

Christmas Workshop Energy Finance 2016 | December 12th – December 16th | Abstract

Probabilistic Mid- and Long-Term Electricity Price Forecasting

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Abstract:

The liberalization of electricity markets and the development of renewable energy sources has led to new challenges for decision makers. These challenges are accompanied by an increasing uncertainty about future electricity price movements. The increasing amount of papers, which aim to model and predict electricity prices for a short period of time provided new opportunities for market participants. However, the electricity price literature seem to be very scarce on the issue of medium- to long-term price forecasting, which is mandatory for investment and political decisions. Our paper closes this gap by introducing a new approach to simulate electricity prices with hourly resolution for several months up to a few years. Considering the uncertainty of future events we are able to provide probabilistic forecasts which are able to detect probabilities for price spikes even in the long-run. As market we decided to use the EPEX day-ahead electricity market for Germany and Austria. Our model mainly utilizes the sale and purchase curves for electricity day-ahead auctions. By applying our procedure it is possible to map different scenarios on company or even on a macroeconomic level into future prices. We find that using the supply and demand curves based model in the long-run yields realistic patterns for the time series of electricity prices and leads to promising results considering standard error measures.