dedicated to European produced solar photovoltaics, like a Solar Manufacturing Bank.

EU launched the first phase of CBAM – Region, 02.10.

The European Union launched the first phase of the world's first system to impose CO2 emissions tax on imported steel, cement and other goods as it tries to stop more polluting foreign products from undermining its green transition. However, The EU will not begin collecting any CO2 emission charges at the border until 2026.

This marks the start of an initial phase of the Carbon Border Adjustment Mechanism (CBAM) when EU importers will have to report the greenhouse gas emissions embedded during the production of imported volumes of iron and steel, aluminium, cement, electricity, fertilizers and hydrogen.

Importers will from 2026 need to purchase certificates to cover these CO2 emissions to put foreign producers on a level footing with EU industries that must buy permits from the EU carbon market when they pollute.

European Economy Commissioner Paolo Gentiloni said the aim was to encourage a worldwide shift to greener production and to prevent European manufacturers relocating to countries with lower environmental standards.

It is also meant to prevent them from losing out to foreign competitors while they invest to contribute to meeting EU targets to cut the EU's net emissions by 55 % by 2030 from 1990 levels.

Bosnia and Herzegovina

EPBiH nearing financial collapse – Bosnia and Hercegovina, 27.10.

The acting management of Bosnian state-owned power utility EPBiH announced that, on the day it took office on 24 August 2023, the company's financial performance showed a loss of 28.2 million euros, while the revenues generated in the first eight months were 55.7 million euros less than planned.

With the takeover of the company, the current management faced a significant reduction in the coal supply from EPBiH's mines to Tuzla and Kakanj thermal power plants, which amounted to only 57.1 % of the planned quantity in the first eight months of the year. This, in addition to a decrease in electricity production due to a delayed revitalization that led to the shutdown of unit 6 at TPP Tuzla, has significantly impacted the situation at EPBiH.

The current situation with coal deliveries seriously jeopardizes electricity production and the stability of the electricity system, a result of the lack of necessary measures and actions by the previous Federal Government of and EPBiH management to halt the continuous decline in coal supply from the EPBiH's mines that began in 2019. The direct consequence is a reduction in electricity production by approximately 1,400 GWh in 2022 compared to 2018, decreased balance surpluses, and revenues from market sales by approximately 140 million euros.

The trend of a significant decline in coal and electricity production, balance surpluses for market sales, and revenues has continued into 2023. In a report on 30 January 2023, the previous Government was warned about the factors affecting the company's operations and the inevitable negative financial results, resulting in a loss of 46.4 million euros. The report also highlighted the risk of EPBiH facing a significant electricity shortage to meet its customers' needs and the need to purchase electricity from the market. However, moves to address or mitigate these negative factors have been lacking.

The current EPBiH management faces a challenging task, primarily stopping the further decline in coal and electricity production, which requires a synergistic effort from all stakeholders involved in the functioning of the electricity system in FBiH.

EU4Energy project to develop a study for the establishment of Bosnian electricity exchange – Bosnia and Hercegovina, 12.10.

During the meeting of experts from the EU4Energy - European Union support to the energy sector in Bosnia and Herzegovina project and representatives of the Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina (BiH), discussions revolved around the path towards establishing an organized electricity market in BiH, as well as integration with the EU market.

An important step toward this goal would be the establishment of an electricity exchange for day-ahead and intraday trading of electricity in Bosnia and Herzegovina. In this regard, the EU4Energy project will develop a study to guide the gradual establishment of the electricity exchange in BiH.

The primary objective of this study will be to provide relevant stakeholders in BiH with guidelines for the gradual establishment of the electricity exchange. The study will encompass legislative, institutional, and organizational analysis.

The overall goal of the EU4Energy project is to ensure access to reliable, affordable, sustainable, and modern energy for all citizens of BiH and contribute to fulfilling the country's commitments under the Energy Community Treaty, the Paris Agreement, and other international obligations.

Bulgaria

Local investors control over 70 % of Bulgaria's RES sector – Bulgaria, 31.10.

According to the report by SeeNext, the renewable energy sector in Bulgaria continues to be dominated mainly by local investors who retain control over 70 % of the companies.

The report covers 480 local companies engaged in the operation, maintenance, construction, engineering or project development of renewable energy plants, as well as the manufacture of batteries, motors, turbines and other equipment for renewable energy facilities.

The report shows that Italy and Germany continue to be the leading foreign investors in RES sector in Bulgaria. The top 10 foreign investors in renewables also includes companies from the Czech Republic, Luxembourg, Hungary, Austria, Hungary, Cyprus, the Netherlands, Turkey and Japan.

In terms of newly installed capacity, solar is showing remarkable growth. The total capacity of solar power plants in Bulgaria at the end of 2022 increased by 38.5 % compared to the previous year, while there are almost no changes in other energy sources.

New unit at NPP Kozloduy to be operational in 2033 – Bulgaria, 25.10.

The construction of unit 7 at Bulgaria's nuclear power plant Kozloduy nuclear power plant has started on 25 October by decision of the Council of Ministers and should be completed in 2033. For this purpose, the capital of NPP Kozloduy - New Builds will be increased by some 250 million euros.

The Government assigned Energy Minister Rumen Radev to take the necessary actions on the transparent selection of a contractor for the design, construction and commissioning of the new unit. The final contract with the selected company and with the supplier of the AP1000 technology must be drawn up under the conditions of a fixed price and execution period. It also obliged the Minister of Energy to organize negotiations with financial institutions to secure the necessary loan funds.

With the same Government decision, preparations will begin for the construction of unit 8 at NPP Kozloduy. According to the plan, the construction activities of the two new units should be done at the same time and the second one should be completed within two to three years after the first one.

Prime Minister Nikolay Denkov said that this decision is one of the most important that the Government will make during this mandate. The total capacity of the future units 7 and 8 will be 2,300 MW, which significantly exceeds the capacity of 1,760 MW of the closed four units of NPP Kozloduy.

Bulgarian President vetoes latest Energy Act amendments – Bulgaria, 19.10.

Bulgarian President Rumen Radev has imposed a suspensory veto on the revisions to the Energy Act adopted by the National Assembly 6 October.

President Radev argues in his reasons that, without disputing the need to align domestic legislation to the commitments assumed by Bulgaria to the EU, the full liberalization of the electricity market for household users by 2026, envisaged by the law, does not provide for protection of energy-poor and vulnerable users which EU law enables and requires.

He pointed out that the standard of living of the majority of Bulgarian citizens remains the lowest in the EU, and the amendments could make life even more difficult precisely for the people who anyway can barely make ends meet. The law has moved away from the objectives of the social state and has been adopted without an accompanying impact assessment even though it makes provisions affecting Bulgarian citizens' well being and the stability of the energy system.

President Radev warned that the balanced adjustment of regulated prices until their leveling with free market prices is supposed to happen within a short period of 18 months (from July 2024 to December 2025), which may lead to a spike of prices for household end-users in early 2026. In his opinion, the too narrow definition of energy poverty, the lack of clarity in the compensation mechanism and the uncertainty that there will be enough financial resources to aid those in need do not provide sufficient guarantees that the transition will be smooth.

The President insists that the cessation of the functioning of the National Electricity Company (NEK) as a public provider as from 1 July 2024 and the abolition of electricity producer quotas in the mix for the regulated market may force TPP Maritsa East 2 to discontinue the generation of electricity and will endanger the operation of the Maritsa East coalmines as early as in the middle of 2024.

Energy Law amendments allow additional 12.2 TWh to be traded on the free market – Bulgaria, 13.10.

Chairman of the Bulgarian Commission for Energy and Water Regulation (KEVR) Ivan Ivanov said that the latest amendments to the Energy Law will additionally allow 12.2 TWh of electricity per year to be traded on the free market, which in the current pricing decision form the energy mix for the regulated market.

According to Ivanov, it follows from the removal of the role of the National Electricity Company (NEK) as a public supplier and the obligation of the final suppliers to purchase the necessary quantities of energy from the Bulgarian Independent Energy Exchange (IBEX).

The new European legislation provides for the extension of the functions of the Organization of European Energy Regulators (ACER) to jointly investigate with national regulators cases of abuse in cross-border electricity trading. This process will be strengthened with the development of a unified European wholesale electricity market.

The development of such a market implies a significant increase in cross-border interconnection capacities. European legislation requires connectivity to be at least 15 % of the installed capacity in the country concerned. For Bulgaria this capacity is currently 13,500 MW, while cross-border connectivity with Romania is 2,300 MW and 1,500 MW with Greece.

ESO signed preliminary contracts for new 15 GW of renewable capacity – Bulgaria, 12.10.

Director of Bulgarian electricity transmission system operator ESO Angelin Tsachev said that the operator has signed preliminary contracts for some 15 GW of new renewable energy capacity, which means that around 7 to 8 GW of new capacity will be realized.

Tsachev reminded that, since the start of the year, more than 1,700 MW of renewable capacity has been connected to ESO's network, with additional 200-300 MW expected to be connected by the end of the year. As of 1 October, the share of renewable energy in Bulgaria's energy mix has reached 25.5 %, with 12 % in solar power plants.

However, Tsachev said that the wind sector has experienced some delays, mostly due to higher environmental requirement for wind farms. He said that investors have shown interest in connecting more than 7 GW in wind power, but preliminary contracts for just 500 MW have been signed.

Contrary to recent studies, Tsachev claims that Bulgaria does not have much wind potential.

Government terminated NPP Belene project – Bulgaria, 11.10.

Bulgaria's Council of Ministers revoked the Government decisions on the construction of nuclear power plant Belene and its designation as a project of national significance. It assigned the Minister of Energy to take actions for the termination of a procedure for the selection of a strategic investor or investors for the construction of the nuclear power plant and to notify the bidder preferred to submit binding offers with whom a confidentiality contract has been signed.

In late August, the Government adopted a decision allowing the National Electricity Company (NEK) to continue to carry out mothballing of the equipment delivered for two units of future NPP Belene.

In 2012, Bulgaria abandoned plans to build NPP Belene as it found it to be unfeasible. However, in 2016, the country was ordered by an arbitration court to pay over 500 million euros to Russian contractor AtomStroyExport for two reactors it had already built for NPP Belene. Since then the Government has been trying to revive the project. Parliament last abolished a moratorium on its construction in June 2018.

In August 2019, seven companies, including two Bulgarian ones, submitted bids for strategic investors at the tender launched by the Government. Three companies: Russian Rosatom through its subsidiary Atomenergoprom, the China National Nuclear Corporation (CNNC) and the Korea Hydro & Nuclear Power were invited to submit binding bids. Bids for participation in the project's financial structuring and supply of turbines and other equipment came from French Framatome and US General Electric. The investor selection procedure was suspended in 2020 because of the COVID-19 pandemic.

Earlier this year, Ukraine expressed interest in purchasing the two NPP Belene reactors for Belene and the related equipment. In early July the Bulgarian Parliament mandated the Government to negotiate the sale with Ukrainian authorities.

Unit 6 of NPP Kozloduy goes offline on 9 October for annual maintenance – Bulgaria, 07.10.

On 9 October, Bulgaria's sole nuclear power plant Kozloduy will begin annual scheduled maintenance of its unit 6.

The maintenance is set to be completed by the end of November. The systems and equipment will be serviced and repaired to ensure their safe operation during the autumn and winter. Parallel with that long-term maintenance will be carried out and unit 6 will be restocked with fresh nuclear fuel.

2.13 TWh traded on IBEX day-ahead market in September – Bulgaria, 03.10.

A total of 2,134,256.1 MWh of electricity was traded on the day-ahead market of the Independent Bulgarian Energy Exchange (IBEX) in September 2023, which is 2.3 % less compared to the previous month. Average daily traded volume in September amounted to 71,141.9 MWh. Traded volume in September 2023 was 0.4 % higher compared to the same month last year.

The average baseload price on the day-ahead market in September amounted to 101.65 euros/MWh, which is 0.3 % higher compared to August (101.35 euros/MWh), while average peak price was 98.71 euros/MWh (+ 2.5 %). There were a total of 113 registered participants on the IBEX day-ahead market, two more than in the previous month.

Regarding intraday market, a total of 168,369.7 MWh (- 17.8 %) was traded, with the average weighted price of 106.4 euros/MWh (- 3.1 %).

Government effectively postponed coal phase-out to 2038 – Bulgaria, 02.10.

The Bulgarian Government announced that it has decided to extend the operational life of its coal-fired thermal power plants until 2038, with no exact dates for the closure of these facilities.

In early 2023, Bulgarian Parliaent mandated the Government to renegotiate with the European Commission (EC) parts of the country's National Recovery and Resilience Plan (NRRP) in order to delay the phase-out of its coal-fired thermal power plants by twelve years, but also to change Bulgaria's target under the European Green Deal to reach a 40 % reduction in carbon emissions from electricity generation by 2026, compared to 2019 levels.

The EC has allocated 5.69 billion euros in grants to Bulgaria under the Recovery and Resilience Facility (RRF). So far, Bulgaria has received only one installment of 1.37 billion euros in December 2022.

The Government is also pledging individual financial support of around 75,000 euros for each worker affected by the potential loss of jobs in the three affected regions. A new state-owned enterprise will be created, which will be charged with transitioning the former thermal coal mining regions to industrial zones focused on alternative sources of employment.

Last week, Bulgarian Government was faced with protests organized by coal miners and workers in the coal sector, who urged the postponement of restrictive measures against Bulgaria's coal energy sector.

Coal-fired thermal power plans were accounted for some 33 % (4,475 MW) of Bulgaria's total installed capacity in 2022, while the capacity of gas-fired thermal power plants stood at 1,307 MW. These plants generated a total of 26.5 million MWh of electricity last year, which was 15 % more than a year earlier.

Croatia

Results of guarantees of origin auctions – Croatia, 25.10.

On guarantees of origin auctions for electricity which were held on 25 October 2023, the amount of 173,605 guarantees of origin (GO) offered by HROTE and ENERGOVIA was sold in two separate auctions.

GOs from wind and hydro were sold on auctions through CROPEX's IT trading platform.

- A total of 173,605 GOs were sold at the guarantees of origin auction from the wind power plants (Seller - HROTE) with a commissioning date from July 2014 to May 2020 (electricity produced in Q3 2023) at a price of 3.56 euros/GO.
- At the GOs auction from small hydro power plant (Seller - ENERGOVIA) with a commissioning date from March 2015 (electricity produced from 1 January 2023 to 30 September 2023) there were no submitted bids.

Amended regulation equates HEP to other public suppliers in the market – Croatia, 19.10.

The Croatian Government has amended the regulation on resolving disruptions in the domestic electricity market, thereby placing state-owned power utility HEP in the same position as other electricity market participants.

Through this amendment, suppliers who are members of the HEP Group are entitled to compensation for the difference between the contracted and maximum prices related to the cost of electricity for customers in the business category. However, the compensation cannot exceed the electricity price, up to a maximum of 180 euros/MWh for the period from 1 April 2023 to 30 September 2023 and for the period from 1 October 2023 to 31 March 2024 it cannot exceed 150 euros/MWh.

This change places suppliers from the HEP Group in the same position as other suppliers in Croatia regarding compensation for the cost of electricity for business category customers. The amendments to the regulation also address the issue of the high cost of technological steam, which increased from 34 euros in 2022 for 12 business entities, as it was until October of the previous year, to 180 euros afterward. They will receive 70 % of the amount, which amounts to slightly over 11.5 million euros.

Data collected from other companies indicate that the average delivery price of technological steam was market-determined for 12 consumers and was 34.21 euros per ton until October 2022, including the distribution fee. The price changed in October 2022, when it reached 181.76 euros (the average total increase in the price of technological steam for 12 entrepreneurs was a staggering 531 %).

The estimated difference in the price increase (for the 12 companies) for the period from October 2022 to September 2023 is slightly over 16.55 million euros, with the maximum allocated amount of 70 % being 11.59 million euros.

Based on the quantities of technological steam delivered to consumers and used in production processes, the effective use of district heating systems in central heating systems in the cities of Zagreb, Osijek and Sisak is enabled. Without these customers, the cost of thermal energy would be transferred to other customers, especially in the distribution cost component.

Additionally, adequate efficiency of cogeneration gas power plants in electricity production would not be ensured without the use of thermal energy, especially outside the heating season. Thus, this measure ensures the continuation and support for greater use of technological steam in technological processes as one of the measures of energy efficiency.

Croatia was net electricity exporter in Q3 2023 – Croatia, 13.10.

In the past few months, Croatia has achieved an excellent electricity balance, thanks to the increase in renewable energy capacity. The country exported more electricity than it imported, leading to the expectation of ending the year with a positive export balance for the first time in over twenty years.

However, a few days ago, there was a malfunction at nuclear power plant Krsko and, according to the latest announcements, the plant will be shut down for more than 30 days. Nuclear power accounts for approximately 15 % of Croatia's electricity supply, which it will now have to import.

Renewable energy sources contributed to with 58.3 % in the first nine months of this year (hydropower 39.4 %, other renewables 18.9 %), non-renewables with 26.2 %, and NPP Krsko with 15.5 %. It is expected that other renewable energy sources (wind, solar, biomass, biogas, geothermal) will achieve a 20 % share this year.

In September, there was a significant increase in the production of solar power plants due to the commissioning of new production capacities, as well as good wind power production. However, geothermal production decreased. In September, solar power plants accounted for 1.9 % of the energy mix. September was also the first month in which wind, solar, biomass, biogas and geothermal energy surpassed the production of hydropower plants, which met 21.6 % of the demand.

In September, thermal power plants running on fossil fuels had the highest electricity production, covering 31.1 % of the demand. Wind farms achieved above-average production, with a total production of 225,850 MWh in September. The capacity utilization factor was 28.7 %, an increase compared to the previous years, when the September average from 2011 to 2022 was 24.3 %.

Notably, there was very low hydropower production in September. On the other hand, coal-fired TPP Plomin had significant production of 139 GWh, and gas-fired thermal power plants had stable production during the month, providing system services and balancing due to reduced hydro production. Pump-storage HPP Velebit operated at an increased capacity during September.

Total production of renewable energy sources in the first nine months was 8,567 GWh.

To balance the hourly energy balance in September, Croatia had to purchase 151 GWh of electricity and sold 59 GWh. Therefore, it ended September as net importers of 92 GWh of electricity.

The total electricity turnover in the first nine months of this year amounted to 19,358 GWh, with demand reaching 14,682 GWh and a net exchange balance of 894 GWh. Planned exports were 1,351 GWh, while planned imports were 457 GWh. Thus, in the first nine months, Croatia successfully sold surplus electricity of 894 GWh.

Record hourly volume on CROPEX intraday market – Croatia, 07.10.

Croatian electricity exchange CROPEX announced that, for the delivery day of 6 October, the hourly volume of 1,092.6 MWh was traded, what makes the record volume traded for a single hour since the start of the intraday market.

The highest hourly volume was registered for the delivery of electricity from 20:00 to 21:00 in the amount of 1,092.6 MWh. In 195 separate transactions in that hour, volume weighted average price amounted to 176.26 euros/MWh.

Results of guarantees of origin auctions – Croatia, 04.10.

On guarantees of origin (GO) auctions for electricity produced from 1 January 2023 to 31 August 2023, which were held on 4 October, the amount of 58,295 GOs offered by ENNA Opskrba and ENERGOVIA was sold in eight separate auctions.

GO auctions were organized as eight parallel auctions: GOs from wind, biomass and biogas were sold on one auction s through CROPEX's IT trading platform.

- A total of 5,853 GOs were sold at the auction from the biogas power plants with a commissioning date from April 2012 to May 2019 whose installed capacity is less than 3 MW (electricity produced in July and August) at a price of 4.61 euros/GO.
- A total of 14,802 GOs were sold at the auction from the biogas power plants with a commissioning date from December 2015 to March 2022 whose installed capacity is less than 3 MW (electricity produced in Q2 2023) at a price of 4.61 euros/GO.
- A total of 259 GOs were sold at the auction from the biogas power plants with a commissioning date from January 2107 whose installed capacity is less than 3 MW (electricity produced in March 2023) at a price of 4.61 euros/GO.
- A total of 4,050 GOs were sold at the auction from the biomass power plants with a commissioning date from September 2011 whose installed capacity is less than 5 MW (electricity produced in July and August) at a price of 4.78 euros/GO.
- A total of 6,027 GOs were sold at the auction from the biomass power plants with a commissioning date from September 2011 whose installed capacity is less than 5 MW (electricity produced in Q2 2023) at a price of 4.78 euros/GO.
- A total of 16,921 GOs were sold at the auction from the wind power plants with a commissioning date from September 2010 to February 2012 (electricity produced in July and August 2023) at a price of 4.78 euros/GO
- A total of 10,383 GOs were sold at the auction from the wind power plants with a commissioning date from September 2010 to February 2012 (electricity produced in Q2 2023) at a price of 4.73 euros/GO
- At the GOs auction from small hydro power plant (owned by ENERGOVIA) with a commissioning date from March 2015 (electricity produced from 1 January 2023 to 31 August 2023) there were no submitted bids.

689,654 MWh traded on CROPEX in September – Croatia, 02.10.

A total volume of 689,654 MWh of electricity was traded on the Croatian energy exchange CROPEX in September 2023, which is 0.5 % less than in August, of which 585,255.5 MWh on the day-ahead market and 104,428.5 MWh on the in-traday market. Traded volume in September 2023 was 46 % higher compared to the same month last year.

Average daily base price on day-ahead market in September amounted to 102.69 euros/MWh, which is 6.8 % higher than in the previous month, while average euro-peak price reached 89.97 euros/MWh, 6.7 % higher compared to the previous month. The average price on the intraday market was 100.74 euros/MWh, 12 % higher compared to August.

There are 29 participants on CROPEX day-ahead market (the same as in the previous month), twenty four of which have been active on the intraday market as well. Average daily traded volume on the day-ahead market in September amounted to 19,507.5 MWh.

CROPEX was launched on 11 March 2016 in cooperation with Nord Pool, Europe's leading electricity exchange, and is co-owned by the Croatian electricity transmission system operator (HOPS) and the Croatian electricity market operator (HROTE). Intraday market was launched in April 2017. On 19 June 2018, after joint project of Croatian and Slovenian transmission system operators and power exchanges, CROPEX day ahead market was successfully coupled with MRC markets through Croatian - Slovenian border.

Hungary

Hungary's solar capacity reached 5,400 MW – Hungary, 16.10.
Hungarian Ministry of Energy announced that the country's solar capacity rose over 5,400 MW in early October.

According to data published by electricity transmission system operator MAVIR, 1,389 MW of new solar capacity were added in the first nine months of this year.

The capacity includes 3,276 MW in utility-scale power plants and 2,131 MW in solar panels installed in households.

Hungary to reopen applications for feed-in tariffs for households – Hungary, 06.10.

Hungarian Minister of Energy Csaba Lantos said that Hungary a suspension of household applications for joining a feed-in tariff scheme will be lifted from 1 January 2024.

Minister Lantos said that the suspension, which was introduced in late 2022, after prosumer solar capacity outpaced electricity network capacity, will be lifted for 93 % of network coverage, affecting around 84 % of household consum-ers, adding that the measure was made possible by increased investments in network developments.

He also announced the launch, as of 1 January 2024, of a tender for some 193 million euros in subsidies for home solar panels combined with battery storage. The funding should cover 65 % of investment cost.

Hungary's solar energy capacity currently stands over 5,200 MW, including 3,200 MW in solar power plants and 2,080 MW in solar panels mounted by residential consumers. The Ministry expects that solar capacity will reach 10-12 GW by 2030.

Minister Lantos also said that Hungary's gas storages are 97 % full, which is a new record for this period, ensuring energy supply and affordable prices during the upcoming heating season. He noted that gas consumption in Hungary in the first half of 2023 has dropped by 18 % compared to the same period last year.

Residential energy prices remain the cheapest in Europe – Hungary, 05.10.

Government commissioner responsible for maintaining utility cost reduction Szilard Nemeth presented the data of the Hungarian Energy and Public Utility Regulatory Authority (MEKH) showing the residential electricity and natural gas prices of European capitals.

According to data, Hungary has the cheapest household energy in Europe. Up to the average level of consumption, each Hungarian household saved about 470 euros per month, according to Nemeth.

Based on the presented data, the average price of natural gas for households was highest in Stockholm at 28.31 eurocents/kWh, while in Budapest it was 2.69 eurocents/kWh. Electricity for households is most expensive in Dublin at 47.12 eurocents/kWh. In Budapest it is 9.77 eurocents/kWh and in Belgrade it is 9.76 eurocents/kWh.

Last year, the Hungarian Government decided to maintain the reduction of the electricity bill up to the level of average consumption. This rate is 1,729 cubic meters per year for natural gas and 2,523 kWh per year for electricity. In August this year, the Government announced that these measures will continue.

1.94 TWh traded on HUPX in September – Hungary, 05.10.

The average price of electricity on day-ahead market of the Hungarian energy exchange HUPX amounted to 103.81 euros/MWh in September 2023 , which is 3 % higher compared to the previous month, when average baseload price amounted to 100.41 euros/MWh.

Average HUPX DAM peak price amounted to 101.49 euros/MWh in September, 8 % higher compared to July peak price. Traded volume on the day-ahead market reached 1.94 million MWh, 1 % less compared to August (1.95 million MWh) and 6.3 % less than in September 2022 (2.07 million MWh). Average daily traded volume in September amounted to 64,543 MWh.

Total traded volume on the intraday market amounted to 569,028 MWh in September 2023, which is 14 % less compared to the previous month. Average daily traded volume on the intraday market amounted to 18,968 MWh. Average price for the hourly product amounted to 106.86 euros/MWh in September, 2 % more compared to the previous month.

Greece

Greece remained net electricity importer in 2022 – Greece, 31.10.

According to data from ADMIE's ten-year development program, Greece remained a net electricity importer through the country's network interconnections in 2022, but the gap between imports and exports was narrower compared to previous years.

Greece was a net importer at all its network interconnections except for those with Italy. Net electricity imports were lower in 2021 and 2022 compared to previous years, when imports greatly exceeded exports, especially between 2014 and 2020.

ADMIE's ten-year development program for 2024 to 2033 includes plans for a series of new interconnections with neighboring systems. New corridors for electricity transmission from south to north have become a strategic priority in recent years as RES output is expected to greatly exceed domestic demand.

GREGY interconnector project to be included in the PMI list – Greece, 27.10.

The European Commission's Directorate-General for Energy said that it has proposed that electricity interconnector between Greece and Egypt, so-called GREGY project, to be included in the European Union's list of Projects of Mutual Interest (PMI). The list is expected to be endorsed by the European Parliament and the European Council within the next two months.

Elica, a subsidiary of the Copelouzos Group established to develop the GREGY Interconnector, said that the project will connect Egypt to Europe via Greece with a 3,000 MW submarine cable with a length of about 950 kilometers. The green and competitively priced energy that the cable will carry from Egypt to Greece will be produced from 9.5 GW of renewable energy sources that will be built and operated by Copelouzos Group in Egypt.

This is a project of major importance for Egypt, as it will enable 9.5 GW of RES investments representing an investment of 8 billion euros and has the full support of the President of Egypt, Abdel Fattah El-Sisi, and the Greek Prime Minister, Kyriakos Mitsotakis. Through the Egypt-Greece electricity interconnection, the European Union can gradually secure a stable supply of large quantities of green electricity, consolidating Egypt's position as a regional energy hub.

PPC's market share dropped by 5 % in September – Greece, 26.10.

Retail market share of Public Power Corporation (PPC) dropped by more than 5 % in September, compared to a previous month, to 53.49 % from 58.69 %, mostly due to a three-way agreement between independent supplier Heron, PPC and cement producer Titan.

Namely, PPC signed a 10-year power purchase agreement with Titan for energy generated at PPC power plants that involves Heron as a third-party supplier. It resulted in PPC shedding some of its market share in the high-voltage market and Heron gaining major ground.

According to data published by Greek electricity transmission system operator ADMIE, Heron's high-voltage market share rose to 21.3 % in September from 11.2 % in August, while PPC's share fell to 48.1 % from 58.5 %.

Watt+Volt was another gainer in the high-voltage market, its market share in this category rising to 15.3 % in September from 12.5 % in August. Elpedison's high-voltage market share fell to 11.6 % from 13.4 %.

Regarding the low-voltage category, PPC's market share dropped to 63.1 % in September from 65.1 % in August, but larger drop was registered in the medium-voltage category to 33.9 % from 39.1 %.

Most of the independent suppliers recorded overall retail market share gains in September. Heron's overall market share rose to 11.59 %, from 8.81 % in August. Mytilineos' market share increased to 8.42 % in September from 7.75 % in August. Elpedison's market share rose to 6.16 % from 5.81 %, NRG's rose marginally to 5.69 % from 5.46 %, Watt+Volt gained to reach 4.2 % from 3.41 %, Fysiko Aerio's share rose to 3.4 % from 2.96 %, Zenith's share contracted to 2.29 % from 2.5 % and Volterra's rose to 2.09 % from 1.83 %.

First guarantees of origin to be held by the end of the year – Greece, 19.10.

Greek RES market operator DAPEEP is planning to hold the first auction for guarantees of origin by the end of the year.

The introduction of guarantees of origin auctions was enabled by the legislative revision made in the summer of 2022, designed to provide transparency to consumers on the proportion of electricity that suppliers source from renewable generation, which is required of all EU member states. Proceeds from the auctions will also be an additional source of revenue for the country's RES special account.

As part of the preparations for the new auctions, the Greek register for guarantees of origin has been linked up with its European counterparts. As a result, Greek RES certificates will now have access to all European markets whose issuing bodies are also registered with the Association of Issuing Bodies (AIB).

This development is expected to enhance the value of domestic guarantees of origin as it enlarges the potential pool of large-scale electricity consumers and suppliers to whom Greek RES certificates will become available.

ADMIE submitted Green Aegean proposal to ENTSO-E – Greece, 17.10.

Greek electricity transmission system operator ADMIE has submitted a Green Aegean network interconnection plan, envisaged to run from Greece to Germany's south, to the ten-year development plan of ENTSO-E, promoting closer cooperation across Europe's TSOs to support the implementation of EU energy policy and achieve Europe's energy and climate policy objectives.

The project's inclusion in the development plan of ENTSO-E, representing operators from all of the EU's 27 member states, would represent a significant first step towards PCI/PMI status for the project, securing EU funding.

ADMIE prefers a HVDC-technology subsea route for the Green Aegean network interconnection that would pass through the Adriatic Sea to Slovenia, followed by an overland route to Austria and Germany's south.

The operator recently held related talks with the Germany's biggest power grid operator TenneT and Slovenian TSO ELES. TenneT has expressed strong interest in the Green Aegean network interconnection and the prospect of collaborating with ADMIE on the project's development for a link with Germany's network in the southern part of the country.

HVDC-technology enables transmission of large quantities of electricity over long distances via submarine cables, as well as fast and accurate control of power flow, enhancing grid stability.

Kosovo

Kosovo launched 150 MW wind auction – Kosovo, 20.10.
Earlier this week, the Kosovo Government announced that it has launched an auction for 150 MW in wind-based capacity.

The statement from the Government said that the auction will be the first of its type in Kosovo and is expected to place the country at the region's forefront in attracting private capital for the green transition, adding that it will catalyze financing from private developers through a competitive bidding process.

Government co-financing is expected to decrease risks while catalyzing private sector investment, which will also provide state-of-the-art know-how for the construction and operation of the project.

The Government is cooperating with international partners such as USAID to ensure that the pilot project launched in May 2023 is concluded successfully and in a timely fashion.

Kosovo will have to pay over 20 million euros to ContourGlobal – Kosovo, 09.10.

The Government of Kosovo is facing a mandatory compensation payment exceeding 20 million euros after losing an arbitration case against the US company ContourGlobal, which was selected for the construction of coal-fired thermal power plant Kosova e Re.

Arsim Zuka from the State Advocacy said that the state has accepted the final decision of the International Court of Arbitration (ICA), but the final decision will be challenged in the civil court in the United Kingdom.

Kosovo Government and ContourGlobal have signed a 1.3 billion euros contract for the construction of the 500 MW coal-fired power plant in December 2017, after an agreement was reached with the company in 2015.

In March 2020, the company announced its withdrawal from the project, citing its future plans to abstain from coal projects. It also highlighted the political changes that had occurred in Kosovo as a factor, referring to the lack of political support in Kosovo for the project.

The construction of the power plant has been beset by a number of issues over the years. In October 2018, the World Bank confirmed it would not support the project, stating that it would be against their by-laws to do so, with the cost of renewable energy sources being lower than coal.

ContourGlobal filed a lawsuit against Kosovo in 2020 in the Court of International Arbitration, alleging non-compliance with the contract.

North Macedonia

North Macedonia to select new universal electricity supplier – North Macedonia, 20.10.

The Government of North Macedonia has adopted a decision on launching a procedure for the selection of a new universal electricity supplier.

The statement from the Government said that the universal supplier would provide electricity supply to households and small commercial consumers located in the area for which there is an obligation to ensure universal service and those who have chosen to be supplied by it.

The documentation for the upcoming public call is currently being prepared, however, the Government has not disclosed when the call will be launched.

According to the law, the universal supplier is obliged to ensure service for no more than five years. Austrian company EVN is the current universal supplier, fulfilling its five-year contract. Electricity market in North Macedonia was fully liberalized in 2019.

Romania

Electricity price for large industrial consumers is 70 % above EU average – Romania, 31.10.

According to a report by the Association of Large Energy Consumers in Romania (ABIEC), Romanian large industrial consumers pay an average price of 192 euros/MWh of electricity, compared to an average of 113 euros/MWh paid by their peers in other EU countries.

Consequently, the trade deficit in the major industrial sectors is widening while the industrial activity is losing momentum, the report concludes. The trade deficit in mineral products, construction materials, chemical and metallurgical products has grown rapidly in recent years and already exceeds 9.4 billion euros or some 3 % of GDP.

For comparison, Greek large industrial consumers pay 65 euros/MWh, those in Spain pay 95 euros/MWh, while those in Bulgaria pay 102 euros/MWh.

The price of energy has increased 5 times compared to the pre-pandemic level, while the price of goods increased only 1-2 times.

Among the members of the association are metallurgical, chemical fertilizer and construction materials companies, with aggregated consumption amounting to 10 % of the total national electricity consumption.

Largest solar power plant in SEE entered trial operation – Romania, 31.10.

The Romanian Photovoltaic Industry Association (RPIA) organized the first edition of Solar Open Day, an event dedicated to solar energy and promoting the adoption of sustainable sources and means of energy production. The event was organized in Ratesti, Arges county where the largest solar power plant in southeastern Europe was commissioned.

The Ratesti power plant is the joint project of the Israeli companies Econergy Renewable Energy and Nofar Energy and represents the largest investment in solar energy in Romania, worth 102 million euros. With an area of 170 hectares, the Ratesti solar power plant has a total installed capacity of 155 MW and will produce approximately 220 GWh of electricity annually.

This power plant can supply more than 100,000 households with clean energy, which means the elimination of 168,000 tons of CO2, thus contributing to Romania's decarbonization objective, to ensure more than 30% of its energy needs from renewable sources by 2030.

Currently, Ratesti solar power plant is in trial operation and will be put into operation in the next period.

Econergy Romania Country Manager Bogdan Asanache said that Ratesti is the first Econergy's solar power plant to be connected in Romania and is part of a portfolio of 2.3 GW under development, of which 410 MW is under construction across the country, ensuring energy independence and decarbonization of the energy sector. The Romanian market is a key market in southeastern Europe, which is striving to meet the greenhouse gas emission reduction targets assumed for 2030.

Favi Stelian, Managing Partner at Nofar Energy, said that Romania is considered as one of the key growth markets, the target being the achievement of 1 GW of solar energy by 2025.

First RO-UE capacity allocation auction scheduled for 2 November – Romania, 27.10.

Electricity transmission system operators of Romania and Ukraine Transelectrica and Ukrenergo agreed to hold the first joint auction for the allocation of cross-border transfer capacity on 2 November.

Chairman of the Management Board of Ukrenergo Volodymyr Kudrytskyi said that this move is very important ahead of a difficult winter because the Ukrainian mechanisms regarding the allocation of cross-border transport capacities will no longer represent a barrier to energy imports from Romania, adding that the allocation mechanism will be aligned with the relevant regulations of the European Union.

In addition, Ukrenergo has already signed agreements with transmission system operators of Hungary, Slovakia and Poland to join the pan-European JAO auction platform. After receiving approval from the regulators of neighboring countries, Ukraine will be able to start joint auctions in all European directions.

PPC completed the acquisition of Enel Romania – Romania, 25.10.

Greek Public Power Corporation (PPC) announced the completion of the acquisition of the stakes held by the Enel Group in Romania, namely a significant portfolio of renewable projects (both completed and under development), along with electricity distribution and supply operations.

PPC CEO Georgios Stassis said that the company is embarking on a journey of growth and transformation in Romania, with the ambition to become the country's undisputed leading energy company.

PPC bought all the shares and subsidiaries of Italian Enel in Romania for a total of 1.24 billion euros. The transaction includes 300 million euros in firm value adjustments and 350 million euros in minority interest.

Enel Romania is a key player in the local energy market. It is the largest player in renewable electricity generation in Romania. Its renewable energy portfolio consists of eight wind farms with 499 MW capacity and four solar power plants of a combined 36 MW. It also has seven wind farms (2.3 GW) and 11 solar power plant (3.1 GW) in the pipeline.

In the electricity and gas supply market, the company has over 3.1 million customers nationwide. It owns the distribution network in 3 regions of the country, including the capital Bucharest. It distributes electricity to approximately one third of Romania with over 133,000 km of network and has already installed over 1.4 million smart meters in homes and businesses.

Prosumers to reach 2,000 MW in capacity in February 2024 – Romania, 23.10.

Vice President of the National Energy Regulatory Authority (ANRE) Gabriel Andronache said that development of new solar and wind power plants have progressed at a slow pace over the past year, but by the end of February 2024, Romanian prosumers will have an estimated capacity of around 2,000 MW.

If in 2021, installed capacity in solar power plants in the country totaled 1,357 MW, today the capacity is 1,528 MW. Wind farms have also increased to an installed capacity of 1,427 MW from 1,414 MW in 2021. At the end of July, 84,733 prosumers were registered with a total installed capacity of 1,063 MW. In February 2024, installed capacity at the prosumer level is expected to increase to 2,000 MW.

Andronache said that the most important thing are happening in the offshore wind segment and, by the end of the year, Romania should have an offshore law that will allow it to develop 1,000 MW in offshore wind by 2030 out of the 3,000 MW it is expecting. The yield of offshore wind is 40-60 %, compared to onshore at most 25 %.

In addition, the future submarine electricity cable linking Georgia to Romania will be able to connect 5,000 MW of electricity generation capacity, including offshore wind. Once in operation, this energy transmission cable will be able to contribute to network decongestion in Dobrogea region, including by taking energy to be produced by the nuclear reactors 3 and 4 at Cernavoda, as well as electricity produced in Bulgaria.

ANPC fined Enel 1 % of annual turnover – Romania, 23.10.

Romanian National Consumer Protection Authority (ANPC) has fined energy supplier Enel 1 % of its turnover, or some 10.4 million euros, for billing customers' energy consumption at a higher price than that established by law. The fine imposed on Enel is the largest on an energy supplier in Romania.

ANPC established that the monthly billing of electricity consumption starting from February 2023 does not comply with the current legislation. It was done at a final price of electric energy of more than 0.16 euros/kWh, VAT included, in cases where monthly consumption fell between 93 kWh and 100 kWh. The correct price should be a maximum of 0.14 euros/kWh. The monthly billing of energy consumption at other levels similarly did not comply with current legislation.

The billing method has been used in the invoices for electricity consumption starting from 1 January 2023, and is still in effect. Up to 44,000 Romanian residential consumers have been directly affected by the faulty calculation of bills carried out by the economic operator from the beginning of the year until the present.

ANPC states that considering the aggravating circumstances discovered during the control action and the fact that the economic operator has taken no steps in favor of the consumers, the company Enel Energie must be penalized in accordance with the law. The penalty is a fine of 1 % of the economic operator's annual turnover from the financial year preceding the sanction.

Romania seeks to delay phasing-out coal-fired TPPs at EC Oltenia – Romania, 16.10.

Romanian Minister of Energy Sebastian Burduja said that the Government will ask the European Commission to accept amendments to the calendar drafted for replacing the coal-fired power plants at Energy Complex (EC) Oltenia.

Minister Burduja said that EC Olteania needs at least additional year and a half to replace its coal-fired capacities with alternative means of electricity generation.

According to EC Oltenia’s restructuring plan, which was approved by the European Commission, all coal-fired power plants operated by the company have to be shut down by 1 January 2026, with a portion of the capacity kept until 2032 as a strategic reserves in case of emergencies.

However, the natural gas-fired and solar projects carried out by EC Oltenia to replace coal-fired capacity, have experienced delays of roughly one year and a half and will not be ready in time.

Electricity consumption dropped by 7 % in the first eight months of 2023 – Romania, 13.10.

According to the data published by the National Institute for Statistics (INS), electricity consumption in Romania in the first eight months of 2023 amounted to 32.7 TWh, which is 7 % less compared to 2022.

The data shows that industrial electricity consumption reached 24.85 TWh, which is 5.4 % less compared to last year. Household electricity consumption amounted to 7.57 TWh, which is an 11.3 % decrease. Public lighting consumption dropped by 21.7 % amounting to 278.5 GWh.

Total electricity production reached 38.79 TWh in the first eight months of 2023, which is 4.1 % more compared to the same period in 2022. Production in thermal power plants decreased by 20.9 % and reached 11.25 TWh. Production in hydropower plants increased by 44.6 % to 14.07 TWh, while electricity production in nuclear power plant Cernavoda increased by 3.1 % to 7.31 TWh. Production of wind power in January-August 2023 rose by 1.1 % compared to the same period in 2022, reaching 4.94 TWh. Solar power production reached 1.22 TWh, 10.2 % less compared to 2022.

Electricity exports in the first eight months of 2023 amounted to 7.9 TWh, which is by 79.8 % more compared to the same period in 2022. At the same time electricity imports decreased by 9.8 % and amounted to 5.21 TWh.

Total production of primary energy resources in January-August 2023 amounted to 12,108 million tons of oil equivalent, which is 1.9 % more than in 2022. Coal production reached 1,715.7 million tons of oil equivalent (- 15.2 %), oil production reached 1,873.5 million tons of oil equivalent (- 4 %), while production of natural gas reached 4,987.2 million tons of oil equivalent (+ 4.1 %).

Prosumers could be restricted if their capacity exceed 8 % of Romania's total capacity – Romania, 11.10.
According to the President of the Commission for industries and services from the Chamber of Deputies Bende Sandor, the National Energy Regulatory Authority (ANRE) will be able to reduce or impose an extra charge for the investments of prosumers, if they reach a capacity of more than 8 % of the total installed capacity in Romania.

Sandor said that the European Union and the legislation currently in force say that prosumers will be supported as long as they do not affect the network functioning. ANRE will be able to stop these investments when the prosumers reach a production capacity of more than 8 % of the total installed capacity in Romania, which is currently somewhere at 18 GW, so 8 % is somewhere around 1,400 - 1,600 MW. He emphasized that Romania is approaching this target, having exceeded the level of 1,000 MW of capacity installed by prosumers.

He said that 1,000 MW of installed capacity has been exceeded and problems in the distribution networks have already started to appear.

Draft legislation for offshore wind concessions – Romania, 09.10.

The Romanian Ministry of Energy has drafted legislation, according to which, the state will decide by June 2025 on the offshore perimeters made available to investors interested in developing wind farms under 30-year concession contracts (with an one-off option for 10 years extension).

The first offshore wind concession contracts are expected to be signed by the end of 2025.

The state can provide state aid for offshore wind farms with a capacity of up to 3 GW during the development and exploitation period. However, the state aid scheme, most likely under the form of contracts for difference (CfD), will be enacted by a separate document and will be enforced only if the commissioning of the offshore wind farm takes place within an 8-year period after the signing of the concession contracts.

The amount of the royalties, calculated as a share of revenues, will be decided until the end of June 2025. Also, the holders of the concession contracts will pay the state budget a tax for the exploitation of wind resources, which will also be approved by 30 June 2025.

RWEA and RPIA complain about unfair competition from state-owned companies – Romania, 09.10.

The Romanian Wind Energy Association (RWEA) and the Romanian Photovoltaic Industry Association (RPIA) are calling on the authorities to ensure a level playing field for all renewable energy capacity developers.

The two associations state that they have repeatedly pointed out the non-competitive nature of the direct concession of land administered by the State Land Agency (ADS) to state-owned companies, which contravenes national and European legislation.

In the context that, from 2022, private investors can only develop projects on areas of less than 50 hectares (maximum 42 MW) based on the restrictive interpretation of the land law by the Ministry of Agriculture and Rural Development, the draft Emergency Ordinance on certain measures for state-owned public property, which favors entities and companies where the state is a majority shareholder, is deeply anti-competitive. It is imperative that such a legislative change, which has an impact on a market where distinct types of entities and companies compete freely, respects national and European rules.

RPIA and RWEA reiterate that repeated attempts to change the legislative framework discourage investment and, implicitly, affect the achievement of Romania's climate neutrality targets, as a result of the message they send to private actors. Such measures must respect the principle of transparency and fair competition, which implies the organization of public tenders for the award of concessions and surface rights, or, at least, the definition of clear and non-discriminatory selection criteria; a direct negotiation between ADS and certain selected companies is not able to ensure such a level playing field.

The associations stress that the classification of projects to be carried out by state-owned companies (or private companies where the state is a majority shareholder) as investment objectives of national interest involves facilitating the approval process, not the direct allocation of land or surface rights.

RPIA and RWEA insist that they are not opposed to such projects, but call for a level playing field for all renewable energy capacity developers. This can be achieved by removing the 50-hectare barrier and inviting all interested parties to participate in a transparent and competitive process for the allocation of state-owned land.

Average OPCOM day-ahead price rose in September – Romania, 06.10.

The average price of electricity on day-ahead market of the Romanian energy exchange OPCOM amounted to 103.19 euros/MWh in September 2023, which is 72.76 % lower compared to the same month in 2022 and 1.51 % higher compared to the previous month, when average baseload price amounted to 101.65 euros/MWh.

Traded volume in September reached 1.16 million MWh, which is 36.13 % less than in September 2022 and 5.24 % less than in August. Average traded volume in September 2023 amounted to 1,609.2 MWh/h.

The total value of transactions in September amounted to 124.7 million euros, which is by 81.94 % less compared to September last year (690.5 million euros) and 6.9 % less than in the previous month (133.9 million euros).

The share of day-ahead market in forecasted net consumption in September 2023 amounted to 29.77 %.

A total of 139,113.7 MWh was traded on intraday market in September (42.03 % more than in September 2022, and 7.21 % less compared to August), with an average price of 101.84 euros/MWh (74.21 % lower compared to September 2022 and 3.09 % lower compared to the previous month).

Total traded volume for bilateral contracts with delivery in September amounted to 0.913 million MWh, with an average price of 150.22 euros/MWh.

Serbia

Hyundai and UGT Renewables to build solar power plants in Serbia – Serbia, 31.10.

The Serbian Government announced that Hyundai Engineering and UGT Renewables were selected as strategic partners for the construction of large-scale solar capacities in the country.

The project is related to the construction, without management and maintenance services, of self-balancing solar power plants with battery systems for electricity storage. The future power plants will have a total installed capacity of 1 GW and the plan is for the construction of solar power plants to be completed by 1 June 2028.

The project will be developed, built and handed over to the ownership of state-owned power utility EPS as a turnkey project. That means that the strategic partners, in addition to building the solar power plants and battery system, will be obliged to build all the other infrastructure as well.

The project consists of two components: solar power plants and battery systems for the storage of electrical energy. The solar power plants will have a total installed capacity of 1 GW and in order to secure the optimal balance in electricity generation, the total installed capacity has to be distributed across five or more independent power plants. The locations where the solar power plants will be located, as well as the number and the installed capacity of each individual solar power plant, will be proposed by the strategic partners.

The battery systems for electricity storage, with a total installed capacity of at least 200 MW and a storage capacity of at least 400 MWh of electricity, will be distributed across several strategically important locations within the electricity system of Serbia. The locations where the battery systems will be located will also be proposed by the strategic partners.

SEEPEX signed market maker agreement with EPS – Serbia, 30.10.

Serbian electricity exchange SEEPEX announced that it has signed a market maker agreement for the intraday continuous market with state-owned power utility EPS.

The agreement was established to improve liquidity on SEEPEX's intraday exchange and will come into effect on 1 November. The market maker agreement stipulates that EPS will regularly submit buy and sell orders throughout the day, which will facilitate the smoother integration of renewable energy sources.

SEEPEX COO Dejan Stojcevski explained that the idea is to increase liquidity on the intraday market and make it easier for renewable energy producers to bring their electricity to the market.

EPS will provide both buy and sell offers to ensure that transactions are always concluded, thus establishing a reference price for the hour in which the trading occurs. Future investors in renewable energy in Serbia will, in this way, secure a reliable outlet for their goods. By doing this, EPS will assist SEEPEX and also benefit itself as it gains the ability to both buy and sell electricity on the intraday market.

SEEPEX launched the intraday market in July.

Revitalization of HPP Djerdap 1 completed – Serbia, 25.10.

Serbian state-owned power utility EPS announced that the revitalization of hydropower plant Djerdap 1 has been successfully completed, acceptance tests are underway, while the plant should be reconnected to the network in mid-November at the latest.

The statement from the company said that the first rotation of the last refurbished unit A3 was started and that the power plant, with six modernized and stronger units, is ready to utilize the potential of the Danube.

EPS Acting Director Dusan Zivkovic said that after successful refurbishment, the plant will reliably supply electricity in the next 30 to 40 years. The total capacity of HPP's six generators was increased to 1,140 MW and by increasing the output of each generator from 171 to 190 MW, EPS effectively got one new 100 MW power plant.

He said that EPS will continue HPP refurbishments in the coming period, while the most significant projects are the modernization of Vlasina hydropower plants, as well as HPPs Bistrica, Potpec and Djerdap 2. The European Union has also recognized the importance of EPS hydropower plant refurbishments. To this end, EPS was awarded a 49 million euros grant through the Western Balkan Investments Framework (WBIF) to finance four RES projects. Of that, EUR 16.1 million are intended to refurbish Vlasina hydropower plants.

HPP Djerdap 1, the largest hydropower plant in Serbia, produces about half of the total electricity from the hydropower plant sector of EPS. Extensive refurbishment of HPP Djerdap 1 was carried out by technical teams of EPS and Russian company Silovye Mashiny. Unit A3 was disconnected on 1 September 2022, after more than 51 years of operation.

EnC launched dispute settlement procedure against Serbia for failing to shut down TPP Morava – Serbia, 23.10.

On 20 October 2023, the Energy Community (EnC) Secretariat sent an Opening Letter to Serbia to address its breach of the Large Combustion Plants Directive in the case of coal-fired thermal power plant Morava, which continues to operate despite the expiry of their limited lifetime derogation period.

Following a written declaration not to operate a plant for more than 20,000 hours after 1 January 2018, opt-out was granted to selected installations by the Energy Community Ministerial Council. This is an implementation alternative to compliance with the emission limits set by the Large Combustion Plants Directive. Following the expiry of the 20,000

hours, the plants concerned can only remain in operation if they meet the stricter standards of the Industrial Emissions Directive. This is however not the case for TPP Morava, which reached the end of the limited lifetime derogation in the 2022 reporting year.

The approaching end of the opt-out period for all plants concerned is continuously flagged by the Secretariat in its Annual Implementation Reports since the entry into force of the Large Combustion Plants Directive on 1 January 2018.

EPS has enough coal in stocks for the winter – Serbia, 07.10.

Acting Director of Serbian state-owned power utility EPS Dusan Zivkovic has assessed that the current quantities of available coal in stockpiles, as well quantities ready to be excavated, are entirely sufficient for stable production of electricity during the winter season.

Zivkovic said that the company has achieved good results in electricity production, in the firsts nine months of the year, EPS power plants have produced 13.6 % more electricity than in the same period last year. Its hydropower plants have generated nearly 42 % more electricity, marking the highest hydro production in the last 23 years.

When asked if EPS is ready for the upcoming winter season, he said that all conditions have been met, both in terms of coal stockpiles and water in the reservoirs.

New conditions of delivery and supply of electricity – Serbia, 04.10.

Serbian Government adopted the Decree on the conditions of the delivery and supply of electricity. Among other things, the decree defines the conditions of the issuing of approvals for connection to the transmission and the distribution system.

Taking into account more than 20 GW of requests of wind farms and solar power plants in the procedure of connecting submitted to electricity transmission system operator EMS, the new decree is expected to clear out the congestion. According to the development plan that EMS has submitted to the Energy Agency, the Serbian transmission system can balance 5,800 MW of various sources of electricity at the moment.

Along with the request for issuing the approval for connecting the facility to electricity transmission or distribution system, a connection study is to be submitted. This also applies to the initiated procedures for signing the agreements on the preparation of the studies of connecting to transmission or distribution system.

The first period for the preparation of the connection study begins on 20 December 2023 and lasts until 20 April 2024. The request for the signing of the agreement on the preparation of the connection study is to be submitted by 1 December 2023, at the latest.

The submitter of the request for the preparation of the connection study also has to submit proof of the depositing of the funds for the costs of the preparation of the connection study.

The deposited funds amount to 50,000 euros for the facilities of the producers whose requested output is lower than or equal to 50 MW, as well as for the facilities of the purchasers and electrical energy storage facilities.

The amount of the deposited funds is increased for producer facilities by 400 euros for each MW if the requested output of the facility is over 50 MW to 100 MW; by 300 euros for each MW if the requested output is over 100 MW to 250 MW; by 200 euros for each MW if the requested output is over 250 MW.

The amount of the deposited funds for prosumers with output of up to 16 MW, without the connection to the transmission system, is 15,000 euros.

After the first period for the preparation of the connection study, the transmission system operator prepares studies of connecting facilities to the transmission system every year during two periods: from 1 March to 30 June 30 and from 1 September to 31 December, unless the submitter of the request is a strategic partner whose request is to be resolved within the deadlines in line with the law which regulates the use of renewable energy sources.

The submitter of the request for the preparation of the connection study is obligated to submit a bank guarantee expressed in euros per MW of output at 25,000 euros per MW of output, within 60 days of the issuing of the connection study.

The approval for connecting to the transmission system is issued for a period of three years, and it can be extended only once at the request of the investor, for no more than two years.

351,916 MWh traded on SEEPEX in September – Serbia, 02.10.

A total of 351,916.3 MWh of electricity was traded on the day-ahead market on the Serbian energy exchange SEEPEX in September 2023, which is a 19.1 % decrease compared to the previous month, with an average of 11,730.5 MWh/day. Traded volume in September 2023 was 50 % higher than in the same month last year.

Average daily base price on day-ahead market in September amounted to 103.07 euros/MWh, which is a 6.5 % increase compared to August, while average euro-peak price reached 100.97 euros/MWh (+ 8.4 %).

SEEPEX was officially launched on 17 February 2016, with traded volume of 1,925 MWh. It is jointly owned by Serbian electricity transmission system operator EMS and European Power Exchange (EPEX SPOT) with the idea to support the development of a competitive, transparent and reliable electricity market in Serbia and southeastern Europe and make a significant impact on the increase of trading volumes of electricity in the region. It launched an intraday market in July 2023.

Slovenia

Replacement of damaged pipeline at NPP Krsko started – Slovenia, 25.10.

At nuclear power plant Krsko, which had been shut down since 5 October due to a leak in the primary system, all 121 fuel elements were relocated over the weekend, which means that they can now proceed with the pipeline replacement.

The statement from the plant said that, after moving all 121 fuel elements from the reactor vessel to the spent fuel pool, conditions for detailed inspections of the primary loop connection system pipelines were created in the containment structure, and the repair work began, including the removal of some existing pipes and their replacement with new ones.

US company Westinghouse, the original equipment supplier, with the support of the domestic industry, has initiated the removal of some existing pipelines while simultaneously preparing for the replacement of new sections of the pipelines.

In early October, a leak in the primary system was discovered at the nuclear power plant, and a decision was made to shut down the plant as a preventive measure.

The shutdown of NPP Krsko will also be utilized for some maintenance work, which is expected to shorten the regular maintenance and fuel replacement scheduled for 2024. The power plant's management expects to be able to reconnect to the network in November.

Government extended electricity and gas price regulation – Slovenia, 23.10.

Last week, the Slovenian Government decided that the restrictions on household electricity prices will remain in effect next year, but only for 90 % of consumers' consumption, while households will pay the remaining 10 % at market prices. By the end of the heating season, which is the end of April, the Government has also imposed price limits on natural gas.

According to the statement from the Government, wholesale electricity prices have decreased this year. On the derivatives exchange HUDEX, the prices of base energy for 2024 ranged from 250 to 135 euros/MWh, while peak energy prices were 20 to 40 euros/MWh higher than base prices. The lowest base price in 2023 for 2024 was around 135 euros/MWh and the lowest peak price was 140 euros/MWh. However, it is clear that wholesale prices are still significantly higher than the current state limit for households, which is set at 100 euros/MWh.

Based on current market prices and purchases made in the years before 2023, the Slovenian Government estimates that household prices, if no additional measures are taken next year, could rise to between 150 and 200 euros/MWh. Therefore, the Government has decided to extend the price regulation for the next year, and the aim of the current proposal is also a gradual deregulation without a price shock. The price cap measure will only apply to 90 % of consumer consumption, while households will pay 10 % of their consumption at market prices determined freely by suppliers. The Government believes that this approach will encourage rational electricity usage, promote competition among suppliers, and facilitate a gradual return to a free market.

The Government also issued a regulation on determining the prices of natural gas, setting the maximum retail price of natural gas for households after the end of the year. Current prices will be valid until the end of 2023. The regulation on limiting gas prices for households will be valid from 1 January 2024 until the end of the heating season, which is 30 April 2024.

NPP Krsko will be offline for several weeks – Slovenia, 09.10.

The cold shutdown of Slovenia’s sole nuclear power plant Krsko during the weekend allowed the teams of the plant to determine the micro-location of the leak, which is on the connection system of the primary circuit.

A cause analysis and the preparation of an action plan to eliminate the deviation will follow. All this will require more time, probably several weeks and it is too early to assess the forecast for the power plant's return to operation.

A cold shutdown of the power plant means that in addition to the power plant not producing electricity, the temperature and pressure in the primary circuit are significantly reduced, providing conditions for safe repair works.

Late last week, a leak in the primary circuit inside the containment was detected. In the evening of 5 October, the crew started a controlled gradual reduction of power and on the morning of 6 October the power plant was disconnected from the network and in the hot standby. After the inspection, it was found that for accurate locating of the leak, considering the provision of safe working conditions, further cooling of the power plant is necessary up to the so-called cold shutdown. The cold shutdown was established over the weekend.

NPP Krsko to be preemptively taken offline on 5 October – Slovenia, 05.10.

Slovenia's sole nuclear power plant Krsko, which has been in continuous operation since the completion of its overhaul in 2022, will be preemptively taken offline on 5 October.

The operational team has detected an increased release from the primary system inside the protective building. This release has no impact on employees, the population, or the environment and is below the values set as limits in the technical specifications.

To precisely determine the source of the release and the subsequent steps for its remediation, it is necessary to stop the power plant. Therefore, the operational team will commence a controlled, gradual reduction of power.

Turkey

Turkey's installed capacity exceeded 105 GW – Turkey

Turkey has increased its installed capacity in electricity generation from 33 MW in 1923 to 105,659 MW as of October 2023, in the first 100 years of the Republic.

In order to meet its energy needs, Turkey has invested a lot in renewable energy generation in recent years.

The number of solar power plants in the country has reached 10,479 as of October 2023, while there were 752 hydropower plants, 384 biomass power plants, 363 wind farms, 95 waste heat power plants and 63 geothermal power plants. In addition, the number of natural gas-fired power plants has reached 343, while those running on imported coal, lignite and hard coal has reached the number of 68.

Thus, the total number of power plants in the country increased to over 12,000 as of October 2023.

As of October 2023, the installed capacity of power plants generating electricity from natural gas reached 25,354 MW, and of those running on imported coal, lignite and hard coal reached 21,814 MW.

At the same period, the installed capacity of hydropower plants totaled 31,595 MW, 11,602 MW in wind energy, 10,899 MW in solar energy , 2,438 MW in biomass and waste heat energy and 1,691 MW in geothermal energy.

14. Gas-related news

Region

Egypt's LNG exports to Europe in danger of being zeroed out – Region, 27.10.

The widened Middle East conflict has greatly impacted Egypt's LNG export ability, intensifying European fears of shortages on the continent this coming winter.

Production at Israel's Tamar gas field, yielding 10 billion cubic meters per year, has been disrupted. This comes as a setback for Europe as a proportion of Israel's production at the Tamar field is distributed to Egypt, which, in turn, exports to the continent in the form of LNG. Egyptian LNG exports were already down prior to this development.

As a result of these two factors, Egypt must now focus on covering its own energy needs, which relegates its LNG export interests to secondary status, analysts noted, warning that supply from Egypt could even be zeroed out.

LNG supply from Egypt is not negligible. Last year, Egypt exported 4.6 billion cubic meters, covering 5 % of Europe's needs.

Egyptian LNG exports have been severely restricted since 7 October, when the current conflict was instigated by a Hamas attack on Israel, forcing the country to halt production at Tamar as a precautionary measure.

For the first time in years, Egypt's LNG flow could reverse, transforming the country into an LNG importer rather than an LNG exporter.

Gas supply to Egypt has dropped by 70 to 80 % since the closure of Tamar, a gas field that was producing at a rate of 23 million cubic meters a day during the year's first eight months, an International Energy Agency analyst highlighted.

Cyprus LNG terminal ready by July 2024 – Region, 26.10.

Three years after the groundbreaking for the liquefied natural gas (LNG) terminal in Cyprus, a project worth 289 million dollars has been initiated. However, the work remains incomplete, causing a delay in the implementation of a medium-term solution for transporting and utilizing LNG. This delay is significant as it affects consumers seeking an alternative to the rising oil prices.

The most recent update indicates that the terminal's completion stands at 77 %. The land terminal is projected have its construction completed by the third week of July 2024, as per a new schedule submitted by the contractor.

On the other hand, the floating gas regasification and storage unit (FSRU) is progressing rapidly in Shanghai, with an estimated completion rate of 98 %. It is currently undergoing gas trials and addressing issues that arose last August. This week the final checks on the vessel are expected to be completed.

A report by LNG Prime notes that the Cyprus FSRU is in its final testing phase in China. However, due to the time gap between the delivery of the floating unit and the completion of the land terminal at Vassilikos, it may not be operational for at least seven months.

Qatar agrees on 27-year gas supply with Italian Eni – Region, 23.10.

State-owned QatarEnergy has agreed to supply Italian firm Eni with natural gas for 27 years, marking the latest in a series of major deals earlier this month.

Qatar will supply one million tons of gas a year under the deal, QatarEnergy said, following an agreement with Eni for a share of Qatar's huge North Field gas expansion project.

In the wake of Moscow's invasion of Ukraine last year, European nations have rushed to replace lost deliveries of natural gas from Russia.

In June last year Eni agreed to a deal with QatarEnergy for a 3.1 % share in Qatar's North Field East project, the first phase of the Gulf emirate's expansion into the largest gas field on the planet, which extends into Iranian territory.

Deliveries of liquefied natural gas (LNG) to Italy's Tuscany region are expected to begin in 2026.
Eni said in a statement that the deal strengthens its partnership with QatarEnergy, adding involvement in North Field East was in line with Eni's transition strategy, which aims to progressively increase the role of gas.

EU considers extension of gas price caps – Region, 23.10.

EU countries are considering the need to extend the validity of the gas price cap, which was set at 180 euros/MWh, due to the potential increase in gas prices as a result of conflicts in the Middle East and damage to the Balticconnector gas pipeline.

In a report presented to EU member states by the European Commission, it was stated that the gas price cap has not led to negative consequences. Gas supply in EU countries has continued, and its price has fallen by nearly 90 % compared to last year's peak values.

At the same time, as assessed by EU officials, the conflict between Israel and Hamas, as well as sabotage on the Estonian-Finnish gas pipeline, could have a negative impact on gas supply next winter. According to sources, the EU should provide insurance for such a scenario.

Germany, in addition to the European Commission, has also expressed support for extending the upper limit on gas prices because this measure has accelerated the issuance of permits for the construction of wind and solar power plants. German authorities believe that Europe's dependence on non-renewable resources has become evident.

EU energy ministers introduced the gas price cap in December of the previous year. The restriction is activated if the gas price at the TTF gas hub in the Netherlands exceeds the limit, and the price must be at least 35 euros higher than the price of liquefied natural gas on the global market. The measure was introduced due to the sharp increase in gas prices in Europe following a reduction in Russian gas deliveries.

Gazprom is delivering gas to Europe via Ukraine – Region, 22.10.

Gazprom is delivering gas to Europe through Ukraine at a rate of 41.8 million cubic meters per day via the Sudzha gas station in the Russian Kursk region, according to a representative of the Russian company. Gazprom has been delivering Russian gas in transit through Ukrainian territory in the quantity confirmed by the Ukrainian side via the Sudzha gas pumping station since 22 October, amounting to 41.8 million cubic meters. He added that the request for gas deliver-

ies through the Sohranovka pumping station was declined.

On 21 October, 41.5 million cubic meters of gas were transported along the same route.

The transit route through Ukraine remains the sole route for supplying Western and Central European countries with Russian gas, as deliveries through the Nord Stream has been completely suspended after the explosion last year.

EC adopted new ETS regulation for Fit for 55 – Region, 20.10.

The European Commission (EC) announced that it has adopted a delegated regulation establishing a new Auctioning Regulation, following a revision of the Emissions Trading System (ETS) Directive related to the Fit for 55 legislative package and REPowerEU plan.

The statement from the EC said that the Auctioning Regulation continues to set out the technical elements necessary for the good organization of EU ETS auctions, such as the format, timing, frequency of auctions, rules about the auction calendars, eligibility of bidders to participate in auctions, rules on the selection and responsibilities of auction platforms, as well as on market oversight and transparency.

The new regulation will see changes related to the extension of the scope of the Emissions Trading System (ETS) to cover maritime, which includes the reevaluation of the eligibility criteria for admission to auctions of shipping companies. The scope has also been extended to include the auctioning of allowances for a new and separate ETS for buildings, road transport and other sectors.

Additionally, there have been adjustments in provisions for the auctioning of aviation auction volumes. The regulation also entails provisions for the auctioning of allowances for the Innovation Fund, along with the introduction of new provisions for the auctioning of allowances for the Recovery and Resilience Facility in the context of REPowerEU and for the Social Climate Fund.

The changes also focus on improvements IN market oversight and transparency. There are also alterations concerning the rules on the notification of the voluntary cancellation of allowances by member states under the ETS Directive.

Upon entry into force, this act will repeal and replace the old auctioning regulation. Further information is expected to be provided on the publication of the 2024 auction calendars in an upcoming regulatory update.

Natural gas to remain key electricity price-setter in 2030 – Region, 19.10.

According to a study by the European Commission's Joint Research Center, natural gas will continue being a key price setter of the system marginal price, or wholesale electricity price, in Europe in 2030, with a degree of influence similar to that of the present, despite the deepening penetration of renewables in the continent's energy mix.

Natural gas-fired power plants will continue being an influential price-setting technology for wholesale electricity prices in 2030, despite covering only 11 % of the generation mix, the study determined. Last year, natural gas-firedpower plants, covering 19 % of total EU electricity demand, set system marginal price levels 55 % of the time.

Greece is a prime example of the anticipated trend as, in 2030, natural gas is projected to be the price-setting technology for the system marginal price more than 80 % of the time.

Natural gas will continue playing a leading role as a price-setting technology in Europe in 2030 as natural gas-fired power plants are seen replacing higher-emitting lignite and coal-fired power stations, the study noted.

Renewables are projected to keep gaining a bigger share of Europe's generation mix, from 46 % at present to 67 % by the end of the decade.

Also, increasing cross-border grid interconnectivity in the EU will lead to lower wholesale prices and price convergence within the European market.

EU is adequately prepared for upcoming winter – Region, 19.10.

Europe's Agency for the Cooperation of Energy Regulators (ACER) said that the EU is adequately prepared to cover its energy needs this coming winter, despite the effects of prolonged efforts that were needed last winter to overcome unprecedented challenges.

The EU's gas storage facilities are already 90 % full, two months ahead of a November deadline.
Also, in the first two quarters of 2023, a target set for a 15 % reduction in gas demand was achieved, while LNG import capacity has expanded by 20 %, with the global market remaining well supplied, courtesy, in part, to limited demand growth from China.

Increased LNG imports and reduced demand have been key parts of the EU's energy-crisis strategy. LNG imports into the EU-27, as a percentage of overall natural gas imports, doubled from 20 % in 2018-2019 to 40 percent between August 2022 and July 2023. This percentage rise has been greatly attributed to LNG imports from the USA, up six-fold to 600 TWh.

Furthermore, solar, wind and pumped-storage energy solutions are being developed at a faster pace and contributing, slowly but steadily, to Europe's reduced reliance on natural gas.
Despite the overall progress, Europe cannot afford to become complacent. According to Brussels-based economic think tank Bruegel, energy shortage fears have subsided but prices remain high. Also, ongoing global instability could impact the industrial sector and the EU economy, the think tank warned.

The global LNG market, and, by extension, the natural gas market, will remain tight until more liquefaction plants come into play.

Encouragingly, new US LNG facilities to offer an annual capacity of 336 TWh, equivalent to half the EU's LNG imports from Russia, are planned to begin operating in 2024.

ACER to review market rules regulating gas transmission capacity allocation in Europe – Region, 18.10.

The European Agency for the Cooperation of Energy Regulators (ACER) announced that it is planning a public consultation to assess the current market rules and collect views from stakeholders on potential reforms. The public consultation is set to open on 14 November until 5 January 2024. ACER will also hold a workshop on 12 December this year.

The European regulator will benefit from this information when it may recommend amendments to the market rules regulating gas transmission capacity allocation in Europe (Capacity Allocation Mechanisms Network Code).

The statement from ACER said that, with gas markets being impacted by a global pandemic (2020) and a European en-

ergy crisis (2022), the resilience of the current market rules has been tested. Although they have mostly ensured a proper market functioning, lessons have yet to be learned to further enhance market resilience.

The European gas market must also ensure its readiness to align with the latest policy and technological developments, guaranteeing that the decarbonization targets set by the Green Deal can be met.

The importance of having gas market rules which can adequately reflect this evolution was emphasized at the European Gas Regulatory Forum earlier this year. This prompted the revision of the Capacity Allocation Mechanisms Network Code.

The rules for allocating gas transmission capacity have been in place since 2017, when the current version of the Network Code on Capacity Allocation Mechanisms was adopted. These market rules harmonize how network users can utilize the gas transmission network to enter or exit a market, and how these capacity rights can be obtained.

EBRD, Norway provide 199 million euros to increase Moldova's energy security – Region, 17.10.

The European Bank for Reconstruction and Development (EBRD) said that together with Norway it is extending a financing package of 199 million euros to Moldova to strengthen the country's energy security in the context of Russia's invasion of Ukraine.

The package includes a loan of 165 million euros from the EBRD and a grant of 34 million euros from Norway. This takes the total amount of financing provided by the EBRD to Moldova for gas imports since the beginning of the war in neighboring Ukraine to some 500 million euros.

The funds will be used by Moldova's state-owned energy trader Energocom to procure gas on European Union hubs.

Moldova has historically relied on Russian gas imports from Gazprom, but this supply is at risk due to the Ukraine war. To reduce dependence on Russian gas, Moldova is increasing gas imports from Europe, aiming to reach at least 75 % of gas purchases from European sources by next winter.

The Moldovan Government has authorized Energocom to procure gas from alternative sources on the spot market, primarily through tenders on the EU and Ukrainian borders.

Europe's gas reserves almost 97.9 % full – Region, 16.10.

According to data from the European gas operator association Gas Infrastructure Europe (GIE), gas inventories across the European Union and the UK amounted to 1,114 TWh, breaking the previous record on 27 October 2019 when it reached 1,102 TWh.

European underground gas storage facilities are now 97.89 % full, far exceeding the EU's target of 90 % by 1 November.

EU member states, which utilize around 400 billion cubic meters of gas annually, have a natural gas storage capacity of 110 billion cubic meters.

Before the Russian invasion of Ukraine, 40 % of the natural gas consumed in EU nations came from Russia. However, with the outbreak of the war, Russian natural gas exports to the EU have significantly declined.

EU countries had developed legal frameworks mandating the filling of underground natural gas storage facilities prior to the winter months due to the conflict between Russia and Ukraine.

Eighteen of the 27 EU member states have natural gas storage facilities. Germany, Europe's dominant economy, has the highest gas storage capacity, totaling 25.1 billion cubic meters. These are followed by Italy with 20.2 billion cubic meters, the Netherlands with 14.7 billion cubic meters, France with 13.2 billion cubic meters, Austria with 9.8 billion cubic meters and Hungary with 6.9 billion cubic meters.

There is also some natural gas storage capacity in Belgium, Bulgaria, the Czech Republic, Denmark, Spain, Croatia, Poland and Romania.

Currently, Romania and Spain have reached full storage capacity, while Portugal and Poland have reached 99 %, and Slovakia, Germany, and the Czech Republic have a capacity of 98 %.

EU's Clean Transition Dialogue on hydrogen – Region, 11.10.

There is 67 GW of electrolyzer capacity in the pipeline in Europe, more than the EU target by 2030. However, the installed capacity is still low, said European Commission President Ursula von der Leyen. According to the IEA's Global Hydrogen Report 2023, cited by Hydrogen Europe CEO Jorgo Chatzimarkakis, the implementation of projects is lagging worldwide, with only 4 % of all projects having reached a final investment decision.

Ursula von der Leyen and European Commission Executive Vice-President Maros Sefcovic kicked off the first of a series of Clean Transition Dialogues aimed to help implement the European Green Deal and support the decarbonization of European industry.

The first dialogue was dedicated to hydrogen, with European Commission officials engaging with representatives from the entire H2 value chain.

Speaking about achievements of the European Commission regarding hydrogen, von der Leyen said that the EU regulatory framework for hydrogen is almost complete, that massive investments to speed up the transition are in place, and that the development of a global market for clean hydrogen is underway.
She pointed out that the investments are coming via the NextGenerationEU and REPowerEU, that the commission has authorized over 17 billion euros in state aid for 80 hydrogen projects across the EU, and that the first auctions of the Hydrogen Bank are scheduled for next month.

EC confirms improving market fundamentals in gas and electricity markets – Region, 10.10.

According to the European Commission's latest quarterly report, EU gas and electricity markets were marked by a fall in wholesale gas and electricity prices in the first quarter of 2023, after the all-time highs registered during 2022.

In its analysis of the first quarter of 2023, the EC noted the improved market fundamentals that supported the continued downward trend in gas prices, settling at levels at the end of March which were around 75 % lower than in the previous quarter, but still high in historical terms. Gas price markets indicators, such as spreads between spot prices and forward contracts and price premiums on European trading hubs, started to narrow and displayed restored price convergences on the main EU gas hubs, as last year's comprehensive set of EU initiatives to address the energy crisis resulted in tangible improvements. In particular, the record high gas storage levels, significant reductions in European gas demand, robust imports of LNG and a mild winter helped Europe to diversify away from Russian gas imports.

According to the gas market report, wholesale gas prices continued their downward trend from the all-time high of 320 euros/MWh recorded on 26 August 2022. The quarterly average spot price for January to March was 53 euros/MWh, representing a 44 % decrease from the previous quarter's average and a 45 % decrease year-on-year.

In parallel with this price decline, EU gas consumption and imports dropped significantly. Gas consumption fell by 13 % year-on-year, well below the five-year average, even if there was a rebound of 19 % after a decline (-21 %) to very low consumption in the previous quarter.

The share of Russian pipeline gas in total EU gas imports during the quarter further decreased to 8 %. Russia's share of total gas imports in the EU (pipeline gas and LNG) dropped to 14 % from 15 % in the previous quarter and from 42 % in the same period last year. Norway remained the largest pipeline gas exporter to the EU (with 53 % of the total, 21.7 billion cubic meters), followed by North-Africa (18 %, 7.3 billion) and Russia (12 %, 5 billion).

LNG accounted for 42 % of the EU gas imports during the first quarter of 2023, a significant increase from the 33 % a year earlier. The US remained the EU's biggest LNG supplier with a 41.5 % share, followed by Russia (19 %) and Qatar (12 %). The EU remained the number one LNG importer in the world with 31.2 billion cubic meters or 22 % of global LNG imports, followed by Japan and China.

Record 16.5 billion cubic meters of gas purchased via the EU Energy Platform – Region, 09.10.

Since the European Commission set up the EU Energy Platform in the spring of 2022, it has been a central part of the EU's efforts to boost its energy security and accelerate its diversification away from Russian gas.

According to the Vice-President of the European Commission Maros Sefcovic, the third tender for the common purchase of gas brought a record in aggregated demand - 16.49 billion cubic meters, based on requests submitted by 39 European companies.

Sefcovic said that this proves that companies are interested in the joint purchase of gas as an opportunity to improve the security of supply and negotiate better prices. The supplies offered amounted to 18.1 billion cubic meters of gas. This is similar to the first round where the amount reached 18.7 billion and represents an increase on the second round, which reached 15.19 billion cubic meters. In turn, the Platform matched 11.86 billion cubic meters of demand.

Overall the EU Energy Platform is delivering consistently excellent results in aggregating demand and coordinating the purchase of natural gas. The total supplier bids of the three tenders amount to more than 50 billion cubic meters. And the total demand matched is now more than 34 billion cubic meters.

40 non-resident traders have stored over 2 billion cubic meters of gas in Ukraine – Region, 06.10.

Gas Transmission Operator of Ukraine (GTSOU) said that 40 non-resident companies are actively using the country's short-haul gas storage services between April and September, as the gas injection season ends on 31 October.

Throughout the current gas injection season, the Ukrainian operator has concluded 25 new contracts for the provision of transporting services for non-residents, with more than 130 foreign clients in total.

GTSOU CEO Dmytro Lyppa said that the reliability and responsibility that the transmission and storage system operators demonstrate in the provision of natural gas transportation and storage services have been highly appreciated by

European customers. The situation on the European gas market creates a demand for additional storage facilities. This demand can and should be covered by Ukraine that provides its international partners with cost-effective services at very competitive prices.

Head of Ukrtransgaz, which operates Ukrainian underground gas storages, Roman Maliutin said that, as of 4 October, non-resident traders have injected and stored more than two billion cubic meters of gas in Ukraine. Changes in gas flows make the Ukrainian underground gas storages an integral part of the European energy market, and Ukraine's gas storage system will play an increasingly more important role in price trends and EU energy security.

According to him, the company's certification as a storage system operator in April of this year creates broad prerequisites for further European integration of the Ukrainian natural gas market and work on green energy projects.

Europe could become energy self-sufficient with investments of 2 trillion euros – Region, 05.10.

Europe could wean itself off fossil fuels and create a self-sustainable energy sector by spending around 2 trillion euros on solar, wind and other regenerative sources by 2040, according to a new study.

The report, led by the Potsdam Institute for Climate Impact Research, said the continent would require annual investments of 140 billion euros by 2030 and 100 billion a year in the decade thereafter to get there.

While most of the sum would be needed for onshore wind expansion, solar, hydrogen and geothermal resources would be additional pillars of a strategy that would enable Europe's electricity needs to be powered exclusively from renewables by 2030. It would take another decade to convert the entire energy system, including things such as heating currently powered by oil or gas, to renewables.

According to the study, these figures are considerable, but it is important to remember that the European countries are estimated to have spent additional 792 billion euros in the last year just on the status quo system to protect consumers from the effects of the energy crisis introduced by the Russian invasion of Ukraine.

Last month, European lawmakers gave their final approval to legally binding targets to expand renewable energy faster this decade, a central part of Europe's plans to curb climate change and shift away from fossil fuels.

The law raises the EU's renewable energy targets, requiring 42.5 % of EU energy to be renewable by 2030, replacing a previous 32 % target.

Slovenia and Hungary signed memorandum on gas interconnection – Region, 04.10.

The relevant Ministers of Slovenia and Hungary signed a political memorandum regarding cooperation between the two countries in the field of natural gas supply. The memorandum outlines the efforts to build a gas interconnection between the two countries.

The purpose of the memorandum is to define cooperation in connecting the gas systems of the two countries. The memorandum states that the two Ministries will make every effort within their power to enable the operators of the two transport systems to realize the construction of a gas pipeline with a two-way capacity of 50,000 cubic meters of gas per hour, which means 0.44 billion cubic meters annually, and an expected gas pressure of 45 bars at the interconnection point.

In addition, the two Ministries will advocate for the Governments of both countries to conclude a solidarity gas supply agreement when the interconnection point between the gas pipeline systems is established. They will also promote further cooperation between the operators of the gas transportation networks of both countries.

The result of discussions between the Slovenian operator Plinovodi and the Hungarian gas pipeline system operator FGSZ was the decision to first build two capacity levels (25,000 and 50,000 cubic meters of gas per hour) for both directions of flow on the sections of the gas pipeline on the Hungarian side from the village of Tornyiszentmiklos on the border with Slovenia to the town of Nagykanizsa and the border measurement station.

The Slovenian side will need to build the entire gas pipeline connection from Kidricevo to Pince, a distance of 75 kilometers, and an additional compressor unit in Kidricevo to ensure two-way capacity. The estimated investment value on the Slovenian side is approximately 121 million euros.

Natural gas price falls in Europe due to high temperatures and full storages – Region, 03.10.

Reference prices for natural gas on the European market fell in early October thanks to the unusually high temperatures for this time of the year and the high level of storage filling.

On 2 October at the TTF gas hub in Amsterdam, where European benchmark prices are set, natural gas futures for November delivery were down 2.4 % at 40.86 euros/MWh, after decreases of up to 3.5 % were recorded during the weekend.

Weather forecasts show that temperatures in northwest Europe will remain above the multi-year average for most of October as gas injection into storage facilities continues. According to the latest data from Gas Infrastructure Europe, gas storage facilities in Europe are already at a degree of filling of more than 95 %.

Europe enters the fourth quarter with unusually warm weather, which creates the prospect for saving fuel stocks as the start of the heating delivery season is delayed. However, the continent is still vulnerable to possible supply problems and risks, after last year's historic energy crisis.

As of 1 October, natural gas deliveries from Algeria to Italy were below normal, data from Italy's transmission system operator showed. In parallel, gas extraction from the Groningen field in the Netherlands was stopped on 1 October, as planned.

Even if these developments and other factors affect supply for now, demand for gas and electricity should be higher in the fourth quarter of this year compared to the same period last year, say analysts from S&P Global Commodity Insights. Europe is expecting the first significant annual increase in demand for gas and electricity since the beginning of the crisis, but prices remain sensitive to supply disruptions. According to them, gas demand will increase by 5.9 % in the fourth quarter, after remaining at a limited level until now as a result of reduced consumption by producers and households.

EU launched the first phase of CBAM – Region, 02.10.

The European Union launched the first phase of the world's first system to impose CO2 emissions tax on imported steel, cement and other goods as it tries to stop more polluting foreign products from undermining its green transition. However, The EU will not begin collecting any CO2 emission charges at the border until 2026.

This marks the start of an initial phase of the Carbon Border Adjustment Mechanism (CBAM) when EU importers will have to report the greenhouse gas emissions embedded during the production of imported volumes of iron and steel, aluminium, cement, electricity, fertilizers and hydrogen.

Importers will from 2026 need to purchase certificates to cover these CO2 emissions to put foreign producers on a level footing with EU industries that must buy permits from the EU carbon market when they pollute.

European Economy Commissioner Paolo Gentiloni said the aim was to encourage a worldwide shift to greener production and to prevent European manufacturers relocating to countries with lower environmental standards.

It is also meant to prevent them from losing out to foreign competitors while they invest to contribute to meeting EU targets to cut the EU's net emissions by 55 % by 2030 from 1990 levels.

Network fees remain stumbling point for agreement on EU hydrogen rules – Region, 02.10.

As the European Union finalizes its hydrogen and gas rulebook, key issues remain on how to remunerate network operators for building and maintaining Europe’s future hydrogen network.

The European Commission tabled its hydrogen and decarbonized gas market package in December 2021, paving the way for Europe to transition towards low-carbon fuels. But there is a long way to go before the EU reaches its goal of producing 10 million tons of renewable hydrogen in Europe while importing the same amount by 2030.

And as more projects emerge, market players are calling for clear rules at the EU level to encourage investments in supply as well as transport infrastructure. For the time being though, investors have adopted a wait-and-see attitude as Europe finalizes its hydrogen and decarbonized gas market package.

According to Maria Sicilia Salvadores, Chair of the European Hydrogen Backbone, hydrogen pipeline projects spanning 20,000 kilometers are currently awaiting approval. However, a final investment decision has yet to be made because of regulatory uncertainty holding up decision-making.

Among the key uncertainties is the remuneration model to finance hydrogen infrastructure. In its original proposal, the European Commission proposed abolishing cross-border tariffs for hydrogen transport, arguing that this hinders trade between EU countries. The more borders are crossed, the higher the effect of adding tariff layer on tariff layer, which is called the pancaking effect.

The removal of cross-border tariffs is strongly rejected by ENTSOG, the association of European gas network operators. In a 2021 paper, ENTSOG argued against their abolition, saying this would cause significant complexity for pipeline operators without lowering costs for consumers.

Their arguments are also supported by Klaus-Dieter Borchardt, a former senior European Commission official. According to him, cross-border tariffs merely reflect the cost of investment in the infrastructure as well as the cost of moving hydrogen from one network to another. Removing them will not eliminate the need for operators to recover their costs, he explained, saying operators will therefore have to shift the costs further upstream, at the level of entry and exit tariffs applied to hydrogen when it is injected or taken out of the network.

Recalculating those tariffs will therefore require different network operators and regulators with different allowed revenues to agree on a cost-sharing mechanism between themselves, he continued, saying this will have to be made by

establishing a compensation mechanism between network operators.

Borchardt stressed that is an absolute no-go for gas operators, because when you are doing this you are redistributing money which is not related directly to the investment that has been done, which would create maximum complexity for member states and national regulatory authorities. Moreover, the amount of compensation will have to be recalculated between 27 EU parties every time new hydrogen infrastructure is added to the network.

North Adriatic Hydrogen Valley officially launched – Region, 02.10.

The North Adriatic Hydrogen Valley (NAHV) was officially launched in Portoroz, Slovenia, where more than 100 delegates representing 37 project partners from three countries, Croatia, the Friuli Venezia Giulia Autonomous Region in Italy and Slovenia, gathered.

Beginning on 1 September 2023, the NAHV will run for 72 months and it includes 17 pilots to be developed in different locations in all three partner countries.

The partnership, which has been awarded a grant of 25 million euros by the Clean Hydrogen Partnership and is led by HSE, Slovenia's largest electricity producer and trader and the largest producer of electricity from renewable sources, includes 37 organizations: companies, universities, institutes and other public entities from the three participating countries.

HSE CEO Tomaz Stokelj said that HSE Group is a leading protagonist of Slovenia's green transition, therefore all of its development projects are directed towards decarbonization and sustainable transformation of the Slovenian energy sector and therefore, of Slovenia as a whole and the NAHV project is fully consistent with this vision. Hydrogen is emerging as one of the key energy sources of the future, as it will make an important contribution to achieving national targets and the key objectives of the European Green Deal.

The project design covers the entire value chain of renewable hydrogen use, from production, through storage and distribution, to its end use in various sectors, notably industry and land and maritime transport, creating leverage to accelerate the transition to renewables on three target pillars: hard-to-abate industries, energy and transport sectors.

The key aim of the initiative is to create a market for green hydrogen on both the demand and supply sides, making it a competitive energy source for the future. Key industry players from all three countries will develop pilot projects to produce up to 5,000 tons of renewable hydrogen per year from renewable energy sources, destined for energy storage, distribution and use. It is expected that some 20 per cent of the produced renewable hydrogen will be exchanged between the participating countries, thus creating a primary regional market for hydrogen. By introducing advanced hydrogen technologies and developing skills and infrastructure, the partnership also pursues other key objectives of the European Green Deal.

It is expected that the implementation of the planned mature stage innovation activities will unleash further investments in renewable hydrogen-related technologies in an amount of more than 300 million euros, destined to increase the capacity of hydrogen production, storage, transmission and use. Additional investments are expected to be funded on top, both during the course of the project implementation and afterwards, from private and public sources in the form of follow-up investments in the successfully implemented pilots in 17 testbed locations across the three participating countries, as well as through new initiatives which will contribute to the evolution of a social and economic ecosystem based on renewable hydrogen.

Bosnia and Herzegovina

Gas imports dropped by 19.2 % year-on-year in August – Bosnia and Herzegovina, 25.10.

According to Agency for Statistics of Bosnia and Herzegovina (BiH), natural gas imports in August 2023 amounted to 8.45 million cubic meters, which is 19.2 % less than in the same month last year (10.46 million cubic meters).

Bulgarian gas transit fee will lead to significant price increase in RS – Bosnia and Herzegovina, 24.10.

The Director of Zvornik-based gas company Prvo Gasno Drustvo Dusan Kozic said that Bulgaria's decision to impose an additional 30 % tax on the transit of Russian gas through its territory will significantly affect the increase in the price of this energy source in the Republic of Srpska (RS).

After a meeting with the director of the company Sarajevo Gas Nedeljko Elek, Kozic said that RS will wait for the response from Hungary and Serbia to Bulgaria's new measures and adapt to their policy.

He said that the new fee will mean an additional 120 dollars per 1,000 cubic meters for the RS. It is obvious that this has been done under pressure from the United States to equalize the price of Russian gas with their LNG gas to be competitive in these markets, he explained.
In addition to discussing the new situation with Bulgaria, Kozic also discussed with Elek about expanding the gas network towards Jahorina, Pale, Visegrad and other parts of the RS that currently lack access to the gas infrastructure.

He stated that the expansion of the network is an ongoing project that has been in progress for more than a year and will continue throughout the next year.

Federal Government approved 4.96 % rise in wholesale gas price – Bosnia and Herzegovina, 21.10.

The Government of the Federation of Bosnia and Herzegovina (FBiH) has approved an increase of 4.96 % of the wholesale gas price, after cutting it twice earlier this year.

Under the decision, the wholesale gas price is rising to 427.7 euros per 1,000 cubic meters, VAT excluded, applicable as of 1 November.

The Government added it acted at the request of state-owned gas supplier Energoinvest, which sought price adjustment in line with the increasing global market prices and the expected decrease in oil supply by the end of the year.

Energoinvest decreased the price of gas deliveries by 12.53 % in April and additional 7.96 % in July.

Gazprom delivers gas to Energoinvest under a long-term agreement, with the price adjusted on a quarterly basis. The Russian gas is flowing to Bosnia via Turkey, Bulgaria and Serbia.

LNG plant worth 20 million euros to be built in Zvornik – Bosnia and Herzegovina, 14.10.

Prime Minister of the Republic of Srpska (RS) Radovan Viskovic held talks in Moscow with representatives of the Sapienti company regarding the RS gasification project. PM Viskovic said that a facility for converting natural gas into a liquid, worth some 20 million euros, is planned to be built in the Zvornik area. He explained that gas will be transported in a liquid state to the consumer's location. Converting natural gas into a liquid is done for those consumers for

whom it is impossible or uneconomical to build a gas infrastructure. He added that Russian company Sapienti is interested in investing in this project.

He also mentioned that the TPP Gacko could potentially use liquid gas instead of fuel oil, and there are other potential users as well.

RS Minister of Energy and Mining Petar Djokic also attended the meeting and emphasized that some RS companies have expressed the need for long-term usage of natural gas. According to him, a study will be prepared in collaboration with the potential investor, based on which the advantages of using gas compared to their previous energy sources for production will be demonstrated. He added that users of this system could be large energy facilities, such as the Banja Luka district heating company, which is currently facing significant difficulties in procuring wood chips.

Azerbaijan has shown interest in Brod refinery – Bosnia and Herzegovina, 10.10.

Minister of Energy and Mining of the Republic of Srpska (RS) Petar Djokic said that Azerbaijan has shown some interest in cooperation regarding the oil refinery in Bosanski Brod.

Minister Djokic said that Azerbaijan will cooperate with the refinery's owner, Russian company Zarubezhneft. The Ministry has some information that Azerbaijan is in the initial phase of interest and they will further analyze and evaluate possible participation.

He emphasized that RS is interested in reviving oil processing at the Brod refinery. At the moment, Zarubezhneft has not found restarting economically viable because the total turnover the refinery had when it was operational was small, and it operated at a loss for several years. It had production ranging from 750,000 to 900,000 tons per year. However, the annual production at the refinery would need to be between 1.3 to 1.9 million tons for it to justify its operations.

Althought the refinery is not operational, it invested a lot in the gasification of its processes. Namely, it built a gas pipeline connecting the refinery to Croatian gas transmission system, allowing it to import gas independently from BiH authorities.

Oil refinery in Bosanski Brod recorded a net loss in the amount of 21.7 million euros in 2022, compared to a loss of 59.2 million euros in the previous year. The company's operating revenues rose to 35.4 million euros in 2022 from 1.85 million euros a year before. On the other hand, its operating costs dropped to 55 million euros from 64.6 million euros in 2021. Accumulated loss of the refinery has reached 419 million euros at the end of 2022.

The auditor's report said that the Russian owners have committed to providing financial support to the refinery in Brod, ensuring the necessary funds for the timely settlement of matured obligations, and have no plans to liquidate this company in the next year. As in previous years, the auditor warned that the company's ability to continue operating in accordance with the going concern principle depends on the continuous financial support of the parent company.

Oil refinery in Bosanski Brod, as well as the refinery in Modrica and Nestro Petrol in Banja Luka are all part of Optima Group, majority owned by NefteGazInkor, a subsidiary of the Russian company Zarubezhneft.

Bulgaria

EU Court overturned BEH's 77 million euros fine – Bulgaria, 27.10.

The General Court of the EU overturned the European Commission's decision against the Bulgarian Energy Holding (BEH), which fined it 77 million euros in 2018 for violating competition rules on the European market.

According to the court ruling, the European Commission (EC) did not properly prove that the BEH group abused its dominant position on the gas supply market in Bulgaria by not granting third parties access to the Romanian gas pipeline, through which natural gas was mainly imported at the time.

The case was brought by BEH after the European Commission ruled on a complaint by gas supplier Overgas against BEH's subsidiaries Bulgargaz and Bulgartransgaz for blocking competitors' access to key gas infrastructure and thus depriving consumers of choice providers.

However, according to the General Court of the EU, it is not clear that the lack of access to the Romanian route is at the root of the difficulties faced by third parties who want to gain access to the said gas pipeline in order to supply gas from Russia to Bulgaria. Thus, all the irregularities that Bulgartransgaz may have hypothetically committed in connection with the gas transmission network and the gas storage facility at Chiren cannot constitute a violation of the competition rules of the EU, since no company could enter the Bulgarian gas market, without access to the Romanian gas pipeline.

The General Court also accepted that the EC had not given the BEH the opportunity to fully develop the position about the offense of which she is accused and thus violated its right to defense.

In 2018, the EC decided that BEH had blocked access to Bulgaria's internal gas transmission network, to the gas storage facility at Chiren and to the then-only gas import pipeline in Bulgaria, which was fully reserved by the company. The violation was carried out between 2010 and 2015. Thus, the state company's competitors could not enter the wholesale gas supply market and this ensured an almost monopoly position for Bulgargaz.

Transit fee will only affect Gazprom – Bulgaria, 25.10.

Bulgarian Prime Minister Nikolai Denkov said to the ambassadors of the countries of the European Union that the recently introduced tax for the import and transit of Russian gas through Bulgaria will not have a negative impact on European consumers. It will only affect Gazprom's profits.

PM Denkov said that the EU should not be dependent on Russian gas. It is not permissible to use European taxpayers' money to finance Russia's war against Ukraine. He recalled that in recent years a lot of work has been done so that Europe can receive gas from different sources.

TotalEnergies to supply LNG to Bulgargaz in January-February 2024 – Bulgaria, 24.10.

Bulgarian state-owned gas supplier Bulgargaz said that it has selected French TotalEnergies Gas and Power as the winner of a tender for deliveries of liquefied natural gas (LNG) in the first two months of 2024.

The statement from Bulgargaz said that TotalEnergies was ranked first out of nine companies which submitted offers in the tender launched earlier this month. Deliveries in the first two months of 2023 are planned in the amount of 1 mil-

lion MWh per month, to be carried out via LNG terminals in Turkey.

In early October, Bulgargaz launched a tender for the delivery of 4 million MWh of LNG, or some 375 million cubic meters of gas, for January, February, June and July 2024, to be shipped to terminals in Turkey.

Deliveries to Bulgaria via the Turkish gas infrastructure became possible at the beginning of the year when Bulgargaz signed a long-term agreement with Turkish pipeline operator BOTAS, which enabled the first shipment by Chevron in April.

Bulgartransgaz launched studies for increased interconnector capacity to Greece, Romania – Bulgaria, 24.10.

Bulgarian natural gas transmission system operator Bulgartransgaz said that it is launching joint technical studies with regional peers for boosting gas transmission capacity of the interconnections with Greece and Romania.

To this end, Bulgartransgaz will partner with Greek DESFA, Romanian Transgaz and independent transmission operator ICGB, which operates the Greece-Bulgaria interconnector.

Preliminary technical studies are due to be completed by 15 January 2024 and will be followed by one month of public consultations. Following that, the transmission operators will seek approval for the project proposals from the relevant national regulators. The binding phase of the market test is indicatively slated to begin on 1 July 2024.

Bulgartransgaz CEO Vladimir Malinov said that the main factor for the increase in demand for transmission capacity through Bulgaria's network is the rising role of liquefied natural gas in the EU and the envisaged new LNG terminals in Greece, as well as the plans to increase the flows along the Southern Gas Corridor.

As a result of a non-binding market test conducted this summer, Bulgartransgaz is now looking to increase the capacity of the Bulgarian-Greek interconnection point (IP) at Kulata-Sidirokastro to155.9 GWh per day from the existing firm capacity of 66.6 GWh per day.

The transmission volumes between Bulgaria and Romania would be raised to 302.2 GWh per day in total for the Negru Voda 1-Kardam and Ruse-Giurgiu IPs, from an aggregate existing capacity of 185.2 GWh per day.

Natural gas amounts flowing through the Greece-Bulgaria interconnector at IP Stara Zagora in Bulgaria are set to grow to 182.4 GWh per day from 122.3 GWh per day on the Bulgarian side. The interconnector ensures delivery to Bulgaria of natural gas from Azerbaijan and is part of the Southern Gas Corridor linking the Caspian gas basin to Italy across the Adriatic Sea.

In a separate document, Bulgartransgaz said that it will not need to increase capacity at the Kireevo-Zajecar IP with Serbia, because the total demand indications it has received were lower than the existing available capacity on the Bulgarian side in the direction of Serbia. Serbia expects to complete by the autumn the construction works on its territory for a gas link with Bulgaria.

The 170 kilometers gas link between Bulgaria and Serbia is planned to have a capacity of up to 1.8 billion cubic meters. Bulgartransgaz added it will work where needed with Serbian peer Gastrans on the latter's plans to increase its technical entry capacity to 406.5 GWh per day, the same as the current capacity on the Bulgarian side.

EC looking into Bulgarian tax on Russian gas transit – Bulgaria, 20.10.

The European Commission (EC) has confirmed that it is discussing with Bulgarian authorities the introduction of a fee on Russian gas transits.

EC Spokesperson Olof Gill said that the EU sanctions policy towards Russia is designed, reviewed and adopted at EU level as has been the case since the beginning of the Russian aggression in Ukraine.

Bulgaria enacted a fee of some 10.5 euros/MWh for Russian gas transited through Bulgaria via BalkanStream pipeline on 13 October. The Government said that it would generate additional revenues for the country, would ensure level playing field of Russian pipeline gas and alternative non-Russian gas supplies, and reduce Russian revenues used in its war of aggression in Ukraine.

Hungary and Serbia are opposing the new Bulgarian fee, claiming that it would increase the price they pay for the Russian gas. Bulgarian President Rumen Radev has joined the critics of the fee, saying that with it the Government is acting against the interests of an EU and its neighbors, threatens to undermine Bulgaria's role as a gas transiting country and will bring financial instability to Bulgarian gas transmission system operator Bulgartransgaz.

EC to investigate Bulgargaz' gas supply deals – Bulgaria, 20.10.

Bulgarian state-owned gas supplier Bulgargaz said that it received enquiries from the European Commission's Directorate-General for Competition regarding its natural gas supply agreements. The period under investigation covers the past few years, with the Commission seeking information about supplier and partner contract relationships and details on supplies.

The EC has sent questions to Bulgargaz related to its recent contract concluded with Turkish pipeline operator BOTAS. In January, Bulgargaz signed a long-term deal with BOTAS to gain access to Turkey's natural gas network and five liquefied natural gas (LNG) terminals, as part of efforts to diversify its sources of supply after Russia's Gazprom ceased deliveries to Bulgaria soon after Russia's invasion of Ukraine. The first LNG delivery to Bulgaria, from US company Cheniere, arrived in April 2023.

Currently, Bulgaria covers its energy needs with deliveries of natural gas from Azerbaijan via the Greece-Bulgaria interconnector and supplementary volumes of LNG from terminals in Greece and Turkey.

Bulgargaz predicts huge gas price increase in December – Bulgaria, 18.10.

Bulgarian public gas supplier Bulgargaz said that it projects a wholesale natural gas price for December of 47.1 euros/MWh, based on prices for the commodity on the European gas hub TTF. Namely, the price proposal is 10 % lower than the TTF natural gas futures price for December delivery.

Bulgarian Commission for Energy and Water Regulation (KEVR) approved a wholesale natural gas price of 30.9 euros/MWh for October. The price forecast by Bulgargaz for December is 52.6 % higher than at present and 37 % above the initial price proposal for November, which stands at 34.4 euros/MWh.

Last week, Bulgargaz launched a tender for the delivery of 4,000,000 MWh of liquefied natural gas (LNG), which is some 375 million cubic meters of regasified natural gas, for 2024. The quantities should be divided equally for deliveries in January, February, June and July through terminals in Turkey.

In January, Bulgargaz signed a long-term agreement with Turkish BOTAS with the aim of importing gas through the Turkish natural gas network and five LNG terminals. It received its first shipment under the contract in April, from US company Cheniere.

Bulgaria imposed tax on Russian gas transit via BalkanStream – Bulgaria, 16.10.

Bulgaria has imposed a tax on Russian gas supplied through the BalkanStream pipeline to cental Europe.

The new legislation introduces a tax of some 10.5 euros/MWh of Russian natural gas transited through the country. The fee makes up about 20 % of the current cost of gas futures at the TTF hub in the Netherlands, Europe's gas benchmark.

Until 2022, Russian gas company Gazprom was one of the key suppliers of pipeline gas to Bulgaria. However, after the local authorities refused to pay for supplied gas in rubles, direct exports to the Balkan country were halted.

While Bulgaria no longer imports gas from Russia for domestic use, it has remained one of the few routes for its delivery to the EU after flows diminished due to war in Ukraine and the sabotage of the Nord Stream pipeline. About a half of Russian pipeline gas destined for the EU currently goes through Bulgaria, entering via the TurkStream pipeline.

Experts warn that Bulgaria's new tax could jeopardize supplies to a number of countries in southeastern Europe, including Hungary and Serbia, which continue to rely on Russia for most of their gas needs. Hungarian Foreign Minister Peter Szijjarto called the measure unacceptable, adding that both Hungary and Serbia are already taking steps to ensure that Bulgaria cannot apply the legislation to their gas imports.

Bulgaria expected to have significant gas production by 2030 – Bulgaria, 12.10.

Chair of the Parliamentary Committee on Energy Delyan Dobrev said that expectations are that in 2030 Bulgaria will have significant natural gas production that will not only be enough for domestic consumption, but also to be exported.

According to Dobrev, natural gas exploration in the Black Sea's Bulgarian territorial waters is advancing. He said that time will prove that the decision to ban shale gas extraction in Bulgaria, taken in 2012, was wrong.

Bulgargaz proposes 11 % wholesale gas price hike for November – Bulgaria, 11.10.

Bulgarian state-owned gas supplier Bulgargaz has proposed higher wholesale natural gas price to be applied for November 2023.

The statement from the company said that the price for November should be around 34.4 euros/MWh, which is 11 % higher compared to the price approved for October – 30.9 euros/MWh, which was a decrease of 4.6 % compared to September.

The statement from the company said that Natural gas prices for November deliveries on the main European TTF gas hub have gone up by more than 25 % in the past week, to 49 euros/MWh, for several reasons. These include the attacks on Israel, the threat of strikes at liquefied natural gas (LNG) facilities in Australia and the leak on the Baltic gas pipeline to Scandinavia.

Bulgargaz will submit its final request for the price applicable for November on 31 October. Bulgarian Commission for Energy and Water Regulation (KEVR) has the final say on the proposed monthly changes in the wholesale price, at which state-owned Bulgargaz sells natural gas to end-suppliers and customers directly connected to its transmission network.

EC approved Bulgaria's 400 million euros support scheme for Bulgargaz – Bulgaria, 10.10.

The European Commission (EC) said that it has approved a Bulgarian state support scheme worth around 400 million euros provided to state-owned natural gas supplier Bulgargaz, in the context of Russian invasion of Ukraine.

The statement from the Commission said that the state loan to Bulgargaz was necessary in order to ensure an uninterrupted supply of natural gas to Bulgaria amid surging energy prices on the global markets and after the halt of deliveries by Russian company Gazprom in April 2022, which had until then provided 90 % of the total gas volumes to cover the country's needs.

The EC found that the support scheme is in line with the provisions of the EU's Temporary Crisis Framework adopted in 2022 to tackle serious economic challenges borne out of the war and was a necessary, appropriate and proportionate measure by the Bulgarian state.

The aid to Bulgargaz was granted by the Bulgarian Ministry of Energy in the form of a loan with subsidized interest rates. According to the Temporary Crisis Framework, the three-year loan was provided before 31 December 2022 to cover urgent liquidity needs for working capital purposes and had interest rates aligned with the minimum levels set out in the framework.

Direct Petroleum gets approval to end gas concession – Bulgaria, 04.10.

The Bulgarian Government said it has accepted a request for the termination of a concession for natural gas and condensate extraction in the Koynare field in the north of the country by the concession holder, Direct Petroleum Bulgaria.

The statement from the Government said that the company gave technical and economic reasons for its request, such as a drop in pressure and increasingly difficult extraction at a constant flow rate, which renders the concession economically unviable.

The concession agreement includes the Deventsi, Borovan, Vranyak and Sadovets extraction areas located in the municipalities of Vratsa, Borovan, Byala Slatina, Dolni Dabnik, Cherven Bryag and Knezha.

Direct Petroleum Bulgaria, a subsidiary of US-based TransAtlantic Petroleum, signed a concession deal for the Koynare field in 2013. The four extraction areas cover 221 square kilometers and the concession had a term of 35 years.

IGB pipeline transports 16.4 million MWh of gas in its first year – Bulgaria, 02.10.

The Greece-Bulgaria gas interconnection (so-called IGB pipeline) has transported 16.4 million MWh of natural gas in its first year of commercial operation. CEOs of the independent transmission system operator ICGB George Satlas and Teodora Georgieva said that, throughout its first year, IGB pipeline has upheld an impeccable record, meeting all daily nominations with no major interruptions in gas flow.

Currently, IGB pipeline has a total of 39 registered users. The pipeline operates with a technical capacity of 3 billion cubic meters per year, with most of its capacity already booked for the new gas year. The interconnector now supplies approximately half of Bulgaria's internal gas consumption requirements. With the evolving security dynamics in the region, IGB quickly became key infrastructure that can also enable natural gas transport to Moldova and Ukraine via the Trans-Balkan gas pipeline.

ICGB has recently initiated the start of the incremental capacity procedure to assess the market demand in expanding IGB's capacity to 5 billion cubic meters per year, with encouraging signals emerging from the non-binding phase.

Bulgartransgaz launched auction for additional gas volumes in October – Bulgaria, 02.10.

Bulgarian natural gas transmission system operator Bulgartransgaz has launched an auction for the purchase of 100,050 MWh of natural gas in October to cover technological needs of the gas transmission system.

The necessary volume needs to be delivered from 9 October to 1 November, with the daily amount required to be up to 4,350 MWh.

The auction will be held on the Balkan Gas Hub trading platform on 6 October.

The starting price of the auction is the natural gas price at which the public supplier sells to final suppliers and to persons who have been issued a license for heat production and transmission, approved by KEVR for October 2023, decreased with discount of 0.2 euros/MWh.

Croatia

INA's profit dropped by 58 % in the first nine months of 2023 – Croatia, 27.10.

Croatian oil company INA recorded a net profit in the amount of 158 million euros in the first nine months of 2023, which is 58 % lower compared to the same period last year.

Macroeconomic stabilization of hydrocarbon prices continued throughout 2023 so did the price environment decrease for final products, compared to the first nine months 2022. This resulted in 45 % lower EBITDA compared to same period 2022 amounting to 341 million euros.

Following the external environment, EBITDA of Exploration and Production segment declined by 43 %, while at the level of 293 million euros it is still the main cash generator of the company. Natural decline of production was 6 %, expected and in line with the portfolio maturity and turnaround of gas treatment facilities, although some increase of production is visible in Egypt due to development activities.

Refining and Marketing including Consumer services and Retail segment operations are adversely impacted by lower margin environment. Despite the market challenges, safe supply of the market was ensured also in the tourist season, with the usual peak of sales. Retail fuel sales volumes increased by 22 % comparing first nine months of 2023 and 2022, however retail fuel price regulation continued to depress the segment's financial result. Rijeka Refinery is in operation, with significant positive contribution to the result. Strong tourist season alongside with additional offer expansion resulted in further growth of non-fuel margin (+31 %).

Investment activities resulted in 282 million euros spending, which is 11 % increase compared to the first nine months 2022, out of which 85 million euros is related to acquisition of additional 25.25 % share in OMV Slovenia, which increased INA's share in this company to 33 %. Rijeka refinery upgrade project reached 81 % of total completion as the key investment project while Exploration and Production investments increased by 11 % due to higher Croatia onshore exploration activities.

President of the Management Board Zsuzsanna Ortutay said that 2023 is marked by the stabilization of hydrocarbon prices, but also by investment cycle throughout INA segments. Rijeka refinery upgrade project, key project for INA long term refining operations sustainability, continues with the overall project completion reaching 81 %. Following the construction of two solar power plants, INA takes a further step in the direction of new and renewable energy sources, with two exploration geothermal concessions won in Croatia. INA's investments resulted also in increase of production in Egypt by almost 10 %, compared to first nine months 2022. The Egyptian East Damanhur concession, acquired in 2020, started up with gas production in September. Also, a major regular turnaround on the Croatian gas facilities has been successfully completed.

Retail results are sturdy, supported by strong tourist season and non-fuel margin growing by 31 % compared to the first nine months 2022. Although the logistics during the peak of tourist season was challenging, safe and stable supply was maintained. INA welcomed the cancellation of regulation on the sale of its gas production in July, however the company remains exposed to continued fuel sales margin regulation, resulting in continued opportunity losses.

INA started gas production in Egypt – Croatia, 26.10.

Following the commercial gas discovery in late 2022 in the East Damanhour block in the Nile Delta, the gas well was rapidly connected to the production infrastructure of the Disouq field located nearby and was put into production on 26 September 2023. INA's initial production share is approximately 200 barrels of oil equivalent per day.

In 2021, INA entered into the East Damanhur concession as a 20 % partner with operator Wintershall DEA and partner Cheiron Energy, and this year, they completed the exploration activities.

CEO of INA Zsuzsanna Ortutay said that Egypt is INA's key foreign market for oil and gas exploration and production, where the company has had a long-standing presence. Therefore, it is particularly proud of this project because it is the first time INA is producing gas in Egypt.

Croatian natural gas system has never been more prepared for winter – Croatia, 17.10.

The Croatian natural gas system, with the gas storage facility in Okoli at maximum capacity, is well prepared for the beginning of the heating season and the upcoming winter.

Regarding gas consumption trends, Croatia experienced a significant decrease in gas consumption of up to 17 % in 2022, totaling 24.5 TWh. This decrease was primarily due to the fact that Petrokemija, which consumes nearly one-third of the country's gas, was out of operation, a situation that continued into the current year.

As a result, industrial gas consumption in 2022 dropped to 71 %. Gas consumption is expected to remain at approximately the same level as last year. Despite the continuous decline in domestic gas production, Croatia can still meet about 25 % of its gas needs from domestic sources, due to INA's activities in the Adriatic Sea.

Notably, there has been a slight increase in gas production from the Adriatic, with a tendency for these quantities to rise in the future. In 2018, 3.6 TWh of gas were produced, while last year it was 1.7 TWh. INA anticipates that the modernization of the Rijeka refinery will be completed by 2025, which will further boost gas consumption. Additionally, two Enhanced Oil Recovery (EOR) projects contribute to natural gas and oil production.

It is interesting to note that an increase in domestic gas production will be visible this year due to the extraction of gas from gas fields in Grubisno Polje as part of the first phase of a project to build a new peak gas supply storage facility. These injected gas volumes will increase domestic production by up to 10 to 15 %.

State Secretary Ivo Milatic said that Croatia is negotiating for 728 million euros in the REPower EU program for the expansion of the gas infrastructure. The construction of the gas pipeline Bosiljevo-Zlobin by Plinacro is already underway. These projects are part of the plan to increase the capacity of theKrk LNG terminal, which is expected to have 6.1 billion cubic meters of capacity by the autumn of 2025.

Director of LNG Hrvatska Ivan Fugas said that the installation of a new gasification module is planned for the summer of 2025, with the goal of offering higher capacities to the market by 1 October of that year. LNG Hrvatska has successfully carried out the truck-to-ship LNG transfer project at the terminal location, and there are other projects in the pipeline to increase LNG consumption in transportation.

Gas production fell by 7.7 % year-on-year in August – Croatia, 16.10.

According to short-term indicators of energy statistics published by Croatian Bureau of Statistics, Croatia produced 60 million cubic meters of natural gas in August 2023, which is 7.7 % less compared to last August. Natural gas imports stood at 279 million cubic meters, 27.9 % less than in August 2022. Crude oil production stood at 44,000 tons, 6.4 % less compared to the same month last year. Production of petroleum products stood at 354,000 tons in August 2023, compared to 350,000 tons in the same month last year.

Net electricity production in Croatia in August 2023 amounted to 1,310 GWh, which is 25.1 % higher compared to August last year, when the production amounted to 1,047 GWh. During August, 560 GWh of electricity or 42.7 % was produced in hydropower plants, 452 GWh or 34.5 % was produced in thermal power plants, while wind farms produced 187 GWh or 14.3 % of total produced electricity.

31 % of September electricity production came from fossil fuel – Croatia, 13.10.

In the past few months, Croatia has achieved an excellent electricity balance, thanks to the increase in renewable energy capacity. The country exported more electricity than it imported, leading to the expectation of ending the year with a positive export balance for the first time in over twenty years.

However, a few days ago, there was a malfunction at nuclear power plant Krsko and, according to the latest announcements, the plant will be shut down for more than 30 days. Nuclear power accounts for approximately 15 % of Croatia's electricity supply, which it will now have to import.

Renewable energy sources contributed to with 58.3 % in the first nine months of this year (hydropower 39.4 %, other renewables 18.9 %), non-renewables with 26.2 %, and NPP Krsko with 15.5 %. It is expected that other renewable energy sources (wind, solar, biomass, biogas, geothermal) will achieve a 20 % share this year.

In September, thermal power plants running on fossil fuels had the highest electricity production, covering 31.1 % of the demand. Wind farms achieved above-average production, with a total production of 225,850 MWh in September. The capacity utilization factor was 28.7 %, an increase compared to the previous years, when the September average from 2011 to 2022 was 24.3 %.

Notably, there was very low hydropower production in September. On the other hand, coal-fired TPP Plomin had significant production of 139 GWh, and gas-fired thermal power plants had stable production during the month, providing system services and balancing due to reduced hydro production.

To balance the hourly energy balance in September, Croatia had to purchase 151 GWh of electricity and sold 59 GWh. Therefore, it ended September as net importers of 92 GWh of electricity.

Gas distribution network expanded into the Sisak industrial zone – Croatia, 12.10.

Gas distributor and supplier Montcogim, a part of the E.ON Croatia Group, marked a significant expansion of the distribution network in the city of Sisak and the completion of a new gas pipeline in the city's industrial zone. With this project, Montcogim has taken over all natural gas distribution duties in the city of Sisak, ensuring continuity and high-quality natural gas supply for the residents and businesses in this part of Croatia.

The total investment value amounts to 2 million euros, significantly enhancing the energy infrastructure while expanding the existing industrial zone of the city. This project revitalizes the city's industrial zone and creates favorable conditions for attracting new investors, greatly increasing the market competitiveness of companies operating in Sisak and the county.

LNG Hrvatska and SK E&S to cooperate on LNG, renewables – Croatia, 12.10.

LNG Hrvatska, the operator of the liquefied natural gas (LNG) terminal on the Krk island, signed a joint development agreement for possible cooperation in the field of the LNG industry, renewable energy sources, and energy efficiency with South Korean energy company SK E&S.

The statement from LNG Hrvatska said that the two companies will work together on projects for the efficiency of the LNG terminal in Croatia, CO2 capture, and the development of an LNG distribution and bunker station.

The floating LNG terminal on the Krk island started operating in January 2021. It delivers natural gas to the Croatian national transmission network, which is connected to fellow EU member states Slovenia, Italy and Hungary, as well as to non-EU members Serbia and Montenegro.

Seoul-headquartered SK E&S is part of SK Group, strategically focused on the energy business, advanced technologies, green and sustainable energy, and digital business.

INA extended 300 million euros revolving credit facility – Croatia, 02.10.

Croatian oil company INA said that it has extended, by one additional year with unchanged conditions, a 300 million euros revolving credit facility.

The statement from the company said that the loan agreement was signed in October 2022, with a three-year maturity and two one-year extension options.

With this extension, the maturity date of the loan is 19 October 2026.

In 2022, INA said that the loan was arranged as a club deal and can be used for general corporate purposes, including investments, and that it will be used to refinance a 300 million dollars loan concluded in 2018.

Hungary

Gazprom will supply additional gas volumes to Hungary – Hungary, 21.10.

CEO of Russian gas company Gazprom Alexey Miller said that the company has agreed to supply additional gas volumes to Hungary for the upcoming winter season

Miller said that this year, an additional volume of 1.3 billion cubic meters of gas has already been delivered, adding that significant additional quantities will be supplied to the Hungarian market. He also said that there will be no interruptions in gas supply to Hungary.

In early October, Hungarian Minister of Foreign Affairs and Trade Peter Szijjarto said that the country is well-prepared for the winter season due to its common-sense cooperation with Russia, adding that gas volumes Hungary's gas storages have significantly exceed the European average.

Bulgarian gas transit fee raise a threat to Hungary's energy security – Hungary, 20.10.

Andras Gyurk, MEP of the ruling Hungarian party Fidesz, noted that a week ago, without any prior warning, Bulgaria significantly increased its transit tariffs for Russian gas. Thus, Hungary has addressed questions to the European Commission requiring an immediate answer.

On 13 October, the Bulgarian Parliament adopted an unprecedented increase in transit tariffs for Russian natural gas in an unexpected legislative amendment. This is clearly a hostile move against Hungary and Serbia, which could jeopardize energy supplies to both countries and destabilize energy markets. It is not only unacceptable, but also goes against EU law, Gyurk said.

On the one hand, Hungary is waiting to see what concrete steps the Commission plans to take against the Bulgarian decision, which undermines European energy solidarity. It is also waiting for confirmation from Brussels that it continues to regard the drawing up of the national energy mix as the exclusive right of the member states, which could also be limited by the Bulgarian transit fee increase.

During his visit to Moscow last week, Hungarian Minister of Foreign Affairs and Trade Peter Szijjarto sharply criticized Bulgaria for the then pending promulgation of a law that would make gas supplies to Hungary significantly more expensive, adding that the possibility of a halt to gas supplies through Bulgaria cannot be ruled out. According to Minister Szijjarto, the bill was drafted under pressure from the US. It threatened to shut off the gas tap if the increased Russian transit fee was not paid.

For one EU member state to jeopardize the gas supply of another EU member state is quite simply against European solidarity, said the Minister, adding that the Government had contacted the political leaders of Serbia and Bulgaria on the matter. The adoption of the draft law could be risky for Bulgaria, as Hungary could thwart the Balkan country's ambition to join the Schengen area.

MOL and state agreed on production levels in Hungary – Hungary, 19.10.

Hungarian oil and gas company MOL has signed an authority contract with the Hungarian state that sets minimum levels of hydrocarbon extraction in Hungary for five categories for 2023 and 2024.

As long as the company meets these levels, the extra mining fee is expected to be reduced by a maximum of 400-450 million dollars retroactively over the 16 months between September 2023 and December 2024.

Managing Director of MOL Group's research and production unit Zsombor Marton said that the company is pleased that the Hungarian state had taken into account the producers' concerns. As for their concerns, the increased level of the mining fee would not compensate for the investments in production that would improve Hungary's security of oil and gas supply. The contract will allow MOL to make the investments necessary to maintain its production in Hungary, which is in the common interest not only of the signatories but of all domestic operators.

In its statement, the Supervisory Authority for Regulated Activities stressed that the production of 2 billion cubic meters of natural gas in Hungary is within reach. The regulator recalled that, in order to maintain the cuts in utility costs, the Government is committed to increasing affordable domestic production. Under the Government's decree, an official contract model will be in place from 1 September, whereby mining companies can commit to further investment and increased production in return for a more favorable and predictable banded system in the royalty payments.

The Supervisory Authority for Regulated Activities, as the authority supervising the Hungarian mining sector, has successfully negotiated with the major players in the Hungarian hydrocarbon industry and the Hungarian Mining Association on the introduction of the new public contracting model, they said. As a result, an agreement was concluded with MOL, Magyar Horizont and O&GD Central, under which Hungarian natural gas production may continue to increase in 2023 and 2024.

Gas consumption dropped by 15 % in 2022 – Hungary, 13.10.

The data published by the Hungarian Energy and Public Utility Regulatory Authority (MEKH) and gas transmission system operator FGSZ show that natural gas consumption in Hungary fell by 14.9 % to 9.41 billion cubic meters in 2022.

Gas consumption fell for the first year since 2015 as prices rose amid the energy crisis.

Household gas consumption dropped by 14.2 % to 3.46 billion cubic meters, while industrial consumption decreased by 15.3 %.

Gas storages are almost 100 % full – Hungary, 12.10.

According to Viktoria Nemeth, Senior Macroeconomic Analyst at Oeconomus, Hungary's gas storage filling levels reached 95 % at the beginning of October 2023, only one percentage point below the European Union's gas storage filling level.

If the filling rate is compared to the share of annual gas consumption, Hungary's storage facilities are filled to 62 %, with Latvia, Austria, and Slovakia at the top of the ranking.

Residential energy prices remain the cheapest in Europe – Hungary, 05.10.

Government commissioner responsible for maintaining utility cost reduction Szilard Nemeth presented the data of the Hungarian Energy and Public Utility Regulatory Authority (MEKH) showing the residential electricity and natural gas prices of European capitals.

According to data, Hungary has the cheapest household energy in Europe. Up to the average level of consumption, each Hungarian household saved about 470 euros per month, according to Nemeth.

Based on the presented data, the average price of natural gas for households was highest in Stockholm at 28.31 eurocents/kWh, while in Budapest it was 2.69 eurocents/kWh. Electricity for households is most expensive in Dublin at 47.12 eurocents/kWh. In Budapest it is 9.77 eurocents/kWh and in Belgrade it is 9.76 eurocents/kWh.

Last year, the Hungarian Government decided to maintain the reduction of the electricity bill up to the level of average consumption. This rate is 1,729 cubic meters per year for natural gas and 2,523 kWh per year for electricity. In August this year, the Government announced that these measures will continue.

Greece

DESFA LNG slot auction for 2024 successful – Greece, 20.10.

Auction staged by Greek natural gas transmission system operator DESFA for LNG cargo slots in 2024 proved successful, as had been anticipated. Just five of a total of 45 slots were available as 40 slots had already been reserved by bidders during a previous round.

This year, DESFA is, for the first time, staging LNG slot reservation auctions offering capacities for the next 15 years, from 2024 to 2038, triple the five-year extent offered up until last year.

Slot commitment by bidders beyond five years constitutes a significant qualitative leap for both the natural gas market and gas infrastructure as, on the one hand, long-term capacity agreements are bolstered, and on the other, infrastructure development visibility is improved through the expression of definite interest.

Latest auction premiums have fallen to much lower levels, compared to last year, a development attributed to two key factors, reduced gas demand and the forthcoming launch of the Alexandroupoli LNG facility in Greece's northeast.

Reduced gas demand and the imminent launch of the new Alexandroupoli LNG facility, along with other gas-sector infrastructure, has led to a better supply-demand balance in terms of capacity commitment at the Revythoussa terminal, Greece's only LNG unit at present, and prevented conditions for high premiums, as was the case last year.

Heightened gas demand last year pushed slot prices well above auction starting prices. As a result, premiums, or windfall earnings, generated at the Revythoussa slot auctions and the Greek gas grid's other entry and exit points reached 65 million euros.

DESFA's windfall earnings, according to domestic gas market regulations, need to be utilized to benefit network users. The 65 million euros amount accumulated last year will go towards supporting the country's latest supply security effort, as part of a 160 million euros preventive action plan.

This initiative will lessen, by 65 million euros, the supply security effort's collection target through various surcharges on consumer bills.

Energy crisis preventive action plan adopted – Greece, 20.10.

The Regulatory Authority for Waste, Energy and Water (RAAEY) has approved an energy crisis preventive action plan following revisions made through consultation.

The authority clarified that an operating life extension granted to lignite-fired power plants is part of the Greek state's new plan addressing energy security issues, especially following European Commission guidelines promoting a reduction of natural gas usage and an end to the continent's reliance on Russian gas.

The plan's original section on lignite-fired energy needed to be corrected as its text created a misconception indicating that any lignite-unit participation in the country's generation mix is governed by a special reserve mechanism. Such a mechanism does not exist.

Power utility PPC, in consultation that preceded the preventive action plan's approval, clarified that lignite-fired power plants, until they are withdrawn, remain registered with electricity transmission system operator ADMIE and, therefore, participate in markets while also taking into account other operating obligations such as provision of regional district heating.

Terms regarding the usage limits of the Revythoussa LNG terminal's storage facilities in the event of a heightened level 2 or 3 natural gas crisis were also modified. The initial text proposed that the maximum usage time, in the event of a crisis, be reduced to six days, but, in the finalized plan, this limit reduction was reworded to at least six days.

Revythoussa LNG terminal accounts for nearly half of Greek gas imports – Greece, 19.10.

The consumption of natural gas in Greece decreased by 15.38 % in the first nine months of 2023 compared to the previous year, according to the data of the country's natural gas transmission system operator DESFA.

In the first nine months of 2023, Revythoussa liquefied natural gas (LNG) terminal served as the primary entry point for natural gas imports into the country, with the Sidirokastro entry point showing a decrease of around 30 % compared to the same period in the previous year.

Notably, natural gas exports recorded a decrease of 28.89 %, compared to the previous year, with approximately 14.52 TWh exported. The primary reason for this decrease is the start of operations of the IGB pipeline on 1 October 2022, which now transports Azeri natural gas to Bulgaria.

The decrease in domestic consumption resulted in a smaller decrease in the amount of natural gas imported into the country from the LNG terminal in Revythoussa, which amounted to 47.75 % of the total imports, registering a decrease of 13.69 % compared to the first nine months of 2022.

In particular, approximately 24.04 TWh of LNG were unloaded by 34 LNG carriers coming from 7 different countries, while for the same period in 2022 approximately 27,85 TWh of LNG were unloaded by 60 LNG carriers. Of these, 38.92 % came from the US reaching 9.36 TWh. Russia ranked second with imports of 6.27 TWh, followed by Egypt (3.02 TWh), Algeria (2.97 TWh), Norway (0.97 TWh), Nigeria (0.94 TWh) and Spain (0.51 TWh).

In terms of natural gas consumer categories, electricity producers continue to record the highest consumption, meeting 69.39 % of domestic demand with 26.42 TWh out of a total of 38.07 TWh consumed.

ytilineos signed MoU with Korean company – Greece, 17.10.

Mytilineos announced the signing of a Memorandum of Understanding (MoU) with South Korean SK E&S, an international company that can connect renewable energy, clean hydrogen, energy solutions and the LNG business, in order to explore means of cooperation in the energy sector.

Under the MoU, both companies agree to cooperate in the following sectors: Business opportunities in the gas value chain including LNG trading and gas-to-power projects; business opportunities in the renewable energy sector; and other business opportunities in the energy sector according to their respective strengths and capabilities with the aim of optimizing synergies.

Mytilineos is one of the few European companies that have successfully entered the Asian market with the construction of a 1.55 MW solar project in Yangpyung-gun. The project annually generates approximately 2,000 units of renewable energy certificates (RECs), which are sold to SK Corporation under a 20-year offtake agreement (PPA).

Furthermore, it is actively involved in the construction and commissioning of several solar projects with a combined capacity of 26 MW in different provinces, including Jeollabuk-do, Gyeongsangnam-do, and Chungcheongnam-do. These projects hold long-term PPA contracts with one of the subsidiaries of South Korean conglomerate GS Corp.

Concerns over energy cost this winter – Greece, 16.10.

The war in Israel is creating a new situation ahead of this winter, particularly worrying for the Greek economy, which is 74 % dependent on oil and natural gas imports. Last year, Greece spent about 14 billion euros on energy imports, almost 60 % of the trade deficit.

The effects will not be long in making an appearance in households and businesses. The wholesale price of electricity, which will also determine November's retail prices, is already moving upward (it jumped to 136.33 euros/MWh last week). A severe winter that depletes natural gas reserves, or any disruption to LNG supplies that Europe is heavily dependent on after Russian gas flows were curtailed, could send gas prices soaring, dragging electricity prices up as well.

Faced with such an eventuality, the Government is now planning to protect vulnerable households from high prices. In the next few days, it is expected to announce a subsidy for households that will be heated this year with electricity and natural gas, with the criteria given for heating oil and at a corresponding amount.

TAIPED cancelled DEPA Trade privatization – Greece, 13.10.

Greek privatization fund TAIPED has put an end on overdue privatization of DEPA Trade, announcing the cancellation of the tender process for the sale of 65 % of the company's shares.

The tender, which was launched in 2020 and attracted nine bidders in the first round, was suspended in March 2021 due to the company's long-standing legal battle with Hellenic Fertilizers and Chemicals (ELFE) regarding the price of natural gas supplied in previous years. The ruling the Court of Appeal in favor of DEPA Trade in February 2022 allowed for the continuation of the tender procedure, but ELFE challenged the ruling at the Supreme Court which referred back the case to the Court of Appeal.

After the latest ruling, the cancellation of the privatization was inevitable for TAIPED, since the retrial of the case by the Court of Appeal combined with the possibility of ELFE appealing again to the Supreme Court in case of non-justification would translate into a legal dispute lasting up to another two years.

TAIPED said that it will examine the conditions emerging in the domestic and international natural gas markets and will evaluate the alternative possibilities of utilizing DEPA Trade's assets.

Russian gas back to pre-war market share – Greece, 12.10.

The share of Russian natural gas in the Greek market in the first nine months of 2023 reached the same level as before the invasion of Ukraine, while in September it reached an all-time high of 72 %.

The share of Russian gas in the total mix of the domestic market increased from 35.7 % in the first nine months of 2022 and 14.3 % in the whole year (down by 68.3 % compared to 2021) to 45 % in January-September 2023. This paradoxical reversal, given the European goal of its member states weaning themselves off Russian gas completely by 2027, is a result of Russia's low-price LNG supply policy to limit revenue losses from the gas it transported to Europe via pipelines.

In the first seven months of 2023, LNG imports from Russia to Europe increased by 40 % compared to the same period in 2021. Russia is currently the second largest exporter of LNG in Europe and the cost of Russian LNG entering Europe in the first seven months of 2023 amounted to 5.29 billion euros.

In Greece, as in all of Europe, Russia has emerged as the second LNG exporter, transporting 4 TWh loads to the domestic market within nine months, from zero quantities until last year, and displacing shares of other producers such as the US, which may remain in first place but limited the quantities they put into the Greek system to 10 TWh from 18.67 TWh in the same period last year.

The increase in the share of Russian gas is not the only change in the domestic gas market, where nothing resembles last September, when at Revythoussa LNG terminal importers were fighting to book a slot for LNG cargoes that arrived from various sources to replace Russian gas in neighboring Balkan markets. Natural gas exports in January-September 2023 were drastically reduced by 35 %, after an increase of 294.73 % last year.

DESFA plans to use blockchain technology – Greece, 11.10.

Greek natural gas transmission system operator DESFA plans to strive for improved management of its facilities and strengthened liquidity in the secondary gas market by applying blockchain technology to its systems.

DESFA is currently conducting a feasibility study in cooperation with the Aristotle University of Thessaloniki in order to examine the prospect of integrating this technology into its systems.

Blockchain technology, an advanced database mechanism that allows transparent information sharing within a business network, is used by energy companies to create peer-to-peer energy trading platforms and streamline access to renewable energy.

DESFA's interest in using blockchain technology has a dual objective. On the one hand, the company will seek to optimize the use and management of its facilities and, on the other, to develop tools that will enable grid users to carry out transactions more easily and automatically.

As for the secondary gas market, the system's ability to simplify transactions is expected to directly impact market liquidity.

DESFA, making use of the ongoing feasibility study's results, is expected to present an initial plan to the Regulatory Authority for Waste, Energy and Water (RAAEY) by the end of the year.
If the authority approves this plan, DESFA intends to launch a pilot project in 2024.

Revythoussa LNG facility still vital despite decline in activity – Greece, 10.10.

Capacity increases at the Trans-Adriatic (TAP) pipeline, facilitating the delivery of Caspian gas to destinations in Europe, and the IGB gas pipeline linking Greece and Bulgaria, plus the scheduled launch, early in 2024, of the Alexandroupoli FSRU at the country's northeastern port, will lessen the number of LNG tankers delivering quantities to the Revythoussa LNG terminal for eventual distribution to the Bulgarian market, but the terminal remains vital for Greece's energy security and supply.

In addition, an agreement signed last January by Turkey and Bulgaria's state-owned energy companies BOTAS and Bulgargaz for Turkish supply to Bulgaria of 1.5 billion cubic meters of natural gas, annually, over a 13-year period, also promises to further decongest activity at the Revythoussa LNG terminal.

The Bulgarian-Turkish agreement had prompted a number of questions in the domestic and European markets regarding its terms and conditions, as well as its impact on Greece's gas infrastructure.

However, as was recently highlighted by Sotiris Bravos, Senior Commercial Services Manager at Greek gas transmission system operator DESFA, the Revythoussa LNG terminal's commercial role will only be limited in trade concerning the Bulgarian market.

In 2022, the Revythoussa LNG terminal covered two-thirds of Bulgaria's natural gas needs, a performance not expected to be repeated this year given the increased number of facilities – TAP, IGB, and, slightly later on, the Alexandroupoli FSRU – serving the Bulgarian market. Even so, the Revythoussa LNG terminal remains a crucial part of the country's gas network, especially regarding supply security and network balance.

At present, the Revythoussa LNG terminal is Greece's only LNG entry point and one of the country's four natural gas entry points.

DESFA believes new gas infrastructure will not compete against the Revythoussa LNG terminal as it remains a facility of major importance for the Greek gas grid and the significantly increased needs of central Europe.

DEPA Trade to launch tender for 495 MW in solar power plants – Greece, 03.10.

Gas company DEPA Trade is planning to launch a tender for the design, procurement and development of its first renewable energy projects, by the end of this year.

The tender will be related to two projects with combined installed capacity of 495 MW. The larger one (400 MW) envisages the construction of 400 MW in solar power plants in Kozani in northern Greece, while the second project is a 95 MW solar power plant in Viotia.

In an effort to diversify its operations, last year, DEPA Trade acquired New Spesconcept, which holds a 222 MW RES portfolio, and North Solar, with a RES portfolio of 500 MW. Besides its RES portfolio, which at the moment stands at around 730 MW, DEPA Trade has partnered with the Copelouzos group in the project for the construction of 840 MW gas-fired power plant in Komotini in northwestern Greece.

Also, the company has undertaken initiatives to expand its wholesale trading activity in foreign markets. At the moment, DEPA Trade is active in the Austrian, Hungarian, Romanian and Italian markets and has signed agreements to supply gas to Moldova and Albania.

DEPA Trade is also the first Greek gas company to have become a member of the Hungarian Energy Exchange (CEEGEX).

North Macedonia

North Macedonia to seek compensation from Bulgaria over Russian gas transit fee – North Macedonia, 26.10.

North Macedonian Minister of Economy Kreshnik Bekteshi said that the country will seek compensation from Bulgaria over the recent introduction of a fee on the transit of Russian gas.

Minister Bekteshi said that the Government will also complain before the European Union against the new fee. According to him, Bulgaria informed North Macedonia that they will make an effort to exempt from the fee the amounts of gas reserved for North Macedonia.

North Macedonia does not have natural gas deposits and relies on imports from Russia transited through Bulgaria under a gas supply contract with Gazprom that will expire in 2030.

Earlier in October, Bulgaria introduced a fee of around 10.5 euros/MWh on Russian natural gas transiting its territory.

Gas consumption rose by 32 % year-on-year in August – North Macedonia, 25.10.

Total electricity consumption in North Macedonia in August 2023 amounted to 468,411 MWh, natural gas consumption amounted to 30.42 million cubic meters (32 % more compared to 23.04 million cubic meters a year ago), coal consumption reached 367,100 tons, while the consumption of petroleum products stood at 105,725 tons.

According to the data from State Statistical Office, 100 % of the consumed electricity in August was covered by domestic production, while 95.9 % of the total coal consumption was used for electricity production.

Montenegro

Environmental NGOs oppose LNG terminal in Bar – Montenegro, 25.10.

27 Montenegrin non-governmental organizations (NGOs) have sent a joint letter to the President of the European Commission Ursula von der Leyen urging her not to support the construction project of liquefied natural gas (LNG) terminal in the port of Bar. In the letter, it is mentioned that Montenegro is not connected to international gas networks and only uses small amounts of fossil fuels, which puts it in a more favorable position for decarbonization compared to the EU, which is striving to reduce its reliance on fossil gas imports following the conflict in Ukraine.

Recently, the Commissioner for Enlargement, Oliver Varhelyi, announced that the EU would assist Montenegro in building an LNG terminal in the port of Bar.

The NGOs argue that the Western Balkan countries as a whole are much less dependent on gas than the EU and have committed to gradually phasing out the use of fossil fuels by 2050. However, if the LNG terminal is constructed, it would hinder and impede the country's decarbonization efforts by 2050.

These NGOs suggest that a whole network of new gas pipelines should be built, and the government will propose three new gas power plants. They consider it unrealistic for Montenegro, given its size and limited institutional capacity, to make another transition from gas to renewable energy sources by 2050. Nevertheless, the European Commission has actively encouraged increased fossil gas consumption throughout the Western Balkan region in recent years.

Montenegro aims to become energy independent by 2030 – Montenegro, 19.10.

Prime Minister Dritan Abazovic said that Montenegro's goal is to become energy-independent by 2030, adding that the plan is to double the capacity of submarine cable to Italy and to build new solar and wind farms across the country.

PM Abazovic said that it remains to be seen in the coming period whether hydropower plant Komarnica will be built. The goal is to protect the environment and institutions dealing with environmental aspects of the project express significant reservations and oppose the construction of that facility. A significant debate remains to be conducted to determine whether it is necessary for Montenegro or not.

Montenegro's plan also includes doubling the capacity of submarine cable to Italy and the construction of power lines at various locations. According to Abazovic, this is the essence of electricity export in the coming period. Furthermore, new solar power plants, wind farms, and major power lines are planned from Ulcinj, through other cities, to the north.

He also mentioned that the construction of a liquefied natural gas (LNG) terminal in Bar is planned and contracts for this project have already been signed. The construction and installation of a fixed terminal for the import of liquefied natural gas and a gas-fired power plant are planned. US companies Enerflex Energy Systems and Wethington Energy Innovation have shown interest in these projects, and in May, a Memorandum of Understanding was signed with them to support the improvement of energy infrastructure in Montenegro.

Romania

Romania should invest 3 % of its GDP in energy sector decarbonization – Romania, 27.10.

According to the World Bank experts, Romania can increase its national income by almost three times in the next 30 years, if it implements measures to improve resilience to climate change and to reduce carbon emissions, the investments needed just for the development of a decarbonized energy sector being estimated at 356 billion dollars until 2050, the equivalent of about 3 % of its GDP.

According to the Country Report on Climate and Development for Romania (RTCD), the country is very vulnerable to climate change risks, especially floods and drought. At the same time, Romania’s economy is relatively intensive, based on coal, with an average of 2.5 times that of the European Union.

The report notes that Romania is about to reach its goal for the year 2030 of reducing emissions by 55 % compared to the level of 1990. The data show that Romania has already reduced its emissions by 53 %, between 1990 and 2018. However, fulfilling its commitment to neutrality of carbon emissions by 2050 will require political actions and substantial and coordinated financing. The investments needed just for the development of a decarbonized energy sector are estimated at 356 billion dollars by 2050, representing approximately 3 % of the country's cumulative GDP, for the same period.

In the opinion of experts, with over 70 % of Romania's total energy consumption depending on fossil fuels, the energy transition is essential.

In this context, the energy sector, which includes electricity generation, heating, transport and production, represents 66 % of the total emissions recorded in Romania. This is followed by agriculture (17 %) and industry (12 %).

To reach net zero emissions by 2050, Romania must implement a massive electrification program, replacing the direct consumption of fuels with energy generated from renewable sources. The RTCD demonstrates that the level of the additional cost of developing a greener electricity system and based on renewable electricity does not substantially increase investment needs. Increasing the energy efficiency of buildings, especially through better insulation, is also highlighted as an essential investment.

PVR reportedly looking to sell its 20 % stake in Midia gas project – Romania, 26.10.

According to Romanian media, Petro Ventures Resources (PVR), which owns 20 % stake in the Midia offshore concession in the Black Sea, controlled and operated by Black Sea Oil and Gas (BSOG) , considers the option of selling its participation in the project.

The Midia gas project began production in mid 2022. It delivers natural gas at a rate of 1 billion cubic meters per year and recently BSOG said it could boost the output by 25 %.

The other Midia concessionaires are BSOG (70 % stake, also the project operator) and Gas Plus Dacia (10 % stake).

Romania to become energy hub after 2027 – Romania, 26.10.

State Secretary at the Romanian Ministry of Energy Pavel-Casian Nitulescu said that Romania will be a 100 % energy hub from the year 2027 and must take advantage of the natural gas deposit it has and transform it, through compressed natural gas, into an alternative source of the future.

Nitulescu said that the previous years, marked by a crisis in energy prices, by the armed conflict at the borders of the European Union, led to a rethinking of the way in which the member states relate to the issue of energy security. All of them led to the redefinition of energy supply sources, including natural gas, even if Romania relies on a major layer of natural gas. From 2027 Romania will be 100 % an energy hub. At the same time, it must take advantage of ots natural gas reserves and succeed in transforming them, through compressed natural gas, into an alternative source of the future.

He emphasized that it is important to be aware of the benefits that the use of alternative fuel sources offers in the process of transition to a clean economy, and appreciated the relevance of alternative sources which, first of all, consists in reducing dependence on fossil sources. Second, they contribute to ensuring a flexible energy supply and, last but not least, in the significant contribution they have to reducing emissions of carbon.

CIS Gaz to supply equipment for project in Egypt – Romania, 26.10.

Romanian energy company CIS Gaz said that it will supply Egyptian natural gas transmission company EGAS with locally manufactured equipment to finish the Hayah Karima project, a flagship endeavor of the Egyptian Government that will connect some 1,400 villages to the natural gas network.

Last week, CIS Gaz took part in Egypt in extensive discussions with two of the largest Egyptian companies in the energy field, Town Gas and EGAS, which develop complex projects in the public and private energy sector.

The Romanian company has also signed a Memorandum of Understanding (MoU) with Egyptian peer Town Gas for exploring collaborative business ventures. The MoU also strengthens CIS Gaz' presence in Egypt.

CEO of CIS Gaz Sebastian Calugar said that the center pillar of the company's long-term strategy is the expansion of its presence in foreign markets, where its expertise can make a difference. Egypt has become a regional gas hub and there is a growing need to develop new energy infrastructure projects.

Established in 1990 in Romania, CIS Gaz is one of the largest local companies operating in the oil and natural gas industry.

Network of ten CNG stations to be built along Arad-Constanta route – Romania, 26.10.

The Association of Natural Gas for Vehicles (NGVA), together with its partners Scania and Iveco, inaugurated the first network of ten fueling stations for vehicles using compressed natural gas (CNG) in Romania.

The ten stations were developed following a 6.5 million euros investment.

The objective of the Natural Gas Association for Vehicles is to reach fifty functional stations by 2030 for the sustainable growth of transport in Romania and the reduction of pollution in large urban agglomerations.

The biggest players in the commercial transport market, Scania and Iveco, have a range of CNG-fueled vehicles in their offer, both for urban and regional freight transport, as well as for refrigerated transport, hook lift, waste collection or the transport of BDF containers.

Iasi City Hall wants to build gas-fired power plant – Romania, 25.10.

Iasi City Hall intends to attract European funding for the transition of an old coal-fired power plant to a new gas-fired one, an investment of around 120 million euros.

Iasi Mayor Mihai Chirica said that Romania cannot afford to give up the use of gas and should make a transition from coal-fired to gas-fired energy.

CET Iasi 2 is located in the commune of Holboca, 8 kilometers from the city and 11 kilometers from CET Iasi 1 and is equipped with two steam boilers and two 50 MW lignite-fired turbo-aggregates. The plant was commissioned in 1986 and completed in 1987. In October 1988, the connecting heating pipeline between the two CHPs was also built.

According to Chirica, the municipality is interested in the environmental objectives dictated by Brussels because it is constrained by EU policies to transform Europe into a green continent.

OMV Petrom dethroned Hidroelectrica as the most profitable SEE company – Romania, 25.10.

OMV Petrom is the largest and the most profitable company in southeastern Europe, based on the 2022 financial results. Its revenues more than doubled to 13.4 billion euros and its net profit nearly quadrupled to 2.1 billion euros. The company thus overthrew Hidroelectrica as the most profitable in the region.

Other Romanian companies among the 100 largest in southeastern Europe are OMV Petrom Marketing, Automobile Dacia, Rompetrol Rafinare, Lidl (Romania), Rompetrol Downstream, Kaufland and Engie.

BSOG ready to increase gas production during the winter season – Romania, 20.10.

CEO of Black Sea Oil and Gas (BSOG) Mark Beacom said that the company is ready to increase its gas output by 25 % during the upcoming winter season. BSOG has started gas production from its Midia project in the Black Sea, at the rate of 1 billion cubic meters per year.

However, Beacom said that, prior to output increase, the company's ongoing dispute with the Romanian authorities must be resolved.

In 2018, BSOG signed a long-term contract with the natural gas supplier and distributor Engie, but, in 2022, Romania imposed an obligation to all natural gas producers to sell part of their output on the regulated market. Individual quotas to be sold on the regulated market are set by the market regulator ANRE, but are not public.

BSOG was fined earlier this year, and although this was not officially confirmed, the fine was most likely prompted by failure to meet the new regulatory requirements.

Romania has already reached the maximum gas storage target – Romania, 17.10.

Romanian Minister of Energy Sebastian Burduja said that the degree of filling of the gas storage facilities is currently 100 % and, with volumes that the country will produce in the cold season, it should, in a moderate scenario, get through the coming winter without additional gas imports.

Minister Burduja said that, in the normative act related to the preparation for winter, several scenarios were developed regarding the average temperatures and including the possibility for Romania to support other states, namely Moldova. In a moderate scenario, Romania won't have any problem, given the amount of gas in storages, which has reached 100.6 %, so Romania has more than 100 % of the technical reserve available in terms of storage capacities.

He emphasized that, if the winter will be very harsh and if Moldova requests Romania's support at a level that cannot be covered from reserves and production, there is the option of taking gas from Azerbaijan or resorting to a possible purchase of liquefied natural gas.

Gas production rose by 4.1 % in the first eight months of 2023 – Romania, 13.10.

According to the data published by the National Institute for Statistics (INS), total production of primary energy resources in January-August 2023 amounted to 12,108 million tons of oil equivalent, which is 1.9 % more than in 2022. Coal production reached 1,715.7 million tons of oil equivalent (- 15.2 %), oil production reached 1,873.5 million tons of oil equivalent (- 4 %), while production of natural gas reached 4,987.2 million tons of oil equivalent (+ 4.1 %).

Total electricity production reached 38.79 TWh in the first eight months of 2023, which is 4.1 % more compared to the same period in 2022. Production in thermal power plants, including gas-fired ones, decreased by 20.9 % and reached 11.25 TWh.

Mass Global Energy to build another gas-fired power plant in Romania – Romania, 11.10.

Reportedly, Mass Global Energy, the company that bought defunct TPP Mintia and plans to build 1.7 GW gas-fired power plant there, has sent a letter to the Ministry of Energy expressing its interest in the construction of another gas-fired power plant, with a capacity of up to 2,500 MW.

According to the letter, the location of a new power plant will be close the BRHA gas pipeline and will also have a good connection to Romania's electricity network. Mass Global Energy plans to export the majority of electricity produced at the plant to Hungary.

In August, Minister of Energy Sebastian Burduja said that the largest natural gas-fired power plant in Europe, with a capacity of 1.7 GW and a record yield of 64 %, developed by Mass Group Holding in Romania on the site of former coal -fired power plant Mintia, will be commissioned by the end of 2026.

He said that the investment represents a substantial support that Romania receives on the path of green transition and for the replacement of coal with natural gas, a strategic resource to which Romania has access. The investment in the project amounts to 1.3 billion euros.

Gas storages are 99.72 % full – Romania, 11.10.

President of the National Regulatory Authority for Energy (ANRE) George Sergiu Niculescu said that gas storages in Romania were full, at the beginning of October, to the extent of 99.72 %, which amounts to 2.861 billion cubic meters, that will ensure that there will be no problems in the supply of gas in the winter.

Niculescu stressed that these quantities of natural gas in storages certainly ensures the comfort to publicly declare that there will be no problems in terms of supply with natural gas as Romania is prepared to get through this winter well.

Indexation of hydrocarbon royalties will have negative impact on energy security – Romania, 11.10.

The Romanian Oil and Gas Employers' Federation (FPPG) said that the indexation of oil royalties with inflation will generate a negative impact on national energy security, on the Romanian economy and on the revenues of the state budget.

The statement from the FPPG said that the federation takes note with great concern of the draft Emergency Ordinance (GEO) regarding some measures for public property of the state as well as for the efficient administration of state properties and which aims to index oil royalties to the inflation rate. FPPG requests the removal from the draft GEO of the provisions relating to the indexation of oil royalties with the inflation rate, which are devoid of any legal basis and do not have an adequate economic basis and will also significantly discourage investments , which will generate a negative impact on national energy security, on the Romanian economy and on the revenues of the state budget.

The FPPG states that royalties for oil and gas are calculated by applying percentages to the value of gross oil and gas production. Since the royalty base is calculated based on realized prices, inflation is already reflected in the current

formula for determining oil royalties. Consequently, such a measure would mean a double application of the inflation rate.

The increase in royalties will have a significant negative effect on investments and, consequently, on the future production of oil and natural gas. The federation warns that higher royalties increase the marginal cost of extracting mineral resources and also discourage the development of any marginal reserves that have been discovered and lead to the early abandonment of productive oil and natural gas wells. The effective taxation of oil and natural gas in Romania is far above the EU average and makes the country's energy projects uncompetitive.

First construction activities at Neptun Deep to start by 2025 – Romania, 09.10.

The biggest new gas source in Romania is the Neptune Deep offshore project in the Black Sea. OMV Petrom and Romgaz expect the first gas volumes starting in 2027, as the main contract for infrastructure development have been signed this August.

Italian Saipem will execute engineering, procurement, construction, installation and commissioning services for the Neptune Deep project, and the first project construction activities at sea are expected to start by 2025.

Regional Manager for Europe at Saipem Massimo Cristiani said that Neptun Deep is a huge project, because at the peak these two gas fields (Pelican and Domino) will produce 8 billion cubic meter per year. Saipem will cover Engineering, Procurement, Construction and Installation (EPCI) of the gas processing platform at around 100 meter water depth, two subsea developments (respectively at around 1,000 meter water depth in the Domino field and at around 100 meter water depth in the Pelican field), a 30" gas pipeline about 160 kilometers long, and associated fiber optic cable from the Shallow Water Platform (SWS) near the Romanian coast.

One of the critical points of the project is the fabrication of the gas processing platform. In order to reduce the risks, this will be done at Saipem's yards in Italy and Indonesia. Also, all the offshore operations will be performed by the Saipem fleet. The technological tests and analyzes for the materials used in the project will be carried out in Romania, through the local entity of Saipem in Ploiesti.

OMV Petrom's hydrocarbon output dropped in Q3 2023 – Romania, 09.10.

The largest Romanian oil and gas company OMV Petrom said that its total hydrocarbon output dropped to 113.500 barrels of oil equivalent per day in the third quarter of 2023 from 117.200 barrels of oil equivalent per day in the same period of 2022.

OMV Petrom's daily hydrocarbon production in the third quarter of 2023 was also marginally lower compared to the second quarter of 2023, when it produced 113.700 barrels of oil equivalent per day.

Total daily hydrocarbon sales volume amounted to 107.900 barrels of oil equivalent per day in the July-September 2023 period, down from 112,000 barrels of oil equivalent per day in the same period of 2022.

Total sales of refined products were flat at 1.51 million tons in the third quarter of 2023, the same amount as in the last year. The volumes of gas sales to third parties rose to 8.6 TWh in the third quarter, from 6.92 TWh in the same period in 2022.

Net electricity output rose to 1.48 TWh in the third quarter, compared to 1.42 TWh in the same period of 2022.

OMV Petrom and EC Oltenia launched tender for the construction of four solar power plants – Romania, 03.10.

The four joint-venture companies controlled by state-owned coal-based electricity producer Energy Complex (EC) Oltenia and oil and gas company OMV Petrom have launched the tender for the construction of four solar power plants with combined installed capacity of over 450 MW, in accordance with EC Oltenia's restructuring plan.

The procedure aims to select contractors for the design, purchase, construction, commissioning, operation, three-year maintenance services and handover of four solar power plants, which should be built on the slag and ash deposits of EC Oltenia's units, as well as on the dumps of its mining subsidiaries.

The tender includes the construction of Isalnita solar power plant (85 MW with an estimated cost of 69.57 million euros plus VAT), Rovinari Est solar power plant (110 MW and a 400/110 kV transformer station, with an estimated cost of 103.67 million euros plus VAT), Tismana 1 solar power plant(123 MW, with an estimated cost of 100.28 million euro plus VAT) and Tismana 2 solar power plant (131.67 MW, with an estimated cost of 101.12 million euro plus VAT).

The total value of the contract is estimated at 374.65 million euros plus VAT, and the deadline for bids submission is 14 December.

Serbia

Gas interconnection with Bulgaria to be completed in early November – Serbia, 27.10.

Serbian Minister of Mining and Energy Dubravka Djedovic visited the construction site of natural gas interconnection with Bulgaria and said that the project will be completed in the first two weeks of November.

Minister Djedovic said that works on the gas interconnector entered the final phase, with some 98 % of the works have been executed so far. It is expected construction to be completed in the first two weeks of November, so that the Ministry can start obtaining the required authorizations to ensure that the gas pipeline will go into operation over the following weeks.

She pointed out that the gas interconnector with Bulgaria is of strategic importance for Serbia as it will diversify gas supply sources. This interconnector will enable the country to link up with gas from Azerbaijan and the LNG terminal in Greece via Bulgaria, in addition to Russia, which is an important and steady source of gas supplies. The Government is negotiating with an Azerbaijani company and until the end of November expect to sign a memorandum of understanding with Azerbaijan's Energy Ministry, as well as a sales agreement between the Azerbaijani supplier and Srbijagas. She expects that the supply of natural gas via the interconnector will start before the end of the year.

The Serbian section of the pipeline is 109 kilometers long, and the total length of the two-way gas pipeline through both states is 170 kilometers, from Novi Iskar near Sofia to Nis. The gas pipeline has a capacity of 1.8 billion cubic meters of gas a year.

The total value of the Serbian section is 85.5 million euros, of which the European Investment Bank (EIB) has provided 25 million euros in the form of a loan, 49.6 million euros are EU grants from the IPA funds, whereas the remaining costs will be covered from the budget of Serbia and Srbijagas' own funds.

Gas prices frozen until May 2024 – Serbia, 21.10.

Gas prices for end- consumers in Serbia will remain at the level that will be in effect on 1 November 2023 until May 2024, following the previously announced price increase.

In the event of market disruptions, the Government will compensate producers and importers from the national budget for any price differences.

This regulation applies exclusively to quantities of natural gas intended for consumption within the territory of Serbia.

Last month, the Energy Agency of the Republic of Serbia (AERS) approved the decisions of 31 public suppliers regarding the new prices of natural gas for public supply, which will come into effect on 1 November 2023. The new price will be higher by 10 % and will amount to 0.039 euros/kWh without taxes and fees (this is, 0.043 euros/kWh with taxes and fees).

Bulgarian transit tax will influence gas prices in Serbia – Serbia, 19.10.

Director of state-owned gas company Srbijagas Dusan Bajatovic said that the decision of Bulgaria to increase the taxes for the transit of gas by the BalkanStream gas pipeline through the country will influence its price.

Bajatovic said that whether this increased fee will reflect on the consumers in Serbia depends on what the Government decides.

Last week, Bulgaria imposed additional taxes on the import and transport of Russian gas in the amount of some 10.5 euros/MWh. The estimates are that Bulgaria might earn up to 1 billion euros a year from these taxes.

Bajatovic believes that the increase of the transit tax is a terrible situation for the entire southeastern Europe. This violates all market rules and implements a discriminatory measure. It turns out that the consumers in Serbia and Hungary now have to fill out the Bulgarian budget.

Commission for Energy Networks to start working soon – Serbia, 19.10.

Serbian Minister of Mining and Energy Dubravka Djedovic held a meeting with members of the inter-sector work group about the progress of the implementation of the Action Plan for the reorganization of Srbijagas. At the proposition of the Ministry, the National Assembly adopted amendments to the Law on Energy this July, thereby giving a great contribution to the reforms in the gas sector by forming the Republic Commission for Energy Networks.

Minister Djedovic said that this independent organ will take over the responsibilities over the state operators of electricity transmission system Elektromreza Srbije (EMS) and the gas transmision system Transportgas from the competent ministry. The new legal solution reduces the responsibilities of the Government and increases the responsibilities of the Parliament over the activity of the production and distribution and supply of electricity, and thus harmonize with the regulatory framework of the European Union.

She added that the Commission is expected to start working soon, with the request for the certification of the operator of the natural gas transport system to be filed as soon as possible, which is one of the most important goals in the implementation of the Action Plan for reorganization in the gas sector.

She emphasized that the aim of the state was to have a better and more adequate management of energy companies and that it was necessary to complete the reorganization of Srbijagas.

Minister Djedovic added that Transportgas is now an independent operator of the transport system, but that all the tasks from the Action Plan needed to be completed in order for the reforms in the gas sector to be carried out successfully.

Construction of gas interconnection with Bulgaria nearing completion – Serbia, 06.10.

By building the gas interconnector between Nis and Sofia, Serbia gains a third alternative gas supply route. The gas pipeline, mostly funded by the European Union, is in its final stages, and the plan is for it to be operational by the end of the year. Brussels emphasizes energy connectivity and solidarity among countries, as well as joint gas purchasing, in which our country also participates.

The Serbian segment of the gas interconnector is 109 kilometers long with a capacity of 1.8 billion cubic meters of gas per year. It starts in Nis and connects with the Bulgarian route near Dimitrovgrad. Over 92 % of the works on the gas pipeline have been completed.

Minister of Mining and Energy Dubravka Djedovic said that the project is strategic for Serbia, for diversifying gas supply sources, as it is in the final stages of negotiations with Azerbaijan for the delivery of 300-400 million cubic meters.

The Nis-Sofia gas pipeline is bidirectional and further connects to the interconnector linking Bulgaria and Greece, all the way to the liquefied natural gas terminal in the port of Alexandroupoli, which is also expected to be completed by the end of the year.

Director of state-owned gas company Srbijagas Dusan Bajatovic said that they have also discussed transportation issues with Turkish BOTAS and resolved the transport problem from the TAP and TANAP pipelines.

Slovenia

Government extended electricity and gas price regulation – Slovenia, 23.10.

Last week, the Slovenian Government decided that the restrictions on household electricity prices will remain in effect next year, but only for 90 % of consumers' consumption, while households will pay the remaining 10 % at market prices. By the end of the heating season, which is the end of April, the Government has also imposed price limits on natural gas.

According to the statement from the Government, wholesale electricity prices have decreased this year. On the derivatives exchange HUDEX, the prices of base energy for 2024 ranged from 250 to 135 euros/MWh, while peak energy prices were 20 to 40 euros/MWh higher than base prices. The lowest base price in 2023 for 2024 was around 135 euros/MWh and the lowest peak price was 140 euros/MWh. However, it is clear that wholesale prices are still significantly higher than the current state limit for households, which is set at 100 euros/MWh.

Based on current market prices and purchases made in the years before 2023, the Slovenian Government estimates that household prices, if no additional measures are taken next year, could rise to between 150 and 200 euros/MWh. Therefore, the Government has decided to extend the price regulation for the next year, and the aim of the current

proposal is also a gradual deregulation without a price shock. The price cap measure will only apply to 90 % of consumer consumption, while households will pay 10 % of their consumption at market prices determined freely by suppliers. The Government believes that this approach will encourage rational electricity usage, promote competition among suppliers, and facilitate a gradual return to a free market.

The Government also issued a regulation on determining the prices of natural gas, setting the maximum retail price of natural gas for households after the end of the year. Current prices will be valid until the end of 2023. The regulation on limiting gas prices for households will be valid from 1 January 2024 until the end of the heating season, which is 30 April 2024.

Turkey

Turkey's first seismic research vessel prepares for the new mission – Turkey, 28.10.

Turkey's first seismic research vessel Barbaros Hayreddin Pasa, which has scanned more than 50,000 square-kilometer in the past five years to carry out exploration for oil and natural gas within the country's territorial waters, is currently getting prepared for its next mission at Black Sea Trabzon port where it briefly anchored for scheduled maintenance.

Turkey has expanded its hydrocarbon exploration activities to its territorial waters and created a large fleet of drilling and seismic research vessels to reduce its reliance on imported energy.
With this aim, Barbaros Hayreddin Pasa and the country's second seismic research vessel Oruc Reis have been combing both the Black and the Eastern Mediterranean seas for hydrocarbons. Barbaros Hayreddin Pasa, which joined the fleet in 2012, has been operating for the Turkish Petroleum International Company since 2018.

The vessel scanned an area of 10,054 square kilometers in 2018, 11,507 in 2019, 7,418 in 2020, 8,000 in 2021 and 10,580 square kilometers in 2022. This year, the ship is scheduled to cover some 10,600 square kilometers.

The ship also joined the natural gas exploration activities in the Sakarya gas field, where Türkiye discovered its first natural gas reserve of around 710 billion cubic meters.

After exploring the offshore Kastamonu in the Black Sea in 2021, the ship headed to the Eastern Black Sea region and scanned the locations of Unye from October 2021 to 2022 and Fatsa from December 2022 to August 2023.

Still conducting its seismic exploration mission in the Eastern Black Sea, the ship has briefly anchored at the port city of Trabzon to meet its logistics needs and perform the necessary maintenance.

Turkey's installed capacity exceeded 105 GW, 25 GW in gas-fired plants – Turkey, 24.10.

Turkey has increased its installed capacity in electricity generation from 33 MW in 1923 to 105,659 MW as of October 2023, in the first 100 years of the Republic.

In order to meet its energy needs, Turkey has invested a lot in renewable energy generation in recent years.

The number of solar power plants in the country has reached 10,479 as of October 2023, while there were 752 hydropower plants, 384 biomass power plants, 363 wind farms, 95 waste heat power plants and 63 geothermal power

plants. In addition, the number of natural gas-fired power plants has reached 343, while those running on imported coal, lignite and hard coal has reached the number of 68.

Thus, the total number of power plants in the country increased to over 12,000 as of October 2023.

As of October 2023, the installed capacity of power plants generating electricity from natural gas reached 25,354 MW, and of those running on imported coal, lignite and hard coal reached 21,814 MW.

At the same period, the installed capacity of hydropower plants totaled 31,595 MW, 11,602 MW in wind energy, 10,899 MW in solar energy , 2,438 MW in biomass and waste heat energy and 1,691 MW in geothermal energy.

Turkey braces for winter with full gas storages – Turkey, 23.10.

With the onset of colder weather across Turkey, the Ministry of Energy and Natural Resources has taken proactive measures to secure the nation's energy needs.

The Silivri and Lake Tuz underground natural gas storage facilities have been filled to their full capacity, guaranteeing a secure energy supply for the country ahead of winter.

At the Lake Tuz Natural Gas Storage Facility in central Aksaray province, 1.2 billion cubic meters of natural gas have been stored within the 12 artificial caves brought into operation. Once this facility reaches its maximum capacity, it will be capable of satisfying approximately 50 % of Turkey’s residential natural gas consumption.

Simultaneously, the capacity of the Silivri Natural Gas Storage Facility has been expanded to 4.6 billion cubic meters, solidifying its position as Turkey’s premier gas storage facility.

The storage facility situated in the Lake Tuz, managed by state-owned BOTAS, currently holds 1.2 billion cubic meters of natural gas within its underground caves. The introduction of new storage areas in the second phase of development will see this capacity rise to 5.4 billion cubic meters.

As part of the storage project featuring 52 caverns formed by dissolving salt in the salt wells opened at a depth of 1.5 kilometers, fresh water is injected into underground wells to dissolve the salt. The freshwater, brought from Hirfanli dam to dissolve the salt in the underground wells, is pumped into Lake Tuz as saline water after the process.

With the second stage entering effect, the number of caves will reach 52 and an additional 40 caves will be created for storing gas.

The natural gas storage capacity will surge to 5.4 billion cubic meters with a daily production capacity of 80 million cubic meters.

These two storage facilities, once at full capacity, can ensure Turkey can meet its annual natural gas consumption for households.

The Silivri Natural Gas Storage Project, known as Turkey’s first gas storage facility and dubbed as Europe's largest, currently boasts a capacity of 4.6 billion cubic meters and plays a critical role in securing Turkey’s energy needs.

Turkey to maximize gas hub project, including electricity and minerals – Turkey, 12.10.

Turkish Minister of Energy and Natural Resources Alparslan Bayraktar said that Turkey wants to establish a more extensive trade hub in which not only natural gas but also electricity and minerals are exchanged.

To achieve this, he explained that Turkey wants to establish a larger trade center for natural gas, electricity and minerals at the Istanbul Financial Center. He called on other countries to endorse this aim to ensure secure energy supplies. Such a goal would necessitate capitalizing on existing energy relationships, with Russia serving as an example.

Minister Bayraktar explained that the bilateral energy cooperation between Turkey and Russia is not limited to natural gas but encompasses nuclear power, oil, oil products and coal.

Russian President Vladimir Putin also echoed the aim to expand energy cooperation and the realization of a natural gas hub project with Turkey during his speech at the Russian Energy Week, which resulted in a mutual agreement on a roadmap to achieve these aims.

Talks to this effect are taking place with Russian energy company Gazprom, and collaboration with Russia on various energy-related fields will continue, Minister Bayraktar confirmed.

Bilateral energy cooperation has extended to nuclear power and to the Turkish-Russian collaboration to build Turkey's first nuclear power plant Akkuyu, which is one of the largest among the nuclear plants currently under construction.

Turkey set to play key role as Europe's energy supplier – Turkey, 03.10.

Turkey is paving the way to becoming a gas hub, having signed four recent natural gas export agreements with European countries, alleviating the bloc's natural gas supply shortages derived from the Russian-Ukrainian crisis.

The country, which already exports gas via pipelines to Greece, has signed natural gas export agreements this year with Bulgaria, Hungary, Romania and Moldova.

The first natural gas export deal of the year was signed in January with Bulgaria to cover the export of 1.5 billion cubic meters of natural gas annually for 13 years.

After concluding negotiations with Bulgaria, Turkey entered into an agreement with Hungary in August to export gas via pipeline.

According to the Hungarian media, Turkey anticipates exporting 275 million cubic meters of gas to the nation. With this arrangement, Hungary became the first country that Turkey exported gas through a pipeline to that was not a neighbor.

Signing its third gas export agreement of the year with Romania, Turkey announced it would supply up to 4 million cubic meters of natural gas per day to the country. The shipment was scheduled to begin on 1 October 2023 and run until 31 March 2025.

Turkey signed the fourth natural gas export agreement of the year with Moldova to export 2 million cubic meters of natural gas per day starting on 1 October 2023.

According to Erste Investment Oil and Gas Analyst Tamas Pletser, Turkey can become an important hub for Europe's gas supply as it can gain access to long-term LNG sources from various markets, including Azerbaijan, Northern Iraq, Iran, Israel, and even Cyprus.

He said that despite obstacles in the gas supply to Hungary in Bulgaria, the idea of Turkey as a gas hub has grown more important because of the lack of a direct pipeline supply from Russia to Europe as a result of the war in Ukraine.

15. Various data and statistics

Statistical data for October - in GWh

Germany	2018	2019	2020	2021	2022	2023
EEX (EUR/MWh)	56.99	41.00	38.68	176.15	173.63	87.49

IT Nord	2018	2019	2020	2021	2022	2023
(EUR/MWh)	56.99	41.00	47.49	226.41	227.57	133.49

Hungary (GWh)	2018	2019	2020	2021	2022	2023
HUPX (EUR/MWh)	63.65	43.93	48.95	215.87	222.74	105.03
Consumption	3,670	3,697	3,892	3,913	3,646	3,433
Hydro Generation	16	20	19	15	16	15
Coal fired Generation	395	307	354	236	222	188
Gas fired Generation	654	752	910	967	725	531
Oil fired Generation	4	1	0	2	2	1
Nuclear Generation	1,093	1,380	1,161	1,044	1,048	1,420
RES Generation	189	226	180	258	252	487
Total Generation	2,458	2,686	2,624	2,522	2,266	2,642
Export-Import balance	-1,140	-923	-1,193	-1,344	-1,341	-768

Slovenia (GWh)	2018	2019	2020	2021	2022	2023
BSP (EUR/MWh)	63.65	43.93	46.91	215.83	222.48	103.59
Consumption	1,110	1,069	1,177	1,217	1,116	997
Hydro Generation	474	619	359	330	285	401
Coal fired Generation	428	333	443	354	28	304
Gas fired Generation	32	36	46	53	41	25
Oil fired Generation	0	0	0	0	0	0
Nuclear Generation	500	494	501	498	359	84
RES Generation	22	22	33	20	21	44
Total Generation	1,458	1,505	1,382	1,255	733	858
Export-Import balance	258	293	185	-2	-399	-185

Romania (GWh)	2018	2019	2020	2021	2022	2023
OPCOM (EUR/MWh)	60.60	42.70	48.63	212.55	222.44	106.14
Consumption	5,305	5,069	5,194	5,104	4,585	4,282
Hydro Generation	1,015	965	1,297	911	985	927
Coal fired Generation	1,275	1,110	887	928	963	621
Gas / Mixed / Oil	1,158	997	1,084	1,098	1,030	916
	0	0	0			
Nuclear Generation	994	996	1,016	1,012	996	1,023
RES Generation	670	864	487	647	671	785
Total Generation	5,039	4,932	4,771	4,594	4,645	4,272
Export-Import balance	28	-137	-424	-513	43	-29

Bulgaria (GWh)	2018	2019	2020	2021	2022	2023
IBEX (EUR/MWh)	45.82	41.46	47.69	208.70	220.14	106.97
Consumption	3,450	3,114	3,292	3,316	3,162	2,633
Hydro Generation	351	210	241	239	216	124
Coal fired Generation	1,866	1,647	1,349	2,162	2,092	1,097
Gas fired Generation	184	190	240	271	236	138
Oil fired Generation	0	0	0	0	0	0
Nuclear Generation	1,500	1,509	1,521	1,544	1,422	970
RES Generation	180	210	201	210	212	431
Total Generation	4,010	3,766	3,552	4,426	4,178	2,759
Export-Import balance	942	588	245	1,094	991	123

Serbia (GWh)	2018	2019	2020	2021	2022	2023
SEEPEX (EUR/MWh)	63.54	43.14	48.63	218.30	216.43	106.23
Consumption	3,480	3,321	3,676	3,095	2,919	2,597
Hydro Generation	601	727	842	749	641	500
Coal fired Generation	2,528	2,026	2,223	1,759	2,024	1,979
Gas / Mixed Generation	52	1	1	1	125	25
Oil fired Generation	0	0	0	0	0	0
Nuclear Generation	0	0	0	0	0	0
RES Generation	7	11	18	19	22	22
Total Generation	1,398	2,765	3,084	2,528	2,812	2,526
Export-Import balance	-390	13	-66	-449	-66	65

Croatia (GWh)	2018	2019	2020	2021	2022	2023
CROPEX (EUR/MWh)	63.26	45.16	47.21	215.99	219.42	104.17
Consumption	1,454	1,403	1,458	1,486	1,406	1,376
Hydro Generation	495	826	455	509	499	407
Coal fired Generation	118	106	125	138	95	144
Gas fired Generation	198	244	305	331	281	279
Oil fired Generation	0	0	5	0	0	0
Nuclear Generation	0	0	0	0	0	0
RES Generation	175	251	234	307	320	289
Total Generation	989	1,428	1,124	1,285	1,195	1,119
Export-Import balance	-488	25	-350	-229	-236	-277

*Load data includes KS load for 2016-2020
*RES data include biomas only

BiH (GWh)	2018	2019	2020	2021	2022	2023
Consumption	1,090	929	1,022	932	1,028	840
Hydro Generation	427	567	430	417	305	256
Coal fired Generation	1,005	856	960	865	881	798
Gas fired Generation	0	0	0	0	0	0
Oil fired Generation	0	0	0	0	0	0
Nuclear Generation	0	0	0	0	0	0
RES Generation	0	19	8	26	14	9
Total Generation	1,434	1,442	1,398	1,308	1,200	1,063
Export-Import balance	344	513	419	418	244	240

Montenegro (GWh)	2018	2019	2020	2021	2022	2023
Consumption	264	261	267	276	232	210
Hydro Generation	127	218	165	100	109	60
Coal fired Generation	130	117	146	149	161	150
Gas fired Generation	0	0	0	0	0	0
Oil fired Generation	0	0	0	0	0	0
Nuclear Generation	0	0	0	0	0	0
RES Generation	13	39	19	35	34	28
Total Generation	270	374	330	284	303	238
Export-Import balance	6	118	47	-1	80	-55

Macedonia (GWh)	2018	2019	2020	2021	2022	2023
Consumption	657	595	675	669	502	434
Hydro Generation	99	68	22	55	83	84
Gas + Coal Generation	359	294	356	311	347	337
Oil fired Generation	0	0	0	0	0	0
Nuclear Generation	0	0	0	0	0	0
RES Generation	12	5	8	6	8	12
Total Generation	478	363	386	372	437	433
Export-Import balance	-179	-232	-263	-290	-61	21

Greece (GWh)	2018	2019	2020	2021	2022	2023
Price (EUR/MWh)	69.29	55.35	52.66	228.87	227.75	111.06
Consumption	4,037	3,720	3,847	4,040	3,526	3,523
Hydro Generation	297	183	205	233	212	444
Coal fired Generation	1,305	780	630	303	330	358
Gas fired Generation	1,364	1,201	1,509	1,923	1,288	1,396
Oil fired Generation	0	0	0	0	0	0
Nuclear Generation	0	0	0	0	0	0
RES Generation	708	661	1,093	1,123	1,250	1,358
Total Generation	3,803	2,825	3,437	3,582	3,081	3,556
Export-Import balance	-331	-829	-351	-348	-370	53

Monthly ATC auctions

ATC auctions for October 2023

Border+Direction	NTC	AAC	ATC	AATC	Price	Validity period:
Auctions for 100% of ATC						
Austria > Hungary	**400**	250	**150**	**155**	**5.12**	01-31.10.2023
Austria > Slovenia	**600**	300	**300**	**312**	**3.55**	01-31.10.2023
Albania > XK	**400**	200	**200**	**200**	**0.33**	01-31.10.2023
Albania > Montenegro	**300**	200	**100**	**100**	**1.50**	01-31.10.2023
Albania > Greece	**400**	200	**200**	**200**	**3.50**	01-08.10.2023
	300	200	**100**	**99**	**3.50**	09-20.10.2023
	400	200	**200**	**200**	**3.50**	21-31.10.2023
BIH > Croatia	**500**	400	**100**	**100**	**1.02**	01-31.10.2023
BIH > Montenegro	**500**	199	**301**	**301**	**2.55**	01-31.10.2023
BIH > Serbia	**400**	150	**250**	**250**	**1.57**	01-31.10.2023
Bulgaria > Serbia	**300**	150	**150**	**150**	**1.41**	01-06.10.2023
	350	150	**200**	**200**	**1.41**	07-08.10.2023
	450	150	**300**	**300**	**1.41**	09-20.10.2023
	350	150	**200**	**200**	**1.41**	21-22.10.2023
	300	150	**150**	**150**	**1.41**	23-31.10.2023
Bulgaria > Romania	**1560**	500	**1060**	**1060**	**0.46**	01-31.10.2023
Bulgaria > Macedonia	**456**	150	**306**	**306**	**1.60**	01-08.10.2023
	0	0	**0**	**0**	**0.00**	09-20.10.2023
	459	150	**309**	**309**	**1.10**	21-31.10.2023
Bulgaria > Greece	**700**	300	**400**	**400**	**6.39**	01-03.10.2023
	750	300	**450**	**450**	**6.39**	04-08.10.2023
	700	300	**400**	**400**	**6.39**	09-20.10.2023
	750	300	**450**	**450**	**6.39**	21-31.10.2023
Croatia > Slovenia	**650**	500	**150**	**149**	**0.77**	01-31.10.2023
Croatia > Hungary	**450**	400	**50**	**49**	**2.55**	01-31.10.2023
Croatia > Serbia	**150**	150	**0**	**0**	**0.00**	01-31.10.2023
Croatia > BIH	**500**	400	**100**	**99**	**0.33**	01-31.10.2023
Hungary > Romania	**630**	350	**280**	**280**	**2.23**	01-31.10.2023
Hungary > Serbia	**700**	200	**500**	**500**	**1.76**	01-08.10.2023
	0	0	**0**	**0**	**0.00**	09-13.10.2023
	700	200	**500**	**500**	**1.76**	14-15.10.2023
	0	0	**0**	**0**	**0.00**	16-20.10.2023
	700	200	**500**	**500**	**1.76**	21-31.10.2023
Hungary > Croatia	**550**	500	**50**	**50**	**1.49**	01-31.10.2023
Hungary > Ukraine	**0**	0	**0**	**0**	**0.00**	01-31.10.2023
Hungary > Austria	**500**	250	**250**	**250**	**1.27**	01-31.10.2023
Hungary > Slovakia	**850**	800	**50**	**60**	**1.16**	01-31.10.2023
Hungary > Slovenia	**200**	150	**50**	**50**	**1.15**	01-31.10.2023
Greece > Albania	**400**	200	**200**	**199**	**0.90**	01-31.10.2023
Greece > Macedonia	**400**	150	**250**	**250**	**1.12**	01-08.10.2023
	300	150	**150**	**150**	**1.12**	09-20.10.2023
	400	150	**250**	**250**	**1.12**	21-31.10.2023
Greece > Bulgaria	**700**	300	**400**	**400**	**1.61**	01-31.10.2023
Greece > Italy	**500**	50	**450**	**450**	**8.92**	01-31.10.2023
Greece > Turkey	**0**	0	**0**	**0**	**0.00**	01-03.10.2023
	216	50	**116**	**116**	**1.07**	04-31.10.2023
Macedonia > Serbia	**400**	100	**300**	**300**	**0.80**	01-31.10.2023
Macedonia > Bulgaria	**500**	150	**350**	**323**	**0.00**	01-08.10.2023
	0	0	**0**	**0**	**0.00**	09-20.10.2023
	500	150	**350**	**342**	**0.00**	21-31.10.2023
Macedonia > Greece	**400**	150	**250**	**250**	**5.44**	01-08.10.2023
	300	150	**150**	**146**	**5.44**	09-20.10.2023
	400	150	**250**	**250**	**5.44**	21-31.10.2023
Macedonia > XK	**350**	100	**250**	**250**	**1.81**	01.10.2023
	0	0	**0**	**0**	**0.00**	02-06.10.2023
	450	100	**350**	**350**	**1.00**	07-31.10.2023
Montenegro > Albania	**300**	200	**100**	**100**	**2.17**	01-31.10.2023
Montenegro > BIH	**500**	200	**300**	**300**	**0.08**	01-31.10.2023
Montenegro > Serbia	**200**	100	**100**	**100**	**0.88**	01-31.10.2023
Montenegro > Italy	**399**	139	**260**	**260**	**9.00**	01-31.10.2023
Montenegro > XK	**200**	100	**100**	**100**	**1.02**	01-31.10.2023
Romania > Bulgaria	**1560**	500	**1060**	**1060**	**0.15**	01-31.10.2023
Romania > Serbia	**300**	250	**50**	**50**	**2.51**	01-06.10.2023
	500	250	**250**	**250**	**0.02**	07-08.10.2023
	400	250	**150**	**150**	**0.21**	09-22.10.2023
	300	250	**50**	**50**	**2.51**	23-31.10.2023
Romania > Hungary	**630**	350	**280**	**280**	**2.84**	01-31.10.2023
Romania > Ukraine	**0**	0	**0**	**0**	**0.00**	01-31.10.2023

Border+Direction	NTC	AAC	ATC	AATC	Price	Validity period:
Auctions for 100% of ATC						
Serbia > XK						01-31.10.2023
Serbia > BiH	**600**	150	**450**	**450**	**0.06**	01-06.10.2023
	500	150	**350**	**350**	**0.07**	07-20.10.2023
	600	150	**450**	**450**	**0.06**	21-31.10.2023
Serbia > Bulgaria	**350**	150	**200**	**200**	**1.08**	01-08.10.2023
	450	150	**300**	**300**	**1.08**	09-20.10.2023
	350	150	**200**	**200**	**1.08**	21-31.10.2023
Serbia > Croatia	**0**	0	**0**	**0**	**0.00**	01-31.10.2023
Serbia > Hungary	**800**	200	**600**	**600**	**1.73**	01-08.10.2023
	0	0	**0**	**0**	**0.00**	09-13.10.2023
	800	200	**600**	**600**	**1.73**	14-15.10.2023
	0	0	**0**	**0**	**0.00**	16-20.10.2023
	800	200	**600**	**600**	**1.73**	21-31.10.2023
Serbia > Montenegro	**300**	100	**200**	**200**	**4.60**	01-31.10.2023
Serbia > Macedonia	**500**	100	**400**	**400**	**3.40**	01-31.10.2023
Serbia > Romania	**500**	250	**250**	**250**	**0.02**	01-06.10.2023
	700	250	**450**	**294**	**0.00**	07-08.10.2023
	500	250	**250**	**250**	**0.02**	09-13.10.2023
	700	250	**450**	**294**	**0.00**	14-15.10.2023
	500	250	**250**	**250**	**0.02**	16-20.10.2023
	700	250	**450**	**294**	**0.00**	21-22.10.2023
	500	250	**250**	**250**	**0.02**	23-31.10.2023
Slovenia > Croatia	**650**	500	**150**	**150**	**1.02**	01-31.10.2023
Slovenia > Austria	**600**	300	**300**	**300**	**1.20**	01-31.10.2023
Slovenia > Italy	**441**	329	**112**	**162**	**14.11**	01-31.10.2023
Slovenia > Hungary	**200**	150	**50**	**50**	**2.97**	01-31.10.2023
Italy > Greece	**500**	50	**450**	**450**	**3.82**	01-31.10.2023
Turkey > Greece	**50**	50	**0**	**0**	**0.00**	01-31.10.2023
Italy > Slovenia	**334**	126	**208**	**290**	**1.22**	01-31.10.2023
Italy > Montenegro	**400**	140	**260**	**257**	**0.31**	01-31.10.2023
Ukraine > Hungary	**0**	0	**0**	**0**	**0.00**	01-31.10.2023
Ukraine > Romania	**0**	0	**0**	**0**	**0.00**	01-31.10.2023
Slovakia > Hungary	**850**	699	**151**	**163**	**2.61**	01-31.10.2023
XK > Albania	**400**	200	**200**	**200**	**0.91**	01-31.10.2023
XK > Montenegro	**300**	100	**200**	**200**	**0.56**	01-31.10.2023
XK > Macedonia	**350**	100	**250**	**249**	**0.08**	01.10.2023
	0	0	**0**	**0**	**0.00**	02-06.10.2023
	450	100	**350**	**332**	**0.00**	07-31.10.2023

Border+Direction	NTC	AAC	ATC	AATC	Price	Validity period:
50% of ATC - ESO, Bulgaria						
Bulgaria > Turkey	**334**	50	**117**	**117**	**1.90**	01-31.10.2023
Turkey > Bulgaria	**100**	50	**0**	**0**	**0.00**	01-31.10.2023

ATC auctions for November 2023

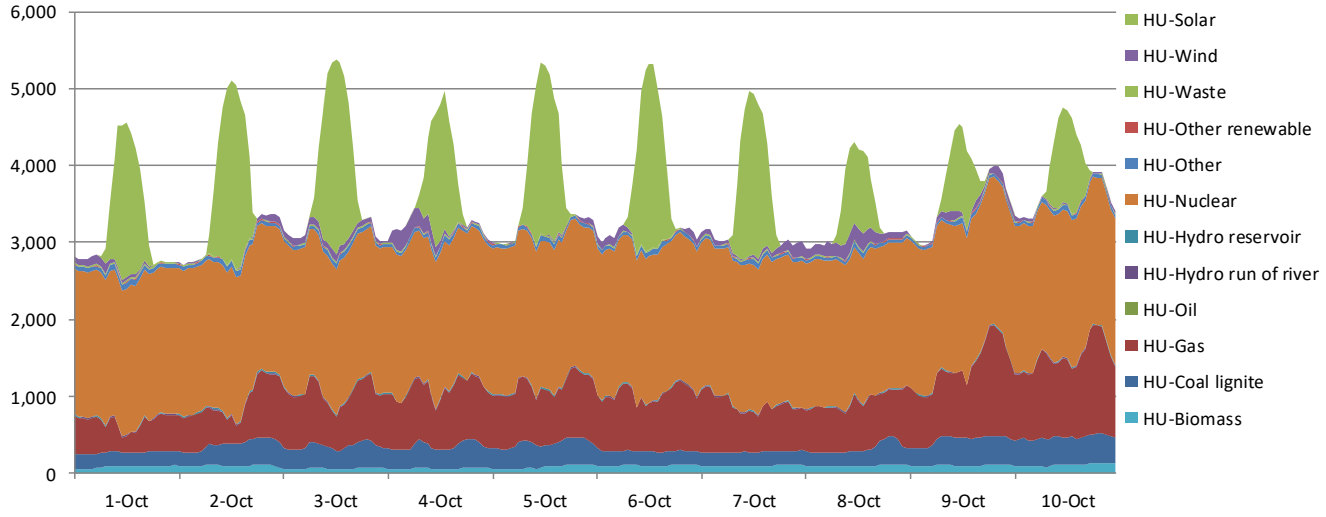
Border+Direction	NTC	AAC	ATC	AATC	Price	Validity period:
Auctions for 100% of ATC						
Austria > Hungary	**400**	250	**150**	**150**	**6.33**	01.11.2023
	0	0	**0**	**0**	**0.00**	02-03.11.2023
	400	250	**150**	**150**	**6.33**	04-30.11.2023
Austria > Slovenia	**600**	300	**300**	**301**	**4.38**	01.11.2023
	0	0	**0**	**0**	**0.00**	02-03.11.2023
	600	300	**300**	**301**	**4.38**	04-30.11.2023
Albania > XK	**400**	200	**200**	**200**	**0.51**	01-30.11.2023
Albania > Montenegro	**300**	200	**100**	**100**	**1.46**	01-30.11.2023
Albania > Greece	**400**	200	**200**	**200**	**2.33**	01-05.11.2023
	0	0	**0**	**0**	**0.00**	06-10.11.2023
	400	200	**200**	**200**	**2.33**	11-30.11.2023
BIH > Croatia	**500**	400	**100**	**198**	**1.51**	01-30.11.2023
BIH > Montenegro	**500**	199	**301**	**301**	**3.66**	01-30.11.2023
BIH > Serbia	**500**	150	**350**	**350**	**1.33**	01-30.11.2023
Bulgaria > Serbia	**350**	150	**200**	**200**	**3.05**	01-30.11.2023
Bulgaria > Romania	**1560**	500	**1060**	**1060**	**0.68**	01-30.11.2023
Bulgaria > Macedonia	**459**	150	**309**	**309**	**2.20**	01-30.11.2023
Bulgaria > Greece	**750**	300	**450**	**450**	**7.96**	01-05.11.2023
	500	300	**200**	**200**	**7.96**	06-10.11.2023
	750	300	**450**	**450**	**7.96**	11-30.11.2023
Croatia > Slovenia	**650**	500	**150**	**150**	**1.55**	01-30.11.2023
Croatia > Hungary	**450**	400	**50**	**50**	**3.11**	01-30.11.2023
Croatia > Serbia	**150**	150	**0**	**0**	**0.00**	01-30.11.2023
Croatia > BIH	**500**	400	**100**	**200**	**0.41**	01-30.11.2023
Hungary > Romania	**630**	350	**280**	**280**	**3.00**	01-30.11.2023
Hungary > Serbia	**0**	0	**0**	**0**	**0.00**	01-10.11.2023
	700	200	**500**	**500**	**2.00**	11-30.11.2023
Hungary > Croatia	**550**	500	**50**	**50**	**2.05**	01-30.11.2023
Hungary > Ukraine	**0**	0	**0**	**0**	**0.00**	01-30.11.2023
Hungary > Austria	**500**	250	**250**	**250**	**1.56**	01.11.2023
	0	0	**0**	**0**	**0.00**	02-03.11.2023
	500	250	**250**	**250**	**1.56**	04-12.11.2023
	400	250	**150**	**150**	**1.56**	13-15.11.2023
	500	250	**250**	**250**	**1.56**	16-30.11.2023
Hungary > Slovakia	**850**	800	**50**	**60**	**1.28**	01-30.11.2023
Hungary > Slovenia	**200**	150	**50**	**49**	**2.00**	01-30.11.2023
Greece > Albania	**202**	200	**2**	**2**	**8.88**	01-30.11.2023
Greece > Macedonia	**400**	150	**250**	**250**	**4.75**	01-05.11.2023
	200	150	**50**	**46**	**4.75**	06-10.11.2023
	400	150	**250**	**250**	**4.75**	11-30.11.2023
Greece > Bulgaria	**700**	300	**400**	**400**	**1.95**	01-05.11.2023
	500	300	**200**	**200**	**1.95**	06-10.11.2023
	700	300	**400**	**400**	**1.95**	11-30.11.2023
Greece > Italy	**500**	50	**450**	**450**	**11.13**	01-30.11.2023
Greece > Turkey	**150**	50	**100**	**100**	**0.65**	01-30.11.2023
Macedonia > Serbia	**500**	100	**400**	**400**	**0.70**	01-30.11.2023
Macedonia > Bulgaria	**500**	150	**350**	**350**	**0.10**	01-30.11.2023
Macedonia > Greece	**400**	150	**250**	**250**	**1.41**	01-05.11.2023
	200	150	**50**	**47**	**1.41**	06-10.11.2023
	400	150	**250**	**250**	**1.41**	11-30.11.2023
Macedonia > XK	**350**	100	**250**	**250**	**2.11**	01-30.11.2023
Montenegro > Albania	**300**	200	**100**	**100**	**1.50**	01-30.11.2023
Montenegro > BIH	**500**	200	**300**	**299**	**0.22**	01-30.11.2023
Montenegro > Serbia	**200**	100	**100**	**100**	**1.56**	01-30.11.2023
Montenegro > Italy	**399**	139	**260**	**260**	**12.33**	01-30.11.2023
Montenegro > XK	**200**	100	**100**	**100**	**1.14**	01-30.11.2023
Romania > Bulgaria	**1560**	500	**1060**	**1060**	**0.15**	01-30.11.2023
Romania > Serbia	**400**	250	**150**	**150**	**1.00**	01-03.11.2023
	500	250	**250**	**250**	**0.15**	04-12.11.2023
	400	250	**150**	**150**	**1.05**	13-17.11.2023
	500	250	**250**	**250**	**0.15**	18-19.11.2023
	600	250	**350**	**350**	**0.02**	20-30.11.2023
Romania > Hungary	**630**	350	**280**	**295**	**2.88**	01-30.11.2023
Romania > Ukraine	**0**	0	**0**	**0**	**0.00**	01-30.11.2023

Border+Direction	NTC	AAC	ATC	AATC	Price	Validity period:
Auctions for 100% of ATC						
Serbia > XK						01-30.11.2023
Serbia > BiH	**600**	150	**450**	**450**	**0.02**	01-21.11.2023
	400	150	**250**	**250**	**0.12**	22-24.11.2023
	600	150	**450**	**450**	**0.03**	25-30.11.2023
Serbia > Bulgaria	**350**	150	**200**	**200**	**1.16**	01-30.11.2023
Serbia > Croatia	**150**	150	**0**	**0**	**0.00**	01-30.11.2023
Serbia > Hungary	**0**	0	**0**	**0**	**0.00**	01-10.11.2023
	800	200	**600**	**600**	**2.53**	11-21.11.2023
	0	0	**0**	**0**	**0.00**	22-23.11.2023
	800	200	**600**	**600**	**2.53**	24-30.11.2023
Serbia > Montenegro	**300**	100	**200**	**200**	**4.40**	01-30.11.2023
Serbia > Macedonia	**600**	100	**500**	**500**	**1.30**	01-30.11.2023
Serbia > Romania	**700**	250	**450**	**384**	**0.00**	01-30.11.2023
Slovenia > Croatia	**650**	500	**150**	**150**	**1.14**	01-30.11.2023
Slovenia > Austria	**600**	300	**300**	**299**	**1.23**	01.11.2023
	0	0	**0**	**0**	**0.00**	02-03.11.2023
	600	300	**300**	**299**	**1.23**	04-30.11.2023
Slovenia > Italy	**341**	329	**112**	**147**	**16.55**	01-30.11.2023
Slovenia > Hungary	**200**	150	**50**	**50**	**3.51**	01-30.11.2023
Italy > Greece	**500**	50	**450**	**450**	**3.87**	01-30.11.2023
Turkey > Greece	**50**	50	**0**	**0**	**0.00**	01-30.11.2023
Italy > Slovenia	**334**	126	**208**	**208**	**1.27**	01-30.11.2023
Italy > Montenegro	**500**	50	**450**	**450**	**3.87**	01-30.11.2023
Ukraine > Hungary	**0**	0	**0**	**0**	**0.00**	01-30.11.2023
Ukraine > Romania	**0**	0	**0**	**0**	**0.00**	01-30.11.2023
Slovakia > Hungary	**850**	699	**151**	**163**	**3.79**	01-30.11.2023
XK > Albania	**400**	200	**200**	**200**	**1.11**	01-30.11.2023
XK > Montenegro	**300**	100	**200**	**200**	**0.62**	01-30.11.2023
XK > Macedonia	**350**	100	**250**	**500**	**0.14**	01-30.11.2023

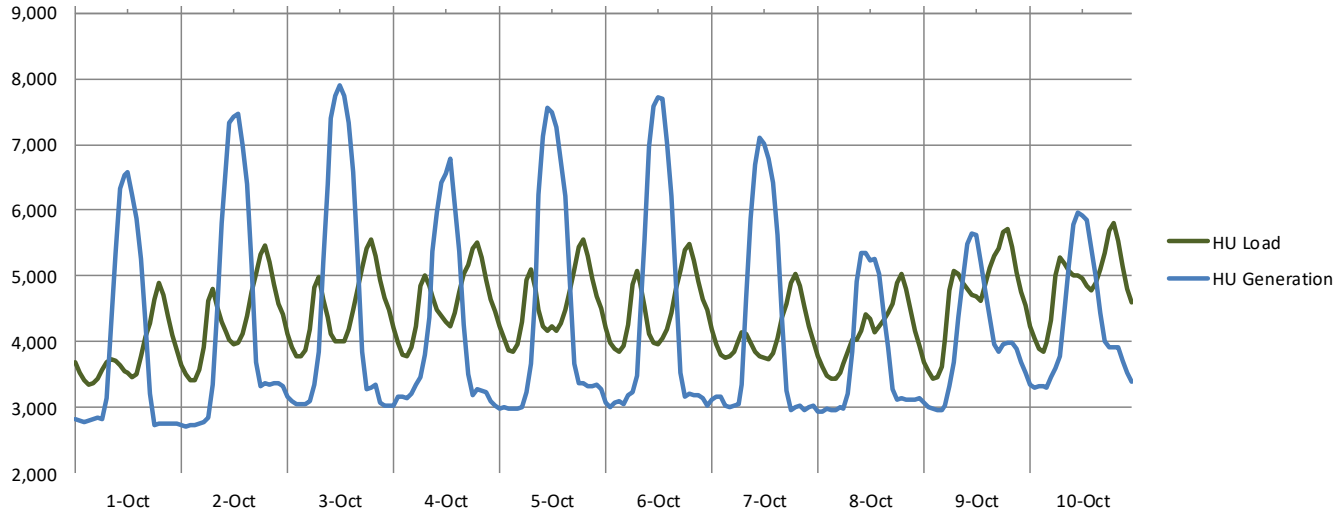
Border+Direction						Validity period:
50% of ATC - ESO, Bulgaria						
Bulgaria > Turkey	**167**	50	**117**	**117**	**0.59**	01-30.11.2023
Turkey > Bulgaria	**100**	50	**0**	**0**	**0.00**	01-30.11.2023

Hungary - Generation, Load, Net position

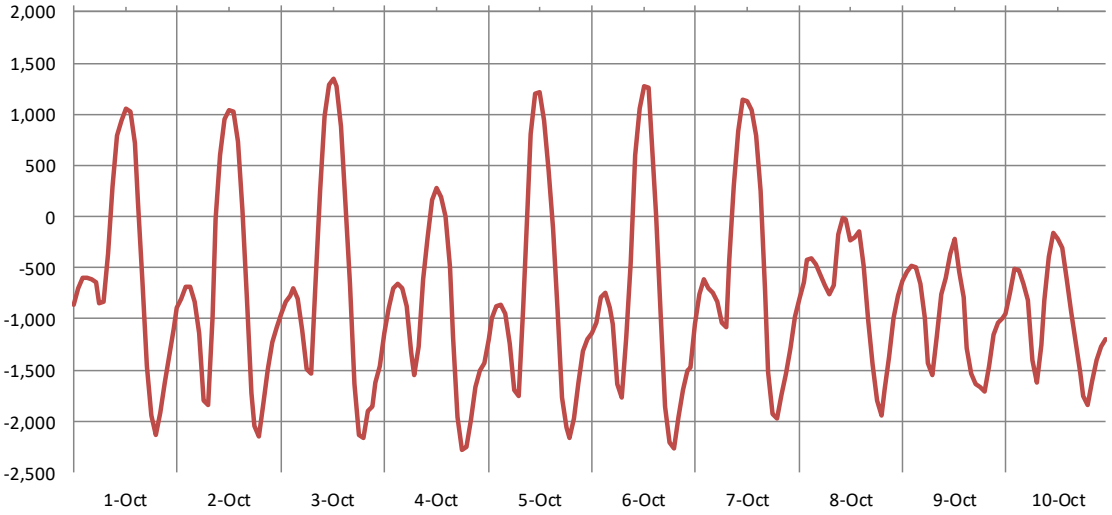
Hungary - Hourly generation per source (MWh)



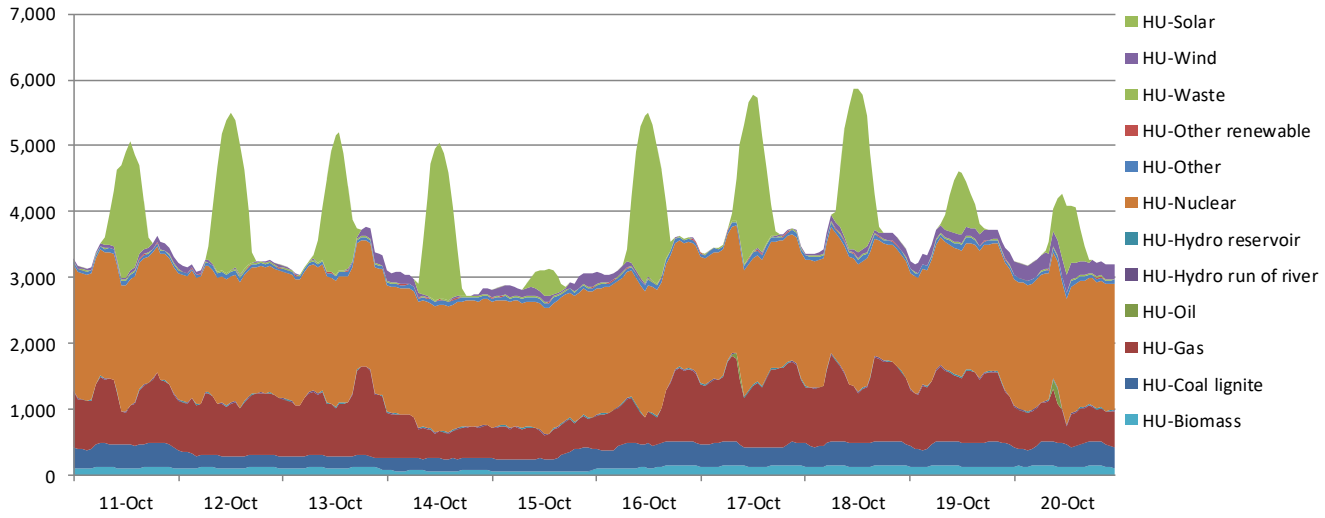
HU load and generation (MW)



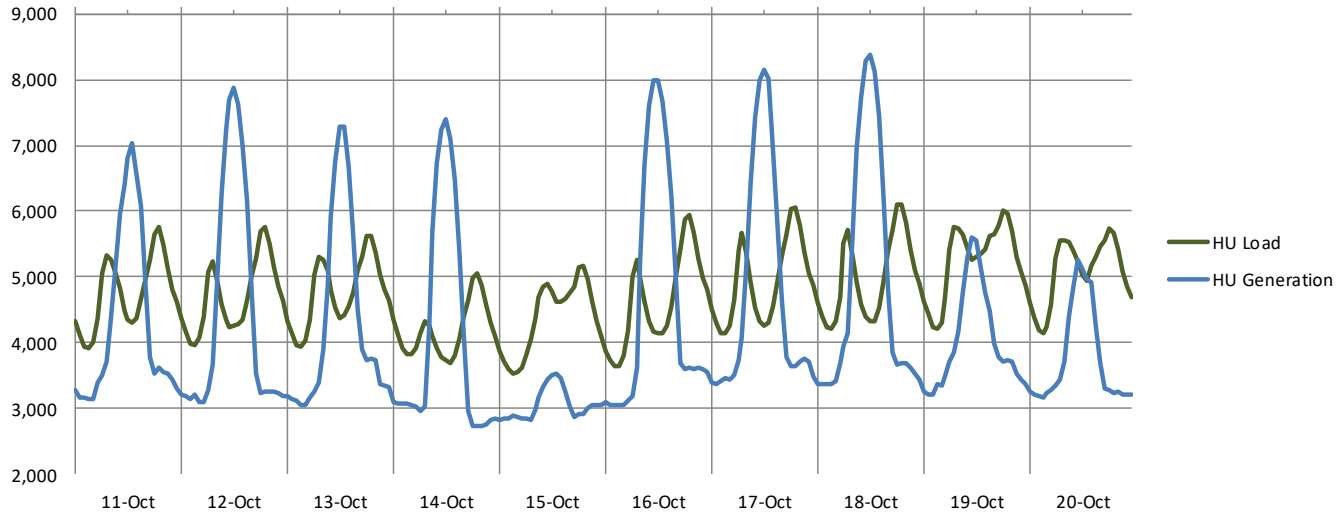
HU net position (MW)



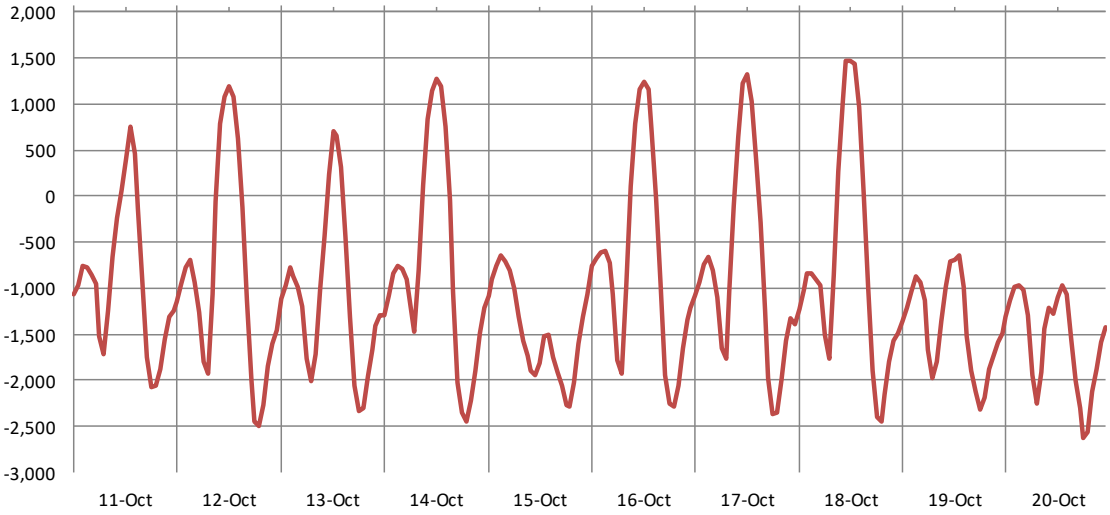
Hungary - Hourly generation per source (MWh)



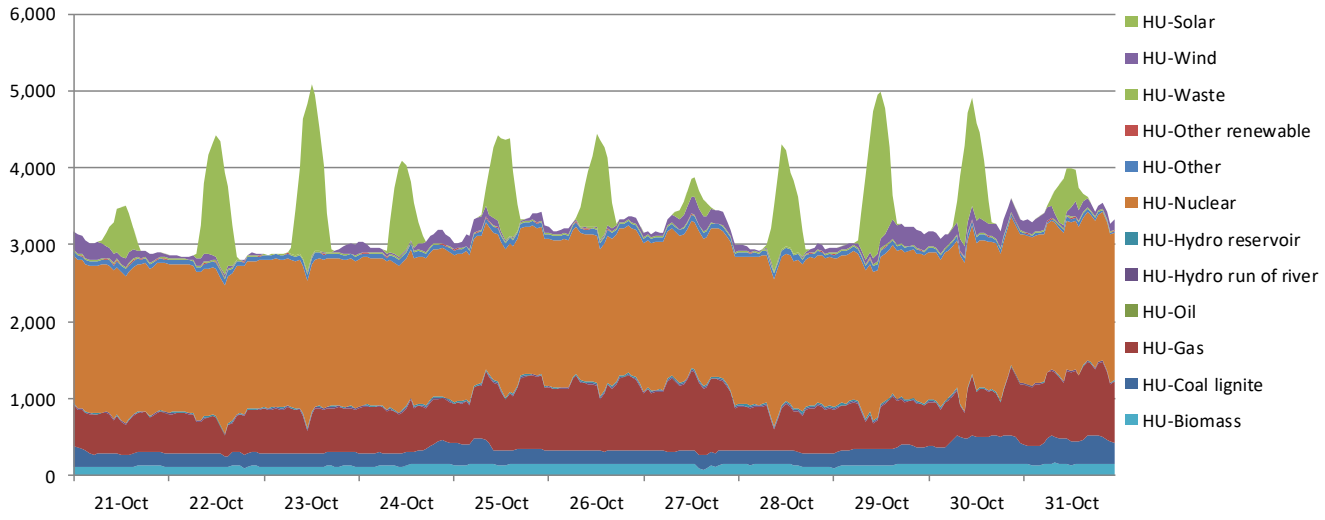
HU load and generation (MW)



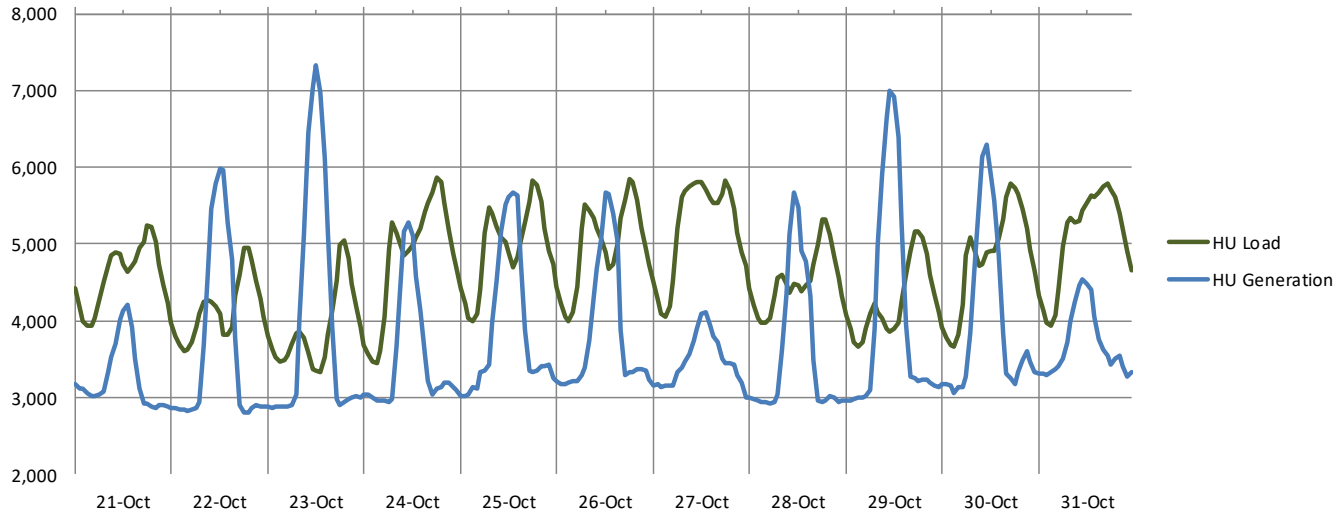
HU net position (MW)



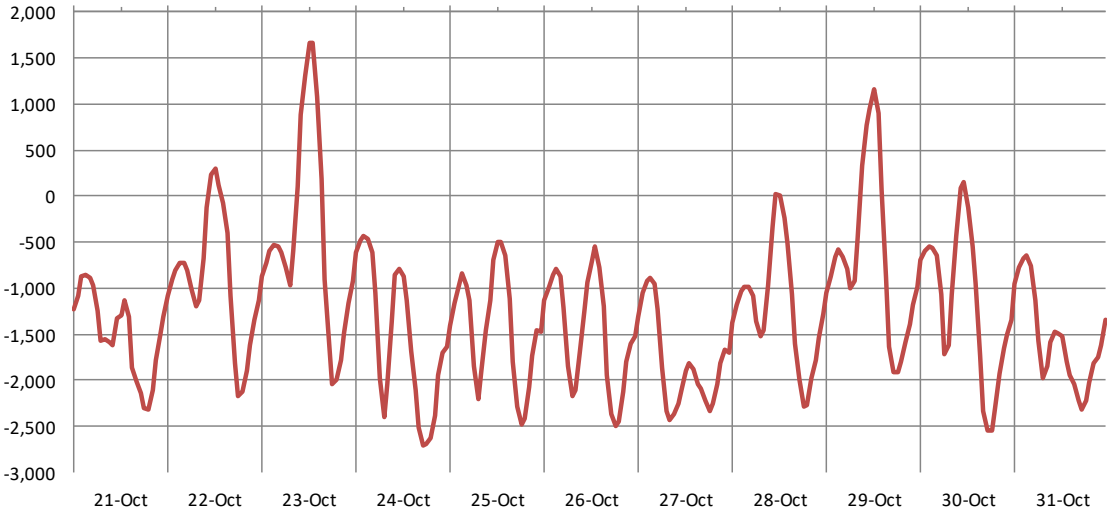
Hungary - Hourly generation per source (MWh)



HU load and generation (MW)

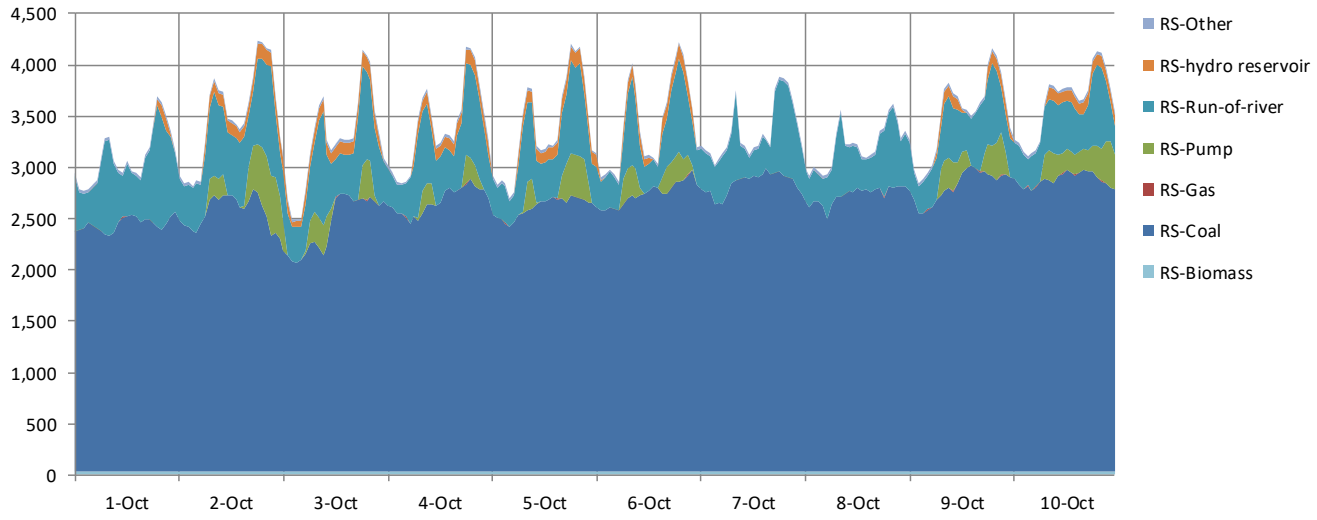


HU net position (MW)

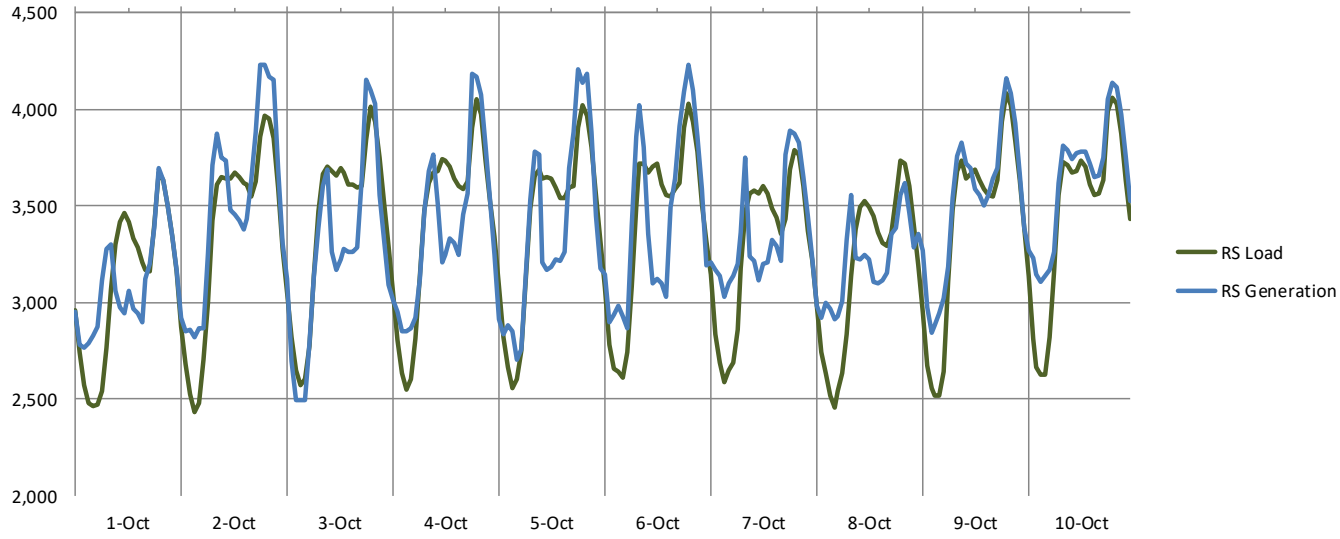


Serbia - Generation, Load, Net position

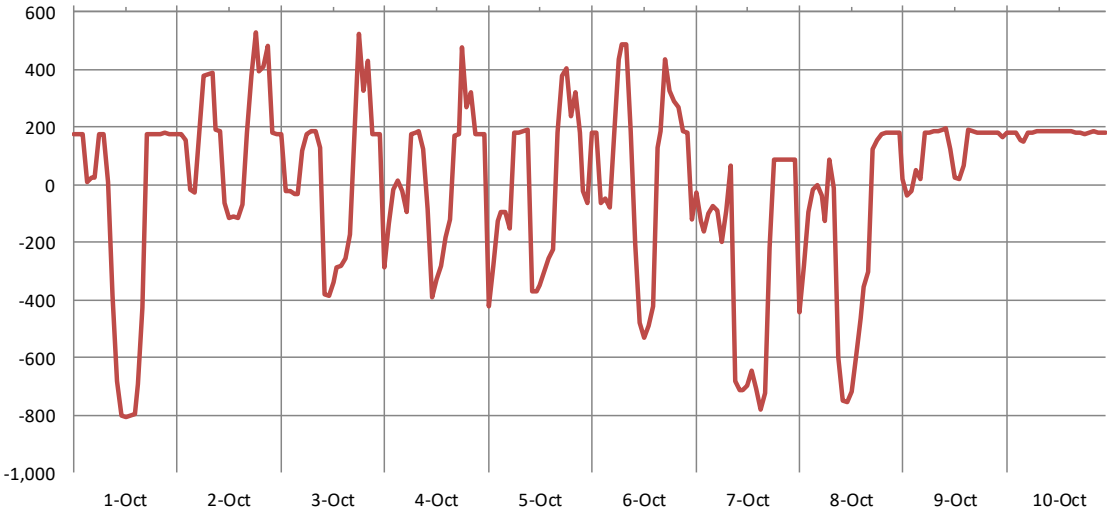
Serbia - Hourly generation per source (MWh)



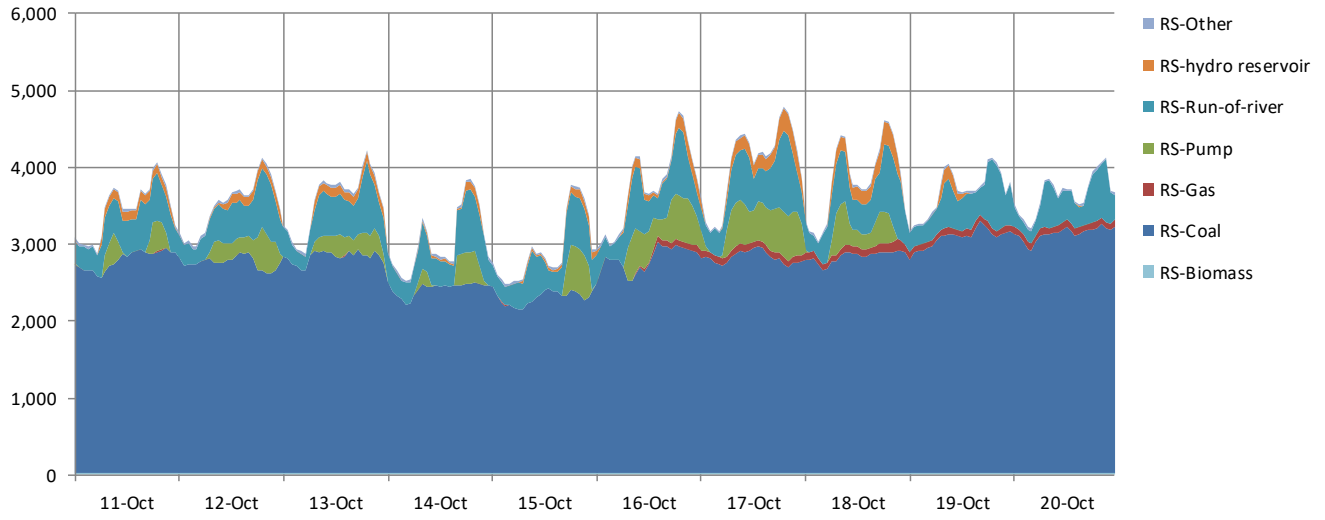
RS load (MW)



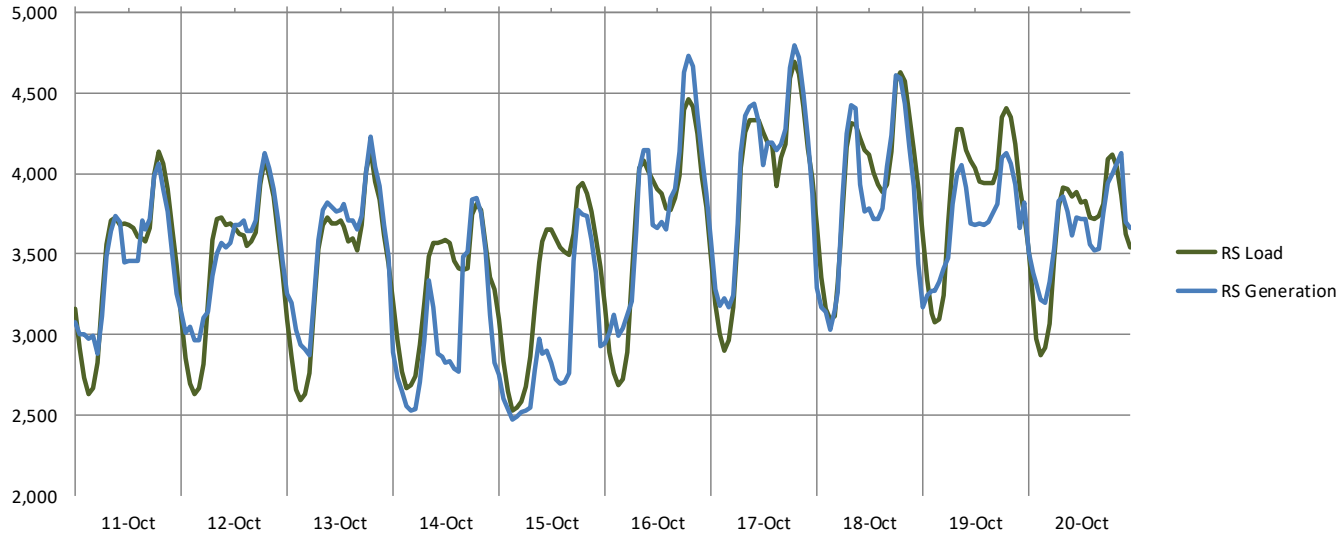
RS net position (MW)



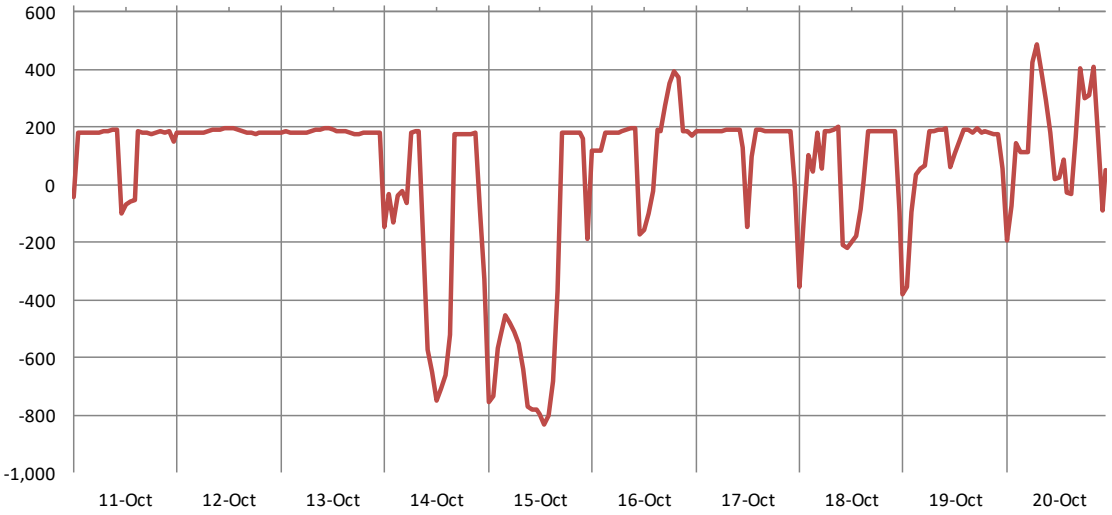
Serbia - Hourly generation per source (MWh)



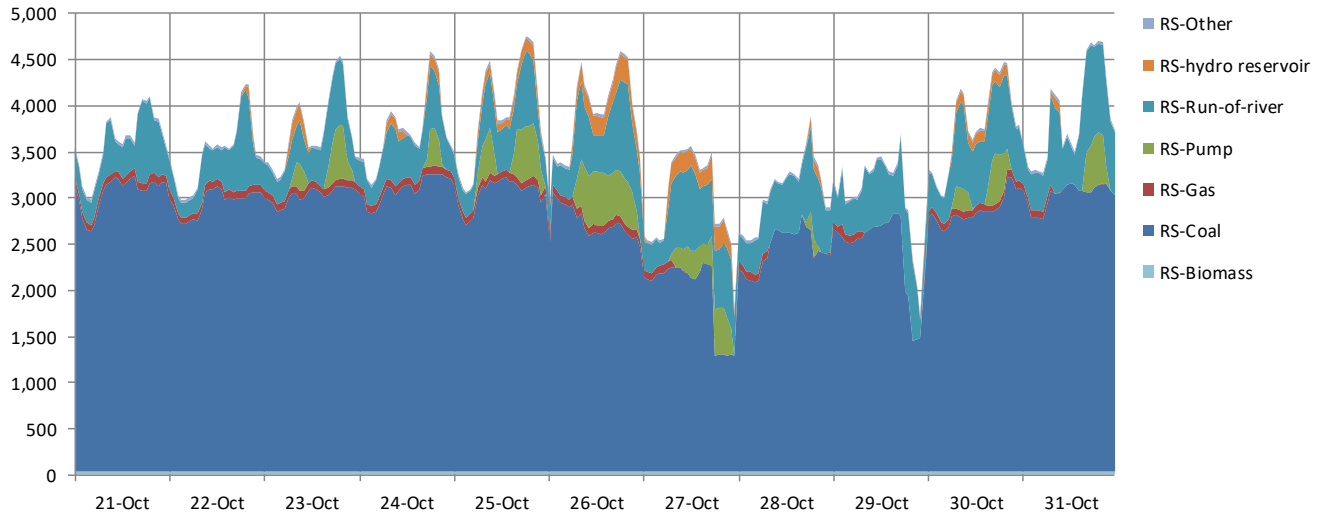
RS load (MW)



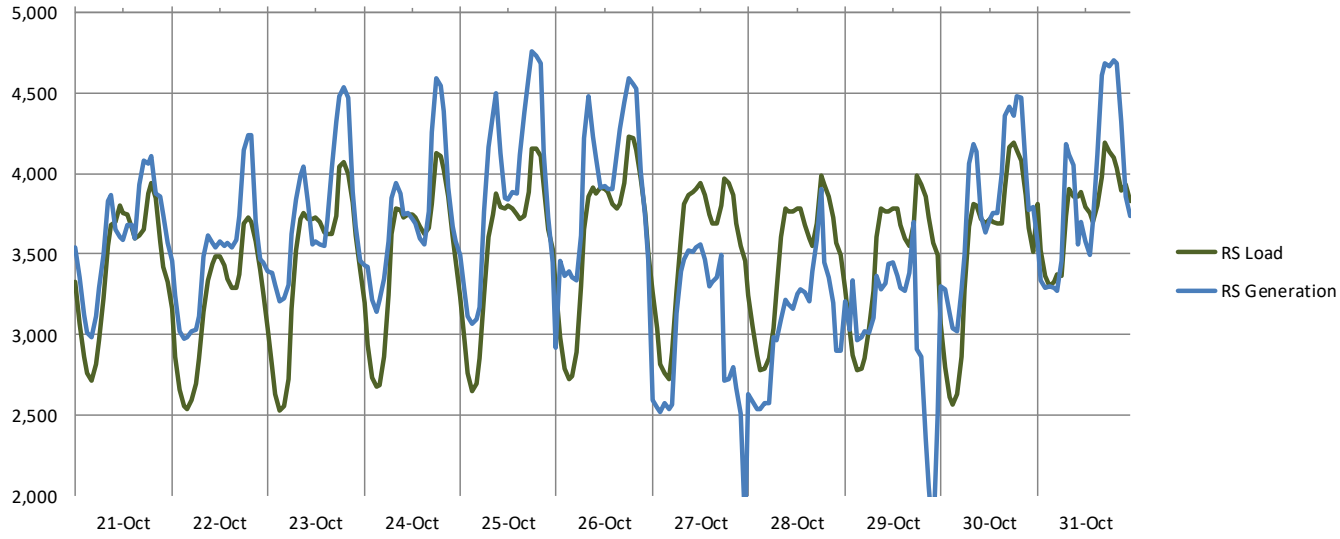
RS net position (MW)



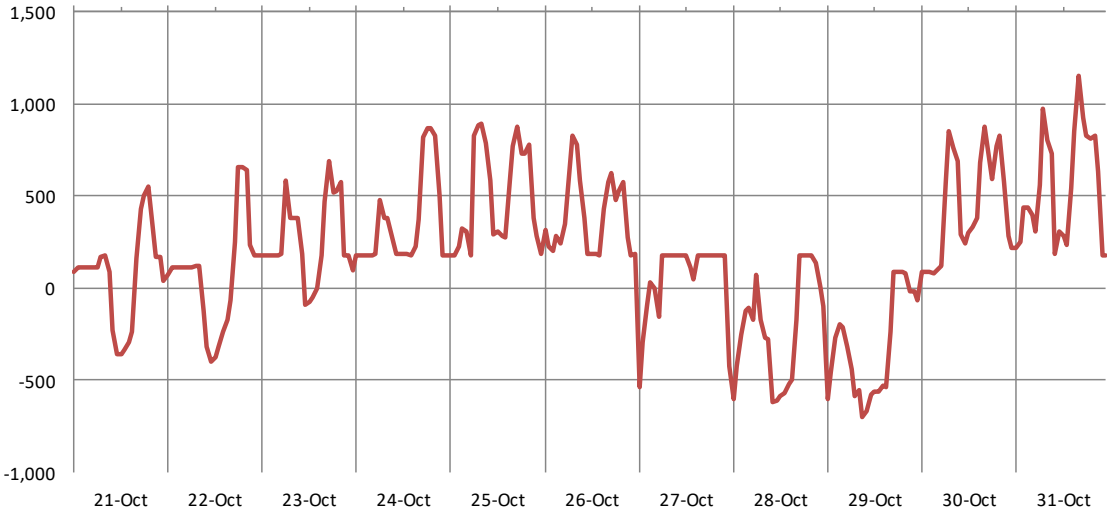
Serbia - Hourly generation per source (MWh)



RS load (MW)

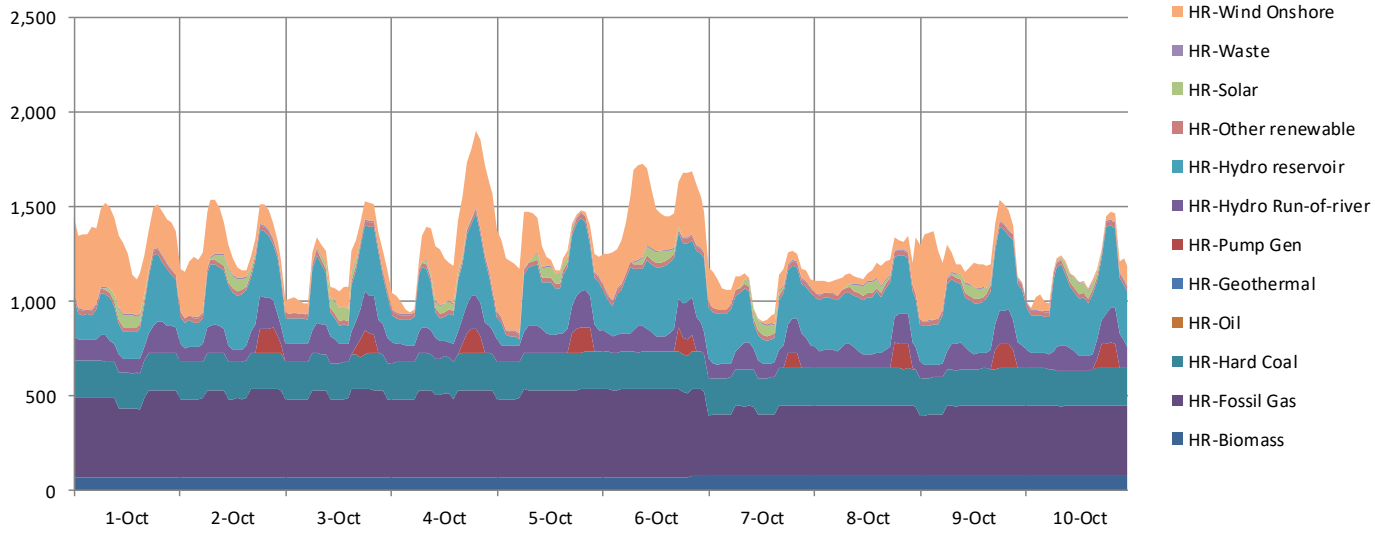


RS net position (MW)

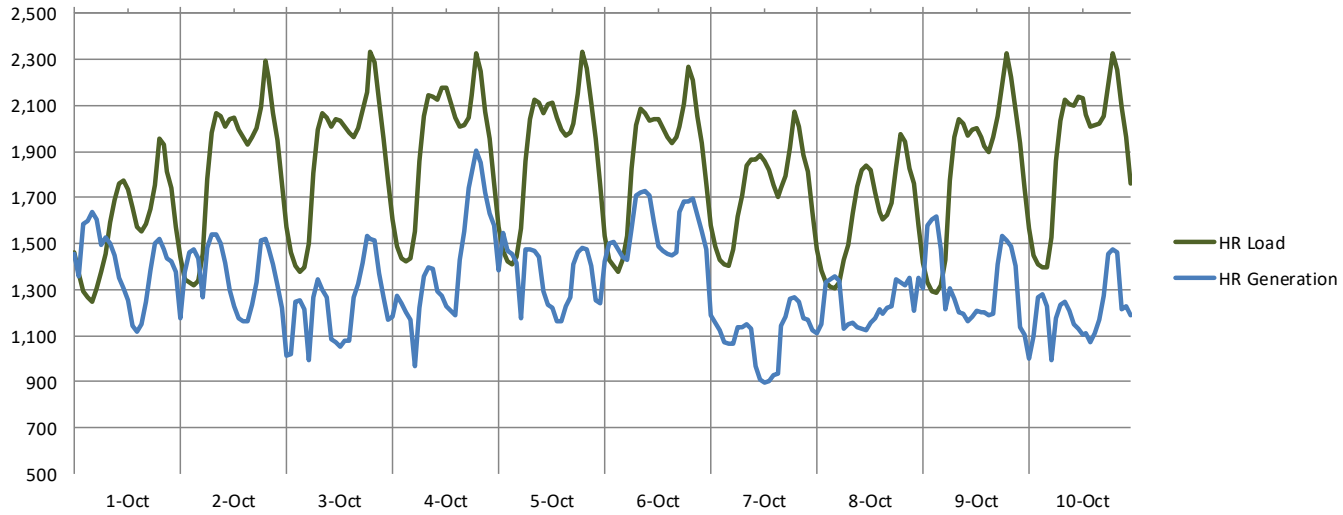


Croatia - Generation, Load, Net position

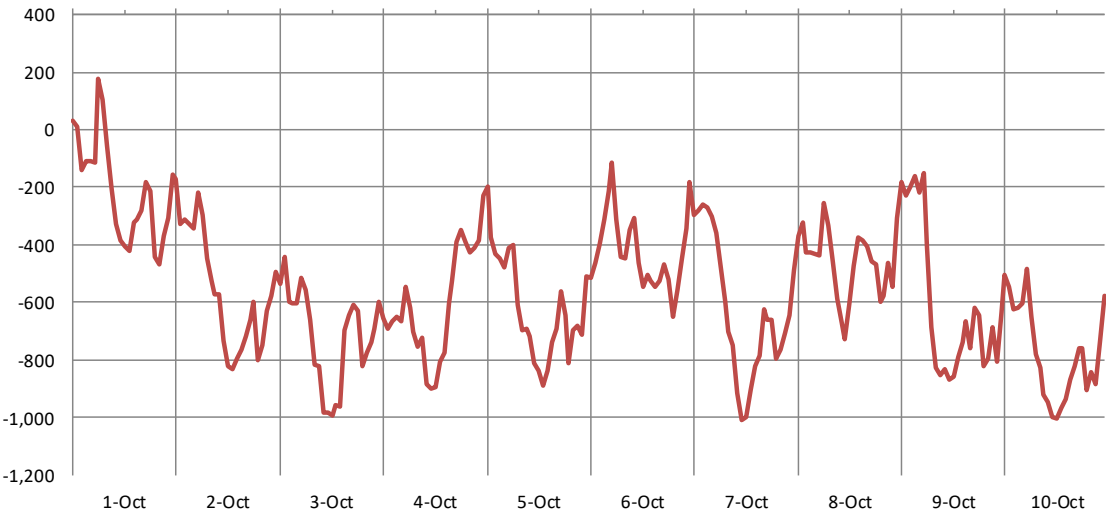
Croatia - Hourly generation per source (MW)



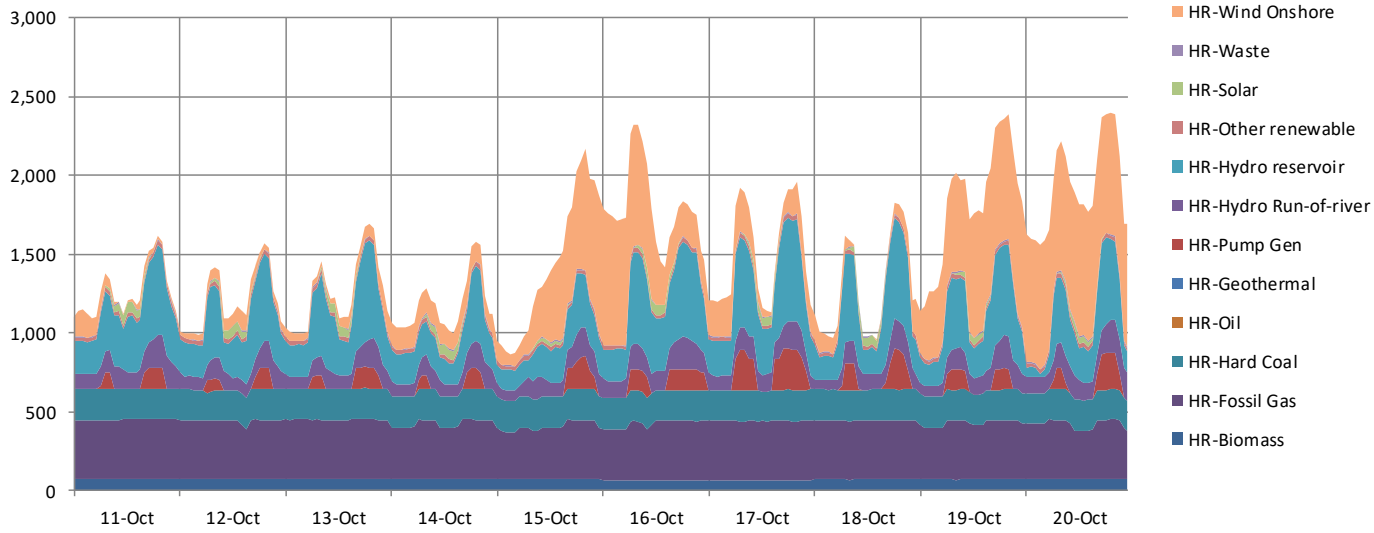
HR load (MW)



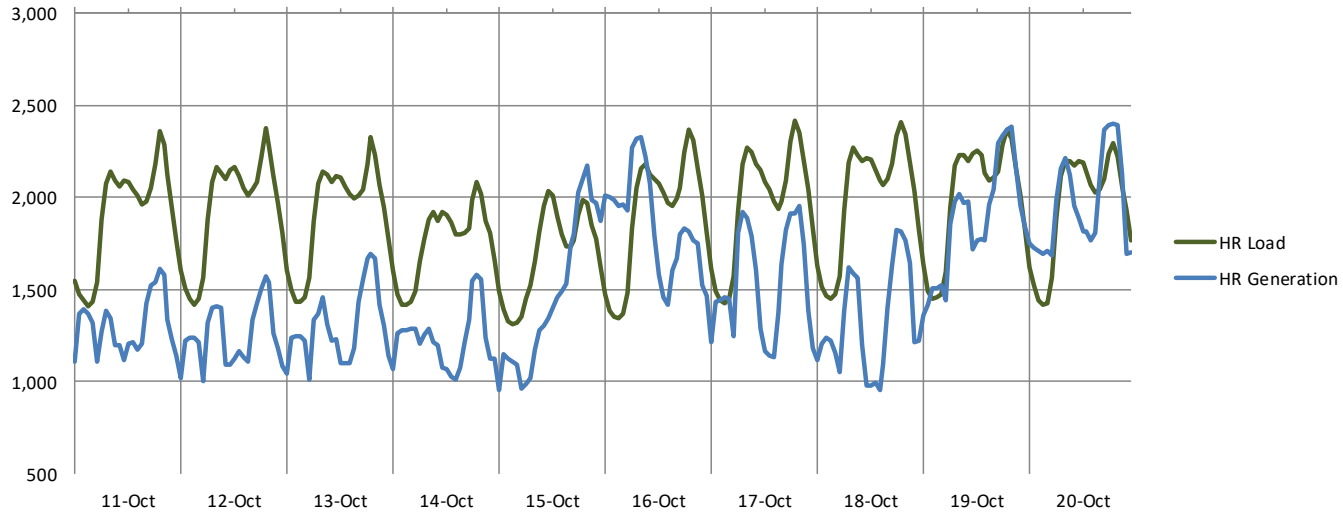
HR net position (MW)



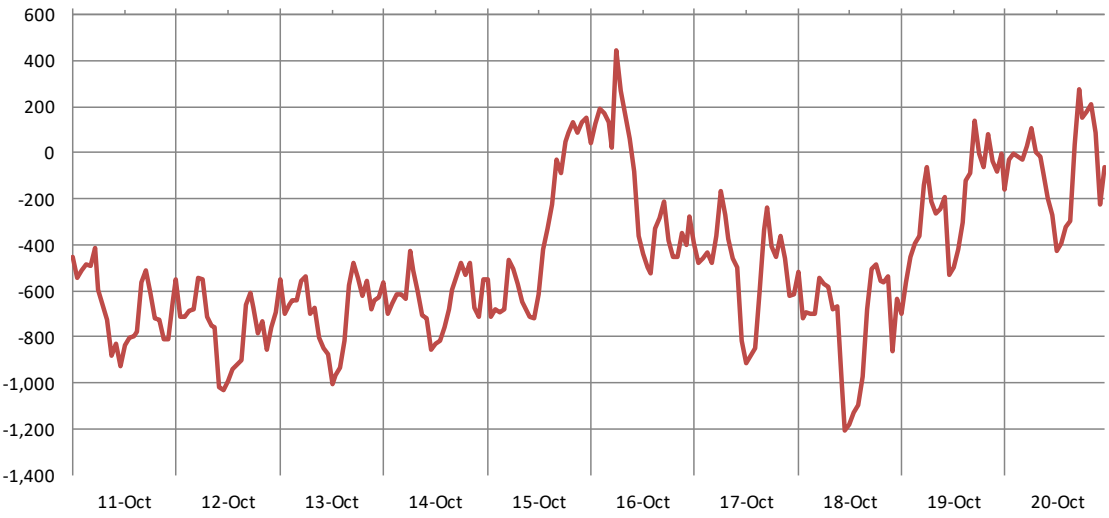
Croatia - Hourly generation per source (MW)



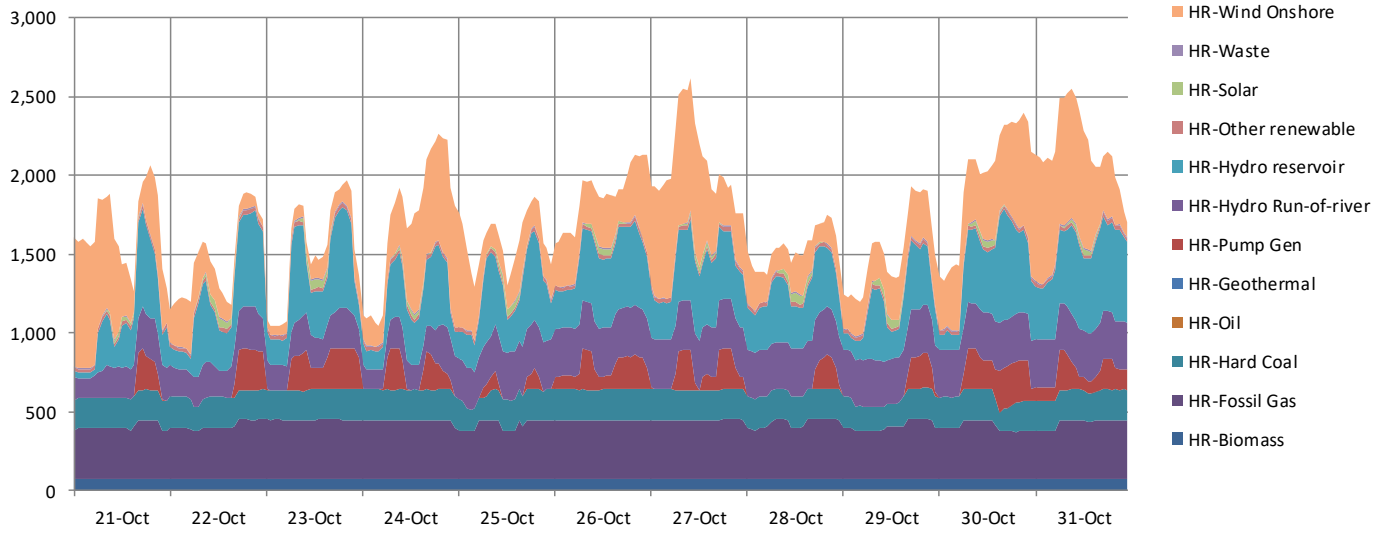
HR load (MW)



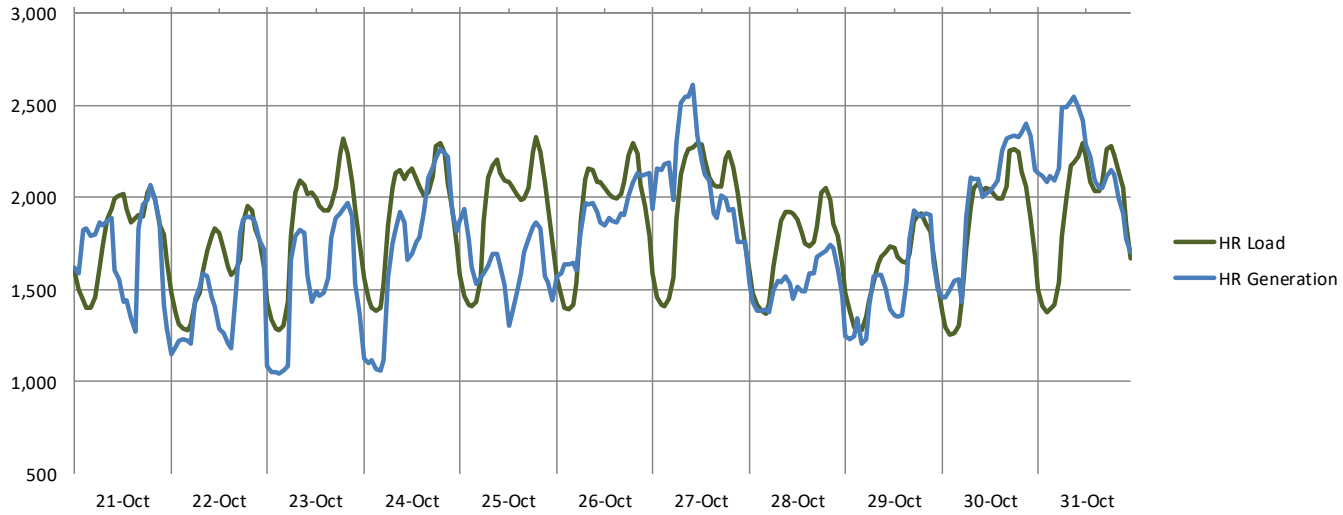
HR net position (MW)



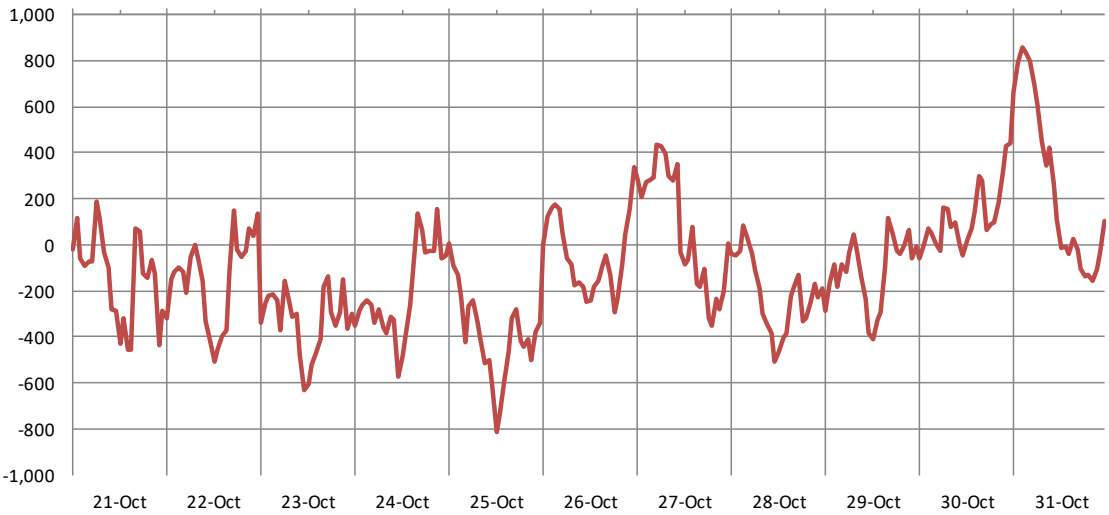
Croatia - Hourly generation per source (MW)



HR load (MW)

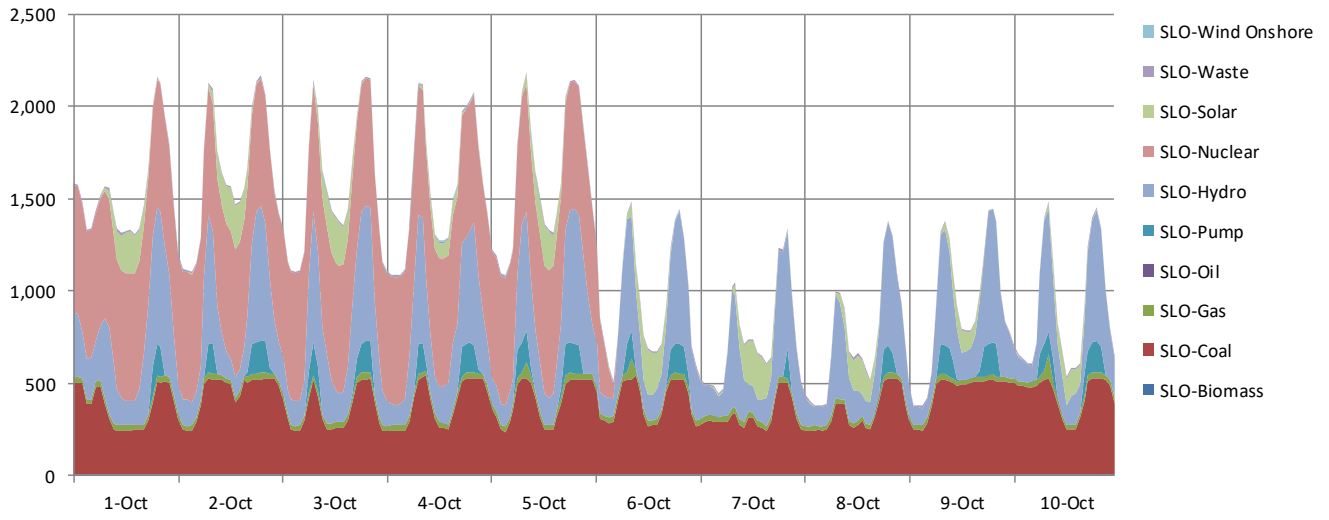


HR net position (MW)

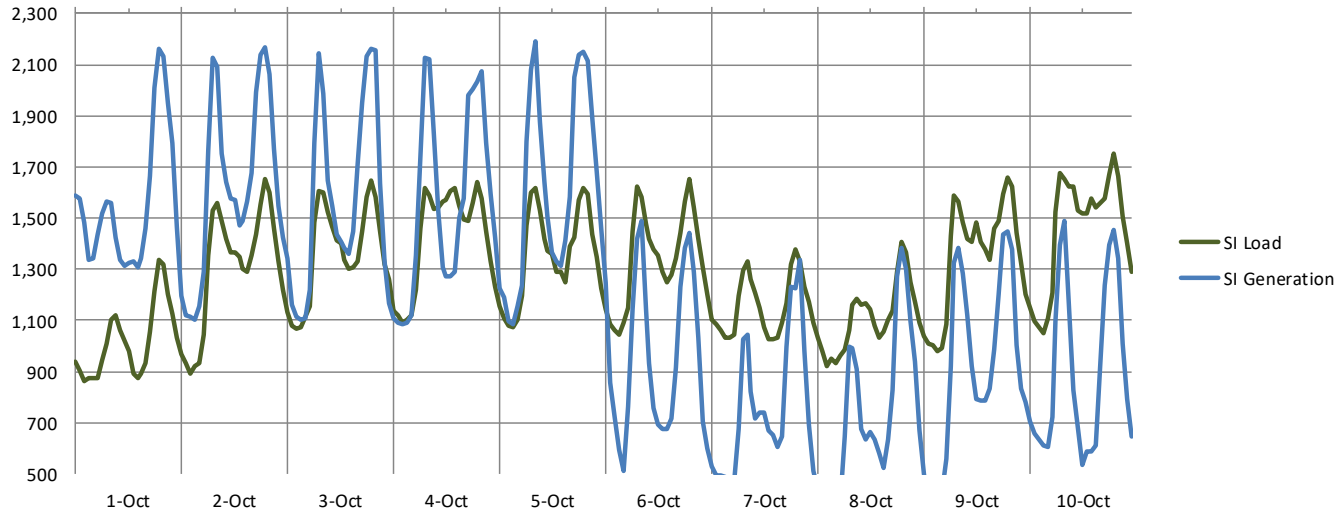


Slovenia - Generation, Load, Net position

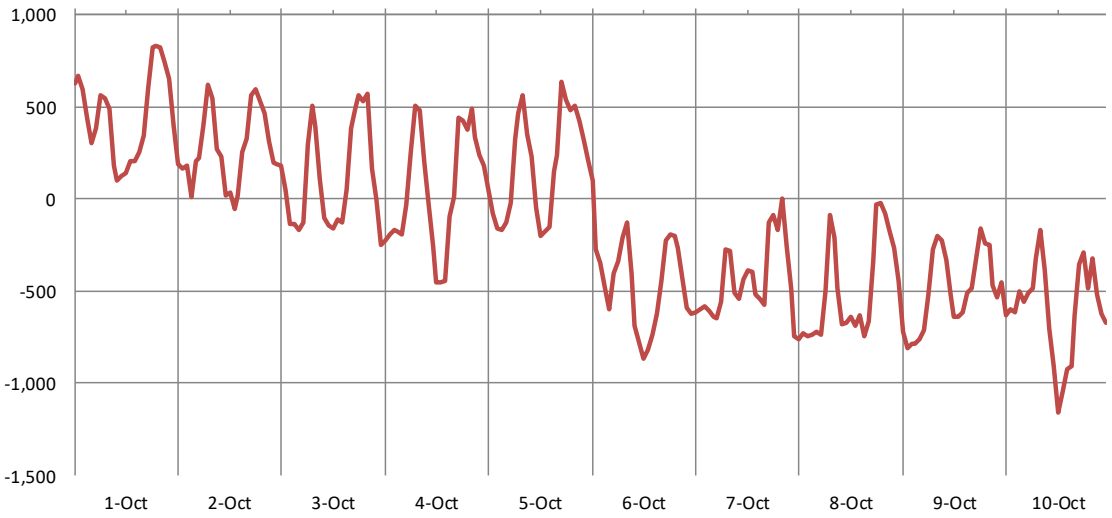
Slovenia - Hourly generation per source (MW)



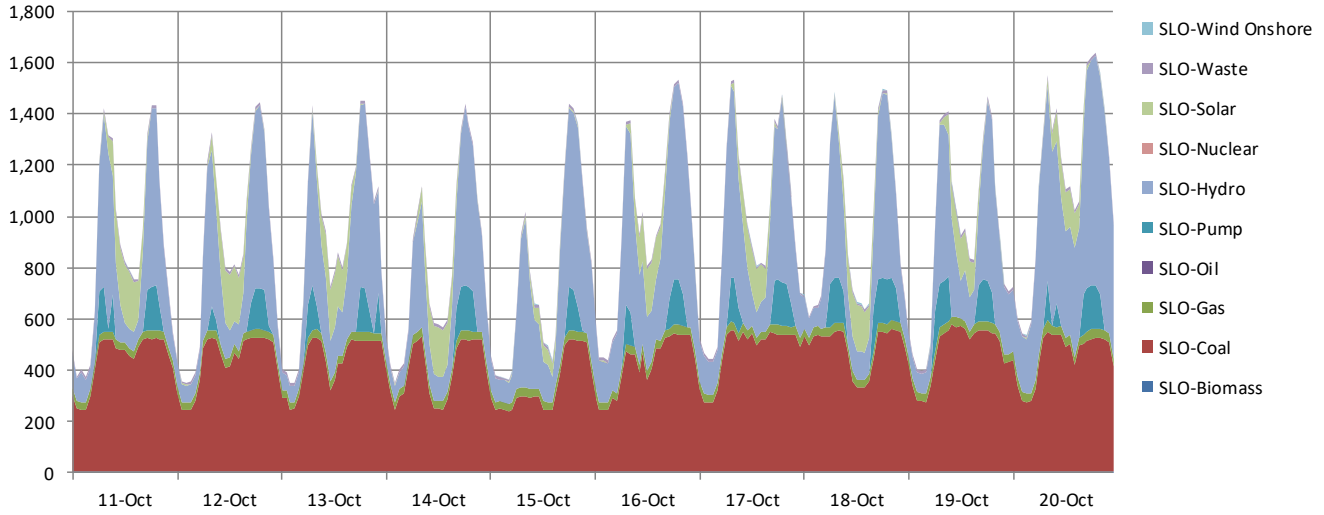
SI load (MW)



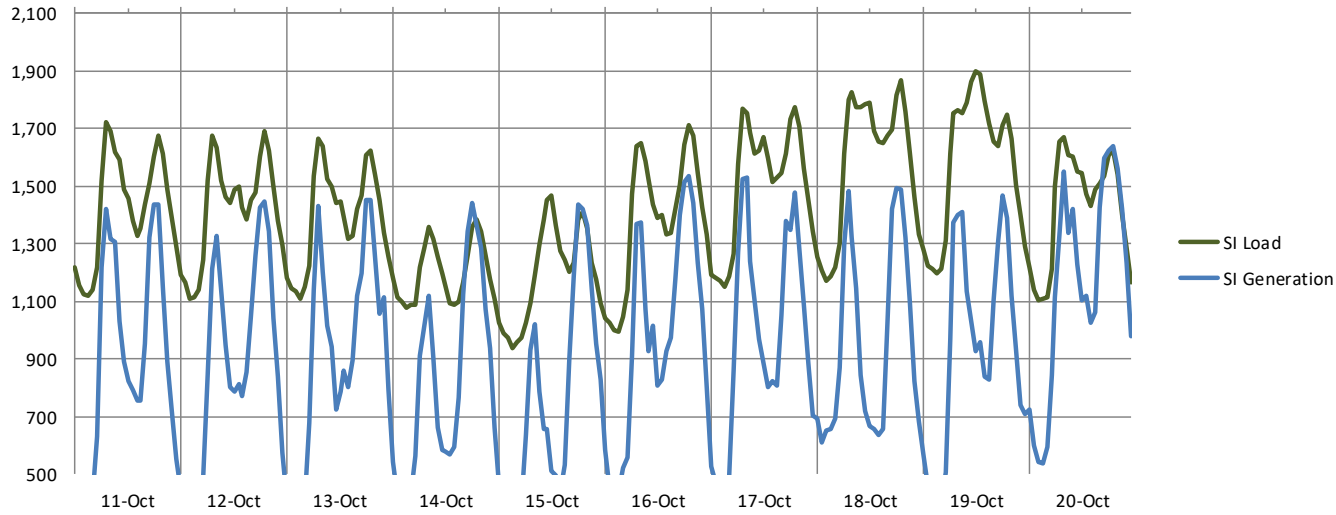
SI net position (MW)



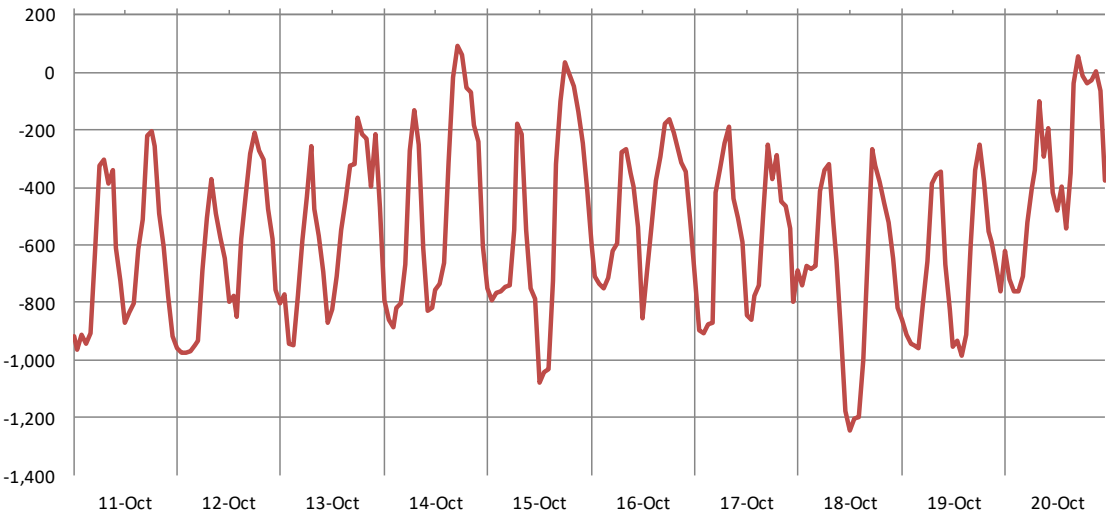
Slovenia - Hourly generation per source (MW)



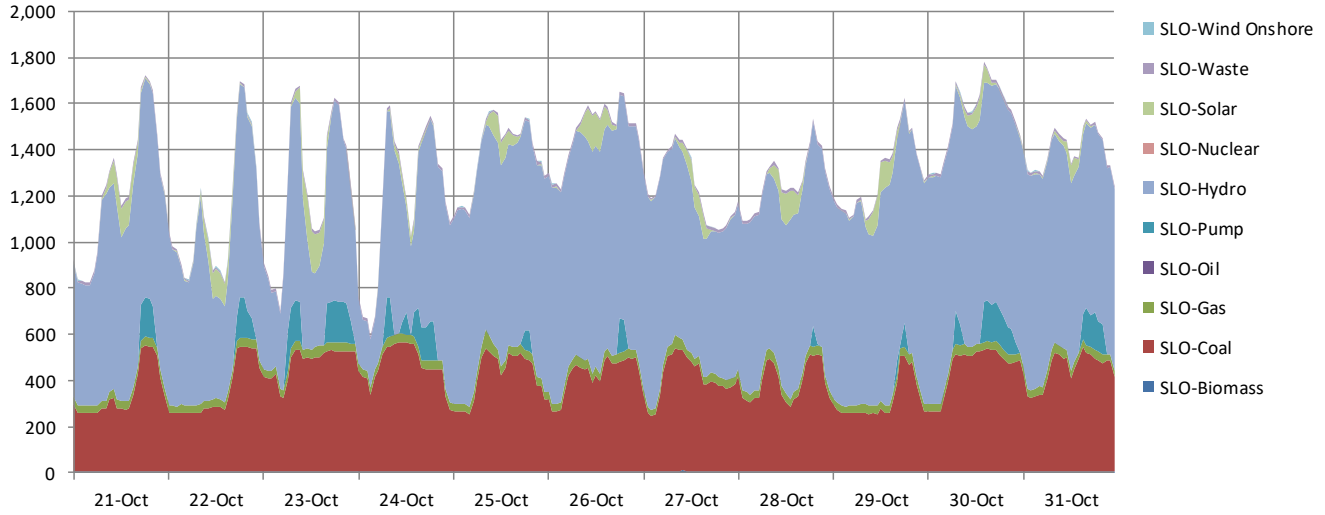
SI load (MW)



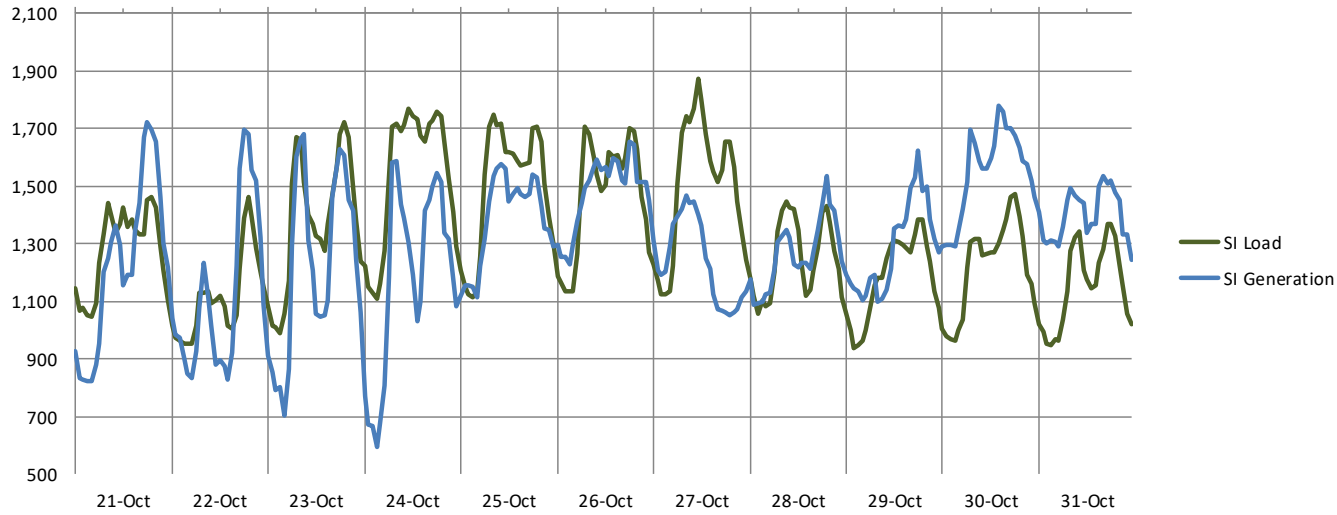
SI net position (MW)



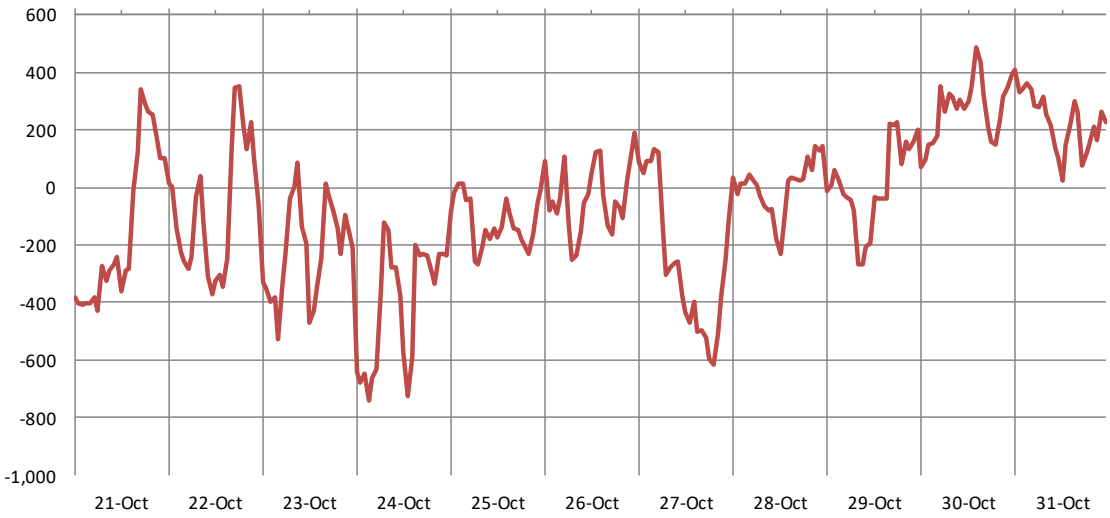
Slovenia - Hourly generation per source (MW)



SI load (MW)

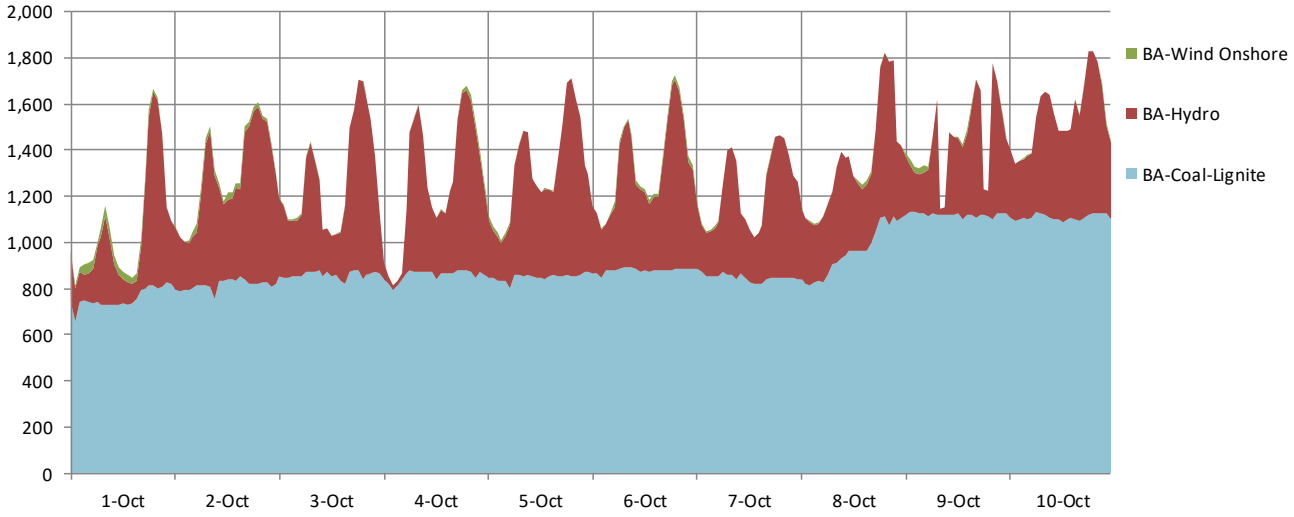


SI net position (MW)

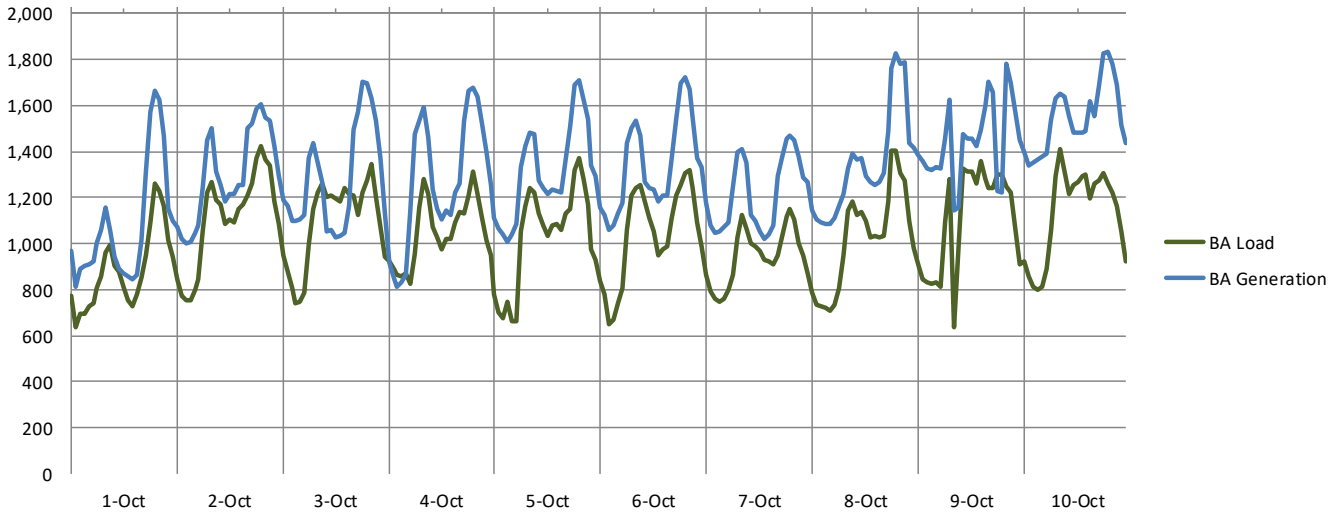


Bosnia and Herzegovina - Generation, Load, Net position

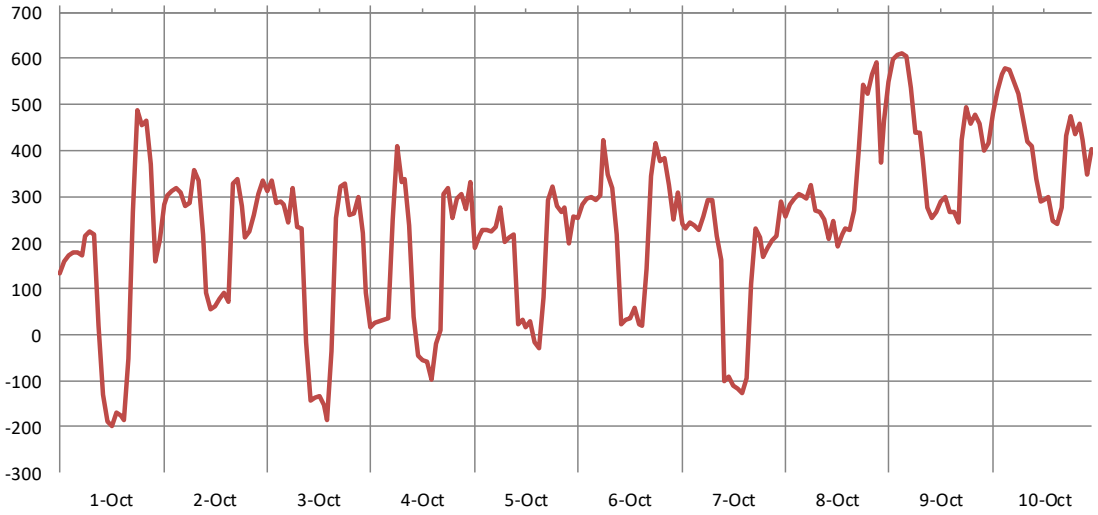
Bosnia and Herzegovina - Hourly generation per source (MWh)



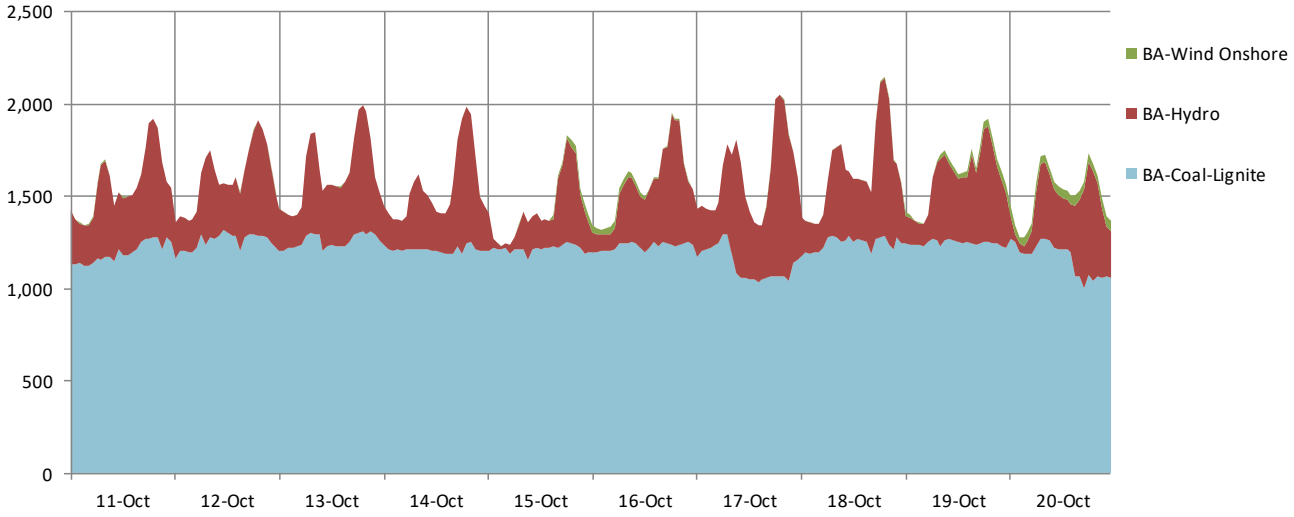
BA load (MW)



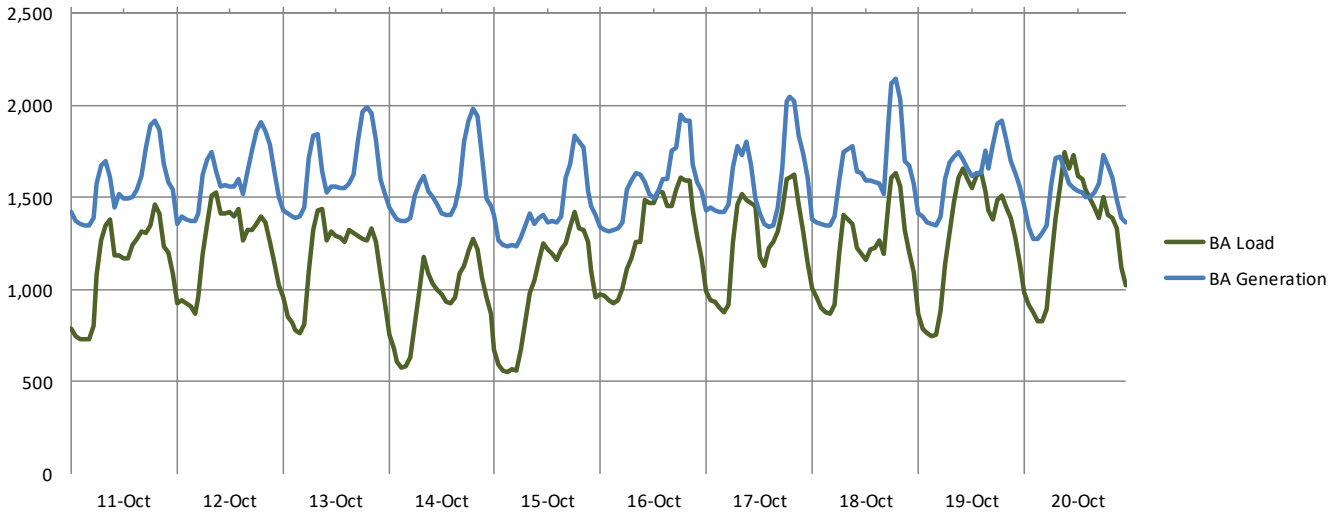
BA net position (MW)



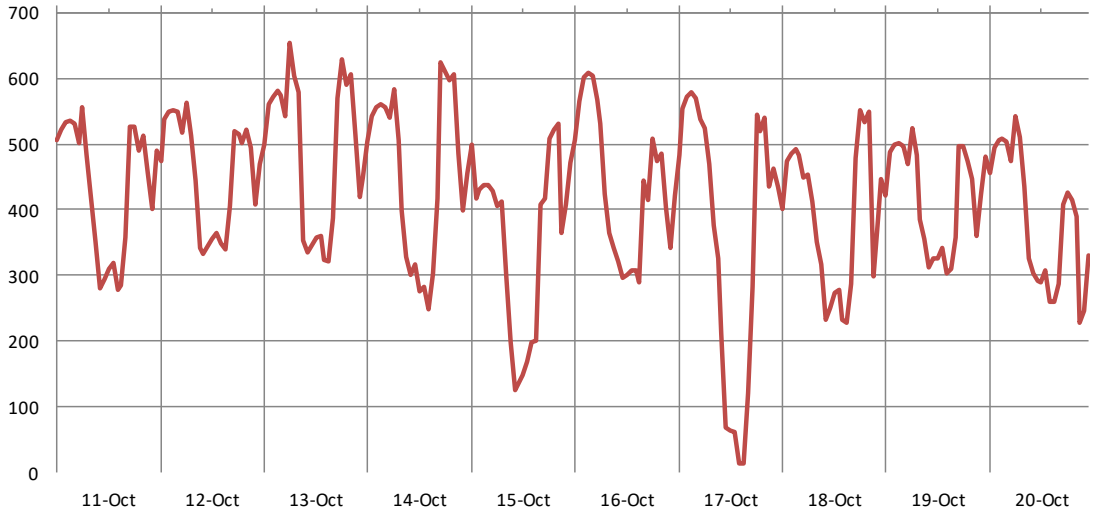
Bosnia and Herzegovina - Hourly generation per source (MWh)



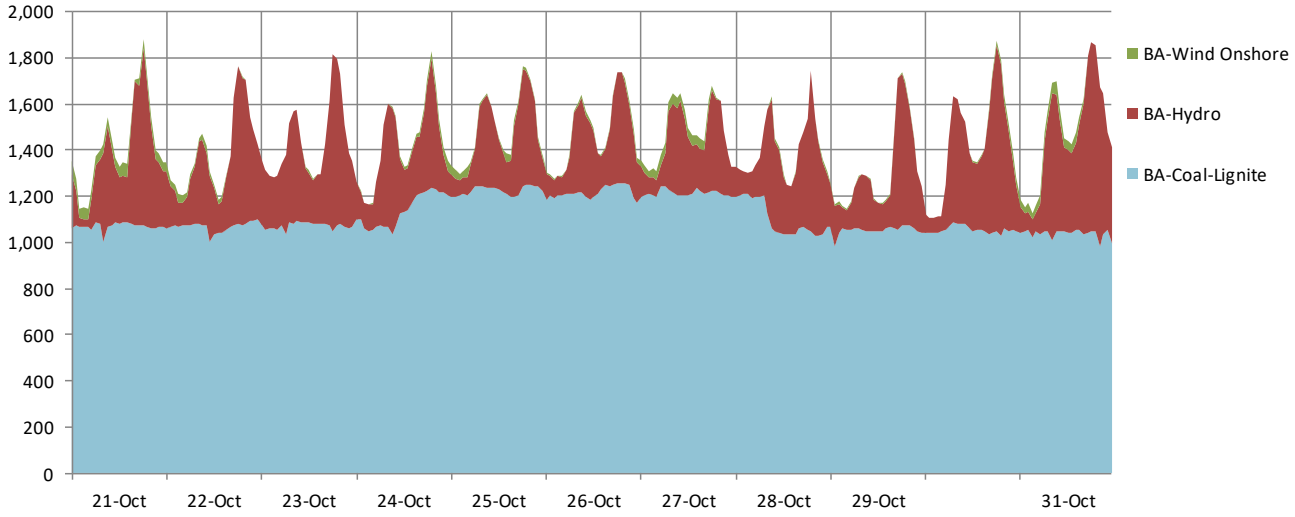
BA load (MW)



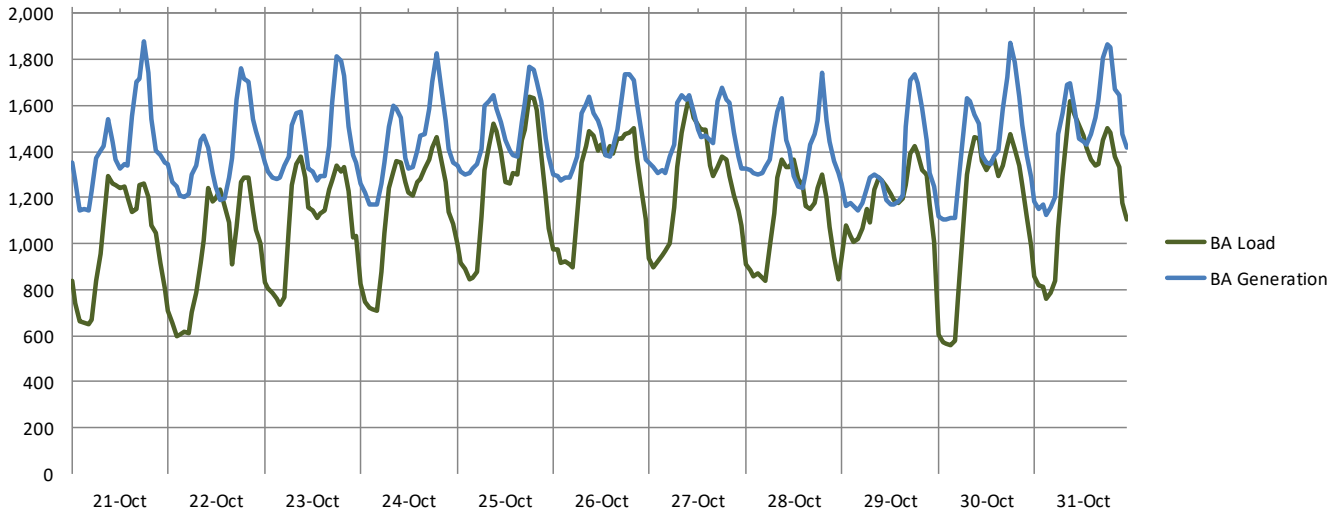
BA net position (MW)



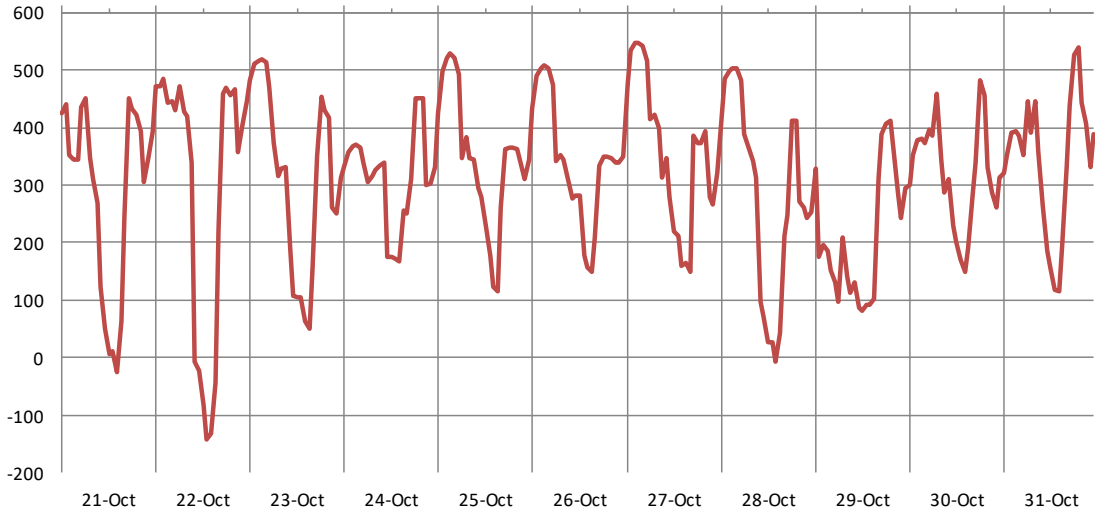
Bosnia and Herzegovina - Hourly generation per source (MWh)



BA load (MW)

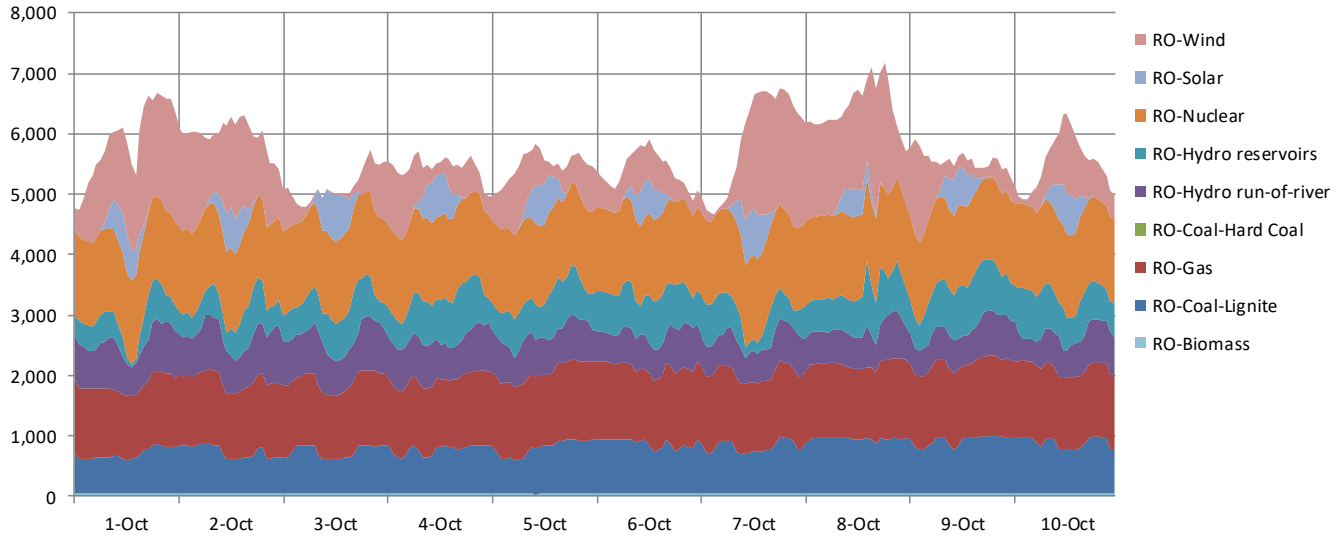


BA net position (MW)

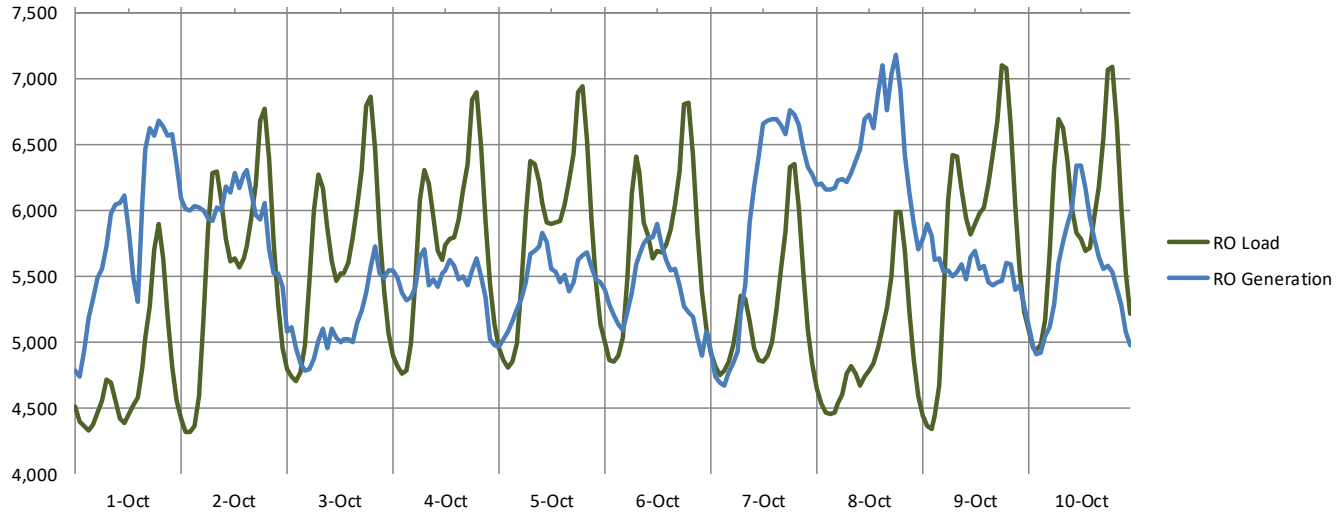


Romania - Generation, Load, Net position

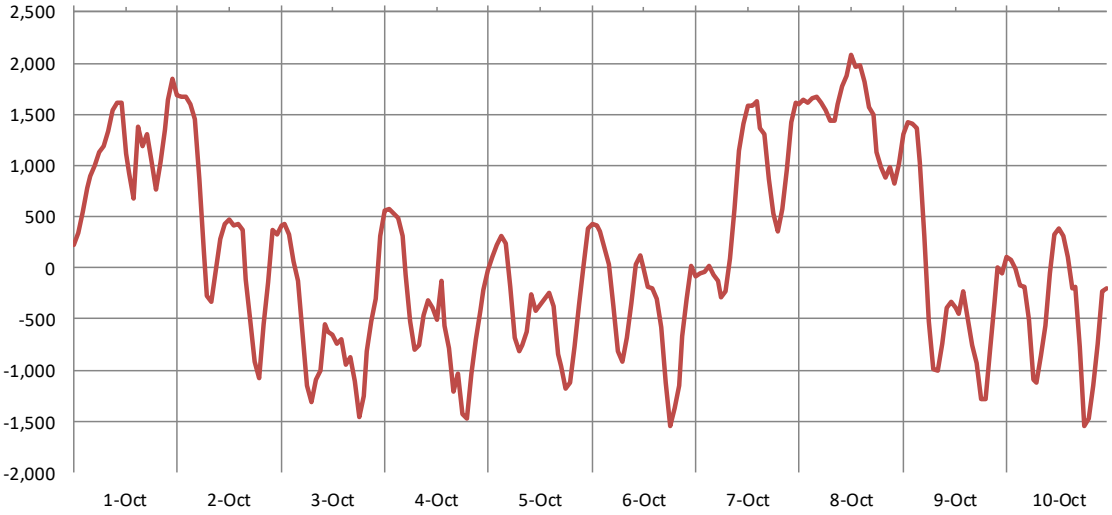
Romania - Hourly generation per source (MWh)



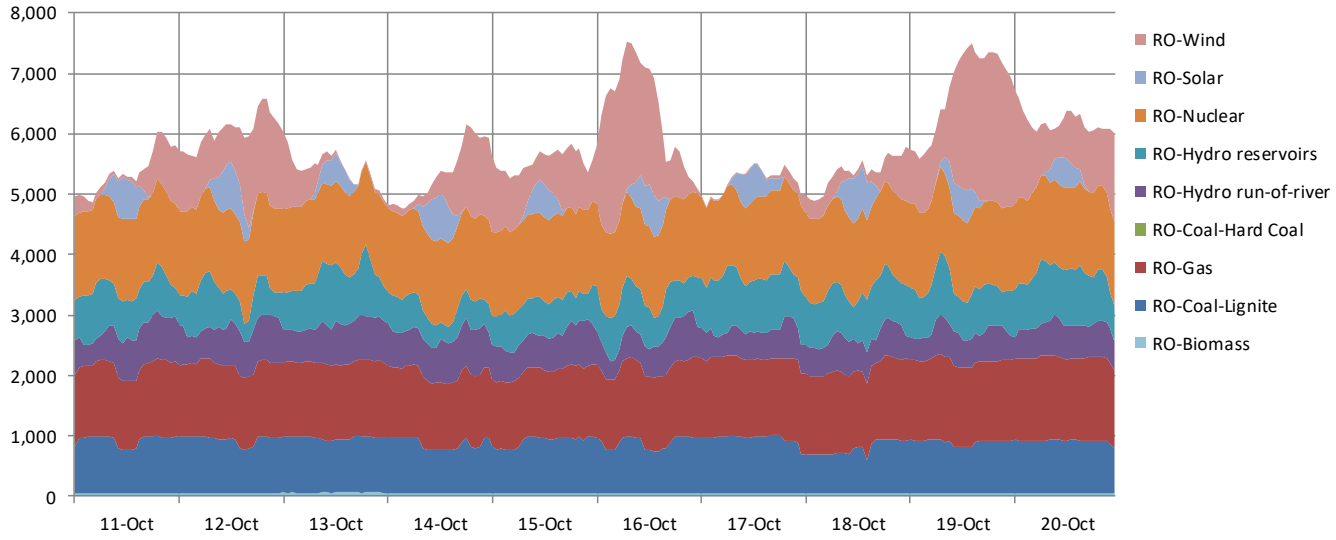
RO load (MW)



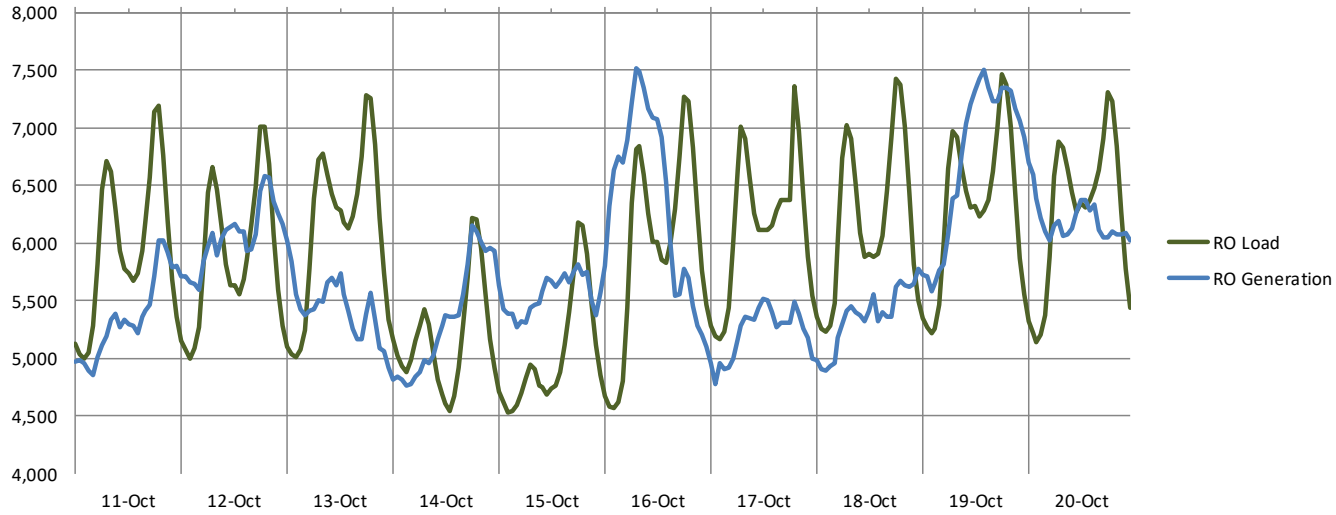
RO net position (MW)



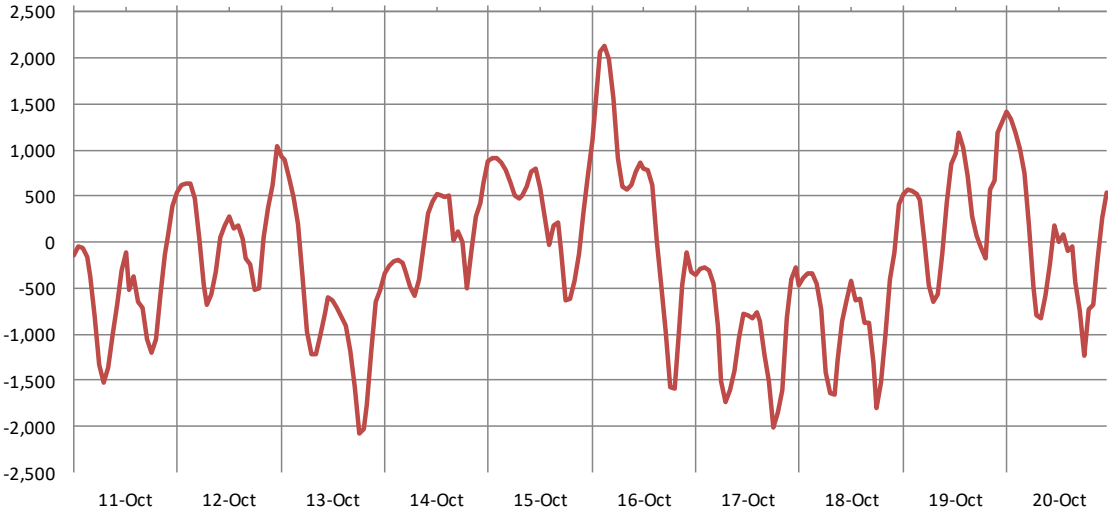
Romania - Hourly generation per source (MWh)



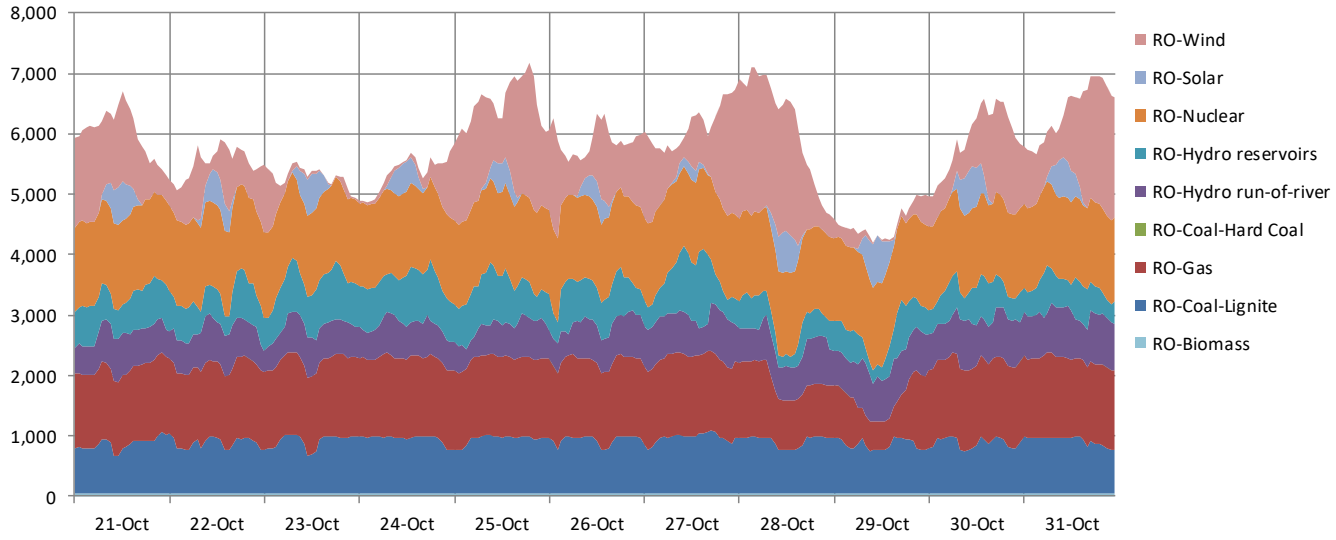
RO load (MW)



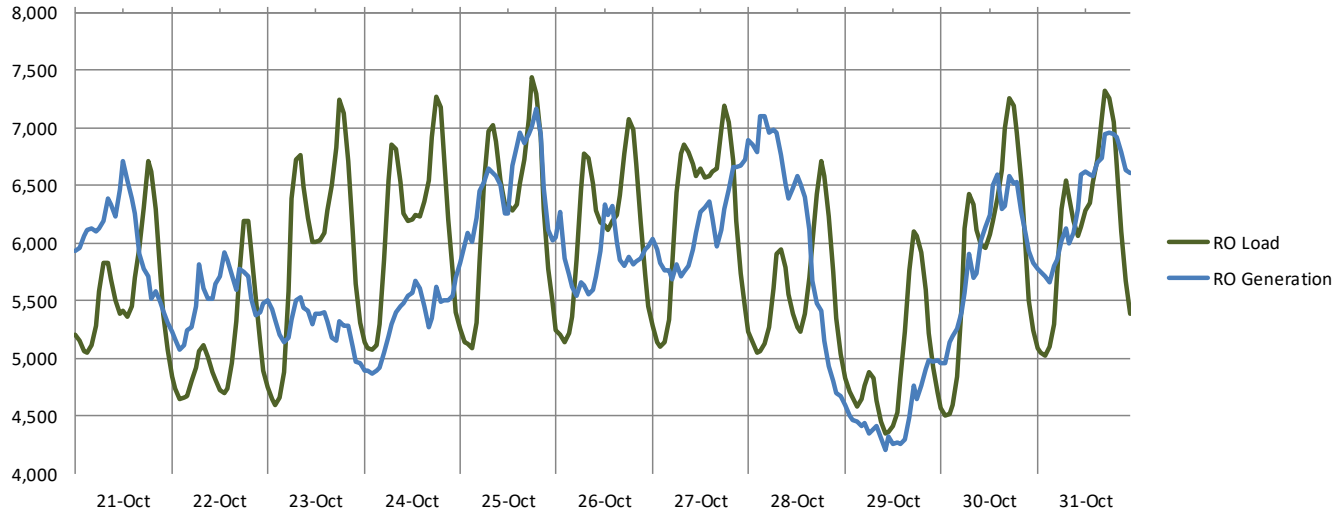
RO net position (MW)



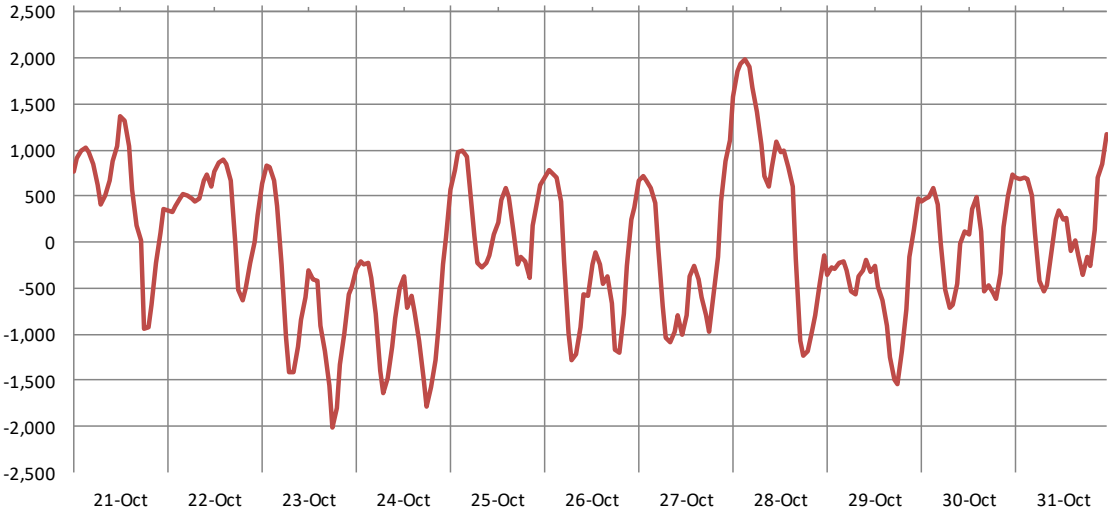
Romania - Hourly generation per source (MWh)



RO load (MW)

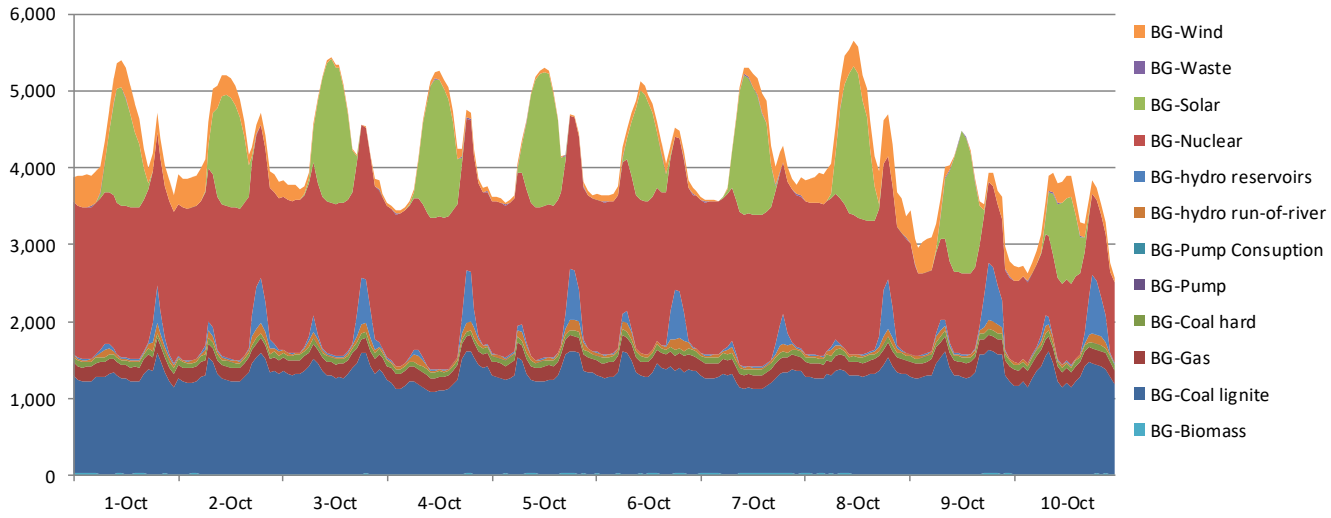


RO net position (MW)

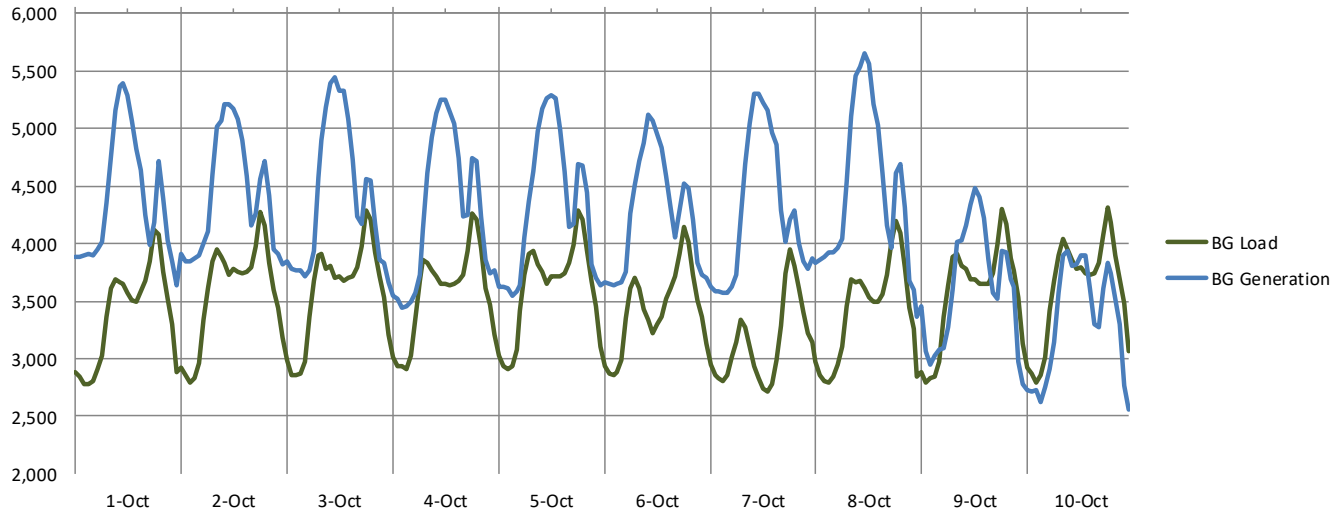


Bulgaria - Generation, Load, Net position

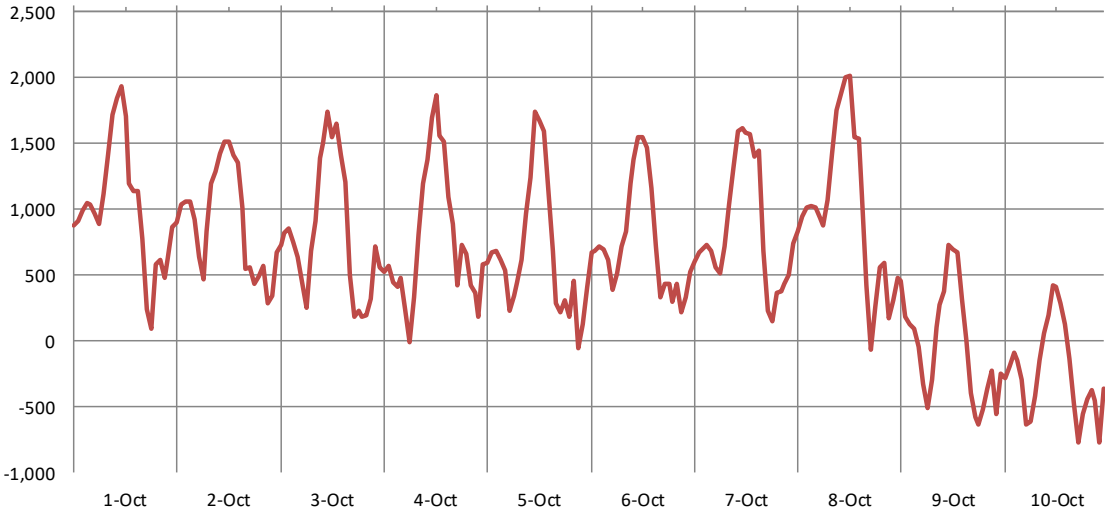
Bulgaria - Hourly generation per source (MWh)



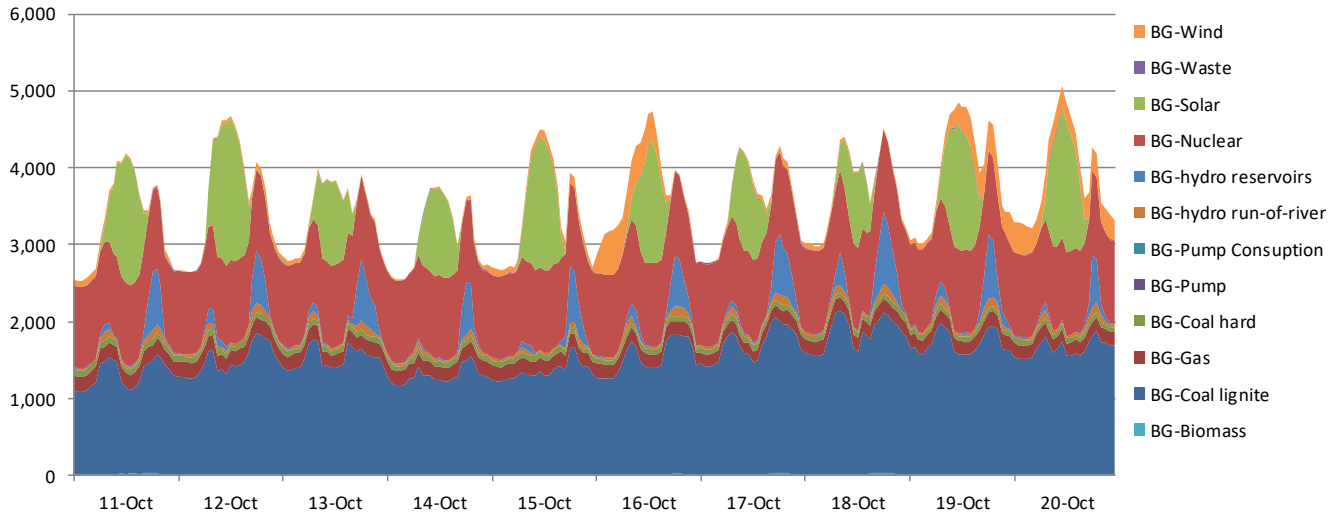
BG load (MW)



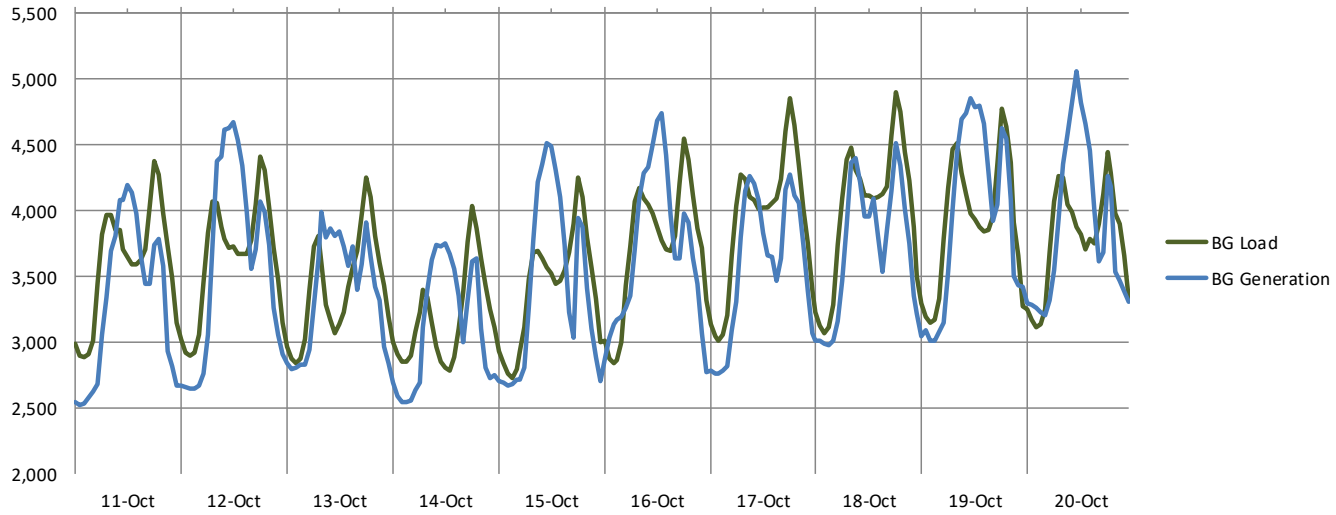
BG net position (MW)



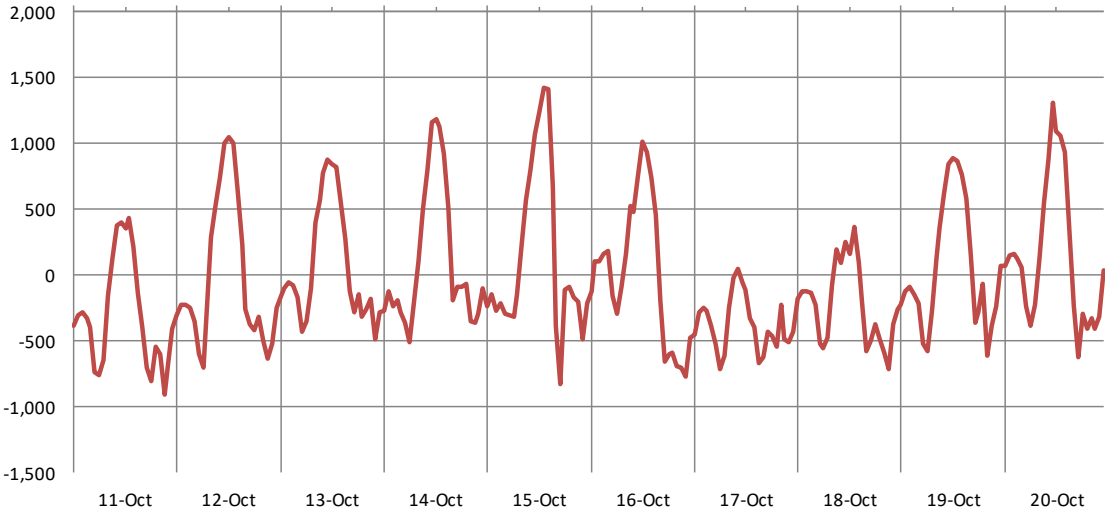
Bulgaria - Hourly generation per source (MWh)



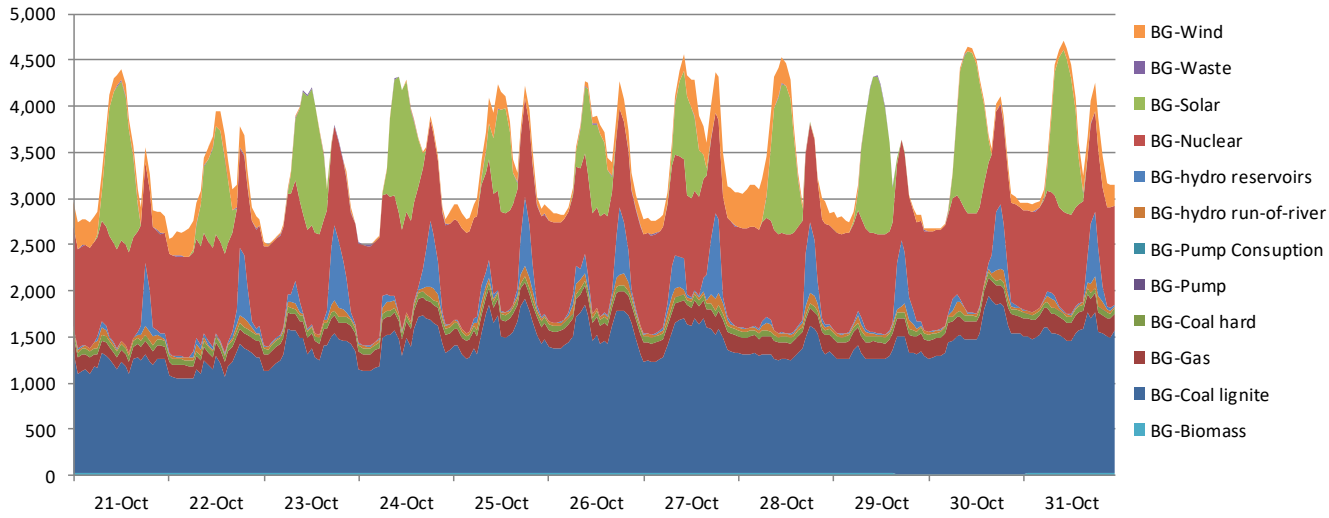
BG load (MW)



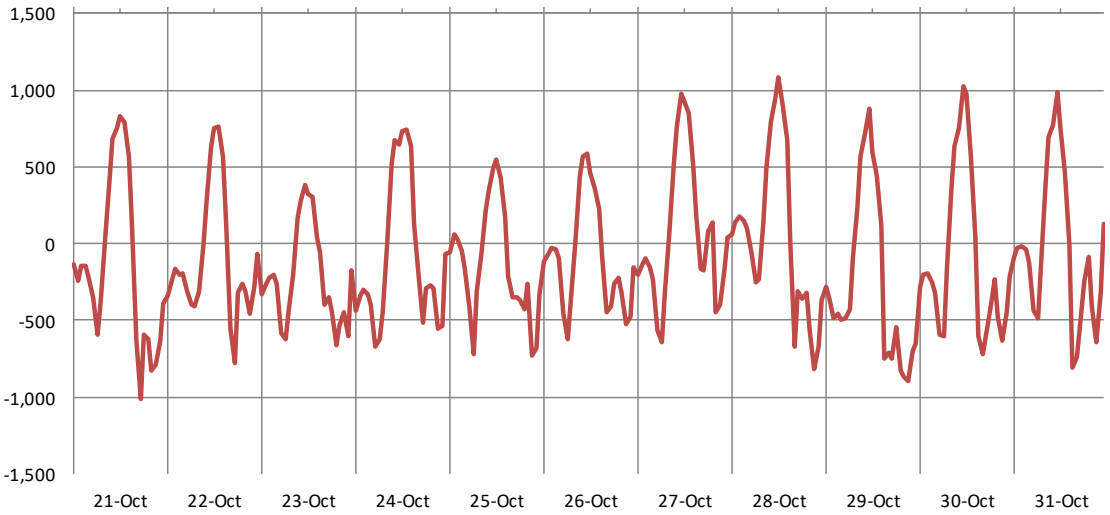
BG net position (MW)



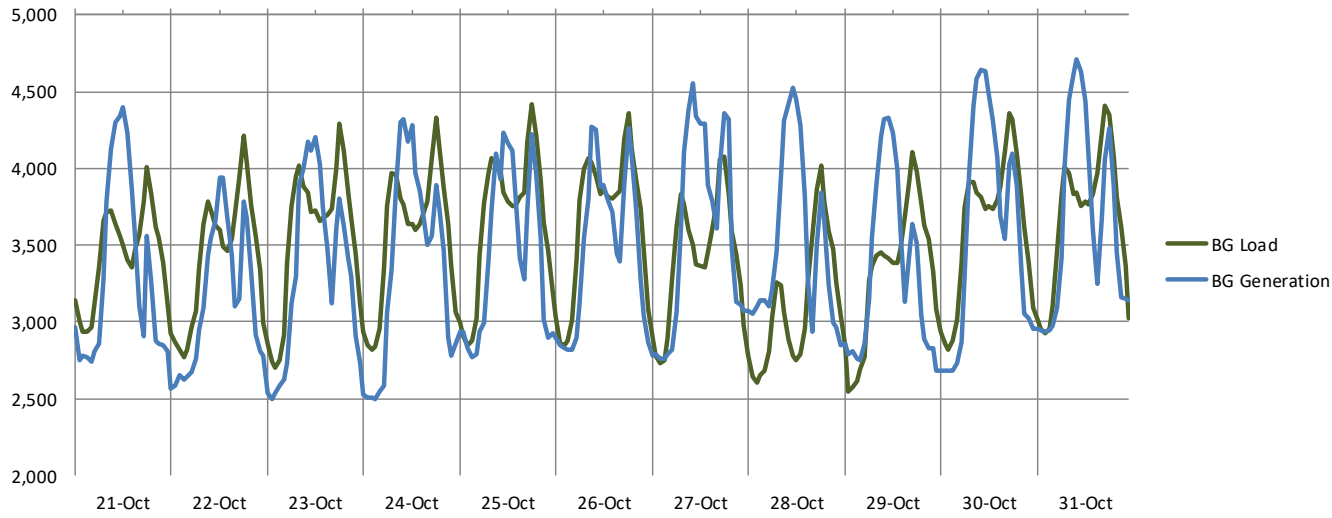
Bulgaria - Hourly generation per source (MWh)



BG net position (MW)

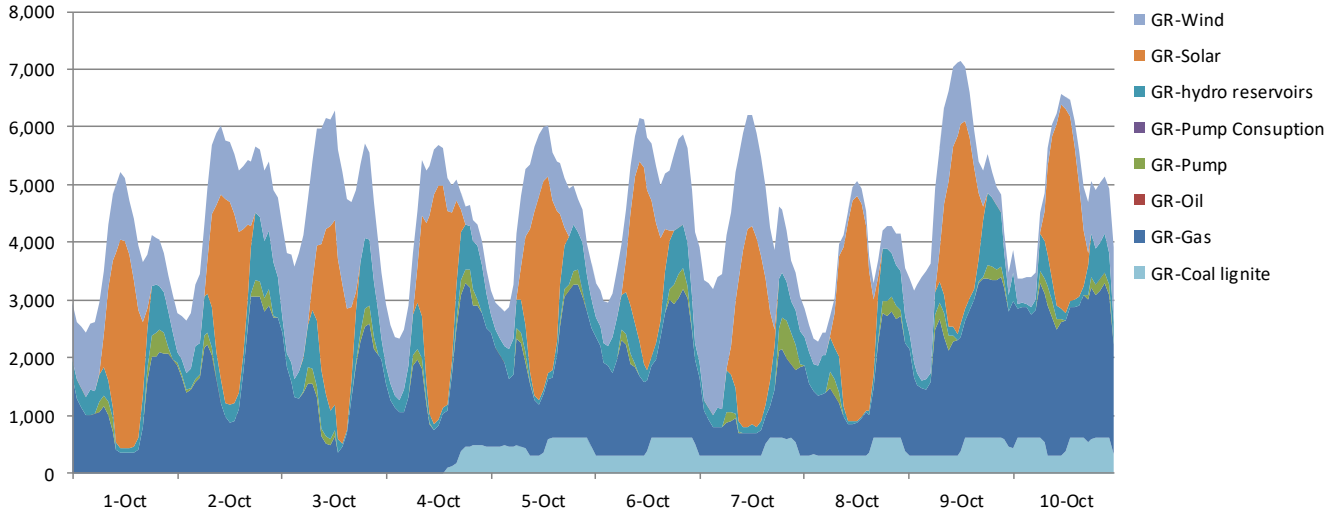


BG load (MW)

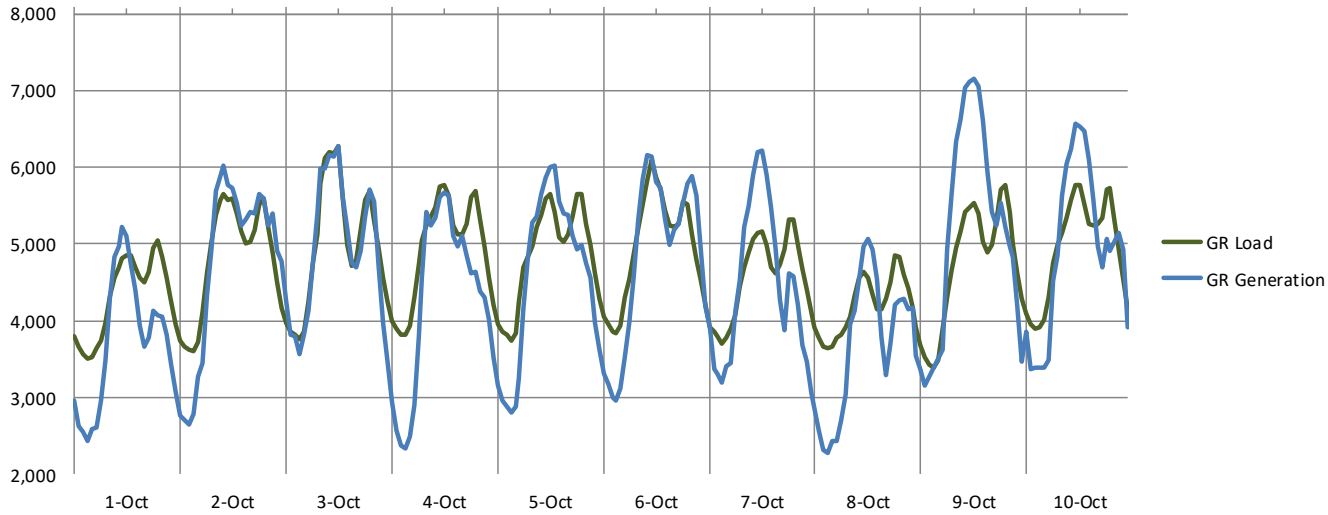


Greece - Generation, Load, Net position

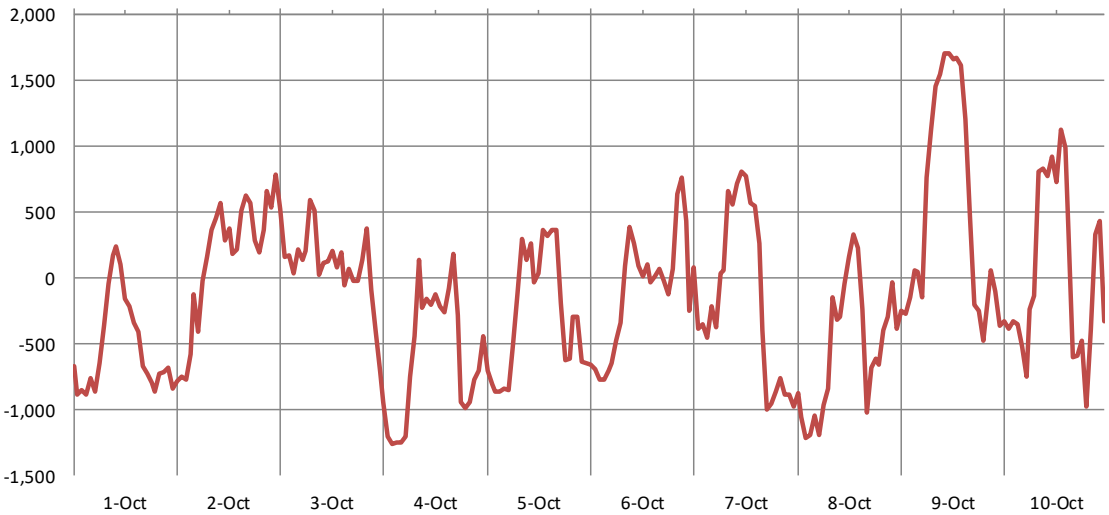
Greece - Hourly generation per source (MWh)



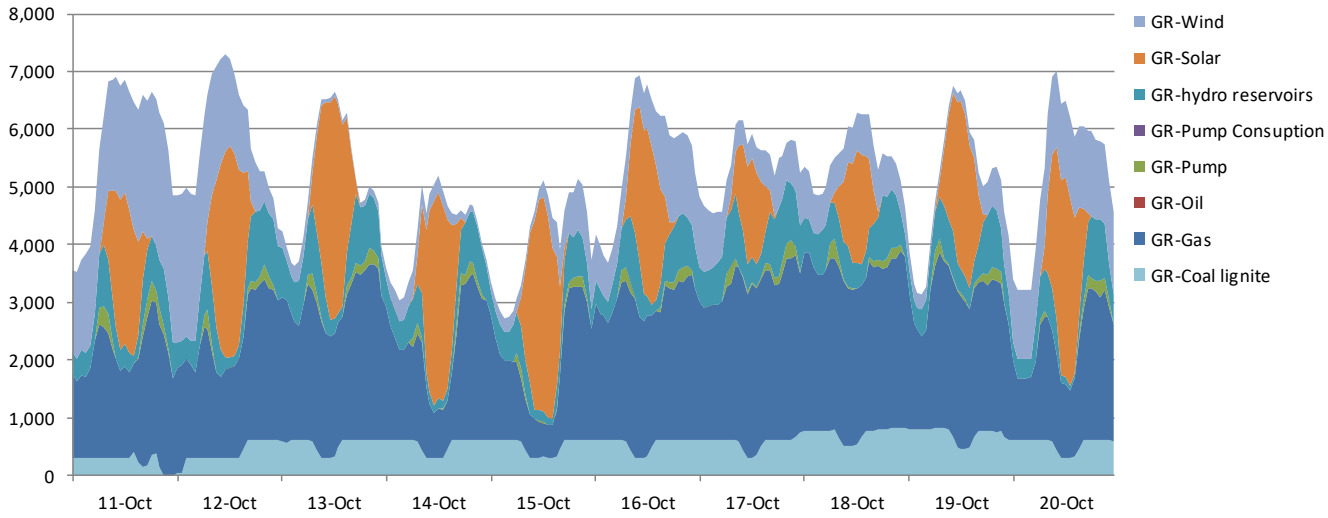
GR load (MW)



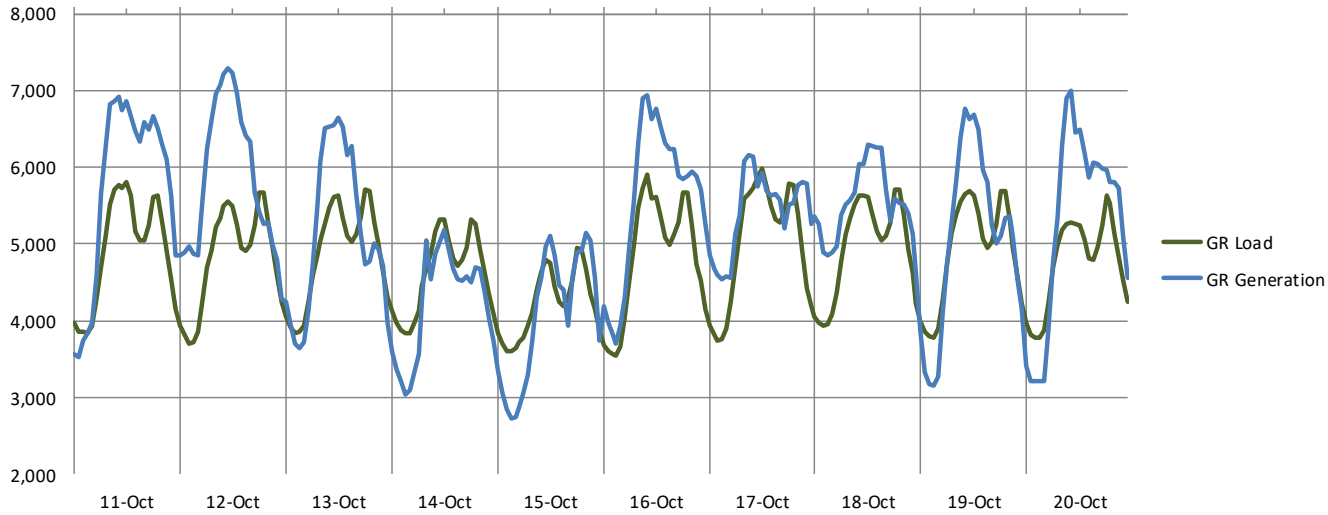
GR net position (MW)



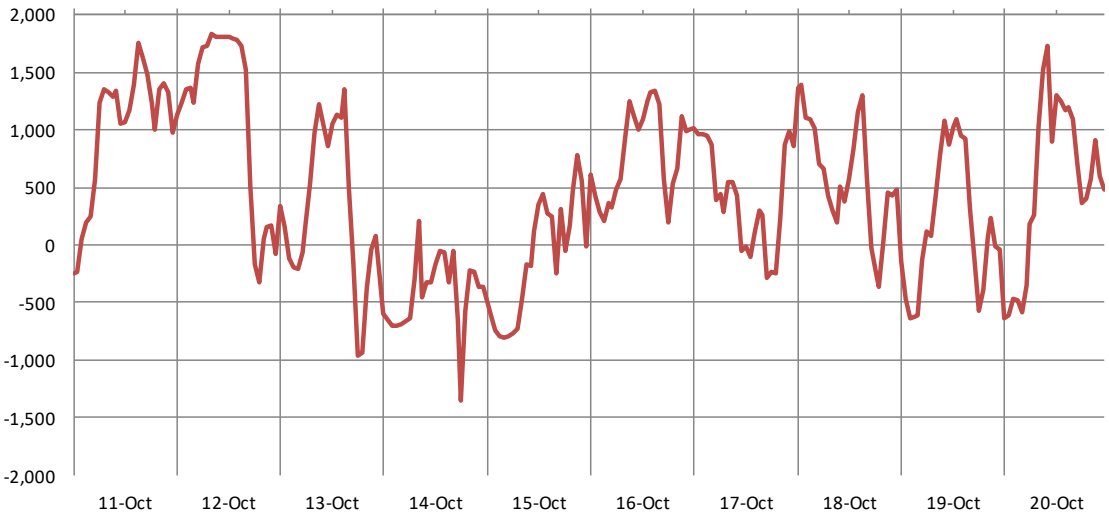
Greece - Hourly generation per source (MWh)



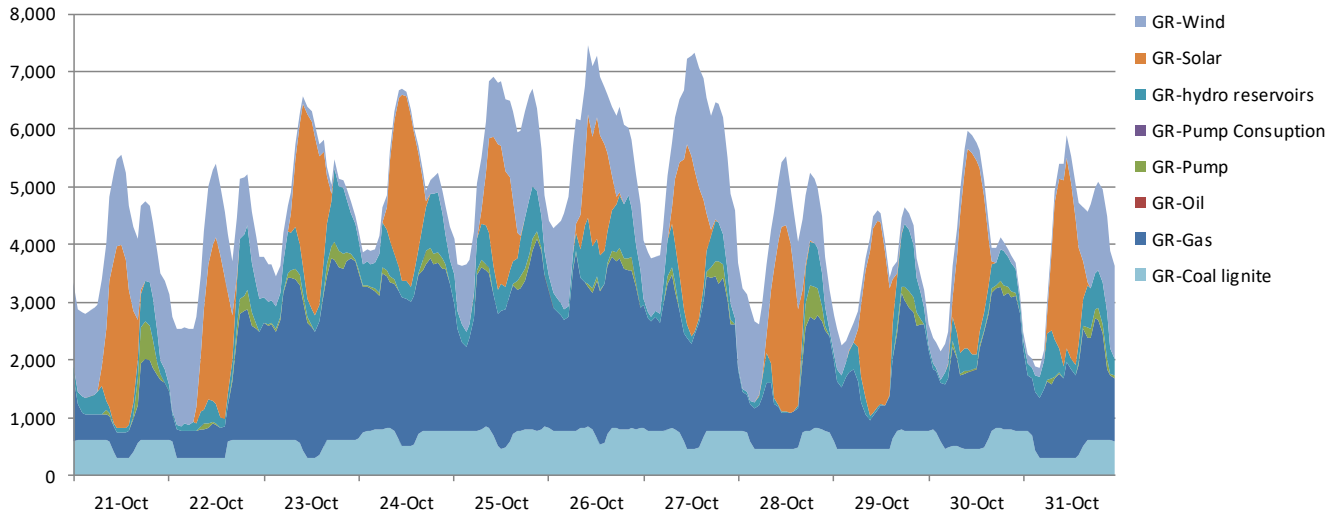
GR load (MW)



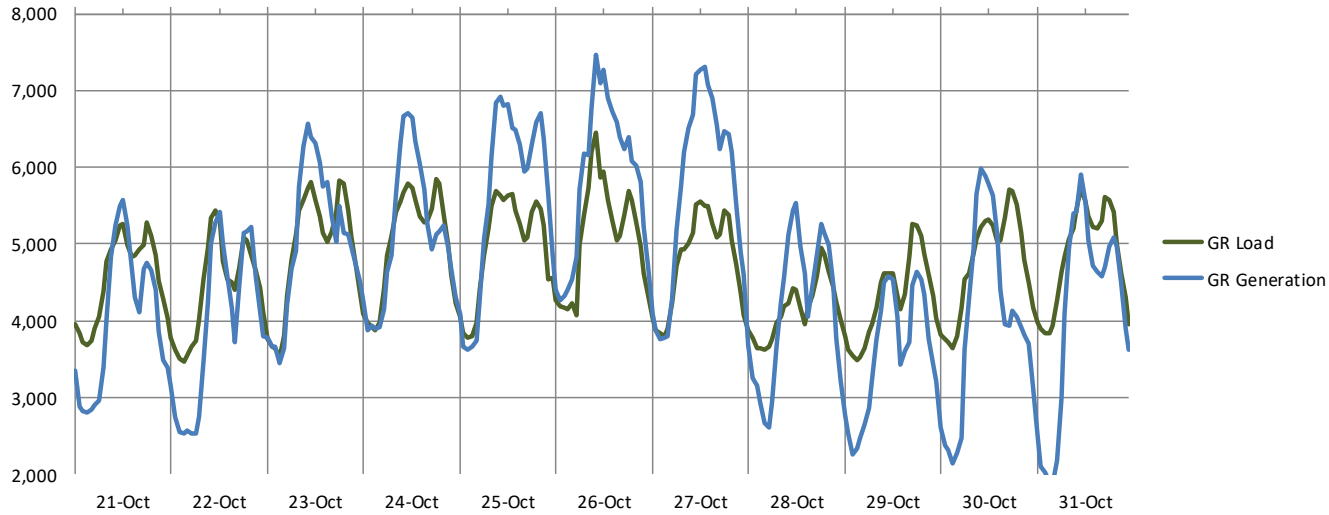
GR net position (MW)



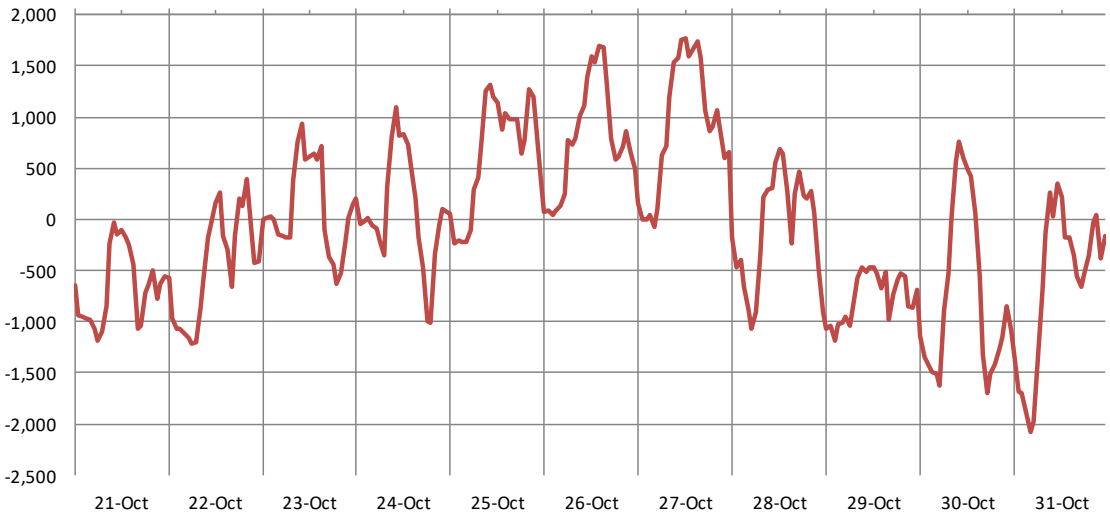
Greece - Hourly generation per source (MWh)



GR load (MW)

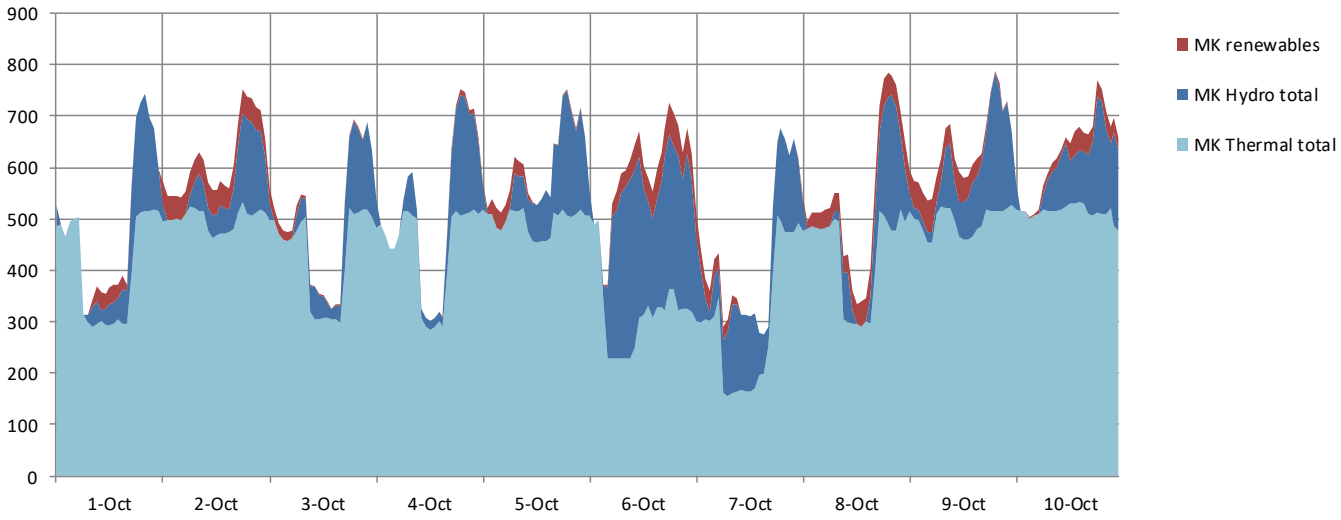


GR net position (MW)

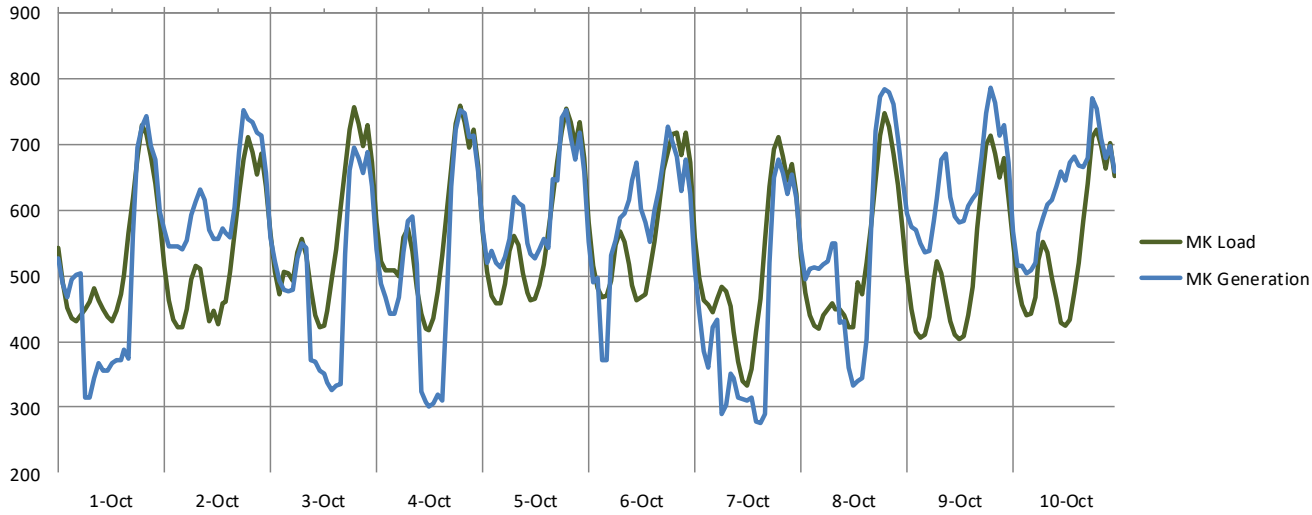


North Macedonia - Generation, Load, Net position

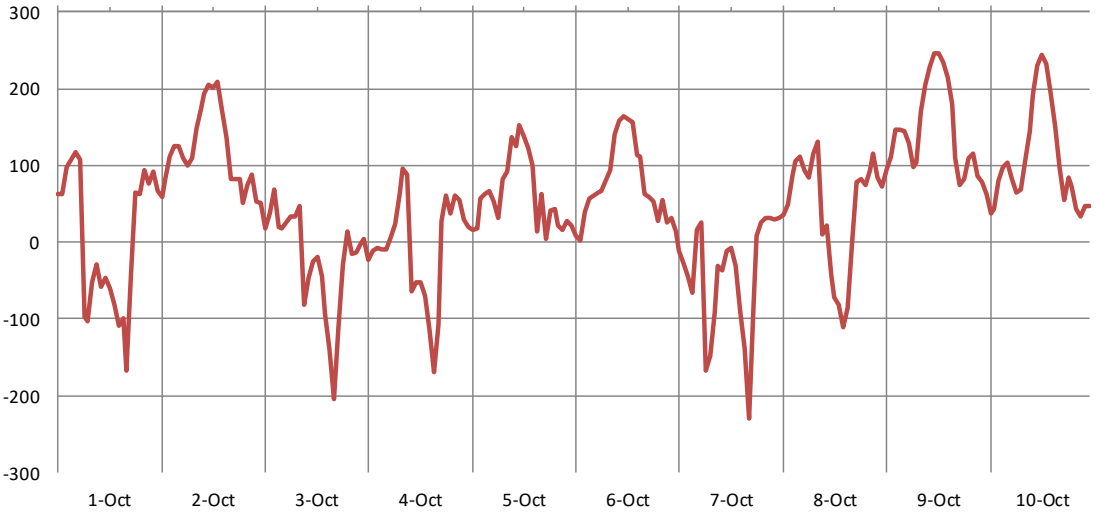
North Macedonia - Hourly generation per source (MWh)



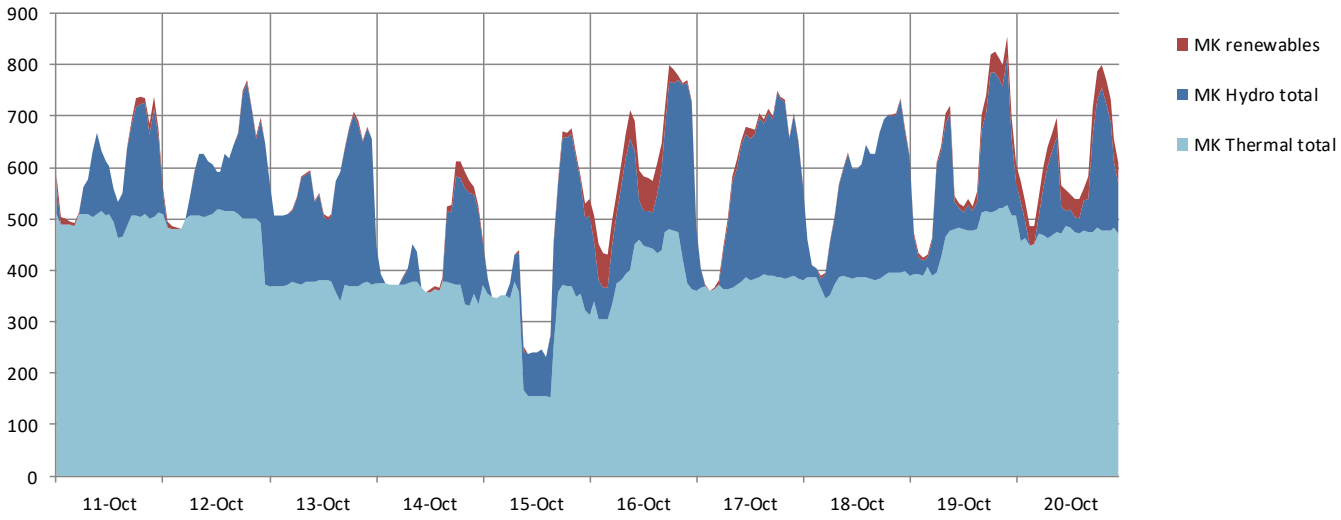
MK load (MW)



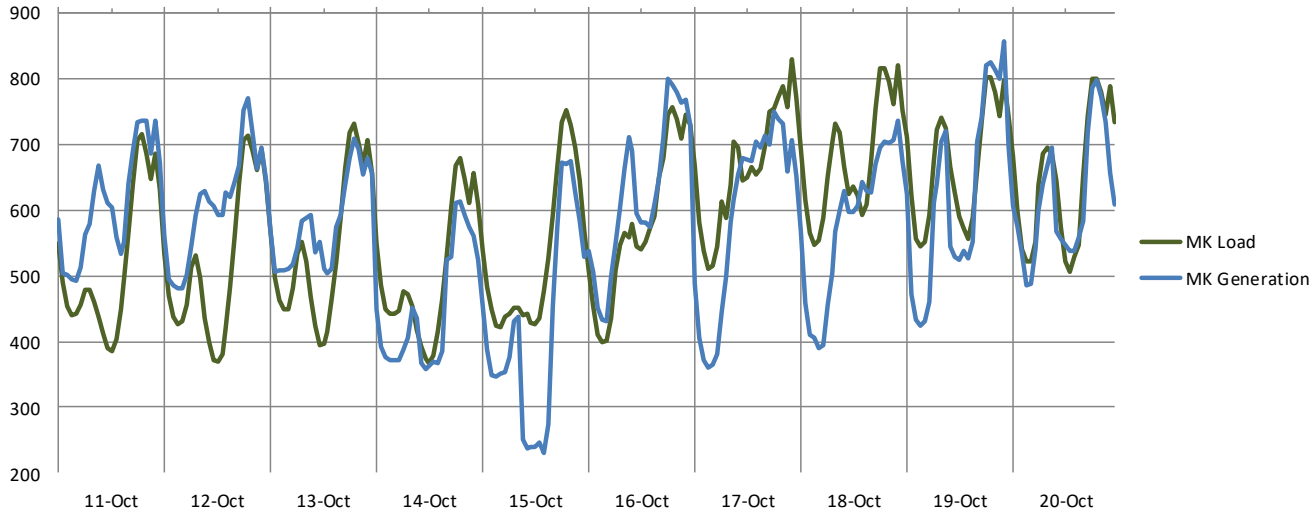
MK net position (MW)



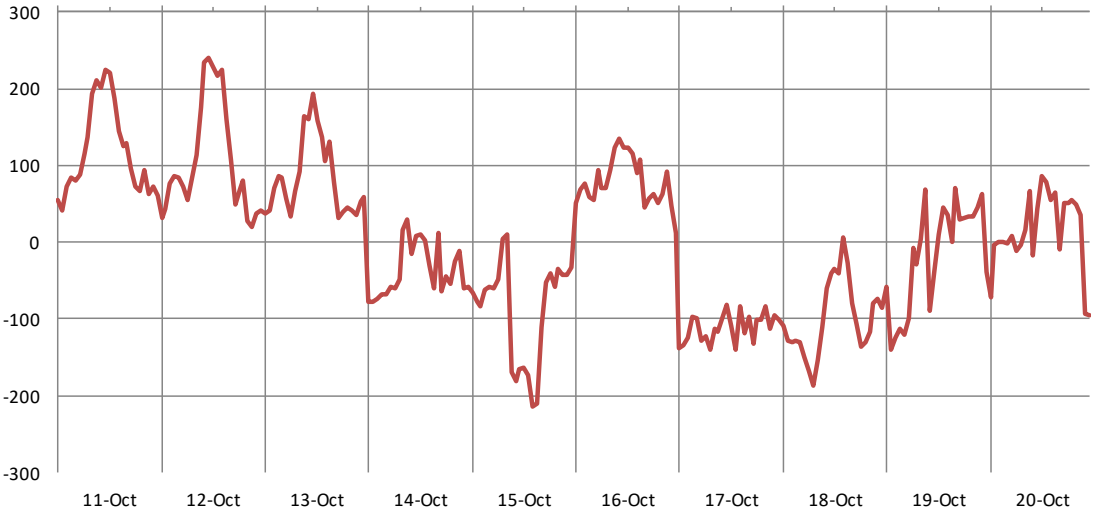
North Macedonia - Hourly generation per source (MWh)



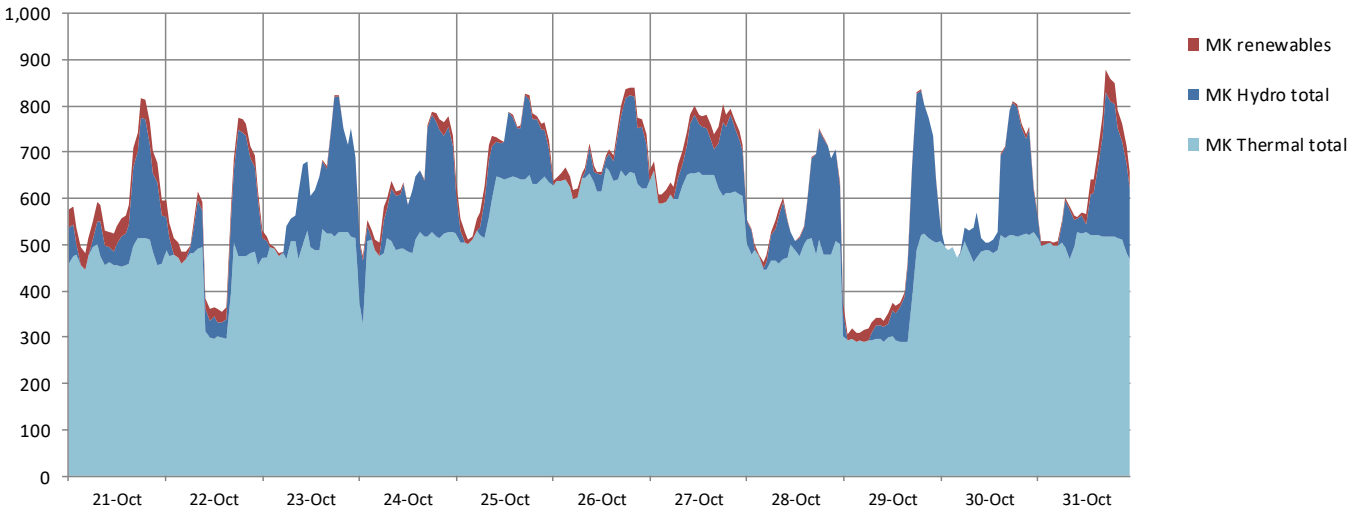
MK load (MW)



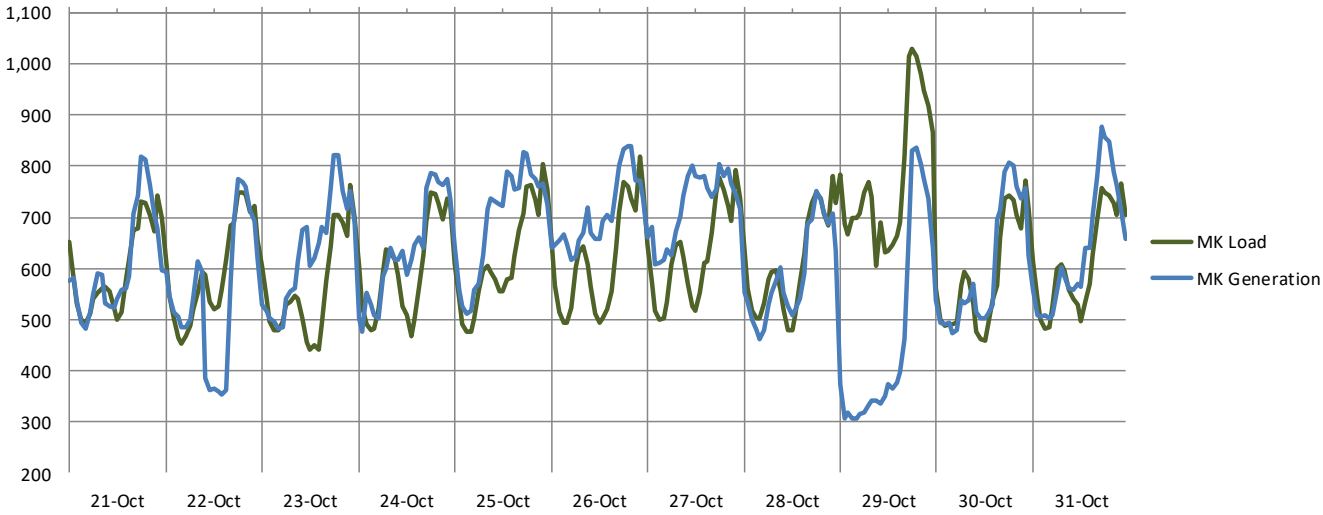
MK net position (MW)



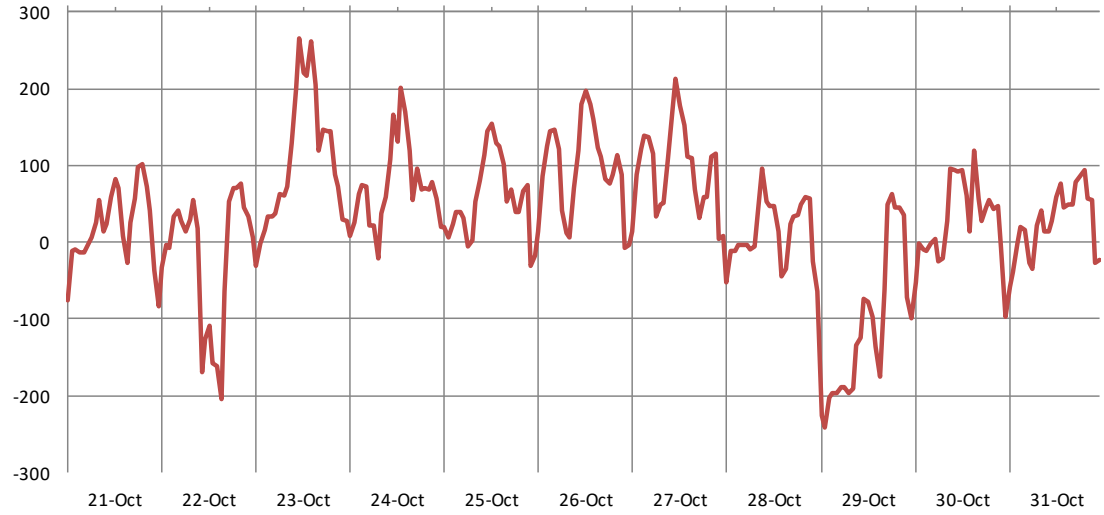
North Macedonia - Hourly generation per source (MWh)



MK load (MW)

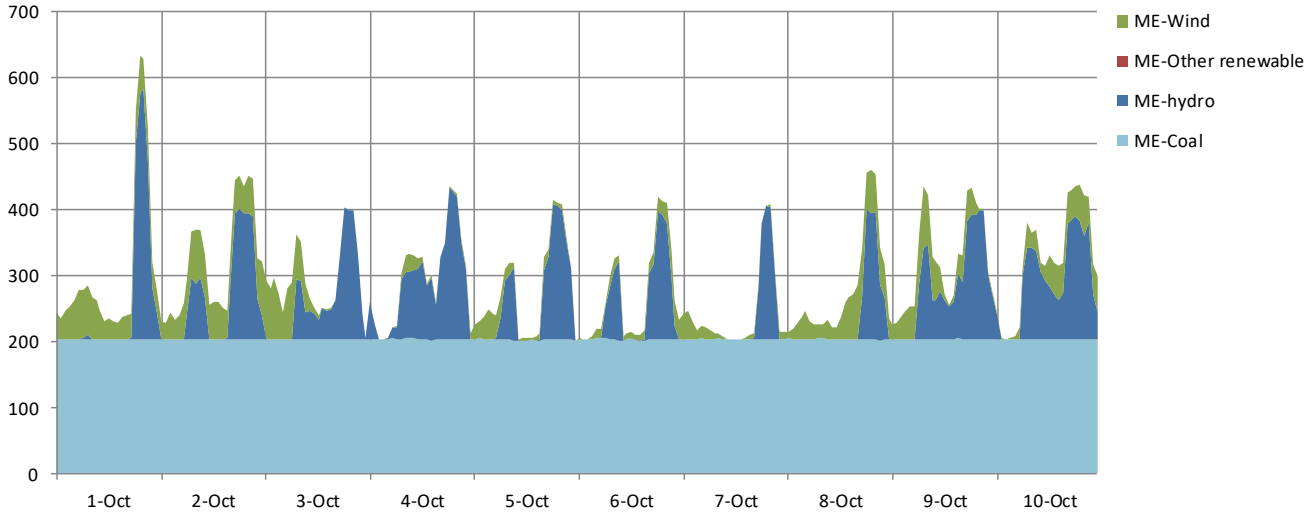


MK net position (MW)

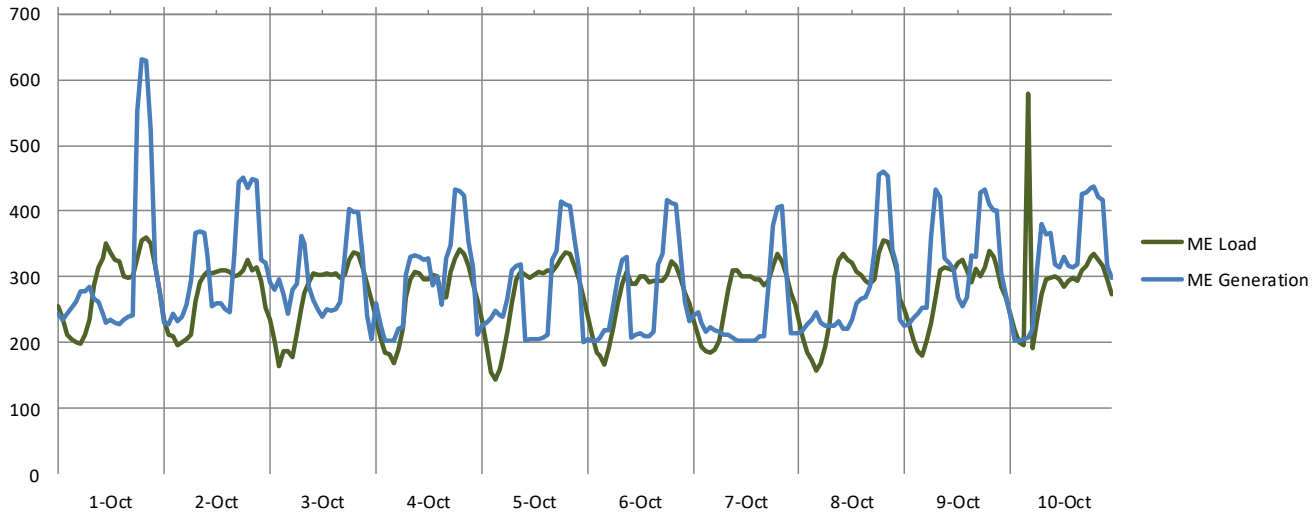


Montenegro - Generation, Load, Net position

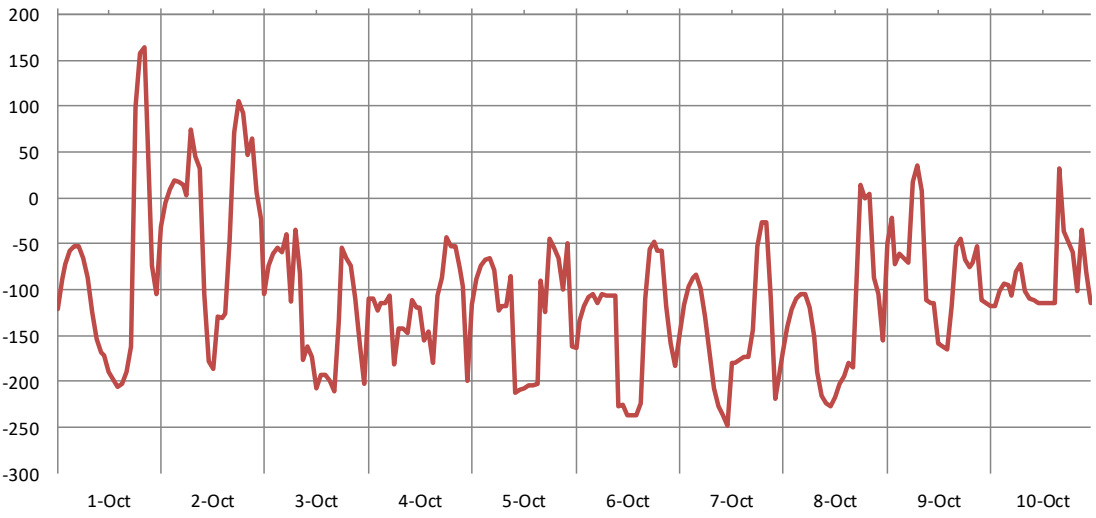
Montenegro - Hourly generation per source (MWh)



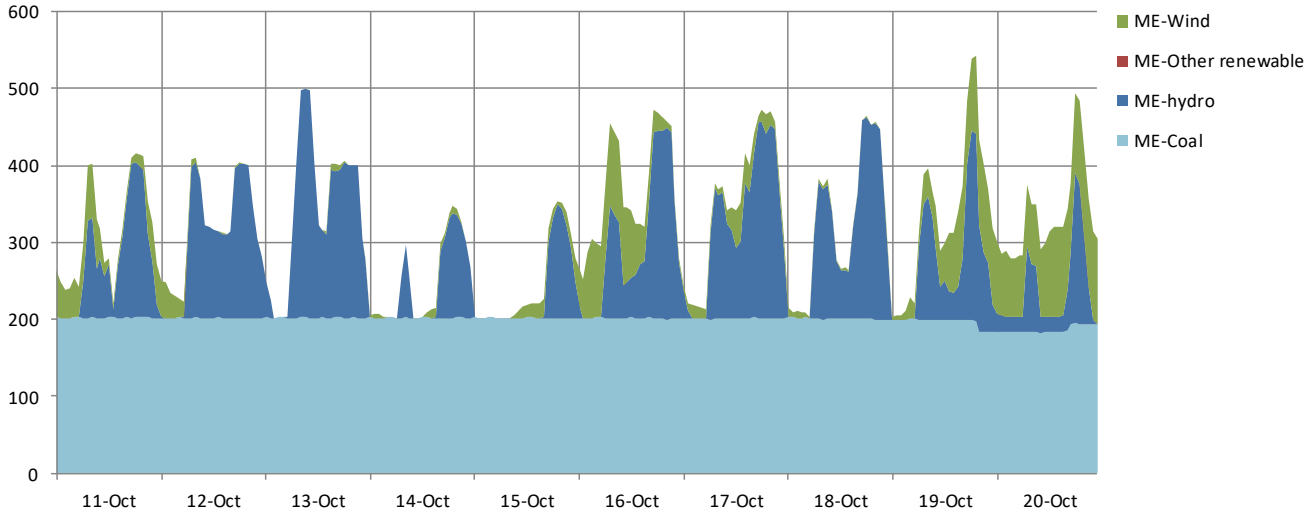
ME load (MW)



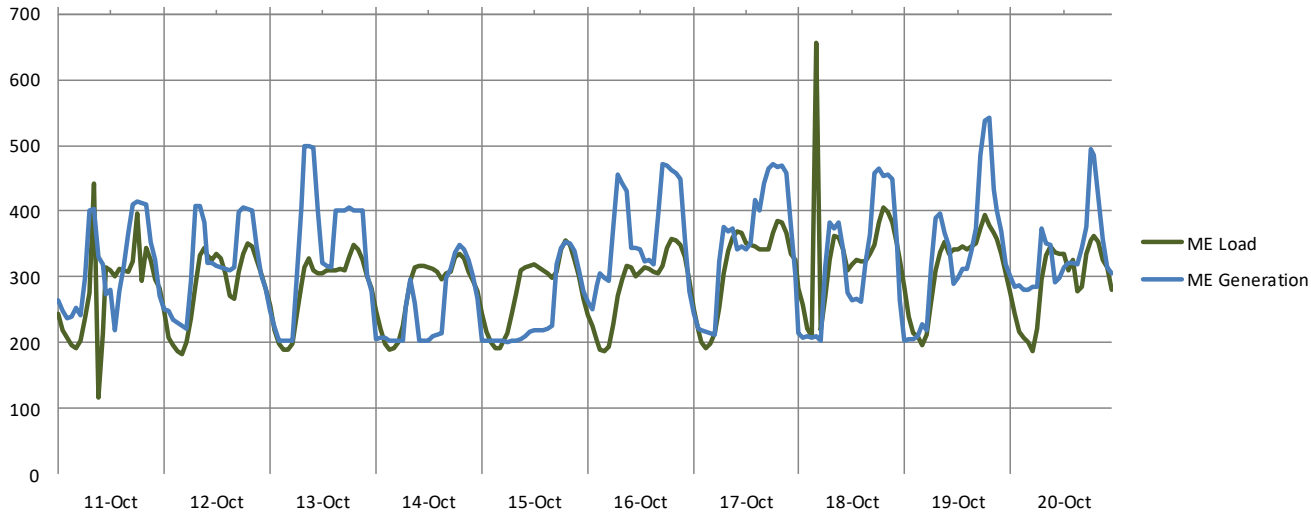
ME net position (MW)



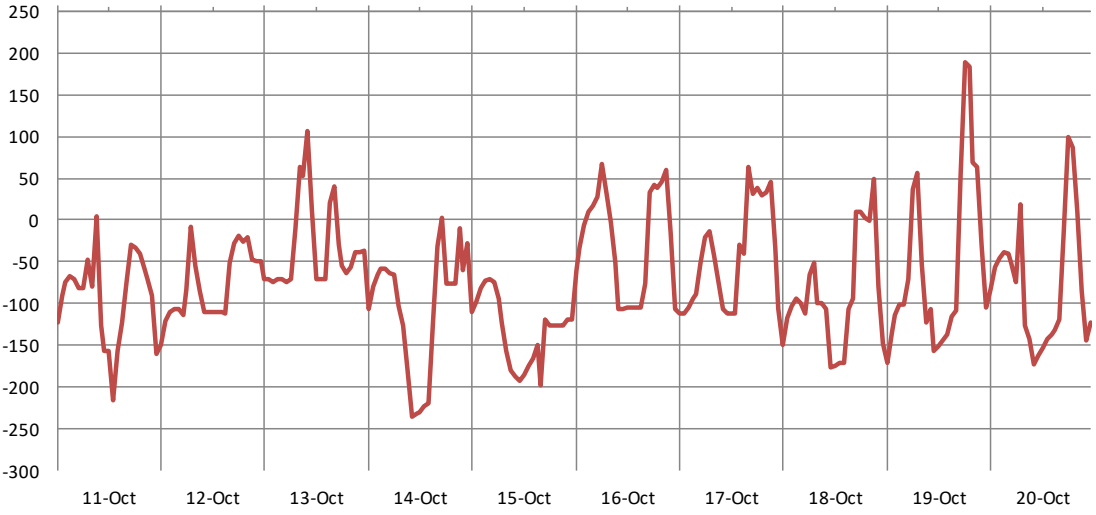
Montenegro - Hourly generation per source (MWh)



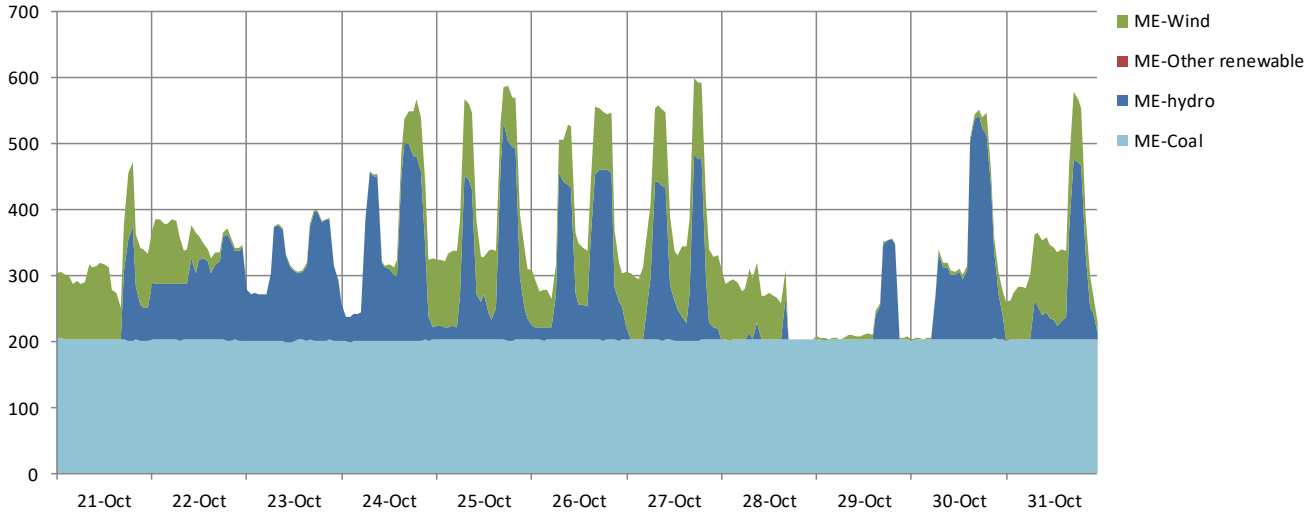
ME load (MW)



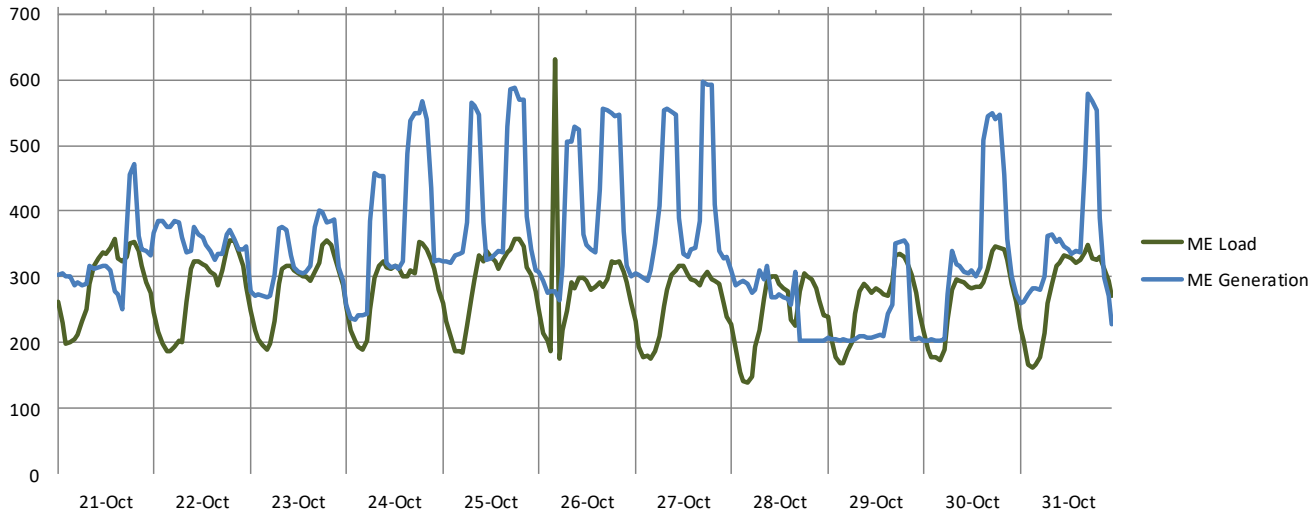
ME net position (MW)



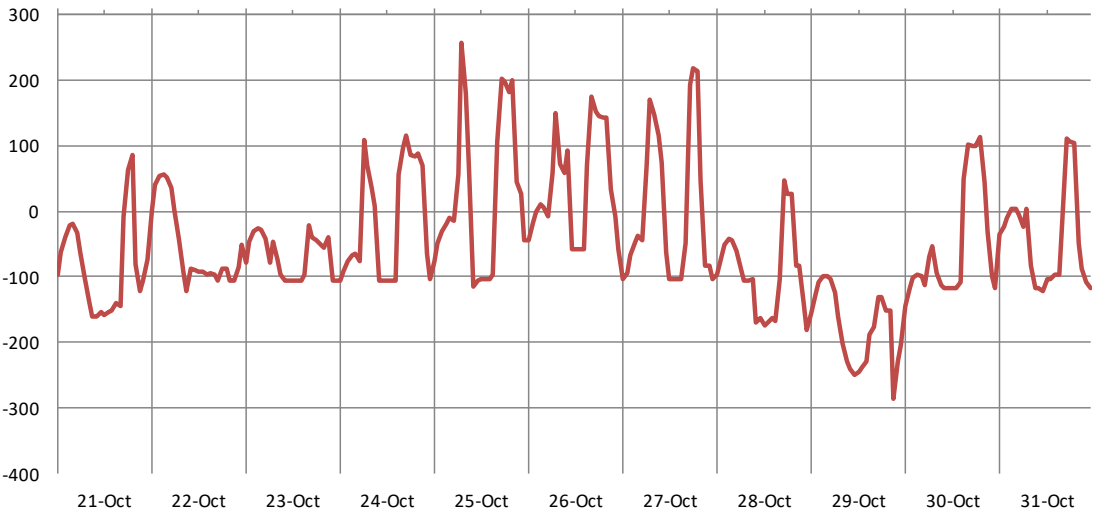
Montenegro - Hourly generation per source (MWh)



ME load (MW)

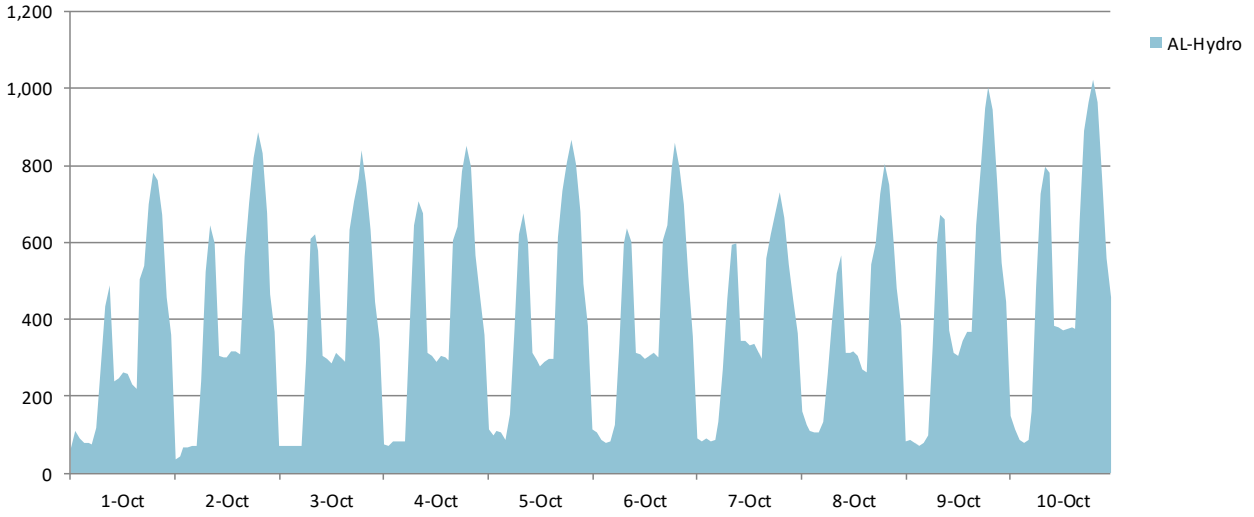


ME net position (MW)

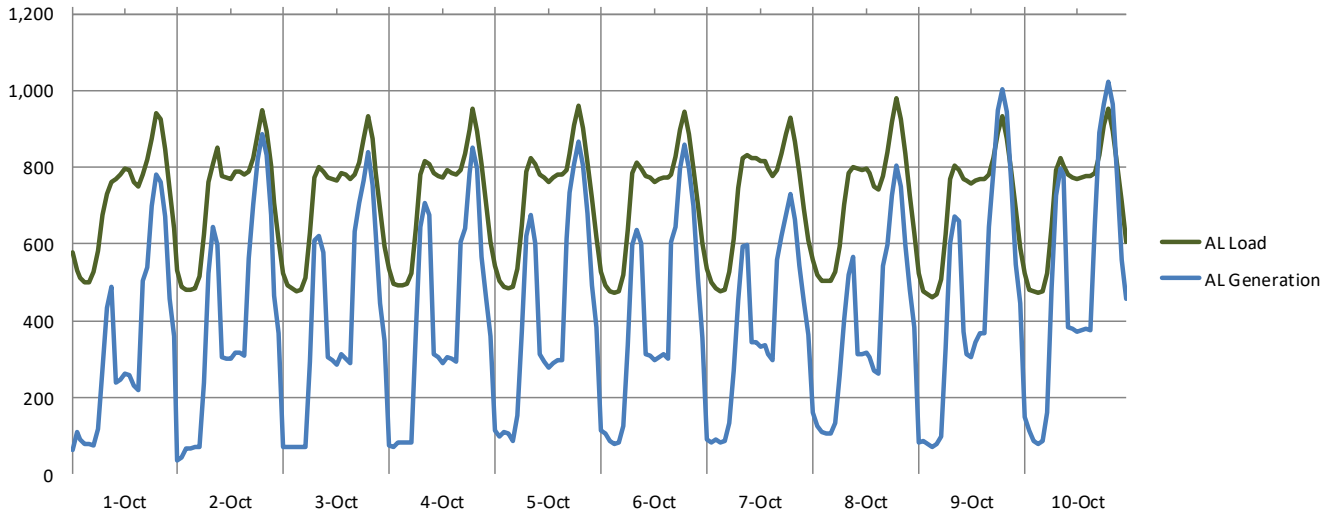


Albania - Generation, Load, Net position

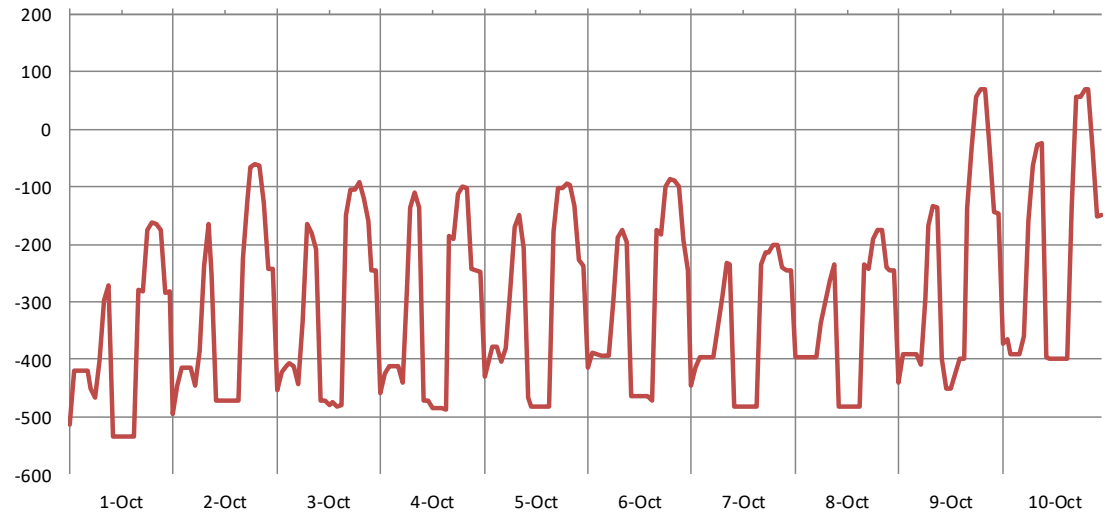
Albania - Hourly generation per source (MW)



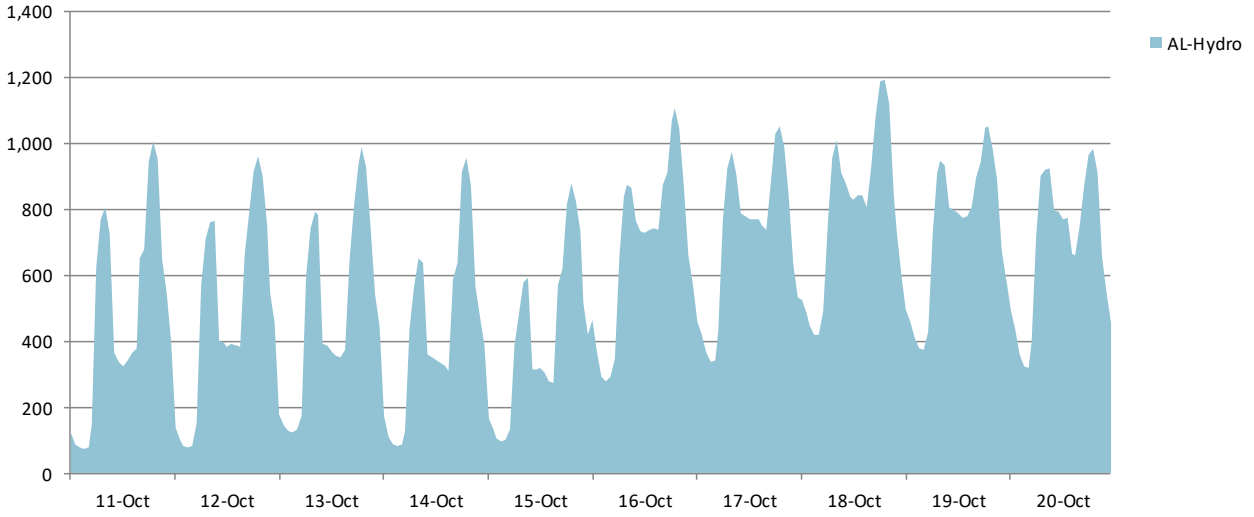
AL load (MW)



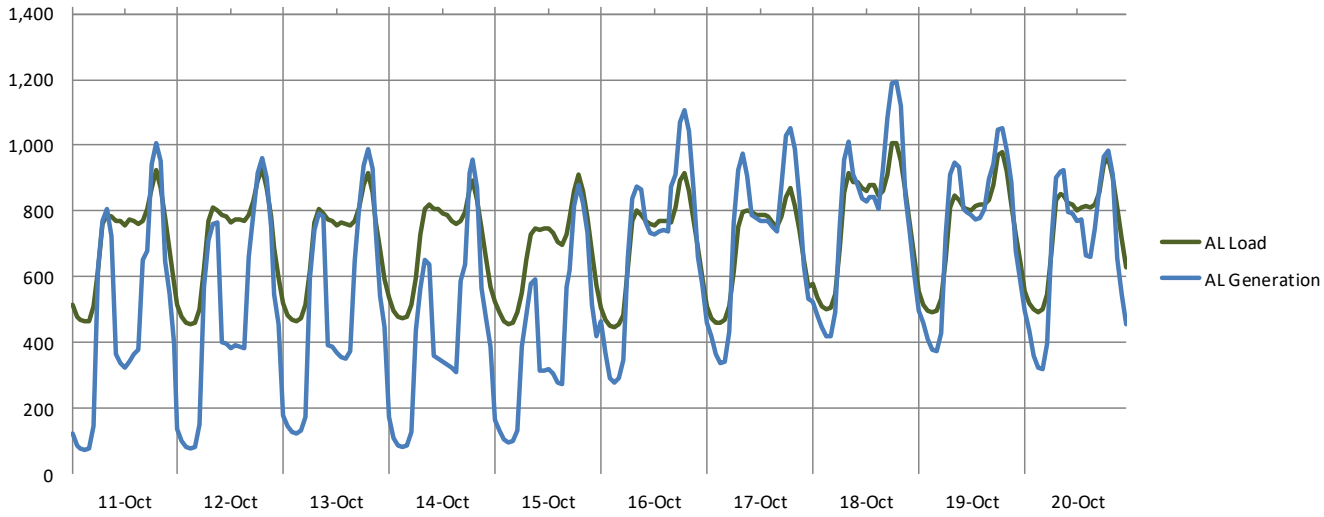
AL net position (MW)



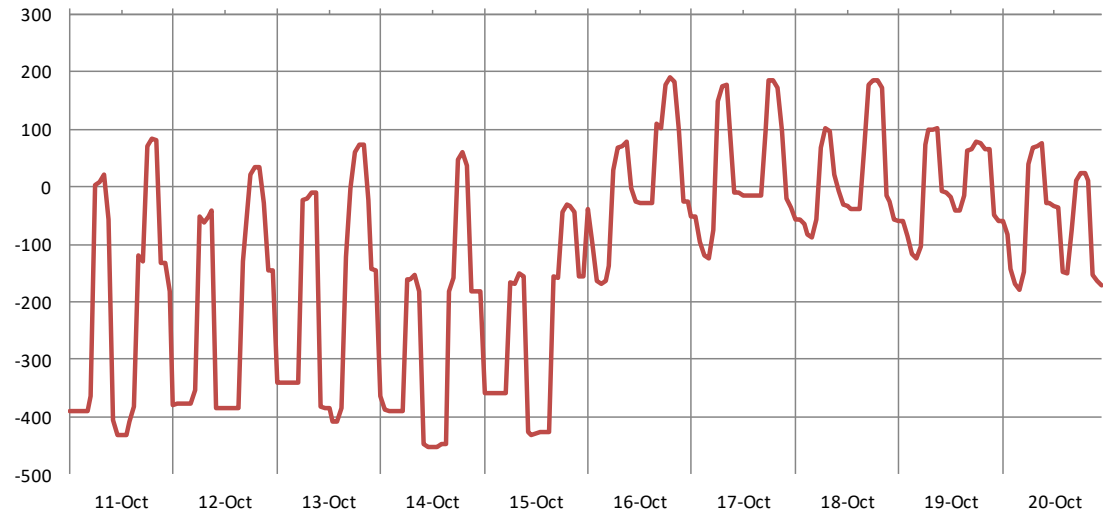
Albania - Hourly generation per source (MW)



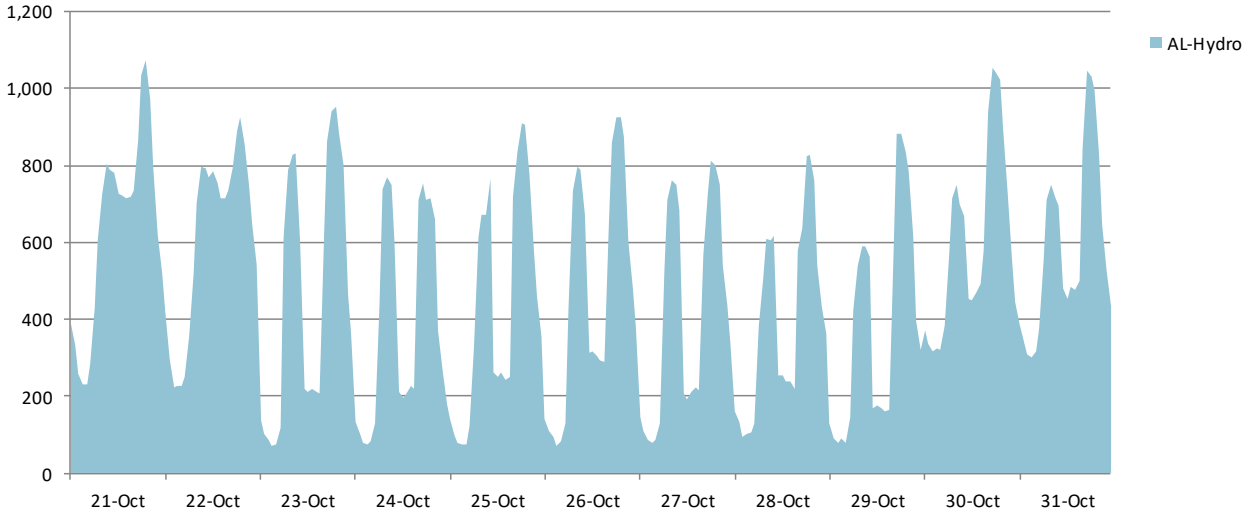
AL load (MW)



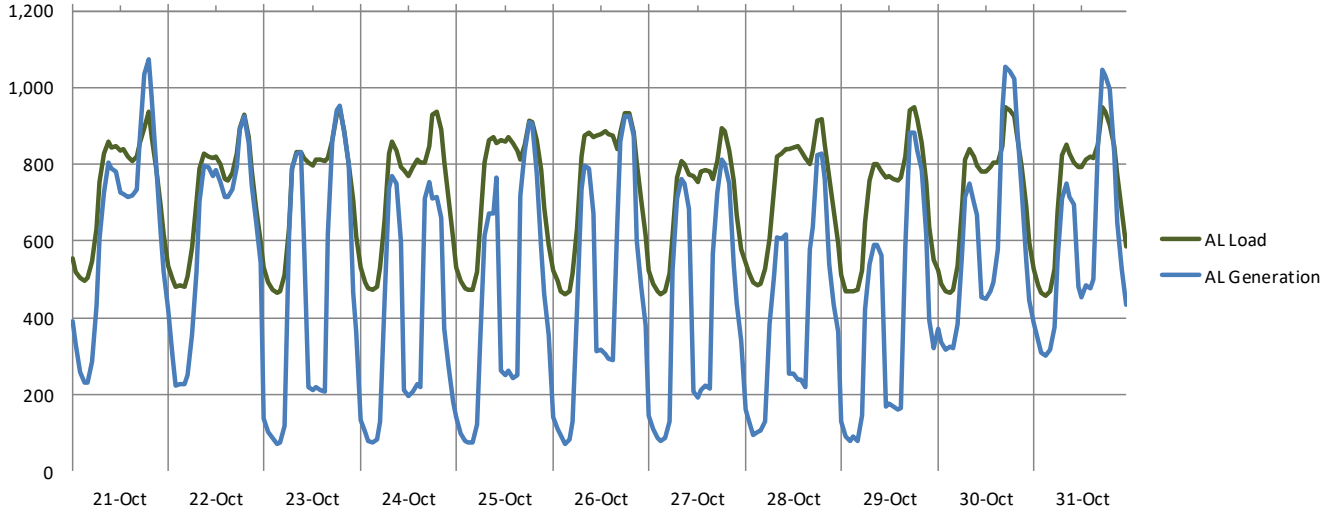
AL net position (MW)



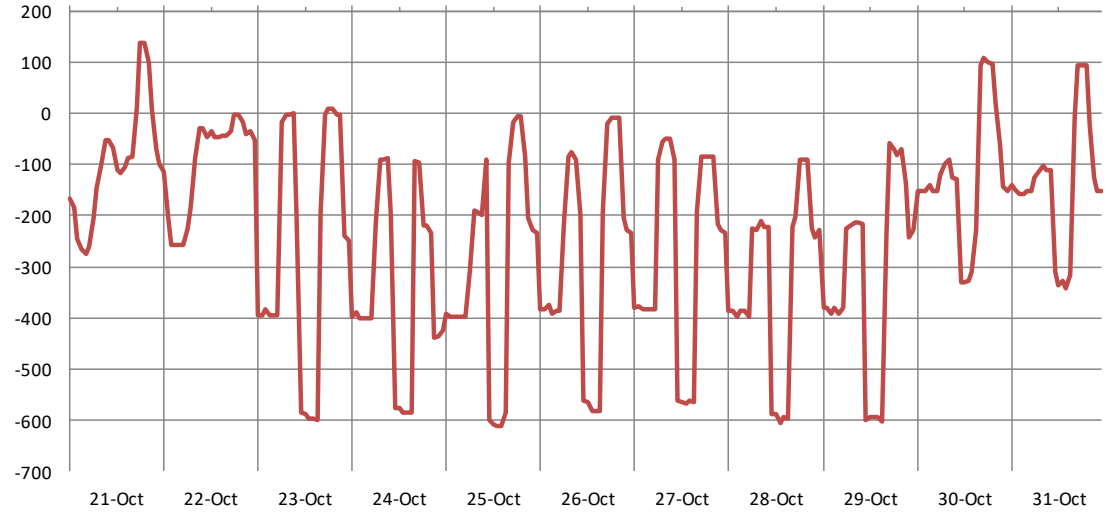
Albania - Hourly generation per source (MW)



AL load (MW)

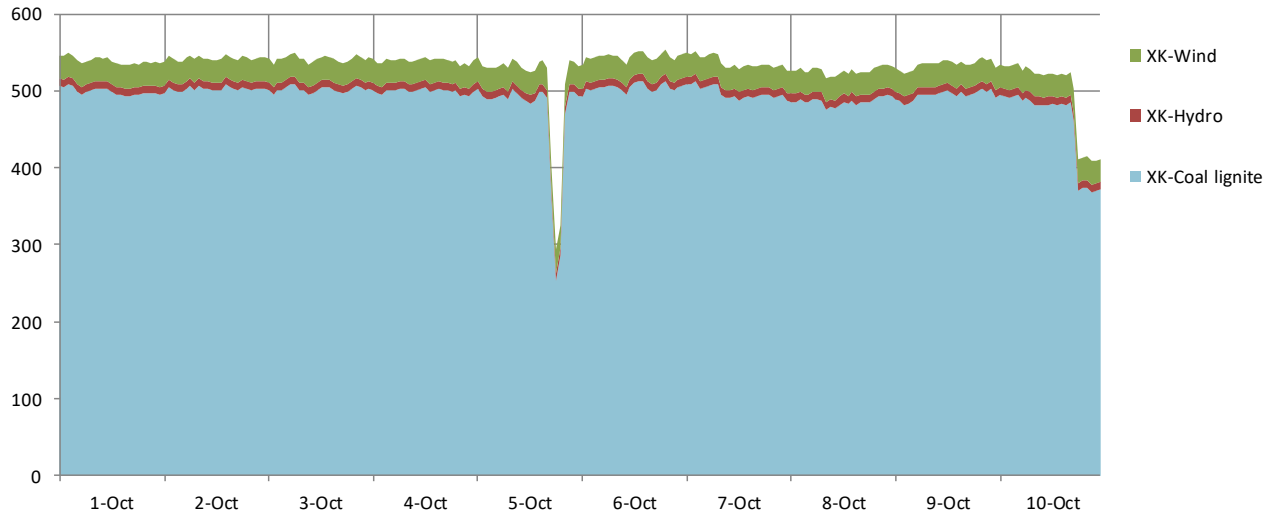


AL net position (MW)

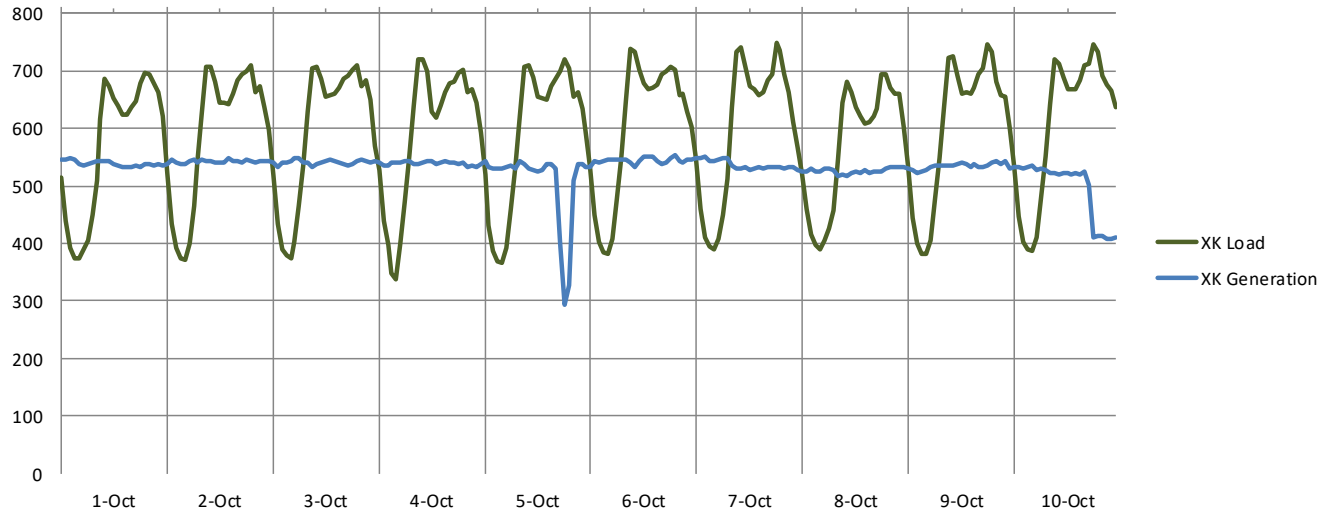


Kosovo - Generation, Load, Net position

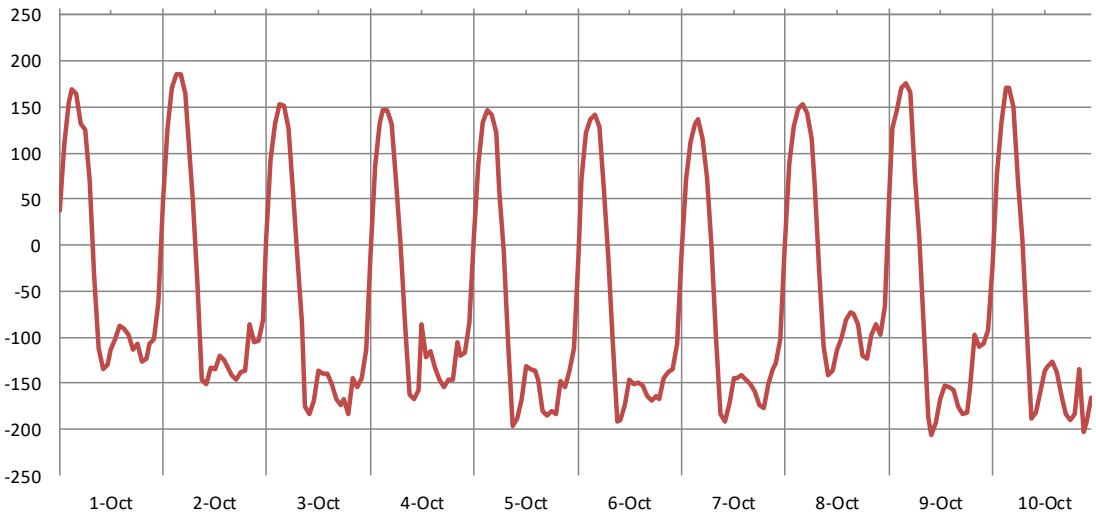
Kosovo (XK) - Hourly generation per source (MWh)



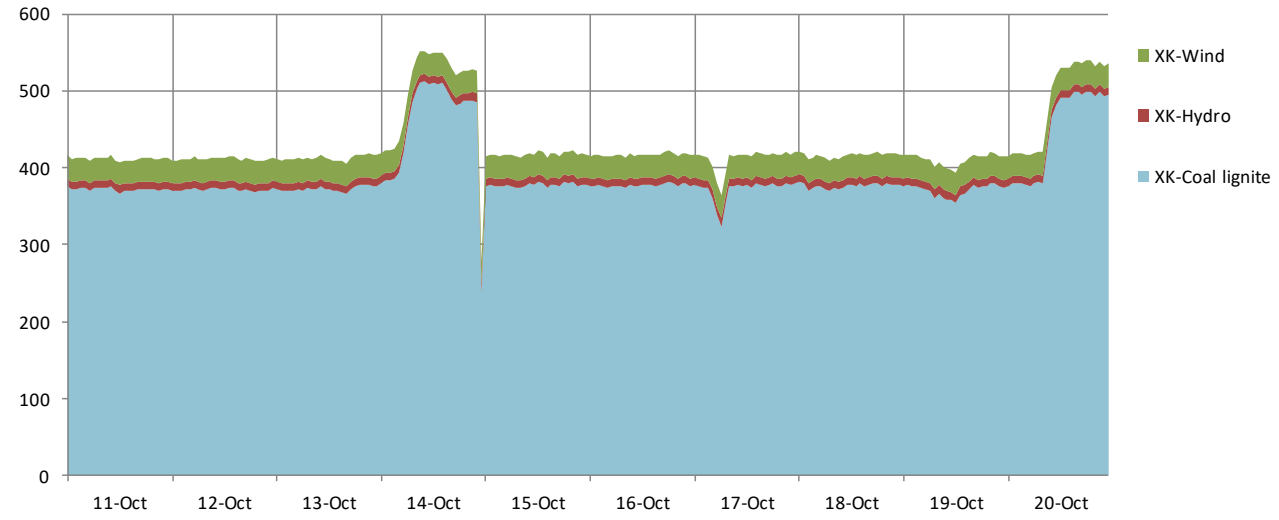
XK load (MW)



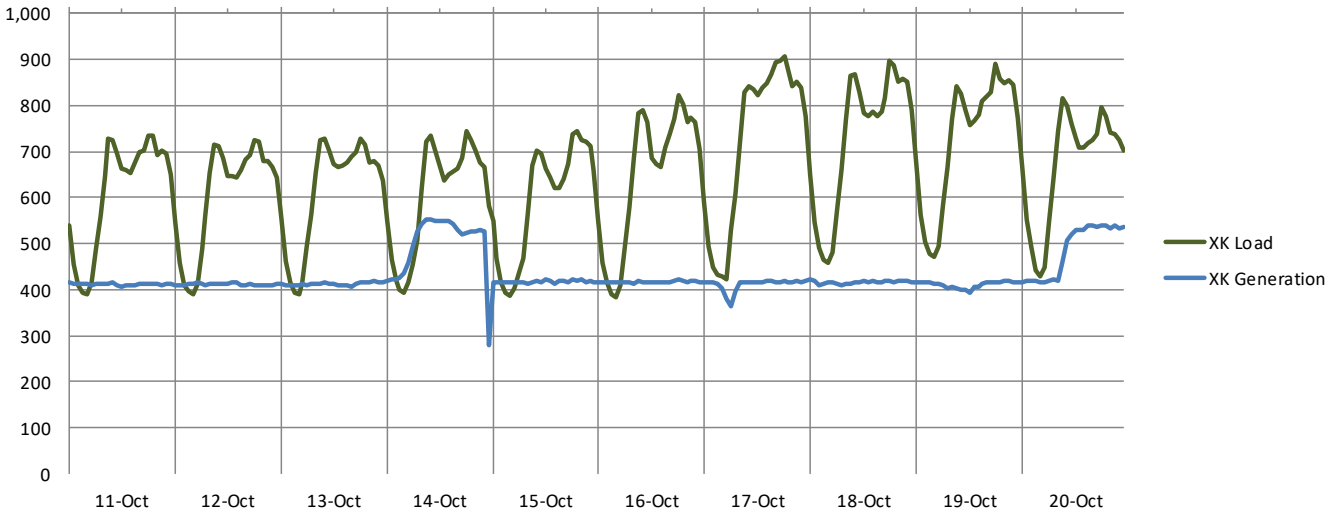
XK net position (MW)



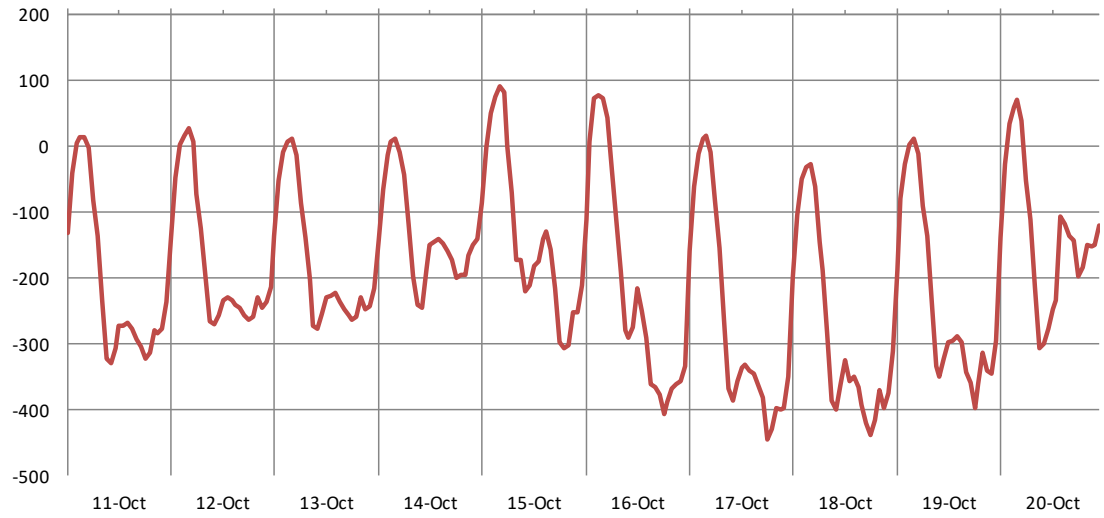
Kosovo (XK) - Hourly generation per source (MWh)



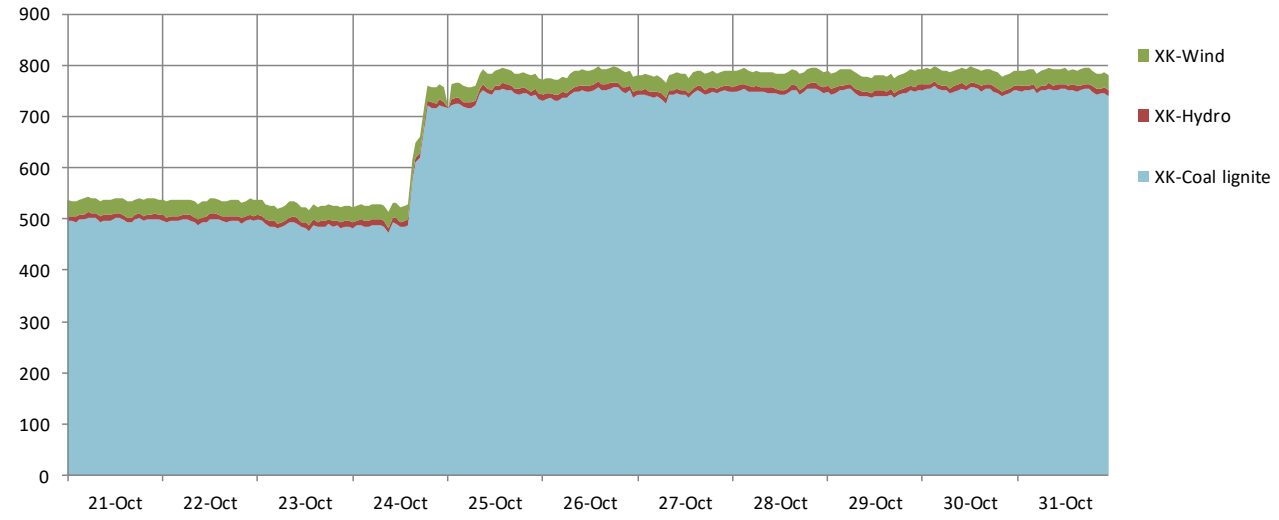
XK load (MW)



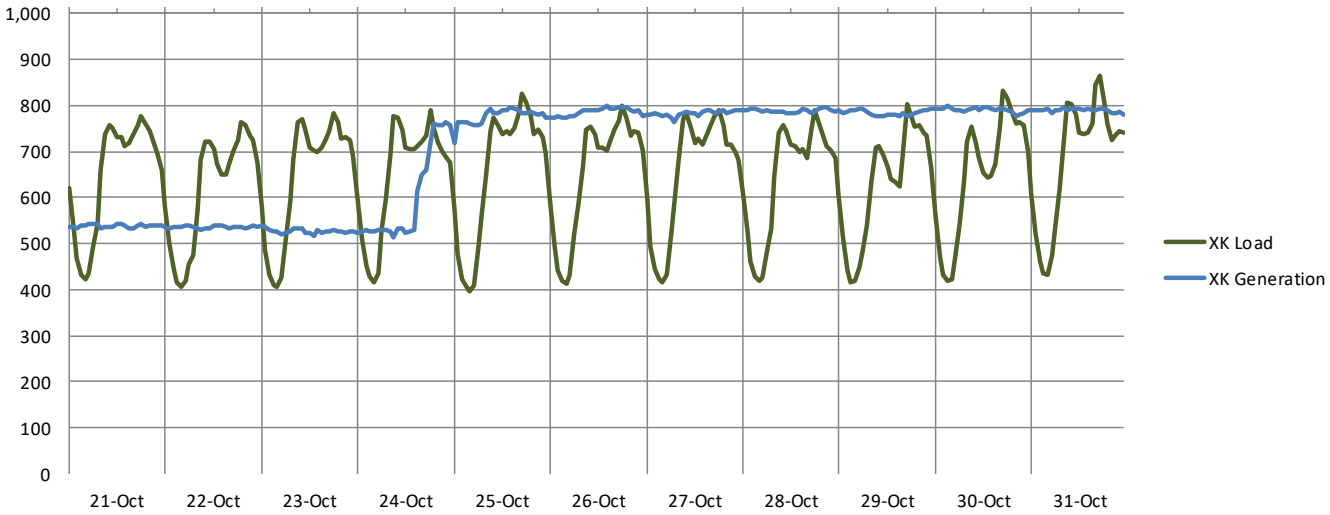
XK net position (MW)



Kosovo (XK) - Hourly generation per source (MWh)



XK load (MW)



XK net position (MW)