Subsea Production Alliance

Boost output, increase recovery rates, and reduce costs in subsea fields
Studies indicate that the number of subsea oil wells is expected to nearly double by 2020. The majority of those wells will be in deepwater provinces.

The challenge for the industry is how to make these developments more economically viable and extend the life of subsea fields. Technology advances have met the challenges of deepwater drilling and extreme downhole conditions. But, the same level of technology advancement is required to achieve a step change in recovery rates from deepwater subsea fields, which have consistently lagged those of dry tree and land wells.

Historically, the seabed production system and the in-well production and completion systems are typically designed and installed separately. While this approach is functional, it results in less than optimal ultimate recovery rates—some in the single digits. And as production declines, workover and intervention operations for subsea fields are often cost prohibitive.

An integrated solution … from first oil to last oil

To increase production and improve recovery of subsea fields—while reducing the lifting costs—will require an integrated in-well and subsea production solution. Optimizing the total system design and addressing the technology gaps that exist to integrate traditionally isolated systems will result in efficient, holistic solutions that not only improve recovery, but also drive down capital and operating expenditures.

Sharing a common vision and a relentless drive to offer ongoing innovative solutions, Aker Solutions and Baker Hughes have formed the Subsea Production Alliance to address recovery challenges. This alliance will combine the completions, intervention, and artificial lift portfolio of Baker Hughes with the full subsea offering from Aker Solutions, including trees, controls, workover and subsea processing, and boosting.
The Subsea Production Alliance will work with customers to develop fully integrated in-well and subsea production systems, engineered to seamlessly span and optimize the subsea tree and workover interfaces, for deepwater developments and mature subsea fields. Plus, through innovation and unprecedented cooperation, the Alliance will focus on developing and delivering game-changing intervention technology to dramatically reduce installation and production costs.

The structure of the Alliance will provide maximum flexibility to design and develop the best solution for any production challenge while providing customers a single point of contact. The Alliance will have access to the full products and services portfolios, as well as the research and development capabilities, of both Aker Solutions and Baker Hughes. This flexibility will be critical to meet the technology requirements of an integrated in-well and subsea production system and to facilitate the research and development phase.

**It takes the right plan**

The Subsea Production Alliance will collaborate with operators to conduct field studies to
determine the design requirements for an integrated production solution—including a long-term intervention strategy—based on the operator’s reservoir interpretation, development strategy, and production targets. During the study phase, the Alliance team will also identify any technology gaps that must be addressed to deliver the integrated production system.

**It takes the right technology**

The Alliance will address the technology needs of the full production system throughout the life of the field. This includes:

- Integrated in-well and seabed production boosting systems
- Enhanced well access
- Optimized power and control systems
- Integrated system-wide condition monitoring and control
- Effective flow assurance
- Game-changing intervention systems

**It takes the right team**

The Subsea Production Alliance team will function as a single unit with full access to Aker Solutions and Baker Hughes resources.

The Alliance team will include the most capable minds in subsea production systems from both companies.

- Experts from key disciplines fully dedicated to the alliance
- Leaders in applied technology, with capabilities to design and implement efficient, integrated subsea production systems
- Champions that define innovation opportunities and drive development programs
- System architects with access to the product portfolios, subject matter experts, testing facilities, and infrastructure of both parent companies
From the mud line to the bottom line

From planning, to drilling, to completions and production, the ultimate goal for operators is to increase the quantity of hydrocarbons harvested while controlling costs. The Subsea Production Alliance will be uniquely positioned to enable effective, economic production from new subsea developments and from existing fields with declining production.

Let the Alliance help you boost output, increase recovery, and reduce lifting costs at your subsea fields. Contact your local Aker Solutions or Baker Hughes representative or go to SubseaProductionAlliance.com to learn more.

- Cost-effective access
- Simplified well intervention by design
- Well performance
- Intelligent completions
- In-well artificial lift
- Well intervention
- One control system
- System-wide optimization
- Seabed boosting
- Integrated power and control
- Seamless interface to in-well systems
## Delivering breakthrough production solutions

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<th>Enhance boosting power</th>
<th>Single- and multi-phase subsea pumping systems for production boosting and injection</th>
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<td>Provide superior well access with redesigned subsea trees</td>
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<td>Subsea tree retrofit capabilities for ESP installation and retrieval</td>
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<td>Integrate power, control, and intelligent monitoring systems across the entire in-well and subsea production environment</td>
<td>Control and monitoring of all components, from lower completion to topsides</td>
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<td>Full range of high-power distribution and control and monitoring solutions</td>
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<td>Provide cost-effective subsea well intervention and remediation</td>
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<td>Riserless intervention</td>
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<td>Improve flow assurance from the sand face to the topside</td>
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<td>Effective deepwater flow assurance treatments with high-pressure deliverability, both high- and low-temperature stability, materials compatibility, and umbilical and capillary stability</td>
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<td>Reliable, customized in-well chemical transmission and control systems</td>
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Implementation of the alliance is subject to obtaining any required antitrust or other regulatory approvals.

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