HUPX and SEE Trading Tool

Month ahead HUPX forecast, 15.09.2023

OCTOBER 2023

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TRADING ADVICE

Hungarian futures for October 2023 are currently traded at 11.8 EUR/MWh above German market and 13.0 EUR/MWh below Italian (PUN) market.

- Consumption in HU+SEE region will be a little bit lower than in October 2022 (500 MW in night hours and 500-1000 MW lower in sunny hours). Also Consumption will be much lower than in July 2023.
- There are no much grounds to assume higher gas fired power generation and significantly higher hydro power generation than it was the case in October 2022. Additional factor which could reduce hydro power generation in October 2023 is an opportunity cost of water in reservoirs since November futures are 25 EUR/MWh higher than October futures.

- The main bullish reasons for long HU vs. short DE trading strategy are:
  - Coal fired power generation will be 1500 MW lower than last year in October and in Greece potentially additional 400 MW lower.
  - The HU+SEE region will need to import more energy than in October last year in order to settle below Italian market, but imports of the region in October 2022 were already very high and it was very difficult for HU+SEE region to achieve such high imports in Flow Based Market Coupling at low HU-DE spread.
  - Poland is much bigger importer from Flow Based Market Coupling this year than it was the case last year. Polish imports this year consume transmission grid resources much more than last year which makes it more difficult for HU+SEE region to achieve high imports in Flow Based Market Coupling. This is one of the main reasons why it does not appear to be realistic that HU+SEE region can import 4000 MW in hours 19-24.

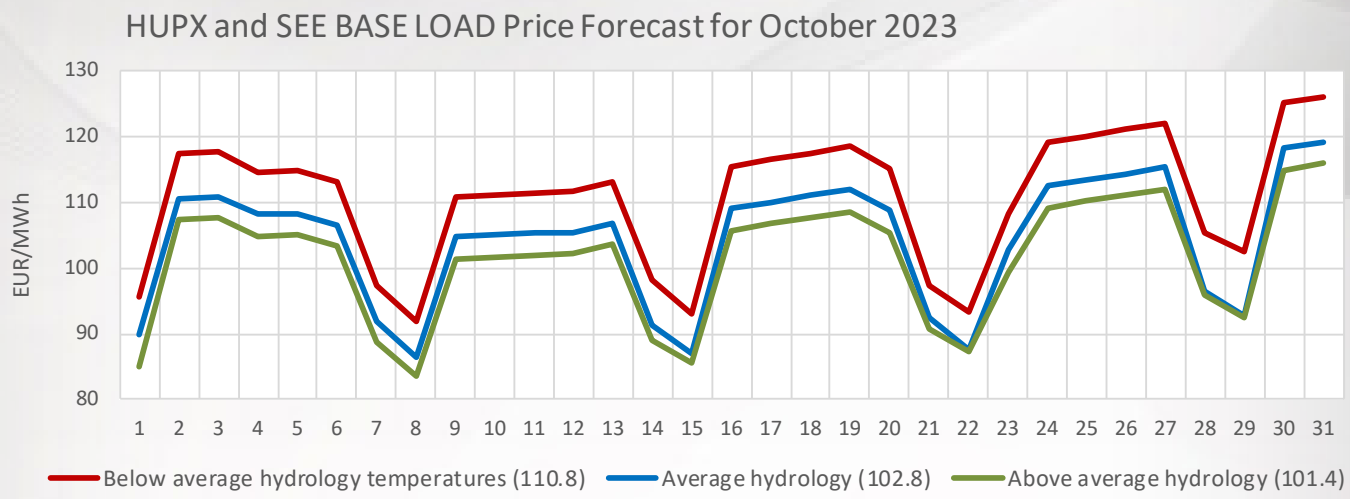
- October 2022 should have been very comfortable for HUPX because consumption was extremely low and lignite fired power generation was extremely high. However, it was far from comfortable for HUPX. HUPX settled 41 EUR/MWh above German market and 16 EUR/MWh above French market. Hungary and SEE region imported on average 3050 MW from Core region while exporting to Italy only 170 MW on average.

- HUPX settlement in Flow Based Market Coupling in October 2023 will not be less stressed than it was last year since HU+SEE region will need high imports and Polish market as well will need high imports.

It is advised to make long position in Hungary for October 2023, in spread with short position on German or Italian markets.

Fundamental model outputs for October 2023 are following:

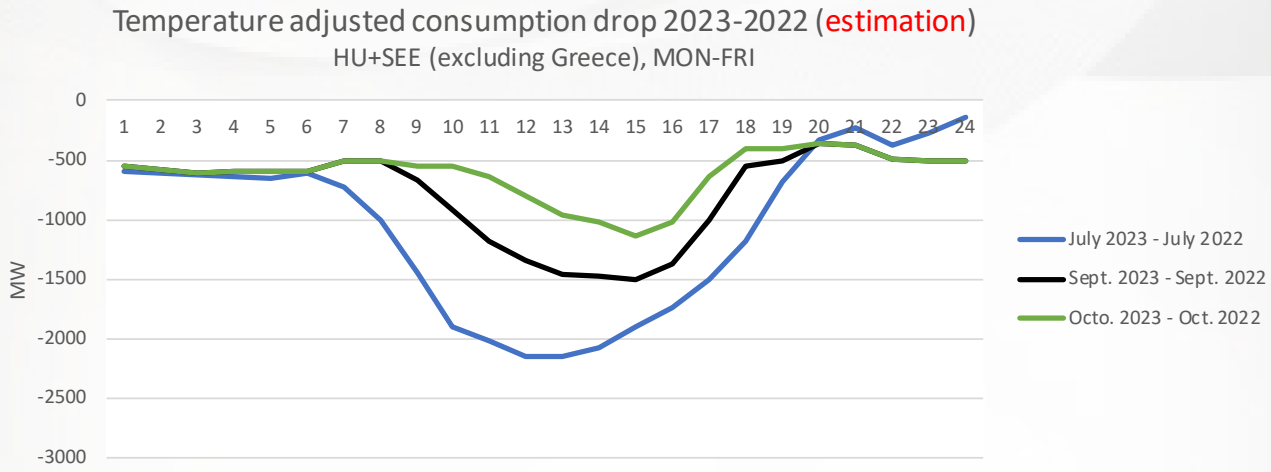
October 2023 In spread with Germany	Very good hydrology	Average hydrology	Below average hydrology
HU Base Load	**101.4** EUR/MWh	**104.3** EUR/MWh	**110.8** EUR/MWh
HU-DE Base Spread	**DE+ 10.0** EUR/MWh	**DE + 12.9** EUR/MWh	**DE + 19.4** EUR/MWh



	Day	Below average hydrology	Average hydrology	Above average hydrology
1-Oct-23	S	95.5	89.8	85.1
2-Oct-23	M	117.3	110.6	107.3
3-Oct-23	T	117.6	110.9	107.6
4-Oct-23	W	114.6	108.1	104.8
5-Oct-23	T	114.9	108.4	105.1
6-Oct-23	F	113.0	106.6	103.3
7-Oct-23	S	97.4	91.8	88.7
8-Oct-23	S	91.8	86.4	83.6
9-Oct-23	M	110.9	104.7	101.4
10-Oct-23	T	111.1	105.0	101.7
11-Oct-23	W	111.4	105.2	101.9
12-Oct-23	T	111.7	105.5	102.2
13-Oct-23	F	113.2	106.8	103.6
14-Oct-23	S	98.1	91.3	88.9
15-Oct-23	S	93.1	87.1	85.4
16-Oct-23	M	115.5	109.0	105.8
17-Oct-23	T	116.5	110.0	106.7
18-Oct-23	W	117.5	110.9	107.7
19-Oct-23	T	118.5	111.9	108.6
20-Oct-23	F	115.0	108.7	105.4
21-Oct-23	S	97.4	92.3	90.7
22-Oct-23	S	93.4	87.6	87.2
23-Oct-23	M	108.2	102.6	99.3
24-Oct-23	T	119.0	112.5	109.2
25-Oct-23	W	120.0	113.4	110.1
26-Oct-23	T	121.0	114.4	111.1
27-Oct-23	M	122.0	115.3	112.0
28-Oct-23	S	105.5	96.3	95.9
29-Oct-23	S	102.5	92.6	92.4
30-Oct-23	M	125.1	118.2	114.9
31-Oct-23	T	126.1	119.1	115.8
AVG		**110.8**	**104.3**	**101.4**

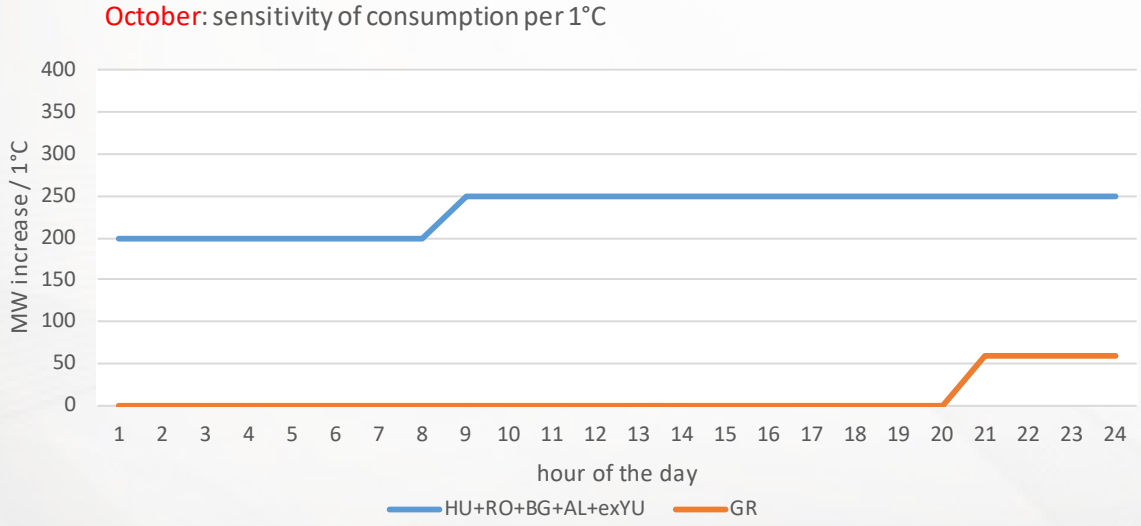
SEE CONSUMPTION IN OCTOBER 2023

- Consumption drop is caused by the increase of solar generation on the distribution grid level which is reported in Entso-e data together with consumption, but also by around 500 MW structural loss of consumption.
- Consumption drop in sunny hours in October 2023 against October 2022 will be much lower than consumption drop in July 2023 against July 2022 because solar generation on distribution grid level is lower in October than in July.



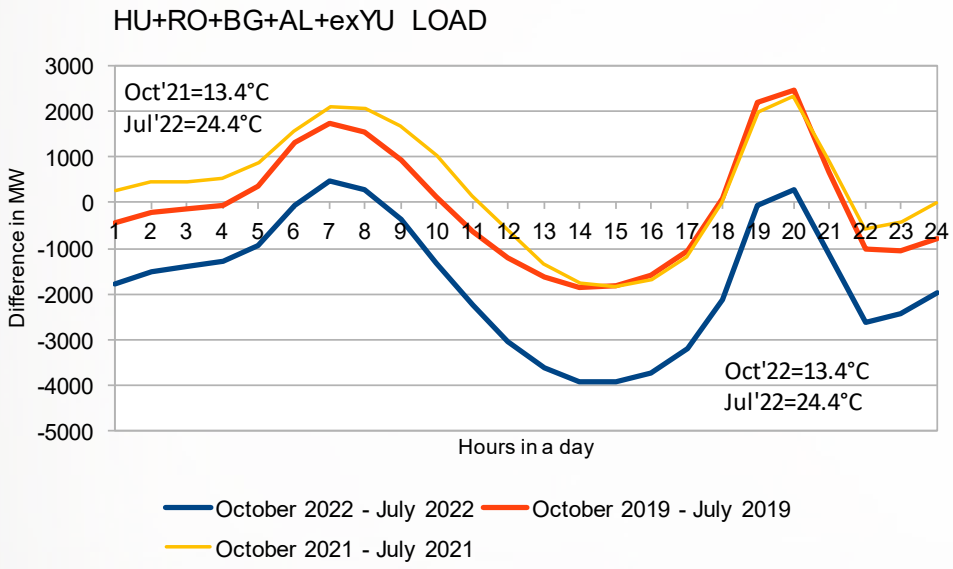
Consumption in October is under the impact of temperatures:

- Sensitivity of consumption is not as high as in winter months, but it can play a role in October since the range of temperatures which can occur on day-by-day level in October is very high.
- In case of high temperature drops, consumption can go 1,500 MW up which will make a disturbance on Hungarian and SEE markets.
- Cold days of October (average daily temperature below 10 °C) are dangerous for HUPX. Since district heating will not start in October, using of electricity for heating might become more common than usually and could contribute to the surprising rise of consumption on colder days.

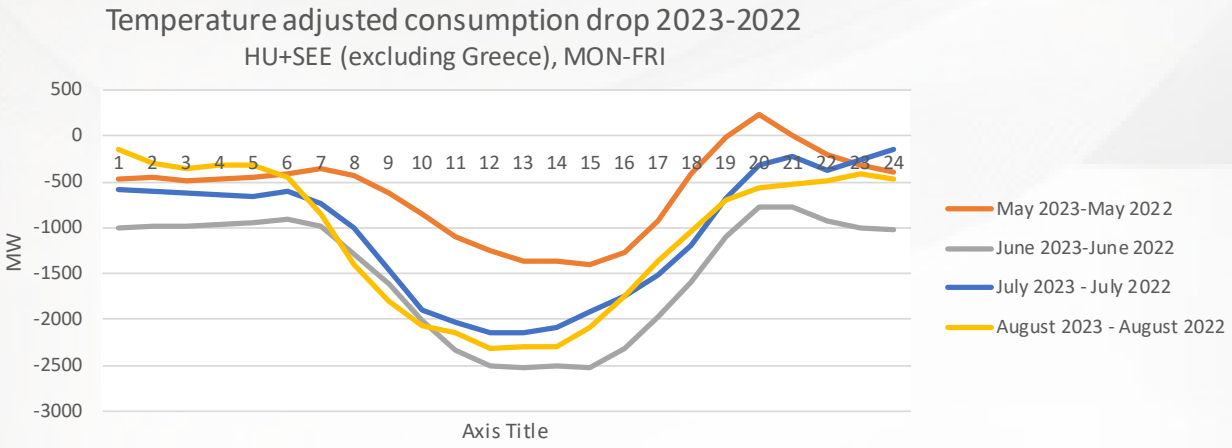


- 2019: Consumption in October 2019 was on average equal as in July in the year 2019, although October 2019 was the warmest October 2019 was the 2nd warmest October in the last 50 years. The reason was that July 2019 was not very hot.
- 2021: Consumption in October 2021 was on average equal as in July in the year 2021, although July 2021 was extremely hot. The reason was that October 2021 was extremely cold which resulted in very high consumption in October 2021.
- In the year 2022, October had 1700 MW lower consumption than July 2022. July 2022 was very hot, but also October 2022 was extremely warm which resulted with very low consumption in October 2022.

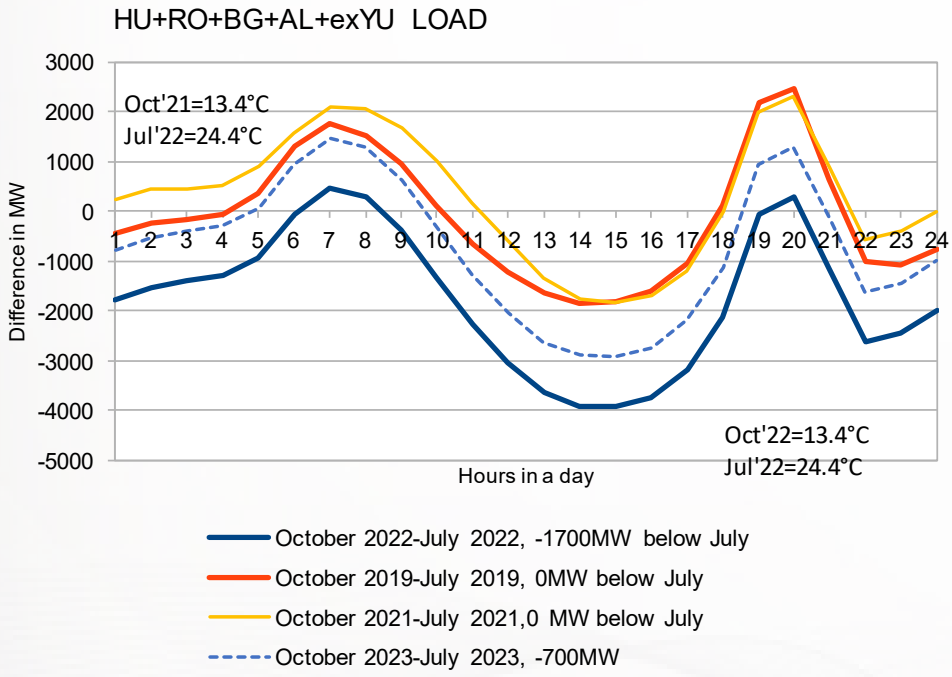
- For the year 2023 it is to be expected similar situation as in the year 2022. October 2023 will be warm and July 2023 was very hot. Therefore, one would conclude that consumption in October 2023 will be around 1700 MW lower than in July 2023:
  - Consumption in October 2023 will be lower than in July 2023 mostly in sunny hours
  - Consumption in October 2023 will be higher than in July in hours 6-7-8 and 19-20



- In the past months of 2023, compared to the same months of 2022, consumption was lower by:
  - 500-600 MW in hours 1-7
  - 200-500 MW in hours 20-24
  - Dependent on the solar profile in hours 8-19 and share of solar generation in distribution grid consumption was 1500-2500 MW lower than last year on days with the same temperature.



- One should take into account that an alternative scenario for consumption change between July 2023 and October 2023 is possible, where consumption in October is on average only 700-MW lower than in July instead of 1700 MW as it was the case in the year 2022.

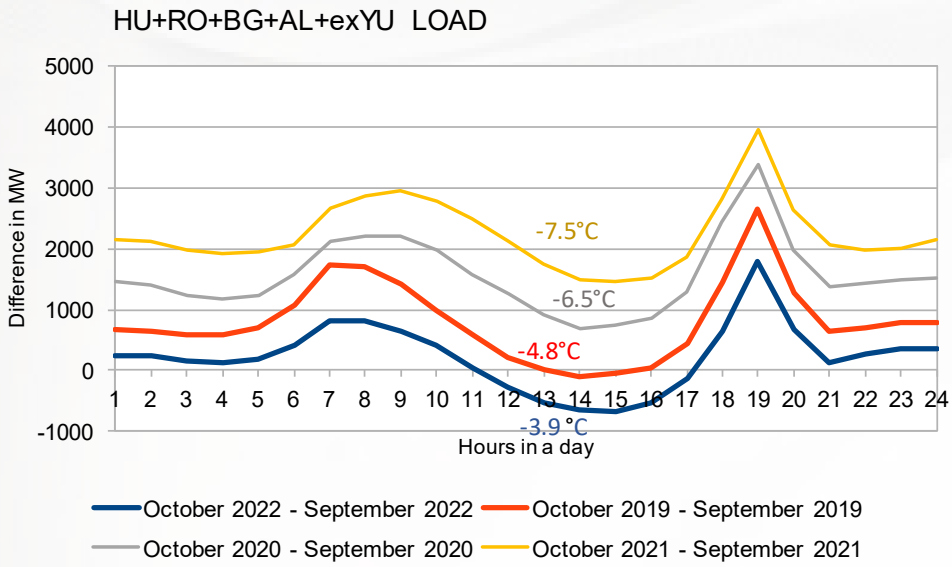


- If consumption in October is compared against consumption in September, it can be concluded that:

  - October can have over 2000 MW higher consumption than September in case of very cold October (7.5°C lower average temperature than in September)

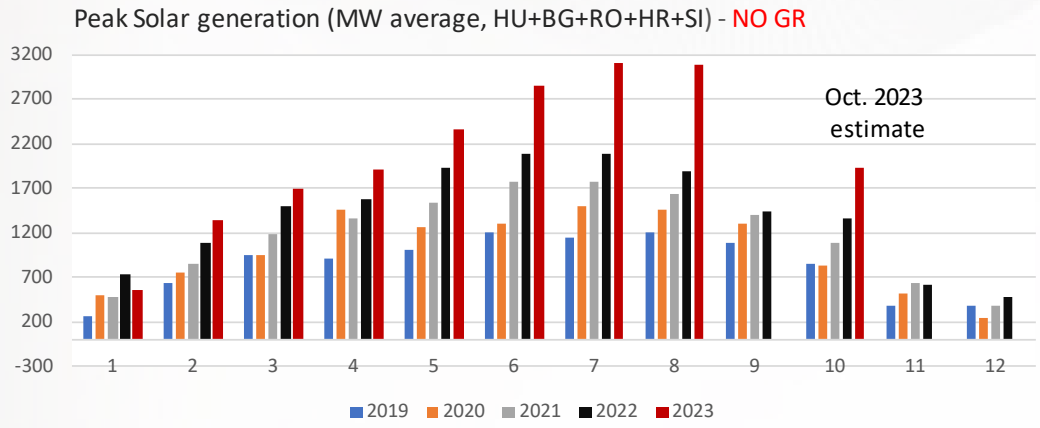
  - October can have on average just 200 MW higher consumption in case of very warm October (just 3.9°C lower average temperature than in September)

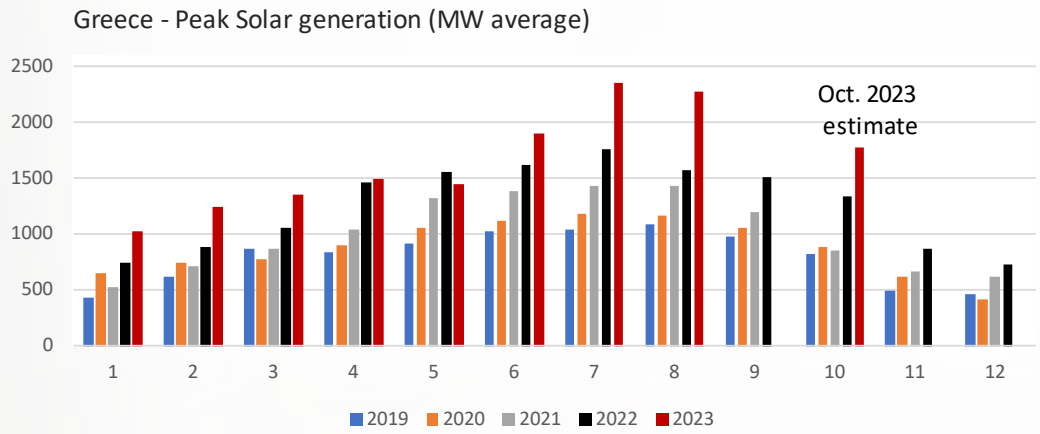
  - October will anyhow have higher consumption than September in hours 6-7-8-9-10 and 18-24.

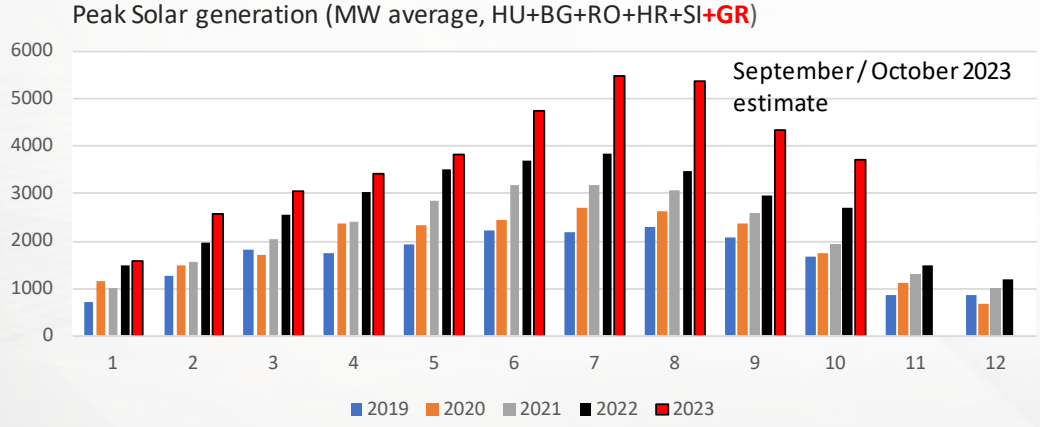


RES GENERATION IN OCTOBER 2023

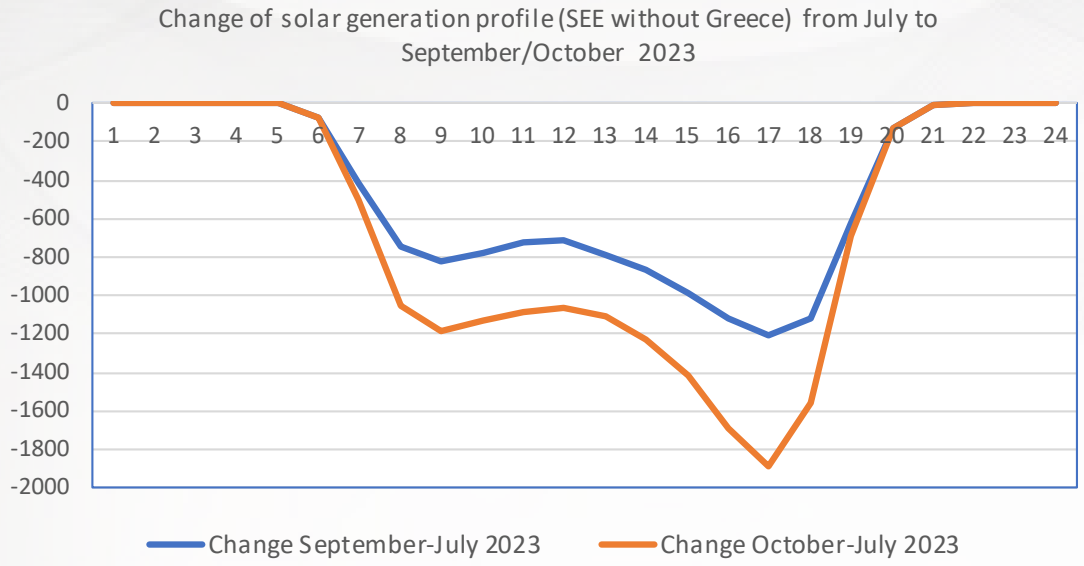
- Solar generation has a big decline in October against July. Solar generation in October is at around 60% of solar generation in July, which will be a big change this year. Solar generation for the 8-20h peak profile could be 1500 MW lower than in July and for 11-17h profile it should be 2200 MW, excluding the photo-voltaic generation on distribution level.
- Solar generation in the 8-20 profile in October is
  - 60-65% of the solar generation in July, in SEE without Greece
  - 75% of the solar generation in July, in Greece



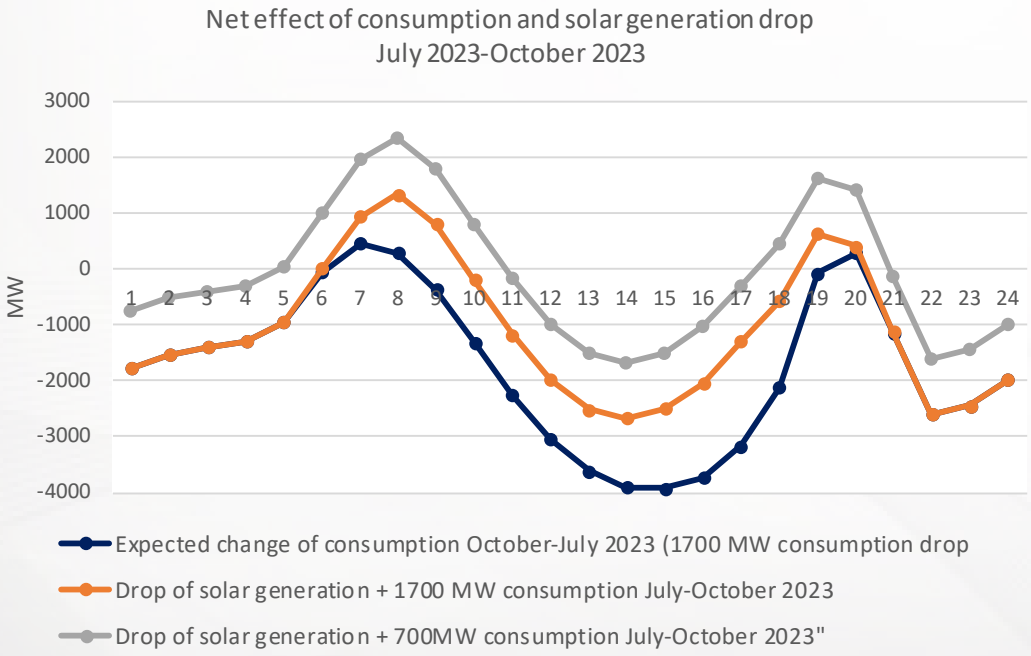




- Normally, solar generation drop in sunny hours significantly outweighs consumption drop in sunny hours. However, since October 2023 is forecasted to be very warm, the change of consumption between July and October will outweigh the drop of solar generation in hours 10-18



- **In the bearish scenario** where consumption in October 2023 is 1700 MW lower than in July 2023, the net impact of consumption and solar generation in October 2023 will create higher demand than in July 2023 in hours 6-7-8-9 and 19-20.
- **In the bullish scenario** where consumption in October 2023 is just 700 MW lower than in July 2023, the net impact of consumption and solar generation in October 2023 will create higher demand than in July 2023 in hours 5-6-7-8-9-10 and 18-19-20. The net effect of consumption and solar generation change will result in 2000 MW higher demand in hours 7-8-8 and 1500MW higher demand in hours 19-20.
- **This will result in very risky conditions, when it is taken into account that in July HUPX settled above Italian market frequently in those hours and that hydro generation and Nuclear generation in October will be by 2500-3000 MW lower than in July.**



Wind generation:

October does not necessarily have higher wind generation than August or September! October has significantly higher wind generation than August only in case that August has terrible wind generation, which was not the case this year. This year August had excellent wind generation, by far higher than any Q3 month ever.

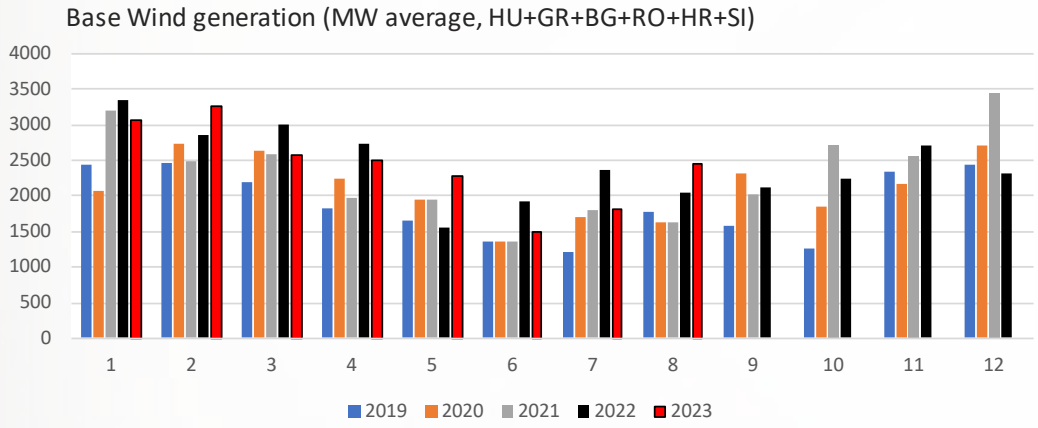
Wind generation in October should be similar to 2021-2022 wind generation (in optimistic case the same as in October 2021 and in pessimistic case similar to October 2022.

Optimistic scenario:

- 100 MW higher than in August 2023
- 500 MW higher than in October 2022

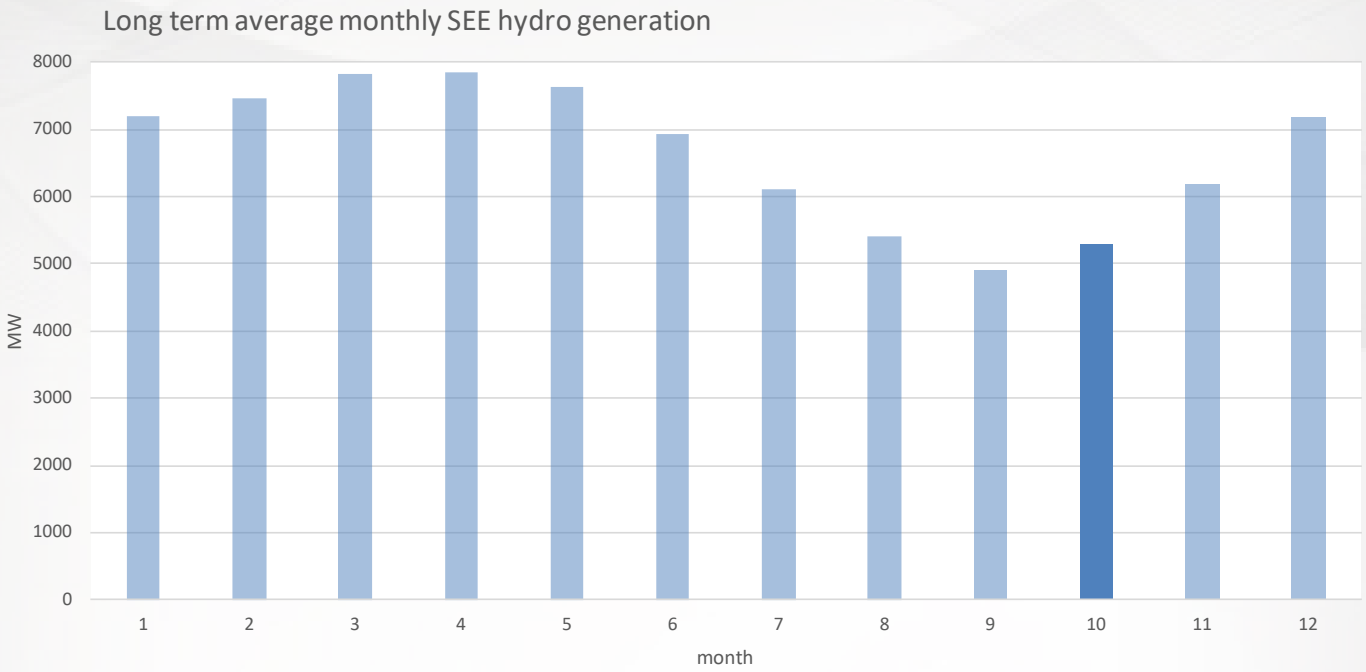
Pessimistic scenario:

- 400 MW LOWER than in August 2023
- The same as in October 2022

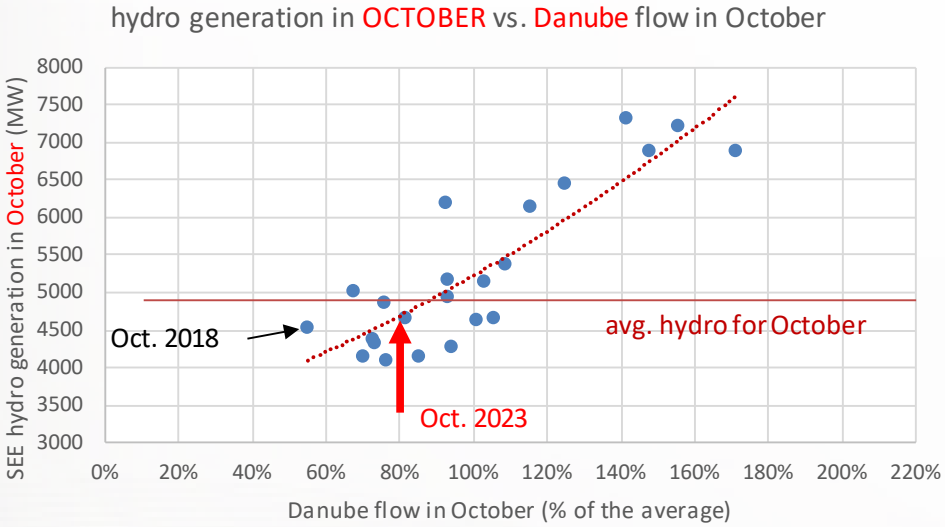


HYDRO GENERATION IN OCTOBER 2023

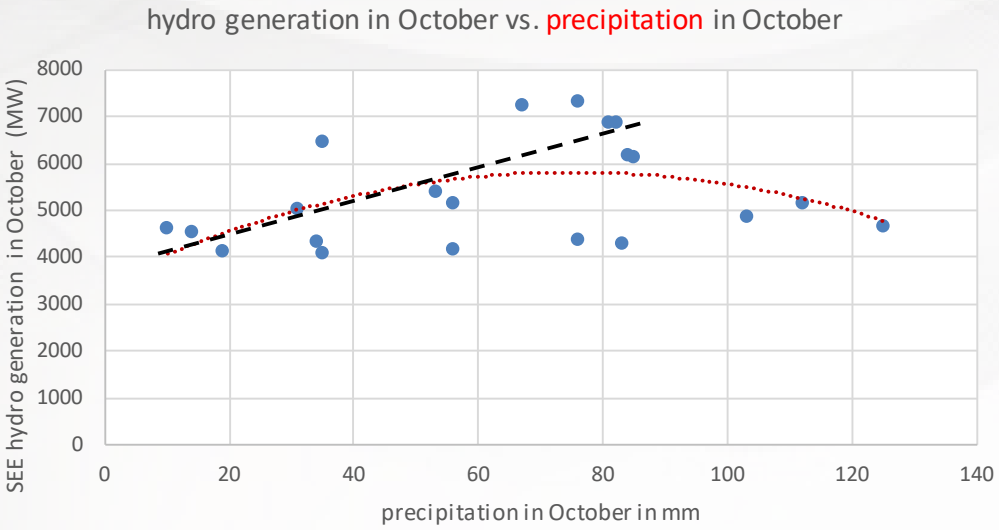
- Hydro generation is on average 1000 MW lower than in July.



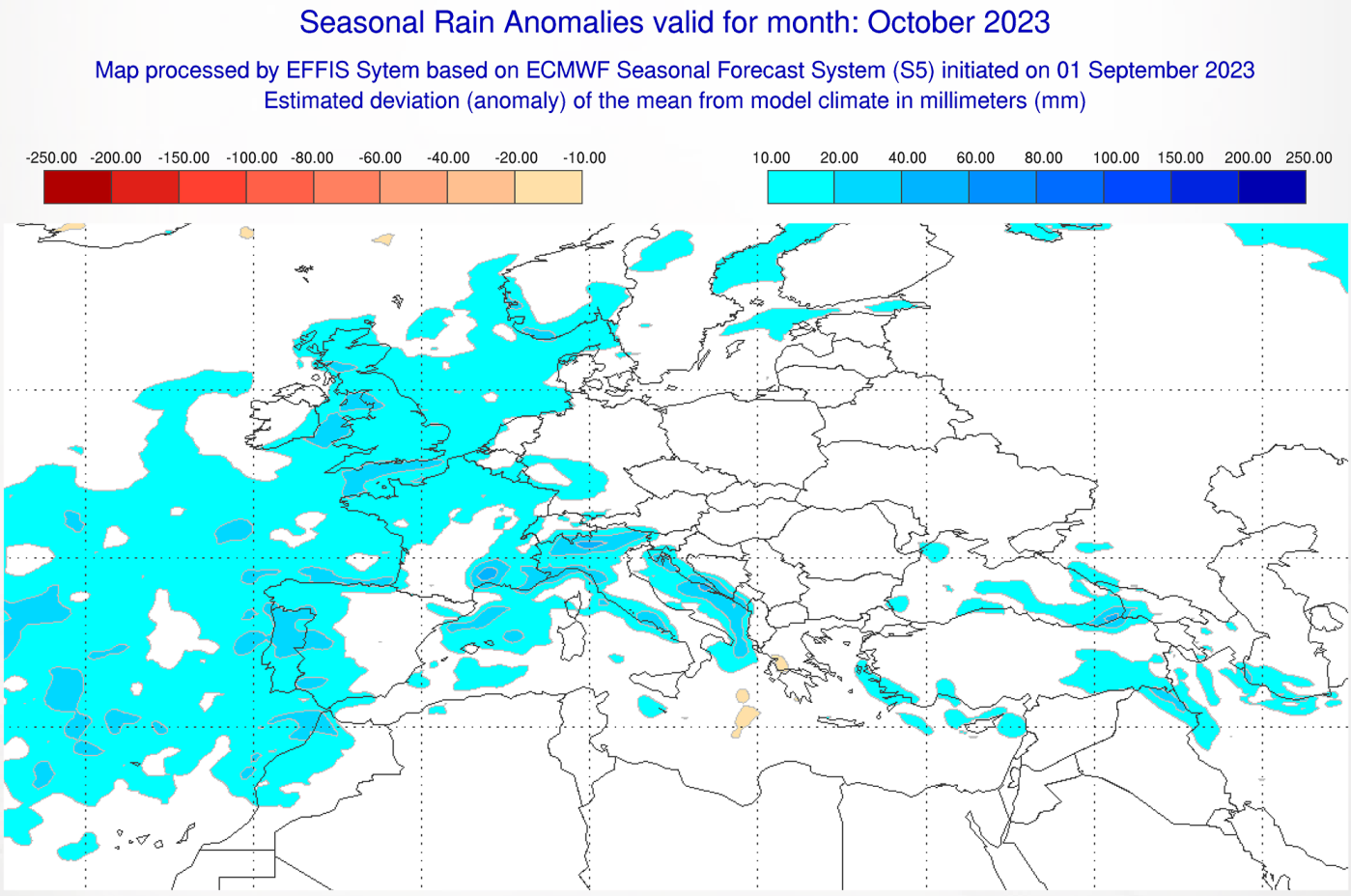
- October can have higher than average hydro generation only if Danube has high flow. The highest recorded summer hydro generation in 2018 did not result in high hydro generation in October 2018. Hydro generation was very high this summer, but this does not make any impact on hydro generation for October. Danube flow forecasts for December are 20% below average, which should result in below average hydro generation in October.



- Precipitation in October should be above average, but this does not guarantee above average hydro generation in October. Danube flow is much more relevant for hydro generation in October than precipitation.



- A really strong precipitation can make an impact on HUPX settlement in October, especially if it is in the Adriatic region, as forecasted this year. However, strong precipitation forecast for October is a weak argument for making short trading position. High precipitation forecast for October 2023 is not a reliable signal to assume above average hydro generation in October 2023. Also, the precipitation forecast is not particularly strong.



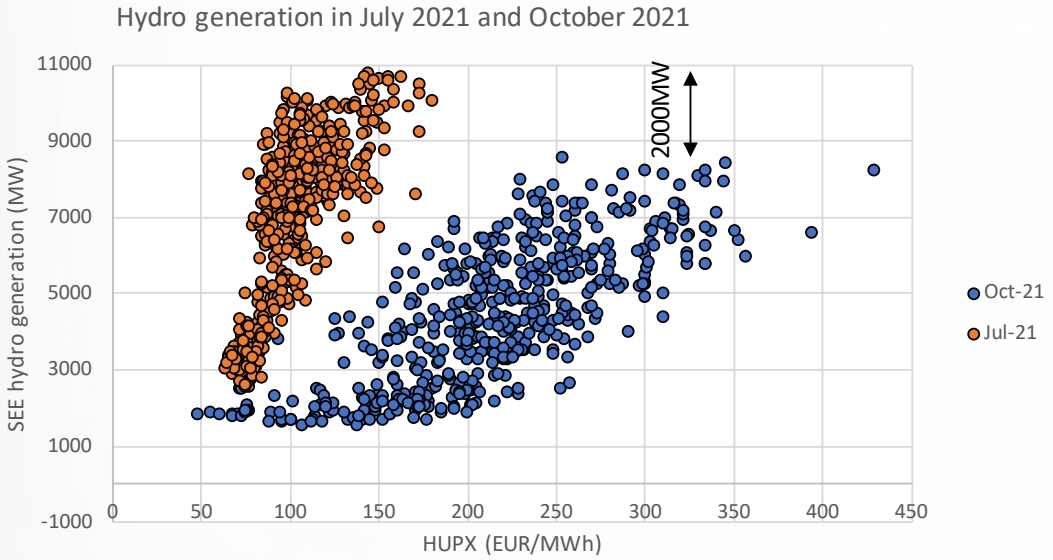
Source: European Commission

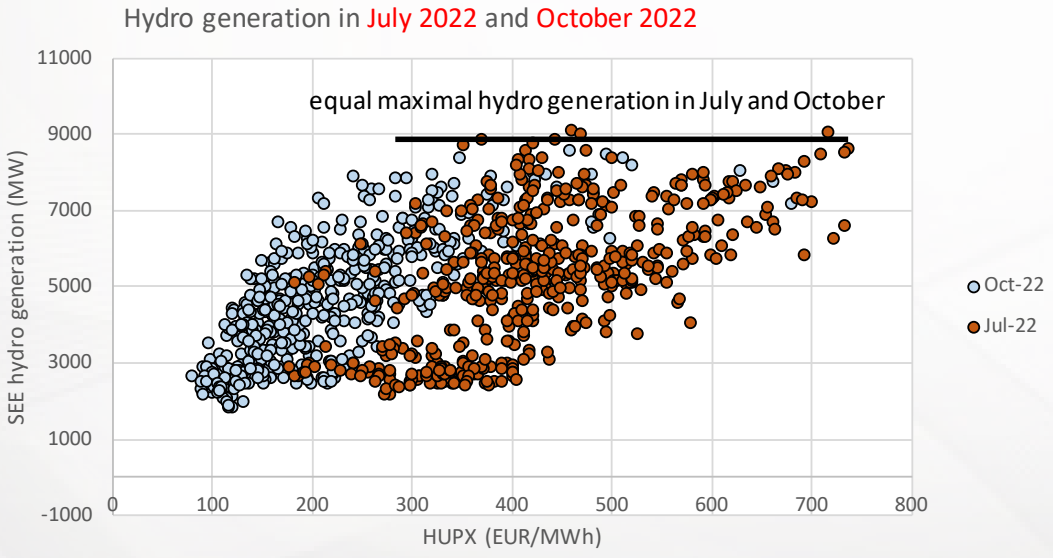
Hydro generation in October should be a bit below average for October or close to average:

- **October 2023 should have 1700 MW lower hydro generation than July 2023**
- **October 2023 should have similar hydro generation as October 2022 and October 2021** (+-5%). October 2022 had around 10% below average hydro generation.
- Even if October 2023 would have average hydro generation, this will bring just 500 MW more of hydro power generation which will not make a significant impact on HUPX market settlement.
- Additional factor which could reduce hydro power generation in October 2023 is an opportunity cost of water in reservoirs since November futures are 25 EUR/MWh higher than October futures.

The drop of average hydro generation will cause the drop of maximal hydro generation as well

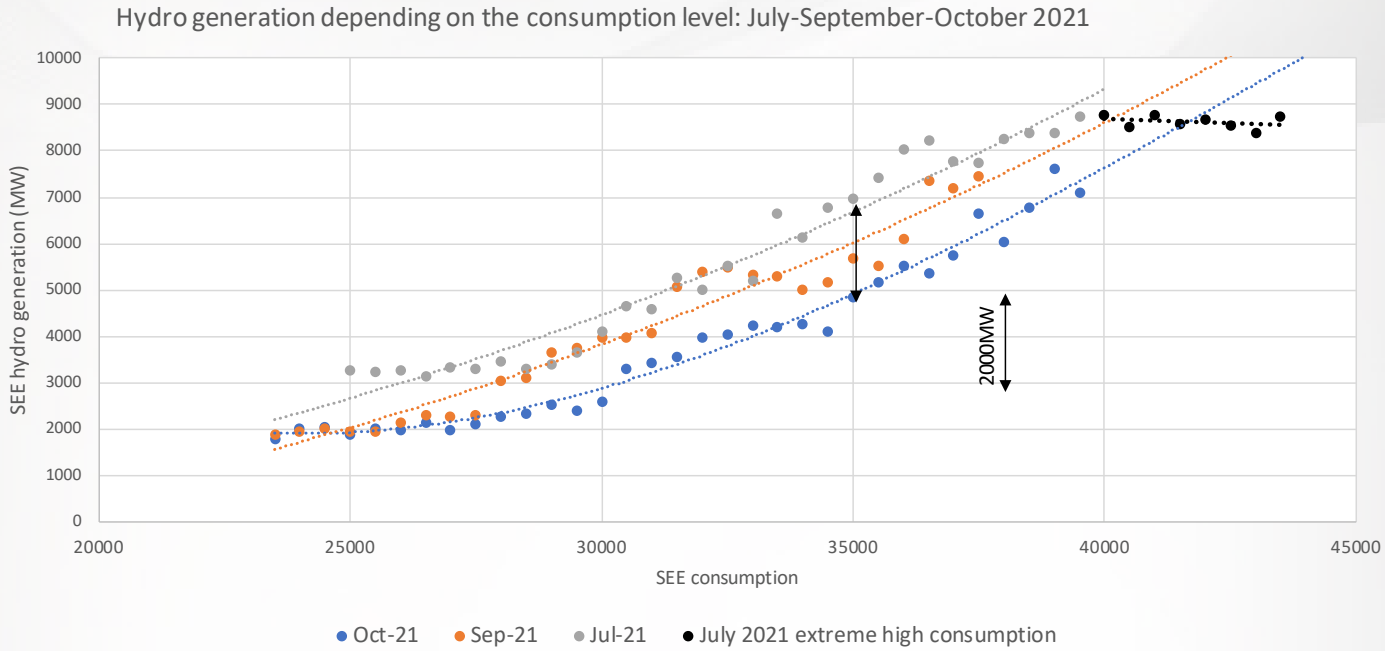
- Average monthly hydro generation in July 2022 was 500 MW higher than in October 2022 and the maximum of hydro generation achieved was the same.
- Average monthly hydro generation in July 2021 was 2500 MW higher than in October 2021 and maximum of hydro generation achieved was 2000 MW higher in July than in October.





- For the same level of consumption in October as in July, hydro generation is roughly 2000 MW lower in October than in July. This is especially the case in hours with high consumption.
- For the same level of consumption in September as in July, hydro generation is roughly 1000 MW lower. This is especially the case in hours with high consumption.

- **Additional factor which could reduce hydro power generation in October 2023 is an opportunity cost of water in reservoirs since November futures are 25 EUR/MWh higher than October futures.**

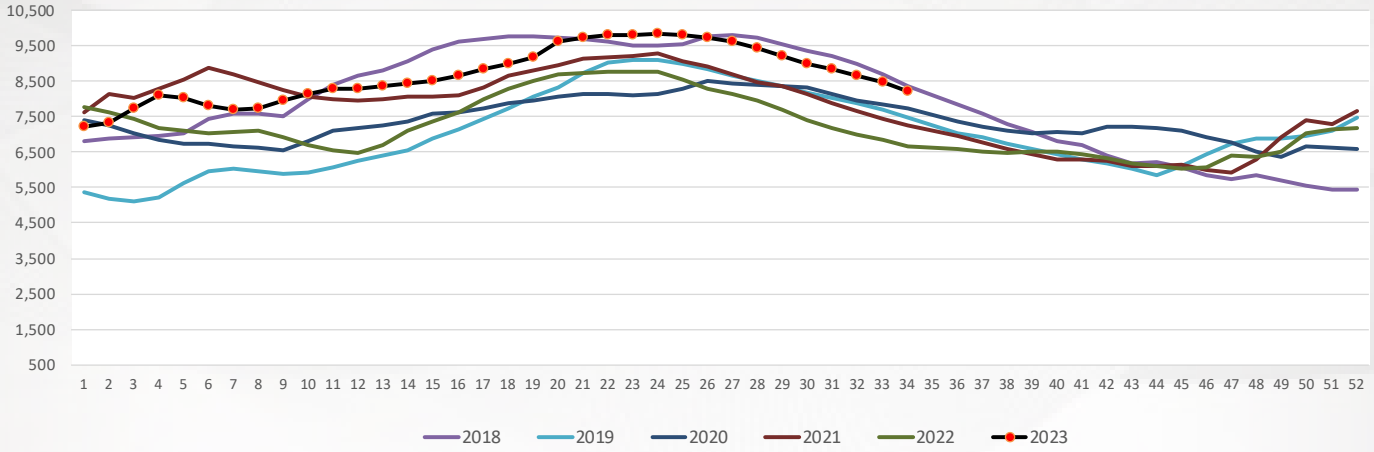


This is important because:

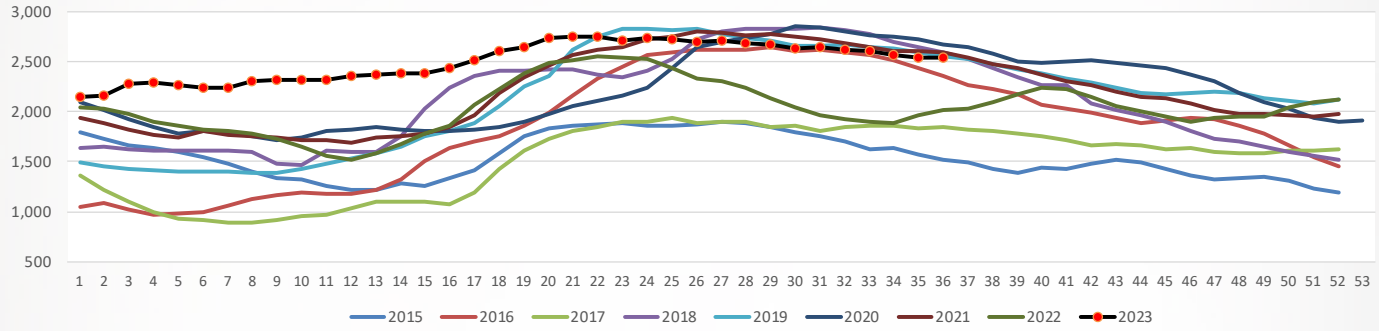
- Average consumption in hours 6-7-8-9 and 18-19-20 in October 2023 will be higher or equal as in July.
- Hydro generation will be 1500-1700 MW lower than in July
- There is no reason for much higher gas and coal fired generation in October than in July
- Nuclear generation will be 1000 MW lower than in July.

- Reservoir levels are one of the highest for this time of the year in last 6 years

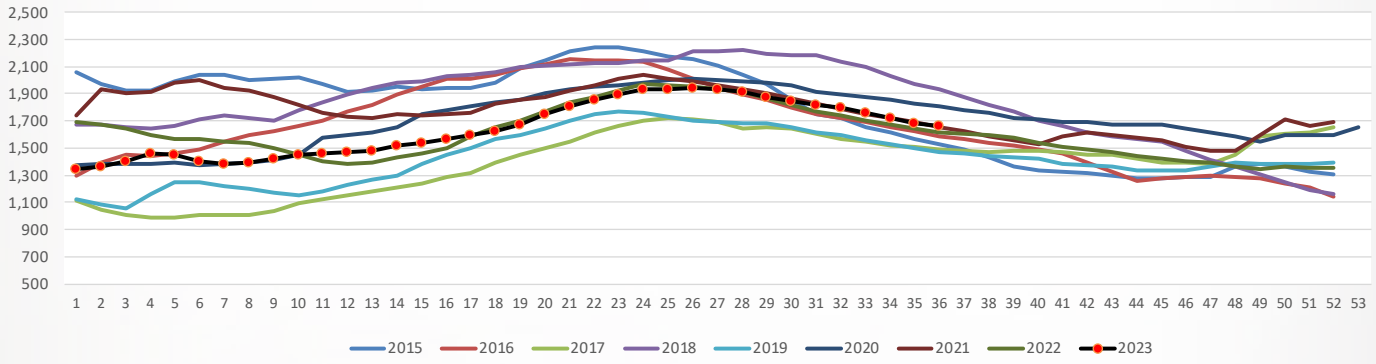
SEE reservoirs level (GWh) per week week (RO+BG+HR+RS+ME+GR)



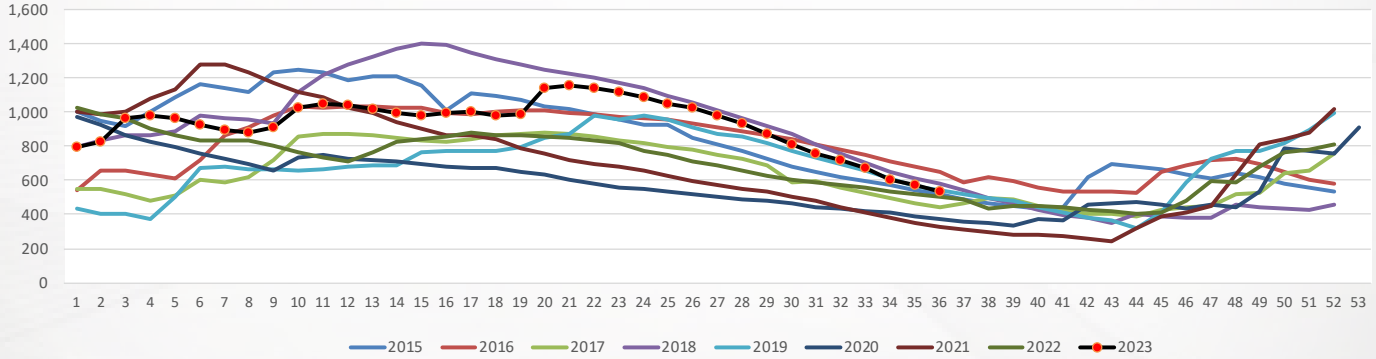
Romanian reservoirs (GWh) per week



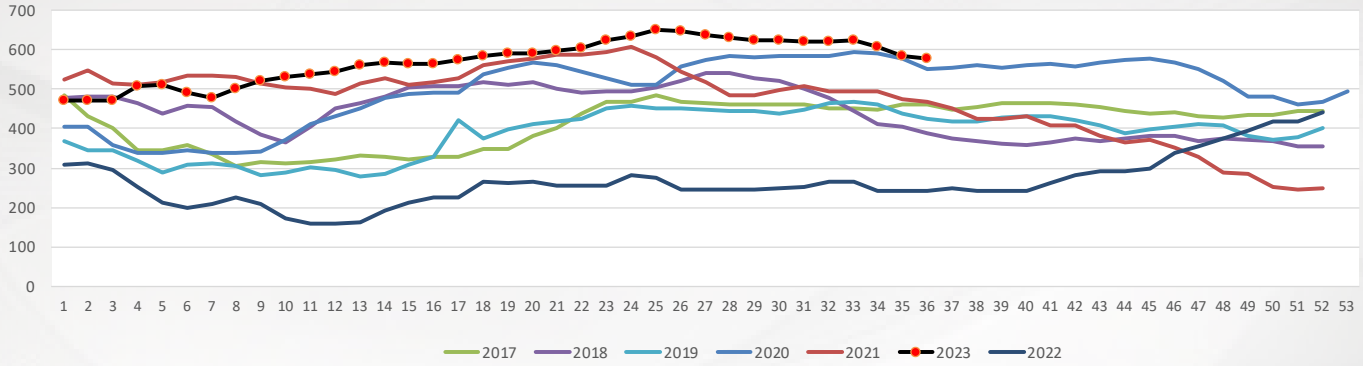
Bulgarian reservoirs (GWh) per week



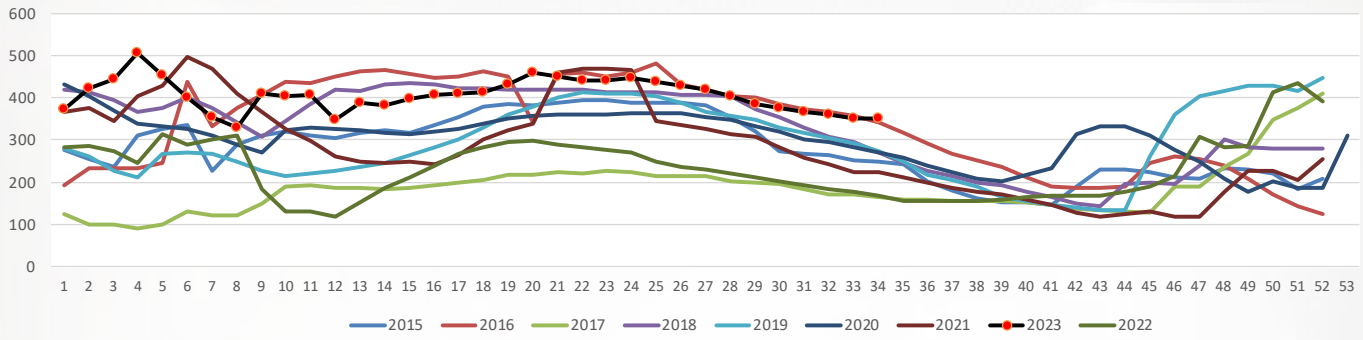
Croatian reservoirs (GWh) per week



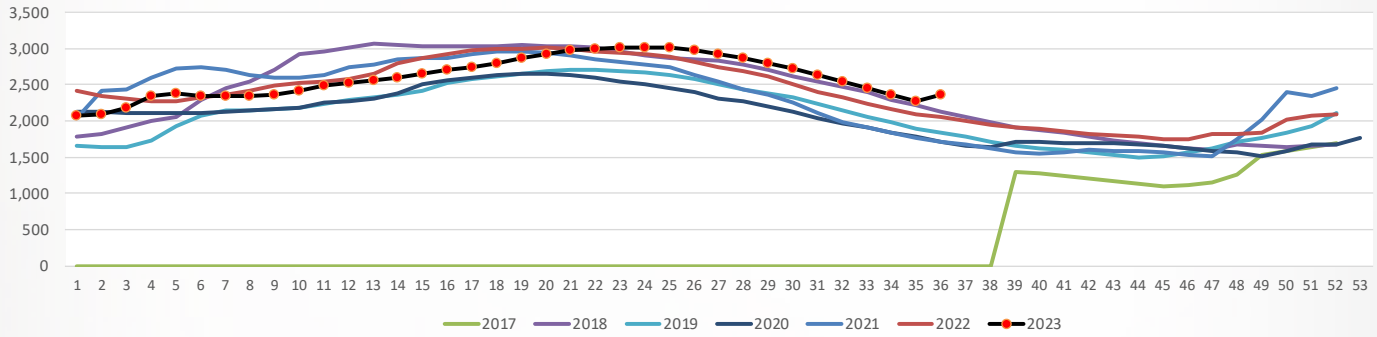
Serbian reservoirs (GWh) per week



Montenegrin reservoirs (GWh) per week



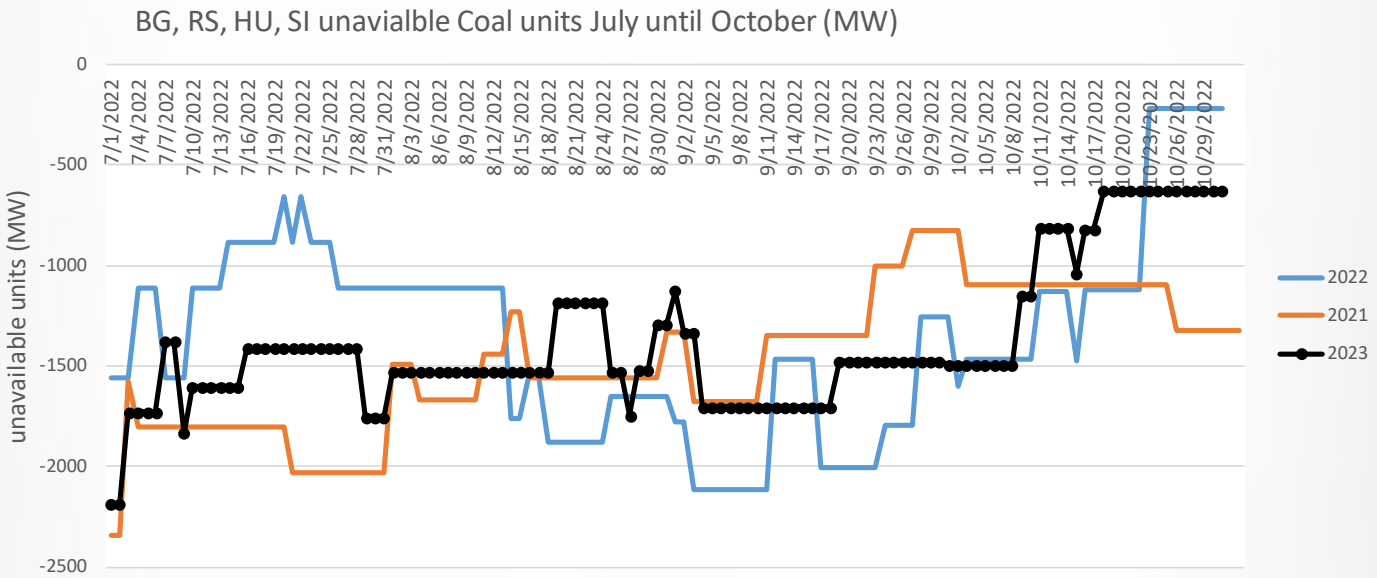
Greek reservoirs (GWh) per week



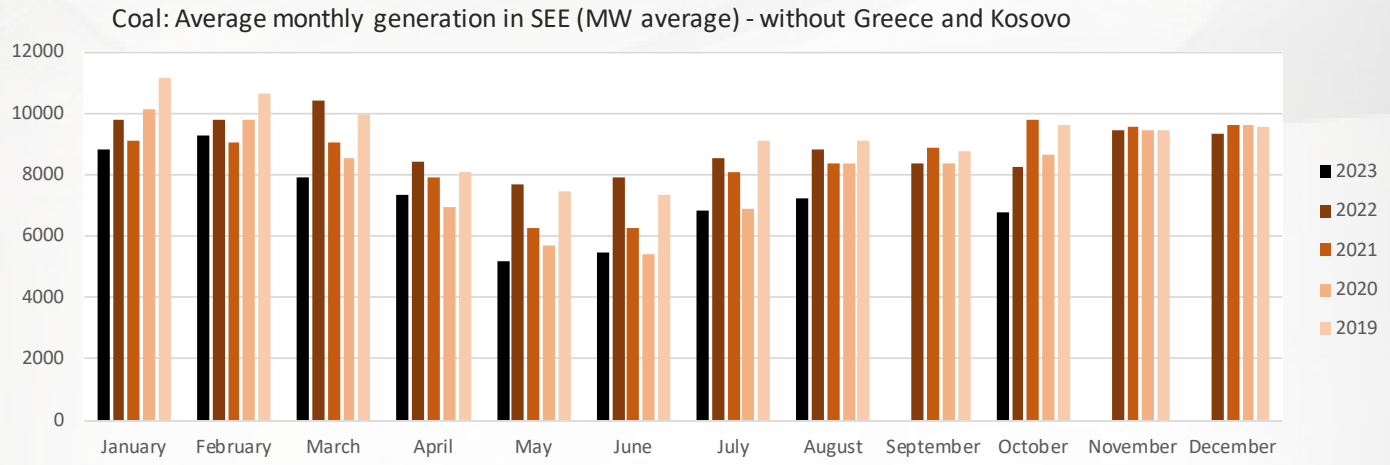
COAL FIRED GENERATION IN OCTOBER 2023

- Lignite fired power generation in September/October of years 2020 and 2021 was significantly higher in September and October than it was in July, but also profit margin for lignite units was doubled in September/October compared to July. Bulgarian coal fired power generation just started ramping up in July 2021 so it increased until September/October.
- Availability of coal units in the region is nearly the same in the period from beginning of July 2023 until l 09.10.2023. After 09.09.2023 an increase of availability will happen in Bulgaria and Serbia, but improvement of Bulgarian availability does not lead to higher coal generation. The improvement of availability of coal is 330 MW in Serbia after 09.10.2023 and all the rest of the improved availability is in Bulgaria. Improved availability in Bulgaria does not necessarily brings improved generation since there are many available units in Bulgaria also in July, but generation was low.

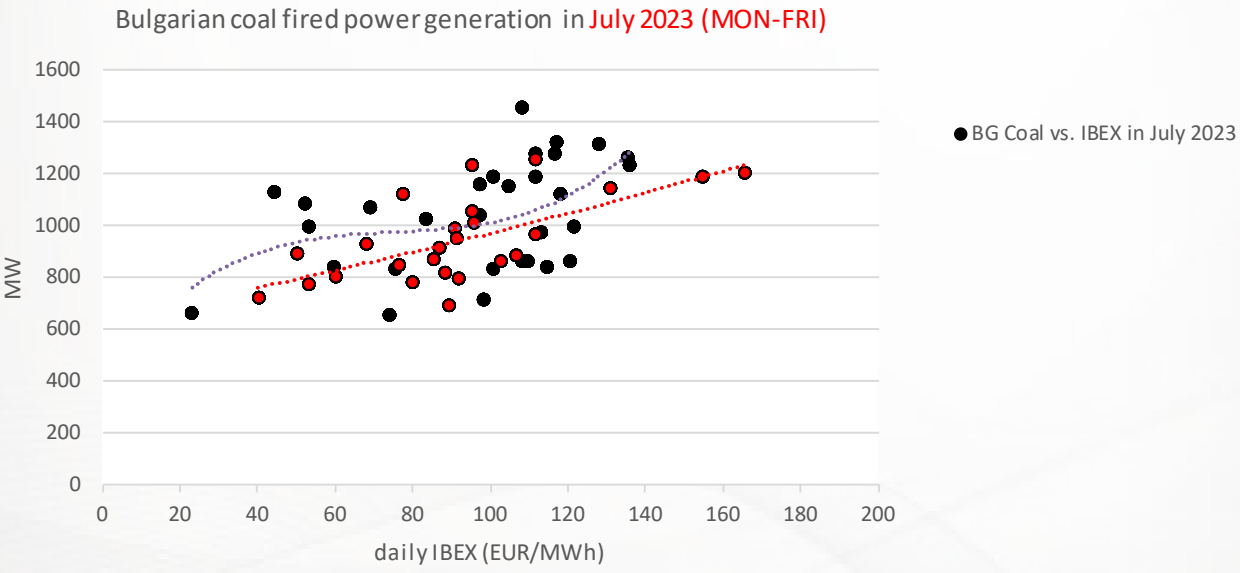
- **Realistic expectation is that regional lignite fired power generation in October 2023 will be equal as in July 2023, which is 1500 MW less than in October last year (excluding the reduction of Greek coal fired generation).** Lignite generation in October 2022 was very high due to extremely high market prices all over Europe.



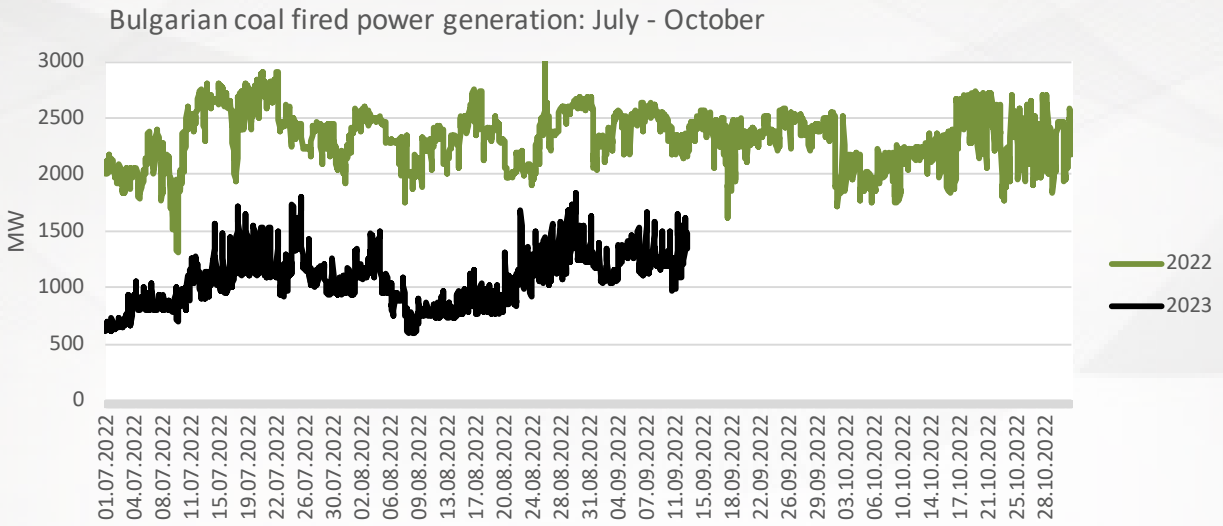
- In 2022 Coal fired power generation in September and October was nearly the same as in July since margin for coal fired units was exceptionally high in all three months. This year, revenues of coal units in October will not be much higher than in July and there are no reasons to expect higher lignite fired power generation in October 2023 than in July 2023. If Slovenian coal fired power generation would not work in October 2023 in order to accumulate coal stocks, as it was the case in October 2022, then overall regional coal fired power generation in October 2023 could be even lower than in July 2023 and more than 1500 MW lower than in October 2022.

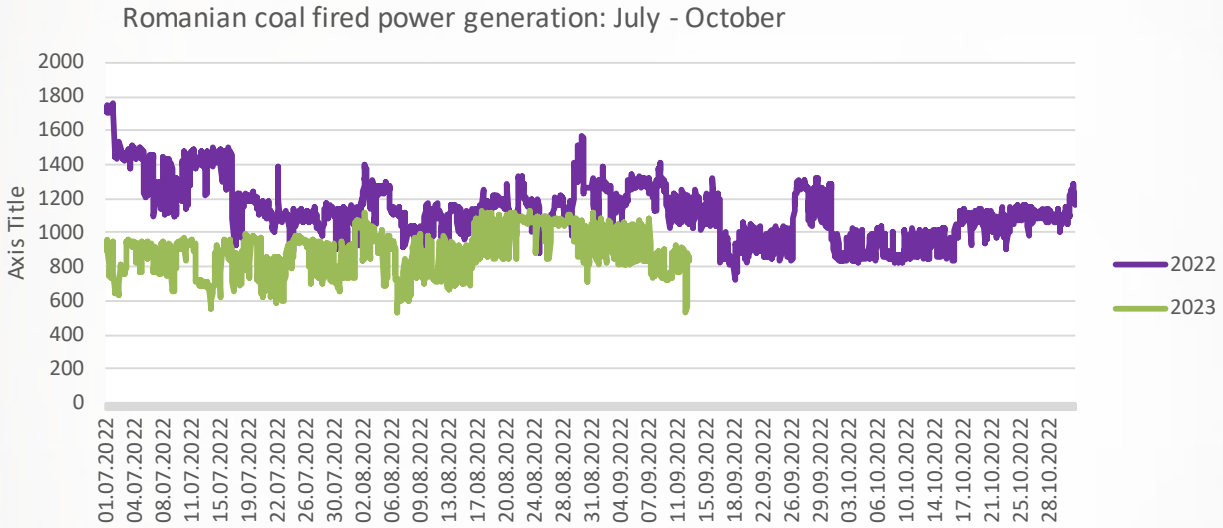


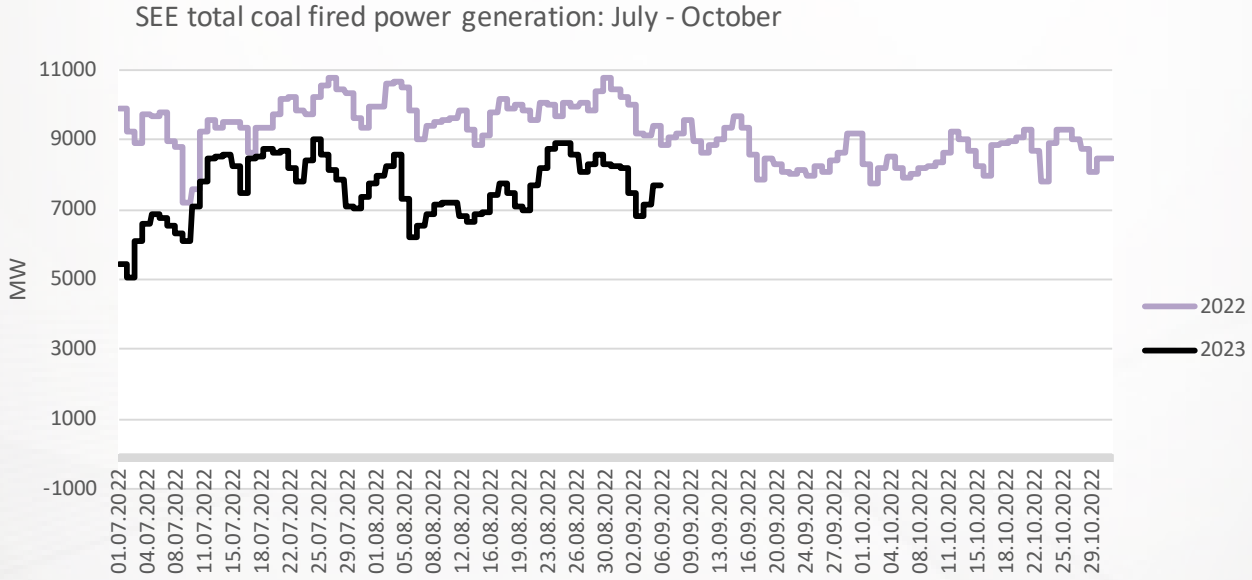
- Bulgarian lignite fired power generation appears as it reacts on price, but all the generation is in the range of just 800-1400 MW. In October 2022 Bulgarian lignite fired power generation was 2250 MW. There is no much ground to assume with more than 1200 MW of Bulgarian lignite fired power generation for October 2023. There was no increase of Bulgarian lignite fired power generation even at price level of IBEX above 140 EUR/MWh



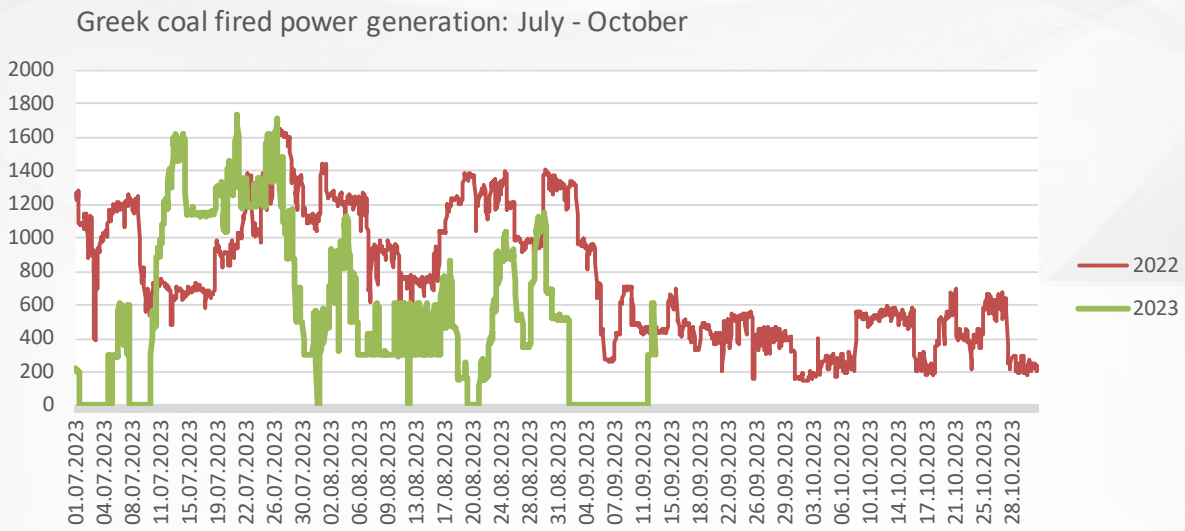
- In July 2023, Lignite generation in July in Bulgaria was 1300 MW lower than last year and in Romania 400 MW lower than last year.

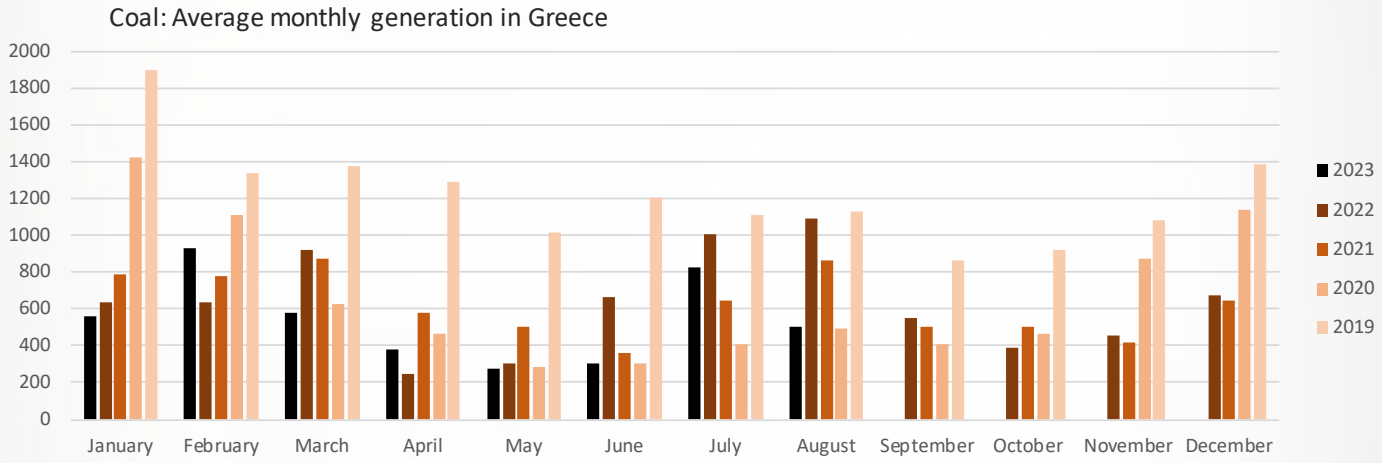






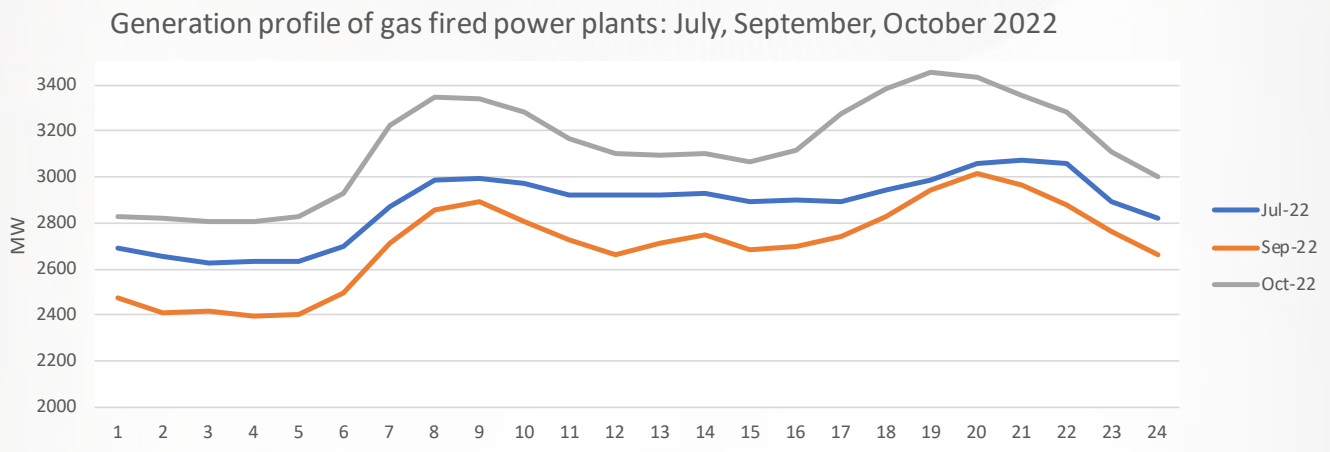
- Greek lignite fired power generation is shut down this year immediately after heat waves were over. Last year, Greek lignite fired units worked throughout September and October due to the huge revenues which lignite fired units were able to achieve. This year, Greek units will probably not work in September and October

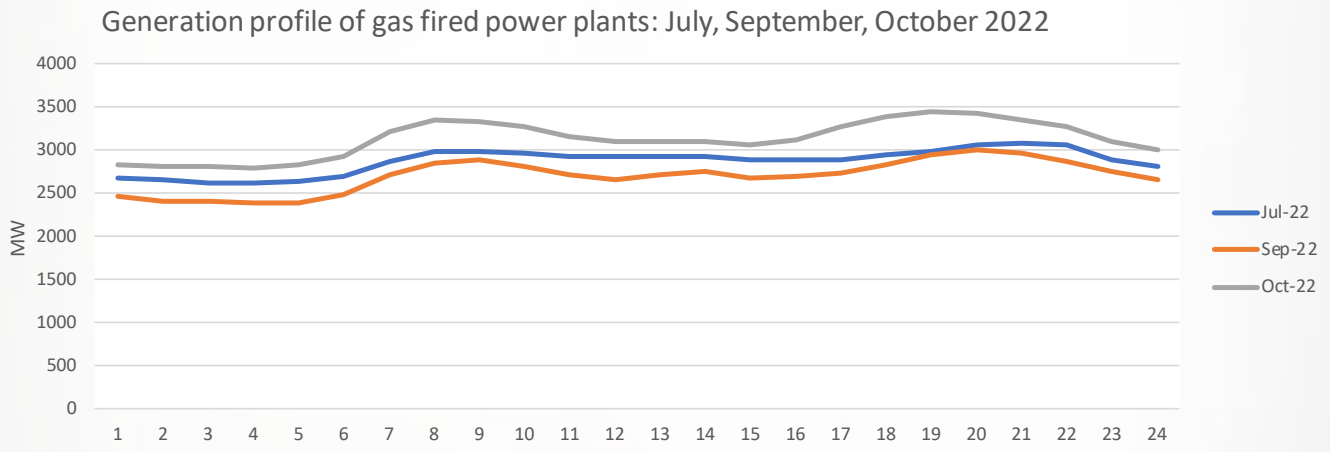




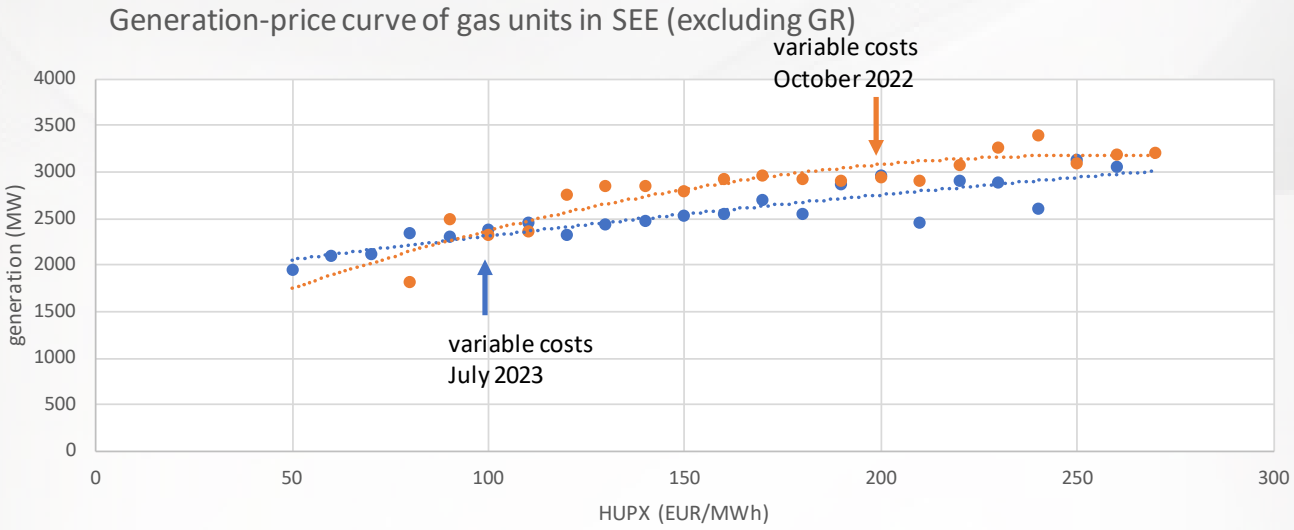
GAS FIRED GENERATION IN SEE (WITHOUT GREECE) IN OCTOBER 2023

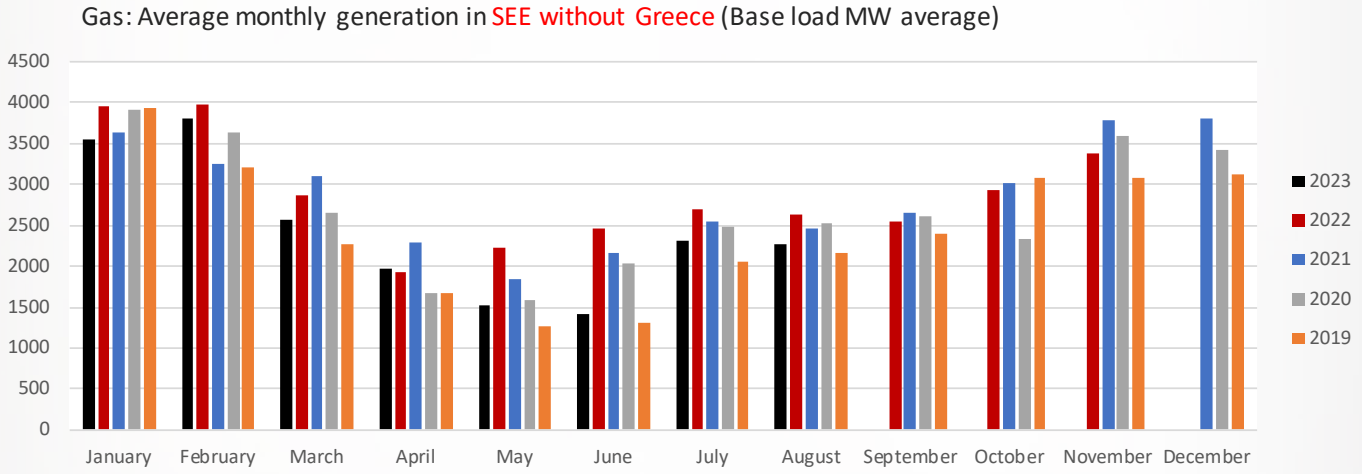
- Gas fired power generation (excluding Greece) in October is not much higher than in July and September
- Gas fired power generation (excluding Greece) in October is up to 500 MW higher in the most expensive hours than in July and September
- Gas fired power generation can be considered as nearly flat as coal fired power generation
- Drop of hydro generation is very important since this is the main source of flexibility and it will be reduced in September and October.





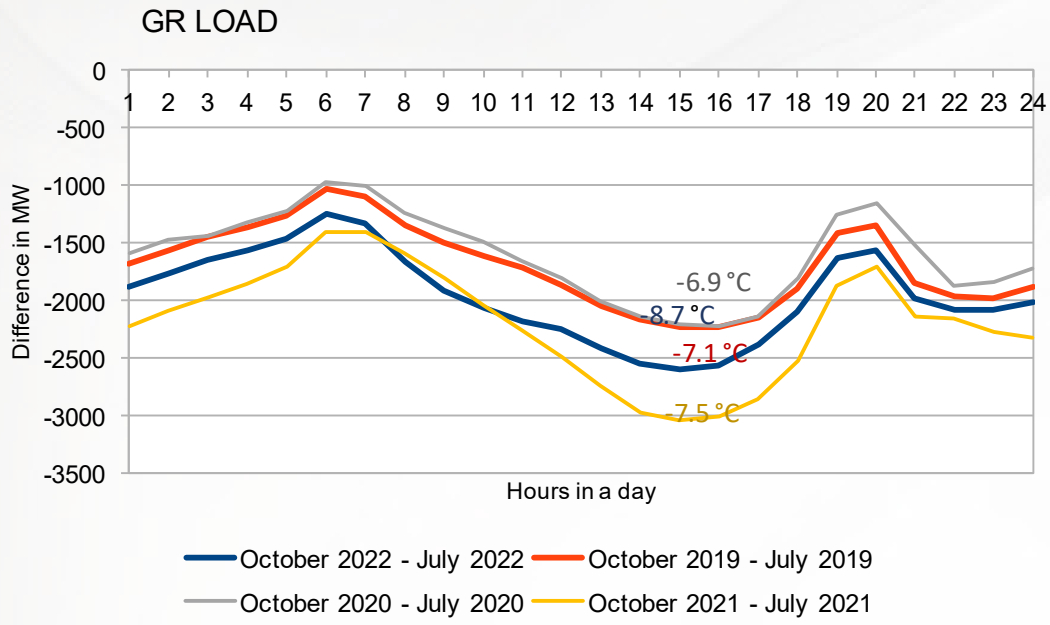
- Gas fired power generation is nearly "flat" in a range of +-50 EU/MWh around the point of variable costs of gas units. Since HUPX settlement in expensive hours in July 2023 was very much above variable costs of gas units, gas fired power generation was very high. **July 2023 settlement offered much higher profit to gas units in Hungary and SEE than October 2023 futures offer at the moment, so gas fired power generation in October 2023 might not be higher than in July 2023.**



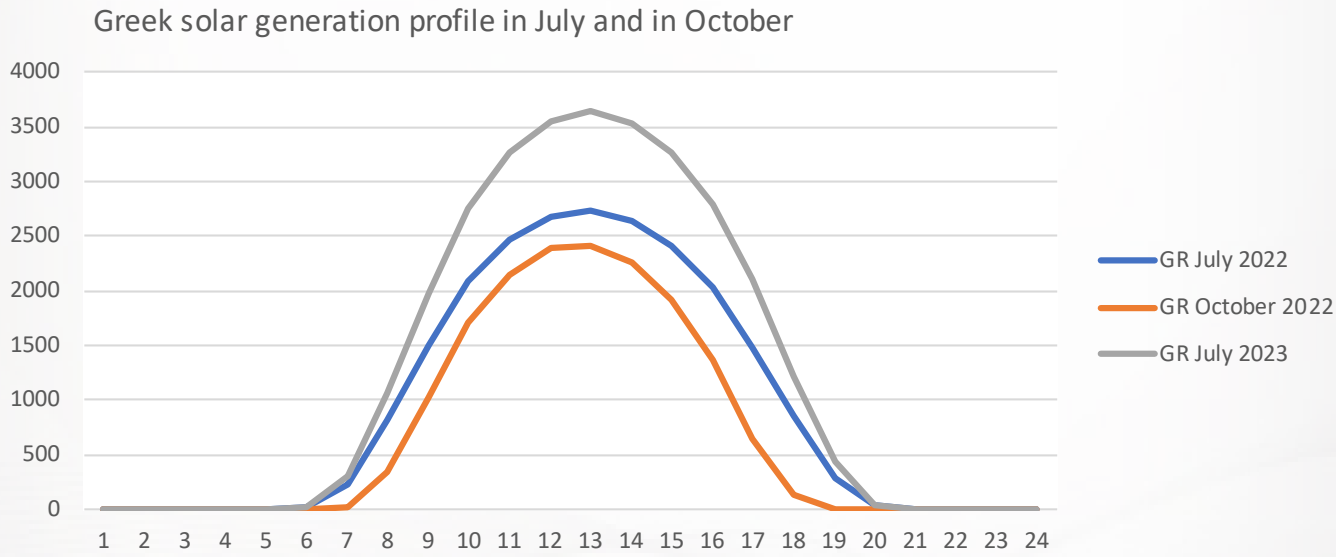


IMPACT OF GREEK MARKET ON HUPX IN OCTOBER 2023

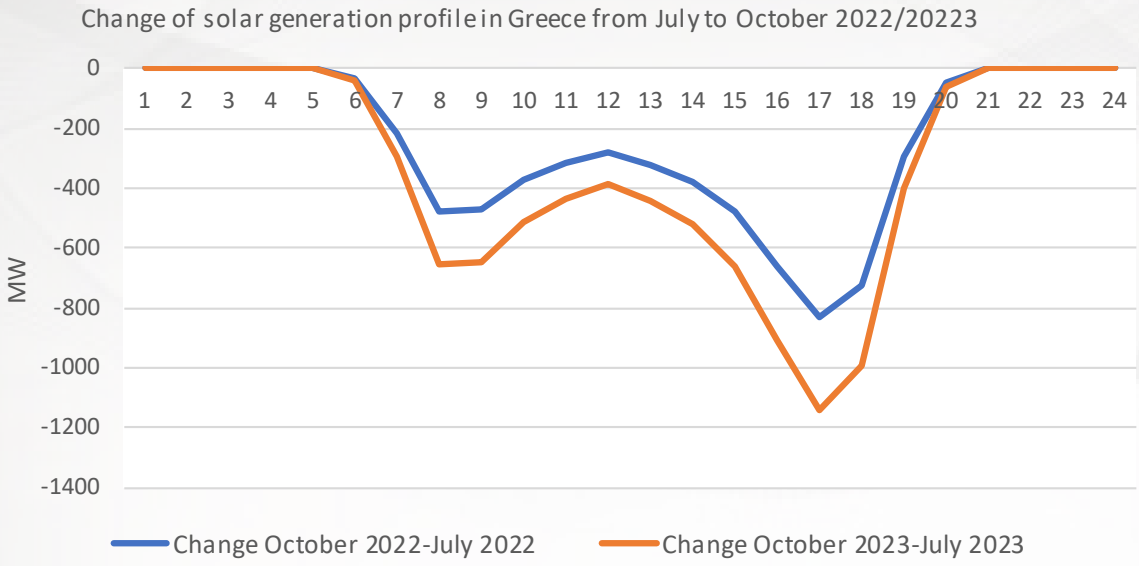
- Consumption in Greece in October is around 2000 MW lower than in July. If the temperature change between July and October is higher, then the consumption drop in October against July is also higher.
- Temperature in July 2023 was nearly 1°C higher than in July 2021. Therefore, consumption in October 2023 could be even 2500 MW lower than in July 2023.



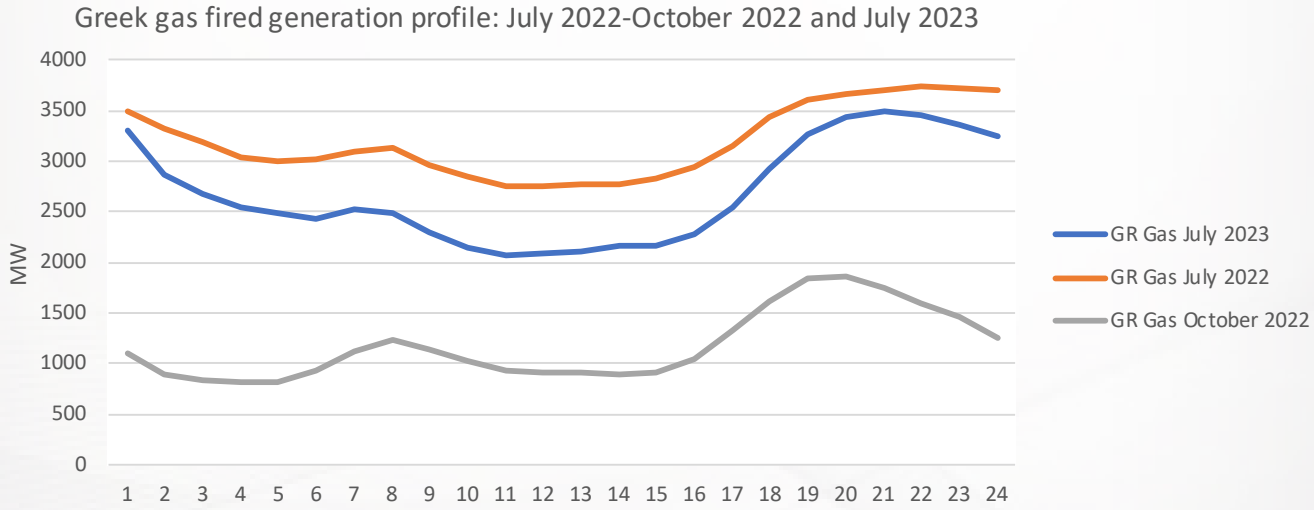
- Solar power generation in Greece in October is not much lower than in July as it is the case with the rest of the region.



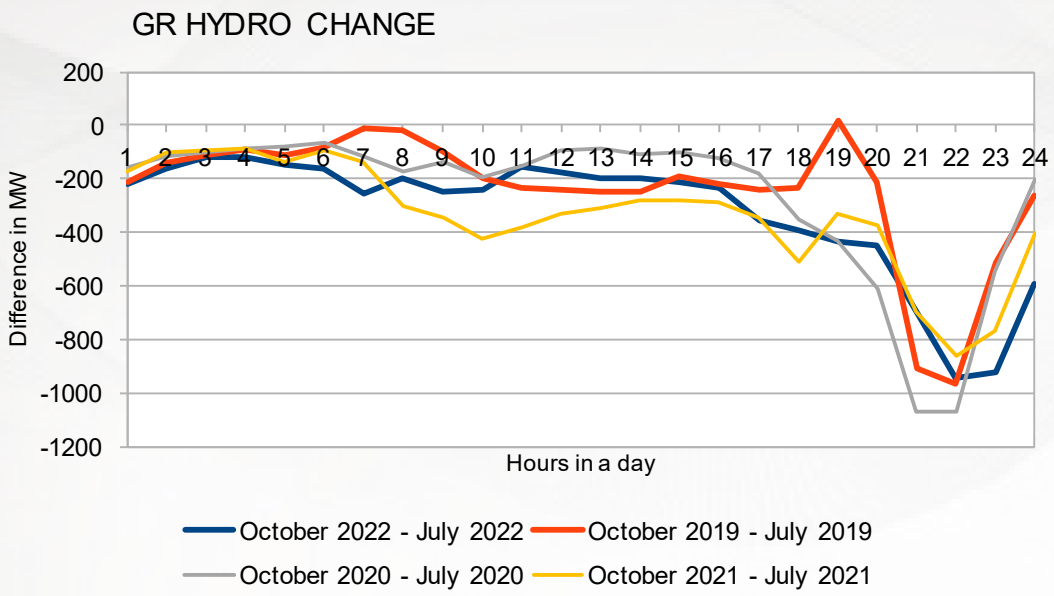
- Unlike to the rest of the SEE region, drop of consumption between July and October greatly exceeds the drop of solar generation in all hours.



- Average coal fired power generation in Greece in July 2023 was 800 MW. One should assume that coal fired units in Greece should not work in October 2023.
- Average gas fired power generation in Greece in July 2023 was 2700 MW. There will be 1200 MW of gas units in maintenance in October 2023, while in July 2023 all of them were available. Greek gas fired power generation will be much lower in October than it was in July, as it is the case each year.
  - o In October 2022, gas fired power generation in Greece was 2000 MW lower than in July 2022 although availability of gas units was just 1300 MW lower than in July.
  - o Gas units had additional 500-1000 MW free idle capacity in hours 3-17 which could work if market price would be sufficiently attractive to them.



- Greek hydro power generation is always lower in October than in July

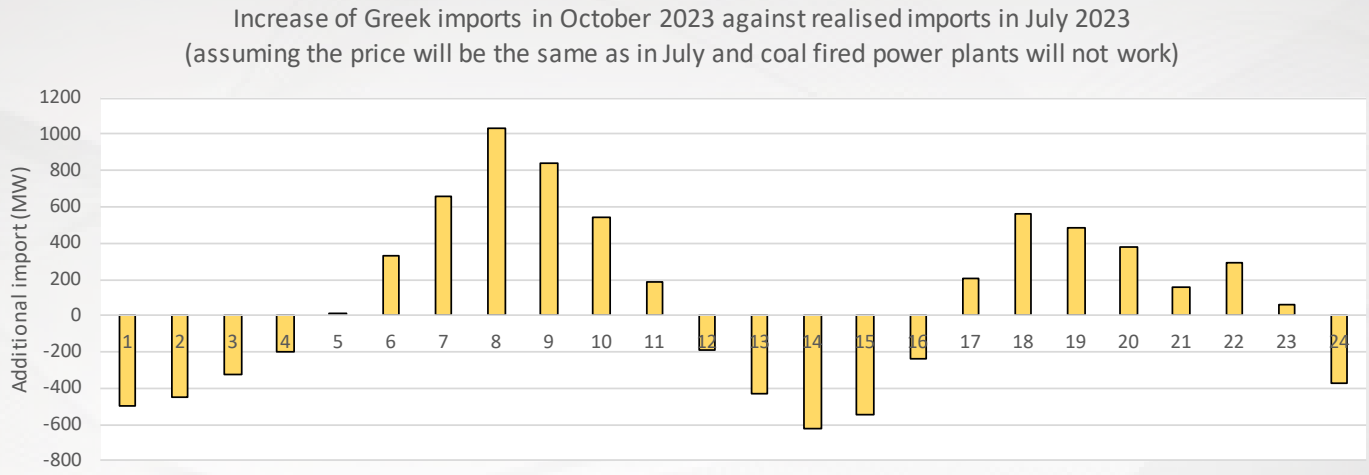


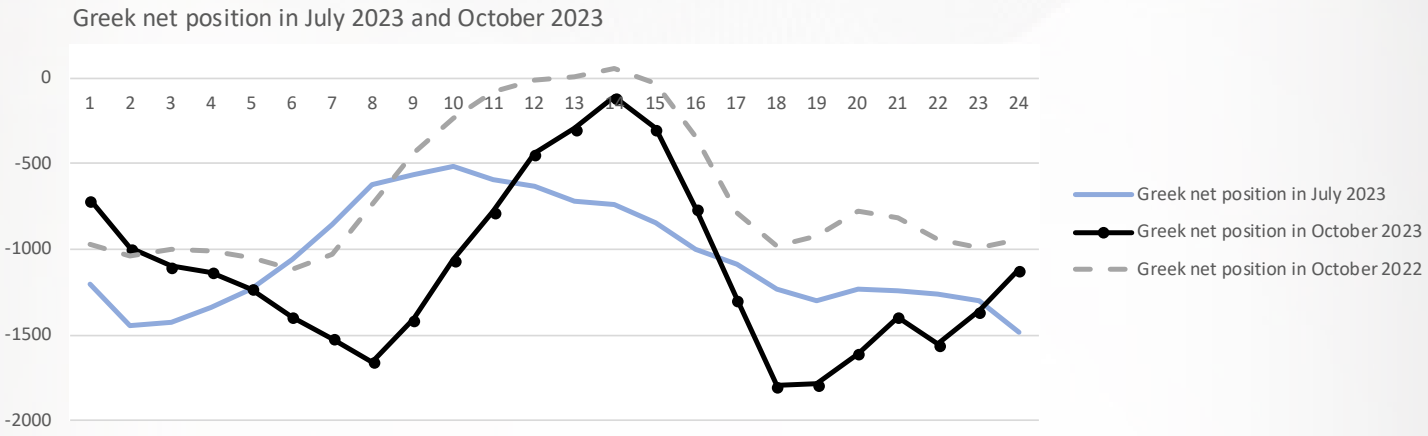
Assuming the following for the Greek market in October 2023:

- Greek gas fired power generation will be 1000 MW lower than in July 2023, which will affect at least hours 1-2 and 19-24 in which output of Greek units was close to maximum in July.
- Coal fired generation in Greece will not work because market price gives too low revenues margin to coal units in Greece to work.
- Solar generation will drop in line with typical solar profile decline
- Hydro generation will be lower in line with typical hydro generation profile decline
- Consumption will drop in October compared to July by 10% higher intensity than it was the case in 2021, i.e. Greek consumption will be 2400 MW lower than in July 2023

Conclusion:

- Greek net position will not be lower than it was in July 2023.
- In hours 6-11 and 17-23, Greek net imports will be even higher than they were in July 2023.
- In hours 18-24 there will be no remaining capacity of gas fired power plants (as there was no remaining generation capacity also in July 2023). Greek imports in hours 18-24 will be at least as high as in July 2023
- In hours 3-17 there will be 500-1000 MW of idle available generation which will generate if price is attractive enough. However, market price would need to be some 20-40 EUR/MWh higher than in July in those hours to get this gas fired power generation on the Greek market.
- Greek market will not be an exporter to HU+SEE region in sunny hours in October 2023 unless HUPX price is higher than in July in sunny hours.





- Calculated net position of Greece for October 2023, constructed by applying changes between July 2023 and October 2023 on the Greek market, does not deviate much from the realized Greek net position in October 2022. The difference comes due to assumption that Greek coal fired generation will not work in October 2023 and it worked in October 2022.

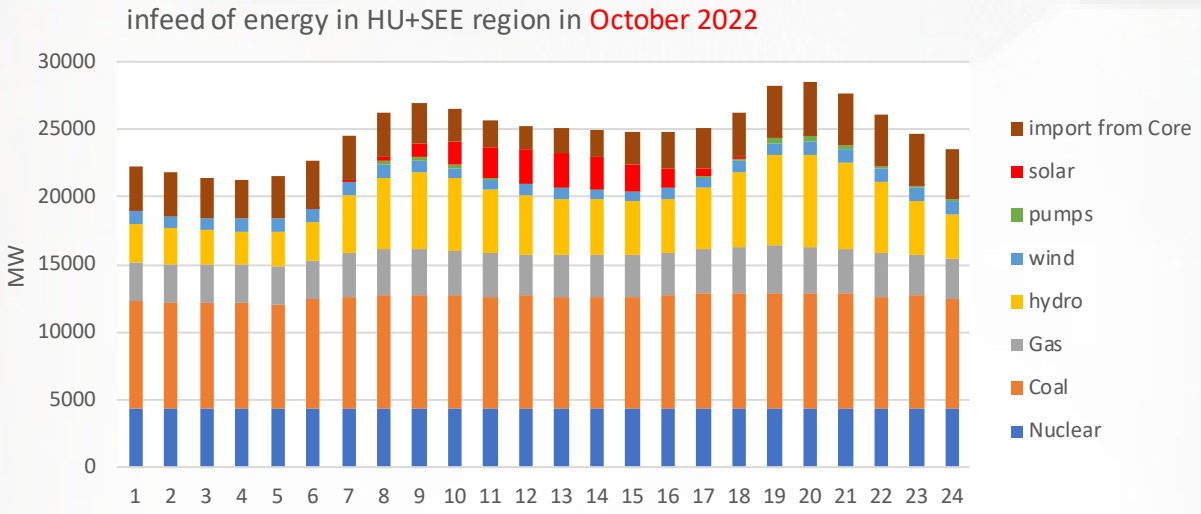
- Greek imports in October 2022 were high, and in October 2023 should be even higher because Greek coal fired power generation does not get enough revenues in October 2023 to work, while in October 2022 market price was 233 EUR/MWh which stimulated 400 MW of Greek lignite fired power generation.

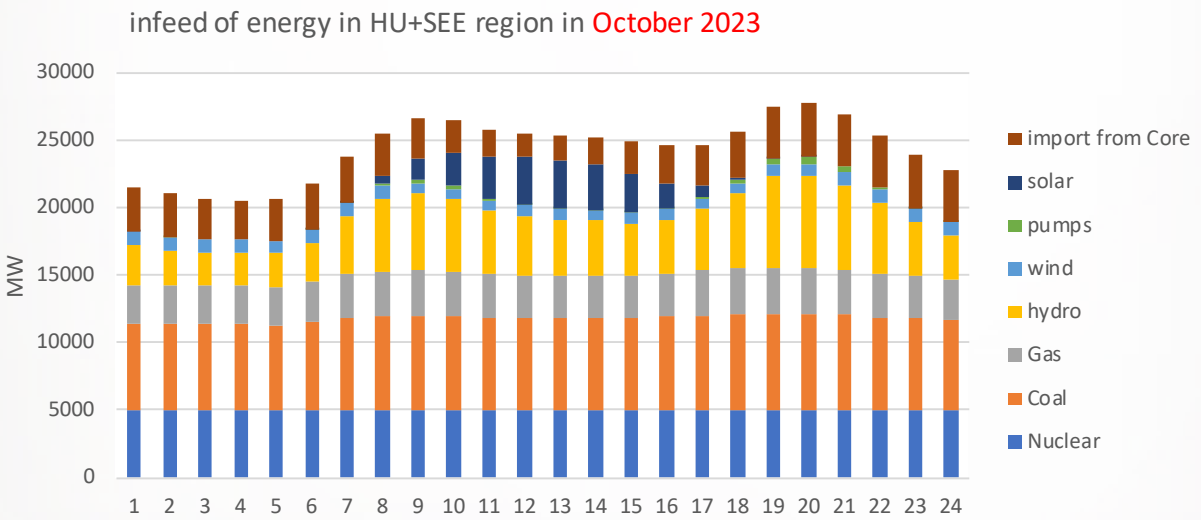
- Import of Greece from the SEE region in October 2023 will be higher than in October 2022 and higher than in July 2023. The most stressful point is that in hours 18-24 Greek imports will be higher than in July 2023 and higher than in October 2022 and that they can not be reduced by additional generation in Greece since there will be no additional generation capacity except coal fired units. In October 2022, Greece was a strong importer from Italian market in hours 6-7-8 and 17-24 and this year imports will be even higher.

GENERATION-CONSUMPTION BALANCE OF THE REGION IN OCTOBER 2023

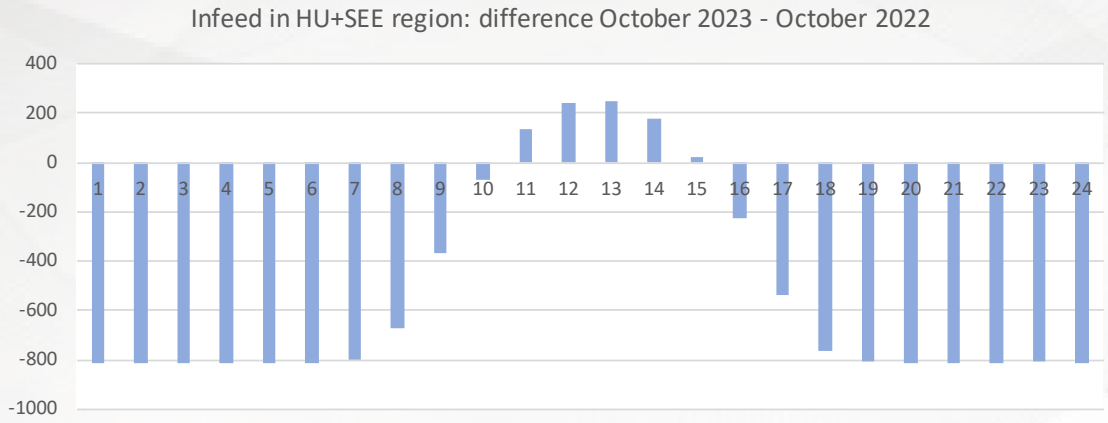
In October 2023 compared to October 2022 (in the region excluding Greece):

- Nuclear generation will be higher because NPP Krsko is not in maintenance
- Gas, wind, hydro generation will be nearly the same
- Consumption will be lower
- Solar generation will be higher
- Coal generation will be 1500 MW lower (excluding Greece)

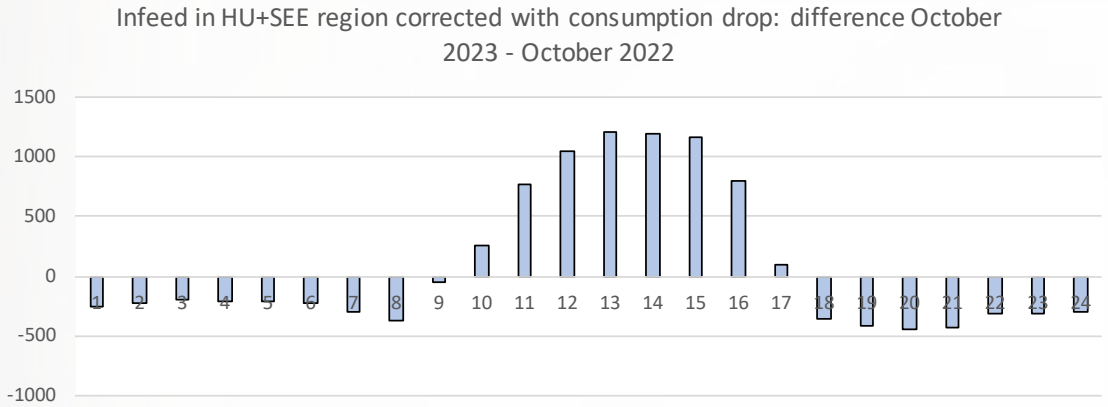


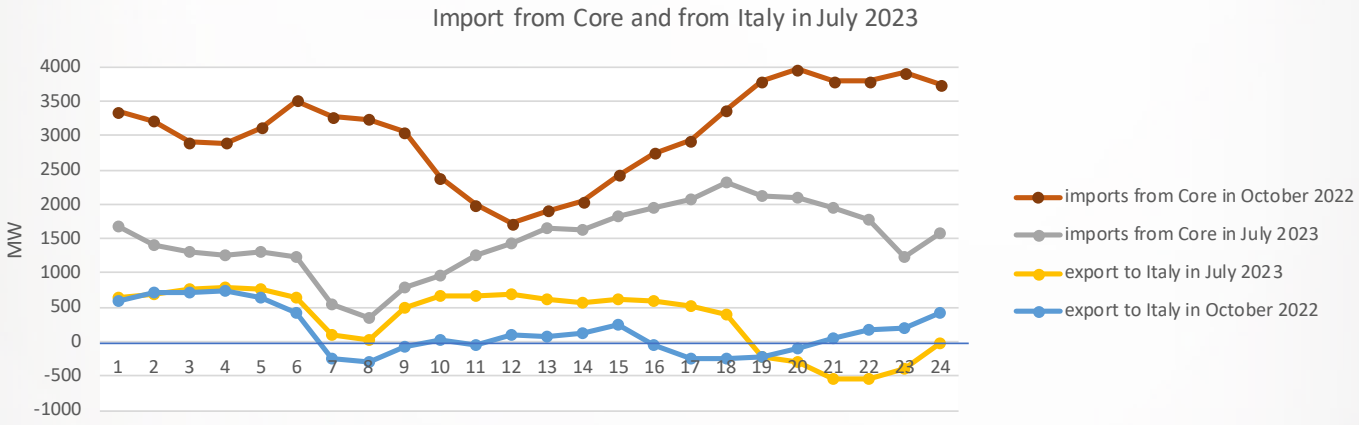


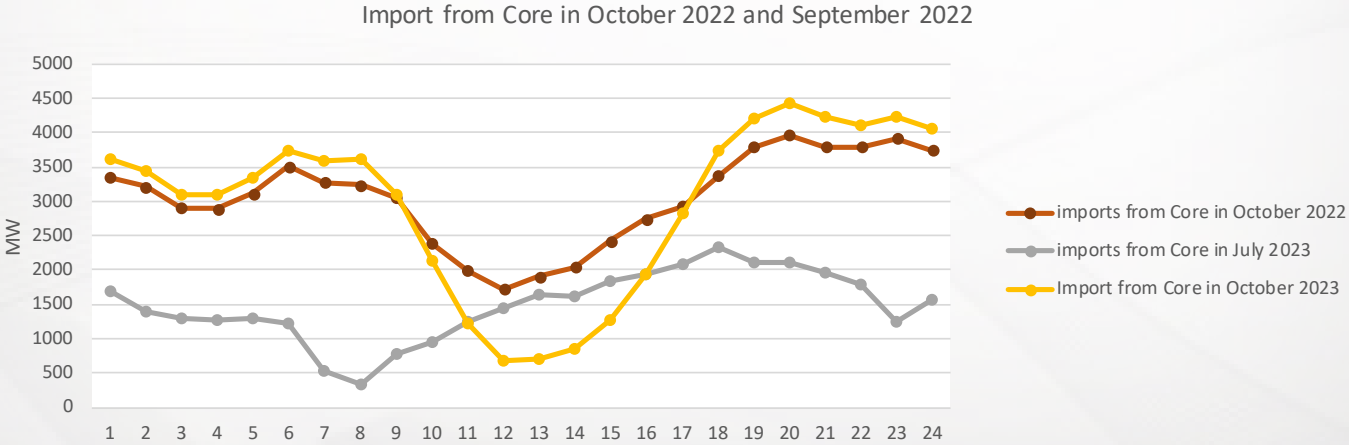
Assuming the same import from Core region, the infeed of energy to HU+SEE zone will be 800 MW lower in night hours and a bit higher in sunny hours 11-15.



If we add consumption change (consumption drop Oct. 2023- Oct. 2022) on infeed change, we get that the net infeed in the HU+SEE region is gong to be 200-300 MW lower than last year in non-sunny hours and much better than last year in sunny hours **(Assuming the same import from Core region)**







Conclusion:

Hours H11-H16

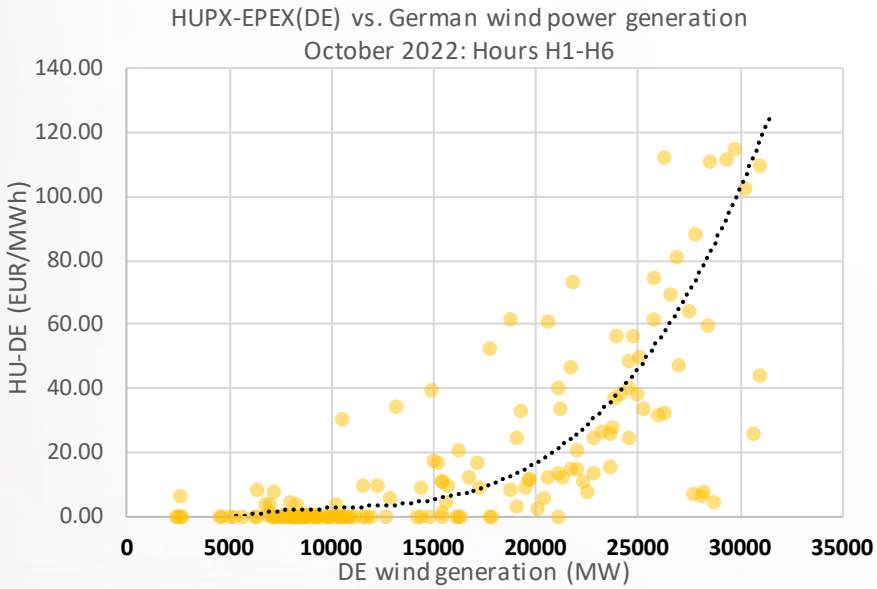
- In hours 11-16, HU+SEE region will have 1000-1200 MW higher infeed on average than in October 2022. Higher infeed will be used to increase delivery to Italy compared to October 2022 (since last year delivery to Italy in sunny hours was nearly 0 MW. Import from Core in sunny hours will be reduced compared to last year.

- **In hours 11-16, HUPX-EPEX(DE) price spread should be close to 0 EUR/MWh** since needed imports from the Core region will be below 1500 MW which is not high enough for causing significant HUPX-EPEX-(DE) spread.

- If 2000 MW lower hydro generation and 1000 MW lower nuclear power generation than in July are taken into account, sunny hours will have incomparably higher risk than in average in July 2023 and in July 2023 the region was a net importer from Italy.

Hours H1-H6

- In October 2023 In hours 1-6, HUPX should be close to German market, except on days when German market gets very low prices. Last year, HUPX was having significantly higher price than German market only on days when German market had high wind power generation. Since days with high wind power generation will be happening also in October 2023, a certain HUPX-EPEX(DE) spread in hours H1-H6 will happen.



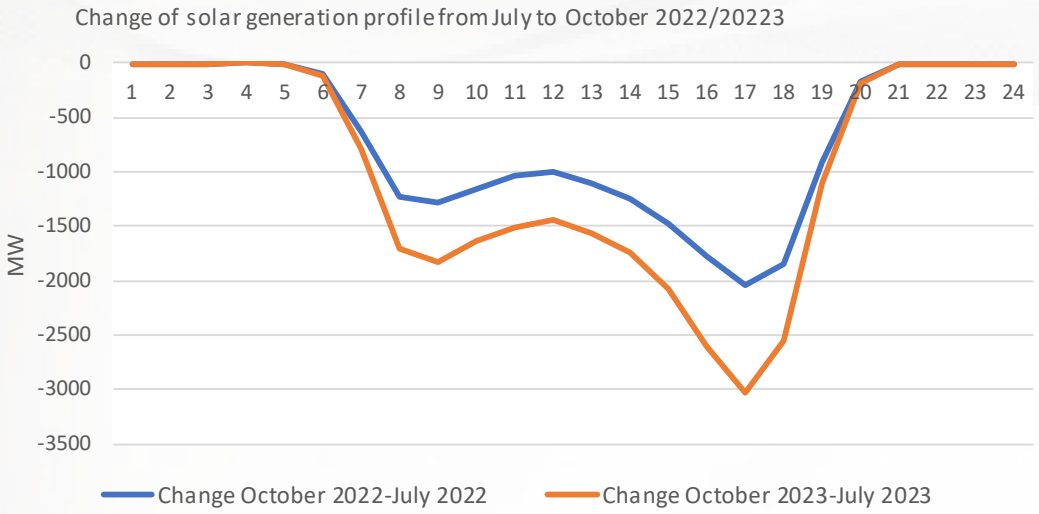
- Imports in hours H1-H6 will be around 200MW higher than last year since coal fired power generation in the region should be 1000MW lower. Last year import of the region in hours H1-H6 was 3000-3500 MW. In the Flow Based Market Coupling, such high imports of HU+SEE region do come only at quite high HU-DE price spread. Therefore, one should count with a certain HU-DE spread in October 2023 also in hours H1-H6.

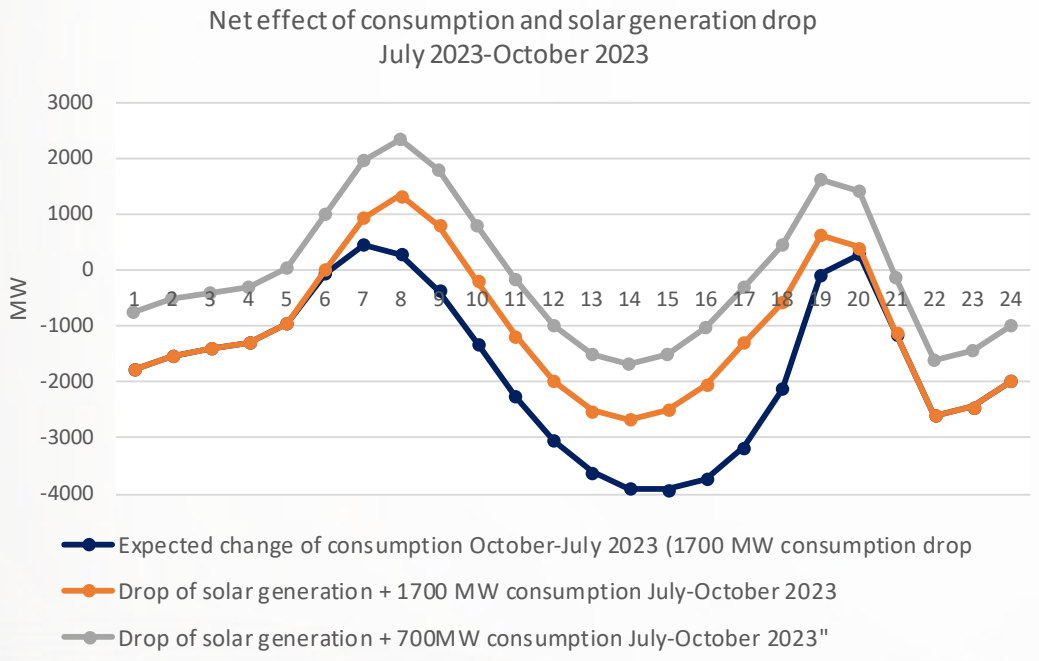
- **HUPX-EPEX (DE) spread in hours 1-6 should be expected at around 5-10 EUR/MWh**

Hours H7-H8:

- Hours H7-H8 settled at Italian price level in October 2022. This year, **HUPX should settle even above Italian market in those hours.** Solar generation increase between 2023 and 2022 does not affect significantly those hours. HU+SEE region were a net importer from Italy in those hours in October 2022.

- Hours 6-7-8-9 and hours 19-20-21 will have the same consumption as in July but 2000 MW lower hydro generation and 1000 MW lower nuclear power generation. Additionally, solar generation loss in October compared to July in hours 7-8-9 and 18-19 will be 1000-1500 MW





Hours 17-24

- In hours 17-24, HUPX-SEE region will need to import 200-400 MW more than in October 2022 in order for HUPX to remain below Italian market price.
- Greek imports will be up to 400 MW higher in critical hours 17-24
- In October 2022, HU+SEE region imported 3000-4000 MW from Core region in those hours and even higher imports will be needed this year for HUPX to remain below Italian price.
- For example, in July 2023 Flow Based Market coupling allocated to HU+SEE region only 2000 MW in H17-H24 while HUPX settled above Italian market in those hours. It is very difficult to expect that Flow Based Market coupling will on average allocate 4000 MW to HU+SEE region in October if HU+SEE region is not having price which is significantly above Italian market.
- **HUPX will settle above Italian market in hours H17-H24 in October 2023.**

- In optimistic scenario HU-DE spread will be around 12.5 EUR/MWh, i.e. HUPX should settle close to the middle point between Italian and German settlement in October 2023.

- In a pessimistic scenario, HU-DE spread will be around 19 EUR/MWh and ITA-DE around 5 EUR/MWh, i.e. HUPX should be settling very close to Italian market price.

It is advised to make long position in Hungary for October 2023, in spread with short position on German or Italian markets.

INTERCONNECTIONS and ATC reductions

Following interconnections will be in maintenance in October 2023:

- 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

PUBLIC HOLIDAYS

- 11.10. - Macedonia - Revolution day (Wednesday)
- 23.10. – Hungary - Republic Day (Monday)
- 23.10. – Macedonia - Revolution Memorial Day (Monday)
- 28.10. - Greece - The Ochi Day (Saturday)
- 29.10. - Turkey - Republic Day (Sunday)
- 31.10. - Slovenia - Reformation Day (Tuesday)

PRICES AND SPREADS

	Base				Peak			
	HU	DE	IT PUN	GR	HU	DE	IT PUN	GR
2012	46.63	43.94	65.88	44.18	59.60	53.76	75.22	56.28
2013	50.51	37.72	64.41	47.59	61.40	48.08	72.88	52.08
2014	53.02	35.25	62.26	54.64	65.19	44.20	71.89	59.48
2015	44.14	39.38	47.68	47.95	56.16	48.82	55.69	51.27
2016	45.62	37.14	53.09	43.17	57.35	44.18	62.36	45.50
2017	49.75	28.40	54.67	54.89	64.59	39.50	62.66	58.69
2018	64.51	53.13	73.96	71.41	79.08	60.75	82.07	73.51
2019	57.01	37.00	52.85	63.37	69.91	46.02	61.24	67.44
2020	39.38	34.02	43.59	47.29	49.39	43.53	50.73	51.38
2021	197.31	139.59	217.66	198.39	238.08	174.73	242.93	224.10
2022	194.07	152.69	211.63	232.79	232.37	183.67	245.55	257.39
2023	**103.17**	**91.40**	**116.19**	**109.85**	**119.50**	**106.00**	**129.60**	

	Base			Peak		
	HU-DE	HU-IT PUN	HU-GR	HU-DE	HU-IT PUN	HU-GR
2012	2.7	-19.2	2.4	5.8	-15.6	3.3
2013	12.8	-13.9	2.9	13.3	-11.5	9.3
2014	17.8	-9.2	-1.6	21.0	-6.7	5.7
2015	4.8	-3.5	-3.8	7.3	0.5	4.9
2016	8.5	-7.5	2.5	13.2	-5.0	11.8
2017	21.3	-4.9	-5.1	25.1	1.9	5.9
2018	11.4	-9.5	-6.9	18.3	-3.0	5.6
2019	20.0	4.2	-6.4	23.9	8.7	2.5
2020	5.4	-4.2	-7.9	5.9	-1.3	-2.0
2021	57.7	-20.4	-1.1	63.4	-4.9	14.0
2022	41.4	-17.6	-38.7	48.7	-13.2	-25.0
2023	**11.8**	**-13.0**	**-6.7**	**13.5**	**-10.1**	

POWER PLANT MAINTENANCES IN OCTOBER 2023

Country	P. Plant	Unit	MW	Start - end date
Hungary	Matrai	G4	224	01.05.2023-28.10.2023
Hungary	Kelenfoldi	GT	125	02.10.2023-21.10.2023
Bulgaria	Bobov Dol	G2	190	19.09.2023-18.10.2023
Bulgaria	Kozloduy	G10	1040	26.09.2023-31.10.2023
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	16.09.2023-15.10.2023
Greece	AG Dimitrios	G4	283	16.10.2023-12.11.2023
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	15.10.2023-30.10.2023

Country	P. Plant	Unit	MW	Start - end date
Romania	Turceni	G7	267	31.05.2023-31.12.2023
Romania	Iernut	G5	188	22.08.2023-31.10.2023
Romania	Turceni	G4	265	01.10.2023-31.10.2023
Romania	Rovinari	G3	290	01.10.2023-31.12.2023
Serbia	TENT A	G5	340	11.06.2023-08.10.2023
Slovakia	Malzenice	TG1	**420**	02.10.2023-15.10.2023

SCHEDULES - IN AND OUT OF GENERATION UNITS IN OCTOBER 2023

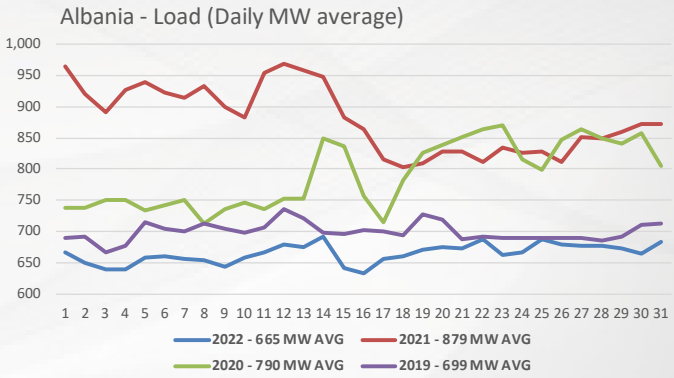
Date	Unit	MW	Country	Going
01.10.2023	Turceni G4	265	Romania	OUT
01.10.2023	Rovinari G3	290	Romania	OUT
01.10.2023	Megalopoli G4	256	Greece	OUT
02.10.2023	Kelenfoldi GT	125	Hungary	OUT
02.10.2023	Malzenice TG1	420	Slovakia	OUT
02.10.2023	Alouminio GT02	197	Greece	OUT
05.10.2023	Alouminio GT02	197	Greece	IN
05.10.2023	Elpedison THISVI	410	Greece	IN
08.10.2023	TENT A G5	340	Serbia	IN
09.10.2023	Alouminio GT01	197	Greece	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

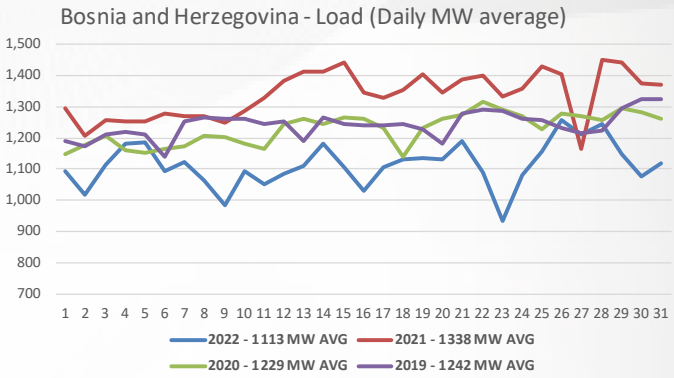
Date	Unit	MW	Country	Going
15.10.2023	Maritsa 2 G3	177	Bulgaria	IN
15.10.2023	Maritsa 2 G7	218	Bulgaria	OUT
15.10.2023	Malzenice TG1	420	Slovakia	IN
16.10.2023	AG Dimitrios G4	283	Greece	OUT
18.10.2023	Bobov Dol G2	190	Bulgaria	IN
19.10.2023	Heron CC	422	Greece	IN
21.10.2023	Kelenfoldi GT	125	Hungary	IN
28.10.2023	Matrai G4	224	Hungary	IN
30.10.2023	Heron GT01	49	Greece	IN
31.10.2023	Turceni G4	265	Romania	IN
31.10.2023	Iernut G5	188	Romania	IN
31.10.2023	Maritsa 2 G4	177	Bulgaria	IN
31.10.2023	Kozloduy G10	1040	Bulgaria	IN

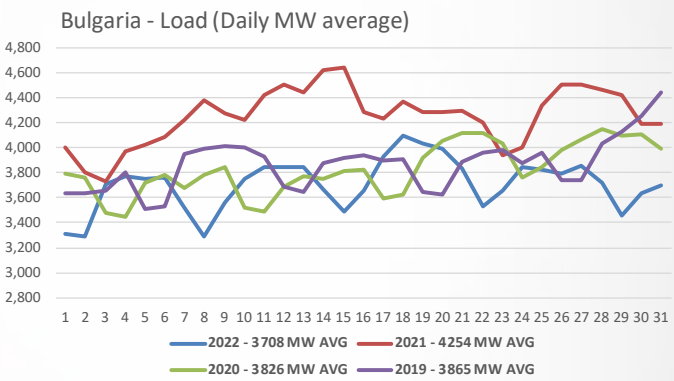
OCTOBER LOAD DATA (daily MW average - GW for entire region)

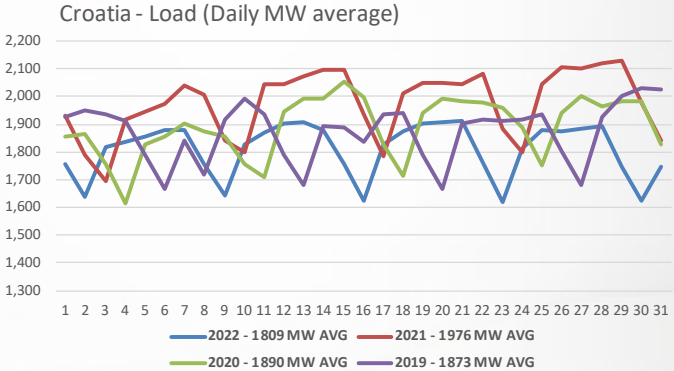
OCTOBER	TOTAL GW				AVG TEMPERATURE			
	2022	2021	2020	2019	2022	2021	2020	2019
01.10.	27.32	31.98	31.47	31.23	16.5	12.8	13.9	17.8
02.10.	25.46	29.88	31.22	31.44	15.2	14.2	16.3	17.0
03.10.	28.82	28.32	29.26	31.56	14.4	15.0	18.7	12.1
04.10.	29.52	31.33	27.51	31.69	12.3	17.2	17.7	9.8
05.10.	29.55	32.01	30.82	29.95	12.2	17.1	15.4	11.4
06.10.	29.53	32.75	31.49	28.71	13.8	13.7	14.7	10.5
07.10.	29.13	33.38	31.63	32.09	14.4	12.0	13.0	9.8
08.10.	27.20	33.61	31.54	32.34	14.3	11.2	12.2	8.8
09.10.	26.18	31.81	31.31	32.45	14.3	9.4	12.1	13.2
10.10.	29.02	30.70	29.13	32.79	13.5	8.0	13.3	13.5
11.10.	30.07	33.82	28.18	32.03	13.3	9.4	11.4	11.5
12.10.	30.15	34.60	31.62	30.00	13.6	8.6	8.3	13.3
13.10.	30.14	34.79	32.67	28.40	12.9	7.5	7.8	14.7
14.10.	29.76	35.39	32.35	31.12	13.0	6.4	10.1	14.9
15.10.	28.06	35.42	32.84	31.93	12.5	5.6	9.7	15.1
16.10.	26.35	32.91	32.42	32.05	13.7	7.9	9.7	14.8
17.10.	29.20	31.07	30.62	32.24	13.4	8.3	8.8	13.5
18.10.	30.07	33.92	29.01	32.07	12.6	8.0	9.0	14.3
19.10.	30.16	34.01	32.26	30.08	12.6	9.0	7.8	15.2
20.10.	30.22	33.94	33.09	28.44	11.1	11.4	8.4	16.3
21.10.	30.43	34.11	33.37	31.21	11.3	14.9	11.5	17.0
22.10.	28.36	33.67	33.25	31.60	14.7	13.1	12.1	15.7
23.10.	26.39	31.47	32.20	30.93	13.8	9.8	12.2	14.9
24.10.	29.47	30.36	30.78	31.57	16.4	6.2	13.1	14.6
25.10.	30.24	33.89	29.63	31.95	14.5	5.7	13.3	13.0
26.10.	30.05	34.71	32.11	29.65	12.4	6.2	14.0	11.8
27.10.	29.94	34.67	32.91	28.43	13.2	6.0	12.3	11.2
28.10.	29.32	34.41	32.93	31.35	12.1	5.4	10.4	11.7
29.10.	27.51	34.74	33.38	33.26	11.6	6.8	8.7	9.2
30.10.	26.54	32.73	33.27	33.93	12.0	6.7	10.6	7.3
31.10.	27.59	30.98	31.29	33.98	11.3	7.3	11.7	5.6
AVG	28.77	32.95	31.47	31.30	13.3	9.7	11.9	12.9

MW AVG	2022	2021	2020	2019	AVG
Albania	665	879	790	699	759
Bulgaria	3,708	4,254	3,826	3,865	3,913
BiH	1,113	1,338	1,229	1,242	1,230
Croatia	1,809	1,976	1,890	1,873	1,887
Hungary	4,596	5,009	5,255	5,153	5,003
Greece	4,611	5,263	4,903	5,017	4,949
N Macedo-nia	585	840	754	715	723
Montenegro	290	356	320	333	325
Romania	5,812	6,724	6,579	6,649	6,441
Serbia+KS	4,192	4,724	4,374	4,187	4,369
Slovenia	1,386	1,585	1,550	1,571	1,523
AVG Temp.	13.3	9.7	11.9	12.9	11.9
TOTAL	28,766	32,947	31,470	31,305	31,122

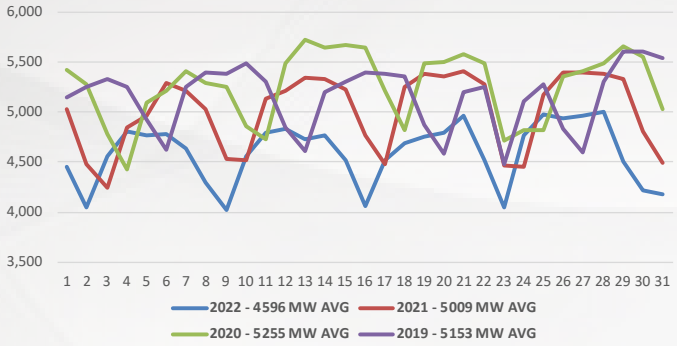




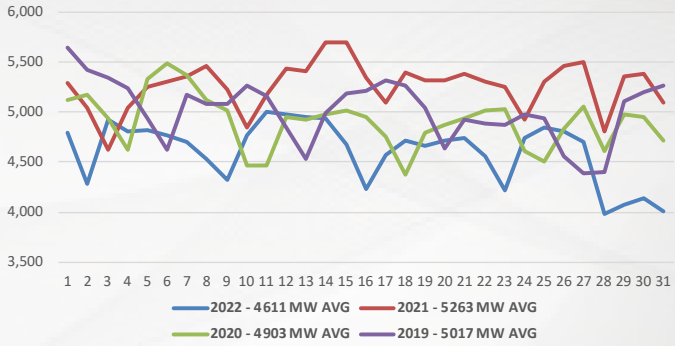




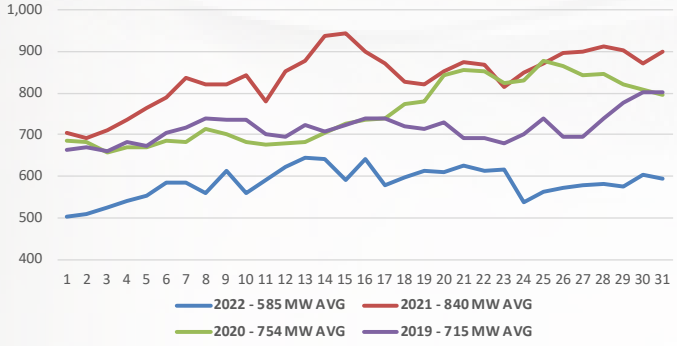
Hungary - Load (Daily MW average)



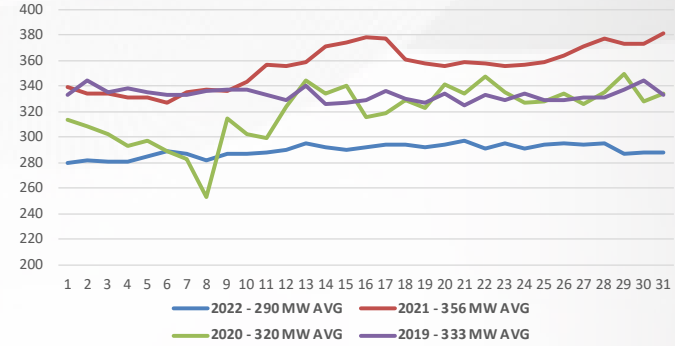
Greece - Load (Daily MW average)



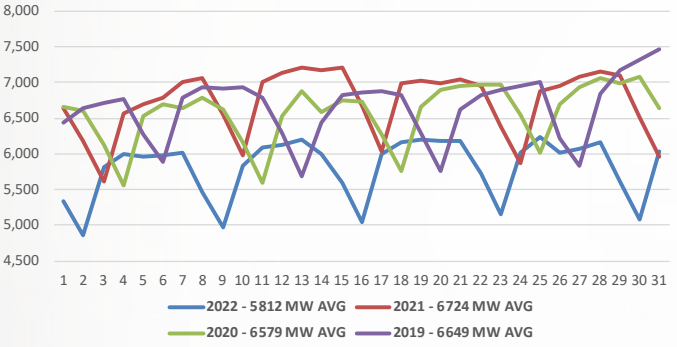
North Macedonia - Load (Daily MW average)



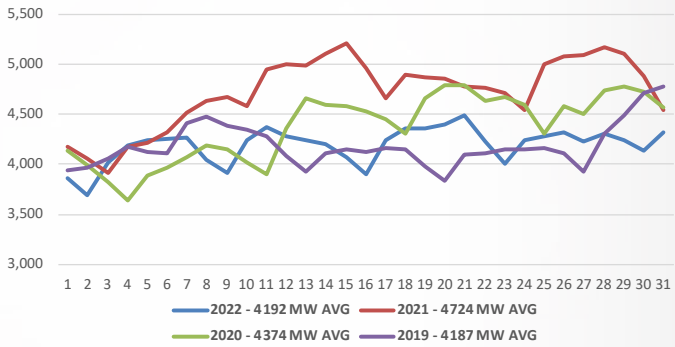
Montenegro - Load (Daily MW average)



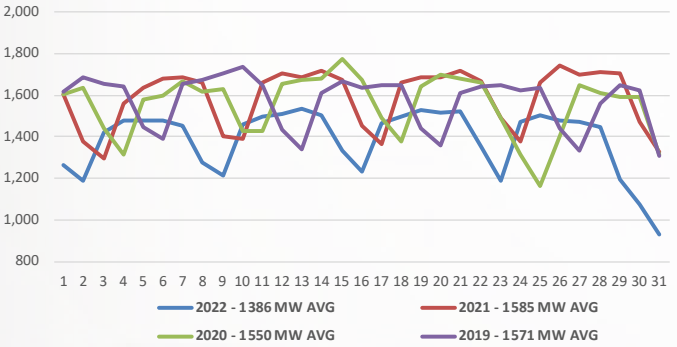
Romania - Load (Daily MW average)



Serbia+Kosovo - Load (Daily MW average)



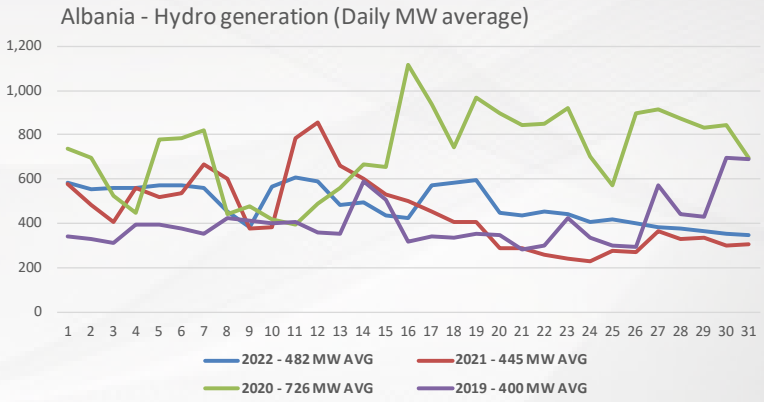
Slovenia - Load (Daily MW average)

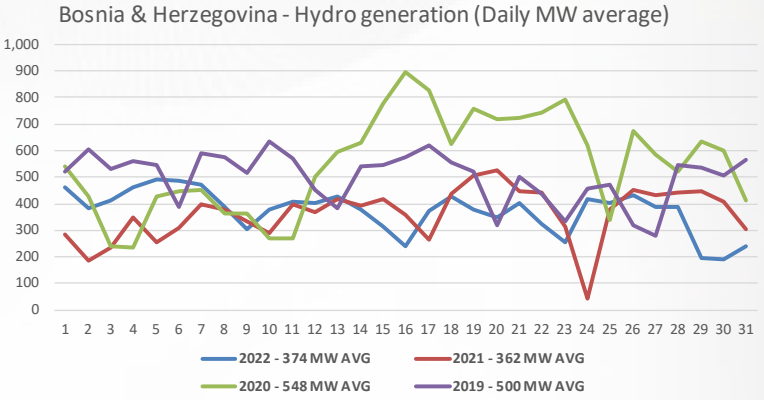


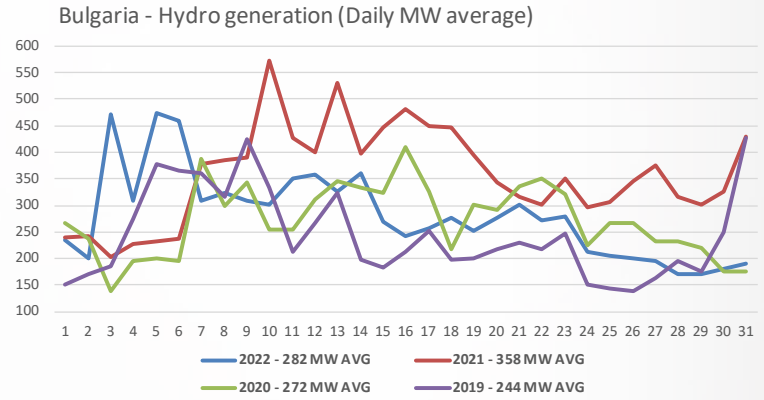
OCTOBER HYDRO GENERATION (daily MW average)

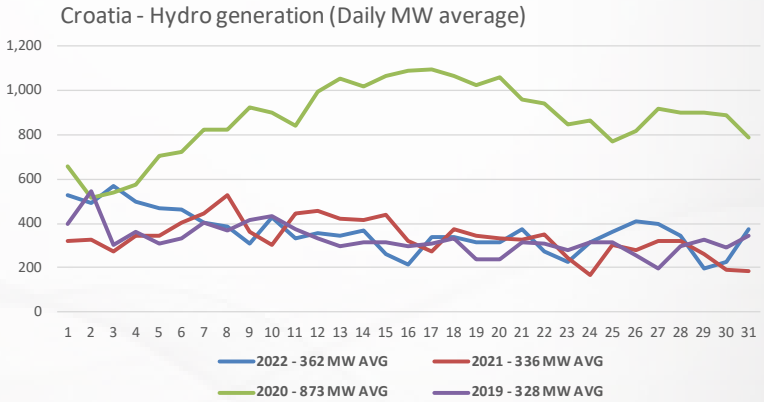
OCTOBER	TOTAL MW AVG			
	2022	2021	2020	2019
01.10.	4,924	4,060	5,502	4,305
02.10.	4,577	3,619	5,338	4,095
03.10.	5,443	3,366	4,580	3,992
04.10.	5,254	4,294	4,209	4,594
05.10.	5,439	4,009	6,205	4,021
06.10.	5,331	4,779	6,723	3,632
07.10.	5,095	5,391	7,010	4,764
08.10.	4,658	5,540	6,682	4,554
09.10.	4,220	3,983	6,533	4,341
10.10.	5,005	3,766	5,691	4,839
11.10.	5,407	5,718	5,493	4,624
12.10.	4,998	5,508	7,522	3,606
13.10.	4,886	4,923	7,511	3,267
14.10.	4,801	5,308	7,131	4,357
15.10.	4,200	5,549	8,038	4,227
16.10.	3,756	4,519	8,572	3,990
17.10.	4,609	3,777	7,953	4,422
18.10.	4,894	5,082	6,901	4,298
19.10.	4,976	4,890	8,182	3,512
20.10.	4,708	4,433	8,191	3,108
21.10.	4,530	4,227	8,340	3,733
22.10.	3,971	4,146	8,148	3,906
23.10.	3,873	3,517	8,229	3,588
24.10.	4,574	2,863	7,179	3,807
25.10.	4,754	4,208	5,840	3,805
26.10.	4,711	4,297	7,467	3,090
27.10.	4,513	4,730	7,243	3,106
28.10.	4,396	4,706	7,270	4,184
29.10.	3,303	4,302	7,296	4,321
30.10.	3,485	3,374	6,736	4,623
31.10.	3,920	3,420	5,698	4,411
AVG	4,620	4,397	6,884	4,036

MW AVG	2022	2021	2020	2019
Albania	482	445	726	400
Bulgaria	282	358	272	244
BiH	374	362	500	282
Croatia	362	336	873	328
Greece	282	341	246	264
Macedonia	104	63	57	80
Montenegro	13	94	231	45
Romania	1,525	1,265	1,754	1,126
Serbia	754	784	720	374
Slovenia	441	350	894	330

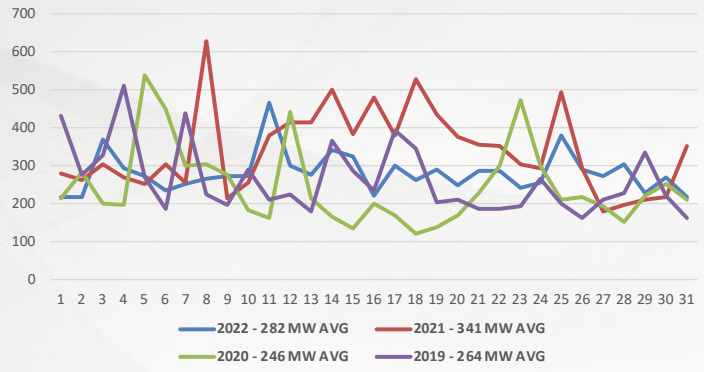




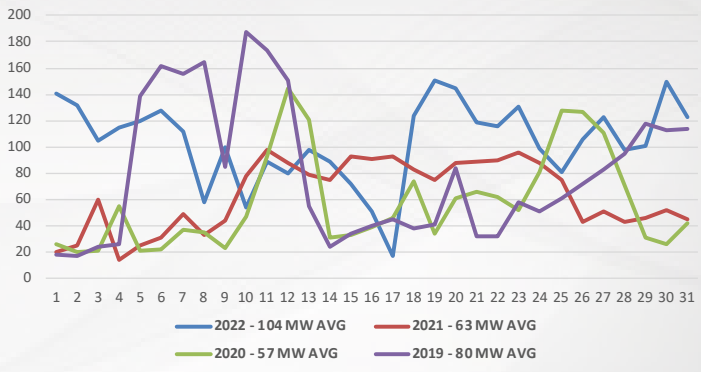




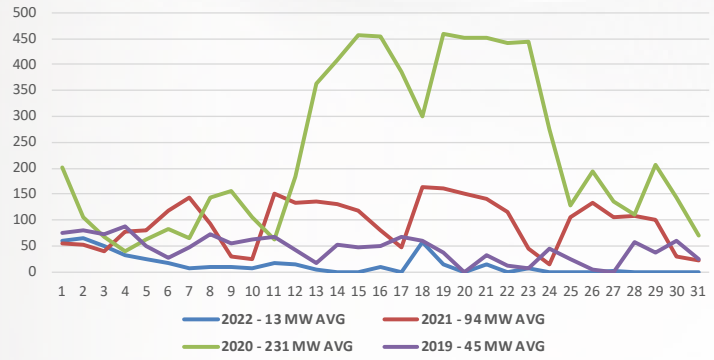
Greece - Hydro generation (Daily MW average)



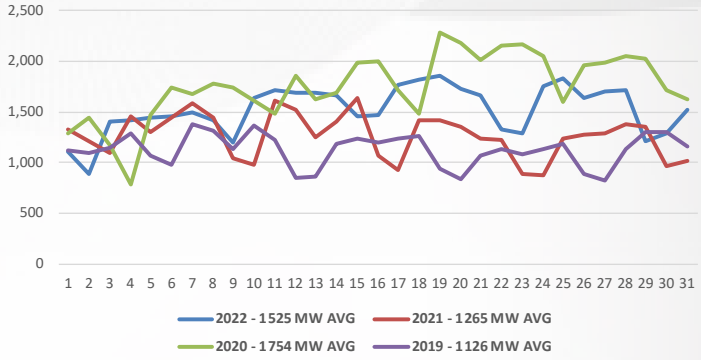
North Macedonia - Hydro generation (Daily MW average)



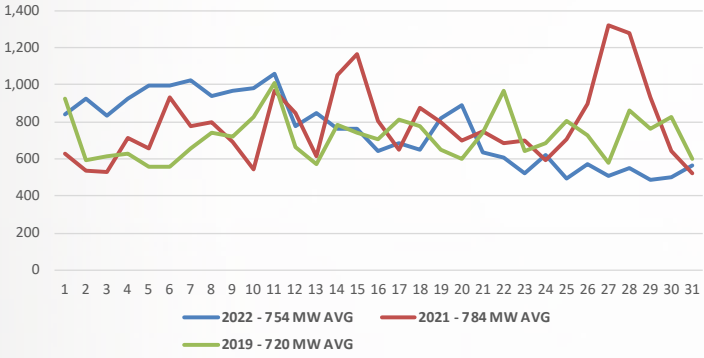
Montenegro - Hydro generation (Daily MW average)



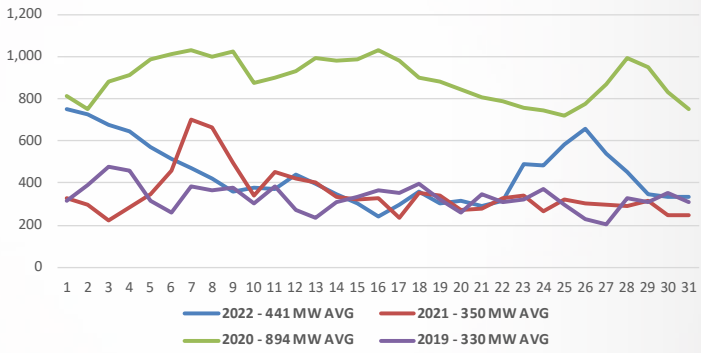
Romania - Hydro generation (Daily MW average)



Serbia - Hydro generation (Daily MW average)



Slovenia - Hydro generation (Daily MW average)



ATC AUCTIONS (monthly auctiuons - Hungarian and SEE borders for October 2023)

	AT>HU	AT>SI	SEPS>HU	SI > IT	RO > HU	UA > HU	RO>RS
1-Oct-23	150	300	50	112	280	0	50
2-Oct-23	150	300	50	112	280	0	50
3-Oct-23	150	300	50	112	280	0	50
4-Oct-23	150	300	50	112	280	0	50
5-Oct-23	150	300	50	112	280	0	50
6-Oct-23	150	300	50	112	280	0	50
7-Oct-23	150	300	50	112	280	0	250
8-Oct-23	150	300	50	112	280	0	250
9-Oct-23	150	300	50	112	280	0	150
10-Oct-23	150	300	50	112	280	0	150
11-Oct-23	150	300	50	112	280	0	150
12-Oct-23	150	300	50	112	280	0	150
13-Oct-23	150	300	50	112	280	0	150
14-Oct-23	150	300	50	112	280	0	150
15-Oct-23	150	300	50	112	280	0	150
16-Oct-23	150	300	50	112	280	0	150
17-Oct-23	150	300	50	112	280	0	150
18-Oct-23	150	300	50	112	280	0	150
19-Oct-23	150	300	50	112	280	0	150
20-Oct-23	150	300	50	112	280	0	150
21-Oct-23	150	300	50	112	280	0	150
22-Oct-23	150	300	50	112	280	0	150
23-Oct-23	150	300	50	112	280	0	50
24-Oct-23	150	300	50	112	280	0	50
25-Oct-23	150	300	50	112	280	0	50
26-Oct-23	150	300	50	112	280	0	50
27-Oct-23	150	300	50	112	280	0	50
28-Oct-23	150	300	50	112	280	0	50
29-Oct-23	150	300	50	112	280	0	50
30-Oct-23	150	300	50	112	280	0	50
31-Oct-23	150	300	50	112	280	0	50
AVG	150	300	50	112	280	0	108

	BG>RS	BG > GR	NMK > GR	BG > TR	BG > MK
1-Oct-23	150	450	250	234	306
2-Oct-23	150	450	250	234	306
3-Oct-23	150	450	250	234	306
4-Oct-23	150	450	250	234	306
5-Oct-23	150	450	250	234	306
6-Oct-23	150	450	250	234	306
7-Oct-23	200	450	250	234	306
8-Oct-23	200	450	250	234	306
9-Oct-23	300	450	150	234	0
10-Oct-23	300	450	150	234	0
11-Oct-23	300	450	150	234	0
12-Oct-23	300	450	150	234	0
13-Oct-23	300	450	150	234	0
14-Oct-23	300	450	150	234	0
15-Oct-23	300	450	150	234	0
16-Oct-23	300	450	150	234	0
17-Oct-23	300	450	150	234	0
18-Oct-23	300	450	150	234	0
19-Oct-23	300	450	150	234	0
20-Oct-23	300	450	150	234	0
21-Oct-23	200	450	250	234	306
22-Oct-23	200	450	250	234	306
23-Oct-23	150	450	250	234	306
24-Oct-23	150	450	250	234	306
25-Oct-23	150	450	250	234	306
26-Oct-23	150	450	250	234	306
27-Oct-23	150	450	250	234	306
28-Oct-23	150	450	250	234	306
29-Oct-23	150	450	250	234	306
30-Oct-23	150	450	250	234	306
31-Oct-23	150	450	250	234	306
AVG	215	450	211	234	188

ATC AVERAGES FOR OCTOBER (offered on monthly auctions)

	AT>HU	AT>SI	SEPS>HU	SI > IT	RO > HU	UA > HU	RO>RS	BG>RS	BG > GR	NMK > GR	BG > TR	BG > NMK
2023	150	300	50	112	280	0	108	215	450	211	234	188
2022	100	250	150	91	280	0	161	300	321	245	332	169
2021	100	50	600	141	120	455	156	351	0	261	332	210
2020	79	142	352	141	175	455	344	171	511	303	234	152
2019	100	250	226	141	81	444	129	174	294	152	297	155
2018	150	200	460	141	80	455	213	239	311	129	299	134
2017	100	100	450	141	240	455	244	200	160	82	334	134

OCTOBER NET POSITIONS (GWh)

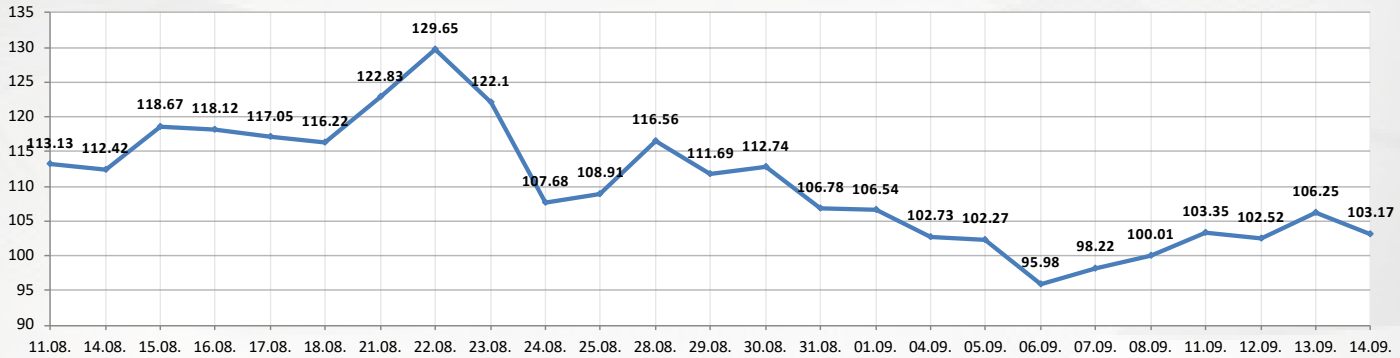
GWh	2017	2018	2019	2020	2021	2022
BA NET EXPORT	-8	179	168	263	193	86
BG NET EXPORT	298	727	403	50	747	378
HR NET EXPORT	-627	-647	-560	-154	-462	-429
HU NET EXPORT	-924	-998	-617	-892	-1,053	-702
GR NET EXPORT	-242	-244	-591	-710	122	-500

GWh	2017	2018	2019	2020	2021	2022
NMK NET EXPORT	-133	-123	-182	-239	-167	-93
ME NET EXPORT	-67	-20	-52	92	-60	-37
RO NET EXPORT	95	138	-463	-452	-475	-28
RS NET EXPORT	8	-187	-109	288	-327	-42
SI NET EXPORT	-3	70	-415	527	-67	-560

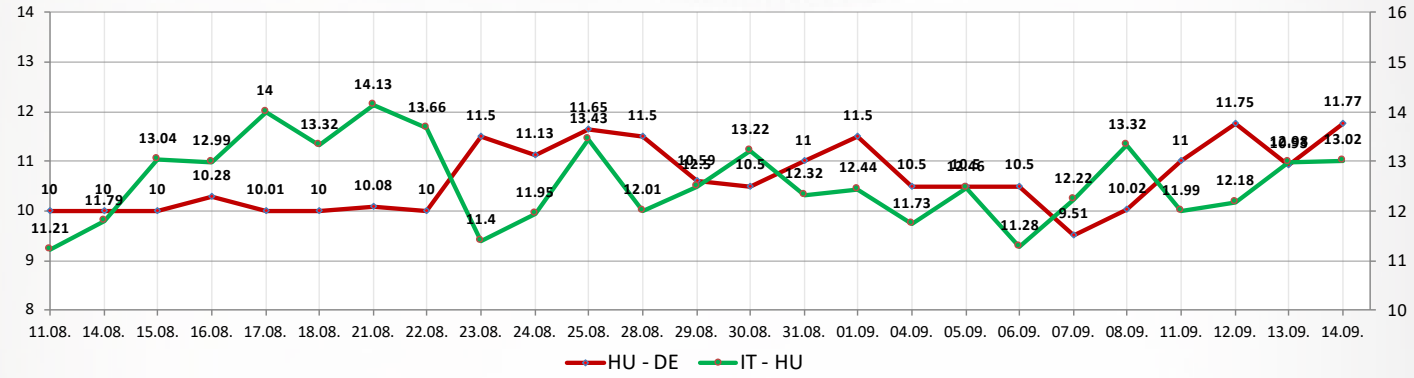
MARKET PRICES FOR OCTOBER 2023

BASE

HU-EEX- October 2023 price (EUR/MWh), BASE

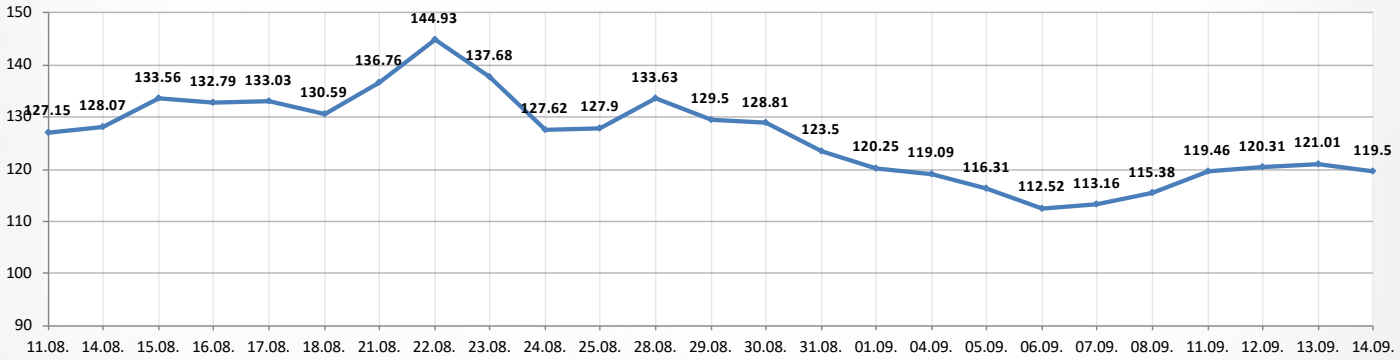


DE BASE Spread: EEX- October 2023 price (EUR/MWh) PUN



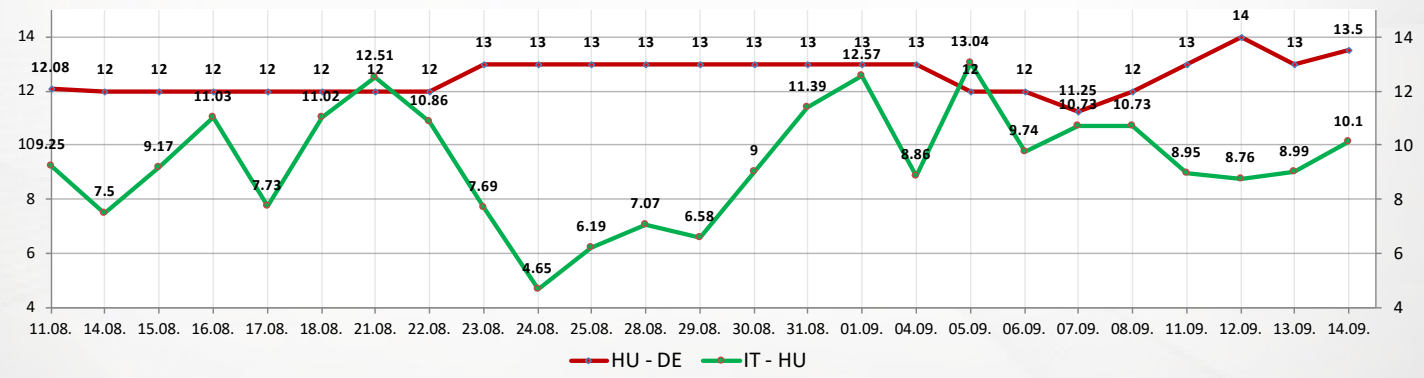
PEAK

HU-EEX - October 2023 price (EUR/MWh), PEAK



PEAK Spread: EEX - October 2023 price (EUR/MWh)

DE PUN



OCTOBER HISTORICAL DATA

Germany	2017	2018	2019	2020	2021	2022
EEX (EUR/MWh)	28.40	53.13	37.00	34.02	139.59	152.69

IT Nord	2017	2018	2019	2020	2021	2022
(EUR/MWh)	54.95	75.29	52.16	42.03	218.61	213.17

Hungary (GWh)	2017	2018	2019	2020	2021	2022
HUPX (EUR/MWh)	49.75	64.51	57.01	39.38	197.31	194.07
Consumption	3,514	3,558	3,641	3,756	3,726	3,419
Hydro Generation	18	14	13	10	13	15
Coal fired Generation	503	453	405	353	271	352
Gas fired Generation	403	425	858	714	743	606
Oil fired Generation	6	3	1	1	4	4
Nuclear Generation	1,403	1,283	1,414	1,427	1,237	1,341
RES Generation	190	215	275	322	375	389
Total Generation	2,590	2,501	2,965	2,827	2,641	2,707
Export-Import balance	-924	-998	-617	-892	-1,053	-702

Slovenia (GWh)	2017	2018	2019	2020	2021	2022
BSP (EUR/MWh)	50.52	64.11	55.24	38.62	202.55	197.03
Consumption	1,190	1,115	1,097	1,061	1,175	1,031
Hydro Generation	329	274	246	665	260	328
Coal fired Generation	324	447	474	481	312	122
Gas fired Generation	1	21	29	33	46	34
Oil fired Generation	0	0	0	0	0	0
Nuclear Generation	516	511	21	517	507	0
RES Generation	41	35	35	41	29	31
Total Generation	1,226	1,294	805	1,737	1,154	515
Export-Import balance	-3	70	-415	527	-67	-560

Romania (GWh)	2017	2018	2019	2020	2021	2022
OPCOM (EUR/MWh)	47.24	61.67	57.38	41.94	193.38	206.19
Consumption	4,767	4,996	4,947	4,895	5,003	4,324
Hydro Generation	1,006	1,078	838	1,306	942	1,136
Coal fired Generation	1,293	1,038	1,165	830	962	765
Gas / Mixed / Oil	727	994	936	571	902	865
Nuclear Generation	1,039	1,024	1,015	1,048	1,003	1,007
RES Generation	844	737	528	675	719	559
Total Generation	4,871	4,925	4,483	4,430	4,528	4,332
Export-Import balance	95	138	-463	-452	-475	-28

Bulgaria (GWh)	2017	2018	2019	2020	2021	2022
IBEX (EUR/MWh)	41.59	52.00	55.87	43.21	188.60	206.09
Consumption	2,687	3,032	2,876	2,838	3,165	2,759
Hydro Generation	212	286	181	202	266	221
Coal fired Generation	1,647	1,789	1,875	1,360	2,386	1,713
Gas fired Generation	99	119	134	157	240	160
Oil fired Generation	0	0	0	0	0	0
Nuclear Generation	886	991	975	975	803	806
RES Generation	246	262	171	219	234	238
Total Generation	3,055	3,405	3,337	2,913	3,929	3,137
Export-Import balance	298	727	403	50	747	378

Serbia (GWh)	2017	2018	2019	2020	2021	2022
SEEPEX (EUR/MWh)	51.94	64.27	58.17	39.35	201.40	204.58
Consumption	3,217	3,173	3,115	3,254	2,962	2,649
Hydro Generation	588	465	535	955	584	562
Coal fired Generation	2,696	2,625	1,992	2,091	1,927	1,937
Gas / Mixed Generation	0	30	1	1	1	143
Oil fired Generation	0	0	0	0	0	0
Nuclear Generation	0	0	0	0	0	0
RES Generation	0	7	9	15	20	22
Total Generation	3,283	3,108	2,537	3,062	2,532	2,664
Export-Import balance	8	-187	-109	288	-327	-42

*Load data includes KS load for 2016-2020

*RES data include biomas only

Croatia (GWh)	2017	2018	2019	2020	2021	2022
CROPEX (EUR/MWh)	52.33	64.12	55.37	38.62	202.56	196.83
Consumption	1,406	1,418	1,394	1,406	1,470	1,346
Hydro Generation	301	302	244	650	250	270
Coal fired Generation	71	144	142	126	142	143
Gas fired Generation	303	148	331	261	318	329
Oil fired Generation	0	0	0	0	0	0
Nuclear Generation	0	0	0	0	0	0
RES Generation	120	194	141	220	331	207
Total Generation	790	792	834	1,257	1,042	950
Export-Import balance	-627	-647	-560	-154	-462	-429

BiH (GWh)	2017	2018	2019	2020	2021	2022
Consumption	1,070	1,072	986	1,008	948	828
Hydro Generation	178	321	371	406	269	278
Coal fired Generation	881	934	720	745	818	701
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	0	8	12	28	9
Total Generation	1,062	1,251	1,099	1,163	1,115	988
Export-Import balance	-8	179	168	263	193	86

Montenegro (GWh)	2017	2018	2019	2020	2021	2022
Consumption	259	246	248	238	265	216
Hydro Generation	28	60	33	171	70	10
Coal fired Generation	151	152	155	153	154	156
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	14	10	24	29	22
Total Generation	192	226	198	348	253	188
Export-Import balance	-67	-20	-52	92	-60	-37

Macedonia (GWh)	2017	2018	2019	2020	2021	2022
Consumption	543	561	534	561	625	435
Hydro Generation	55	65	58	43	47	77
Gas + Coal Generation	326	357	288	285	325	267
Oil fired Generation	0	0	0	0	0	0
Nuclear Generation	0	0	0	0	0	0
RES Generation	19	13	5	8	7	9
Total Generation	400	438	352	897	379	353
Export-Import balance	-133	-123	-182	-239	-167	-93

Greece (GWh)	2017	2018	2019	2020	2021	2022
Price (EUR/MWh)	54.89	71.41	63.37	47.29	198.39	232.79
Consumption	3,842	3,796	3,733	3,686	3,916	3,431
Hydro Generation	216	275	196	183	254	210
Coal fired Generation	1,460	1,008	685	343	372	286
Gas fired Generation	1,111	1,563	1,560	1,509	1,983	875
Oil fired Generation	0	0	0	0	0	0
Nuclear Generation	0	0	0	0	0	0
RES Generation	691	670	672	851	1,310	1,500
Total Generation	3,613	3,653	3,113	6,572	3,919	2,872
Export-Import balance	-242	-244	-591	-710	122	-500

OCTOBER 2023 MONTHLY ATC AUCTIONS (with currently available results)

Border+Direction	NTC	AAC	ATC	AATC	Price	Validity period:
Auctions for 100% of ATC						
Austria > Hungary	**400**	250	**150**			01-31.10.2023
Austria > Slovenia	**600**	300	**300**			01-31.10.2023
Albania > XK	**400**	200	**200**			01-31.10.2023
Albania > Montenegro	**300**	200	**100**			01-31.10.2023
Albania > Greece	**400**	200	**200**			01-08.10.2023
	300	200	**100**			09-20.10.2023
	400	200	**200**			21-31.10.2023
BIH > Croatia	**500**	400	**100**			01-31.10.2023
BIH > Montenegro	**500**	199	**301**			01-31.10.2023
BIH > Serbia	**400**	150	**250**	**250**	**1.57**	01-31.10.2023
Bulgaria > Serbia	**300**	150	**150**			01-06.10.2023
	350	150	**200**			07-08.10.2023
	450	150	**300**			09-20.10.2023
	350	150	**200**			21-22.10.2023
	300	150	**150**			23-31.10.2023
Bulgaria > Romania	**1560**	500	**1060**			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	**750**	300	**450**			01-31.10.2023
Croatia > Slovenia		500				01-31.10.2023
Croatia > Hungary	**450**	400	**50**			01-31.10.2023
Croatia > Serbia		150				01-31.10.2023
Croatia > BIH	**500**	400	**100**			01-31.10.2023
Hungary > Romania	**630**	350	**280**			01-31.10.2023
Hungary > Serbia		200				01-31.10.2023
Hungary > Croatia	**550**	500	**50**			01-31.10.2023
Hungary > Ukraine	**0**	0	**0**	**0**	**0.00**	01-31.10.2023
Hungary > Austria	**500**	250	**250**			01-31.10.2023
Hungary > Slovakia		800				01-31.10.2023
Hungary > Slovenia	**200**	150	**50**			01-31.10.2023
Greece > Albania	**400**	200	**200**			01-31.10.2023
Greece > Macedonia	**400**	150	**250**			01-08.10.2023
	300	150	**150**			09-20.10.2023
	400	150	**250**			21-31.10.2023
Greece > Bulgaria	**700**	300	**400**			01-31.10.2023
Greece > Italy	**500**	50	**450**			01-31.10.2023
Greece > Turkey	**0**	0	**0**			01-03.10.2023
	166	50	**116**			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**			01-08.10.2023
	300	150	**150**			09-20.10.2023
	400	150	**250**			21-31.10.2023
Macedonia > XK	**350**	100	**250**			01.10.2023
	0	0	**0**			02-06.10.2023
	450	100	**350**			07-31.10.2023
Montenegro > Albania	**300**	200	**100**			01-31.10.2023
Montenegro > BIH	**500**	200	**300**			01-31.10.2023
Montenegro > Serbia	**200**	100	**100**	**100**	**0.88**	01-31.10.2023
Montenegro > Italy	**399**	139	**260**			01-31.10.2023
Montenegro > XK	**200**	100	**100**			01-31.10.2023
Romania > Bulgaria	**1560**	500	**1060**			01-31.10.2023
Romania > Serbia	**300**	250	**50**			01-06.10.2023
	500	250	**250**			07-08.10.2023
	400	250	**150**			09-22.10.2023
	300	250	**50**			23-31.10.2023
Romania > Hungary	**630**	350	**280**			01-31.10.2023
Romania > Ukraine	**0**	0	**0**	**0**	**0.00**	01-31.10.2023
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**			01-08.10.2023
	450	150	**300**			09-20.10.2023
	350	150	**200**			21-31.10.2023
Serbia > Croatia		150				01-31.10.2023
Serbia > Hungary		200				01-31.10.2023

Border+Direction	NTC	AAC	ATC	AATC	Price	Validity period:
Auctions for 100% of ATC						
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**			01-06.10.2023
	700	250	**450**			07-08.10.2023
	500	250	**250**			09-13.10.2023
	700	250	**450**			14-15.10.2023
	500	250	**250**			16-20.10.2023
	700	250	**450**			21-22.10.2023
	500	250	**250**			23-31.10.2023
Slovenia > Croatia		500				01-31.10.2023
Slovenia > Austria	**600**	300	**300**			01-31.10.2023
Slovenia > Italy	**441**	329	**112**			01-31.10.2023
Slovenia > Hungary	**200**	150	**50**			01-31.10.2023
Italy > Greece	**500**	50	**450**			01-31.10.2023
Turkey > Greece	**50**	50	**0**	**0**	**0.00**	01-31.10.2023
Italy > Slovenia	**334**	126	**208**			01-31.10.2023
Italy > Montenegro	**400**	140	**260**			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		699				01-31.10.2023
XK > Albania	**400**	200	**200**			01-31.10.2023
XK > Montenegro	**300**	100	**200**			01-31.10.2023
XK > Macedonia	**350**	100	**250**			01.10.2023
	0	0	**0**			02-06.10.2023
	450	100	**350**			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

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