Subsea cable failures are the most costly cause of financial losses in the global offshore wind industry. They account for 70-80% of insurance losses and an average downtime of 100 days per incident. Most of these incidents can be avoided with an up-front cable layout assessment or a detailed installation procedure.

2H Offshore has a range of analysis, integrity assessment and engineering management capabilities to optimise offshore subsea cable systems, and prevent costly delays and failures due to a variety of environmental and procedural factors.

We have a growing track record of successful umbilical and cable projects in a wide range of dynamic offshore environments, and provide global configuration design as well as analysis and installation analysis for major operators globally.

**Key Services**

**Export/Array Cable Layout & Assessment**

**Burial Assessment & Route Engineering**

**Installation Engineering**

**Fully Coupled Global Analysis**
Key Services (cont.)

Export/Array Cable Layout & Assessment
We have a wide range of experience in the global configuration design and analysis for subsea array cables and flexible systems in a variety of offshore environments. We provide recommendations on how projected layouts influence the dynamic response and the integrity of the cables to help maintain service life.

- Global configuration design and analysis
- Ancillary equipment specification and design
- Monitoring and integrity management

Burial Assessment & Route Engineering
2H, in conjunction with UTEC Geomarine, provide a variety of trenching engineering services and geotechnical consulting. With an extensive track record on major offshore projects, we are industry leaders in cable trenching and burial analysis.

- Desk study and permitting
- Route survey
- Route engineering and burial assessment study
- Post trench survey and remediation management

Installation Engineering
With advanced analysis software such as Orcaflex, Flexcom and BFLEX, 2H can optimise the performance of umbilicals and cables during installation and help prevent load out or installation damage that could lead to downtime and failure.

- Detailed lay analysis
- Installation procedures
- Vessel and interface loading
- Abandonment and recovery
- Verification services

Fully Coupled Global Analysis
At the core of the 2H business is the ability to calculate and understand the response of dynamic offshore structures. With fully coupled analysis considering the combined effects of aerodynamic and hydrodynamic loading, we can accurately capture the complex behaviour of offshore fixed and floating wind turbine platforms. This thorough understanding of platform behaviour is essential for evaluating the integrity of cable and umbilical systems.

2H Offshore has extensive experience in dynamic analysis to evaluate the response of fixed and floating offshore structures used in the offshore wind industry including:

- Jacket structures
- Gravity-based foundations
- Semi-submersibles
- Spars
- Tension leg platforms (TLPs)

2H develops primary hydrodynamic parameters for more complex analysis including:

- Wave diffraction and radiation assessment of floating and fixed offshore structures (non-slender parts)
- Morison modelling for calculation of wave loads and viscous effects on slender structural parts

Team & Tools
Experienced and skilled engineers are at the core of our business, utilising a range of proprietary and commercially available software tools including:

- Orcaflex
- Flexcom
- SACS
- BFLEX
- ANSYS
- FAST
- Shear7
- FlawIQ
- Sesam HydroD/GeniE

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