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The value of intraday forecasts in Austria

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In 2015 wind energy had an approximately share of 8.3 % of the produced electrical energy in Austria. While the share of wind systems in Austria is relatively small, the contribution to the needed balancing energy in the Austrian power grid is significant due to the volatility of wind. This leads to high balancing energy costs for wind production.
A possible way to reduce the balancing energy costs is intraday trading based on intraday wind power indeed forecasts additional to day ahead trading based on day ahead wind power infeed forecasts.
We compare several intraday forecasting methods, like time series models, regime switching, WPPT (Wind Power Prediction Tool) and conditional modelling and provide an estimation of the potential reduction in balancing energy costs compared to day ahead trading only. To implement and calculate the forecasting methods we use power infeed data of the balance group OeMAG (Abwicklungsstelle für Ökostrom), weather measurement and forecast data. The output data are intraday wind power infeed forecasts for about 1500 wind power systems in Austria with a time resolution of 15 minutes, which are error analysed.
To provide estimates for the cost benefits of the different intraday forecast methods compared to day ahead forecasts in terms of reduced balancing energy costs, we use the current pricing model of Austria, which depends on the total imbalance of the Austrian grid for the considered 15 minutes interval and several electricity market prices. Prices and balancing energy data are available from APG (Austrian Power Grid), which operates the Austria‘s high-voltage grid.
Here we implement intraday wind power infeed forecasts and calculate the potential reduction in balancing energy costs when using intraday trading.