

Energy Assessment

Type Testing +  
Technical Expertise

Due Diligence

Test Site Operator

Type Testing + Technical Expertise

## References

### windtest grevenbroich gmbh

#### Company Profile

More than 18 years of experience in an industry that is only little older. Since 1996, windtest grevenbroich gmbh (wtg) provides predominantly manufacturers, planners and operators, but also authorities, the finance sector and private individuals, first-class services in the areas of planning, development, optimisation, quality assurance and consulting in the technological and economic advancement of wind energy – both on the domestic market and abroad.

Innovations and optimisation measures for turbines, PV systems, components, CHPs, combustion engines or complete wind and PV farm configurations in relation to grid requirements are assessed in every detail, measured and planned by more than 35 experts – either on the company-owned, one of the worldwide largest test field for onshore wind turbines in Grevenbroich, or locally at the customer's sites. Thus wtg makes a considerable contribution to the improvement of the technology and efficiency, the acceptance and the export opportunities of wind energy farms.

The measurements and expert reports of wtg-specialists provide customers with the very certainty they need for planning and implementation of wind energy projects. After all, reliability is our highest principle. We are also involved in numerous national and international bodies, ensuring that our staffs always have their fingers on the "pulse of time". On the other hand, their work results frequently affect statements, standards, or the legislation.



#### windtest grevenbroich gmbh

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The shareholders of the windtest grevenbroich gmbh are:

- 25,0 % Federal state of North-Rhine-Westphalia (NRW),  
represented by NRW BANK
- 37,5 % RWE Innogy GmbH (utility)
- 12,5 % District of Neuss (authority)
- 12,5 % City of Grevenbroich (authority)
- 12,5 % ee energy engineers GmbH (TUEV Nord group).

The diversified shareholder structure (utility operator, private company, municipalities) guarantees the independence of our services.



*Test site Grevenbroich*

## Our Quality References

- **Operator** of an **onshore test site** for inland wind turbines in Germany
- Exclusive partner for all measurement services for the largest **onshore test site in Europe** in the Netherlands
- DAKKS accredited according to **IEC 17025**, signed the Multilateral Agreement (MAL)
- **Independent** (referring to the shareholder structure of windtest grevenbroich gmbh)
- Full Member and Chairwoman of **MEASNET** Group (international organization)
- Member of **EWEA** (European Wind Energy Association)
- Member of **AWEA** (American Wind Energy Association)
- Member of committee for standardisation **FGW** (national organization)
- Member of working Committee Noise Emission (national organization)
- Member of working Committee Renewable Energies / Wind energy **VGB Powertech** (international organization)
- Member of Windgutachterbeirat und Sachverständigenbeirat des Bundesverband Windenergie e.V. **BWE** (national organization)
- Named Measuring Body for Sound Measurements according to §26 of the German Immission Control Law (**BImSchG**) (national organization)
- Partnerships or common projects with **universities in Brazil, Germany, South Korea** (International)



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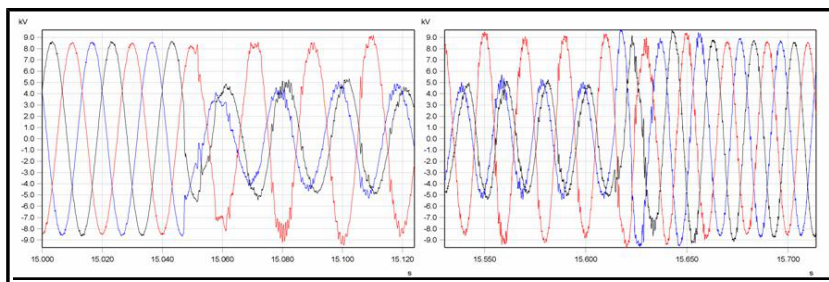


## Power Quality and Grid Integration Measurements

Since 1996 wtg realized more than 250 projects of power quality and grid integration issues like electrical characteristics / grid codes world-wide. These power quality and grid integration measurements are not limited to wind turbines. We are also specialists for grid integration measurements on combustion engines and photovoltaic facilities. Until now about 200 projects were performed in the wind energy, 40 in photovoltaics, 20 in combustion engines.



*One of our LVRT containers (testing possibilities up to 6 MW)*



*Short-circuit measurement (2 phase voltage dip)*

**Our Projects (extract)**

Numerous power quality and grid integration measurements in divers European countries (all over Germany, Bulgaria, Greece, France, Italy, Luxembourg, Poland, Turkey etc.) and also on international level (Canada, India, USA and South Korea).

**Our Clients (extract)****From all over the world*****Wind Energy***

- |                   |                     |
|-------------------|---------------------|
| ■ Enercon         | ■ Schütz            |
| ■ Energiekontor   | ■ Servion           |
| ■ Furhländer      | ■ Suzlon            |
| ■ GE Wind Energy  | ■ Südwind           |
| ■ HSWind          | ■ Tacke             |
| ■ Lagerwey        | ■ Vensys            |
| ■ Leitwind        | ■ Wind Technologies |
| ■ NEG Micon       | ■ WindWorld         |
| ■ NEG Rotors      | ■ WinWind           |
| ■ Nordex          | ■ Vestas            |
| ■ ReGen Powertech | ■ wpd               |

***Combustion Engines***

- |                                 |                     |
|---------------------------------|---------------------|
| ■ AVS Aggregatebau              | ■ MTU Onsite Energy |
| ■ Bosch KWK Systeme             | ■ Stadtwerke Bochum |
| ■ Caterpillar                   | ■ SOMMER energy     |
| ■ enertec Kraftwerke            | ■ Tedom             |
| ■ ESS Energie Systeme & Service | ■ upb               |
| ■ Gas NPI                       | ■ Wörtsilä Finland  |
| ■ MWM                           | ■ YADOS             |
| ■ MTU Friedrichshafen           |                     |

***Photovoltaics***

- |                         |                              |
|-------------------------|------------------------------|
| ■ AEG Power Solutions   | ■ KACO new energy            |
| ■ ET Solutions          | ■ Schneider Electric         |
| ■ Fraunhofer ISE        | ■ Sputnik EngineeringSungrow |
| ■ FRONIUS International | ■ Vensys                     |
| ■ Woodward IDS          |                              |

**Other**

- |                |              |
|----------------|--------------|
| ■ Enercon      | ■ SMS Siemag |
| ■ FGH          | ■ WRD        |
| ■ juwi         | ■ Yaskawa    |
| ■ meteccontrol |              |

**Contact**

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