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# Light Emerges For Floating Production System Sector

As dire market conditions continue to hit the floating production system (FPS) sector, companies have delayed or canceled projects, would-be orders have fallen by the wayside and shipyards have been forced to lower prices to lure the little business that still exists.

"Many yards had large backlogs and were struggling to work through all of the orders that they had received in the last few years, but much of this has now been worked through," Ben Wilby, an analyst for energy consulting firm Douglas-Westwood, told *SEN*.

However, the firm foresees a turnaround for the FPS sector in second-half 2016 as commodity prices rebound further, having risen to about $50 per barrel this week after having sank to a low of about $27 earlier this year. Also boosting the prospects for better times ahead for the sector are cheaper shipyard and module fabrication costs as well as reengineered projects.

If all goes as expected, more orders for FPS units could come this year and in 2017, according to Douglas-Westwood. These could include a semisubmersible floating production platform for the long-awaited second phase of BP's Mad Dog development in the U.S. Gulf of Mexico's Green Canyon region.

Based on the forecast, there could be between five and 10 FPS units ordered this year. However, continued pricing pressure brought on by the commodity price squeeze could alter the outlook.

In the meantime, technical yards—including those based in Korea—are suffering, particularly those that positioned themselves as the go-to spot for construction of complex newbuilds and conversions.

## Shipyard woes

Using the Prelude LNG FPSO unit, which is under construction by the Technip-Samsung Heavy Industries Consortium in South Korea, and FPSO Egina, also being constructed by Samsung Heavy Industries for the offshore Nigeria development, as examples, Wilby said "these kind of massive projects simply aren't going to be ordered in the next few years."

Perhaps, better positioned to continue weathering the downturn are Chinese yards, which are considered "a cheaper place to go for simple conversion/upgrade work, which is what the majority of new orders are likely to be," Wilby said.

But even these yards have not been able to escape brutal market conditions.

In 2015, only four orders were placed for FPS units, and 2016 has fared worse—as no orders have been placed. Hopes for shipyards and others to land work for the Vette FPSO unit were squashed in March 2016 when Det Norske Oljeselskap canned its Vette, formerly known as Bream, oilfield development project in the North Sea.



WHAT'S INSIDE

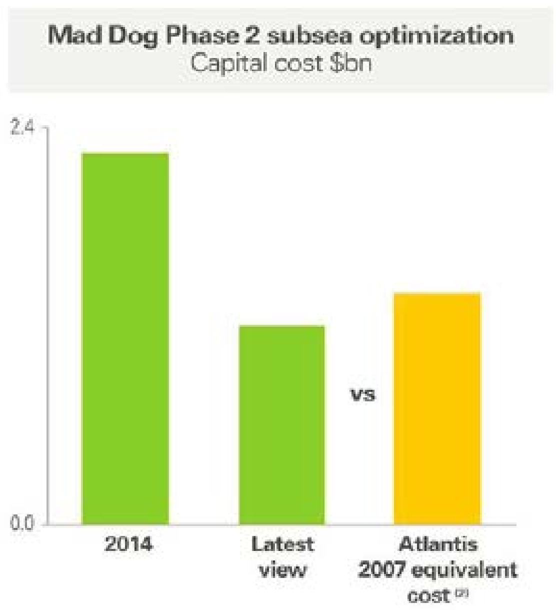
"Despite the current lack of orders, there are still near-record backlogs to be worked through, ensuring shipyards remain active," Wilby said. "The speed with which new orders arrive will be important, and we anticipate that the first order will likely lead to a spurt of other orders.

"With orders increasing, prices from shipyards are likely to be viewed as having bottomed out—leading to a rush to capitalize on the low prices," he added.

## Falling costs

Working with partners BHP Billiton and Chevron, BP already has chopped costs for the Mad Dog Phase 2 project to $10 billion from $20 billion in 2012, a result of "new project phasing, simpler design and by using repeat solutions instead of bespoke ones," according to BP executives.

Speaking during an upstream investor field trip this week in Baku, Azerbaijan, BP upstream head Bernard Looney talked about how optimizing subsea equipment for the project's 22 wells have lowered costs. BP continues to rebid key contracts associated with the project.




Atlantis costs normalized to money of 2016 and exclude manifold replacement costs and align well count with Mad Dog Phase 2 vs. Atlantis. (Source: BP)

"You can see what it was just two years ago, what similar equipment on Atlantis was built for 10 years ago, and where we are now," Looney said. "That's a huge saving. And every element of the project is going through this degree of rigorous challenge."

Partners in 2012 had planned a second spar for Mad Dog 2, but high costs prompted them to temporarily halt the project. In the years since, the companies have maintained their commitment to the project, while searching for a more economical approach.

Based on plans approved in 2015 by the U.S. Bureau of Ocean Energy Management, the project, which calls for 29 subsea wells that include 17 producers and 12 water injectors, will have five drill centers and feature a 140,000-bbl/d semisubmersible floating production platform. The facility also will be capable of providing 280,000 bw/d of low-salinity (LoSal) waterflooding.

But a final investment decision (FID) has not been reached.

"We're not trying to catch the low here in terms of rates for activity," BP CFO Brian Gilvary said on the company's latest earnings call. While reengineering, re-scoping, rescheduling and recontracting some of the activity has led to projects moving sideways, the economics and ultimately, value for shareholders, ends up being better, he added.

However, BP doesn't plan to await the "absolute low, low, low before we go to FID." The operator originally planned to make a decision on Mad Dog 2 by early 2016. A decision could come later this year.

"Some people say that deep water is finished. … We have a very different view. Based on our current calculations Mad Dog will break even around the $40 per barrel mark," Looney said.

## Brighter outlook

The FPS outlook appears to be more positive in 2017 when more than 10 orders are expected as projects move beyond the FEED stage within reach of FID, according to Wilby.

But the orders will carry a lower value compared to previous years, mainly because the units being ordered are expected to be smaller.

"The days of $2 billion-plus FPSOs are likely over, and instead we will see more small units, with the number of newbuild FPSOs likely to be low," Wilby said. "This will start in the second half of 2016 but will become the norm for many years to come."

The unit price for orders this year is expected to be about $200 million. This could jump to about $300 million in 2017.

In all, Douglas-Westwood forecasts expenditure on installations in the sector to remain high. A spend of $58 billion on FPS units is predicted between 2016 and 2020, which is 31% higher than the hindcast (2011-2015).

"Much of this capex is for units ordered before the oil price collapse with sustained high oil prices leading to the sanctioning of high capex FPS units," Wilby said.

As for where dollars will flow, Latin America and Africa remain among the high-capex regions for FPS units. The regions account for 33% and 22%, respectively, of the spending, the firm said. The North American, Asian, Australasian and West European regions could each see a more than 8% share of the total capex.

In addition, the outlook showed that FPSO units will continue to dominate, accounting for 79% of capex. FPSO units are followed by tension-leg platforms, 9%; floating production semisubmersibles, 10%; and spars, 2%.

"The next few years represent a major opportunity for operators to capitalize on lower costs, while also providing manufacturers with the opportunity to move toward standardization as the industry focuses on cutting costs," Wilby said. "What will be vital is ensuring that the lessons learned are not forgotten should there be an unexpected increase in the oil price."

DEVELOPMENT

## OneSubsea Dives in on Zohr

OneSubsea has been awarded a $170 million engineering, procurement and construction contract from Petrobel for the first stage of the **Zohr** (*33/2*) gas field, located in the Shorouk Concession, offshore Egypt. OneSubsea will supply the subsea production systems.

The scope of the contract includes six horizontal SpoolTree subsea trees, intervention and workover control systems, landing string, tie-in, high-integrity pressure protection system, topside and subsea controls and distribution, water detection and salinity monitoring provided by the AquaWatcher water analysis sensor, and installation and commissioning services.

OneSubsea said the FasTrac program comprises a strategic inventory capability with the flexibility to configure the system to the customer needs and deliver on a fast turnaround.

"Zohr is one of the largest gas fields discovered in the Mediterranean Sea to date and is also the world's second longest step-out, a distance greater than 150 km. This step-out will be enabled by OneSubsea controls systems with fiber-optic communications technology," said Mike Garding, president of OneSubsea.

"Our supplier-led approach to the field development, coupled with our FasTrac program capability, and our integrated offering that includes flow assurance, subsea production system and landing string capabilities, will help Petrobel meet their first gas commitment."

The award follows an accelerated FEED study by OneSubsea in which a multidisciplinary team collaborated with Eni and Petrobel to develop the subsea equipment architecture and control system to validate handling of high gas volumes, considering reservoir characteristics and subsea equipment specifications.

## McDermott Wins Brunei Pipework

McDermott International has been awarded further pipeline work for 2017 under a multiyear offshore installation contract with Brunei Shell. The work includes transportation and installation (T&I) of pipelines and umbilicals in the **Fairley** and **Ampa** fields offshore Brunei.

The full scope of work for the 2017 campaign is expected to include T&I for 32 km of pipelines, with the associated beach and pipeline crossings, tie-ins, riser installation and precommissioning of the completed system.

The 2017 campaign is part of a three-year work installation contract signed in 2014 and will be included in McDermott's second-quarter 2016 backlog as a "sizeable" project.

"Brunei has significant long-term plans to increase investment and production in its energy sector, and the successful installation of these new pipelines in the Ampa and Fairley fields is expected to help ensure production continuity of the mature reserves," said Hugh Cuthbertson, vice president, Asia.

"McDermott's demonstrated performance during the 2015 campaign built customer confidence critical to winning this award. Our contribution in developing these facilities plays a vital role in helping Brunei Shell Petroleum meet its production targets and Brunei meet its energy goals."

The 2017 campaign will see McDermott's *Derrick Barge 30* (DB 30) continue to be deployed for the execution of pipeline work in Brunei. Both the DB 30 and Emerald Sea diving support vessel were deployed for the successful 2015 campaign, which was one of the largest shallow-water pipeline campaigns undertaken by McDermott Asia in recent years.

## Filanovsky Development Drilling Begins

The start of Lukoil's development drilling program at the **Vladimir Filanovsky** Field marks another step for the company as it builds up its position in the Caspian Sea.

It also highlights Russia's aims to get the most out of a region it believes could be critical to the country's energy security and an area that is taking on increasing significance after sanctions against Iran were lifted.

Vladimir Filanovsky is the largest of all fields discovered in Russia in the past 25 years. It is located in the northern part of the Caspian Sea, 220 km from Astrakhan.

Development wells are being drilled from an ice-resistant fixed platform—known as LSP-1—with first commercial production from the field scheduled for second-half 2016.

The field was discovered in 2005, and the water depth in the area ranges from 7 m to 11 m. Recoverable oil reserves are put at 1.1 Bbbl and more than 1 Tcf of natural and associated gas.

The Filanovsky project incorporates four platforms, including a drilling platform, a central processing platform, a riser platform and a living quarters module platform for 125 crew members with a helipad. The bridge-linked platforms are all ice resistant.

The riser platform will gather oil and gas production from the Filanovsky Field and the satellite Yury Korchagin Field. Oil and gas will then be exported through a 330-km pipeline to an onshore terminal.

Filanovsky is one of six large oil and gas fields discovered by Lukoil in the North Caspian between 1999 and 2005. The others are Khvalynskoye, Yuri Korchagin, Rakushechnoye and Sarmatskoye.

The fields are thought to contain nearly 5 Bbbl of 3P (proven, probable and possible) reserves.

Russian production in the Caspian Basin traditionally came from onshore fields in the North Caucasus region, including Krasnodar, Stavropol and Chechnya.

## Green Light on Egypt Atoll

BP and the Egyptian Natural Gas Holding Co. (EGAS) have sanctioned the development of the **Atoll Phase One** project.

The development is an early production scheme (EPS) that will bring up to 300 MMcf/d of gas to the Egyptian domestic gas market starting in first-half 2018.

The project involves the recompletion of the existing exploration well as a producing well, the drilling of two additional wells and the installation of the necessary tie-ins and facilities.

The Atoll wells will be drilled by the *DS-6* rig, which arrived in Egypt in May and is expected to start drilling in August for roughly the next 24 months. Success of the Atoll Phase One EPS could lead to further investment in the Atoll Phase Two full field development.

BP announced the Atoll discovery in March 2015. The Atoll-1 deepwater exploration discovery well in the North Damietta Offshore concession in East Nile Delta was drilled using the 6th generation semisubmersible rig *Maersk Discoverer*. The exploration well reached a depth of 6,400 m and penetrated about 50 m of gas pay in high-quality sandstones. BP has a 100% interest in the concession.

BP recently completed multiple transportation and processing agreements accelerating the development of the Atoll Field, which contains an estimated 1.5 Tcf of gas and 31 MMbbl of condensate. Onshore processing will be handled by the existing West Harbour gas processing facilities.

## DEVELOPMENT BRIEFS

The Norwegian Petroleum Directorate has given the green light to start up production from the **Rutil** (*32/2*) deposit on the **Gullfaks South** (*32/21*) Field off Norway. Rutil is being developed with a standard subsea template with four well slots (subsea template Q) with two gas production wells. The subsea template is tied-in to the existing infrastructure on the *Gullfaks A* facility for processing and export. In the Plan for Development and Operation of Rutil, submitted in December 2014, the operator estimates that the in-place volumes are 17.9 Bcm of gas and 13 MMbbl of condensate. The development has turned out to be far less expensive than expected. Investment costs are just under $457 million, well below estimates of $585 million. Production is scheduled to start in August/September 2016. This is several months earlier than the original plan of December 2016.

Fugro has lined up work in the Norwegian sector of the North Sea, having secured a three-year contract for integrity management support and intervention works for Det norske. The offshore scope covers subsea assets at **Alvheim**, **Vilje**, **Volund** and **Bøyla** field developments along with support for the Ivar Aasen development. Fugro said it will carry out various inspection tasks at the *Alvheim* FPSO unit utilizing the dynamically positioned inspection, repair and maintenance vessel *Skandi Carla*, with inspection class and work class ROV systems. In addition, the company will perform intervention activities and detailed nondestructive testing tasks.

Singapore-based Kreuz Subsea has recently undertaken a hot tapping project on live pipelines, completing three hot taps and interconnecting spools for an EPC contractor and an undisclosed oil and gas major, off the west coast of India. Oceaneering's smart taps with furmanite tooling were installed from Kreuz Subsea's flagship asset, *Kreuz Installer*.

The work was carried out in ONGC's **D1** (*30/01*) Field in 110 m of water. The project included five interconnecting spools connecting three hot taps adjacent to the platforms. The project was completed with zero incidents with an emphasis to all safety procedures. Kreuz Subsea has previously installed a 42-in. hot tap on a live gas line in Southeast Asia.

Hilong Petroleum Offshore Engineering has won a contract from TIMAS to provide a pipelaying derrick barge to install jackets for the HCML **Madura MDA – MBH** offshore gas field development project off Java, Indonesia. The project is jointly funded by China National Offshore Oil Corp. and Husky. The deal is Hilong's first offshore lifting operation contract and the first offshore services contract won from the overseas market.

C-Kore Systems has been awarded a contract to supply Statoil with subsea electrical monitoring tools. Statoil will be using the tools to monitor the insulation resistance and continuity of a new control umbilical during its installation at a field outside Bergen in the northern part of the North Sea. "We are becoming an established value added partner with the operators in the U.K. region of the North Sea and are excited to be introducing our technology into the Norwegian oil and gas market," said Tim Overfield, managing director of C-Kore Systems. "Our monitoring units prove themselves to be extremely valuable to our customers by saving them time and money when installing new equipment or performing maintenance operations."

Singapore-based Ezra has won $300 million in awards for several new deepwater projects from international oil majors. Work will be carried out in the Gulf of Mexico, Southeast Asia and West Africa. The scope of work for the new projects includes project management, engineering, procurement, fabrication, construction as well as transport and installation of flexibles, umbilicals, flowlines, flowline-end terminals, flying leads and other equipment. Ezra also will undertake hookup of pre-laid mooring systems. Project management and engineering work for the projects already have started.

## FLOATERS

### Malikai TLP Project Gathers Pace

InterMoor said it has successfully completed the marine aspects of the **Malikai** (*SEN, 33/2*) tension-leg platform (TLP) float-off operation in Malaysia.

The TLP was loaded onto the Dockwise heavy-lift vessel *White Marlin* at Malaysia Marine and Heavy Engineering (MMHE) shipyard in Pasir Gudang, Malaysia, and transported to a float-off location in the Singapore Straits.

Contracted by TMJV, a joint venture between Technip and MMHE Shipyard, InterMoor was responsible for the marine aspects of the float-off and tow of the TLP through the Johor Straits into the Singapore Straits and to a float-off location for various near-shore commissioning tasks to be performed, prior to return to the shipyard.

The work scope also included engineering analysis and procedures, project management for the near-shore operations, management of chartered vessels, provision of offshore personnel and various ancillary services. InterMoor also subcontracted Acteon sister company UTEC to provide survey and positioning for the TLP and marine spread. The offshore operation was completed safely and without incident in April.

Meanwhile, Sea Trucks Group has been awarded a contract award from Shell for the provision of flotel services during the Malikai deepwater development project.

The scope of work consists of providing accommodation support services for 200 construction personnel. The contract will be for a period of two months, with options to extend.

Sea Trucks nominated *Jascon 34*, a DP3 accommodation pipelay construction vessel, for this project. Offshore activities are scheduled to commence in mid-2016.

### FPF-1 Ready to Sail to Stella

Ithaca Energy's *FPF-1* floating production unit will sail away from the Rementowa shipyard in Poland toward the end of June or early July for the U.K. North Sea **Greater Stella Area** (GSA).

Ithaca said good progress has been made on the final stages of the *FPF-1* commissioning program, and completion of the various system handovers to operations is imminent.

The operations team has been living on the vessel since May, the marine works have been finished, and the engineering teams are in the process of closing out handover of various processing and utilities systems to the operations team.

The planned vessel inclination test remains to be performed, following which the *FPF-1* will be moved to a location off the coast of Gdansk for the final marine system trials prior to being towed to the field.

Ithaca said it is anticipated that the period from sailaway to first hydrocarbons will be about three months. The vessel will be moored on location using 12 pre-installed anchor chains.

The dynamic risers and umbilicals that connect the subsea infrastructure to the vessel will then be installed. Thereafter, commissioning of various processing and utility systems requiring hydrocarbons from the field will be completed.

First production from the Stella Field is anticipated in late September 2016.

Meanwhile, access also has been secured to the Norpipe oil pipeline system, allowing oil exports from the GSA to transfer from tanker export to pipeline export during 2017.

This will significantly reduce the fixed operating costs of the GSA facilities and enhance operational uptime, resulting in improved reserves recovery and increasing the long-term value of the GSA as a production hub, Ithaca said.

The key work associated with creating a connection to the system has been successfully executed as part of a fast-track operational program undertaken during the planned 2016 pipeline maintenance shutdown. Acceleration of this work was made possible as a result of a conventional tie-in point on the system being vacated by a third-party field disconnecting from the pipeline. This provided a unique opportunity for a lower cost, lower risk connection to be made.

Norpipe runs about 350 km from the Ekofisk offshore production facilities on the Norwegian Continental Shelf to a dedicated oil processing facility at Teesside in the U.K., with various U.K. fields exporting into the system via a spurline.

Ithaca also has taken advantage of the downturn in industry activity to secure attractive contracting terms, including a lump sum contract for the installation of the 44-km pipeline required from the *FPF-1* to the Norpipe system.

The net capex associated with the work program is about $20 million, with the majority being paid in 2017.

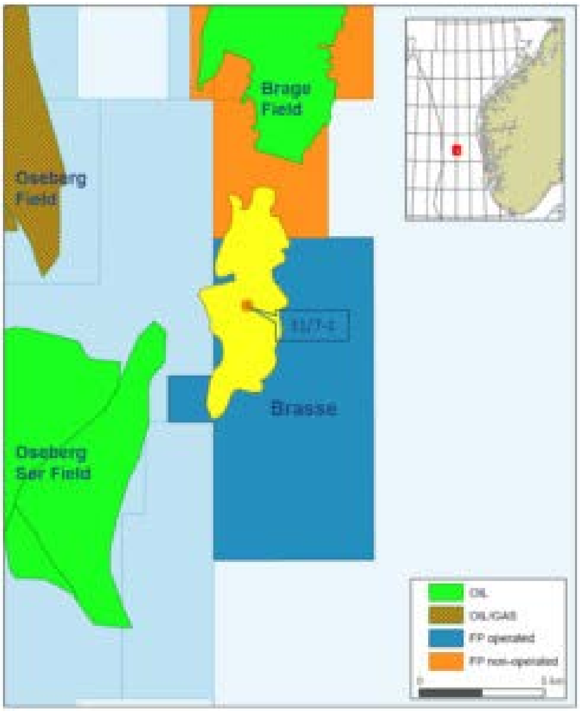
## FLOATER BRIEFS

Petrofac has been awarded a three-year contract to provide a condition monitoring program for Bumi Armada's *Olombendo* FPSO unit bound for offshore Angola.

Currently under conversion in Singapore, the *Olombendo* will be deployed to Eni's **East Hub** (*32/21*) field development toward year-end 2016. The scope of work will include the implementation of the condition monitoring program, training, an ABS initial submission report, monthly vibration and lube oil analysis, risk-based reporting and hardware and software support through Petrofac's proprietary CBMnet system. The award builds on a contract secured in May 2015 from Bumi Armada to provide a maintenance management system for the *Armada Kraken* FPSO unit, deployed in the East Shetland Basin.

## EXPLORATION NOTES

Faroe Petroleum hit pay at its **Brasse** exploration well in license PL740 in the Norwegian North Sea (Faroe 50%). The Brasse well has been drilled to a total depth of 2,780 m. The well encountered about 18 m of gross gas-bearing and about 21 m of gross oil-bearing Jurassic reservoir, which is believed to be analogous to the effective reservoir at the **Brage** producing oil field (Faroe 14.3%), located about 13 km north of Brasse.




(Source: Faroe Petroleum)

Preliminary results based on extensive coring, wireline logs and pressure data show that the well has encountered oil and gas in reservoir sandstones of good quality. The presence of oil and gas has been confirmed subsequently by fluid sampling. The partners will now drill a sidetrack to help confirm the reservoir distribution and hydrocarbon contacts.

The Norwegian Petroleum Directorate has given Eni Norge the nod to drill wildcat well **7222/1-1** in the Barents Sea with the *Scarabeo 8* rig. The area in the license consists of part of Block 7220/1. The well will be drilled about 250 km north of Hammerfest. This is the first well to be drilled within the license area.

Polarcus has received a letter of intent for an XArray seismic project in the Norwegian-Barents Sea for an undisclosed client. The survey is due to commence in August 2016, after required authorization has been obtained, and will run for about four weeks. This extends the Polarcus North West Europe campaign and replaces the previously announced project in Morocco, which will no longer be acquired by Polarcus, the company said.

## VESSEL BRIEFS

Hughes SSE has boosted its survey capabilities with the purchase of robust survey vessel *MV Line*, which will be renamed *MV Cerys Line*. The name change will occur after a short refit, and plans are to keep the vessel's crew. With the acquisition, Hughes SSE will add multibeam, meteorology, bathometry survey and pre- and post-cable-laying survey, including depth of burial surveys services, to its offerings.

Technip USA has awarded a contract to Norwegian offshore contractor BOA for light construction, heavy-lift and possible umbilical lay operations and installations in the Gulf of Mexico. The contract will last up to five months including mobilization and options. BOA will use its *Boa Sub C* offshore construction vessel for the workscope. The *Boa Sub C*, which is capable of operating in water depths of up to 3,000 m, will start mobilization in direct continuation from completion of ongoing project in West Africa.

Statoil has suspended its contract for the *Songa Delta* rig after drilling was completed on the **Slemmestad** well in the Norwegian North Sea. From the end of June, the rig will go on 75% suspension rate of $277,000 per day. The rig is expected to resume work with Statoil in mid-August.

## TECHNOLOGY

### Deepwater Test Facility Opened

Subsea technology provider Forum Energy Technologies (UK) Ltd. has unveiled a deepwater test facility and received industry accreditation for the calibration laboratory at its new European Operational Centre in Aberdeen.

The indoor test tank is one of the largest in northeast Scotland and is dedicated to testing subsea tooling and survey sensors as well as work class ROVs.

Staffed by dedicated personnel, the test tank and laboratory have a primary purpose to provide full control, certification and faster turnaround in preparing Forum's rental inventory for hire. In addition, the firm will offer a full test and calibration service to customers.

"Our continued investment in testing and calibration capabilities ensures that clients can be assured our systems have been prepared to the highest possible standards," said Ian Porter, vice president of manufacturing subsea for Forum Energy Technologies. "This focus on delivering quality products means clients know they are receiving ROV systems that will perform reliably in the field and safeguard the project costs.

"These latest facilities have been created as part of the consolidation of Forum's Aberdeen businesses and to supplement those available in our other U.K. plants."

The large freshwater tank, measuring 5 m by 6 m by

4.5 m, is fitted with overhead 10T crane, lighting, cameras and a viewing platform.

Forum Energy Technologies is a global oilfield products company, serving the subsea, drilling, completion, production and infrastructure sectors of the oil and natural gas industry. The company's products include highly engineered capital equipment as well as products that are consumed in the drilling, well construction, production and transportation of oil and natural gas. Forum is headquartered in Houston, with manufacturing and distribution facilities strategically located around the globe.

Meanwhile, NEL has announced the completion of the latest upgrade phase of its wet gas test facility in Glasgow—the U.K.'s only independent commercial test service that can generate wet gas flows using water and oil simultaneously, replicating the challenges faced by the industry in key production processes. The newly upgraded test facility has been designed to more accurately simulate the increased flow rates experienced during production and processing, reducing uncertainty, and minimizing the operator's financial exposure.

## POLICY

### Subsea Sector Appeals to Westminster

The U.K. subsea industry has urged the government to do everything it can to protect the $13 billion sector in the face of lower oil prices.

Industry body Subsea UK lead a delegation of high-profile subsea leaders from companies across the country's supply chain to Westminster on June 15 to outline what is required of the government to help the industry in the "lower for longer" oil price environment.

According to Oil & Gas UK, about 120,000 oil and gas jobs will have been lost by year-end 2016, since the oil price collapse. Subsea UK reckons that, of those, about 5,000 are in the subsea sector.

The organization's recent "snapshot" survey revealed that 90% of subsea companies had seen a fall in revenues, with 28% seeing a drop in sales of between 30% to 40% and a further 28% losing half or more.

"This is having a major impact on the £9 billion (US$13.3 billion) sector, which previously supported around 53,000 jobs and contributed significantly to the country's balance of trade with over £4 billion (US$5.8 billion) in export revenues," said Subsea UK CEO Neil Gordon. "The good news is that our subsea businesses are continuing to invest in research and the development of new technology, which is vital to maximizing economic recovery in the North Sea, prolonging its life and allowing U.K. Plc to get more value from the basin."

The U.K.'s subsea sector accounts for about a 43% of the global market and subsea firms are continuing to explore new markets overseas for their products and services.

Gordon added, "We need our political leaders to understand the importance of the sector and the challenges it's facing. Investing in and supporting the sector is not just about the North Sea, it's about protecting our globally recognized supply chain and its ability to drive up U.K. exports, safeguarding and creating jobs in the longer term.

"Our ask is very clear. We urgently need government support and funding for R&D, greater incentives that will stimulate exploration in the North Sea, including models for exploiting the smaller, currently uneconomical pockets of hydrocarbons and increased, focused support for maintaining and increasing our export potential."

The findings from Subsea UK's recent survey revealed that more than 80% of respondents were hoping to drive growth by increasing overseas sales in Asia, the Middle East, North America and Africa. Other countries of interest were Australia, China, Brazil and Norway.

## BUSINESS

### Deal Creates Norwegian Super-independent

Det norske and BP have teamed up in Norway to create Aker BP, the largest Norwegian independent oil and gas producer.

Under the terms of the proposed transaction, the BP Norge and Det norske businesses will combine and be renamed Aker BP. Aker BP will be independently operated and listed on the Oslo Stock Exchange.

Aker BP will be jointly owned by current Det norske shareholder Aker (40%), other Det norske shareholders (30%) and BP (30%). BP also will receive a cash payment of $140 million plus positive working capital adjustments as part of the transaction.

"BP and Aker have matured a close collaboration through decades, and we are pleased to take advantage of the industrial expertise of both companies to create a large independent E&P company," said BP Group CEO Bob Dudley. "The Norwegian Continental Shelf represents a significant opportunity going forward, and we are looking forward to working together with Aker to unlock the long-term value of the company through growth and efficient operations.

"This innovative deal demonstrates how we can adapt our business model with strong and talented partners to remain competitive and grow where we see long-term benefit for our shareholders," he added.

All of BP Norge's roughly 850 employees will transfer to the combined organization upon completion of the deal.

The companies believe this new Norwegian super-independent could organically grow production to more than 250,000 boe/d by the early 2020s.

## Falling Oil Price Drags Down Oil, Gas Investments

The U.S., Russia and just about every other major oil-producing nation—except Saudi Arabia—are witnessing a drop in upstream investment, which is expected to decline more than $1 trillion through 2020 as commodity prices have crumbled in the last two years.

But the news, as revealed this week by energy research firm Wood Mackenzie, is not all doom and gloom.

Cost deflation has had a hand in driving down spend. Research by the firm showed that upstream costs in the U.S. unconventional sector fell by 25% in 2015, and models show costs could fall by another 10% this year.

"For now, the select few projects that are progressed will do so because costs have been cut substantially to hit economic hurdle rates," Malcolm Dickson, principal analyst at Wood Mackenzie, said in a news release. "But kick-starting the next investment cycle will require more cost deflation and project scope optimization along with confidence in higher prices and arguably fiscal incentives."

As the worldwide abundance of oil and gas surpassed demand, companies—including those that have successfully used technology and improved techniques to efficiently get more hydrocarbons from the ground—have made less money due to oil prices being less than half of what they were two years ago. In turn, waning profits have forced many to cancel or delay projects in addition to seeking cost reductions and cutting staff positions.

### Deepwater fields hit hard

The firm said that deepwater fields have been hit the hardest, as spending on deepwater and ultradeepwater projects has been cut by nearly 40% for 2016-2017.

"Our 2015-2020 forecast for capital investment has been reduced by 22% or $740 billion since fourth-quarter 2014," Dickson said. "In the nearer term the impact is even more severe: compared to pre-oil price fall expectations, capex will be down by around $370 billion or 30% in 2016 and 2017."

The struggle to breakeven could bring more cuts throughout the year as more projects move down on the to-do list, according to Wood Mackenzie.

The report showed that cuts in the U.S. Lower 48 are the deepest.

Here, Dickson said, forecast capital investment was cut in half in 2016-2017, falling by $125 billion.

"This is mainly down to a big drop-off in drilling, with the onshore rig count dropping by 53% from 2015 to 2016," he said.

The latest Baker Hughes rig count showed the U.S. picked up 10 rigs onshore for the week ending June 17, compared to the previous week, bringing the land rig count to 398. Although the gain was a change from months of declines, the number pales in comparison to numbers seen just a year earlier. Back then, the land count was 825.

Still, drillers have been capable of producing more due to drilling and other efficiencies gained.

Worldwide, rig counts also are down. According to Baker Hughes, there were 1,405 rigs running worldwide in May 2016. That's down from 2,127 in May 2015.

In Russia, investment is on course to fall by 40% over the next two years, mostly due to the rouble depreciating against the dollar, Wood Mackenzie said. However, the firm pointed out that Russia is poised to keep drilling, having set a post-Soviet liquids production record of 10.9 MMbbl/d in March.

Moreover, "there will be no drop in Saudi Arabian investment in 2016-2017," Wood Mackenzie said. It is among the Middle Eastern countries, including Iran, working to either maintain or grow its market share.

### Cuts impact E&P

Elsewhere, capex cuts are impacting both exploration and production.

Due to the oil price drop, the firm forecasts that 7 Bbbl of oil less will be produced between 2016 and 2020.

"Discretionary projects have been hardest hit with conventional pre-FID (final investment decision) greenfield investment alone down $80 billion from 2016 to 2020," Dickson said.

The firm also revised down its forecast for conventional exploration investment by $300 billion.

"Although exploration investment has more than halved since 2014, and the figure is expected to be around $42 billion per annum for 2016 and the same in 2017, costs have not been cut as much and as quickly as we expected," Andrew Latham, vice president of exploration research at Wood Mackenzie, said in the release. "Some deepwater exploration spend has been protected by long rig contracts, but as these unwind we expect sharper cuts than in non-deep water."

## UK Job Losses Continue

Jobs supported by the U.K.'s offshore oil and gas industry, currently under the severe strain of continued low oil prices, will have fallen by year-end 2016 by an estimated 120,000 since their peak in 2014.

New employment figures released by industry trade body Oil & Gas UK forecasts that in 2016 just over 330,000 jobs in the U.K. will be delivered through or supported by oil and gas production. These jobs are across the whole country.

Brent crude is currently trading at about $50 per barrel, less than half the price it was in 2014 when jobs linked to the sector peaked at more than 450,000. Jobs supported fell by an estimated 84,000 to about 370,000 in 2015, and are forecast to have fallen a further 40,000 by year-end 2016.

Deirdre Michie, CEO of Oil & Gas UK, said, "We cannot underestimate the impact the global downturn in the industry is having on the U.K. economy, nor the personal toll for those who have lost their jobs and the effect on their families and colleagues. We recognize this and are doing everything we can to support these people, working with the U.K. and Scottish Governments through their task forces to find suitable alternative employment as well as with the unions as we go through these difficult times.

"The industry has been spending more than it is earning since the oil price slump toward the end of 2014. This is not sustainable, and companies have been faced with some very difficult decisions. To survive, the industry has had no choice but to improve its performance. It is looking to find efficiencies to restore competitiveness, to attract investment and stimulate activity in the North Sea. With up to 20 billion barrels of oil and gas still to recover, this region is still very much open for business."

Michie said competitiveness is improving as a result of the work the sector is doing in this area—and is being reflected in the reduction in unit operating costs from almost $30 per barrel in 2015 to about $17 this year.

She added, "But to protect our industry and the skilled jobs it provides we need to see further efficiencies. The work of companies and of the industry's Efficiency Task Force needs to focus on ensuring that the changes being put in place are sustainable for the future that we all need to work toward.

"It is also important we consider what we can do in the immediate term to stimulate activity in support of exploration and development of existing small pools opportunities to help support the supply chain as it goes through these challenging times."

## DNV GL-Led Project Trashes Unnecessary Subsea Documentation

A project led by DNV GL to curb the rise in subsea documentation shows that implementing a standardized approach can reduce engineering hours, the firm said in a news release.

The two-year collaboration resulted in a recommended practice (RP) that can reduce the amount of subsea documentation and enable documentation reuse in a typical subsea field development project.

According to a contractor in the joint industry project (JIP), subsea documentation increased by a factor of four between 2012 and 2015. Previously, a contractor in a typical subsea project would deliver about 10,000 documents, with each one averaging three revisions, resulting in up to 30,000 transactions between two actors, the release said. Today, projects can deliver 40,000 documents, with three revisions resulting in 120,000 transactions. Handling time also has doubled per revision. A big project might require a contractor to have 25 people just on document control.

"We like solid documentation in DNV GL, but this massive explosion in paper hasn't tangibly improved performance, safety or environmental impact—it's just escalated costs without adding value," said Bente Helén Leinum, project manager for DNV GL—Oil & Gas.

One JIP participant that adopted the RP showed it could reduce engineering hours by 42%. The savings, DNV GL said, came from reduced reviews by reusing documents, having more standardized documents and avoiding unnecessary reviews of noncritical documents.

JIP partners were Aker Solutions, Brightport, Centrica Energi, DEA Norge, Det norske oljeselskap, DNV GL, ENI Norge, GCE Subsea, FMC Technologies, GDF SUEZ E&P Norge, Kongsberg Oil & Gas Technologies, Lundin Norway, Oceaneering, OneSubsea, Statoil, Subsea 7, Subsea Valley and SUNCOR Energy Norge.

## Subsea 7 Wields Axe Again

Subsea 7 is set to cut 1,200 more jobs in a second phase of global resizing and cost reduction measures this year.

The company said it plans to resize its global workforce to about 8,000 by early 2017, down from the current level of 9,200. Consultation with employees and employee representatives will take place on a local basis and consultation processes have begun in

Norway and the U.K.

"Subsea 7's fleet of active vessels will be managed commensurate with the projected workload, while retaining capability and maintaining a global presence," the company said. "Up to five vessels are scheduled to leave the current active fleet by early 2017, based on stacking owned vessels and returning chartered vessels when existing contracts expire.

"These cost reduction and resizing measures, together with those already initiated since the start of the year, are expected to deliver approximately $350 million in annualised cost savings. The charge related to the resizing will be recognised in 2016 and is expected to be less than $100 million."

Effective July 1, Subsea 7 also will change the structure of its organization. The new organizational and reporting segments will comprise: SURF and Conventional, i-Tech Services and corporate (including renewables and heavy-lift).

This will replace the 'Southern Hemisphere and Global Projects' and 'Northern Hemisphere and Life of Field' Business Units and corporate segment previously reported.

Under the new organizational structure COO John Evans and Øyvind Mikaelsen, appointed executive vice president—commercial, will report to CEO Jean Cahuzac. Steve Wisely will be appointed senior vice president i-Tech Services, reporting to Evans.

"Our new organizational structure reflects our focus on commercial and long-term strategic priorities as we adapt to the present low levels of activity and drive more efficient ways of working with our clients," said Cahuzac. "The reduction in the size of our workforce is a necessary step to maintain our competitiveness and protect our core offering through the oil price cycle.

"We remain confident in the long-term future for deepwater oil and gas production," added Cahuzac. "We are committed to retaining our core capabilities and developing our leading market position through a strategy focused on differentiation delivered by our people, assets and technology."

## BUSINESS BRIEFS

**Mads Andersen** will take over as president and CEO of **Aibel** following the retirement of Jan Skogseth. Andersen, who is currently president at the Schlumberger-owned OneSubsea, is a qualified civil engineer and business economist and was part of the executive management team at Aker Solutions for several years. He has extensive experience of the oil and gas industry, both within project execution, subsea and international business.

California-based **InterOcean Systems** has been acquired by Louisiana-based **Delmar Systems**, a global supplier of offshore mooring and subsea services. The 70-year-old InterOcean has made a name for itself in the area of design and manufacture of oceanographic and environmental equipment and systems, including its proprietary Rig Anchor Release and remote oil spill detection system called Slick Sleuth. InterOcean Systems will continue to operate with its existing management from its San Diego headquarters as an affiliate of Delmar Systems. It will continue offering the same products and services.


(Source: Delmar Systems)

**Wood Group** has acquired the trade and assets of **Enterprise Engineering Service Ltd.'s** (EESL) Aberdeen-based fabrication and manufacturing business. "The acquisition of Enterprise Engineering Service Ltd.'s fabrication and manufacturing business broadens our repair order capabilities, enabling us to offer a fully integrated, end to end service that supports our clients in assuring the integrity of their assets," Wood Group PSN's CEO Dave Stewart said in the prepared statement. The news follows a May 26 announcement that EESL had appointed administrators. The acquisition is essentially a lifeline for EESL and a boost for Wood Group's continued efforts to drive efficiencies and extend the life of upstream and midstream assets in the U.K. oil and gas sector. Plans are for the employees at EESL's fabrication unit to transfer to Wood Group and will remain at its existing 4,000-sq-m fabrication facility in Aberdeen.

**China National Offshore Oil Corp**. (CNOOC) has named **Yang Hua** as the company's CEO following the resignation of **Li Fanrong**, who also resigned from his position as president and executive director. With more than 30 years of experience in petroleum exploration and production, Yang also was redesignated from a nonexecutive director to an executive director. CNOOC also said **Wu Guangqi** has resigned as compliance officer and has been appointed as president and executive director. **Chen Wei** has been appointed as compliance officer and general counsel. The changes became effective June 15.

**Technip** and **FMC Technologies Inc**. carried out a business combination agreement (BCA) on June 14 concerning their proposed merger announced May 19. The execution of the BCA follows conclusion of the required work council consultation process in Europe. "Having concluded the consultation process so quickly is a testament to the logic and strategic rationale of this merger," FMC Technologies President and COO Doug Pferdehirt, who will serve as the CEO of TechnipFMC, said. The planned $13 billion union is expected to give birth to a group with a broad portfolio of subsea, surface and onshore/offshore technologies and execution expertise that executives believe will drive cash flow.

**Hydroid**, a subsidiary of Kongsberg Maritime, announced the installation of a new subsea hyperbaric testing system (HTS) at its manufacturing facility in Pocasset, Mass. The testing system simulates hydrostatic pressures found at depths up to 6,000 m and will be used to test Hydroid's AUVs and other marine robotics products to ensure their integrity at rated depth, the company explained.

**William B. Berry** has been elected to **Oceaneering International Inc.'s** board of directors, the company said. Berry served as executive vice president, E&P, of ConocoPhillips Co. from 2003 until retiring in January 2008. With more than 30 years of domestic and international oil and gas experience with ConocoPhillips and Phillips Petroleum Co., Berry holds Bachelor of Science and Master of Science degrees in petroleum engineering from Mississippi State University.

**Delta Subsea** and **Boskalis Subsea Services** have entered a memorandum of understanding to provide integrated diving and ROV solutions in the Gulf of Mexico (GoM), aiming to become a one-stop solutions provider for a range of underwater support services from the shelf to deep water. As part of the agreement, Delta Subsea will provide specialist ROV interventions, engineering and tooling solutions and support vessels, while Boskalis will provide air and saturation diving equipment, services, associated project management and engineering. It will not be the first time the two companies have worked together. The two have partnered on projects over the past six years including in Europe and Argentina.

Japanese shipper **Nippon Yusen Kaisha** (NYK) has agreed to invest in **EMAS Chiyoda**, a subsea services joint venture (JV) between oilfield services firm **Ezra Holdings Ltd.** and **Chiyoda Corp.**, Ezra said in a statement. Singapore's Ezra, through its **EMAS AMC** subsidiary, plans to sell a 10% stake in the joint venture for $36 million, while engineering company Chiyoda will sell a 15% stake, according to a *Reuters* report. Upon completion of the deal, Ezra will hold 40% of the JV; Chiyoda, 35%; and NYK, 25%. Ezra, one of the many oilfield service firms hit by a challenging market, had completed the JV agreement with Chiyoda in March.

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