

Subsea systems

Concepts and designs for subsea systems powering offshore installations

At a glance

In the last few years, many of the existing oil and gas fields have reached or even passed their production peak. More and more new resources are identified below sea beds far away from shore and in significant water depths. New concepts and new technologies for off-shore subsea production units are being developed to exploit such locations using subsea systems fed from deep water platforms or fed from on-shore grids far away from the oil or gas fields.

Siemens Power Technologies International (Siemens PTI) supports the development of new system concepts for subsea power supply installations – for early feasibility and concrete implementation studies.

The challenges

Moving power supply equipment onto the sea bed in deep water raises new challenges that must be taken into account, e.g.:

- water depths up to 3,000 meters
- large distances up to 300 km

- long equipment life times up to 30 years required
- ultra-high reliability requirements, as repair work is tremendously difficult and lengthy
- standardization of equipment to ensure flexibility for fast modification and replacement
- easy maintenance by remotely operated vehicles
- underwater power connectors capable for on-load plugging

Subsea processing is a new technology addressing these challenges. Each piece of process equipment has individual application specific characteristics – e.g. boosting pumps, sea water injection units, gas compression units or seabed separation units. For the required reliability under these conditions, suitable subsea power distribution and transportation is a key aspect to fulfill the challenging demands.

In subsea power supply systems, AC solutions are the focus today, while DC will be used more frequently in the

coming years depending on the distances to be covered and on new technology available.

Our solution

Siemens PTI is your engineering source for feasibility studies, design studies, grid coupling studies and controller tuning and coordination studies. Several analyses for subsea equipment and system design concepts have been completed.

We have performed studies for subsea variable speed drives, drives for multi-phase boosting, pumps and compressors using Siemens technology e.g. perfect harmony VSD and Siemens HVDC plus.

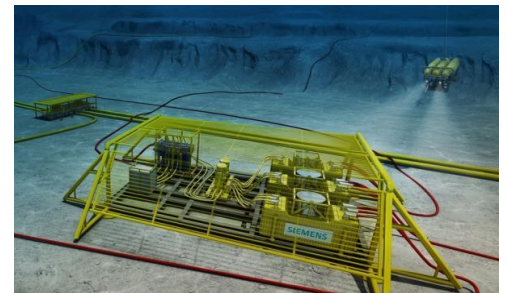


Figure 1: Illustration of Siemens subsea power equipment

Siemens PTI with its team of highly skilled and dedicated experts is your partner for any issue in subsea power system design.

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