Forecasting Electricity Spot Prices Accounting for Wind Power Predictions

A two-step methodology for forecasting of electricity spot prices is introduced, with focus on the impact of predicted system load and wind power generation. The nonlinear and nonstationary influence of these explanatory variables is accommodated in a first step based on a nonparametric and time-varying regression model. In a second step, time-series models, i.e., ARMA and Holt–Winters, are applied to account for residual autocorrelation and seasonal dynamics. Empirical results are presented for out-of-sample forecasts of day-ahead prices in the Western Danish price area of Nord Pool's Elspot, during a two year period covering 2010–2011. These results clearly demonstrate the practical benefits of accounting for the complex influence of these explanatory variables.