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# Forecast of renewable energy with consideration of wind farm power curve and the broken cloud effect with PV

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The electrical energy provided by wind turbines or PV systems is subject to considerable fluctuation in time due to varying weather conditions (wind velocity and global radiation, respectively).
The prediction of the generated power of wind farms or PV systems connects the site-specific weather forecast with technical features of the installed plants (wind turbines within wind farms, PV modules within PV park).
Using the example of a wind farm it is shown here that it is favorable to determine the power curve of an entire wind farm, in order to apply it for predicting the output of wind energy.
For the prediction of energy yielded by PV systems the 'broken cloud effect' is an influence which can be difficult to obtain from a numerical weather forecast.
However, both effects are of a systematic nature and their knowledge should contribute to an improvement of the forecast results. In our example, a neural network is used for creating the link between weather and energy forecast. It is shown in which way both effects (power curves of individual wind farms, broken cloud effect with PV systems) can be quantified in an algorithm prior to handing it over to the neural network to predict the energy yield.