



Vortrag im Rahmen des Seminars

Forschungskolloquium | Research Seminar

Titel:

Case study of increase–decrease gaming at the German–Danish border

Autor:

Natalie Krank, Diplom–Mathematikerin, Bundesnetzagentur in Bonn

Abstract:

European electricity markets are organized in bidding zones. Market participants can freely trade within the same bidding zone and grid congestions are resolved by redispatch measures. In Germany, there is regulatory redispatch with cost compensation. There is a vital debate about local flexibility and redispatch markets. Critics are pointing out that these markets incentivize misbehaviour, in particular the strategy of increase–decrease gaming. In case of structural congestions, where market participants are able to anticipate the congestion, they will change their bidding strategy. Strategic bidding behaviour generates windfall profits and can aggravate congestions. While the theoretical concept of increase–decrease gaming is well understood, this is one of the first empirical studies—and the very first to do so in a portfolio bidding context. We analyse the implications of the minimum capacity agreement on the border between DK–West and DE. In the event of grid congestions, the TSOs apply countermeasures through local redispatch markets. We first develop models for the prediction of grid congestions based on fundamental data. Congestions can be predicted with 80% accuracy and machine learning models outperform traditional methods. In a second step, we analyse whether the bidding behaviour of market participants changes when grid congestions are anticipated. Total offered sell volumes in the day–ahead auction increase by 10% when grid congestions are expected, indicating that market participants engage in increase–decrease gaming. Under the assumption that increased traded sell volumes were not physically feasible and have triggered additional special regulation, 14% of the activated special regulation volume could be attributed to inc–dec gaming corresponding to a financial impact 19 million EUR during period analysed.