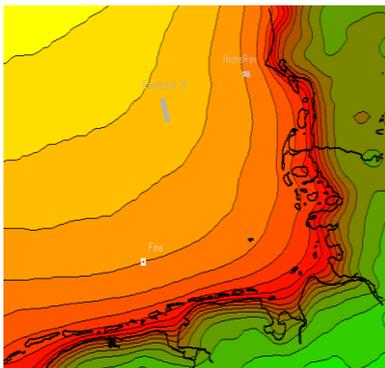


- Independent consulting
- Project due diligence for sale and financing
- Risk assessment
- Project support
- Worldwide activities
- Offshore wind farms
- Management concepts
- Uncertainty analyses
- Measurement Concepts
- Wind power prediction
- Research and Development



Offshore wind potential calculations

Your contacts

Consulting, On- and Offshore:

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Consulting

As a rule, there is a considerable demand for consulting during the planning and implementation phases of wind energy projects. Overspeed draws on many years of worldwide experience in the fields of expertises, implementation of wind energy projects and wind farm operation. This gives us solid, practical knowledge which is reflected in our consulting services and project management skill.

Overspeed is an innovative service provider in the wind energy industry. You benefit from our focus on modern, future-oriented methods applied to our consulting services, products and research activities.

Advice for your wind energy projects

Building on more than 25 years of experience in wind energy, Overspeed is your ideal consultant when it comes to project due diligence and project analysis, management of permit procedures, wind potential studies and wind farm layout optimisations. There is a special focus on projects in "challenging" locations such as offshore and outside Europe. In particular, our offshore know-how is based on our main consultant work for the "Sandbank24" project and several detailed assessments and due diligence investigations. Here are the main aspects of our consulting work:

- Project analysis/due diligence
- Wind potential studies
- Support for offshore project planning and development
- Long-term production analyses
- Correlation analyses
- Uncertainty analyses
- Meso-scale model calculations
- Development and supervision of wind measurements
- Operating concepts
- Wind power prediction

Offshore

Usually, offshore projects require intensive consulting for their realisation. Included here is advice on planning the cable route, the grid connection technology (AC/DC) or managing permit

application procedures, wind potential studies and yield studies as well as foundation design and cable layout.

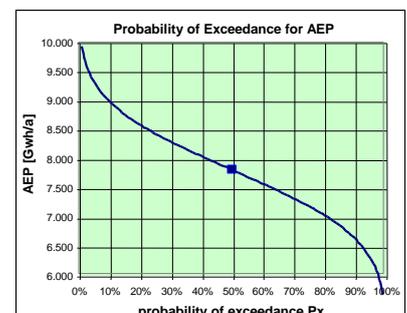
The expertise we have gained from taking part in the Sandbank24 project and several due diligence investigations makes Overspeed your effective partner when it comes to planning, developing, financing and selling offshore wind farms.



Offshore wind farm

Probability analyses

Probability and uncertainty analyses are key to evaluating wind potential estimations. In-depth analysis of the parameters behind uncertainty factors is essential for reliable yield calculation that defines the probability of exceedance (POE) of a given energy production (AEP).



Energy yields for defined probabilities of exceedance

Consulting worldwide

- **Wind speed and energy yield studies** for wind farms and stand-alone turbines (Morocco, Turkey, China, Poland, France, Brazil, Philippines, Portugal,..)
- **Identification of required infrastructure development** for wind farms (China, Brazil, Pakistan, Sri Lanka,..)
- **Analysis of wind farm plans and measuring campaigns** (China, Brasil, Pakistan, Sri Lanka, ..)

Offshore wind farm development

- **Due diligence**
- CAPEX, OPEX Scenarios
- **Offshore Project "Sandbank24"**
- Management of the permit procedure
- Coordination with shipping authority (BSH)
- Supervision of external expertises
- Support for environmental impact study
- Potential analyses
- Wind farm layout optimisation
- Internal electrical grid layout, optimisation
- General substation layout regarding availability
- Preparations for the selection of turbine foundation technologies
- Selection and optimisation of grid connection technology
- Cable layout, different optimisation goals
- Coordination of grid connection with grid operator

Software and system development

- IT platform for wind power prediction system *Anemos*
- Shadow cast shutdown system *Shadeoff*
- Wind farm optimisation programs www.optifarm.de
- Correlation analysis for wind potential determination
- Bird migration surveillance software (recording, analysis)

R&D projects

- Anemos wind power prediction (EU)
- Anemos.plus wind power prediction and business processes (EU)
- SafeWind extrem weather forecast for wind energy
- POWER offshore decision-aid systems(EU)
- CleverFarm wind farm management www.cleverfarm.com (EU)
- Endow offshore wind farm modelling (EU)
- Offshore M&R
Offshore maintenance and repair optimisation (EU)
- HyWindBalance
wind-hydrogen systems used as balancing power stations (Lower Saxony state)
- DTOC Design Tool for Offshore wind farm Clusters, Large wind farm effects, grid optimisation

Current advanced education activities related to wind energy

- Teaching contract, Uni Oldenburg "Wind Resources" Postgraduate Programme Renewable Energies (PPRE)
- Teaching contract, Uni Oldenburg lecture "Wind Energy Applications", Postgraduate Program Renewable Energies (PPRE)
- "Wind Energy Technology and Management" advanced course: member of course management team, curriculum development, conduct of Wind Resources and Operational Management Modules, support for the complementing project work
- Various seminars in Germany and abroad
- Forwind Academy, foundation member
- Continuing Studies Programme Offshore Wind Energy, Forwind

Wind power forecasting systems (Anemos, Overspeed)

- SONI, Northern Ireland
- Eirgrid, Ireland
- EDF, France
- PPC, Crete
- Acciona, Spain
- Horns Rev, Tunø Knob, offshore wind farm, Denmark
- AEMO, all wind farms in south-east Australia
- Hydro Quebec, Canada
- Tere, Indien
- Elering, Estland

Condition monitoring system (CMS)

- Technology selection, guidance
- System operation

Storage systems und hydrogen technology

- Project "HyWindBalance"
- Hydrogen cavern storage IVG