



## Submarine cables

Xodus offers engineering and advisory support from development and operations through to life extension and removal from service.

Delivering successful offshore wind, wave, tidal and interconnector projects involving submarine connections demands rigorous risk management and know-how in multiple technical disciplines. Our experts guide owners, investors, banks and lenders involved in the submarine power cable market worldwide.

### Integrated multidisciplinary approach

Xodus seamlessly combines a detailed engineering capability with asset management, risk-based integrity management, planning and operations management all under one roof. We offer years of experience on diverse projects, enabling us to identify potential issues and highlight areas for improvement, preventing costly issues later in the asset lifecycle.

Our technical and strategic expertise helps to manage the integrity of assets by delivering rigorously engineered solutions.

### Key services

#### Engineering, procurement support, installation management

Our subsea engineering specialists bring deep understanding of seabed conditions and the marine environment to submarine cable projects. Their expertise covers pre-installation, installation and operational support.

#### Lifecycle operational support

We specialise in practical, integrated support that recognises the real-world technical and commercial issues facing cable operators in all phases of the lifecycle, from development

and operations through to life extension and removal from service.

### Asset integrity management

Ensuring maximum value for owners and investors demands a clear focus on integrity throughout the asset lifecycle. Our independent approach to integrity management gives clients confidence that their assets will operate predictably in demanding environments.

### Advisory services

Clients call on our experienced advisors to carry out due diligence and expert witness services, and to provide contractor management, Health, Safety & Environment (HS&E) support, technical advice in contract dispute matters and insurance partnering.

### Experience

#### Mutual Energy, Irish Sea

Services consultancy for operations and maintenance for Interconnector Services Limited for their gas pipeline and High-Voltage Direct Current (HVDC) cable assets covering the procurement and management of survey contractors, quality assurance and engineering analysis geared to long-term asset integrity.

#### The Carbon Trust, UK

Multiple submarine cable studies including:

- Review of cable burial methodology and a risk mitigation study for Offshore Wind Accelerator (OWA) cable installation aimed at minimising the risks associated with cable burial and reducing the cost of cable installation and maintenance for





## Lifecycle services

### Development

- › Desktop studies
- › Cable route engineering
- › Landfall assessments
- › Horizontal Directional Drilling (HDD) studies
- › Environmental Impact Assessment (EIA) studies
- › Permits and consents
- › Survey procurement and management
- › Personnel provision
- › Insurance services



### Engineering

- › Survey procurement and management
- › Cable route engineering
- › Cable Burial Risk Assessment (CBRA)
- › Installation and protection reviews
- › Crossing agreements
- › EIA studies
- › Stakeholder management
- › Pre-FEED
- › Procurement support
- › Construction and Operations & Maintenance (O&M) strategy
- › Package management
- › Personnel provision
- › Insurance services



### Construction

- › Front-End Engineering Design (FEED) / detailed design
- › Package management
- › Quality monitoring / Client Representative (CR)
- › Consent monitoring
- › Stakeholder management
- › Data management systems
- › Commissioning
- › Sign-off
- › O&M procurement
- › Insurance services



### Operation

- › Asset integrity management
- › Risk-based inspection planning
- › Survey procurement and management
- › Emergency response
- › O&M contract management
- › Specialist studies: Vortex Induced Vibration (VIV) / Computational Fluid Dynamics (CFD) stress modelling, cable protection risk assessments
- › Insurance services

Round 3 wind farms. Resulted in the issue of guidance by the Carbon Trust related to CBRA

- › Weather downtime analysis of all export cable and array cable installation processes to identify most impacted processes in order to identify potential opportunities for innovation.

#### Confidential client, USA

Detailed analysis of anchor strike event and subsequent actions for repair to identify potential areas for improvement to reduce

time for repair through efficient action and processes.

#### IceLink, UK / Iceland

Cable route optioneering and selection for a potential 1500+km HVDC cable system between UK and Iceland. Application of our in-house developed decision analysis tool to reduce the number of route options to workable levels.

#### Confidential client, UK

Expert witness services for cable installation

and engineering and technical advice for a contested insurance claim.

#### Scottish and Southern Energy Services plc., UK

Employer's representative framework for submarine cable assets. First projects are supporting the installation works for the Caithness Moray Interconnector and for the survey operations on Western Isles.

Specialist subsea cable engineering and route selection services and environmental

and permitting support for the Western Isles Subsea Cable Link.

#### Minesto, UK

Feasibility study for the Deep Green tidal development project including assessment of the optimum landfall location, export cable routing and cost options for offshore routing and technical EIA studies. Provision of survey management and employer's representative survey services during the preliminary geophysical and environmental surveys.

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