



Site evaluation

Sound immission projections

Every wind energy system (WES) generates noise - it emits sound. A sound emission projection helps to determine the relevant values depending on very varied environmental factors.

Generally, all technical installations must avoid any kind of emissions that could result in a violation of the environment. WES as sound sources are classified as facilities requiring official approval in the meaning of the BImSchG (German Federal Immission Control Act). With regard to the generated sound immissions, the following applies to these WES:

- to avoid harmful environmental impacts according to the technical standard;
- to reduce unavoidable environmental impacts to a technically feasible minimum.

The noise emitted by a WES is generated among others by the aerodynamic air flow around the rotor. If this noise reaches an immission site, it can be measured or calculated as sound pressure levels. The TA Lärm (Technical Instructions on Noise) defines the relevant reference values that have to be complied with.

Type of construction area	Limiting value by day	Limiting value by night
Health resort area	45dB(A)	35dB(A)
Pure residential area	50dB(A)	35dB(A)
General residential area	55dB(A)	40dB(A)
Mixed-use zone	60dB(A)	45dB(A)
Commercial zone	65dB(A)	50dB(A)
Industrial zone	70dB(A)	70dB(A)





Implementation and Benefit to the Customer

Sound immission calculations must be submitted to the respective authorities (planning authorities) for the construction permit. They document that the immissions at the buildings in the area surrounding the WES will likely be within the range of the applicable limiting values.

The calculations are based on:

- Acoustic power level of all planned WES,
- Specifications of the planned WES,
- Precise coordinates of the planned WES and immission sites,
- Preparation of a digital terrain model of the planned site,
- Knowledge of the precise reference values at the immission sites.

The calculated results are documented in an expert's report.

Our competence:

- **wtg is a Designated Measuring Agency for sound measurements of WES according to § 26 BimSchG (German Federal Immission Control Act) in 15 federal states.**
- **Accredited according to ISO EN 17025 for sound emission measurements, sound immission measurements, structure-borne sound measurements and sound immission projections**
- **Representative of the FGW Technical Committee, the most important national body for the subject of sound in WES**
- **FGW Conformity Seal**
- **Co-ordinator of the "Noise Expert Group" of MEASNET**

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