

## Market Prices in a Power Market with more than 50% Wind Power - DTU Orbit (09/11/2017)

### **Market Prices in a Power Market with more than 50% Wind Power**

Denmark has the highest proportion of wind power in the world. Wind power provided a world record of 39.1% of the total annual Danish electricity consumption in 2014 with as much as 51.7% in Western Denmark. Many would argue that the present power markets are not designed for such high shares of wind power production and that it would be hard to get good and stable prices. However, analyses in this chapter show that the Nordic power market works, extreme events have been few, and the current infrastructure and market organization has been able to handle the amount of wind power installed so far. It is found that geographical bidding areas for the wholesale electricity market reflect external transmission constraints caused by wind power. The analyses in this chapter use hourly data from West Denmark—which has the highest share of wind energy in Denmark and which is a separate price area at the Nordic power exchange. Data have been collected from the last ten years and periods with extreme wind conditions are used as case studies to illustrate the robustness of our findings.

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