Delivering safe, high quality, innovative services and technologies for the subsea industry

DEEPOCEAN PURPOSE

DeepOcean is in business to generate industry leading returns for all its stakeholders through the provision of safe, quality and innovative Subsea Services, while embodying a dynamic, fun and winning culture to attract and retain the best talent in the industry.

DeepOcean is an integrated provider of services and technologies for the subsea industry. Demonstrating an extensive track record, DeepOcean offers a breadth of subsea services including:

- SURVEY & SEABED-MAPPING
- SUBSEA INSTALLATION
- SEABED INTERVENTION (TRENCHING)
- INSPECTION, MAINTENANCE & REPAIR (IMR)
- DECOMMISSIONING

This strong portfolio of services, coupled with a fleet of owned and controlled specialised equipment and multi-purpose support spreads, enables DeepOcean to bundle its subsea services to deliver cost-effective, tailored solutions to meet individual client needs.

DeepOcean strives for relentless customer focus and operational excellence, which is supported by a global team of highly professional and experienced project teams.

HSEQS

It is the aim of DeepOcean to provide its customers with a quality of work and service that meets requirements and expectations in a cost-efficient and professional manner. To achieve and maintain the required quality of work and services, and to ensure compliance with the regulations and industry standards for safe and efficient operations, an integrated management system has been implemented for the area of Health, Safety, Environment, Quality and Security.

DeepOcean plays an active role in the global supply chain of Offshore Wind power, providing a range of solutions under its five core service areas.

**SURVEY AND SEABED-MAPPING**

DeepOcean can provide detailed surveys of cable corridors to allow project engineers to design cost-efficient, practical and safe routes for their installations. Route surveys detail the topography of the seafloor to correctly identify optimum routes and lay barge anchor pattern routes. Wrecks, man-made artefacts, debris and dumping grounds are identified to ensure that cables are not laid in potentially hazardous areas for the cable or the trenching assets.

As a provider of cable installation and trenching services, DeepOcean can provide a combined package of pre and post lay survey and trenching services from the cable installation vessel or as a separate scope of work.

**SUBSEA INSTALLATION**

Providing a full range of solutions for HVAC and HVDC cables, flexibles and umbilicals, DeepOcean can deliver solutions from shallow water beach landings to the deepest offshore sites with its advanced installation and construction vessels.

DeepOcean provides specialist designed but cost effective, DP2 cable installation vessel solutions. These solutions combine flexible array cable and export cable storage with an integrated burial tool launching spread and operational team accommodation.

- CABLE LAY BARGES OPTIMISED FOR ARRAY AND EXPORT CABLE INSTALLATION
- 2,000 TONNE CAROUSEL
- 7,000 TONNE HVDC CABLE SPREAD
- IN-HOUSE ENGINEERING DESIGN AND MANAGEMENT FOR MOBILISATION
- BEACH PULL INSTALLATION
- 5,200 TONNE DP2 CABLE INSTALLATION VESSELS AND COMBINED TRENCHING SOLUTIONS
- MULTIPLE CABLE STORAGE SOLUTIONS
- EXPERIENCED OFFSHORE INSTALLATION TEAMS
- SHALLOW AND DEEP WATER (FAR FROM SHORE) SOLUTIONS
- JETTING ROVS, CUTTING VEHICLES & PLOUGHS FOR LARGE POWER CABLE BURIAL

**SEABED INTERVENTION (TRENCHING)**

DeepOcean is home to the world’s largest fleet of high technology marine trenching and burial equipment, including jet trenching ROVs, ploughs and mechanical trenchers. DeepOcean’s strength includes its flexibility to provide the right tool for the job combined with an experienced offshore delivery team.

- JETTING ROVS, CUTTING VEHICLES & PLOUGHS AVAILABLE FOR LARGE POWER CABLE BURIAL
- LOW RISK PRE-CUT TRENCHING OFFERED FOR HARD SOILS ON HVAC & BUNDLED HVDC EXPORT CABLES

**INSPECTION, MAINTENANCE AND REPAIR**

DeepOcean is a global IMR contractor, with a leading position in the North Sea. With several major contracts in place for maintaining oil and gas infrastructure, DeepOcean has unique experience and track record in this sector and fleet of existing vessels, technologies and methodologies which are being transferred to the Offshore Wind market.

DeepOcean can provide both annual and multi-year rotating IMR plans for all subsea wind farm infrastructure including substations structures, turbine foundations and cables.

Inspection for Offshore Wind Farms includes:

- GIS DATA MANAGEMENT SYSTEMS
- SEABED MAPPING AND MONITORING
- SCOUR VISUALISATION AND MONITORING
- COATING INTEGRITY
- WELD AND FABRICATION INSPECTION AND TESTING
- ANODE/CATHODE AND J-TUBE/CABLE SEAL INSPECTION
- DEPTH OF BURIAL - EXPORT AND ARRAY LIVE CABLE SURVEY

Maintenance & Repair of Offshore Wind Farms includes:

- NON DESTRUCTIVE TESTING
- ANODE AND CATHODE PROTECTION REPLACEMENT
- REMEDIAL BURIAL OF CABLES
- CABLE REPLACEMENT AND REPAIR JOINTING
- SUBSEA CUTTING AND CLAMMING
- DREDGING OPERATIONS
- MATTRESS LAYING

**DECOMMISSIONING**

DeepOcean provides Decommissioning services to the Oil and Gas industry. Techniques have been developed for the cutting, management and removal of subsea structures, cables and pipelines to meet with the operator’s obligations under their lease. These techniques can be used and further developed to meet with the future needs of the offshore wind sector.
Investment in the Right Tools

DeepOcean is home to the world’s largest independent fleet of high technology marine trenching and burial equipment, including jet trenching ROVs, ploughs and mechanical trenchers. It also owns and operates a fleet of sophisticated survey ROVs, as well as offering spreads for shallow water export cable installation and burial.

JET TRENCHING

Suitable for fine to loose sands and some clay conditions. DeepOcean currently has five jet trenching ROV’s available for wind farm work (UT-1, PT-1, CMROV1, CMROV3 and CMROV4).

Jet trenching ROV’s provide an ideal tool for use on offshore wind farms. Their manoeuvrability enables them to follow any cableroute and jet up to the cable touchdown point, reducing the need for alternative cable protection.

PLOUGHING

Suitable for a large range of seabed conditions and soil types depending on the design and burial depths, DeepOcean currently has five cable ploughs suitable for wind farm work (PCP-1, PCP-2, MD3, MPS and ACP).

Ploughing is used in a variety of soil types for burial depths of greater than 1.5 metres. There are advantages to ploughing, which include greater cable burial depth, simultaneous lay and burial and a cost-effective solution.

MECHANICAL TRENCHING

Mechanical trenchers can operate in either jetting or cutting mode and are capable of working in sands, clays and rock conditions. DeepOcean currently has 3 mechanical cutting vehicles suitable for wind farm work (SWT-1, T1 and T2).

Mechanical trenching is the ideal tool for the more onerous soils condition wind farms where a burial index recommends 1 to 1.5 metre burial. Mechanical trenching vehicles can work close to the cable touchdown point but required that the cable route is managed to avoid sharp changes in direction. The cable is safely managed away from the cutting tools path and placed at the bottom of the resulting trench.

SURVEY

The backbone of the DeepOcean survey ROV fleet is the HIROV 3000, Installer and Supporter type ROV systems. With a fleet including 22 ROV’s, these tools can provide cable survey at all major energy development locations around the world and can be part of a complete package for cable installation and trenching services, offering pre and post lay surveys.

DeepOcean either own or have on long-term charter all of the inspection and survey vessels currently offered. This, combined with a large fleet of owned survey ROV’s and its own team of offshore personnel, provides a high quality, well managed service to DeepOcean clients.
In-House Expertise

Our operational, geotechnical and commercial teams work together to define the right solution for each individual project.

**GEOTECHNICAL**

The Geotechnical team works as an internal consultancy service, providing a full range of geoscience-related support to DeepOcean and key clients, focused on geotechnical and trenching engineering, but also including metocean advice and risk analysis.

Maintaining an extensive operational database, combined with the use of predictive models where applicable, ensures the selection of the correct asset and that realistic performance estimates are made to comply with client burial goals, and ultimately project success.

This department plays an important role in identifying needs and commissioning R&D initiatives to support DeepOcean’s activities and ensure it retains its competitive edge.

**SURVEY**

DeepOcean has developed and retained its own expertise in providing high quality on and offline survey teams and ROV operators. Working around the world in some of the most variable and challenging conditions, DeepOcean has a reputation for the quality of its people, equipment, vessels and services.

Utilising the latest techniques and software, DeepOcean provides standard cable route depth of burial surveys but also deploys the latest in scour survey, tracking and visualisation techniques.

**ENGINEERING**

Early engagement within the design phase of the project can reduce cost and risk by ensuring simple design considerations, which will pay dividends during the construction phase of the project.

DeepOcean has considerable expertise in carrying out detailed planning and schedules, documentation and drawings and project installation procedures for all its projects. These range from new vessel and equipment fabrication and commissioning to vessel and equipment upgrades through to trenching and burial workscopes.

**MANAGEMENT**

Cable installation activities interface with numerous other work scopes and activities in the wind farm. A proactive integrated working relationship with the client is key to successful delivery.

DeepOcean’s long term vessel charters, ownership of all trenching assets and dedicated offshore base, allows controlled management and on time delivery of complex installation and trenching spreads.

During operations, DeepOcean proactively works with the client and other contractors on the project to ensure logical requirements and interfaces are clear to all parties. This reduces the potential for conflicts and project delays.
Strategic Offshore Marine Base

Tees Offshore Base (TOB) can provide integrated services for heavy lifting, mobilisation, storage and logistics conveniently at one site with priority access.

TOB offers:
- PRIORITY ACCESS FOR MOVING EQUIPMENT
- IDEAL LOCATION FOR NORTH SEA ACCESS
- STRATEGIC CABLE REEL AND CAROUSEL STORAGE
- FAST TRACK REPAIR MOBILISATION
- EXPERIENCE NORTH EAST SUPPLY CHAIN
- HEAVY LIFT QUAY
- DEEPWATER PORT
- 24/7 OPERATIONS AND ACCESS

The large-scale UK Marine Base comes with a long-term leased Heavy Lift Quay with the biggest permanently mobilised crane on the Tees. The 190/250 tonne capacity crane with associated ground loading capability provides a cost-effective solution for heavy lifts and support for vessel mobilisations. It also has a deep water berth, maintained at over 8 metres LAT.

TOB can offer fully managed vessel mobilisations with berthing facilities and access to a team of experienced personnel, and a skilled supply chain. DeepOcean works with local experienced partners for electrical, fabrication and load testing, lifting plans, logistics including heavy lifts and transport, and port services.

The site has both internal and external secure storage facilities, with the warehouse offering 8,825 square metres of covered space, whilst outside space equates to 16,187 square metres. This secure space is suitable for storage of cables where DeepOcean can also provide maintenance, overhaul and testing of equipment.

PARTNERSHIPS

DeepOcean is a member of the Energi Coast, which is the representative group for the North East of England’s offshore renewables sector; promoting the extensive offshore renewable energy sector expertise and balance of plant supply chain from this region in the North East of England.

Energi Coast members have invested almost £400m to meet the demands of the renewables market. Its members employ 6,000 people in the region, which is forecast to increase by 30% as Round 3 activities gather pace.

DeepOcean is an active member of RenewableUK, working extensively with the offshore wind sector development of deployment strategies, safety standards and best practise learning but also assisting in the development of cost-effective wave and tidal construction solutions.
DeepOcean has a growing successful track record in the Offshore Renewables industry including the following Offshore Wind and Interconnector projects:

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<thead>
<tr>
<th>YEAR</th>
<th>TYPE</th>
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</thead>
<tbody>
<tr>
<td>2011-12</td>
<td>80 x Array Cables</td>
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<tr>
<td>2009</td>
<td>17 x Array Cables</td>
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<tr>
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<td>10km Export Cable</td>
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<tr>
<td>2011-12</td>
<td>40 km Export Cable</td>
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<td>2008</td>
<td>8km Export Cable</td>
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<tr>
<td>2011-12</td>
<td>2 x 110km (7,000T) HVDC Bundled Cables</td>
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<tr>
<td>2010</td>
<td>25km Export and 5 x Array Cable</td>
</tr>
</tbody>
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**Track Record**

DeepOcean has a significant track record and multi-year framework agreements for Survey and Inspection, Maintenance and Repair (IMR) workscopes. These include:

- **Statoil** 4 x 3–5 year agreements IMR, Survey, Flex lay and subsea installation, PRS
- **Technip** 5 year agreement PRS (Pipeline Repair System)
- **BP** 3 years + Inspection, Survey
- **ConocoPhillips** 3 years + IMR, Survey
- **Marathon Petroleum** 3 Years IMR, Survey
- **Petrobras (Brazil)** 5 Years + IMR
- **Gas de France Suez** 5 Years IMR, Survey (as of June 2012)