

# VetcoGray Subsea Control Distribution Systems

An integrated subsea utilities grid

Fully integrated systems for seabed distribution of hydraulic and electrical power, communications channels and injected chemicals

Successful operation of oil and gas production systems in harsh subsea environments depends on complex networks providing high availability utilities (hydraulic and electrical power, communications, chemicals). A robust distribution system cannot be developed in isolation, and demands a broad understanding of the performance requirements and the CAPEX/INSTALLEX value chain.

We have more than 25 years of experience in specialized subsea controls and distribution systems. Our products benefit from the shared technology and resources of the entire GE Oil & Gas business, as well as extensive relationships and experience with leading installation contractors and end users in every offshore oil and gas market worldwide.

The resulting fully integrated and highly reliable distribution system equipment ensures equally high availability for all your subsea facilities – including trees and manifolds, subsea isolation valves (SSIVs) and processing or boosting installations.

## Applications

GE provides all topside and subsea components required for reliable communications signals as well as electrical and hydraulic power supplies. Our portfolio includes:

- Topside hydraulic power units
- Topside umbilical termination units
- Topside chemical injection units
- Subsea umbilical termination assemblies
- Subsea distribution units
- Hydraulic flying leads (thermoplastic and steel tube)
- Electrical flying leads
- Fiber-optic flying leads
- Stabplate connection systems



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## Design tools

Our industry leading design teams have all the expertise and resources needed to ensure that every one of our complete subsea distribution systems benefits from the highest level of engineering and manufacturing best practices, including:

- Electrical power system analysis
- Electrical communications system analysis
- Fiber-optic loss budget provisions
- Hydraulic and chemical system dynamic analysis
- System RAM analysis
- Design of subsea distribution equipment
- Knowledge of different installation methods to suit differing water depths and field locations
- Foundation design
- CP design
- ROV accessibility reports

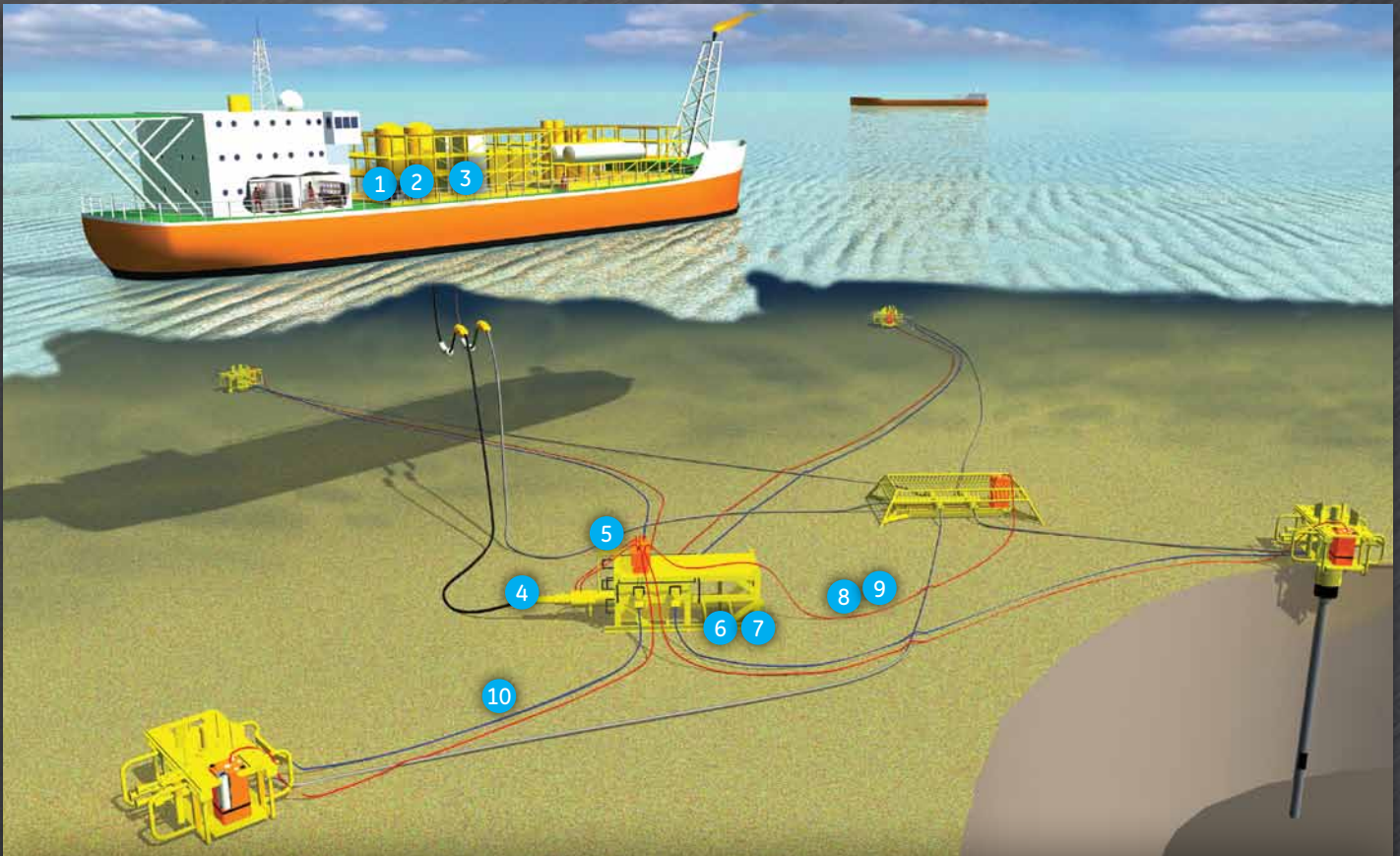
## Manufacturing & installation

GE Oil & Gas subsea distribution systems are designed to last the full field life.

Our capabilities include in-house development and performance of comprehensive testing programs – such as essential extended factory acceptance testing (EFAT) and site integration tests (SITs) prior to system deployment.

We also offer a full range of installation support, including Field Service Engineers, test equipment and tooling where required.

All our Global Services capabilities are available to you for ongoing support though the entire product and field life.



### Distribution System Scope of Supply

- |   |                                |
|---|--------------------------------|
| 1. Hydraulic Power Unit                   | 6. Subsea Distribution Unit    |
| 2. Chemical Injection Unit                | 7. Hydraulic Distribution Unit |
| 3. Topside Umbilical Termination Assembly | 8. Electrical Flying Leads     |
| 4. Umbilical Termination Assembly         | 9. Fiber-Optic Flying Leads    |
| 5. Electrical Distribution Unit           | 10. Hydraulic Flying Leads     |

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GE imagination at work