

# INFLUENCE OF THE MONTENEGRO-ITALY CABLE ON THE ENERGY MARKET

ALPIQ

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## 1. How did we Analyse the influence of the cable ?

- Data acquisition and preparation
- Fundamentals and most important characteristics of power systems of Balkan (Montenegro, Serbia, Bosnia, Albania, Macedonia)

## 2. Spread between Italy CSUD zone and HUPX

- Historical spread since 2010
- Hourly spread

## 3. Results of the analysis

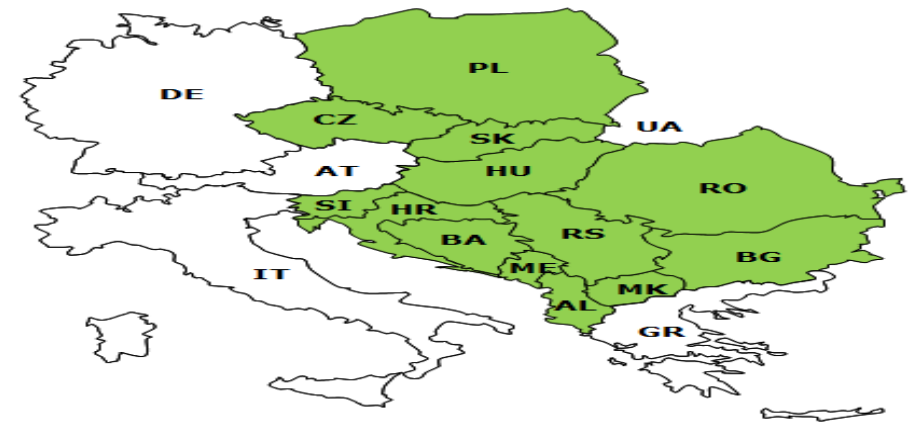
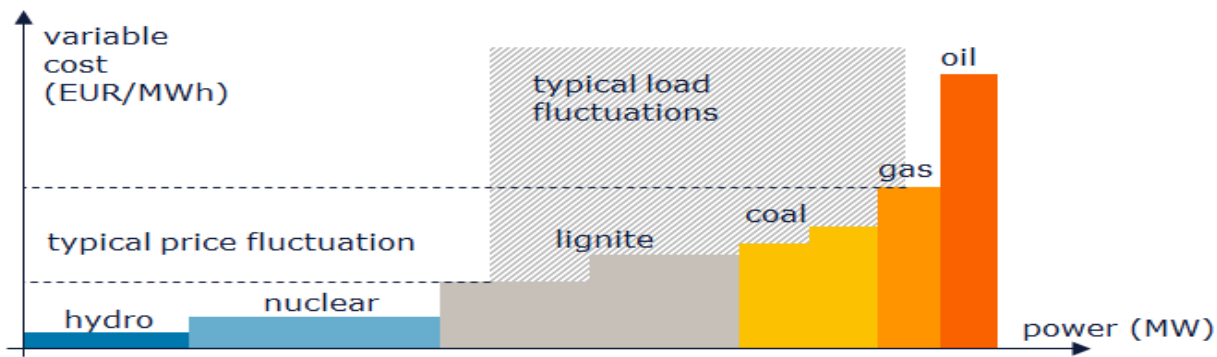
- Change of cross border flow on all borders connected to Montenegro

## 4. Conclusion

# Data acquisition and preparation

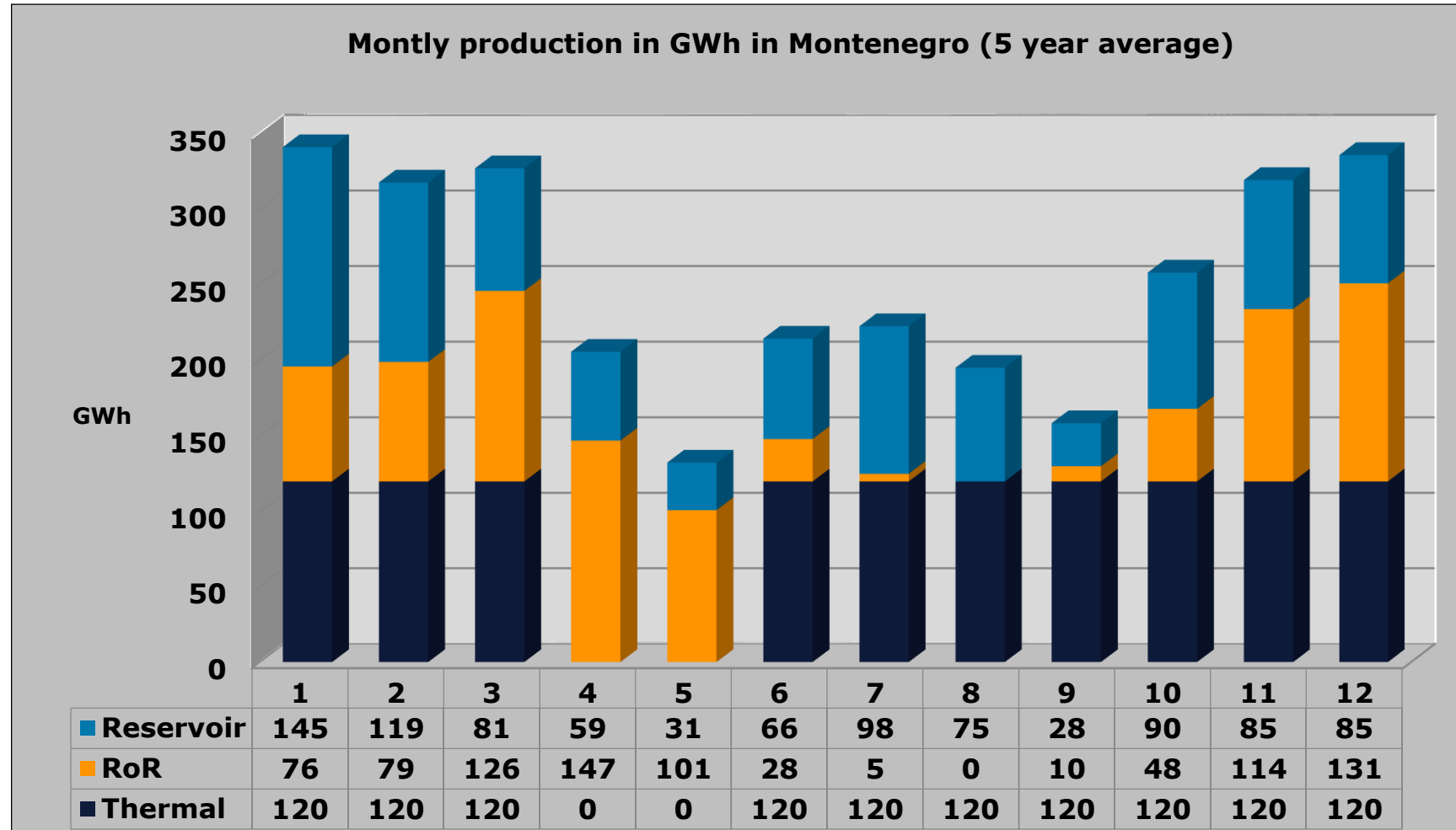
- The software contains information of more than 1000 power plants and about 30 parameters per each power plant
- Production, consumption, cross border capacities, price forward curves in hourly resolution
- Decide which countries to model and which countries to use as price stations

## Supply and demand curve



# Montenegro – Well combined hydro reservoir with hydro run of river (ror)

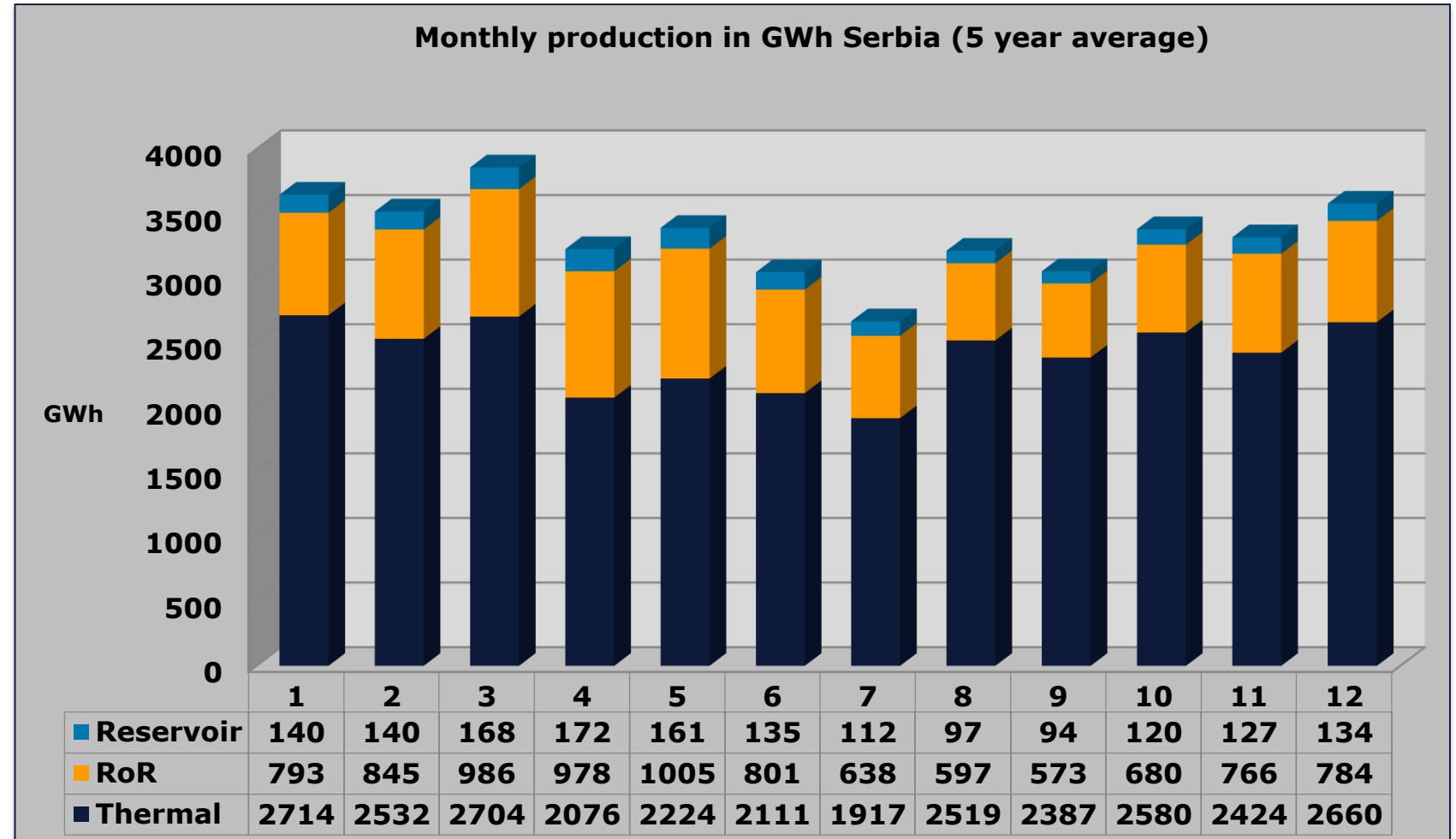
1. Power plants operating in Montenegro power system:
2. HPP Piva (342 MW)
3. HPP Perucica (307 MW)
4. TPP Pljevlja (210 MW)
5. WPP Krnovo (72 MW)
6. WPP Mozura (48 MW)



# Serbia – Stable baseload at low marginal cost with lacking flexibility

Power plants operating in Serbia power system:

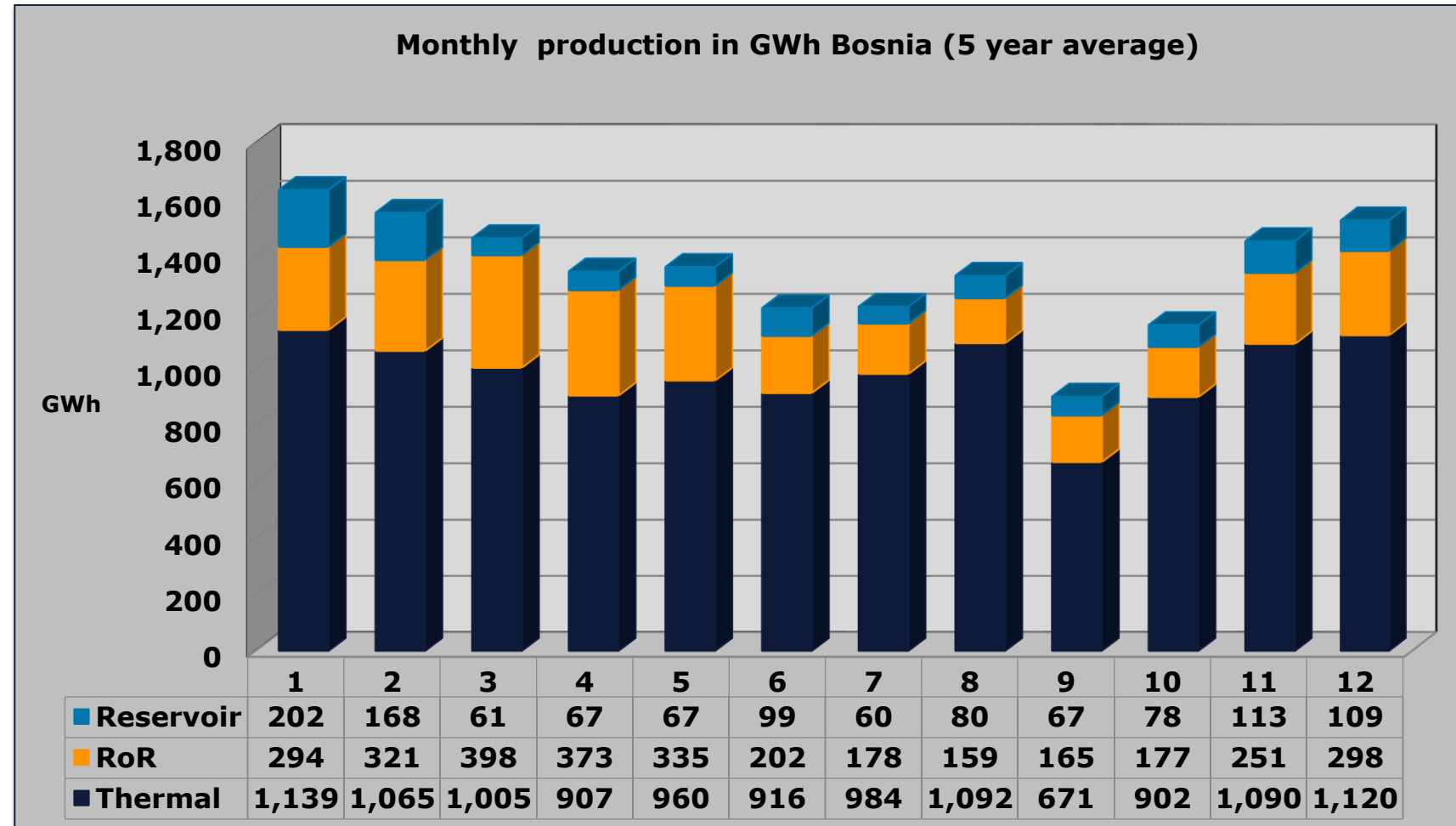
1. HPP Đerdap 1 i 2 (1369 MW)
2. Drimsko-Limske HPP (1358 MW)
3. Vlasinske HPP i HPP Pirot (230 MW)
4. TE Nikola Tesla (2787 MW)
5. TE Kostolac (921 MW)
6. TE Kolubara (110 MW)
7. TE Morava (125 MW)



# Bosnia – Four utility companies operating individually inside NOSBIH grid

Utility companies operating in Bosnia power system:

1. ERS Trebinje (600 MW of TPP, RoR 425 MW of RoR HPP and 300 MW of Res. HPP)
2. EPHZHB Mostar (810 MW of HPP, RHPP Capljina 440 MW)
3. EPBiH Sarajevo (500 MW of HPP and around 1200 MW of TPP)
4. EFT ( 300 MW TPP Stanari)

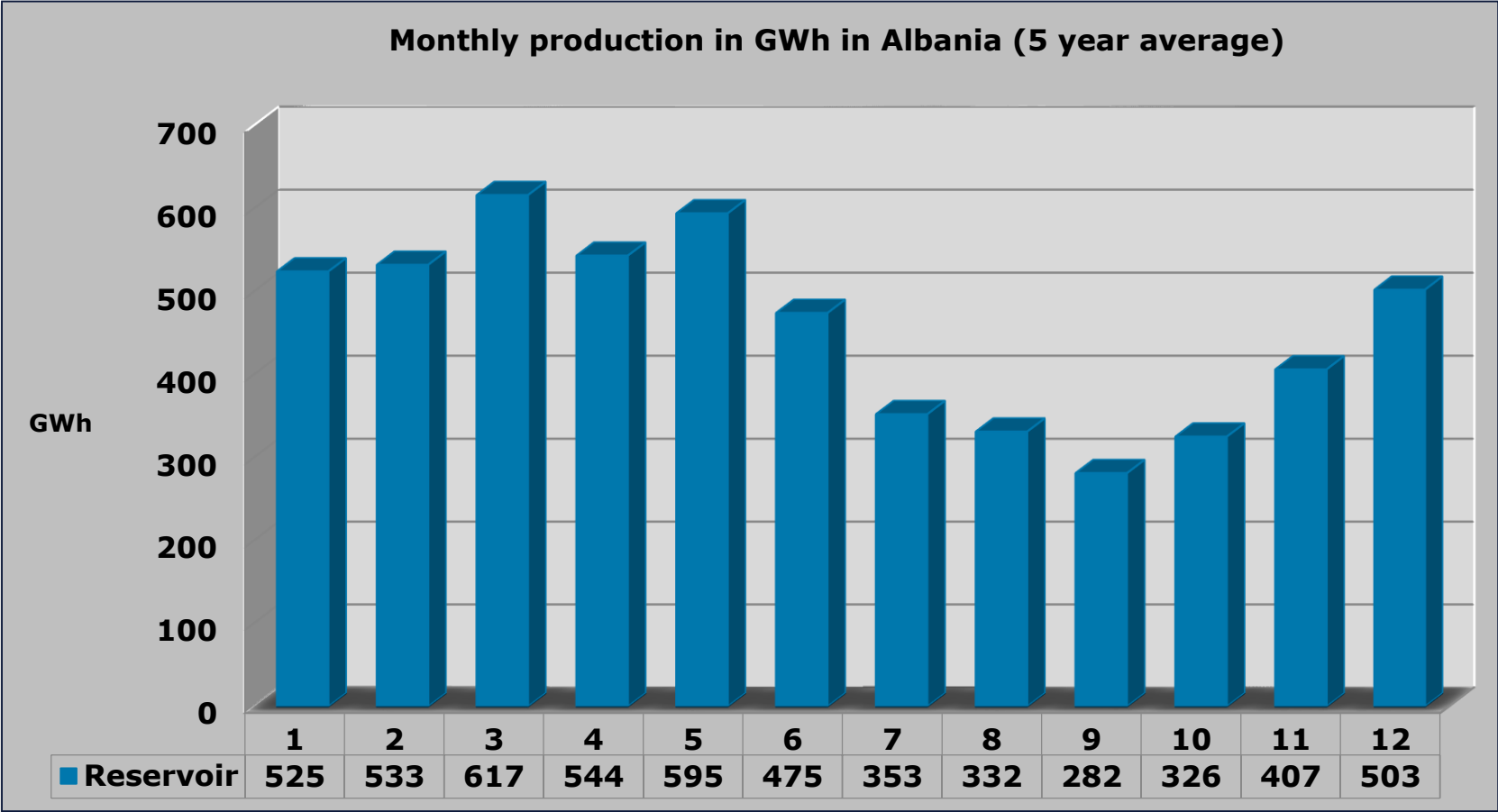


# Albania – Flexible hydro system with above 1000 MW installed capacity of hydro reservoir



Power plants operating in Albania power system:

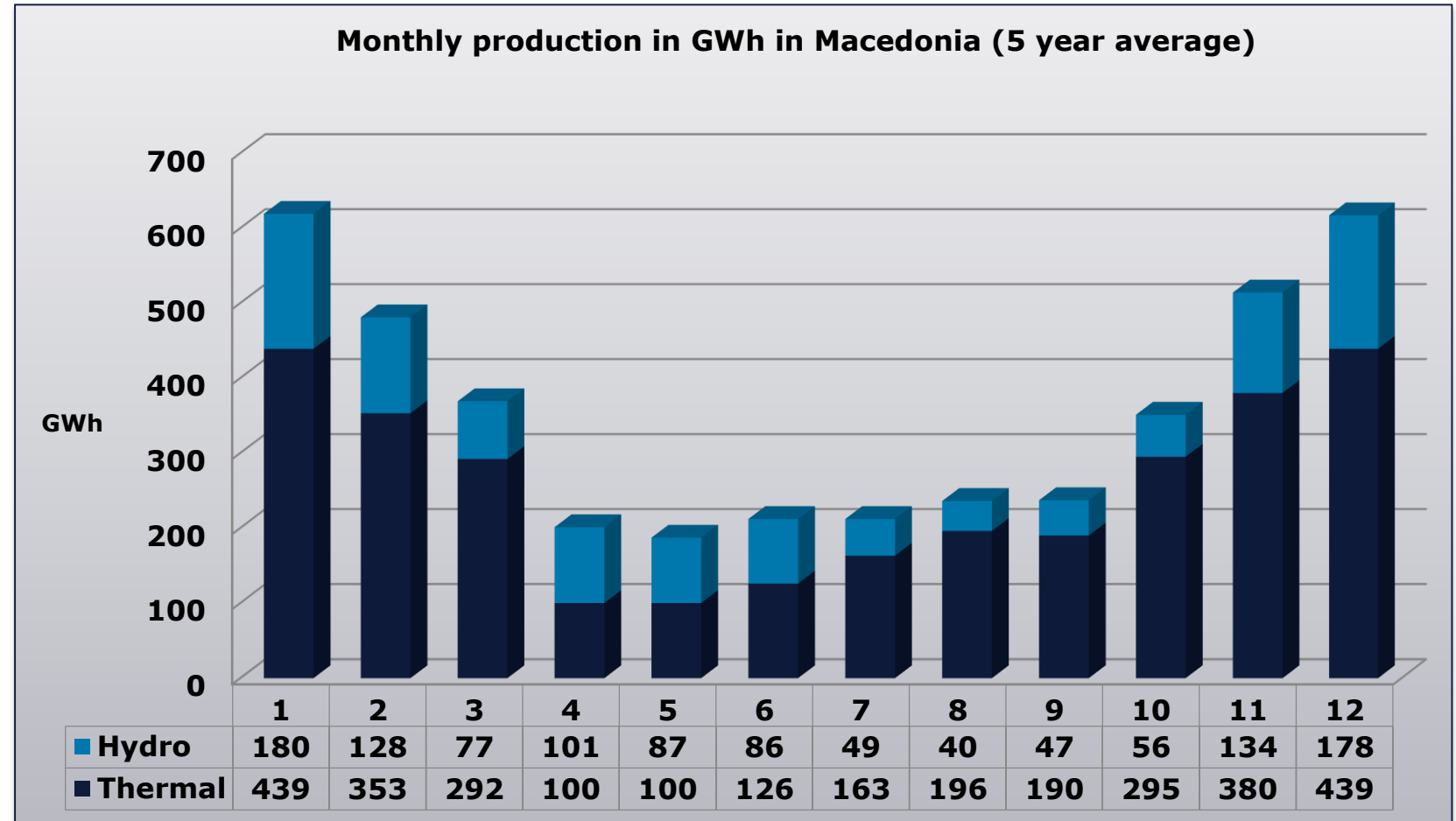
- 1. HPP Fierze 500 MW
- 2. HPP Komani 600 MW
- 3. HPP Vau i Dejes 250 MW



# Macedonia – Constant imports due to problems with thermal units

Power plants operating in Macedonia power system:

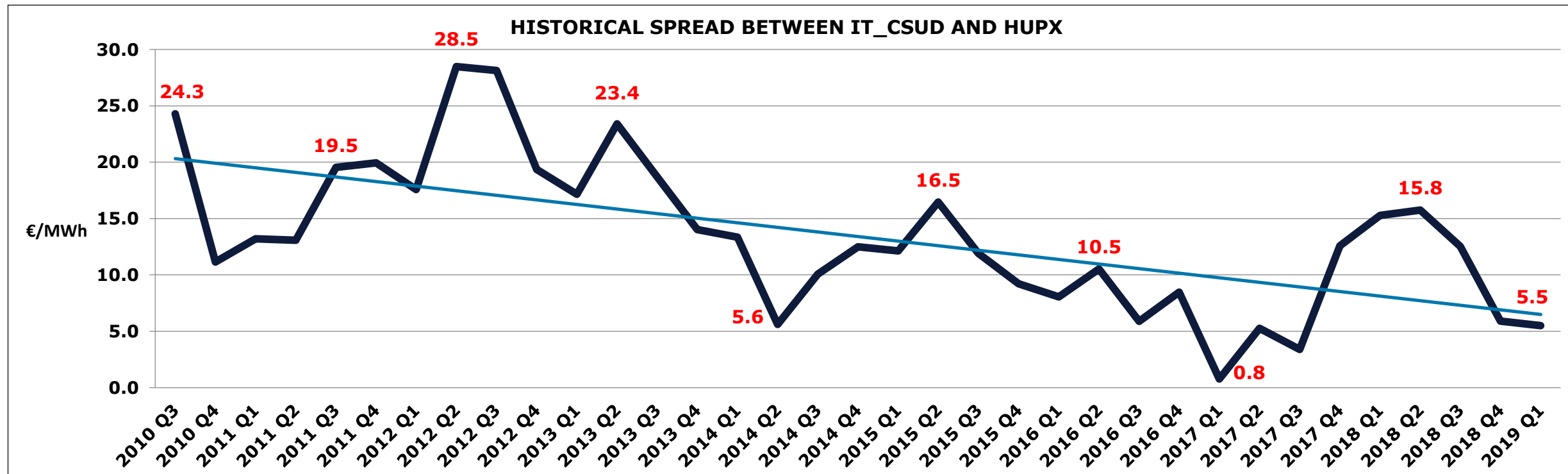
- 1. TPP Bitola 700 MW
- 2. TPP Oslomej 125 MW
- 3. 7 HPP with installed capacity of 440 MW



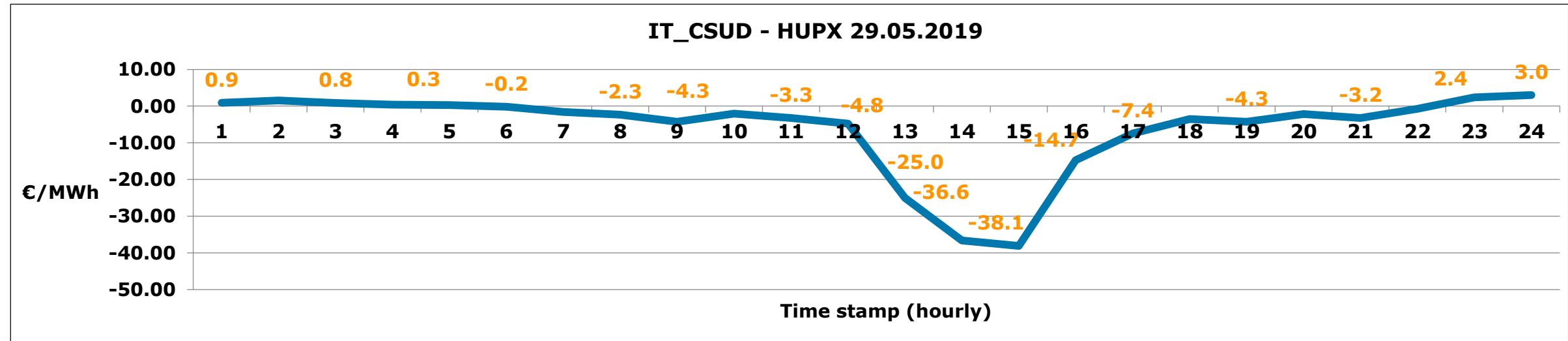
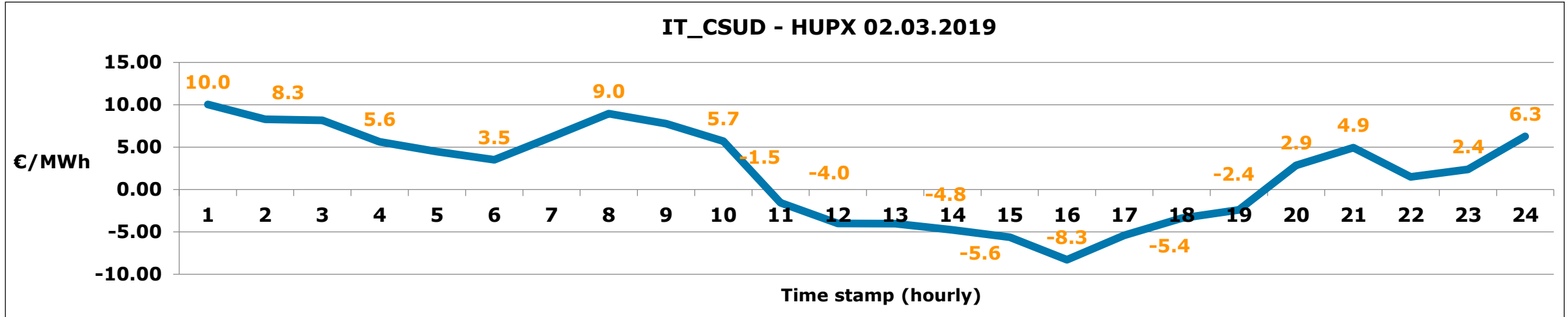


# Main reasons that caused the decrease of spread between IT\_CSUD zone and HUPX

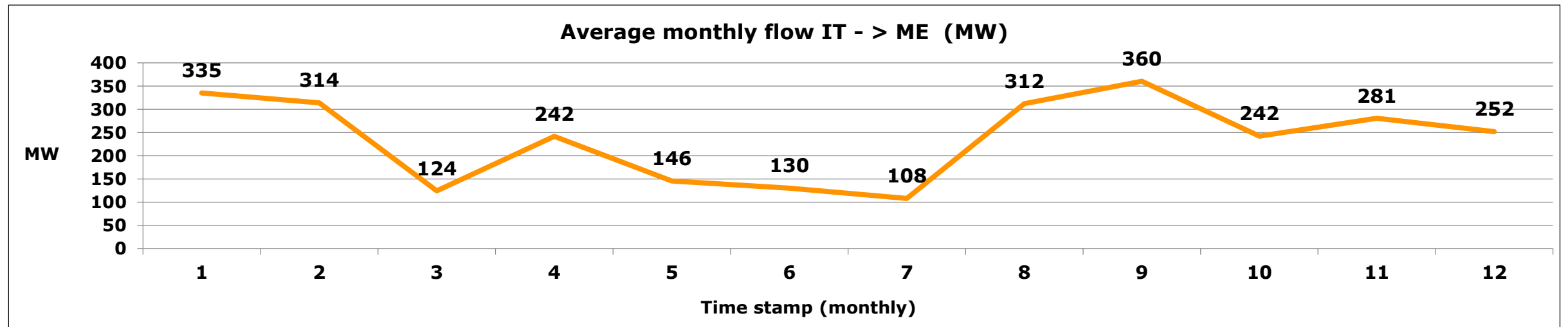
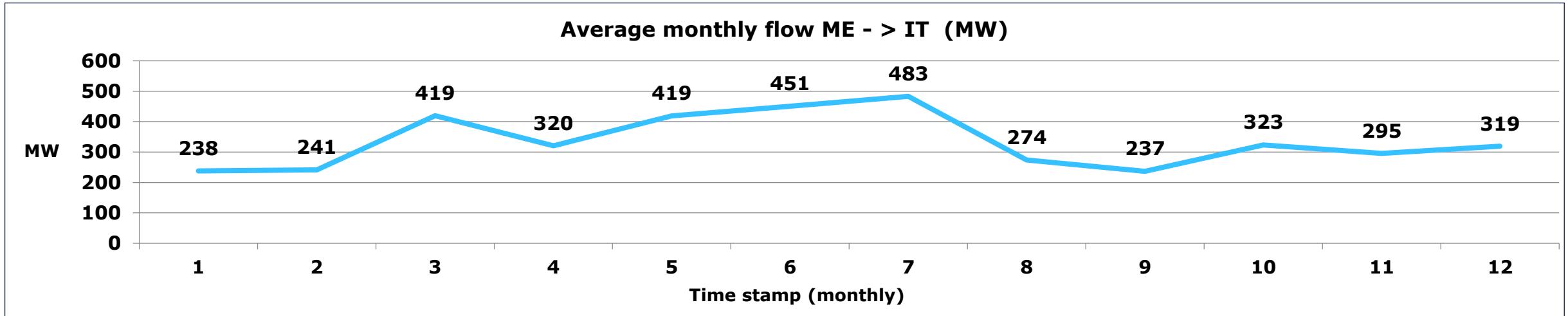
1. Installed capacity of RES in Italy increased for 20 000 MW since 2010.
2. Thermal power plants in Balkan are shutting down or reducing their number of running hours per year



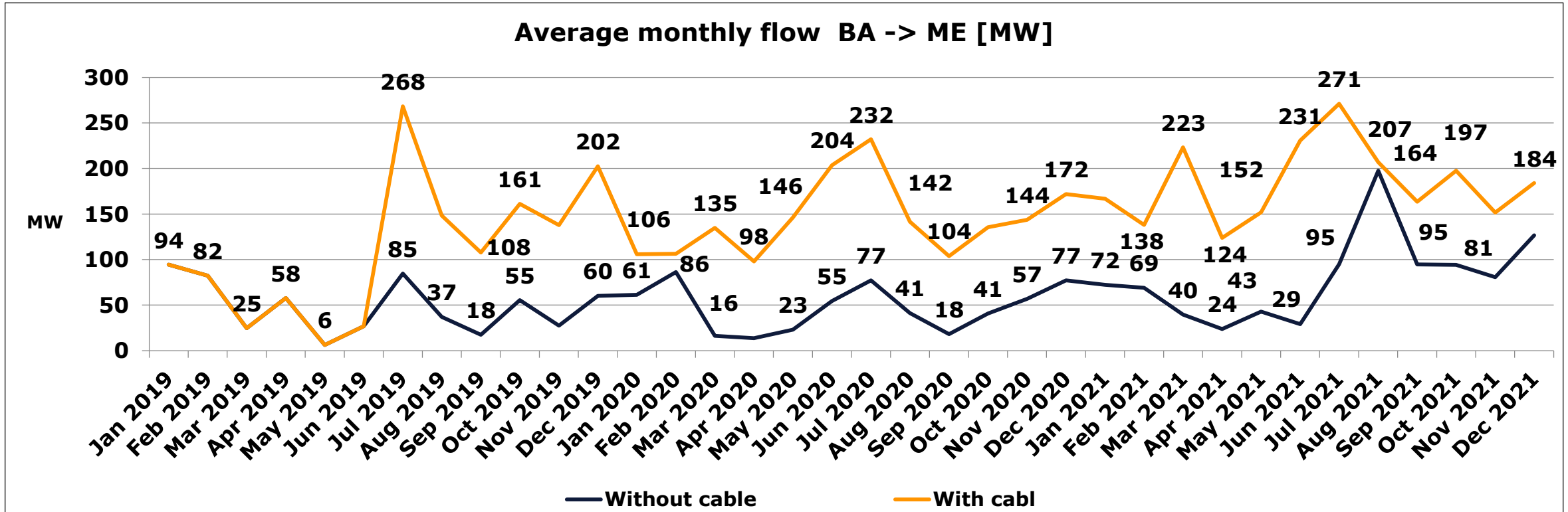
# Spread between IT\_CSUD zone and HUPX on 02.03.2019 and 29.05.2019



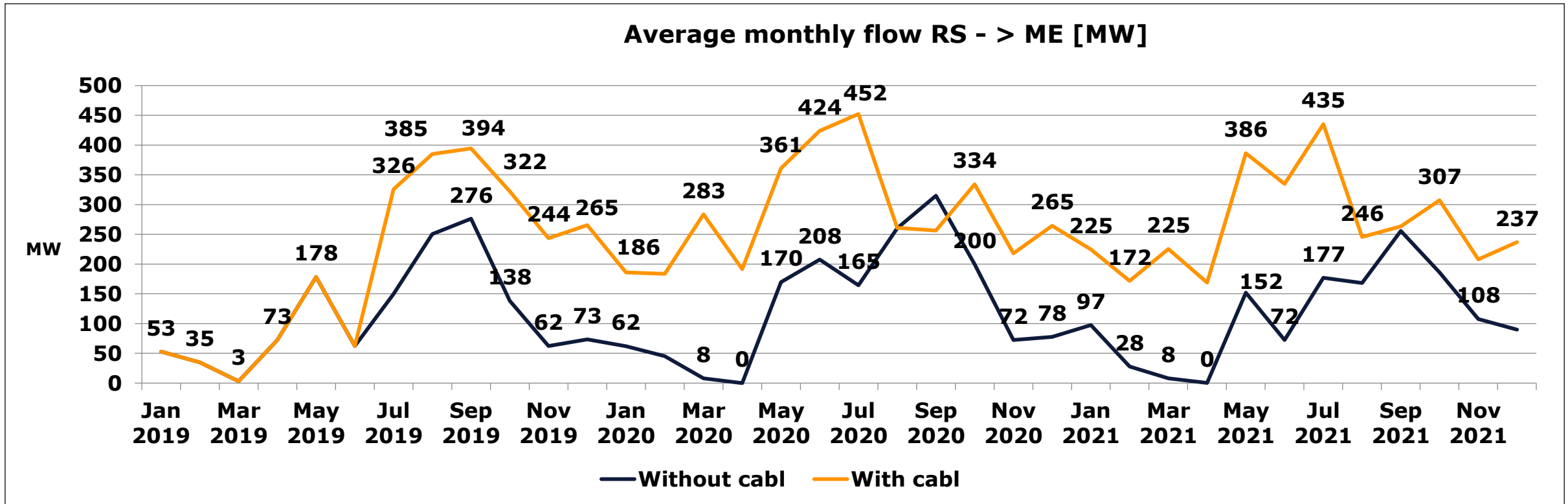
# Results of the analysis (ME-IT FLOW)



# Results of the analysis (BA-ME FLOW)



# Results of the analysis (RS-ME FLOW)



- Shutdown of thermal power plants in the Balkans and the increase of RES in Italy causing the spread between these two markets to shrink which is at the same time reducing the cable's impact on prices in the region.
- It is not realistic to expect that the price in the Balkans will be higher by 5-10 € / MWh (annually) due to contact decrease of spread between Italy CSUD and HUPX
- The current spread on hourly level indicates that during the summer period, flow of energy in the "peak" profile will probably be directed from Italy to Montenegro which has a negative effect for the producers in Balkan who have flexible hydro power plants and prefer to buy 0-6 and sell 7-23
- TSO-s might benefit more from the cable due to increased flow towards Montenegro and more often congestions on borders (especially Montenegro TSO due to ENTSO-E ITC mechanism)
- A lot will depend on the flexibility of the cable to switch the direction of the flow since there is significant difference especially between off peak and peak price

# THANK YOU FOR YOUR ATTENTION!

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