

WIND ENERGY: EXPERTISE AT EVERY TURN



A FRESH PERSPECTIVE ON PROJECT MANAGEMENT

Offshore and onshore wind energy is one of the most exciting, innovative and challenging areas of the energy sector. It is also becoming a mainstream energy source which, thanks to technological advances, means that onshore and offshore wind developments are delivering reliable and increasingly cheap, low carbon energy.

With more than 40 years of experience in the design and construction of onshore wind farms around the world, Royal HaskoningDHV has been working at the forefront of wind energy since the industry's inception.

We have supported offshore wind farms from the first near-shore projects to today's ambitious multi-gigawatt projects in the North Sea. We have assisted the development and delivery of wind projects across UK, Europe and globally. Our experienced teams and sector leading expertise are recognised by our clients.

Our experience from early site selection, feasibility, design and consent through to the operational phase, working alongside developers has equipped us with the knowledge to provide expert solutions for challenging issues including: environment and consenting, finance and investment, transport and logistics, health and safety, civil and marine engineering design.



It is part of the Royal HaskoningDHV approach to consider all parts of the project lifecycle whatever phase a project may be in. That means we are thinking ahead, anticipating issues and embedding solutions in the design and ethos of the project right from the start

“Royal HaskoningDHV has consistently provided excellent and dependable service to Forewind during the application stage of the Dogger Bank projects, resulting in high quality, compliant applications that have both been accepted for examination by the Planning Inspectorate.”

Mark Thomas,
Head of Onshore development, Forewind

OUR TRACK RECORD

- 11GW of offshore wind consenting projects in UK and Europe
- 8GW of successfully consented offshore projects in the UK
- 1300km of offshore export cable consenting projects
- 200km of onshore cable consenting projects
- Active projects in the UK, Netherlands, Belgium, Denmark and Poland;
- Projects including:
 - > FEED design for two offshore wind projects in Poland
 - > Dogger Bank Offshore Wind Farm (4.8GW)
 - > Third round of Netherlands offshore developments
 - > Thanet Offshore Wind Farm
 - > Dudgeon Offshore Wind Farm
 - > East Anglia Zone

1 PROJECT FEASIBILITY

Every successful onshore or offshore wind farm starts with a well-informed business plan and feasibility study. As a large Renewable Energy consultancy, Royal HaskoningDHV is ideally suited to provide technical feasibility, constraint and risk analysis for sites being considered for development.

For example, we are able to undertake a Geographical Information System (GIS) based constraints analysis of potential sites. By overlaying physical, engineering, environmental and planning factors alongside existing infrastructure, we can develop robust weighted assessments and comparative approaches for projects.

The development and implementation of a realistic and flexible feasibility assessment is essential for delivering effective projects. Our project managers and financial modelers are on hand to develop the high quality, adaptable project planning processes your projects require.

2 EIA CONSENT AND PROJECT DEVELOPMENT

We've built up a sector-leading reputation through our work in environmental impact assessments (EIAs) and consent support for wind farm projects. Every offshore wind project in which we have delivered EIAs has achieved consent first time.

We are the largest offshore wind development consultancy in Europe, providing services to more than 25 of the UK and Europe's most challenging offshore wind developments over the last 15 years.

The experts in our consent team cover most key technical disciplines to ensure the consenting process runs as smoothly as possible. Disciplines include: ecology; ornithology; hydrogeology; coastal modelling; noise; air quality; transport; health and safety, and other specialist areas. Our EIA and consent support services are driven by a strong science and policy-led approach to each topic.

3 REGULATORY COMPLIANCE AND RISK MITIGATION POST CONSENT

Achieving consent is a major milestone for any wind farm project. Developing the detailed project design following consent and ensuring the legally binding consent conditions are met requires great care and the integration of environmental, engineering and a range of technical disciplines.

No one has more experience in the offshore wind sector than Royal HaskoningDHV in ensuring projects meet their consent conditions whilst minimising project risk.



4

CONCEPT DESIGN AND TECHNICAL STUDIES

The early stages of defining a project involve vital decisions that ultimately determine the project's success.

Our experienced multidisciplinary consultant and engineering teams have a consistent design philosophy and managing out project risk is a key driver throughout the development process.

Royal HaskoningDHV can assist in every stage of project definition, and particularly concept engineering design including:

- Geotechnical and geophysical survey design;
- Outline cable route design;
- Foundation feasibility studies;
- Landfall feasibility studies
- Scour and marine physical processes studies
- Port studies, analysis and design

5 ENGINEERING DESIGN AND PROJECT SUPPORT

Royal HaskoningDHV offers a range of technical and engineering services that support the development, design and realisation of offshore wind projects. These include:

Port Assessments:

Based on more than a century of experience providing expert advice and design engineering services to the global port sector.

Coastal and Physical Process Modelling:

Royal HaskoningDHV has a large, well regarded coastal and physical processes modelling team.

Transport Assessment and Studies:

Supporting all logistical challenges including substation components, cables, ducts and materials transport during construction.

Structural Design:

We undertake global design commissions to international standards (API, British Standards and Eurocodes).

Electrical Design and Engineering:

Our design and engineering services cover in-field / export cables, design of substations and Grid Code compliance.

Civil Engineering and Geotechnical Services:

Management of ground investigation process including contractor selection, tendering process, contract management and technical oversight.

6 TECHNICAL SPECIFICATION AND FINANCIAL MODELLING

Our financial services team, supported by technical experts, work with developers, financiers and contractors and also provide advice on financial and investment risk and offer a portfolio of financial support services to the onshore wind industry.

Our onshore financial and transaction services cover the whole breadth of financial, legal, procurement, and environmental and engineering, including project finance, value for money analysis, public procurement process, due diligence, risk management, supply chain auditing and management.

7 PRE-CONSTRUCTION AND CONSTRUCTION SUPPORT

Managing risk through the project procurement and construction phase is critical to the success of the project. Royal HaskoningDHV has extensive experience acting as engineer, environmental advisor and representative on projects globally. Our offshore wind team also provides expert technical advice to ensure consent and regulatory compliance risk is effectively managed. This includes establishing reporting processes and the provision of expert client representative roles .

We also support EPC contractor teams during the design and build process to ensure compliance with consent and contract performance conditions in the most effective and cost efficient way.

8 OPERATION AND MAINTENANCE

Once operational, you can rely on our expertise in health and safety, HAZID and HAZOP, risk assessments and compliance with Construction Design & Management (CDM) Regulations to help maintain your projects.

Our services include:

- Environmental monitoring and reporting services
- Health and safety support services in the development of O&M procedures
- CDMC support services
- Health and safety compliance and audit services
- Regular structural inspection and reporting
- Development of operational manuals and procedures including auditable systems

9 DECOMMISSIONING

The requirements for decommissioning a wind farm are stipulated in the planning permission guidelines of the respective authorities. Decommissioning and restoration should be considered both pre-application and post-consent.

Our services include:

- Preparation of decommissioning plans for onshore and offshore wind farms.
- Management of regulatory risk
- Civil and structural engineering design
- Negotiating refurbishment agreement and regulatory consents
- Financial due diligence

TO FIND OUT MORE ABOUT ROYAL HASKONINGDHV'S APPROACH TO WIND ENERGY, PLEASE CONTACT:



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ABOUT ROYAL HASKONINGDHV

ROYAL HASKONINGDHV IS AN INDEPENDENT, INTERNATIONAL ENGINEERING AND PROJECT MANAGEMENT CONSULTANCY WITH 135 YEARS OF EXPERIENCE. OUR PROFESSIONALS DELIVER SERVICES IN THE FIELDS OF AVIATION, BUILDINGS, ENERGY, INDUSTRY, INFRASTRUCTURE, MARITIME, MINING, TRANSPORT, URBAN AND RURAL DEVELOPMENT AND WATER. BACKED BY EXPERTISE AND EXPERIENCE OF 6,500 COLLEAGUES ACROSS THE WORLD, WE WORK FOR PUBLIC AND PRIVATE CLIENTS IN MORE THAN 150 COUNTRIES.

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