

Subsea processing – the drive to standardise

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It is clear that despite the current difficulties facing the subsea sector due to low oil prices and rising costs, interest in subsea processing, such as boosting and compression, subsea separation and raw seawater treatment and injection, will continue to gain momentum to deliver cost-efficiencies and optimisation of systems.

Subsea processing has the potential to help to remodel offshore developments globally. Its development will facilitate exploitation of difficult and/or marginal fields, extend recovery from ageing fields and allow for commercial exploitation of new resources in remote locations, harsh environments and deep and ultra-deep waters.

Efforts by oil companies and suppliers have been growing since the early 2000's with important targets already achieved in the innovation and rejuvenation of new and available technologies for key subsea processing building blocks, e.g. subsea boosting and subsea separation. However, adapting the full suite of topside technology to a complete seabed solution is going to be a tough transition requiring combined efforts and shared strategies by all key players. A clear sign of technology

maturity is the on-going effort to shift from a first-of-a-kind approach to a standardised solution.

Installation of subsea processing units is clearly concentrated in the three most mature deepwater basins, namely, Gulf of Mexico, West Africa and Brazil, with very important applications also in the North Sea. There are currently around 30 subsea boosting systems installed globally, with the first dating back to the mid-1990s, of which approximately fifteen are presently in operation. There are only six subsea separation systems and three subsea water injection units presently in use.

This burgeoning sector will witness an important milestone later this year, when the first subsea compression stations will start boosting gas production at the Åsgard and Gullfaks fields in the North Sea. It is expected that this deployment by Statoil will enable more than 10% increased gas recovery from these mature fields, around 22 million BOE from Gullfaks. Another example of brownfield application is the subsea multi-phase pump stations recently deployed by TOTAL in Angola as part of a massive investment to increase oil recovery from the Block 17 fields.

Growing interest in Statoil's vision of a "subsea factory" – a fully functioning process plant on the seafloor – is pushing forward collaborative investigations into how standardisation of such technologies

and equipment will increase the number of profitable business cases for subsea production and processing. This approach should also open the market to more competitors, in particular integration oriented companies with a strong capability in system and process engineering, supply chain management, fabrication and installation and overall project management.

Xodus Subsea was recently involved in a conceptual study with Statoil on standardisation of interfaces and technologies for subsea processing systems. This is part of a wider cross-industry initiative to secure a coordinated approach to the supplier industry, create common standards and have closer control of technology development. Because of the unique way Xodus Subsea is set up, it will pass on the benefits of being able to support clients in evaluating and selecting suitable technology early in the field development decision-making process without being constrained by convention or ownership. The aim is to create clever engineering solutions coupled with accurate, dependable cost estimates that clients can use to make informed decisions.

By working together and aligning with key industry players, the company can help change the current mind-set from expensive, tailor-made technologies to more cost-effective, standardised solutions.

