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CMS: First plug-in on the market to measure unbalance

Prototype successfully provides plant operator with regular updates on balance condition.



In BKW's Bockelwitz wind farm the prototype was successfully tested (Source: Bachmann Electronic)

The assessment of unbalance becomes fast and cost effective. Blade Unbalance Calculator will be launched to the market in June.

After successful testing of the prototype, a new plug-in to Bachmann's Condition Monitoring System provides plant operators with regular updates on the balance condition of their wind turbines' blades.

This makes the condition monitoring specialist from

Germany the first wind energy supplier to provide a measurement of unbalance without a lengthy and expensive process. In field tests with development partner BKW Wind Service GmbH involving mass addition to blades, the calculated unbalance has shown excellent agreement with the weight actually fitted. The product, by the name Blade Unbalance Calculator, will be launched to the market mid-June and will be seen at the Wind Energy Hamburg trade show.

The plug-in to the CMS runs to provide an estimate of the mass unbalance in kgm, based upon a few structural parameters and the output from a tower sensor fitted at the centre of the nacelle. Not only does the output provide a direct measure of balance quality, it also distinguishes between aerodynamic and mechanical effects, ensuring plant operators prepare for the correct maintenance action.

„Studies by WID suggest that up to 50 percent of wind turbines suffer from undue unbalance on the rotor“ remarks David Futter, product manager at Bachmann Monitoring GmbH. “We estimate that today the majority of turbines running with moderate unbalance remain undetected. Only an extended full survey would be able to assess them“ David Futter explains. That is lengthy and expensive, but the implications of an undetected unbalance are also severe: increased fatigue loads on the entire structure, including the tower and nacelle, as well as the drivetrain components. Providing a cost-effective estimate of the balance quality allows owners to target those wind turbines where balancing will make a significant improvement to the operational life.

The impact of the Blade Unbalance Calculator on the cost reduction of offshore wind energy is currently being tested as part of the [EU joint research project ROMEQ](#).