



Extreme value models for wind power forecast errors

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Models for extreme negative wind power forecast errors are presented in this paper. The models are applied to forecast levels below which the wind power very rarely drops. Such levels could be called "certain-levels" or "guaranteed levels" of wind power, well knowing that full guarantee never can be given. The levels are obtained by building models for the error from already existing wind power forecasting software. The models are based on statistical extreme value techniques, which allows extrapolation beyond the available data period. In the study data from 1.5 years is used and return levels up to a 10 years return period are estimated. The data consists of hourly wind power production in the two regions of Denmark (DK1 and DK2) and corresponding wind power forecasts, which cover horizons from 1 to 42 hours ahead in time and are updated each hour. In the paper it is outlined how a suitable model is selected using statistical measures and tests, and finally the results are presented and evaluated.