

The Dynamics and Distribution of the Area Price of the Nord Pool

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Since the development of the liberalization of the electricity market in Europe, the Nord Pool has been often cited as an example of the efficient power exchange covering the Nordic countries and a part of Germany. The matching of demand and supply is done using the one-day ahead market every hour and in equilibrium so called “system price” or an hourly equal price across the Nordic area should be hit in theory. However this is made possible only when there exist sufficient transmission capacity that prevents the occurrence of bottle necks. In case when there happens congestion of transmission lines, the market clearing price will rise in a region where power producers cannot find a necessary transmission line. Then “area price” which is divergent from “system price” will come out. In this paper in order to examine the degree of volatility of the area prices we studied their behavior. We are interested in their price distribution over time to inquire whether they follow the normal distribution or not. It is generally believed that prices are competitively determined if there exist a number of sellers and buyers. It implies that the distribution of competitive price will follow the normal distribution. Seeing that there exist almost one hundred sellers in the Nord Pool, we should expect that the volatility of area prices will be in the range of the three σ 's. However, according to the analysis of the Nord Pool hourly database from 2001 to 2008, we found that the price behavior has not followed the normal but the power distribution.

Keywords

Nord Pool, System price, area price, volatility, power distribution