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North Sea project gets $1 billion boost

Around $200 million has been shaved off a proposed subsea development in the U.K. North Sea and $1 billion added in potential revenue by slimming down the design scope.

The timeline for the project, which is owned by a major operator, has also been brought forward from the late 2020s and it is now under active consideration.

Scott Wilson, a production advisor with OneSubsea, said, "This is an actual project we have done for a client here in the North Sea and it was done in a low oil price environment, so it is entirely relevant.

"A major said have a look at this and see if you can make a difference because at the moment it is going nowhere, it is sitting on a shelf and won't go anywhere."

The original development concept included six wells with gas lift, two manifolds and dual 20 km pipe-in-pipe flowlines.

Wilson said, "Can anyone hear expense? There is a danger of gold-plating."

He said OneSubsea used an integrated approach to reassess the whole development. "We used a multi-disciplined team and an integrated asset modelling approach where reservoir engineers can build a reservoir model, subsea transportation people can build the subsea network on a different model and the topsides guys can stay there. Everyone stays in their natural domain but we use a special piece of software to make them talk to each other and understand the impact each has on each other."

The team came up with a new development concept that was slimmed down from six wells to five by relooking at the placement of the wells.

The dual flowline design was cut to a single flowline because one was there for pigging purposes.

"We worked out a solution using multiphase boosting instead of gas lift that will keep the thermal performance of the system higher so you do not need the pigging loop on a regular basis so you can get rid of it," Wilson said at the recent Subsea Expo in Aberdeen.

He said the multiphase pumps are incredibly flexible and that they will deal with anything from zero to 100% gas.

"The subsea multiphase booster put 20 MMbbl extra recovery on the bottom line for this client. The overall cost saving is $200 million out of the development by going back to standardised equipment, taking out the flowline and, reducing the well count.

"But the value is $1 billion extra revenue. That's the kicker. It is not just about reducing costs and using standardised equipment, it's about improving recovery and that calculation was done at $50/bbl oil, not $100 oil."

He said the idea was to get away from bespoke systems and back into standardised systems with the use of tried, tested and proven equipment that has been used in the various basins across the world and that does not need to be further qualified.

"We have reduced our well count so development costs go down, we have got $76 million out of that pipeline and flowline by reducing the pipeline itself and by getting rid of the pigging loop, that reduces some of the opex as well.

"The value here is we have reduced the risk for the client, we have given them a concept that looks viable and they realised they need to look again at how they do field development.

"This field is no longer looking at first oil in the late 2020s, it is now very much in the development funnel for this client because they have realised that by going for a subsea scope and by taking advantage of the tried and tested technology that we have and is available to the market today, there is a solution, you just have to challenge convention, challenge how you work, challenge how your own organisation works and how you all work together."

WHAT'S INSIDE

DEVELOPMENT

Bravo for Maersk and Boskalis on Dan

The Dan Field has undergone subsea lifetime extension work.

From Aberdeen (MT): Some clever stuff has been done on one of Maersk Oil's **Dan** Field platforms in the Danish sector of the North Sea.

The Bravo wellhead platform was installed in 1971 by Maersk on Dan (Denmark's oldest producing field, after coming onstream in 1972). Between 2013 and 2015 Maersk has carried out a lifetime extension programme, according to Bert van der Velden, commercial director at Boskalis Subsea Services.

Van der Velden, speaking at the recent Subsea Expo event in Aberdeen, Scotland, flagged up the subsea lifetime extension work carried out on the Dan Bravo platform by Boskalis, which essentially saw the operator choose to undertake a major subsea structural reinforcement campaign. Impressively this has extended the platform's life by another 40 years.

The project involved undertaking the world's largest-ever 3-D subsea photogrammetry, resulting in about 20,000 overlapping images. This resulted in a highly detailed and accurate model used for the fabrication of reinforcement structures (K-node clamps), which were then fixed to the platform using two diving support vessels (the *Constructor* and *Protea*). The platform was first completely cleaned subsea by divers using grit blasting and flush grinding before being modelled and also saw a conductor guide level installed as well as two old ones removed.

A total of 136 metric tonnes of new steel was installed, van der Velden said, with 220,000 man-hours spent on the job and more than 200 vessel days. Operations were performed on depths varying from 10 m to 41 m. Boskalis said reinforcing the platform in this way and to this scale has never been done before.

This is a very topical example of how to extend the life of a mature North Sea field facility—so credit where it's due!

Take Two on West Nile Delta

Subsea 7 has scooped a contract from BP and partner DEA (Deutsche Erdoel AG), for the second phase of the **West Nile Delta** (*SEN 32/19*) project.

The deal covers development of the **Giza**, **Fayoum** and **Raven** subsea fields offshore Alexandria, Egypt.in water depths up to about 800 m.

The contract scope includes engineering, procurement, installation and pre-commissioning of the subsea infrastructure from 12 wells, with 80 km of umbilicals and 220 km of pipelines.

It also includes the installation of the export lines from the subsea location to the Idku terminal.

Offshore installation is scheduled to be carried out in two stages. The first stage, starting in 2017, will comprise the landfall and shallow water pipelay, and the second stage, commencing in 2018, will involve the installation of deepwater pipelines and execution of the SURF scope. Subsea 7 vessels *Seven Borealis* and *Seven Antares* will be used for the pipelay, with the heavy construction vessel, *Normand Oceanic*, being used for the other construction activities.

Engineering and project management work will begin immediately at Subsea 7's Global Projects Centre in London.

Øeyvind Mikaelsen, Executive Vice President Southern Hemisphere and Global Projects said: "This major contract awarded by BP recognises our performance during the first phase of the West Nile Delta project and allows us to deliver synergies across multiple work packages. Our early engagement on this project has enabled BP and Subsea 7 together with DEA to develop an optimised solution for the development of the Giza, Fayoum and Raven fields and demonstrates the effective collaboration between us."

Ichthys Flowlines Installed

From Australia: The INPEX-operated **Ichthys** (*32/22*) LNG Project reached a key milestone this week when it completed the installation of 140 km of rigid subsea flowlines.

The final infield pipelay marked a significant achievement for the project's offshore installation campaign at the Ichthys Field in the Browse Basin, located about 220 km offshore Western Australia.

The infield flowlines were installed in a water depth of up to 275 m to carry reservoir fluids from 20 subsea wells to the project's two massive floating processing facilities—a central processing facility and floating production storage and offloading facility.

All flowlines were installed with in-line structures, weighing up to 220 tonnes, requiring more than 11,000 onshore and offshore flowline welds to be executed.

Ichthys Project Managing Director Louis Bon said the safe completion of the complex subsea network was a major accomplishment. "This achievement has marked the end of a 16-month offshore campaign to install 47 km of 6-in. and 8-in. monoethylene glycol flowlines, 7 km of 12-in. transfer condensate flowlines and 85 km of 18-in. production flowlines."

In addition to the infield flowlines, the Ichthys LNG Project offshore installation campaign has completed installation of 49 foundation piles, five production manifolds and a 6,500-tonne riser support structure.

Earlier this month, the project team marked another significant achievement, having successfully pressure tested the offshore component of the 42-in. gas export pipeline.

DLV 2000 on its way

McDermott International's new derrick lay vessel, the *DLV 2000*, has won work on Ichthys.

The *DLV 2000* is a class 3 dynamically positioned vessel combining a 2,200-ton revolving crane with a deepwater S-lay pipelay system configured to install pipelines with diameters ranging from 4.5 in. to 60 in. in water depths up to 3,000 m.

The vessel can accommodate up to 400 personnel to facilitate hookup and commissioning projects and incorporates a 13,000-sq m open deck to allow the transportation and assembly of large subsea structures.

The *DLV 2000* is expected to join the project as part of McDermott's 2016 current project schedule by installing large subsea spools, laying infield umbilicals and lifting several subsea distribution units that will provide the hydraulic, chemical and electrical distribution from the umbilicals to the subsea drill centres.

Xcite Drives Bentley Forward

Xcite Energy, which is looking to develop the **Bentley** (*32/5*) heavy oil field in the U.K. North Sea, has been granted an extension of the licence containing the field until June 30, 2017.

The extension is expected to help Xcite while it continues to look to secure the financing required for the approval of a field development plan and to repay its outstanding senior secured bonds, which are due for repayment by June 30, 2016.

Xcite has received indicative proposals for development funding, which remain subject to agreement of commercial structuring and finalisation of due diligence.

The company said that if these are successful a fully funded first phase development plan could be submitted to the Oil & Gas Authority (OGA) in 2016.

Xcite has successfully completed a technical review of the first phase of the Bentley Field development with the OGA to ensure that the aspects of the plan meet OGA's policy objectives to maximise the economic benefit to the U.K. of its oil and gas resources.

In view of current industry conditions, Xcite also is continuing to work with all key stakeholders in the Bentley project and has recently completed a cost review of the development plan.

This has included revised quotes from contractors and suppliers of material services, equipment and drilling programmes, which it will incorporate into its next reserves report, expected to be completed during first-quarter 2016.

As a result of this cost review, the company expects the unescalated development costs to be materially reduced to about $30/bbl.

Xcite Energy CEO Rupert Cole said, "We are continuing to make progress, and we remain focused on delivering a funded first phase field development plan, including repayment of the outstanding bonds. We still have a lot of work to do, but our objectives of reducing execution risk, working collaboratively and developing a fit-for-purpose, economic and efficient development concept has been critical to generate the support we need for our financing process."

Insight into Brazilian Subsea

The P63 operates off Brazil for Petrobras

From Aberdeen (MT): According to Alex Dal Pont, leader of Petrobras Research Centre's subsea equipment technology group, the Brazilian major is pushing hard on several fronts to meet the challenge of a production goal of 2.7 MMbbl/d by 2020.

Speaking at the recent Subsea Expo event in Aberdeen, Scotland, Dal Pont (whose group is responsible for providing technology developments and technical assistance on subsea boosting, processing and power systems, subsea control and monitoring, integrity management and intervention activities) said 800 Mbbl/d of presalt production already has been achieved by the company from seven floating production units currently in action. "Several new technologies have been deployed," he told the audience during a conference session organised by U.K. Trade Investment, "but major opportunities to optimise production and reduce costs remain."

He highlighted the role of high-resolution seismic in helping the operator to achieve a higher exploratory success rate and also the company's efforts within the area of subsea integrity management. The latter, he said, was key to its ambition of further reducing the amount of diving done for subsea inspections, lowering intervention costs and related downtime.

In the mature Campos Basin where it has been operating since 1977, Dal Pont pointed out that Petrobras now has 55 production platforms in place—40 floating platforms and 15 fixed structures. In this area the opportunities represented by both field life extensions and subsea decommissioning activities are extensive, he told the audience.

For subsea decommissioning he pointed out that in the Campos Basin, with so many old wells (many done in the 1980s), the company had so far plugged and abandoned five in its current program. However there are still another 170 wells to be plugged and abandoned, he said.

Wood FEEDs on GWF-2

Wood Group said it has secured a contract with Woodside to provide the detailed design of the **Greater Western Flank Phase 2** (GWF-2) flowline system. The GWF-2 Project is located on the North West Shelf offshore Western Australia.

Under the contract, Wood Group Kenny will perform the flowline system detailed design and support the related procurement and construction processes.

This award follows the successful completion of the flowline FEED for GWF-2.

CEO of Wood Group Robin Watson said, "Securing the detailed design contract for GWF-2 is testament to the technical expertise Wood Group Kenny already has brought to this development.

"Following on from the successful FEED work, this award demonstrates the confidence the client has in our subsea experience and innovative approach to deliver this complex project. Having been involved in the earlier design stages means we have a comprehensive understanding of GWF-2."

The GWF-2 Project represents the next phase of gas supply to existing North West Shelf Project infrastructure after the **Persephone** Project.

GWF-2 will develop 45.3 Bcm of raw gas from the **Keast**, **Dockrell**, **Sculptor**, **Rankin**, **Lady Nora** and **Pemberton** fields through the existing *Goodwyn A* platform.

The total investment for the project is expected to be about $2 billion, with initial project startup expected in second-half 2019.

Subsea JIP

Meanwhile, Wood Group Kenny is calling for expressions of interest from technology vendors to support a joint industry project (JIP), which aims to reduce subsea equipment failures in Australia and provide a recommended practice for the subsea industry.

The Subsea Equipment Australian Reliability (SEAR) JIP is a partnership supported by six operators and led by Wood Group Kenny. The focus is on collaboration and knowledge sharing to improve subsea equipment design for Australia's challenging offshore warm water environment and to avoid costly interventions.

CEO of Wood Group Kenny Bob MacDonald said, "The SEAR JIP has already underlined how significant the issue of subsea failures is, with five fields in Australia having more than 100 failures over a six-year operating period. The associated cost of the intervention campaigns only was around AU $150 million [US$108 million].

Reducing costly failures is even more important in the current low oil price environment.

"There are a number of areas where improved collaboration can realise tangible benefits for oil and gas operations. We are now asking vendors to come forward with technology solutions to help address the specific challenges faced in Australian waters. Of particular interest are novel coating technologies and materials, which will improve the ease of equipment change out and intervention campaigns," he said.

The testing initiative follows a review of subsea equipment performance to date in Australia and provides the opportunity for vendors to test the performance of technologies in situ over a number of years. For more information, contact Oddbjorn Gjerde, SEAR JIP coordinator, at *oddbjorn.gjerde@woodgroupkenny.com*.

DEVELOPMENT BRIEFS

The Forsys Subsea tie-up between FMC Technologies and Technip has landed its first job.

It won a contract from Statoil to provide a FEED study for the subsea tieback of the **Trestakk** (*32/21*) Field to the Åsgard *A* FPSO unit. The scope of the FEED study includes all systems and related services from the wellhead to Åsgard *A* riser hangoff, including umbilicals, riser, flowlines and subsea production system, installed and made ready for operation. A key focus of the study is to arrive at an optimal technical and cost-efficient development solution as well as providing a clear and well-defined basis for the development phase. Forsys Subsea will carry out the work from its regional office in Oslo, Norway, in close cooperation with Technip and FMC Technologies in Norway.

JDR has been awarded two umbilical contracts by McDermott Middle East for undisclosed operators. The umbilicals will be delivered to two projects in the United Arab Emirates and Qatar. The first project includes three umbilicals with a total combined length of 9 km. The second project includes seven umbilicals with a total combined length of 3.5 km. All of the umbilicals incorporate both thermoplastic hoses and electrical cables, providing hydraulic control and electrical signal to subsea isolation valves. For both projects, JDR's scope of work involves the engineering, design and manufacture of hardware, including topside umbilical termination units, pull-in heads, hangoff bodies and umbilical termination assemblies. Delivery from JDR's manufacturing facility in Hartlepool is scheduled for fourth-quarter 2016.

Total has started up production at the offshore **Vega Pleyade** gas and condensate field in the Tierra del Fuego region of Argentina.

The project has production capacity of 10 MMcm/d and consists of a wellhead platform in 50 m of water, tied back via a 77 km offshore pipeline to the Total-operated Rio Cullen and Cañadon Alfa onshore treatment facilities.

Heerema has landed a contract for the engineering, procurement and construction (EPC) of the unmanned wellhead platform at **Oseberg Vestflanken 2** (*32/22*) off Norway as well as the transport and installation of the platform. Heerema Fabrication Group will carry out the EPC of the unmanned wellhead platform and Heerema Marine Contractors (HMC) will be responsible for transport and installation of the platform. Fabrication will start in June, and the sail away is scheduled for summer 2017, followed by installation with HMC's semisubmersible crane vessel. The Oseberg Vestflanken 2 platform will be installed in the Norwegian part of the North Sea at a water depth up to 110 m and about 8 km northwest of the Oseberg Field Centre. The Oseberg Vestflanken Development will consist of an unmanned wellhead platform with 10 well slots. Two existing subsea wells also will be reused. All wells will be drilled by a Cat-J jackup drilling rig. The wellstream will be routed to the Oseberg Field Centre via a new pipeline, and the wells will be remote-controlled from the Field Centre. The field development will provide 110 MMboe. Production start is scheduled for second-quarter 2018.

The Oseberg Ost platform.

McDermott International has signed a long-term exclusive agreement with Larsen & Toubro subsidiary L&T Hydrocarbon Engineering (LTHE) focused on subsea projects offshore the east coast of India. The agreement follows the recent announcement that a consortium of McDermott and LTHE had been awarded an engineering, procurement, commissioning and installation contract for the **Vashishta** and **S1** Development Project, a greenfield deepwater development off India's East coast. David Dickson, McDermott's President and CEO, said, "With the emerging east coast of India deepwater market offering attractive development opportunities for our clients, we believe this long-term collaboration provides a compelling value proposition for the successful design and delivery of subsea projects.

"Together, we leverage McDermott's proven track record in subsea engineering, procurement and installation with our versatile fleet and lay technologies that will be further enhanced by the upcoming delivery of the *Derrick Lay Vessel 2000* and our in-market capabilities and strategically-positioned LTHE fabrication yard and spoolbase at Kattupalli."

FLOATERS

Green Light on Mozambique Coral

Eni can move to the next stage of its development of the **Coral** (*SEN, 32/6*) discovery in Area 4 offshore Mozambique after the plan of development was approved by the country's government.

The approval relates to Phase 1 of development of the 141 Bcm of gas from the 453-Bcm discovery, which is located in water more than 2,000 m deep and about 80 km offshore of Palma Bay in the northern province of Cabo Delgado.

The development plan, the first to be approved in the Rovuma Basin, foresees the drilling and completion of six subsea wells and the construction and installation of a floating LNG facility, the capacity of which will be about 3.4 million tonnes per annum.

The project was also the first in the Rovuma Basin to be granted an Environmental Licence in September 2015, at the end of a thorough process involving local communities and national authorities.

Eni CEO Claudio Descalzi said, "Approval of the Coral Plan of Development is a historical milestone for the development of our discovery of 2.4 Tcm of gas in the Rovuma Basin. It is a fundamental step to progress towards the final investment decision of our project, which envisages the installation of the first newly built floating LNG facility in Africa and one of the first in the world."

Eni and its partners also are pursuing development of the **Mamba** (*32/18*) discovery, which allowed the achievement of a unitization agreement with Area 1 in December 2015.

Eni is the operator of Area 4 with a 50% indirect interest, owned through Eni East Africa, which holds a 70% stake of Area 4. The other Concessionaires are Galp Energia, KOGAS and Empresa Nacional de Hidrocarbonetos with a 10% stake each. CNPC owns a 20% indirect interest in Area 4 through Eni East Africa.

Meanwhile, the Egyptian Ministry of Petroleum and Mineral Resources has approved Eni for the fast-track development of the offshore **Zohr** discovery.

The development plan envisages the start of production by year-end 2017, just two years after the discovery, with a progressive ramp-up until reaching a volume of about 75 MMcm/d of gas by 2019.

Zohr could hold a potential of 849 Bcm of lean gas in place (5.5 Bboe in place) covering an area of about 100 sq km. It's the largest gas discovery ever made in Egypt and in the Mediterranean Sea and could become one of the world's largest natural gas finds.

FLOATER BRIEFS

Nexans will supply more than 2,200 km of cabling for Total's *Egina* FPSO unit, which is being built at Samsung Heavy Industries' yard in South Korea. The power, instrumentation and control cables will service the FPSO unit, which will be located 130 km off the coast of Nigeria in 1,750 m of water. The cables are specially designed to prevent gas leakages, making them much safer for use in flammable or high-risk environments. This means that the project is able to comply with local fire safety regulations and meet the strict technical specifications for IEC standards and Bureau Veritas certificate. The FPSO unit will be operational on the **Egina** (*32/20*) Field from 2017. It is 330 m in length, 61 m across and 34 m high, with a storage capacity of 2.3 MMbbl of oil. Samsung Heavy Industries will deliver the FPSO unit through a turnkey contract that includes design, procurement, building, transportation and pilot operation.

From Houston (BN): Petrobras has started up the seventh FPSO unit in the Santos Basin presalt area. The *Cidade de Marica* is sited in the **Lula** (*32/19*) Field 270 km offshore in 2,120 m and can produce 150 Mbbl/d and 6 MMcm/d. Later this year, the *Cidade de Saquarema* and *Cidade de Caraguatatuba* are expected to startup in the Lula Central and Lapa areas. Also, the big Rota 2 undersea pipeline has started flowing natural gas from Santos Basin platforms. It can carry 13 MMcm/d.

Statoil has rejected the idea of another platform on Snorre.

Statoil appears to be going with an all subsea option to extend the lifetime of its **Snorre** field in the Norwegian North Sea.

The operator has abandoned the idea of building a new tension leg platform for project **Snorre 2040** (*30/15*) as it believes it can cut the original investment estimate by as much as 40% by going subsea.

The subsea option will exploit the two existing platforms on the field and will increase recovery by about 200 MMbbl.

Aqualis Offshore has won a contract from Cantex Global Logistics to provide the marine warranty surveyor (MWS) services for FPSO P67 & P70 topside modules transportation from various Brazilian ports to COOEC's yard in Qingdao, China.

A total of 29 topside modules for the FPSO P67 and P70 will be transported in eight shipments from Brazil to China. The maximum module weight is about 1,650 mt.

Aqualis Offshore has already completed the MWS for loadout and sail away for one vessel, and will oversee the loadout for another three vessels in Brazil in a few weeks' time. The remaining two shipments from Brazil will be completed in the summer of 2016.

Barakah Offshore Petroleum subsidiary PBJV Group has scooped a subcontract from **Petronas Floating LNG 1** (PFLNG) for offshore work on the floating LNG (FLNG) project. PBJV Group will provide engineering, procurement, installation and related activities for FLNG offshore works, PFLNG post-installation activities and onboard hookup as well as commissioning and startup activities. The contract will run from December 2015 to October 2016.

Cape will be responsible for cryogenic pipework on Prelude.

Cape has secured a contract with Samsung Heavy Industries in South Korea for the installation of insulation to the cryogenic pipework on the process topside on Shell's *Prelude* floating LNG (FLNG) unit. Once complete, the Prelude FLNG facility will be moored 475 km northeast of Broome in Western Australia. Prelude is 488 m long, 74 m wide and along with its contents, will weigh about 600,000 mt. It will be the largest floating offshore facility in the world, according to the company.

Tullow Oil said that it has informed the Government of Ghana and its partners of a change to operating procedures on the **Jubilee** (*32/21*) Field FPSO unit. Following a recent inspection of the turret area of the *Jubilee* FPSO unit by SOFEC, the original turret manufacturer, a potential issue was identified with the turret bearing. As a precautionary measure, additional operating procedures to monitor the turret bearing and reduce the degree of rotation of the vessel are being put in place. SOFEC will undertake further offshore examinations, and Tullow will work with SOFEC to determine what further measures will be required. Oil production and gas export is continuing as normal.

EXPLORATION

Mexico Deepwater Round Set

From Houston: Mexico will launch a deepwater bidding round—the country's fourth—in early December.

The country's president, Enrique Peña Nieto, said that current market conditions would not deter the energy reforms pressing ahead and the opening of the country to foreign investors.

"Regardless what happens in the international context, Mexico will move forward with the energy reform implementation," Peña Nieto said at IHS CERAWeek in February.

He said Mexico will "maintain the rhythm in the bids" for exploration acreage.

"This is not the time to stop. This is the time to move forward," Peña Nieto said, noting the move demonstrates Mexico's commitment to energy reform. "Regardless of the oil price in the short term, Mexico decided to have the technological, financial and risk management capability that the global oil industry already has developed for this type of large-scale project."

The deepwater exploration round is expected to attract the most attention, given its location in the oil-prone Perdido Fold Belt and Cuenca Salina areas. In the Perdido Fold Belt area, four blocks will be offered, while six will be offered in the Cuenca Salina area.

The auction will follow three other calls for bids, which have progressively grown in interest.

In what could be called its most successful auction yet, Mexico's third call for bids attracted 40 companies willing to invest in oil and gas acreage despite rough market conditions. All 25 of the onshore areas on the table were awarded.

The competition was fierce for the right to develop hydrocarbons in some of the mature fields, getting more than a dozen offers. Nineteen of the fields offered during this round are already producing oil and gas.

The first two calls offered shallow-water acreage offshore. During the second call, three of five production-sharing contracts offered were awarded. That was considered an improvement from the first call after changes were made to the process, including disclosing Mexico's terms.

In that round, eight of the 14 blocks offered received no bids, and four were thrown out for failing to meet Mexico's minimum requirement of 40% pretax profits.

—Contributed by Velda Addison, Hart Energy

EXPLORATION NOTES

From Houston (BN): Amid the dwindling number of exploration and development plans being filed with U.S. regulators, LLOG, Noble and Statoil all won recent approvals. LLOG's conditional approval is for an initial exploration plan for its **Mud Bug** prospect in 1,900 m in Mississippi Canyon 560. It calls for two 90-day wells drilled and completed by 2019. Noble received the go-ahead for a supplemental exploration plan for **Hagerman** prospect in 2,350 m in MC 788. The plan calls for six 192- to 204-day wells at the rate of one every year or so out to 2024. Statoil was given the OK for an initial exploration plan for the **Sverre-Nessie** prospect in 1,875 m in Walker Ridge Block 200. Statoil plans to drill two 97-day wells by mid-2017.

In Mexico, French geoscience company CGG is undertaking a comprehensive multiclient airborne gravity and magnetic survey offshore Mexico. CGG said the project enjoys significant prefunding from the oil industry. Flights are to begin in March and expected to take 12 months.

Petrobras and its partners have found more oil in the **Libra** (*32/21*) prospect offshore Brazil.

The well in the northeast sector of the Libra area found a 270-m column of oil-bearing rock that has high levels of connection with other wells drilled in the prospect. Petrobras has a 40% stake in Libra alongside Shell (20%), Total (20%) and CNOOC and China National Petroleum Corp., which have 10% each.

Statoil has agreed to a deal with Tullow Oil to acquire a 35% working interest in offshore exploration **Block 15** in the Pelotas Basin off Uruguay. Block 15 covers an area of more than 8,000 sq km and lies in a water depth of 2,000 m to 3,000 m. Statoil recently announced its entry into Uruguay as partner in exploration Block 14, and by accessing the adjacent Block 15 Statoil said it continues to pursue this regional geological trend. A comprehensive data collection program already has been completed in the block. As operator, Tullow is planning to collect further 3-D seismic before a decision is made on further steps.

Woodside Petroleum has picked up exploration acreage in waters off the West African states of Senegal and Guinea-Bissau. Woodside has bought a 65% stake in a 6,700 sq km production-sharing contract in the **AGC Profond** permit in the joint development area off the coast of the two West African nations from Impact Oil and Gas. AGC Profond lies across the principal sand fairway of the Late Cretaceous Casamance deep marine fan as well as the Jurassic-Cretaceous carbonate platform edge along the eastern flank of the block. Seismic interpretation is underway across two existing 3-D surveys, Cheval Marin and Croix du Sud.

Impact is retaining a 20% interest in the block. Local company Enterprise AGC has a 15% stake. Woodside is taking over as the operator of the venture.

VESSEL BRIEFS

The contract for the *Eirik Raude* has been terminated.

Total E&P Congo has ended the long-term contract of the seventh generation ultradeepwater drillship *Ocean Rig Apollo*. Owner Ocean Rig is entitled to a termination fee that varies from 50% to 95% of the operating daily rate that will be payable over the balance of the contract.

The *Ocean Rig Apollo* will demobilise from Congo in due course and is available for alternative employment. Meanwhile, Premier Oil has terminated the contract for the ultradeepwater semisubmersible drilling rig *Eirik Raude,* operating in the Falkland Islands.

Ocean Rig has accepted Premier Oil's termination for convenience and is entitled to a termination fee of up to $62.9 million. The *Eirik Raude* will demobilise from the Falkland Islands in due course and is available for alternative employment. George Economou, chairman and CEO, said, "It is really regrettable that two of our clients have decided to terminate drilling contracts for convenience. This is a reminder of the extremely challenging times facing the offshore drilling industry and oil companies taking unprecedented action to reduce their capital expenditures. The prospects for the industry remain bleak, and we currently see limited prospects of a recovery before 2018 at the earliest."

The *Sapura Jade* pipelay vessel has begun work in Brazil. The *Sapura Jade* is the fourth of a series of six pipelay support vessels (PLSVs) contracted under a long-term contract by Petrobras for deepwater flexible pipelay work in Brazil. Other PLSVs already in service with Petrobras include the *Sapura Diamante*, *Sapura Topázio* and *Sapura Ônix*, all of which started work on schedule or ahead of schedule and continue to operate at strong utilisation rates. Similar to previous vessels, *Sapura Jade* is equipped with a 550 t vertical (tiltable) lay system for the deployment of a range of flexible products in up to 3,000 m water depth for Petrobras' presalt developments offshore Brazil.

iSURVEY Pte Ltd., Singapore, has been awarded a marine construction support contract by Solstad Offshore Asia Pacific to provide positioning and survey support for its 2016 pipeline and platform installation programme in Thailand, on board the DLB *Norce Endeavour*. iSURVEY will provide positioning services to support the installation of a number of pipelines and platforms including monitoring during jacket setting, together with final positioning, levelling and survey assistance during pile cut-off. The estimated contract duration is 200 days commencing in mid-January 2016. Subsea positioning will also integrate with IKM Subsea's Merlin work-class ROV during installation operations.

Fugro has landed a contract from Technip to provide deepwater survey and positioning services for seven installation vessels and construction support vessels offshore Angola for the giant **Kaombo** (*32/22*) project. The contract begins in second-half 2016 and will continue into early 2018. Kaombo is a development in Block 32 about 260 km offshore Angola; there are six fields that will be tied back to two converted FPSO units in water up to 2,000 m. The largest subsea transponder ever deployed will handle surveys, subsea positioning and metrology.

From Houston (BN): Paragon Offshore, provider of offshore drilling rigs including 34 jackups and six floaters, has filed for reorganisation under Chapter 11 of the U.S. bankruptcy code. As is common in such cases, the company plans to keep operating while it restructures. "We are confident Paragon will emerge as an even stronger company," CEO Randall Stilley said.

Statoil has cancelled its contract for the *Maersk Gallant* rig.

Statoil has decided to cancel its contract for the *Maersk Gallant* rig. The Maersk rig has been on contract with Statoil for two years, since Aug. 21, 2014, and since Oct. 9, it has been sub-chartered to ConocoPhillips. Between Feb. 14 and Aug. 21, 2016, the *Maersk Gallant* is on a new contract with Total, who will pay the cancellation fee for the former contract.

Reach Subsea has agreed to contract extensions with Eidesvik Offshore for the provision of ROV and subsea services with the *Viking Neptun*. The contract will begin at the start of April in the U.K. sector of the North Sea.

TECHNOLOGY

Technology is Key to Small Pools

The National Subsea Research Initiative (NSRI) has reiterated calls (*32/22*) on the industry to come up with a collaborative approach to unlocking the potential of small pools of hydrocarbons in the U.K. North Sea.

This could pave the way to recovering 1 Bbbl to 1.8 Bbbl of oil, which currently cannot be exploited economically. The accumulations of hydrocarbons in these reservoirs represent about 5% of U.K. reserves or 20% of future U.K. production, which could deliver a potential $19 billion in capex, $16 bilion in opex and a return to the Treasury of $8 billion in revenues.

Dr. Gordon Drummond, project director of NSRI, said, "Without some form of intervention, small pools will remain locked in, and MER [maximising economic recovery] will not be realised. Only by recognising their national strategic importance and taking them together as an industry asset, will we be able to exploit them in an environment where conventional market dynamics have failed."

NSRI was tasked with helping to find the new, disruptive subsea technologies that could unlock these small discoveries and help prolong the life of the North Sea. A series of "hackathons," which brought the industry, technology developers, universities and research institutes together was organised to brainstorm possible technological solutions.

But the NSRI revealed that, while the technical community believes technology forms part of the solution, the commercial structure of the industry is constraining the economies of scale needed to make the recovery of oil from these reservoirs viable.

Dr. Drummond explained, "It was very clear that it is difficult to decouple the commercial considerations from the technical aspects. Access to host facilities and infrastructure, noncollaborative behaviours between operators and small operators who don't have the finances or the will to develop these resources were identified as barriers to the development of small pools.

"Of the technical solutions discussed, some could have widespread application but, before progressing these, we need to carry out a Geographic Information System (GIS) map, which details the size, location and fluid complexity of the small pools superimposed upon a North Sea map showing the ownership of and type of existing infrastructure. From this it will become apparent what type of technical solutions need to be progressed, for example tiebacks, subsea hot tapping, clustering arrangements and standalone facilities."

According to NSRI, the technologies that present the biggest enablers to unlocking small stranded fields are compact FPSO units, production buoys and subsea production facilities including boosting, processing and subsea storage and enabling technologies, which attain access to existing infrastructure such as hot taps and self-sufficient hook up modules.

POLICY

Grim UK Outlook Sparks Tax Cut Demands

The Oil & Gas UK (OGUK) 2016 Activity Survey paints a sorry picture for the region.

The new survey reveals that while the industry's drive to improve efficiency, reduce operating costs and increase production has had marked success, exploration remains at an all-time low with no sign of improving.

There are currently no exploration or appraisal wells ongoing on the U.K. Continental Shelf (UKCS).

OGUK said most concerning is the collapse of investment in new projects. This year the upstream industry is expected to approve less than £1 billion (US$1.3 billion) to spend on new projects, compared to a typical £8 billion (US$11 billion) per year in the last five years—sparking fears for the long-term future of the industry.

The trade body is calling on the government for urgent reforms of the special taxes paid by the industry to attract investment back into the basin and minimise loss of capacity during the downturn.

OGUK said on the plus side, sectorwide action has pushed unit operating costs down by one-third from an average of $29.30/boe in 2014 to $20.95/boe in 2015, aided by a 10% rise in oil and gas production—the first in 15 years. Costs are expected to fall by a further 20% this year to about $17/boe, representing a 42% improvement in just two years.

However, pressures on the sector have grown as prices have continued to fall; the oil price has fallen by 70% since summer 2014 and the average daily gas price by 20% last year. Despite the rise in production to an average of 1.64 MMboe/d in 2015, revenues fell by 30% to £18.1 billion (US$25.1 billion).

If the oil price remains at about $30 for the rest of 2016, nearly half (43%) of all UKCS oil fields are likely to be operating at a loss, deterring further exploration and capital investment, and making additional cost improvement imperative.

Previously sanctioned capital investment that was being spent over a period of several years is tailing off. Looking ahead, with depressed production revenues leaving very little to re-invest, less than £1 billion of fresh capital in new projects is expected to be sanctioned this year, compared with an average of £8 billion per year over the last five years.

Total capex fell from £14.8 billion (US$ 20.5 billion) in 2014 to £11.6 billion (US$16.1 billion) last year and is expected to fall further this year to about £9 billion (US$12.5 billion).

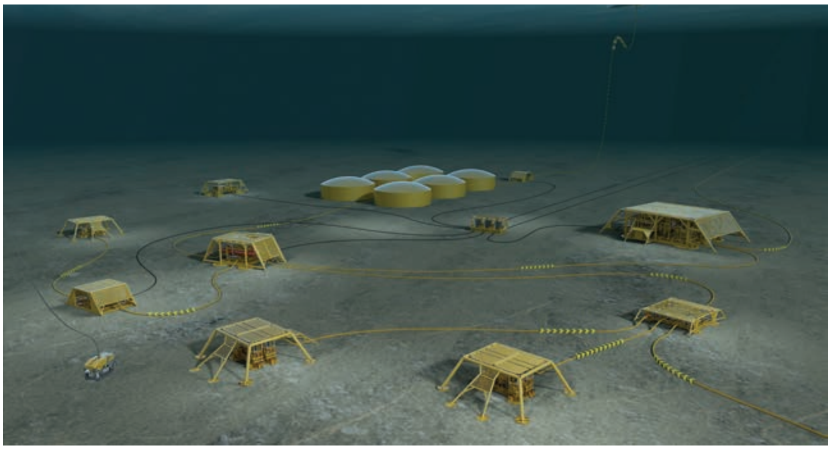
The pace of decommissioning is accelerating. Over the last year, the number of fields expected to cease production between 2015 and 2020 has risen by one-fifth to more than 100. Reserves reported by companies for potential future development have fallen from 10 Bboe to 8.8 Bboe, as projects are deemed uncommercial in the current environment.

OGUK CEO Deirdre Michie called for tax cuts to help boost the sector.

Michie said, "The industry currently pays special taxes at a headline rate of 50% (67.5% for fields paying Petroleum Revenue Tax). A significant permanent reduction in those rates is now urgently needed, a move which would be consistent with HM Treasury's 'Driving Investment' plan for fiscal reform. This should be combined with additional measures to help unlock the late-life asset market and encourage exploration by permanently removing the special taxes from all discoveries made over the next five years. Finally, improving the effectiveness of the Investment Allowance would stimulate activity in the short term and attract fresh investment."

BUSINESS

Pair Team Up for Subsea Solutions


Aker and Total team up for subsea solutions.

Aker Solutions and Total are teaming up to collaborate on research and innovation to develop new cost-effective subsea field technology.

The pair said the initial four-year technical collaboration agreement will build on earlier cooperation and bring both companies closer in developing technologies that will reduce costs and increase value at subsea oil and gas fields.

The partnership said that this year they will explore a wide range of issues, including further evolution of subsea processing and compression systems to boost cost-efficiency of deepwater gas production, development of electric subsea controls and optimization of flow-measurement technologies. Further scope of the collaboration will be defined over the next months.

"This joint effort reinforces our common interest in finding more effective solutions to maximise value from subsea field developments," said Hervé Valla, CTO at Aker Solutions. "It allows us to work more closely with Total to solve technical challenges faced by the industry today and to reduce the time needed to bring subsea technology to the market."

Total has been a strategic customer of Aker Solutions for many years including on subsea projects such as the **Kaombo** and **Dalia** developments in Angola and **Moho Nord** in Congo-Brazzaville.

The companies have worked closely on solving specific project challenges and designing solutions to enable future developments. This includes collaborating on subsea boosting solutions and subsea plant for deepwater application as part of Total's deep offshore R&D programme.

Meanwhile, GE Oil & Gas has signed a master service agreement with Statoil for new subsea projects.

The global agreement forms the basis for potential new contracts for subsea equipment and services on new projects and field developments. The contract is valid globally until 2025.

GE Oil & Gas recently delivered subsea production system equipment for Statoil's Snøhvit gas field in the Barents Sea on the Norwegian Continental Shelf.

In today's oil price environment, sustained focus on costs and efficiency will ultimately be the key to develop several currently marginal prospects and discoveries.

GE and Statoil already are working closely together in the Power Collaboration initiative, which aims to accelerate the development of sustainable cost-efficient energy solutions.

Technip Holds the Line

Technip's fourth quarter adjusted revenue came in at €3.11 billion ($3.43 billion) up 11% from €2.81 billion in the same period a year earlier.

Subsea revenues were roughly 15% higher for the quarter, at €1.48 billion. Full-year 2015 adjusted revenue was up 14% to €12.2 billion.

Order intake for the fourth quarter 2015 in the subsea sector was $651 million compared to €1.27 billion a year earlier.

Technip CEO, Thierry Pilenko, said that a strong backlog of work, solid cash flow and cost cuts had enabled the firm to remain resilient.

"We have a very robust balance sheet, which is supported by a strong cash generation and a solid backlog that allows us to set very clear objectives for 2016," Pilenko said.

Technip said its business backlog was €17 billion euros at the end of 2015, compared with more than €20 billion the previous year.

Looking ahead to the next 12-18 months, Technip said its clients' capex on new projects will remain substantially below 2014 levels.

The company said, "In upstream we may see momentum on a few strategic developments, but oil and gas operators are currently focused on completing major projects launched over the past three to five years. The completion of these should provide cashflow headroom which would enable investment to resume, to compensate inevitable reservoir depletion. "Most important, the significant improvements on project economics brought by early engagement (notably by Genesis and the Forsys Subsea JV) is increasing client confidence in upstream project returns. Therefore, front-end work for upstream developments should gain momentum from late 2016 into 2017 with larger project investment decisions following on thereafter."

BUSINESS BRIEFS

Petrofac has taken a hit from the delayed startup and cost overruns on Total's West of Shetland **Laggan-Tormore** (*32/22*) project.

The company said it saw EBITDA for 2015 of $792 million before the loss on Laggan-Tormore and just $312 million after the negative impact.

Net profit for the year was $440 million before Laggan-Tormore and $9 million after.

Ayman Asfari, Petrofac's Group CEO, said, "Our results for 2015 were adversely affected by the Laggan-Tormore project on Shetland. However, we faced up to the exceptional challenges we encountered and honoured our commitment to our client. With the plant now successfully operational, these issues are finally behind us.

"We enter 2016 with a renewed focus on our core strengths. The Group's backlog ($20.7 billion) stands at record year end levels, giving us excellent revenue visibility for 2016 and beyond."

Helix's Q5000 dockside.

From Houston (BN): In Gulf of Mexico news, President Obama's 2017 budget proposes spending $175 million for the Bureau of Ocean Energy Management and $205 million for the Bureau of Safety and Environmental Enforcement. Both are slight increases over 2016 spending levels for U.S. offshore regulation.

Helix, famous for its Q series of well intervention vessels, has sold its 50% interest in the *Marco Polo* production facility (in 1,300 m in Green Canyon Block 608 and a hub for several Anadarko fields) for $25 million to a subsidiary of Genesis Energy. CEO Owen Kratz told an earnings call the company is strong enough at this point to weather the industry down cycle. But he said "we will continue to look for ways to add liquidity going forward." And CFO Tony Tripodo said the company would consider selling noncore assets "if there are willing buyers."

Hercules Offshore, a jackup and liftboat operator, has formed a special committee to "explore strategic alternatives," code for possible sale of the firm, and has engaged legal and financial advisers to the committee. Hercules reorganised under Chapter 11 of the U.S. bankruptcy code last fall. The company said formation of the committee was not in response to any proposal or approach by a third party.

Chevron plans to sell all its shallow-water Gulf of Mexico assets by year-end 2017. Analysts describe the assets as 27 mature fields producing 46,000 bbl/d. The aim is to shed nonessential assets and focus on deepwater projects.

Cobalt is laying off 50 employees in its Houston headquarters and said it plans to cut its total workforce of 300 by 50%. Sale of Cobalt's Angola assets has lightened the work load, and $30/barrel oil doesn't help.

The misdemeanour federal pollution trial of BP rig supervisor Robert Kaluza in the 2010 Macondo oil spill disaster is underway in New Orleans. It is the last of criminal cases against BP employees after prosecutors dropped manslaughter charges in the deaths of 11 workers in the accident.

More budget cuts are expected at Mexico's **Pemex**, according to news reports. The government, which depends on Pemex taxes for a third of its revenue, cut Pemex $4.1 billion last year, and more cuts are coming, reports stated. Some experts have complained the moves hobble Pemex as private capital is set to enter the Mexican oil industry under reform. Other experts welcomed the Pemex reductions and other cuts as responsible fiscal management.

A conference sponsored by the University of Houston and Rice University at Rice's Baker Institute discussed the need for improvements in the rule of law in Mexico to bolster energy reform. Among messages from speakers: It is good that Mexico is trying to increase transparency, but better law enforcement is needed to control corruption. Mexico needs a civil service with training and job security to empower regulatory agencies. New regulators of oil are not as independent as needed; they answer to the secretary of energy. Reform has met with little public protest. But unless more inclusive institutions are built to accommodate stakeholders to changes arising from energy reform, protests could erupt.

In Brazil, reports indicate President Rousseff plans to ease requirements that **Petrobras** be the dominant partner in the presalt, giving foreign companies more room to operate. And Rio de Janeiro state is said to be scrapping new E&P taxes before they take effect.

Now to the Brazilian police and courts report. President Rousseff's former campaign manager has surrendered to authorities to answer questions about questionable payments. Peru's president has denied being bribed by Brazilian construction giant Odebrecht. Reuters reported rig builder Sete, whose sole client is Petrobras, plans to file for bankruptcy if Petrobras doesn't deliver a firm lease proposal soon for Sete's deepwater rigs.

First Oil Expro has gone into administration with Enquest and Cairn Energy taking on its 15% stake in the U.K. North Sea **Kraken** (*32/21*) oil field. Enquest now has a 70.5% interest in Kraken and Cairn 29.5%. Zennor Petroleum is expected to take on First Oil's interests in the **Mungo** and **Monan**, **Bacchus**, **Cormorant East** and **Causeway** fields. Blair Nimmo, joint administrator and head of restructuring at KPMG in Scotland, said, "These sales will ensure that the group's four largest field interests are smoothly transferred to new ownership and [will] provide time to resolve the position concerning the smaller assets in the group's portfolio."

Expro has secured a new subsea framework agreement with Statoil in Norway for three years with options to extend for three two-year periods. Expro will provide subsea services and well control systems delivering its large bore landing string assemblies for completion, workover and intervention projects from both semisubmersibles and jackup rigs.

Neil Sims, vice president, Europe CIS, said, "This agreement reaffirms the long-standing relationship between Expro and Statoil, established through the provision of well testing and cleanup services during the last 8-plus years.

"Expro is well positioned to support Statoil in Norway with recent investments in a new base and technology, including our $10 million facility in Tananger."

Harkand has signed a new joint venture agreement with ESOPEG Lda in Angola, its first strategic partnership in the country and third in the region as the global inspection, repair and maintenance (IRM) company continues to strengthen its capabilities across West Africa.

The newly formed company Harkand Angola Lda, based in Luanda, will focus on the development of local IRM capabilities and services in the country, providing support and local content on both large major capital development projects and maintenance to existing ageing operations.

It makes the full spectrum of Harkand's ROV and diving, inspection, engineering, project management and survey services available to the Angolan market.

Shell has completed the takeover of BG. "This is an important moment for Shell," said CEO Ben van Beurden. "It significantly boosts our reserves and production and will bring a large injection to our cash flow. We have acquired productive oil and gas projects in Brazil and Australia and other key countries. We will now be able to shape a simpler, leaner, more competitive company, focusing on our core expertise in deep water and LNG."

Wood Group PSN (WGPSN) has slashed the rate it pays to about one-third of its contractors working in the U.K. North Sea by an average of 9%, "in line with competitive market rates."

This latest adjustment to contractors' rates follows a 10% decrease in U.K. onshore contractors' rates made in May 2014 and a further up to 10% decrease in U.K. contractors' rates made by WGPSN in December 2014.

James Crawford, managing director of WGPSN in the U.K. and Africa, said, "This is not a decision we have taken lightly, but we believe it is the right one to proactively meet the continuing cost and resourcing challenges affecting the U.K. North Sea oil and gas sector.

"This adjustment to the rates we pay our U.K. contractors ensures we continue to be competitive within the marketplace. We highly value our contractors and this measure will allow us to sustain our relationship with these talented people, whilst taking appropriate measures to improve efficiency and reduce cost for our customers."

More than 7,500 people work for WGPSN in the U.K., including about 600 contractors.

North Energy has completed the acquisition of Explora Petroleum and a new company, North E&P, has been formed. North Energy will convert to a holding company, whilst all petroleum activities in the merged company will be held in North E&P. The board of directors of North E&P will consist of CEO of North Energy, **Knut Sæberg** (chairman), **Didrik Leikvang** and **John Pickard** (CEO of Explora Petroleum).

Apache made a net loss of $23.1 billion in 2015. Apache said 2015 production came in at 535 Mboe/d, while capital spending was reduced by 60% in the year. The company's worldwide estimated proved reserves totalled 1.6 Bboe at year-end 2015, down from 2.4 billion Boe at year-end 2014.

John J. Christmann IV, Apache's CEO and president, said, "During 2015, we completed several important portfolio-related transactions and used the proceeds from asset sales to significantly improve our liquidity and financial position. We reacted quickly to the lower price environment by dramatically reducing our activity levels and taking decisive steps to attack our overhead, operating and capital costs."

Saipem slipped to a net loss of €806 million (-$881 million) in 2015 on revenues of €11.50 billion. During the year the company won new contracts worth €6.5 billion. Backlog at the end of December 2015 was €15.84 billion, of which E&C offshore contracts in excess of €7.5 billion.

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