



Driving down the cost of offshore wind

Xodus Group’s technical expertise and commercial insight help to deliver efficient, cost-effective offshore wind projects.

Finding experts who can deliver authoritative, in-depth advice and analysis at the conceptual stage is not easy. It is even harder to find non-deskbound experts who combine smart thinking with practical experience of hands-on engineering, and the ability to balance risk and financial pressures.

Fortunately Xodus offers a reassuring combination: the analytical tools and methodologies to scope and model a project, together with the practical expertise to support project managers during the project lifecycle. Throughout, our experts help to maintain the focus on real-world economics and your specific business goals.

Integration

What sets Xodus apart is our integration. At each stage in the process we can rely on multidisciplinary input from in-house professionals who have built up years of experience in the renewable and oil and gas industries covering safety and risk, environmental impact, geotechnics, subsea engineering, offshore structural engineering and integrity management and due diligence.

Our experts also work with a network of internationally respected specialists. This incisively strategic approach unites all these skills into a single, highly refined instrument. Every new project is tackled from a multi-faceted perspective –

a combination of breadth and depth unique in the industry.

Creating focus

Any major offshore project is fraught with challenges. The range of possibilities is often overwhelming, the conceptual framework alone equivalent to a vast jigsaw of alternative options.

Xodus helps clients manage risk and focus on the key issues – not just the important technical and commercial concerns, but also factors such as corporate governance and supply-chain management. Our specialists use a range of in-house decision-making tools to facilitate structured engineering judgement, from interactive modules and

workshops to advanced simulation and modelling techniques. The result? A detailed breakdown of project requirements that never loses sight of the big picture.

Delivering value

Our focused project management, supported by our quality management system, has been refined throughout the delivery of millions of manhours of project work delivered across the offshore sector. ‘Efficient’, ‘cost-effective’, ‘timely’, ‘quality’, and ‘communicative’ are watchwords of our attitude to delivering value. That’s why Xodus is trusted by offshore renewables developers, offshore technology developers, research institutions, investors and public-sector institutions for authoritative analysis and advice.





Experience trusted by both developers and suppliers

Triton Knoll Offshore Wind Farm (OWF), Statkraft / RWE

Structural engineering technical leadership services for offshore substations (OSP) and turbine foundations. Development and review of design basis, tender specification and procurement management, supply chain engagement.

Moray OWF and Inchcape OWF, MORL / Repsol

Concept selection and integration studies including turbine selection, foundations and substructures, array layout, commissioning, O&M, health and safety review and overall concept integration. Modelling Levelised Cost of Energy to identify technical and operational innovations which may reduce overall project lifetime costs.

Carbon Trust offshore wind accelerator multiple studies

- › **Cable burial risk study.** Review of installation techniques, risks, development of Cable Burial Risk Assessment Guidelines for industry, cost-benefit analysis
- › **Weather downtime study for cable installation.** Review of all processes to identify weather downtime bottlenecks and opportunities for innovation. Development of a metocean modelling tool to analyse

- weather downtime and schedule impacts
- › **Access study.** Similar to the weather downtime study but looking at vessel access for personnel and equipment transfer
- › **Lifetime asset integrity study for offshore structures.** Design review and study on optimisation for engineering and costs for offshore foundations.

Hywind project, Statoil ASA

Environmental Impact Assessment (EIA) co-ordinator for the project. Review of ground conditions and landfall options, feeding into survey requirements and the application of a reliability engineering approach to assess risks to surrounding assets. Successfully consented in 2015.

Deep Green Holyhead Deep tidal project, Minesto AB

EIA co-ordinator, both onshore and offshore. Supporting studies include offshore export cable study, landfall option selection study, offshore geophysical survey co-ordination and detailed electrical infrastructure work.

MeyGen, Tidal Project, Pentland Firth

EIA coordinator for Phase 1 (86 MW) of the Inner Sound project, undertaking technical studies in-house and project managing subcontractors. Extensive consultation with

Marine Scotland and their advisors on the novel aspects of the EIA such as collision risk for mammals, birds and fish. The project was successfully consented in September 2013.

Offshore wind feasibility study, Guernsey

Multidisciplinary study including import electricity price analysis, sites identification, potential project owners, detailed project economics analysis, development of resource analysis strategy and advice on seabed leasing and permitting processes. Includes consideration of fixed and floating offshore wind concepts.

Confidential client / project

High level technical due diligence on a demonstration floating OWF project. Services involved reviewing the key risks from a major due diligence process to identify potential areas of concern and impact for a consortium of investors.

Gwynt-Y-Mor OWF, RWE

Cable stability study assessment of on-bottom stability and free spans of the array cables. Provide indication of the propensity for cable movement and calculate the maximum allowable free span length that can be tolerated without the onset of Vortex Induced Vibration (VIV).

Xodus Group's clients include:

Offshore renewables developers

- › Statoil ASA
- › DONG Energy
- › EDP Renováveis
- › Repsol Nuevas Energías UK
- › RWE
- › ScottishPower Renewables
- › SMart Wind Limited
- › SSE Renewables
- › Statkraft

Offshore technology developers

- › ANDRITZ HYDRO Hammerfest
- › Aquamarine Power
- › Atlantis Resources Corporation
- › MeyGen Limited
- › Minesto AB
- › OpenHydro
- › Pelamis Wave Power
- › Rolls Royce
- › Tidal Generation Limited (TGL)
- › Voith Hydro Wavegen

Investors

- › BNP Paribas
- › Dexia
- › Rabobank

UK government agencies / other

- › Department of Energy & Climate Change (DECC)
- › European Marine Energy Centre (EMEC) Ltd
- › Office of Gas and Electricity Markets (Ofgem)
- › Highlands and Islands Enterprise
- › Marine Scotland / Scottish Government
- › Scottish Enterprise

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