

EXPLANATORY FACTORS OF EXTREME PRICING DAYS ON THE HUNGARIAN POWER EXCHANGE (HUPX) DAY-AHEAD MARKET

Barnabás Máté DEREKAS, non-member, +36-70-554-2947, derekas.barnabas@eszk.org

Overview

Since 2010 there is an organized electricity market in operation in Hungary. The first few years of the Hungarian Power Exchange has gone. This period of time provided us with notable experience in connection with the behaviour of the market. The paper examines the day-ahead market of base electricity between 2011 and 2013. In this time series of data there are some instances which show extremely high or low realized prices. These price spikes are typical attributes of power exchanges in general, but the reason of them could be special. The paper's main goal is to identify the explanatory factors of these price spikes. In order to receive substantial results, it is essential to conclude a systematic examination of various circumstances that are able to influence the shaping price at the market. The analysis considers the most affective external variables from weather conditions through technical malfunctions to combining market behaviour. By the end, the reader can recognise the main risk factors. Furthermore, it also come out whether the suspect of any prohibited cooperation or capacity retention can occur at the Hungarian market.

Methods

First of all, the behaviour of the electricity market is modelled as ideal competitive market. Later I opened some restrictions of this model to examine the anti-competition behaviour of the market participants. The paper applies the classical tools of fundamental analysis. I attempted to study all the factors that can affect the market price at the HUPX. I searched the coincidences between the price spikes and potential explanatory events. I also used basic statistical tools to define the spikes in the time series. It was essential to be able to get a high amount of data from different sources. Collecting the necessary information I visited the website of MAVIR Hungarian Independent Trans-mission Operator Company Ltd. There are wide-range of publicly available information about the Hungarian Electricity Grid. I received meteorological datas from the Hungarian Meteorology Services (OMSZ).

Results

My goal was to find cause-effect relation between external factors and the price spikes. After the examination it was able to four main explanatory factors: power plant malfunctions, extremely hot temperature, effects of foreign electricity grids, holidays and weekends. Another, theoretical classification was also improved, discriminating the demand-, supply- and mixed-driven market shocks. The analysis identified the potential reasons of more than 90 % of the extremely high or low prices in the examined time period.

Conclusion

The main explanatory factors of price spikes were identified. We can exclude the suspect of manipulation in most of the examined cases. However, in some cases it can occurs that some kind of prohibited cooperation happened between the power producer. Of course, there is an impossible mission to prove such actions and this was not the goal of the paper. But this paper can show the connections between the events of the electricity grid and some very strange market processes.

References

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