

# Early Engineering Engagement

Working with you to optimize project execution throughout the life cycle of the field

## APPLICATION

- Optimization of project execution through collaboration from the initial stages of a project

## BENEFITS

- Critical front-end engineering and design (FEED) support
- Reduced capex and cycle time
- Improved opex and ramp-up
- Standardized product deliveries
- Avoidance of costly redesign efforts
- Early risk identification and development of mitigation strategies
- Early identification of interfaces and system interdependencies

## FEATURES

- Field development planning
- Subsea production systems (SPS) concept design and feasibility studies
- FEED studies
- Systems engineering
- Technical support for SPS tenders
- Project startup support
- Customer technical alignment and system standardization
- 3D modeling, animation, and technical artwork
- ROV accessibility studies
- Life-of-field support

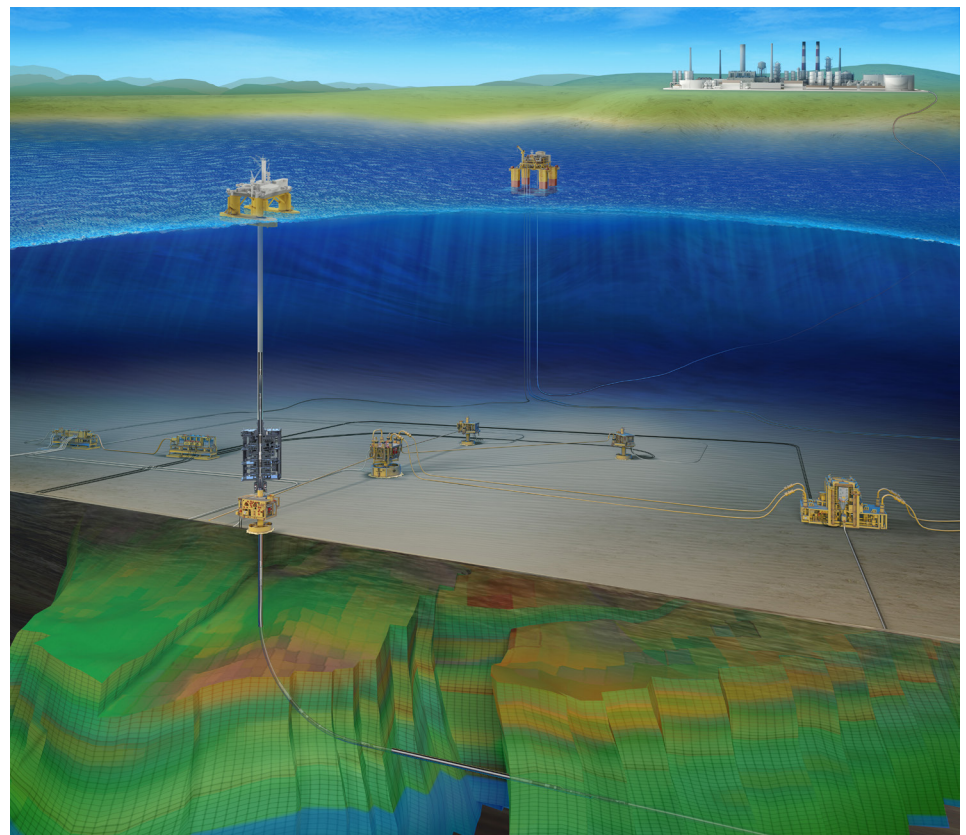
OneSubsea early engineering engagement (EEE) consistently delivers value and solutions to customers through best-in-class engineering from the early stages of field development planning through the full life of the field. The program aims to build long-term collaborative partnerships and to develop technological solutions that help achieve strategic performance targets and operational goals while increasing ROI.

Engineering engagement at the preliminary stages of field development planning reduces project uncertainties through comprehensive scope definition and system optimization. This, in turn, facilitates realistic planning and estimating for project execution, which are key drivers for project success.

## Locations

The EEE group is headquartered in Houston with satellite offices in Australia, Norway, and the UK. The breadth of our expertise spans all regions of operation, including

- North and South America
- Europe, Africa, Caspian, and Russia
- Asia Pacific and the Middle East.

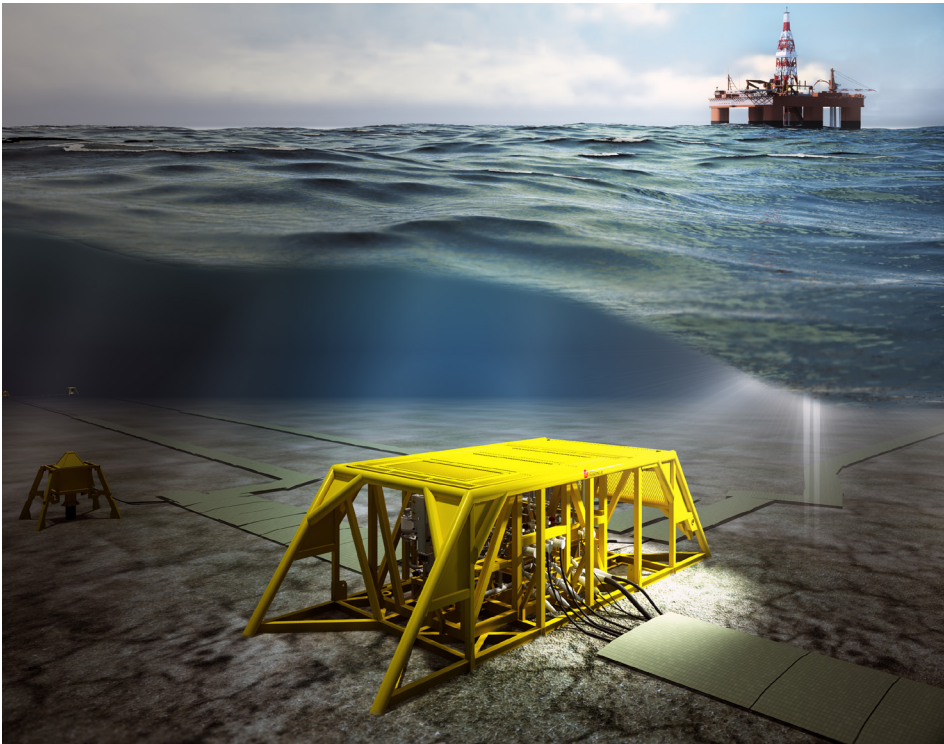


*The key to achieving optimal field production is early engagement. OneSubsea experts work together with customers to generate complete subsea development options and enhance equipment architecture for the life of the field.*

# Early Engineering Engagement

## Capabilities

- Field development scenario generation through expertise, advanced technology, and extensive field experience
- Process data such as system pressures, temperatures, and fluid composition details
- Geographical data such as well top-hole locations and FPSO locations
- Geotechnical engineering
- Environmental information, including weather, temperature, humidity, wind, wave, and soil data
- Hydraulic, electrical, chemical, and thermal analyses
- Production assurance analysis
- Failure mode, effects, and criticality analysis
- Reliability, availability, and maintainability studies
- Test philosophy and project test plans
- Qualification matrix and technology gap analysis
- Project field layout drawings
- Drill center layout drawings
- System piping and instrumentation diagrams (P&IDs)
- System block diagrams
- Concept development and screening studies
- Feasibility assessments
- Specification and procedure development
- Tree assembly drawings and P&IDs
- Manifold assembly drawings and P&IDs
- Controls system block diagrams, analyses, equipment assembly drawings, and flow diagrams
- Interfacing data to other systems, such as the ESD and distributed control system
- Interface management
- Resource optimization
- Early integrated review of project concepts
- Stage gate management and support



*Collaborating with operators to facilitate a more holistic approach to subsea development decisions, we can help customers reduce risk and increase rewards.*

[onesubsea.slb.com/eee](https://onesubsea.slb.com/eee)