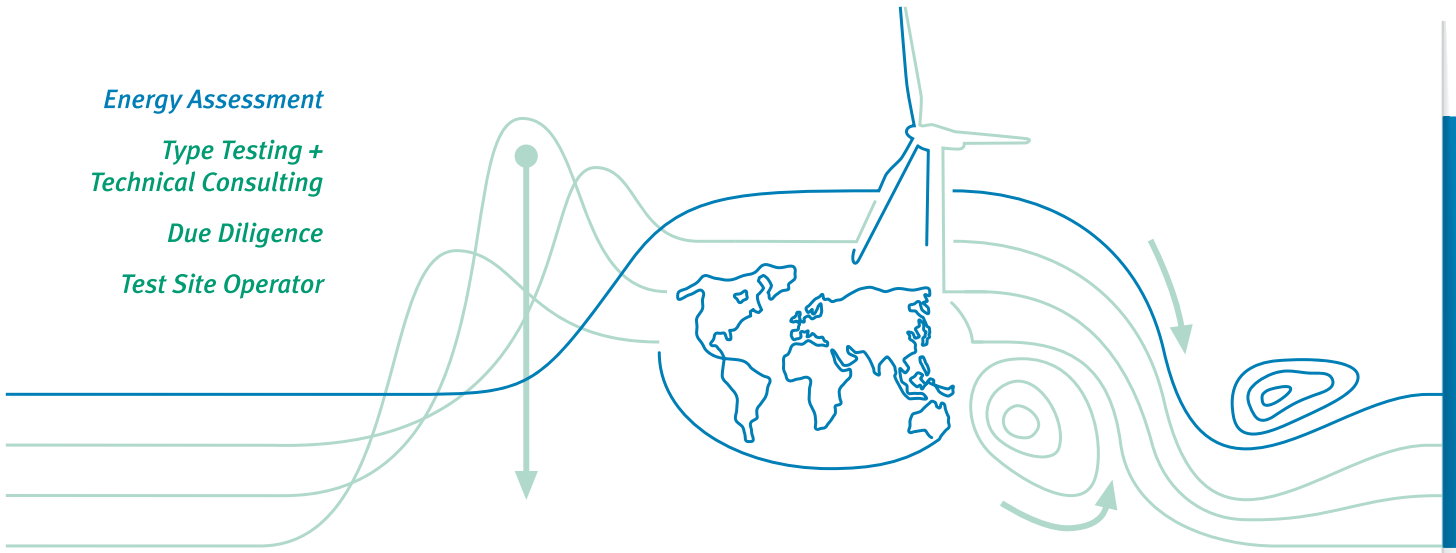


Energy Assessment

Type Testing +
Technical Consulting

Due Diligence

Test Site Operator



Energy Assessment

Validation Services

The calibration of anemometers to be used on wind measuring masts (WMMs) is required at least once a year due to several guidelines and standards, e. g. IEC 61400-12-1 or the MEASNET guideline "Evaluation of Site-Specific Wind Conditions". An equivalent procedure for so-called Remote Sensing Devices (RSDs) like SoDARs or LiDARs is the validation next to a conventional WMM.

The department Energy Assessment of windtest grevenbroich gmbh (wtg) offers the validation services for RSDs in cooperation with the company GWU Umwelttechnik GmbH from Erfstadt (Germany). Since 1997, both companies worked on projects worldwide.

Customer benefits

To ensure the traceability of results of the wind measurements executed with RSDs, a validation is an approach comparable with the calibration of anemometry in wind tunnels. Frequent transportations from site to site and the influence of meteorological effects during the measurements may affect the results of the RSDs in an inexplicable manner. Due to the large measuring volume of RSDs and measuring heights up to 200 m, the execution of the necessary validation in wind tunnels is not feasible.

Basic implementation

The validation services and the installed infrastructure on the test site for wind turbine prototypes in Grevenbroich are to meet the draft version of the guideline for power performance measurement of wind turbines CD IEC 61400-12-1, Edition 2.

The RSDs will be installed parallel to a 100 m WMM, which is erected and equipped according to IEC 61400-12-1. The period for the validation service is estimated at 4 to 6 weeks, depending on the wind conditions in the specific period.

The RSDs to be determined and the reference WMM are placed on the test site, provided two wide evaluation sectors can be used for the validation. On the test

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site, the primary wind inflow comes from a southwesterly direction. While the RSDs are able to measure up to 200 m above ground, the WMM used for the validation has gradations at 60 m, 80 m, 97.5 m and 100 m. At least three different heights are taken into account during the validation campaign.



During the validation, several comparisons and correlations between the measuring results from RSDs and WMM are carried out.

- Comparison of 10-min mean values of horizontal components of wind speed as well as wind direction and turbulence intensity
- Analysis of the availability of the RSD measurement at every measuring height
- Regression analysis of RSD data versus WMM data based on 10-minute mean values
- Comparison of percentage deviations in particular wind BINS

All results are documented in a test report.

Competence

wtg is a service supplier accredited in accordance with DIN EN ISO / IEC 17025 and offers all necessary measurements based on national and international standards. Furthermore, our specialists are members of several national and international working committees – like the MEASNET Power Performance Expert Group and the FGW Fachausschuss Leistungskurve.

You will also be able to benefit from our longstanding cooperation with GWU Umwelttechnik GmbH (Erfstadt), the German distribution partner of ASC SoDAR devices as well as Leosphere LiDAR devices.

For more information please contact:

Benjamin Böhme

b.boehme@windtest-nrw.de

+49 2181 2278-41



Deutsche
Akkreditierungsstelle
D-PL-11233-01-00



windtest grevenbroich gmbh

Frimmersdorfer Straße 73a
41517 Grevenbroich · Germany
Phone +49 (0) 2181-22 78-0
Fax +49 (0) 2181-22 78-11
E-mail info@windtest-nrw.de