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A review of PhD thesis

Andrea Kell

Statistical Approaches to Short-Term Electricity Forecasting

Submitted dissertation deals with problems concerning a forecasting of the electricity demand. Particular parts are:

The deregulated electricity market,
Forecasting framework,
Specifications of electricity market.

The first part is devoted to specifications of stylized features of the electricity market demand. Stylized facts are:

Annual, weekly, and daily seasonality,

High volatility,

Holiday and weekend effects,

An existence of outliers.

The second part is devoted to the forecasting framework. Here are presented main the electricity demand determining factors as follows

Standard part,

Weather variables,

Special events,

Unexplained events.

On these factors are constructed regression models. Next, different forms of linear and non-linear regression structures and ANN are presented. A little bit weak is the part about measures of the forecast accuracy. These measures are else very robust, but are very flat.

The third part is devoted to a comparison of three methods for a modeling of a demand electricity consumption. It is presented that the LRM, the ANN, and the models with autoregressive specification have practically the same prediction power.

Overview

This thesis is written on good level. However, this one could contain a little bit more sophisticated stochastic and statistical methods for an investigation and analysis of a dynamics of the electricity demand.

By conclusion, this dissertation is very good structured and obtains new results about electricity demand and therefore I recommend to the research board to award a degree

Doctor of Philosophy

to

Andrea Kell.

Prague 10.1.2008

Prof. Ing. Miloslav Vošvrda, CSc.

Miloslav Vošvrda

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