



GuD
OFFSHORE WIND
POLSKA

■ Consulting

■ Expertise

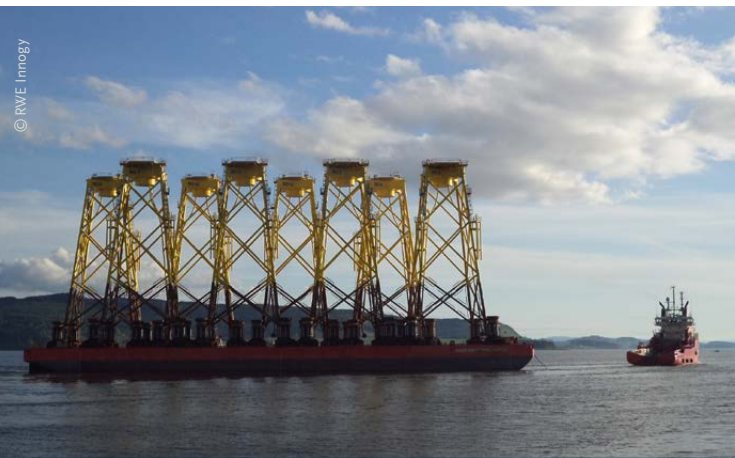
■ Planning

■ Supervision



Offshore Wind

Jacket foundations for the Nordsee Ost Windfarm being shipped to the harbour.



Monopile foundation of a met mast.

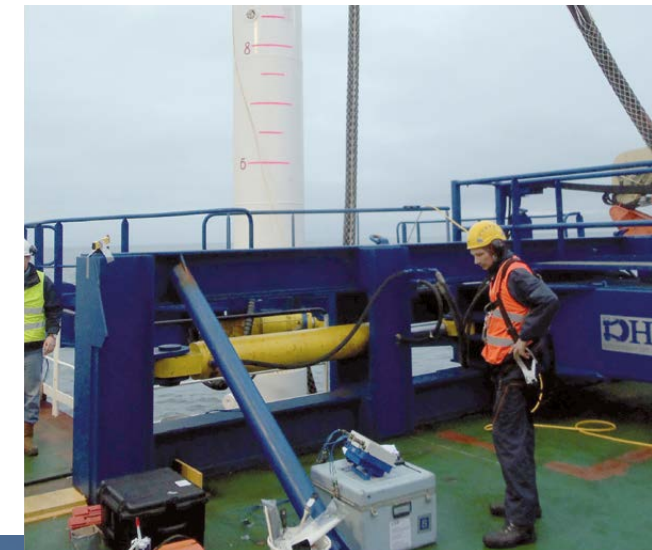


On safe ground

A safe foundation for offshore wind turbines is possible at almost any location. However, this requires a detailed knowledge of the soil and experience also in difficult conditions. As geotechnical experts according to DIN 4020 and BSH Standards we offer full services in all questions related to geotechnical engineering and structural mechanics for the foundations of offshore wind turbines.

- site investigation and laboratory testing
- foundation expertise and consulting
- feasibility and desk top studies
- geotechnical and structural design of foundations
- soil investigation reports
- design of foundation systems
- structural health monitoring (SHM) for foundations

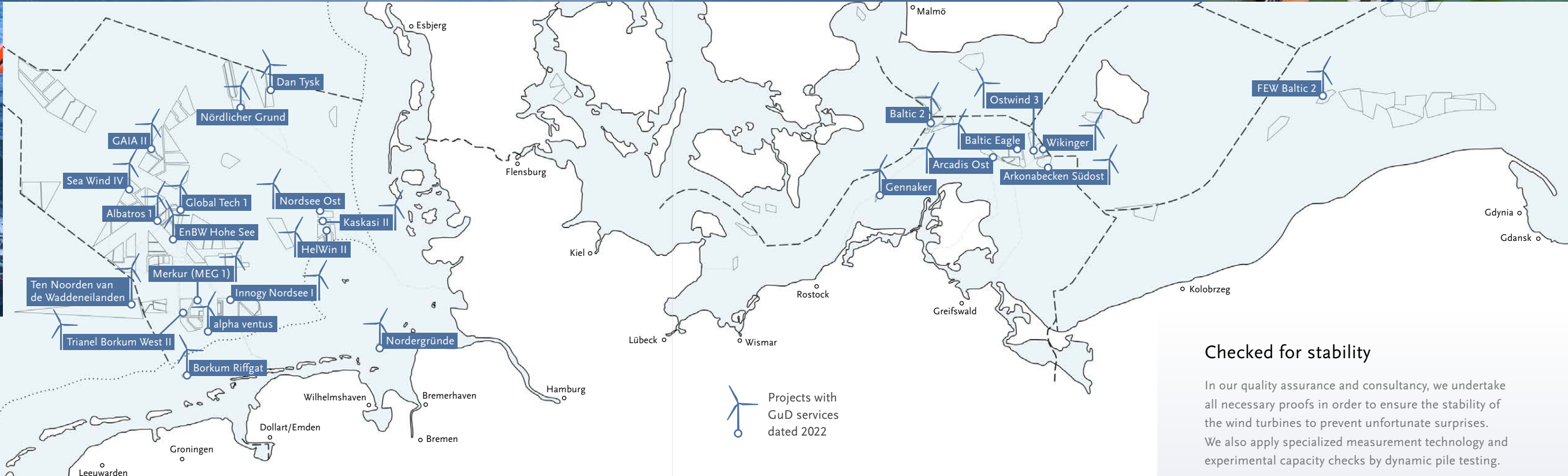
Dynamic pile tests during driving in order to monitor the installation and to determine pile capacity.



A steady basis for the wind industry



Safe-keeping of the cable connectors of an instrumented foundation for later continuation of the measurements.



Checked for stability

In our quality assurance and consultancy, we undertake all necessary proofs in order to ensure the stability of the wind turbines to prevent unfortunate surprises. We also apply specialized measurement technology and experimental capacity checks by dynamic pile testing.

- drivability studies
- dynamic pile tests
- continuous monitoring of the driving process
- determination of pile driving fatigue
- quality assurance and supervision

Comprehensively certified

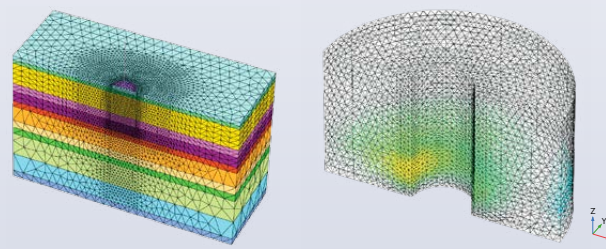
All of our consulting and design follows recognized and accredited computational and measurement methods. With our subsidiary, the certifying organization Hanseatic Power Cert GmbH we undertake project certification of wind farms and offshore projects from planning and design to installation and decommissioning.

- Hanseatic Power Cert GmbH is accredited by the Bundesamt für Seeschifffahrt und Hydrographie (BSH) for the certification of all components of an offshore wind farm: turbines, structure and foundation, offshore substation, inner park cables and residential platform.

Cyclically analyzed

The cyclic loading represents a very important issue of offshore foundations. The characteristic wave load accompanied by the loads of the power production of the wind turbine put high demands on the design. In line with our project involvement we take part in research programs and developed special analysis methods for foundations, which were included in current codes and standards. This ensures an economical and safe foundation design for our clients.

- analysis of deep and shallow as well as special foundations
- in house developed analysis procedures for cyclic loading
- cyclical laboratory testing
- quality assurance concepts



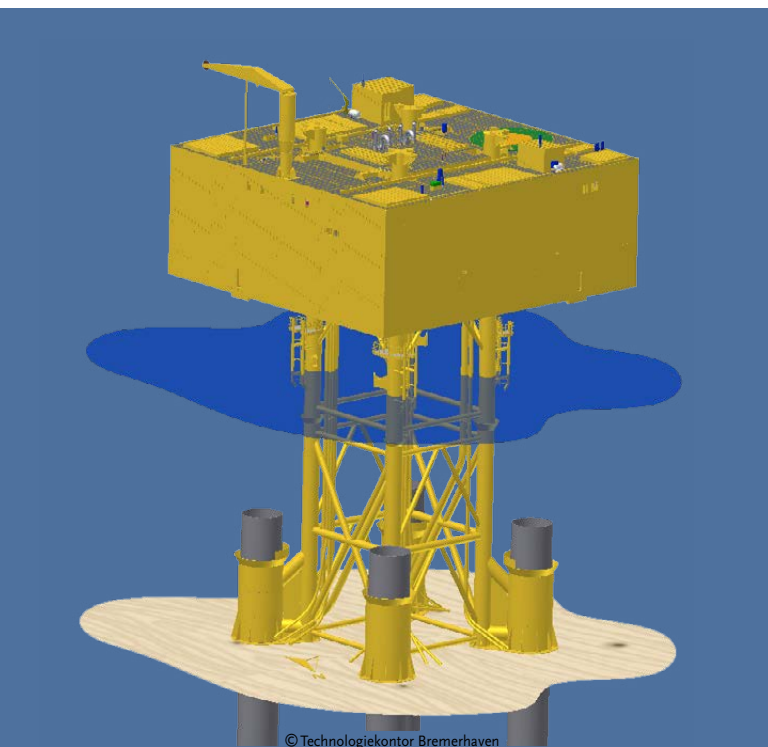
Detailed 3-D FE-Analysis of the pore water pressure development adjacent to a Monopile in a maximum storm event.



Cable fitting for dynamic pile testing



Installation of jacket piles for an Electrical Offshore Substation



© Technologiekantor Bremerhaven

We designed the pile foundation for offshore platforms – here the offshore substation at Baltic 2.



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Selected reference projects

ARCADIS OST Offshore Wind Farm

Client: Landkreis Vorpommern Rügen

ARKONA-BECKEN SÜDOST Offshore Wind Farm

Client: E.ON Climate & Renewables Central Europe

BALTIC EAGLE Offshore Wind Farm

Client: Iberdrola Energie Deutschland GmbH

FEW BALTIC II POLAND Offshore Wind Farm

Client: Baltic Trade and Invest Sp. z o.o. (RWE)

GENNAKER Offshore Substation

Client: 50Hertz Offshore GmbH

HELWIN 2 Offshore Substation

Client: TenneT TSO BV

INNOGY NORDSEE 1 Offshore Wind Farm

Client: RWE Innogy GmbH

KASKASI II Offshore Wind Farm

Client: RWE Innogy GmbH

MERKUR (MEG I) Offshore Wind Farm

Client: Hochtief Infrastructure Offshore GmbH

NORDERGRÜNDE Offshore Wind Farm

Client: wpd AG

NORDSEE OST Offshore Wind Farm

Client: RWE Innogy GmbH

OSTWIND 3 Offshore Substation

Client: 50Hertz Offshore GmbH

**TEN NOORDEN VAN DE WADDENEILANDEN (TNW)
Wind Farm Zone (WFZ)**

Client: RVO Holland

TRIANEL BORKUM WEST II Offshore Wind Farm

Client: Seaway Heavy Lifting