CONSULTANCY SERVICES WITHIN OFFSHORE WIND ENERGY

The advantages of placing wind farms at sea are numerous. They are able to produce up to 100% more electricity than onshore wind turbines due to higher and steadier wind speeds across open water. Other advantages include greatly reduced visual impact and the possibility of installing larger turbines producing more energy.

Ramboll offers a full range of services on offshore wind projects from planning and project development, to design, implementation and follow-up on operation and maintenance, and finally decommissioning. Our unparalleled track record in the design of offshore foundations for wind turbines enables us to produce cost optimal designs using any relevant foundation concepts in steel or concrete.

Project Development
Ramboll is experienced in evaluating project feasibility via estimates and assessments of life time costs and income, usually performed on a probabilistic basis, and often in connection with the complete time schedule.

Turbine technology
We are capable of estimating aero elastic loads for all stages of the foundation design and performing fully integrated load simulations on in-house software. In addition we perform controller design and provide software for condition monitoring.

SELECTED PROJECT REFERENCES

- SPIC Binhai North Phase 2, Huadong Engineering Corporation, China, 400 MW, 2016
- Norther Offshore Wind Farm, Van Oord Offshore Wind Projects, Belgium, 352MW, 2015-2016
- Horns Reef 3, Vattenfall, Denmark, 400MW, 2015-2017
WHY CHOOSE RAMBOLL FOR YOUR PROJECT?

World leader in offshore foundation design for wind turbines.

Have performed designs for more than 40 offshore wind farms around the world, totaling more than 65% of installations.

Offer full-range services.

25 years of experience from offshore oil and gas structures, which is applied for detailed design of transformer platforms.

RAMBOLL’S SERVICES

Once an offshore wind farm has been decided, Ramboll typically provides support and advice as the owner’s engineer throughout the development process on relevant technical, environmental and financial matters or support the various vendors for the project. Our clients include project developers, utilities and contractors, and our services include:

OUTLINE DESIGN / FEASIBILITY
Feasibility studies
Due diligence
Risk assessment
Environmental impact assessment
Budgeting and time scheduling
Geotechnical, geophysical and met-ocean studies
Permitting

BASIC DESIGN
Conceptual and tender design
Preliminary turbine loads
Layout and design of transformer platforms
Supervision of detailed site investigations

DETAILED DESIGN
Detailed design of foundation concepts
Detailed design of transformer platforms
State-of-the-art in-house software
Project certification and authority approval
Procurement

POST CONSTRUCTION
Planning and specification of O&M
Follow-up on O&M
Decommissioning
Structural health monitoring systems
Structural reassessment

TEST & COMMISSIONING
Acting on behalf of the developer during testing, commissioning and handing over of the project

MANUFACTURING & CONSTRUCTION
Fabrication supervision
Construction management and supervision

Basic project data
Based on factors such as the choice of turbine and site conditions, Ramboll carries out all the necessary analyses to select the foundation type best suited for the project. These analyses include modeling and assessment of met-ocean data, geophysical and geotechnical investigations, wind studies, EIS and EIA, and navigational risk analyses.

World-leading foundation design
Ramboll is the only company in the world that has carried out detailed design for more than 30 offshore wind farms for 11 different turbine types, and we are currently one of the few design firms capable of performing load iterations with the turbine manufacturers. The designs are carried out by means of advanced state-of-the-art software developed in-house.

Project approval and certification
Most projects require a project certification, and some require e.g. the German BSH approval, in order to have them approved by the financial community and the insurers. We have obtained certification of more than 30 offshore wind projects. Further, we have obtained approvals of projects by both the German BSH and the Prüfungsingenieur institution.

Contract management
We contribute with engineering and design services to all phases of the construction work and perform supervision of fabrication of elements for the project.