

- Influence of wind turbines on power lines
- Independent consulting
- Issuing of expert assessments
- Observance of norms and guidelines
- Wake calculation of wind energy turbines
- Implementation of oscillation dampers
- Wind farm optimisation
- Planning security



## Influence on Power Lines

The number and size of wind turbines will continue to increase in the coming years. To optimize land-use, the distances to neighbouring structures have to be minimized as much as possible – this particularly includes power lines. Power line conductor ropes can begin to oscillate due to the wake of the wind turbines, becoming damaged in the process. Protective oscillation dampers are generally associated with relatively high costs. Avoiding these costs means observing the respective minimum distances. To clarify the circumstances and avoid unnecessary costs, exact calculations according to the current guidelines lead to planning certainty

## Norms and Guidelines

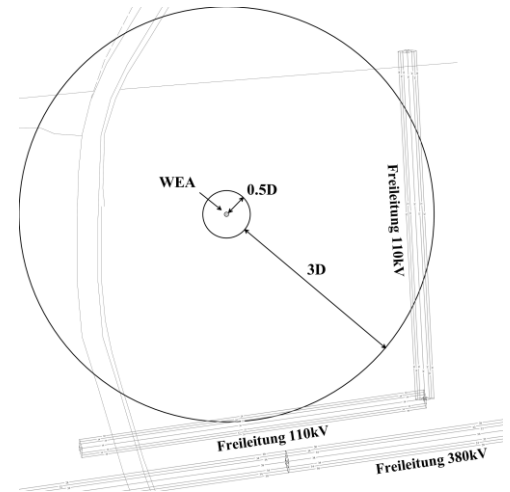
For wind turbines near power lines, norms and guidelines establish conditions preventing damage to conductor ropes. These norms determine the areas affected by wakes where damage could potentially occur.

A power line assessment clearly resolves the question of whether expensive measures to reduce swinging are actually necessary. For modern wind energy turbines with large hub heights particularly in the near field, such measures can be avoided as the conductor ropes are outside or below the area of potential damage.

## Overspeed Assessments

For you, the wind farm operator, Overspeed issues assessments which objectively resolve the question if power lines are influenced by wind turbines. We provide you with support in the optimal configuration of your wind farm, thus minimising costs.

These expert assessments are issued according to current norms and guidelines. For grid operators, Overspeed assessments are proof of the impact (or lack thereof) on power lines and are the basis for acceptance and approvals.



*Points of intersection within a radius of 3.5D around the wind turbine.*

## Further Services

Overspeed has been active as an independent consultant in the wind energy sector for more than 20 years. Main fields of our work:

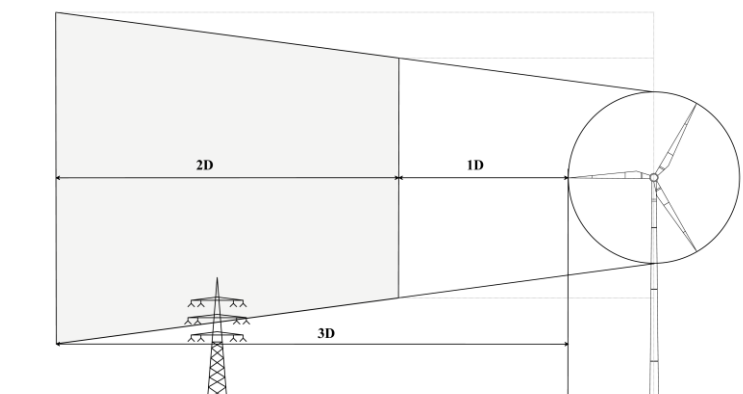
- Due Diligence
- Offshore – management, project development
- Wind potential and energy yield studies
- Uncertainty analyses
- Conception and supervision of wind measurements
- Wind power forecasting systems for grid and market operators as well as direct marketing

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*Schematic representation of a wake above an overhead power line.*