

Analysis of the German Border Power Transmission Lines and Congestion Management as an Element towards a Single European Electricity Market

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(1) Overview

Being Europe's biggest economy and geographically in the middle of the European Union the development and integration of the German Energy System into the European Grid System plays an important role in the completion of the Single Market for electricity. On the one hand Germany follows international goals of energy policy dictated by the European Union. On the other it is pursuing its "Energiewende" oriented towards national goals.

The capacity of cross border transmission lines are a scarce commodity and according to the basic laws of economics should be allocated efficiently. Market players have to develop efficient congestion management rules to run those transmission lines. Explicit auctions are a simple way of allocating the capacity of those transmission lines independently from the marketplaces for electrical energy of the different bidding zones. However, the separated trading of energy and transmission power causes some information asymmetry between market participants that leads to market inefficiencies. The aim of this work is to analyse recent developments in the cross border transmission capacities and congestion management between Germany and its bordering neighbours.

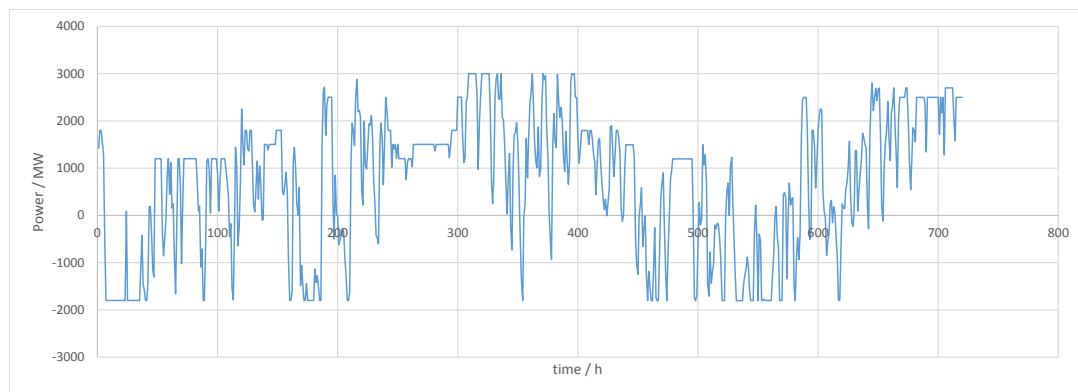


Fig. 1: Cross Border Commercial Schedule - day ahead - between Germany and France in January, 2012
Source: ENTSO-E

(2) Methods

In a first step public available data from various European TSOs is collected, validated and evaluated. It is important to check the data for consistency, since erroneous information may give misleading results. Figure 1 is an example of such data strongly depending on the current NTC value. With econometric methods the effect of cross border exchanges on wholesale prices is analyzed. In a first order approximation a multivariate linear regression model is used to test for different hypotheses. Finally, an attempt is made to measure the efficiency of the recently implemented bidding zones for market coupling.

(3) Results and Conclusions

The completion of a Single Electricity Market in Europe certainly is desirable from an economic point of view. The coupling mechanisms are indeed leading to wholesale price equality in several European countries for a significant amount of hours. A first evaluation of the very recently implemented North-Western European Price Coupling (NWE) is also given.

References

European TSOs, ENTSO-E