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Thüle wind farm: 3% more production through wind measurement at the spinner – iSpin technology detects yaw misalignment

The patented iSpin wind measurement technology has been installed on two of the Vestas V80 turbines in Energiekontor's company-owned Thüle wind farm, enabling wind measurement directly at the spinner. The result of the measurements: both turbines were affected by yaw misalignment of 8 degrees, and after correction on average 3.2 percent more production could be achieved. Now the wind farm operator plans to equip further turbines with the iSpin system.

In spring 2016, Energiekontor installed the spinner anemometer technology iSpin initially on two of seven Vestas V80 type turbines. The exact wind measurements taken directly at the spinner were intended to determine whether the turbines in the Lower Saxonian wind farm were aligned for the best possible yield.

The result of the measurements: both of the two megawatt turbines showed siginificant yaw misalignments of 8.0 and 7.9 degrees. After correction, the turbines delivered 3.5 and 2.9 percent more production.

"The iSpin system is very lucrative for us: with the extra yield we gain, the investment pays off after less than three years", says Carsten Schwarz, head of operations of company-owned wind farms at Energiekontor AG. As one of the wind energy pioneers, the company has developed 102 wind farms with more than 580 turbines. Its own portfolio comprises 33 wind farms with 269 megawatt rated output.

At Thüle wind farm, one freely-streamed and one shadowed turbine were equipped with the iSpin meaurement technnology. Carsten Schwarz: "The iSpin technology has fully met our expectations. We also plan to install the system on other turbines because we see enormous potential for further production increase. At Thüle wind farm alone we expect to gain 20,000 Euros more revenue through better measurement data. The data of the turbine manufacturers is not sufficient for that."

Prior to now, wind speed and direction have usually been measured behind the rotor on the wind turbine's nacelle, where turbulence can lead to inaccuracies.

The ROMO Wind iSpin system uses proven ultrasonic technology to measure wind where it first hits the wind turbine – directly at the spinner. In this way, operators gather accurate information on the wind conditions in front of the rotor. This enables them to check whether their turbines are aligned for the best possible yield. At the same time, the data allows for optimised wind farm management and load reduction, which prolongs the total life of the turbines.

“With iSpin, wind farm operators can measure and monitor the actual earning capacity of all their turbines any time during their lifetime. The effects of changes such as component exchange and optimisation measures are traceable. iSpin measurements are independent from environmental factors, so operators can compare performance data of different turbines – which is essential for active wind farm performance management”, says Jens Müller-Nielsen, Managing Director of ROMO Wind in Germany.

The iSpin technology was developed by the Technical University of Denmark (DTU) and tested continuously since 2004 until it came onto the market in 2013. iSpin is a wind measurement technology which is not dependent on a specific manufacturer, and is designed for permanent installation. The iSpin system has been incorporated into the international IEC 61400-12-2 standard for measuring the absolute power curve.

ROMO Wind at WindEnergy in Hamburg, 27–30 September 2016: Hall A1, Stand 425.

About ROMO Wind:

ROMO Wind AG is a Danish-Swiss technology company supported by renowned investors and shareholders such as Yellow & Blue and ABB. ROMO Wind specialises in optimising the productivity of wind turbines, reducing loads and accurately calculating on-site wind conditions. The company uses patented iSpin technology to this end. ROMO Wind has its headquarters in Zug, Switzerland and has regional teams in Denmark, France, Germany, Great Britain, Ireland, Italy and Spain, as well as a sales cooperation with UpWind Solutions in USA, Canada and Mexico.

Further information on ROMO Wind and the iSpin technology as well as image material for free editorial use: **www.romowind.com**

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