

# Engineering Services

*Your expert partner for advanced subsea engineering*

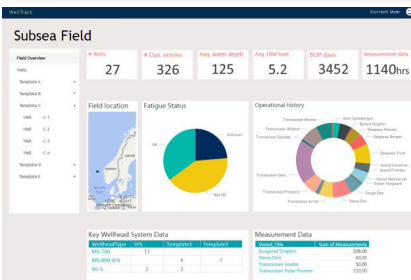


*4Subsea has the experience, knowledge and tools to perform the most challenging engineering tasks, developing optimal, tailor-made solutions together with our clients. We aim to be a leading global provider of independent engineering services related to drilling, completion/workover and wellhead systems.*

4Subsea offers drilling and well intervention services to extend the life of producing wells. We help operators perform offshore drilling, completion, and intervention operations safely and efficiently. The Well Intervention and Drilling range contains **Subsea Wellhead Integrity Monitoring (SWIM™)**, **WellTrack™** and **Conductor Analysis**, in addition to advanced **Engineering Services**.

## KEY DELIVERABLES

- A cost-effective service package enabling operations and reducing life-cycle cost
- Advanced system analysis of drilling and C/WO riser systems
- Detailed structural analysis of wellhead systems
- Detailed structural analysis of riser components
- Advisory services for code and standard compliance
- Concept and FEED studies
- Brownfield studies and service life assessments



## Advanced Engineering Services

4Subsea has the capability and available tools to provide the complete range of engineering and analyses for drilling risers, completion/workover risers and wellhead systems. Our data reservoir of structured analyses results and riser response measurements provides quick turnaround times and high quality assessments. We offer the unique combination of advanced analyses using state-of-the-art tools with offshore experience. We deliver our engineering services with OrcaFlex, Reflex, Shear7, MSC Marc, MSC Apex, and LS Dyna as part of our toolbox.

## Enabling Operations - What We Deliver

- Advisory services - using our extensive system knowledge to work with our clients to find the best solutions.
- Operational support - related to riser and vessel interface, and integrity of riser and wellhead systems.
- Technology development and qualification
- Advanced riser and wellhead system analyses

## System Engineering

- Advanced analysis of:
  - Drilling Riser systems
  - Open water and TH-mode C/WO systems
  - XT installations
  - HP riser systems
- Rig screening services related to rig intake process & feasibility studies
- Concept evaluations and FEED studies of completion and workover systems
- Support related to procurement, technical specifications & ITTs of wellhead and C/WO systems
- Brownfield assessments of wellhead systems
- In depth knowledge of standards and regulations, e.g. NORSOK U-001, API 17G, API 16Q, ISO 13628-4, ISO 13628-7

## Detailed FE Analysis

- Detailed analyses of wellhead systems, including template and soil interactions
- Component qualification services such as establishing component capacities and capabilities, ensuring full utilisation of inherent component capacities in line with state-of-the-art analysis methodologies and associated design criteria



4Subsea is a leading provider of technology and services that help operators optimise energy production from subsea oil & gas fields and offshore wind farms. We combine domain expertise with data analytics and digital services to maximise lifetime of assets, reduce operational cost and optimise future projects through data-driven design.

The company was established in 2007 and clients include the major energy operators as well as the large suppliers of subsea equipment. 4Subsea is headquartered in Asker, Norway with additional offices in Bergen, Kristiansand, Stavanger, Rio de Janeiro, and Aberdeen. 4Subsea is a company in the Subsea 7 Group. More info at [www.4subsea.com](http://www.4subsea.com).

**4Subsea - Share ideas, move forward**

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