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Det norske Comes Out Fighting

Norway's Det norske oljeselskap has unveiled ambitious plans to slash engineering and well costs by half, while pursuing a strong inventory of development and exploration projects.

Olav Henriksen—senior vice president for projects in Det norske—said the company will establish a centre of excellence for subsea projects to help drive costs down.

"Over the last years we have seen an accelerating cost increase for field developments in the North Sea. ten to 15 years ago 60 hours of engineering time per tonne was required to produce a platform. That has now risen to 120 to 140 hours. We see no clear evidence that the platforms are safer or produce hydrocarbons in a more efficient way," Henriksen said.

He told the audience at the company's first Capital Markets Day that Det norske's goal is to reduce costs by 50% and cut engineering time by 25%.

"When we do so, we will be able to sanction standalone platforms and projects at an oil price of below $40/bbl."

On current projects, Henriksen said he was confident that first oil would be delivered from **Ivar Aasen** *(SEN, 32/18)* in the fourth quarter this year.

Pipelaying between the **Edvard Grieg** *(32/20)* platform and Ivar Aasen was completed in 2015, while the subsea scope this year includes the installation of the power cable, pipeline spools and rock dumping.

The jacket for Ivar Aasen was installed last summer by the Thialf heavylift vessel, while production drilling will continue in the summer. The topside will be installed in July.

Ivar Aasen is being developed with seven producers and six water injectors, which will be drilled with dry wellheads from the platform. Plateau production will hit 76 Mboe/d from 2019 to 2022.

The nearby **Hanz** Field is being developed with one producer and one water injector from a subsea template tied back to the Ivar Aasen platform.

Det noske's core area of **Alvheim** *(32/19)* has had a continuous flow of tie-in projects since 2008 and there is still large potential for more, Henriksen said.

A well is currently being drilled on the **BoaKam-North** Field, which will pump 9 Mboe/d to the Alvheim FPSO vessel from the second quarter this year. Viper/Kobra production will follow in the fourth quarter.

Henriksen said, "The majority of subsea developments and tie-ins in this area have been installed at a favourably low break-in price. However, to position ourselves for the future cost regime, we need to improve. The target is to do better than $30/bbl by establishing a centre of excellence for subsea projects, standardise development concepts and utilise the same team from project to project."

Vette options mulled

On the **Vette** *(32/11)* Field, recently acquired with the takeover of Premier Oil's Norwegian assets, Det norske is "currently doing a deep dive" and is looking at maturing three different development concepts for the field; platform, subsea or jack-up. The **Mackrel** and **Herring** finds in licence 406 could also represent a potential upside for Vette.

Exploration plans for 2016 include further work to clarify the resource potential in priority areas such as the Krafla/Askja area, Tampen area and the Loppa High.

Seven exploration wells are planned of which Rovarkula in PL 626 will be operated by Det norske.

Cost is a major focus here as well according to Gro Gunleiksrud Haatvedt senior vice president Exploration. She said, "We will reduce the total cost of drilling exploration wells by 50% as part of our long term plan. We will look to reduce costs to a minimum for dry wells. It is about developing more standard well designs and improving our planning and execution phase throughout the whole well process."

WHAT'S INSIDE

DEVELOPMENT

Norwegian Engine Ticks Over

There are some positive signs coming out of Norway—despite overarching negative trends—after authorities there approved four plans for development and operation (PDOs) in 2015, compared with just one **(Flyndre)**in 2014.

The Norwegian Petroleum Directorate (NPD) said in its annual state of the union filing that the four development plans include three in the North Sea: the first construction stage for **Johan Sverdrup** *(32/20)*, **Gullfaks South** *(32/20)* and **Gullfaks** *(32/20)* (amended PDO that includes Shetland/Lista Phase 1).

The fourth PDO is for **Maria** *(32/18)* in the Norwegian Sea. Statoil also submitted the PDO for **Oseberg West Flank 2** just before the Christmas holidays. In 2015, four new fields started production on the Norwegian Continental Shelf (NCS), all in the North Sea.

Bøyla is tied back to the *Alvheim* FPSO.

The four new producing fields are the Statoil-operated **Valemon** *(31/21),* Det norske-operated **Bøyla** *(32/11),* BG-operated **Knarr (32/19)** and Lundin-operated **Edvard Grieg** *(32/20).*

The NPD said 82 fields were in operation at year-end 2015, compared with 51 fields 10 years ago. Meanwhile, exploration activity on the NCS remains at a high level, though it declined somewhat at the end of the year and that trend looks set to continue.

Seventeen discoveries were made in 2015, 11 in the North Sea and six in the Norwegian Sea. The discoveries are all minor and close to other fields.

Fifty-six exploration wells were spudded in 2015, and 57 were completed. Thirty-three exploration wells were spudded in the North Sea, 16 in the Norwegian Sea and seven in the Barents Sea. This is about on par with 2014, with 57 spudded exploration wells.

For 2016, it is expected that the number of exploration wells being drilled will drop to about 30.

Resource growth from the 17 new discoveries is about 58 MMbbl to 125 MMbbl of oil and 14 Bcm to 40 Bcm of recoverable gas/condensate.

The two largest explorers in 2015 were Statoil and Lundin, with 14 and 13 spudded exploration wells, respectively. Wintershall and Det norske oljeselskap follow, each with five spudded wells.

Under construction

Nine fields are currently under development, two with a floating platform and four with fixed platforms. The other three are subsea developments.

In the North Sea these include **Johan Sverdrup**, **Martin Linge**, **Gina Krog**, **Ivar Aasen**, **Hanz** and **Flyndre**. **Aasta Hansteen** and **Maria** are under construction in the Norwegian Sea and **Goliat** in the Barents Sea.

For 2016, investments in these fields are estimated at about NOK 60 billion (US$6.7 billion), which will decline as the fields come onstream.

The NPD said that from a record level in 2013 and 2014, overall investments on the NCS fell by about 16% from 2014, to just under NOK 150 billion (US$16.8 billion). They are expected to continue their decline going forward, followed by a moderate increase from 2019.

NPD Director General Bente Nyland said, "Even in a demanding year, it's good to see that the oil and gas industry is still the country's largest, with total export values reaching well over NOK 400 billion (US$45 billion).

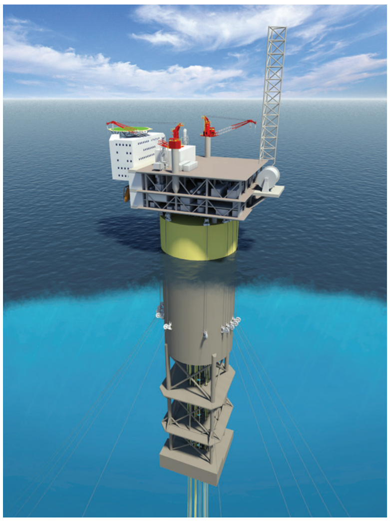
"It is also gratifying to see that the industry has invested substantial effort in increasing efficiency. This work is starting to materialise in the form of lower costs."

Deepwater Suffers as Cash Pulled from Projects

From Houston: Lingering low oil prices among other factors have caused oil and gas producers to hit the brakes on 68 upstream projects, mostly in deep water, with a combined capex of $380 billion, leaving billions of barrels of hydrocarbons in the ground, according to an analysis from an energy consultancy.

"The impact of lower oil prices on company plans has been brutal," said Angus Rodger, principal analyst of upstream research for Wood Mackenzie (Wood Mac). "What began in late 2014 as a haircut to discretionary spending on exploration and predevelopment projects has become a full surgical operation to cut out all nonessential operational and capital expenditure."

The worldwide supply and demand imbalance has sent crude prices from above $100/bbl to below $30 within about a year and a half. In turn, companies—feeling the pain of tanking profits—are reevaluating breakevens and seeking cost savings. The result, as the report confirmed,



Statoil has pushed back startup of the Aasta Hansteen spar.

is that some fail to see reason in doling out dollars for new projects at this time.

Amid depressing market conditions in second-half 2015, another 22 major projects, including 10 in the North Sea, joined the list of 46 identified as deferred by Wood Mac in June 2015 when oil was trading for about $60/bbl.

In all, the firm reported that 27 Bboe of commercial reserves have been deferred due to the delays. There were 7 Bboe added within the last six months.

Many of the final investment decisions for these projects have been pushed back to at least 2017, delaying first production to sometime between 2020 and 2023, according to the report.

"But against a backdrop of overwhelming corporate pressure to free up capital and reduce future spend—to the detriment of production growth—there is considerable scope for this wall of output to get pushed back further if prices do not recover and/or costs do not fall enough," Wood Mac said.

Wood Mac's report showed that oil is being impacted the most. Nearly 3 MMbbl/d of liquids production has been deferred until the next decade.

And just about all parts of the world are being impacted.

Upstream project deferrals appear to be the greatest in Canada, Kazakhstan, Mozambique, Angola and Australia. The U.S. Gulf of Mexico as well as Norway and Nigeria are also high on the list of projects and commercial reserves deferred.

Statoil has delayed the production startup at its **Aasta Hansteen** *(32/17)* Field offshore Norway and the U.K. North Sea **Mariner** *(32/20)* from 2017 to second-half 2018, citing increased costs.

The list also includes the deferral of Kashagan Phase 2 in Kazakhstan and Mozambique's Golfinho Area development as well as deepwater projects in Angola, according to Wood Mac's report.

Most of the stalled projects are high-cost deepwater ones. The number of these project deferrals jumped from 17 in June to 29 as of SEN's press time.

Wood Mac said more project delays and investment spending cuts are highly likely in 2016 as sub $35/bbl oil prices force companies into survival mode and push them to "reevaluate how they can profitably develop large, high-cost conventional resources at low prices." —*Velda Addison, Hart Energy*

Ineos Reviews Breagh Spend

Ineos, the new owner of the U.K. Southern North Sea **Breagh** *(SEN, 32/15)* gas field, is reviewing further investments in Phase 1 of Breagh for potential cost reductions, while further drilling has been delayed.

Any new activity would involve the drilling of up to four new wells and hydraulic stimulation contract has been signed, according to partner Sterling Resources, which said that drilling could be further delayed.

Of the four potential new wells and potential hydraulic stimulation of two existing wells, two wells (both hydraulically stimulated) and one hydraulic stimulation of an existing well have been budgeted and approved by the partnership for a 2016 campaign.

The remaining drilling activity (two further wells and one reentry and hydraulic stimulation of an existing well) is not yet budgeted and Sterling expects plans to be firmed up during the second-quarter or third-quarter 2016, following final interpretation of 3-D seismic acquired in 2014 and associated reservoir studies.

Review of the potential second phase of development of Breagh is likely to continue through 2016, also following on from the 3-D interpretation and reservoir studies, Sterling added.

Gorgon Gears up for Start

The Chevron-led **Gorgon** *(SEN, 32/17)* project is in the final stages of commissioning systems to allow startup of Train 1, Chevron Australia said.

The **Jansz-Io** Field subsea infrastructure is fully complete, and the first two wells have been opened to the Jansz pipeline, confirming the full operability of the subsea systems.

"At the plant, the focus is on starting up the process units ahead of commencing liquefaction," the company said.

Chevron Australia also said that LNG cool down cargo has arrived at the plant and is cooling the LNG tanks and associated facilities prior to first LNG export. The company expects the first LNG cargo in early 2016.

In addition, the company said it has made "good progress" on Trains 2 and 3, with all Train 2 and nine of 13 Train 3 modules installed and hookups underway.

As one of the largest natural gas projects ever undertaken and the largest single-resource development in Australia's history, Gorgon is being highly watched around the world as the next large-scale LNG project to emerge from Australia.

With the startup of all three coal-seam-gas-to-LNG projects in the east completed, Gorgon promises to push Western Australia further into the head of the class of global LNG providers.

Once Gorgon starts up and the **Wheatstone** and **Prelude** (floating LNG) projects follow, the state will account for 20% of the world's LNG production.

Gorgon has faced its share of headwinds, having endured a cost blowout of 40%, bringing its tally to A$54 billion ($3.74 billion).

Gorgon is now in final stages of commissioning.

Chevron is developing the Gorgon and Jansz-Io gas fields, located within the Greater Gorgon area, between 130 km and 220 km off the northwest coast of Western Australia.

It includes the construction of a 15.6 million tonne per annum LNG plant on Barrow Island and a domestic gas plant with the capacity to supply 300 TJ of gas per day to Western Australia.

Gorgon LNG will be offloaded via a 2.1-km-long loading jetty for transport to international markets. The domestic gas will be piped to the Western Australian mainland.

The project also includes the design, construction and operation of facilities to inject and store CO_2 into a deep reservoir unit—known as the Dupuy Formation—more than 2 km beneath Barrow Island. This will reduce greenhouse gas emissions from the project by about 40%.

DEVELOPMENT BRIEFS

Ramboll Oil & Gas will carry out an integrity study of 15 subsea pipelines for Abu Dhabi's Zakum Development Co. (Zadco), which will enable Zadco to plan maintenance and potential replacement of equipment. The 15 pipelines are part of an oil pipeline network in the **Zakum** *(32/17)* Field offshore the United Arab Emirates. Production at Zakum started in 1983, and the work is being carried out to extend the design and service life of selected pipelines in the field by an additional 20 years. The scope of work includes review of available pipeline data, assessment of current and future pipeline integrity as well as calculation and prediction of corrosion growth rates. The study will be completed early in 2016.

Subsea equipment rental, sales and services supplier Ashtead Technology is to provide fast, reliable and more cost-effective broadband communications between rigs and vessels and onshore facilities following a worldwide agreement with nCentric, a leader in remote communications technology, a press release stated. The nCentric technology can be used to monitor offshore operations, increase communication and can relay high-definition footage from ROVs in real time. The system can be configured remotely and can be monitored from an onshore location, reducing the number of people required offshore and limiting downtime.

BG Group expects to report average 2015 production volumes of 704 Mboe/d, ahead of guidance of 680 Mboe/d to 700 Mboe/d. This is about 16% higher than 2014 reflecting growth primarily in Australia, Brazil and Norway. Volumes in Australia more than doubled to 88 Mboe/d and in Brazil, almost doubled to 146 Mboe/d. In Norway, **Knarr** *(32/19)*, which came onstream in March 2015, has produced an average of 12 Mboe/d during 2015. This growth was partially offset by the expected decline in Egypt, down 18 Mboe/d to 44 Mboe/d, combined with lower volumes in Trinidad and Tobago, down 13 Mboe/d to 52 Mboe/d. Upstream EBITDA is expected to come in at $4.1 billion when results are reported on Feb. 5.

Conductor Installation Services Ltd. (CIS) has successfully completed its second conductor installation operation during the last 12 months for a leading North Sea oil and gas operator.

Work was carried out on a major gas development project in the Southern North Sea. CIS installed six 30-in. conductors on the project to form the foundations of six development wells. In addition, CIS supplied all conductor-running services, handling equipment, together with drive shoes that improve driveability by 40%.

SapuraKencana Technology has been awarded a contract by for engineering, procurement and construction of the subsea isolation valve systems (SSIV) in **Block PM302** in the North Malay Basin. The scope of work includes carrying out and completing the work for the SSIV skids, subsea umbilical and flying lead, hydraulic power unit, topside umbilical termination unit and umbilical termination assembly. The contract is for a period of about 18 months. It has commenced and is expected to be completed around first-quarter 2017.

FLOATERS

Ithaca Forced to Delay Stella Start

Ithaca Energy has been forced to push back the first oil date from its U.K. North Sea **Greater Stella Area** (GSA) (SEN 32/11) development by three months because of continuing delays to completion of work on the floating production unit for the field.

Planned sail-away of the FPF-1 from Poland at the end of first-quarter 2016 is now expected to be delayed by six to 12 weeks due to slippage in completion of certain commissioning milestones and the requirement for some marine system rework to ensure the vessel meets the required sail-away certification standards.

The FPF-1 modifications programme is being paid for and carried out by Petrofac in the Remotowa shipyard in Poland.

Ithaca said based on this schedule it is forecast that first hydrocarbons from the Stella Field will be in third-quarter 2016.

Under the terms of the previously announced FPF-1 incentivisation agreement, a delay in sail-away of the vessel will reduce any potential incentive payment made by Ithaca to Petrofac.

The agreement provides for Petrofac to earn up to $34 million dependent on the timing of sail-away of the FPF-1, with the maximum payment achieved for delivering sail-away from the shipyard prior to the end of March 2016 and reducing to zero for sail-away after July 31, 2016.

All the subsea infrastructure that is required to be installed prior to the arrival of the FPF-1 on location is in place and all five Stella development wells have been successfully drilled and tested.

Work on the FPF-1 is taking longer than expected.

Ithaca also has taken a 20% stake in the **Vorlich** discovery from Total, which it is hoping to tie in to the GSA field infrastructure.

Vorlich was discovered and appraised in 2014 with exploration well 30/1f-13AZ and 13Z. The well encountered hydrocarbons in a Palaeocene sandstone reservoir in Block 30/1c and a subsequent sidetrack into Block 30/1f confirmed the westerly extension of the discovery. It is estimated that Vorlich contains gross proven and probable reserves of 20 MMboe to 30 MMboe.

Falklands Sea Lion Shapes Up

Premier Oil has extended the scope of its **Sea Lion Phase 1a** *(SEN, 32/17)* FPSO development in the Falkland Islands to cover the far northwest of the Sea Lion Field.

It is now envisaged that the scheme will utilise 18 wells to recover 220 MMbbl of oil during a 20-year period (a 37% increase on the 160 MMbbl previously announced).

Peak production at the field will increase from about 60,000 bbl/d to 85,000 bbl/d.

Premier said that despite the increase in scope, the estimate of capex to achieve first oil remains at $1.8 billion, reflecting significant cost reductions in the current market, and total expected development capex per barrel has reduced from $14/bbl to $11/bbl.

Premier said, "The technical and cost improvements and efficiencies identified during pre-FEED, have resulted in a lower breakeven oil price for the project and significantly improved the overall project economics.

"The designs of both the FPSO and the Subsea System have evolved, tendering exercises have been completed and contractors are being selected for the provision of these facilities."

Premier has tasked SBM Offshore with carrying out the 18-month FEED for the FPSO vessel and the subsequent provision of the FPSO unit on a lease and operate basis.

SBM, which will deliver a converted FPSO unit for the project, said the subsequent phases to develop Sea Lion and the wider North Falkland Basin reserves also are expected to use FPSO units.

Contractors also are close to being selected to provide the subsea system and are expected to be awarded before the end of the first quarter.

A draft field development plan has been submitted to the Falkland Islands Government (FIG) for comment. An application also has been made to the FIG to extend the licence for the Sea Lion discovery area in PL032.

In more good news for the region, Premier Oil also said that the **Isobel Deep** re-drill (well 14/20-2) has successfully confirmed the oil discovery encountered in the original Isobel Deep well. This re-drill also has discovered new hydrocarbons in additional sandstones.

Further evaluation will now be required to calibrate the well with the existing 3-D seismic to determine future plans and the extent of the discovered resource.

Sam Moody, CEO of partner Rockhopper, said, "The huge improvements to the project, combined with the award of the FPSO FEED and finalisation of the commercial terms with Premier allows us to keep moving the Sea Lion project towards a sanction point in mid-2017 despite the low oil price environment.

"The recent discoveries in the Isobel Elaine complex could open a third area of development in the basin and this on top of the already proven resources of Phase 2 should have a very significant impact on the life of field opex costs for Phase 1a."

Mpungi Lights up Angola's West Hub

Eni has started production from the **Mpungi** (SEN, 31/19) Field in the **West Hub** development project in Block 15/06 in deep water off Angola. The field is located 15 km from the N'Goma FPSO unit.

The startup of Mpungi follows the West Hub's first oil from the **Sangos** Field in November 2014 and the **Cinguvu** Field in early April 2015 and will bring production up to about 100,000 bbl/d in first-quarter 2016.

The West Hub field covers the development of the Sangos, Cinguvu, **Mpungi**, **Mpungi North**, **Ochigufu** and **Vandumbu** fields in a water depth ranging from 1,000 m to 1,500 m.

The wells are arranged in clusters and connected to the N'Goma FPSO vessel, which has a treatment capacity of 100,000 bbl/d of oil.

The three clusters will have 21 subsea wells with hardware from GE Oil & Gas. Aker Solutions supplied the steel-tubed umbilicals, while Technip provided flowlines and risers and handled the transportation and installation of subsea equipment and structures.

"The third startup milestone of the West Hub development project has been achieved both on budget and on schedule. This achievement reflects our ability to deliver major projects and confirms our excellent track record in terms of efficiency, technology and innovation," commented Eni's CEO Claudio Descalzi.

Block 15/06 also includes the **East Hub** development project, which is under development and will start producing in 2017. Production is expected to peak at 200 Mbbl/d from the two fields.

Eni also is continuing its exploration programme in Block 15/06. If successful, new discoveries would be connected to the existing production infrastructure with an important reduction of time and costs production.

Eni is the operator of Block 15/06 with a 36.84% stake, the other partners of the joint venture are Sonangol (36.84%) and SSI Fifteen Ltd. (26.32%).

Slow Recovery Seen for Floaters

The floating production sector will see continuing low activity in 2016 with a slow recovery possibly beginning in 2017, according to Energy Maritime Associates (EMA).

In its 2016-2020 Floating Production Systems Outlook Report, EMA forecasts orders of between 82 and 157 floating production systems globally over the next five years with a total capital cost between $62.3 billion and $134.7 billion. The most likely forecast is 115 orders costing $92.9 billion.

EMA said FPSO units will still be the largest category with almost 40% of the expected orders and more than 50% of the capex. There is $20 billion worth of units expected for each of Africa and Australia.

But Brazil has fallen behind to third spot ($17.5 billion), following spending cuts by Petrobras.

Projects in Southeast Asia should receive $11 billion worth of orders for FPSO units, floating storage and offloading (FSO) units, floating LNGs and tension-leg platforms. Major new awards are expected towards the end of the decade on both sides of the Gulf of Mexico as well as the North Sea.

The impact of Petrobras cuts has been significant, and the company did not award any FPSO contracts in 2015. However, Petrobras is now back in the market for two FPSOs (**Libra Pilot** and **Sepia**). If reforms continue in Brazil and Petrobras farms out some developments, two to three FPSO units could be awarded annually. However, if this does not take place, Petrobras will struggle to finance new orders, EMA said.

In 2015, 17 contracts were awarded worth more than $7 billion including four FPSO units, six FSO units, three floating storage regasification units (FSRUs), one FLNG vessel, two mobile offshore production units (MOPU), and one production semi. This is down 45% from the 30 units awarded in 2014.

The floater sector faces a slow recovery.

Only four FPSOs were ordered in 2015, the lowest level going back more than 20 years. All awards were made in the first quarter, before oil prices fell even further.

Six orders were placed for LNG-related units, including three FSRUs, two LNG FSOs and one FLNG vessel. This is the first time that more LNG-related units have been ordered than FPSOs.

In 2015, 26 units were idle without contracts—16 FPSOs, six production semis, three FSOs and one MOPU.

Many of these units will eventually be scrapped, while a few might be redeployed as early production systems or on short- to medium-term contracts on marginal fields.

EMA said, "The last two downturns in 2004/5 and 2009/10 saw sharp rebounds the following year. This is not the case for our current situation as oil prices are anticipated to remain lower for longer. We expect 2016 to see similar levels of orders as 2015."

BP Faces Delays in GoM

From Houston (BN): BP is keeping tight-lipped as to whether it is extending deadlines for bidding on its reportedly fast-tracked **Hopkins** project and the much-delayed **Mad Dog 2** *(SEN, 32/2)* project.

A decision on awards to build semisubmersibles for the two developments had been expected early this year, but both decisions have been pushed back at least several months.

Although BP had no comment, an industry source said the decision resulted from freefalling oil prices. It is not the first delay of Mad Dog 2. An early plan relying on a spar design was dropped in 2013 because of high cost.

Mad Dog 2 is part of an eight-block project and plans have called for the floating production and storage vessel to be anchored in Green Canyon 780 in 1,350 m about 310 km south of New Orleans.

The original Mad Dog spar was installed in GC 782 in 2004 and began production in 2005.

Not much is known about Hopkins. Its discovery was not formally announced but came sometime after the first well was spudded in GC 627 in May 2014 in 1,350 m about 319 km south-southwest of New Orleans.

The exploration plan on file lists bottomhole locations in GC 627 and neighbouring GC 583 with oil targeted listed at 30°API.

According to regulator records, three sidetracks were drilled in early 2015 off the original well. A second well was spudded last November and the latest government activity report indicates the Seadrill West Capricorn is at work on the site.

Lower Costs Help Statoil Projects

Statoil has slashed projected costs on its Arctic region **Johan Castberg** *(SEN, 32/3)* FPSO development, with a decision on investments set for 2017, according to CEO Eldar Saetre.

He said the investment estimate has been halved from about $11 billion to $5 to $6 billion.

The Johan Castberg Field is located in the Barents Sea, about 240 km northwest of Hammerfest in northern Norway. The field development comprises the **Skrugard, Havis** and **Drivis** fields, all within Production Licence 532.

Statoil has awarded the contract for Johan Castberg Subsea—Integration Pre-FEED and FEED Project with options to IKM Ocean Design.

The contract includes pre-FEED and FEED of pipelines, risers, cables, tie-ins and related structures on the Johan Castberg Field.

The contract has a duration of two years for the completion of pre-FEED and FEED design, covering the subsea umbilicals, riser and flowlines part of the development. Including options, the total contract period and value could extend to seven years.

The engineering work starts immediately and will be run out of IKM's Lysaker office.

Meanwhile, Statoil also has agreed on a development concept for the **Trestakk** *(31/23)* oil and gas discovery after cutting costs.

The field, discovered in 1986, will be developed with five subsea wells tied back to the nearby Asgard Field.

Development of Trestakk had previously been postponed to cut costs amid the crash in oil prices, which have forced energy firms to step up cash discipline and be cautious about investing in new projects.

Recoverable resources for the field are estimated at 75 MMboe, and production could start in 2019.

A final decision on whether or not to go ahead with the Norwegian Sea development will be taken this year.

FLOATER BRIEFS

Eni Norway has been given the go-ahead by Norway's Petroleum Safety Authority (PSA) to start production from the *Goliat (SEN, 32/20)* FPSO unit in the Barents Sea. The PSA said consent has been granted in part on the basis of a letter sent to it by Eni on Jan. 8, which details work that needs to be completed before the FPSO unit comes into service and after production has begun. This implies that there is still no firm date set for startup of the field. **Goliat** is being developed with a Sevan 1000 circular FPSO unit with eight subsea templates with 32 well slots. The templates are connected to the FPSO unit with an integrated storage and loading system. Goliat lies about 50 km southeast of the Snøhvit Field. Water depth in the area is 360 m to 420 m.

From Houston (BN): In the Gulf of Mexico, Anadarko announced first oil from its **Heidelberg** *(32/20)* spar in Green Canyon Block 860. The floating production system serves wells in GC 859 and 903. Anadarko touted startup ahead of schedule. The July 2014 initial development operations coordination document filed with regulators forecast first oil for Feb. 1 and flow started on Jan. 14.

There's progress to report at Shell's Stones (32/20) project. According to marine vessel tracking services, the Turritella FPSO unit has arrived from the Far East and parked near its planned operating location in 2,912 m in Walker Ridge Block 551 about 391 km south of New Orleans. Shell has said it expects startup of production later this year.

Wood Group will provide services to the Prelude FPSO.

Wood Group has landed a three-year contract for work on Shell's **Prelude** *(32/19)* floating LNG (FLNG) project. Wood Group Kenny will provide specialist consultancy services for flexible riser integrity management prior to and during operation of Prelude FLNG, which will be located 475 km north-northeast of Broome in Western Australia. The focus of the contract will be the development and implementation of the flexible riser integrity management plan as well as inspection, monitoring, testing and on-call engineering support. Wood Group Kenny designed Prelude's subsea flowlines. Bob MacDonald, CEO of Wood Group Kenny, said, "The flexible risers are a safety critical component of the subsea system. We look forward to applying our specialist expertise to the project, which has specific challenges given the cyclonic conditions; making integrity even more pertinent." Work will be carried out from the company's Perth office.

Industry focus on offshore Guyana is intensifying. The government has said it expects Exxon Mobil to accelerate development of the **Liza** *(32/15)* discovery offshore and start production before 2020. The plan is to develop the field with an FPSO vessel. Stena announced Exxon Mobil has hired the Stena Carron deepwater drillship for its 2016 campaign at a rate of $235,000 a day for one year with provision for a six-month extension. Repsol, which drilled the Jaguar-1 well in 2012 and found evidence of hydrocarbons, reportedly has sought a permit extension to allow it to drill the Kanuku Block.

Partner Cairn Energy said work on the U.K. North Sea **Kraken** *(32/16)* project is progressing well and that it is on schedule and most importantly, under budget. Capex costs have been reduced by more than 10%, bringing the expected gross capex to $2.86 billion. The Kraken FPSO vessel continues to be on track for delivery in 2016.

Premier Oil said the U.K. North Sea **Catcher** *(32/18)* FPSO project is progressing on budget and is on schedule to deliver first oil in 2017.

Following completion of a successful subsea installation programme in 2015, fabrication of subsea equipment including the mooring system, due to be fully installed in the summer of 2016, remains on schedule.

Fabrication of the FPSO hull and topsides is ongoing in Asia and the sail-away date of the FPSO unit from Singapore for a 2017 field startup currently remains on schedule.

The first major FPSO hull section was successfully delivered in December to the yard in Japan from South Korea. Topsides module and turret construction continues to progress well in Batam and Singapore. The FPSO contractor currently plans the commencement of hull and integration work in Singapore from mid-year 2016.

The Solan Field is expected onstream in February.

ABS Group subsidiary Genesis Technology Solutions has been awarded a contract by Golar LNG to develop an intelligent maintenance strategy for the company's new fleet of floating LNG (FLNG) vessels utilising the GoFLNG floating liquefaction technology.

ABS Group will provide a model for asset data, criticality rankings, spare parts analysis, a risk-based inspection strategy, failure mode and effects analysis and a maintenance programme for the first GoFLNG facility under construction, the Hilli, which will operate off the coast of Cameroon as well as for future vessels.

EXPLORATION

Norway Hands out APA Spoils

The Norwegian Government has awarded 56 new production licences to 36 companies in the Awards in Predefined Areas (APA) 2015.

The APA licensing focuses on mature areas and of the 56 production licences, 27 are in the North Sea, 24 in the Norwegian Sea and five in the Barents Sea.

Statoil has been awarded its highest number of licences in the round since 2005. It picked up interests in 24 licences on the Norwegian Continental Shelf (NCS), 13 of those as operator and 11 as partner.

Two commitment wells are included in the work programme in areas important to Statoil. Both prospects are potential tieback opportunities to existing infrastructure—**Blåmann** to Goliat and **Cape Vulture** to Norne.

The Blåmann prospect in the Barents Sea, where Statoil is operator with 50% participating interest and ENI and Petoro partnering with 30% and 20%, respectively, has a firm well commitment to be drilled within two years of award.

The Cape Vulture prospect has been awarded as an extension of the Norne licence (PL128) in the Norwegian Sea in which Statoils holds a 64% interest, ENI 11.5% and Petoro 24.5%.

Lundin Petroleum has been awarded four exploration licences, including two in the North Sea and two in the Norwegian Sea. It will operate two of them.

Norwegian startup company Origo Exploration has been awarded partnership stakes in three licences.

Sissel Eriksen, director of exploration in the Norwegian Petroleum Directorate, said, "There has been considerable interest this year in the Norwegian Sea. The companies' applications show consistent high quality, and some have submitted very interesting exploration concepts. Most of the companies will be rewarded for their hard work through awards in APA 2015.

"It is an advantage that the geology is relatively familiar, even though surprises cannot be ruled out. Many of these areas have existing fields that are nearing the end of production, with infrastructure that can be exploited. It is therefore important that we explore the surrounding areas so that potential resources are not lost."

EXPLORATION NOTES

From Houston (BN): In the Gulf of Mexico regulators have green-lighted Cobalt's plan for its own Anchor exploration well immediately south of Chevron's **Anchor** (32/20) discovery. Cobalt's plan calls for two wells in Green Canyon 850 and six wells in GC 851. Drilling would begin in October and continue at the rate of one 160-day well per year out through 2024. Oil targeted is 26°API. The site is in 1,980 m about 330 km south-southwest of New Orleans. Cobalt is sole owner of the two leases. Chevron's highly touted Anchor discovery is in GC 807, just a few kilometers to the north. In an early exploratory filing, Chevron reported that oil to be 35°API.

Shell has won approval of a plan for further exploration of its **Oregano** Field, which is tied back to the Auger tension-leg platform. The plan calls for two 180-day wells and a sidetrack in 1,030 m in GB 559 about 363 km southwest of New Orleans. The first well would be drilled, possibly sidetracked, and completed this year. The second well is a backup to be drilled and completed in 2017, if appropriate. Oil targeted is 39.5°API. Shell is sole owner.

Stone has received a conditional OK for a revised plan to explore its **Derbio** prospect in Mississippi Canyon 72. The plan calls for one 49-day well in 574 m about 183 km southeast of New Orleans. Oil targeted is 35°API. Stone is owner and operator of most of MC 72. But rights down to 4,085 m are held by a partnership of Stone 10%, Nexen 30% and M21K 60% with M21K's parent—Energy XXI—designated as operator.

PGS has begun a 3-D seismic survey over about 2,600 sq km in blocks 2312 and 2412A offshore Namibia for Chariot Oil & Gas. Chariot said following the analysis of its survey of about 1,700 line km of 2-D seismic data acquired on the northwestern flank of the licence in 2015, it has identified several significant additional leads within the Upper Cretaceous deepwater clastic turbidite system.

Tullow Oil is carrying out a 30-day, 2-D seismic survey over 3,000 km off the south coast of Jamaica with the BGP Challenger. Following interpretation of the data, a decision will be taken on whether to progress to a 3-D seismic programme taking six to nine months to acquire.

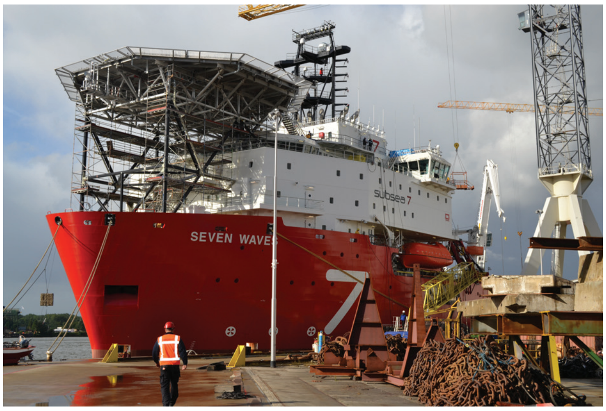
Lundin Petroleum's exploration well 6407/10-4 on the Lorry prospect on the northern part of the Frøya High in the southern Norwegian Sea has come up dry. The well was drilled about 17 km northeast of the VNG operated **Pil** and **Bue** *(32/18)* discoveries in the Halten Terrace. The main target was to test the Upper Jurassic pinchout play, and prove presence of hydrocarbons in the Rogn Formation. The Upper Jurassic was encountered but with no development of Rogn reservoir. The well has been plugged and abandoned.

Fugro's Seafloor Drill 2 (SFD2) has successfully completed a multisite investigation across the North West Shelf of Australia, encountering variable calcareous sediments and delivering results to support a jackup drilling campaign. The work was performed in water depths up to 112 m. Ian Finnie, Fugro's Integrated Geosciences' lead, said, "Seafloor Drill 2 has proved to be ideally suited to the calcareous sediments that we have around Australia and is a game changer in Fugro's ability to support the offshore industry in Western Australia and Southeast Asia. This drilling technology significantly enhances Fugro's fully integrated geoscience service from optimally scoping data acquisition through successful execution and then into engineering design and construction support."

Faroe Petroleum has spun the bit in **Kvalross** exploration well 7224/2-1 I the Barents Sea off Norway. The probe is located to the south of OMV's significant **Wisting** and **Hanssen** oil discoveries. The well will test two independent targets: the Kvalross prospect with significant oil and gas resource potential within Lower Triassic Klappmyss Formation clinoform reservoir and the Kvaltann prospect, which has additional oil potential within a Mid-late Triassic Snadd Formation channel. OMV's Wisting Central *(31/9)* remains the only substantial discovery so far in the Hoop High area, where Hanssen was a modest oil find and Statoil's **Apollo** *(31/8)* well was dry.

Searcher Seismic will kick off Phase 2 of the Silver-Eye Broadband 3-D survey in the Barents Sea off Norway in April. Phase 1 of acquisition was completed in September 2015 with data processing revealing promising results for both conventional and unconventional play models, the company said. Jan Gunnar Opsal, country manager for Searcher Seismic, Norway, said the survey extension covers existing discoveries and vacant acreage within the Awards in Predefined Areas (APA) area. "Searcher is excited to be expanding our 3-D library in the Barents Sea and to offer high-quality data for evaluating this area of the Hammerfest Basin in the APA, 2017," Opsal added.

VESSEL BRIEFS



The *Seven Waves* has been damaged by fire.

Subsea 7's *Seven Waves* pipelay vessel is returning to the IHC Merwede yard in Rotterdam from Brazil for repairs following a fire. The vessel's pipelay assembly was damaged in the fire. The vessel is working under a five-year contract with Petrobras. IHC has recently launched Subsea 7's latest 550t pipelaying vessel, *Seven Cruzeiro*, which also will head to Brazilian waters to work for Petrobras.

JX Nippon has booked Odfjell Drilling's *Deepsea Stavanger* semisubmersible to drill one exploration well West of Shetland. Drilling is expected to begin in second-quarter 2016. *Deepsea Stavanger* completed its contract with BP in Angola in November 2015 and has since completed its five-year special periodic survey. The rig is now underway to Norway before mobilising to U.K. waters for startup on the JX Nippon contract. *Deepsea Stavanger* has a contract with Wintershall on the **Maria** *(32/18)* Field on the Norwegian Continental Shelf starting early 2017.

Seadrill has agreed to a deal with the DSME shipyard to defer the delivery of two ultradeepwater drillships, the *West Aquila* and *West Libra*, until second-quarter 2018 and first-quarter 2019, respectively. The vessels were originally due to be delivered by the end of second-quarter 2016, and the total final yard instalment for both units of more than $800 million was due at that time. Seadrill said the agreement significantly improves its near-term liquidity position by deferring these capex commitments to 2018 and 2019 with no further payments to the yard until that time.

DeepOcean has secured a charter extension for the *Rem Forza* subsea construction vessel to work on Tullow's **TEN** *(32/17)* project offshore Ghana. The vessel will provide accommodation support, commissioning support, and construction and survey support. The first six-month contract was signed in February 2015. The scope of work was inspection, survey and subsea construction on the Tullow-operated deepwater **Jubilee** *(32/19)* and TEN fields offshore Ghana, which included subsea tree and jumper installations in up to 2,000 m water depth.

BUSINESS

Petrobras Keeps on Cutting

From Houston (BN): Petrobras keeps cutting projected spending. In a revision announced Jan. 12, the Brazilian state-owned company said its capital investments for 2015 would total $2 billion less than the $25 billion projected as recently as October.

Expected investments in 2016 were raised to $20 billion from the October figure of $19 billion.

Both numbers are far lower than originally forecast in the 2015-19 Business and Management Plan (BMP), when 2015 spending was put at $28 billion and 2016 spending at $27 billion.

And the total for 2015-19 is now $98.4 billion, down from the originally planned $130.3 billion. The changes reflect Petrobras' steady downward adjustment of expected Brent crude prices.

The latest expectations are for the average price in 2015 to hit $52/bbl, down from $60 projected in the 2015-19 BMP. The 2016 price is expected to average $45, down from $70 in the 2015-19 BMP and $55 as recently as October. Even $45 seems optimistic at the moment. Planned divestments for 2016 still stand at $15.1 billion.

Petrobras said it increased crude output last year by 4.6% over 2014. The company said it was the first time in 13 years it had exceeded the production target set out in its business plan. Oil production in 2015 averaged 2.128 MMbbl/d, 0.15% higher than the 2.125 MMbbl/d forecast. Presalt output averaged 767,000 bbl/d, up 56% over 2014.

Meanwhile, President Dilma Rousseff has been quoted as saying the sale of Brazil's best presalt assets would be unwise with world oil prices below $30 per barrel. She also said she did not rule out a government injection of cash into Petrobras but said it is unlikely to be necessary.

Petrobras continues to cut back on investments.

Norway Trio Become One

HitecVision has merged three oil companies into one—Point Resources. The company describes Point Resources as a "robust mid-sized independent oil company" focused on the Norwegian Continental Shelf (NCS). Point Resources is an amalgamation of Pure E&P (previously Rocksource), Spike Exploration and Core Energy.

The new company already has significant activity on the NCS and will be involved in E&P and development.

HitecVision said the current market situation provides "many opportunities for companies with a strong capital base," and that it will provide Point Resources with $390 million for further growth through development of discoveries as well as acquisitions.

The three companies are comparable in size and have a combined workforce of 77 employees. Core and Pure have offices in Oslo, and Spike is located in Stavanger; the new company will maintain offices in both cities.

Point Resources will have ownership in 57 licences on the NCS. From its inception, the company will have an oil and gas production of about 10,000 bbl/d, mainly from the **Brage** *(32/6)*, **Snorre** *(32/19)*, **Hyme** *(32/19)* and **Bøyla** *(32/11)* fields.

The company also will have ownership interest in several discoveries that are expected to be developed within the next couple of years, such as **Pil** *(45%)*, **Garantiana** *(30%)*, and **Snilehorn** *(17.5%)*.

Point Resources will be the largest owner in Pil and will be capitalized to participate with its share of the upcoming field development. In addition to production and development, the company will have a large portfolio of exploration licenses.

"Core Energy, Pure E&P and Spike Exploration complement each other both in terms of portfolio and team expertise", said Jan Harald Solstad, senior partner in HitecVision and responsible for the investment in Point Resources.

"The current market calls for scale and portfolio diversification. The establishment of Point Resources reflects our continued belief in the opportunities on the NCS. Our ambition is to create a leading independent oil company with a combination of production, development projects and an active exploration program. Point Resources will be a robust platform well positioned for growth, both organic and through mergers and acquisitions."

The CEO of Point Resources will be Roar Tessem, currently CEO of Pure E&P. Roar Tessem is an experienced industry professional, having previously held the role as CEO of Spring Energy (a former HitecVision portfolio company), country manager for Tullow Norge and various positions in DNO and PGS.

The merger of the three companies into Point Resources is expected to close during first-half 2016, subject to final approval from Norwegian authorities.

Aker Wields the Axe, Rates Cut

Aker Solutions has carried out its threat to slash jobs in its maintenance, modifications and operations (MMO) unit across Norway after failing to win a new contract with Statoil.

The company said it is streamlining the Norwegian MMO business to one regional unit from four, affecting management and staff from Tromsø to Stavanger.

Depending on future work levels, as many as 900 permanent positions might be impacted at facilities in Stavanger, Bergen, Kristiansund, Trondheim, Tromsø and Sandnessjøen as well as offshore. The workforce reductions will be made through regular employee turnover, reassignments to other parts of the company and redundancies. Aker said a process to implement about half of the reductions will start immediately. Remaining adjustments will depend on work levels throughout the year. The company has previously reduced capacity in its Norwegian MMO business by about 1,300 permanent and temporary positions since July 2014 to adjust to the market slowdown.

The company's prefabrication workshop in Sandessjøen will be temporarily shut down for about three years. MMO operations in Tromsø also will be terminated, though some employees in this strategically important northern location will likely be kept on as part of the company's Arctic Hub. These employees will join Aker Solutions' Engineering and Front End Spectrum teams.

Meanwhile, oil and gas services company Amec Foster Wheeler has announced plans to cut pay rates for about 830 Aberdeen-based contract workers by 7.5% in February. Amec Foster Wheeler said it had taken the decision in the face of "challenging times" for the industry.

BUSINESS BRIEFS

Petroleum Geo-Services said it expects to report a full-year 2015 EBITDA of about $485 million on the back of "resilient" multiclient performance. For fourth-quarter 2015, the company expects to report consolidated revenues of about $230 million and an EBITDA close to $120 million.

Statoil has acquired an 11.93% stake for $535 million in Sweden's Lundin Petroleum as it looks to increase its exposure to core field development projects and growth assets on the Norwegian Continental Shelf (NCS), including the **Johan Sverdrup** and **Edvard Grieg fields**. Statoil said the investment underpins its long-term interest and commitment to the future of the NCS.

Composite pipe manufacturer **Airborne Oil & Gas** has secured an investment from Chevron Technology Ventures. Airborne has received a number of DNV GL qualifications for its product design and manufacturing as well as product qualifications from several leading operators. Airborne said its spoolable composite pipes can be installed significantly faster and with simpler vessels than traditional steel-based pipes, resulting in a 30% cost saving. The company is planning an expansion of its manufacturing facility near Amsterdam in The Netherlands.

Airborne's spoolable pipe has raised interest from Chevron.

Premier Oil has agreed to acquire E.ON's U.K. North Sea assets for $120 million. The assets being acquired are located in the Central North Sea, West of Shetlands and the Southern Gas Basin. The proposed acquisition will add about 15 Mboe/d of net production to Premier in 2016 and about 64 MMboe to Premier's net reserves and contingent resources. The move increases Premier's presence in the Central North Sea including a stake in the producing world class **Elgin-Franklin** asset and related fields. It consolidates its interest in the **Huntington** field over which it will assume operatorship. The deal also enlarges Premier's U.K. portfolio with the Tolmount Area development.

Wood Group has established a collaborative agreement with international engineering consultancy, **Magma Products** to extend its existing commissioning service. Headquartered in Aberdeen and specialising in the field of commissioning and startup, Magma's services and software system will complement Wood Group's global commissioning experience. Under the collaboration, Wood Group and Magma will work together to offer enhanced capabilities and greater efficiencies in delivering commissioning work.

Offshore and onshore welding solutions provider **Serimax** and Technip have agreed to form a partnership for pipeline welding, with Technip taking a minority stake in Serimax. The pair will combine their expertise and deploy the Serimax welding technology at Technip's spoolbases and on its S-lay vessels. Hallvard Hasselknippe, president Subsea, Technip, commented, "Serimax is recognised for its experience in major international line pipe projects, with a reputation for quality, service and innovation and a strong commitment to R&D. Combining our domains of expertise, we believe that Serimax's deployment at our spoolbases and on our S-lay vessels will enable us to offer to our clients a harmonised solution with greater operational repeatability. This partnership is part of Technip's strategic focus on technology, a key differentiator to contribute to costs optimization on projects."

From Houston (BN): Two contractors and three men working on a **Black Elk Energy** platform have been scheduled for trial in New Orleans starting Jan. 17, 2017, for alleged federal criminal violations prior to an explosion that killed three offshore workers. The platform was in West Delta Block 32 in 21 m about 32 km off the coast of Louisiana. Black Elk currently is in Chapter 11 bankruptcy reorganization.

Amec Foster Wheeler CEO **Samir Brikho** has stepped down. **Ian McHoul**, the firm's CFO, has been appointed interim CEO and will chair the group leadership team while the search for the new CEO is carried out. **John Connolly**, chairman, said, "Samir has been the CEO for over nine years and has made a significant contribution to our development over this period, including the reshaping and refocusing of the business at the start of his tenure to build up the global company Amec Foster Wheeler is today."

Shell expects to report a near halving of its profits for the last three months of 2015 on the back of the sinking oil price. Revealing preliminary estimates for results ahead of a shareholder meeting on its intended takeover of BG, Shell said its underlying fourth-quarter 2015 earnings on a current cost of supplies basis would be between $1.6 billion to $1.9 billion, down from $3.26 billion a year ago. BG expects 2015 production volumes to reach 704,000 boe/d, up from its previous forecast of 680 Mboe/d to 700 Mboe/d, due to new fields coming onstream in Australia, Brazil and Norway.

Magma Global, the manufacturer of composite m-pipe, has beefed up its U.S. team with the appointment of **John Jondle** as senior adviser at the company's Houston office. Jondle has more than 34 years of experience in the oil and gas industry, with the past 15 years in senior leadership roles at BP. He also had responsibility for subsea concept development on a global basis and was the link with the BP Facilities Technology Group for global subsea technology.

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