REFERENCE CASE WIND ENERGY

Wind and energy yield assessment for offshore wind farm projects Meerwind Süd and Ost

For the North Sea offshore wind farm project Meerwind Süd and Meerwind Ost in the German exclusive economic zone (EEZ), the development company WindMW GmbH required a wind and energy yield assessment to study the efficiency of the planned configuration and gain a detailed analysis of potential output. That's why EuroWind, a co-operation partner of TÜV Rheinland, was the right choice for this project due to its depth of experience in wind resources and energy yield assessments.

Basic Facts	
Client	WindMW GmbH
Involved companies	Bundesamt für Seeschifffahrt und Hydrographie (BSH)
Timeframe	March - April 2011
Project location	German exclusive economic zone (EEZ), North Sea
Main services	▪ Analysis of wind climatologic parameters ▪ Calculation of farm energy yield ▪ Report on wind and energy yield assessment

Initial situation and requirements

WindMW GmbH was founded as a result of a partnership agreement between majority shareholder Blackstone and Windland Energieerzeugungs GmbH to jointly realize the Meerwind Süd and Ost project in the North Sea. The company is responsible for the planning, construction and operation of both offshore wind farms. For a wind and energy yield assessment of the wind farms WindMW GmbH required a professional partner experienced in providing top-quality assessments for the wind energy sector.

Solutions, results

Meerwind Süd and Ost is a 288 MW project located in the German Bight area of the North Sea and is 23 km north of the island of Helgoland. To determine wind farm efficiency, a wind and energy yield assessment was conducted.

The assessment was based on the 3D-mesoscale model system WIEN, developed by EuroWind, and wind measurements from the research platform FINO 1, provided by the BSH. The focus of the wind and energy report was a detailed analysis of the wind climatologic parameters at the respective wind energy locations and a yield projection for Siemens SWT-3.6-120 turbines.

The farm efficiency was determined for the wind farm configuration as provided by the customer, taking farm shadowing effects and rotor wake effects within the offshore wind farm into account.

From the data gained from the wind and energy assessment, it is possible to optimize the wind farm project by considering alternative configurations of the wind energy plant and turbines.

Did you know?

The two wind farms Meerwind Süd and Ost will consist of 80 wind turbines with a power output of 3,6 MW each.

Benefits for the client

WindMW GmbH was supported with:

- Highly qualified and experienced professionals to ensure precision in the planning of the wind farm.
- A top-quality site assessment in compliance with all common offshore guidelines.
- Delivery of the required data within the agreed deadline.

About EuroWind:

Founded in 2001, EuroWind started as an innovative company for wind resource and energy yield assessments. EuroWind has since gained a reputation as specialists in providing the top-quality assessments demanded by many financial institutes. Particularly for offshore wind farms, EuroWind, with an in-house developed and highly flexible three-dimensional method of computation, is acknowledged as the experts in long-range wind energy predictions. Their 3D-model was chosen for the Technology Transfer Award by the University of Cologne in 1999.

With an experienced partner like EuroWind, TÜV Rheinland is able to offer clients a full-service one-stop-shop solution for all wind energy projects.

About TÜV Rheinland

Founded 140 years ago, TÜV Rheinland is a global leader in independent inspection services, ensuring quality and safety for people, the environment, and technology in nearly all aspects of life.

We inspect technical equipment, products and services, oversee projects and help to shape processes for companies around the world. Since 2006 we have been a member of the United Nations Global Compact to promote sustainability and combat corruption.

For the wind energy sector we provide a comprehensive service portfolio, covering every aspect of wind energy projects - from site selection, design and manufacturing support to dismantling plants.

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EuroWind