

Deutsche WindGuard accredited for nacelle-based LiDAR measurements

Power curves of wind turbines: at the forefront under the new IEC 61400-50-3

Varel, 2022-09-20: Deutsche WindGuard Consulting GmbH is one of the first companies to be accredited according to the new IEC 61400-50-3 for power curve measurements on wind turbines with nacelle-based LiDAR. After almost a decade of development and experience with this measurement method, as well as extensive involvement in the definition of the respective standards, this accreditation is the consequent next step for the company's own test laboratory.

Wind farm owners use power curve measurements, for example, to check whether the performance of their wind turbine generator (WTG) meets the manufacturer's specifications and, if applicable, to demand optimisation or compensation. This involves relating the wind speed at the height of the rotor to the output power of the WTG. Compared to the traditional measuring method with met mast and cup anemometer, the laser-based LiDAR method requires considerably less effort. Offshore, the nacelle-based LiDAR measurement is practically the only established method of evaluating power curves.

“Just as previously in the field of ground-based LiDAR measurements, we were again among the pioneers with the nacelle-based method,” recalls Axel Albers, Managing Director of Deutsche WindGuard Consulting, “we started research back in 2013 and successfully completed our first offshore measurement assignment that same year. As one of the leading providers of nacelle-based LiDAR power curve measurements, we today receive recognition from turbine manufacturers and wind farm operators worldwide.”

Additionally, Deutsche WindGuard played a key role in the development of IEC 61400-50-3 under leadership of Denmark's Technical University (DTU). Finally published in January 2022, this new standard describes procedures and methods to ensure that wind measurements with LiDARs mounted on wind turbine nacelles are carried out consistently.

“Also onshore, nacelle-based LiDAR measurements are becoming more and more important,” says Uwe Lohbeck, Manager Power Performance and Wind Measurements, “we are recording increasing demand from the Netherlands, Great Britain and Scandinavia, but particularly from Asia and the USA, where many large onshore wind farms are being constructed.”

For Deutsche WindGuard, the new accreditation means a future-oriented enhancement of its accredited services portfolio, which continues to comprise power curve measurements via met mast and ground-based LiDAR as well as the calibration of ground-based and nacelle-based LiDAR devices.

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Photo:

Nacelle-based LiDAR-measurement on an offshore wind turbine



Caption:

Deutsche WindGuard Consulting GmbH is accredited according to the new IEC 61400-50-3 for power curve measurements on wind turbines with nacelle-based LiDAR.

Photo: Deutsche WindGuard

Deutsche WindGuard – The Wind Professionals

Deutsche WindGuard is one of the leading independent service providers in the wind industry. As an accredited test laboratory, Deutsche WindGuard Consulting specialises, among other things, in wind turbine prototype tests, wind measurements, energy yield assessments and LiDAR calibrations. From noise and shadow forecasts to wind measurements, energy yield calculations and site assessments, Deutsche WindGuard offers expertise for wind farm projects from one single source. Deutsche WindGuard's consulting services are characterised by synergy effects across the full range of services. Whether due diligence, market analysis, contract consulting or feasibility studies: all of them involve the entire WindGuard expertise and know-how. In a complex energy market, Deutsche WindGuard is committed to providing unbiased and manufacturer-independent consulting and comprehensive scientific, technical, and operational services. Deutsche WindGuard was founded in 2000. With the headquarters in Varel, Germany, and subsidiaries in Germany, the United States, China and India, it employs more than 180 experienced experts.

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