

### EnSCO-Rowan amend merger

EnSCO and Rowan have amended the terms of their proposed merger, with Rowan's board accepting EnSCO's improved offer for the all-stock deal.

Under the new deal, Rowan shareholders will receive 2.750 shares of EnSCO for each share of Rowan they own. All other terms and conditions of the agreement entered into on 7 October 2018 remain the same. Both EnSCO and Rowan said that the amendment was unanimously approved by each company's board.

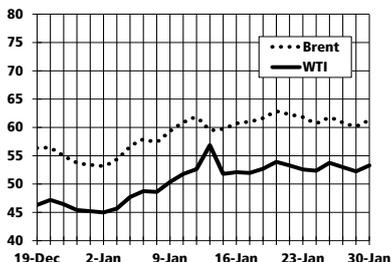
Upon closing, EnSCO and Rowan shareholders will own around 55% and 45%, respectively, of the outstanding shares of the combined company.



### OIL WATCH

Latest prices

Brent/WTI Crude Price (US \$ per barrel)



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# EUROPEAN OFFSHORE PETROLEUM NEWSLETTER

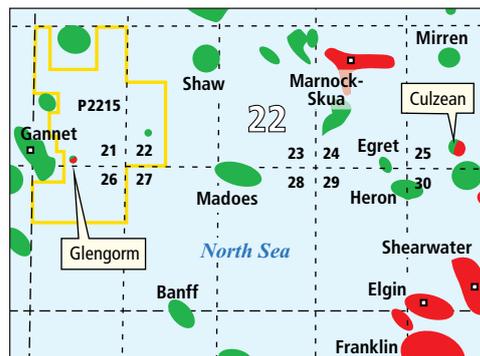
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## CNOOC's UK Glengorm discovery

China's state-owned player CNOOC Limited has made a new discovery – touted as the largest UK find for 10 years – on the **Glengorm** prospect in the Central Graben of the UK Central North Sea.

The Glengorm discovery is located in **Licence P2215** at a water depth of around 86m (282ft). The **22/21c-13** exploration well was drilled to a total depth of 5,056m (16,589ft) and encountered net gas and condensate pay zones in a high quality Upper Jurassic reservoir with excellent properties with a total thickness of 37.6m (123ft).



Recoverable resources are estimated at close to 250m boe. Further drilling and testing will be carried out to appraise resources and the productivity of the reservoir.

The discovery is located close to existing infrastructures operated by Glengorm partner Total that “offer tieback possibilities”, such as the **Elgin-Franklin** platform and the **Culzean** project, which is scheduled to come onstream this year.

“It also presents some upside potential with several other prospects already identified on the same block,” Total noted.

CNOOC Petroleum Europe Limited operates Licence P2215 with a 50% stake, while Total E&P UK North Sea holds 25% and Euroil, a wholly-owned subsidiary of Edison, has 25%.

Xie Yuhong, executive vice president of CNOOC Limited, said: “The Glengorm discovery demonstrates the great exploration potential of Licence P2215. We are looking forward to further appraisal.”

“Following the recent **Glendronach** discovery, West of Shetland, Glengorm is another great success for Total in the North Sea, with results at the top end of expectations and a high condensate yield in addition to the gas,” said Kevin McLachlan, senior vice president Exploration at Total.

“Our strong position in the region will enable us to leverage existing infrastructures nearby and optimise the development of this discovery. Glengorm is an achievement that demonstrates our capacity to create value in a mature environment thanks to our in-depth understanding of the basin,” added McLachlan.

## More spending forecast in 2019

Companies' resilience to volatile market conditions will be tested this year, as business leaders expect the industry to commit to greater investment to meet hydrocarbon demand, according to new research.

Two-thirds (67%) of senior oil and gas professionals believed more large, capital-intensive oil and gas projects will be approved this year, says *A test of resilience*, DNV GL's ninth annual report on the outlook for the oil and gas industry.

A total of 70% of professionals plan to increase or maintain capital expenditure (capex) in 2019 – nearly double that of 2017's figure of 39%. The proportion of industry leaders who expect to raise or sustain operating expenditure has also grown over the two-year period, from 41% in 2017 to 65% for 2019.

Recruitment is an important issue after four years of consistent reductions, supported by cost-efficiency measures. A third (34%) of the 791 professionals surveyed expect to grow their workforce in 2019 – more than three times as many respondents than four years ago (10%). Over a third (39%) also expect to increase the use of contractors this year.

continued on page 4...

## UNITED KINGDOM

- China's CNOOC Limited has discovered hydrocarbons on the **Glengorm** prospect in the UK Central North Sea. The Glengorm discovery lies in **Licence P2215** at a water depth of around 86m (282ft). Exploration well **22/21c-13** was drilled to a total depth of 5,056m (16,589ft) using the *Prospector 5* rig. The probe encountered net gas and condensate pay zones in a high quality Upper Jurassic reservoir with excellent properties with a total thickness of 37.6m (123ft) (see story pg1).
- Equinor is preparing to kick off the **Bigfoot** exploration well in **Block 9/22a** using the *West Phoenix* rig, which is now on site.
- Italy's Eni is drilling ahead with exploration well **22/19c-g** on the **Rowallan** prospect in the UK North Sea using the *Enasco 121* jack-up rig. The well is targeting the high-pressure, high-temperature gas condensate Rowallan prospect, which comprises a significant structural fault and dip-closed trap in the east of **Block 22/19c** in the Central North Sea. The well is expected to take around 140 days to drill. Eni operates Block 22/19c and the other partners are Serica, JX Nippon Exploration and Production UK and Mitsui.

- Corallian Energy has plugged and abandoned exploration well **11/24b-4** on the **Wick** prospect in **Licence P2235** in the UK North Sea. The well was a dry hole and was drilled by the *Enasco 72* jack-up rig.
- As planned Corallian has relocated the *Enasco 72* rig to the English Channel to drill the **Colter** appraisal well. The well is being prepared to spud.

## NORWAY

- Aker BP is drilling ahead with appraisal well **2/11-12 S** in **Production Licence 033** (PL 033) in the North Sea. The probe was spudded using the *Maersk Interceptor* jack-up rig on 10 January at a water depth of 71m (233ft).
  - Aker BP has also spudded exploration well **24/9-14S** on the **Froskelaar** prospect using the *Scarabeo 8* rig. The probe was spudded on 19 January.
  - Wellesley has kicked off exploration well **35/4-2** on the **Songesand** prospect. The probe was spudded on 21 January and is being drilled by the *Transocean Spitsbergen* rig.
  - MOL Norge has plugged and abandoned exploration well **2/6-6 S** in the Norwegian North Sea as a dry hole.
- The *Rowan Viking* jack-up rig drilled the probe in **PL 860** at a water depth of 69m (226ft). The well was spudded on 13 November 2018.
- Equinor is drilling ahead with exploration well **7132/2-2** in the Barents Sea with the *West Hercules* semisubmersible rig. The well was spudded on 6 January at a water depth of 304m (997ft). The probe lies in **PL 857**.
  - Faroe Petroleum is pushing ahead with exploration well **7121/1-2S** in the Barents Sea using the *Leiv Eiriksson* semisub rig. The probe lies in **PL 767** at a water depth of 315m (1,034ft). Drilling on the well started on 6 January.
  - Equinor is drilling ahead with exploration well **35/11-22 S** in **PL 248 C** in the Norwegian sector of the North Sea. The probe is being drilled by the *Deepsea Bergen* semisubmersible rig at a water depth of 356m (1,168ft). The probe is targeting the **Bergand** prospect.
  - Wintershall is drilling ahead with exploration well **6706/6-2 S** with the *Transocean Spitsberg* semisubmersible rig in the Norwegian Sea. The probe was kicked off on 4 December and has a water depth of 1,217m (3,993ft). It lies in **PL 847**. The well has a focus on the **Marisko** prospect.

## Safety

### UK Culzean worker accident

An offshore worker has died after falling into the UK North Sea while working on the Total-operated Culzean field platform, according to reports.

A worker was reported missing on 24 January. The body of the worker was later found and the family of the man was informed, added reports.

"Police can sadly confirm that the body of a man was recovered in the North Sea on Thursday during efforts to locate a person that had been reported missing. Emergency services were contacted at around 11am and a subsequent search was launched led by the Maritime and Coastguard Agency (MCA)," a Police Scotland spokeswoman told Scottish TV.

Maersk Oil discovered Culzean in 2008. Culzean is a HPHT gas condensate field in the East Central Graben area of the Central North Sea, located 260km off Aberdeen.

## Offshore Safety Research

### Iceberg threat studies by ArcIso

ArcIso has been commissioned by Norway's Petroleum Safety Authority (PSA) to study and assess the consequences of potential collisions between floating glacial ice and semi-submersible facilities.

The study has been performed as part of an assessment of structural safety in the High North. Interactions between a modelled body of ice and a semi-submersible platform were studied under waves and currents.

"The study presents likely points of impact and associated collision speeds. The SAMS simulation tool was used to establish an energy map for the required energy absorption for possible impact points on the structure. The calculated energy absorption is distributed between the ice and the structure, and damage assessments are made based on the energy assumed to be absorbed by the structure," said the PSA.

For the model studied, i.e. glacial ice of 15 metres' extent, the largest absorp-

tion energy is 7.32 MJ, with moderate damage to the hull. It is, however, stressed that the study results are valid only for the model under study. Different ratios of stiffness and strength between the structure and the ice will yield different conclusions.

"The Petroleum Safety Authority Norway is working on a number of projects associated with knowledge development for the High North. Increasing activity in exploration drilling and developing major finds has put the High North in the spotlight in recent years. At the same time, there has been a lot of discussion about whether the industry has adequate knowledge of the HSE challenges in this region," said the PSA.

"Despite the substantial efforts the industry has made in recent years to plug the knowledge gaps, we see a need to further improvement. We have therefore initiated a series of knowledge-gathering projects."

## Total's minor Norway discovery

Total has completed wildcat well **6406/6-6 S** and appraisal well **6406/6-6 A** in **Production Licence 255 B** (PL 255 B) offshore Norway – with the wildcat finding gas.

The wells were drilled around 40km southeast of the **Kristin** field in the southern Norwegian Sea.

“The primary exploration target for the well was to prove petroleum in Middle Jurassic reservoir rocks (the Garn and Ile formations). The secondary exploration target for the well was to prove petroleum in Lower Jurassic reservoir rocks (the Tofte formation),” said the Norwegian Petroleum Directorate (NPD).

In the primary exploration target, well 6406/6-6 S encountered gas in a sandstone layer of around 3m (10ft), as well as traces of gas deeper in the middle part of the Ile formation, with poor reservoir quality. The gas/water contact was not encountered.

The Ile formation is around 145m (476ft) thick, of which around 80m (262ft) are sandstone layers. In the Garn formation, there were thin layers of tight sandstone reservoir totalling 20m (66ft).

“The secondary exploration target in the Tofte formation was around 25m (82ft) of aquiferous sandstone reservoir, mainly with poor reservoir quality,” added the NPD.

Preliminary estimates place the size of the discovery between 0.4 MMcmoe (14.12 MMcfoe) and 2.5 MMcmoe (88.25 MMcfoe).

“The partners in PL 255 B will assess the discovery together with other nearby discoveries and prospects as regards further follow-up,” noted the NPD.

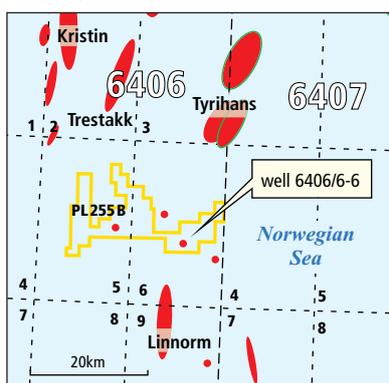
In appraisal well 6406/6-6 A, the Ile formation was thinner, with a total of around 55m (180ft) of sandstone reservoir, and the quality of the reservoir rocks was confirmed.

Neither of the wells were formation-tested but extensive data acquisition and sampling have been carried out in well 6406/6-6 S.

These are the second and third exploration wells in PL 255 B. The licence was carved out from PL 255, which was awarded in the 16th Licensing Round in May 2016.

The water depth at the site is 265m (869ft). The wells have been permanently plugged and abandoned.

Wells 6406/6-6 S and 6406/6-6 A were drilled by the *Scarabeo 8* drilling facility, which is now drilling wildcat well **24/9-14 S** in **PL 869** in the central part of the North Sea, where Aker BP is the operator.



## Lundin gets Norway double nod

Norway's Petroleum Safety Authority (PSA) has given Lundin Petroleum consent to drill and test exploration wells **16/1-31 S** and **16/1-31 A** in **Production Licence 338** (PL 338) offshore Norway.

Lundin is the operator of PL 338.

“We have now given the company consent for exploration drilling and well testing of wells 16/1-31 S and 16/1-31 A. The wells are in the central North Sea, east of the **Edvard Grieg**

field. Water depth at the site is around 111m (364ft),” said the PSA.

Operations are planned to start in February 2019 and last for 83 days, including the options of a sidetrack and formation tests.

The wells will be drilled by the *Leiv Eiriksson* semi-submersible rig, which is of the SS Trosvik Bingo 9000 type, owned and operated by Ocean Rig.

## Field Development

### Gas dominates 2019 FIDs

Of the 85 upstream projects due for Final Investment Decisions (FIDs) in 2019, some 75 are green field developments – the vast majority being gas – with around 42 Bn boe of resources and 10 expansion phases, say analysts GlobalData.

Natural gas projects contain 70% of the resources from green field developments awaiting approval in 2019, with ExxonMobil leading the project count and forecast investment, according to a report by GlobalData.

As the oil price continued to recover in 2018, there was a significant upturn in FIDs sanctioned. Despite the oil price dip in Q4 2018, many companies pressed ahead with major FIDs. Cost cutting and higher cash reserves from reduced investment over the past few years has led to the increase in FIDs and more optimistic outlook in the industry despite the volatile oil price.

Jonathan Markham, senior oil and gas

analyst at GlobalData, said: “Russia and Mozambique have the largest projects with scheduled FIDs in 2019, ranked by recoverable resources. These are primarily gas megaprojects intended to supply LNG exports. This trend is reflected in other areas, particularly in the Asia-Pacific region, with major gas developments to feed LNG projects in Australia and Papua New Guinea, and for power demand in Vietnam.”

Certain oil field developments are still viable in the current price environment, but are either on the giant scale (500m boe+) or rely on nearby infrastructure to reduce the upfront capital expenditure. The major oil projects are located in the Americas, including additional phases at the giant Libra pre-salt oil field in Brazil, the recent Liza discovery in Guyana and new developments that could revitalise Mexico's upstream sector.

### In Brief...

#### Johan Castberg audit

Norway's Petroleum Safety Authority (PSA) has carried out an audit of Equinor's assurance of process safety in the design of the Johan Castberg project offshore Norway.

“The foundation of the audit is in the letter of allocation from the Ministry of Labour and Social Affairs to the Petroleum Safety Authority Norway, chapter 3.1, concerning the reduction of major accident risk in the petroleum industry,” said the PSA.

“The objective of the audit was to verify that Equinor has designed and documented the regulatory compliance of the process safety systems in the Johan Castberg process facility,” added the PSA.

No non-conformities or improvement points were identified in connection with the audit.

## Åsgard A gets extension

The Norwegian Petroleum Directorate (NPD) has approved Equinor's plans to extend the technical lifetime of the **Åsgard A** facility in the Norwegian Sea until 2027.

This decision means the asset will be in production for 12 years longer than the original plan. The technical lifetime for the Åsgard A facility was initially based on 20 years of operation and was due to expire in 2019.

"Åsgard A plays a particularly important role in recovering as much as possible of the remaining liquid reserves in **Smørbukk** and **Smørbukk Sør**, as most of the gas injection wells on these fields are tied in to Åsgard A and will rely on the

gas injection from Åsgard A through the 2020s," said the NPD.

The partners are also considering new drilling targets and wells linked to Åsgard A both in the shorter and longer term, and they will be important measures to promote improved recovery, added the NPD.

Additional measures to improve recovery are also being planned. A project involving 'low wellhead pressure' is deemed important by the NPD and has an expected start-up date in 2022.

Recovery of **Trestakk** reserves, as well as the **Blåbjørn** discovery, depends on an extended lifetime for Åsgard A.

## IKM wins Tyra Redevelopment job

Total has handed IKM Testing a contract for cleaning and preparation for the removal of existing platforms and associated subsea pipelines on the **Tyra** field offshore Denmark.

IKM said the work is part of the **Tyra Redevelopment** project on the Danish Continental Shelf.

Work will mostly be undertaken during 2019 and some of 2020. Work will be managed from IKM Testing's head office in Sola, Norway. A large amount of equipment and personnel will be mobilised in Denmark during offshore operations.

The contract is split into three work packages. The first involves satellite pipeline flushing regarding all engineering, manpower, equipment, and materials for the removal of hydrocarbons in 11 off subsea pipelines.

The work will be performed from a dedicated support vessel on pipeline ranging from 2-16 inches, with lengths from 11km

to 22km. All satellite pipelines will be reused for the redevelopment project.

Package two requires inter-field pipeline flushing and engineering, manpower, equipment and materials for removal of hydrocarbons in eight subsea inter-field pipelines before disconnecting the risers on **Tyra East** and **Tyra West**, incomers from **Harald**, and export to **Gorm**, said IKM.

This work will be undertaken from Tyra East and Tyra West on 6-24 inch pipelines, with lengths ranging from 3km to 85km. Some inter-field pipelines will be reused for the project.

The third package is for steam cleaning nine installations on the Tyra East and Tyra West topsides.

IKM has had a framework agreement with Total since 2000 but said it has never been involved in such a large project in the Danish North Sea.

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## *Finance & Investment*

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### More spending forecast in 2019

**...continued from page 1** "The global oil and gas industry is entering 2019 with renewed optimism and a greater sense of resilience. Despite greater oil price volatility in recent months, our research shows that the sector appears confident in its ability to better cope with market instability and long-term lower oil and gas prices. For the most part, industry leaders now appear to be positive that growth can be achieved after several difficult years," said Liv A. Hovem, CEO of DNV GL Oil & Gas.

"While increasing optimism and expectations for higher spending are to be welcomed, there will also be new challenges for the sector this year. The industry's resolve to maintain the efficiencies established during the recent market downturn will be tested as the sector relaxes its focus on cost control, and signs of supply chain inflation and skills shortages emerge," Hovem added.

DNV GL's research shows signs that the old spending habits, which affected the sector during the pre-2014 period of high oil prices may be returning. In 2019, fewer senior oil and gas professionals (54%) believe that the cost efficiency measures put in place during the downturn are permanent, compared to 2018 (62%). The proportion of companies planning to increase strictness on cost control has also dropped from a high of 72% in 2015 to 44% for 2019.

As oil and gas companies make more investments and modestly relax their grip on costs, DNV GL has for the first time asked senior oil and gas professionals about an underlying danger of a gradual cost creep in the coming years.

Four out of 10 (41%) said they had experienced cost inflation from suppliers in 2018, rising beyond half in the Middle East and North Africa, as well as in Asia Pacific. The downstream sector is most affected (60%) compared to just over one-third

in upstream (34%). A total of 40% expect suppliers to drive cost inflation in 2019.

Despite suggestions from some that cost inflation is re-emerging, the oil and gas supply chain says it is still feeling the pinch. Those surveyed who primarily identify as suppliers are much less confident in achieving revenue (66%) and profit targets (57%) in the year ahead than buyers (82% and 80% respectively).

While more than three times as many respondents expect to grow their workforce in 2019, compared to four years ago, skills shortages and an ageing workforce have resurfaced as a major concern. The issue takes joint second place as a perceived barrier to growth, alongside the oil price and the state of the global economy. Competitive pressure is viewed as the greatest challenge, said DNV GL.

The report highlights the escalating challenge of addressing its attractiveness to young talent, who may view the sector as unstable and environmentally unsustainable after a period of prolonged stagnation during the downturn.

The oil and gas industry's efficiency efforts coincide with a third (36%) of senior oil and gas professionals expecting increased Research and Development (R&D) spending this year.

Digitalisation comfortably leads R&D priorities for the oil and gas industry in 2019, with 60% of respondents to DNV GL's research expecting their organisation to increase spending in this area in 2019.

The top three priorities within the industry's digitalisation agenda all relate to data sharing, integration, and access (cloud-based applications, data platforms and data sharing between organisations). Two-thirds of respondents (67%) say their company will prioritise the quality and availability of data in 2019.

## Lundin acquires Norway equity

Lundin Petroleum has agreed to acquire Lime Petroleum's acreage in the **Rolvnes** oil discovery and **Goddo** prospect offshore Norway for up to US \$45m.

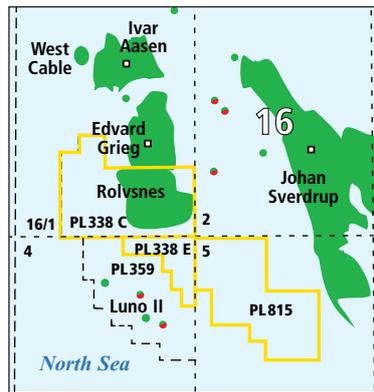
Under the deal, Lundin's stake in the Rolvsnes find, which lies in **Production Licence 338 C** (PL 338 C), and in the recently awarded nearby **PL 338 E1** will increase from 50% to 80%. Lundin's interest in the Goddo prospect in **PL 815** will rise by 20% to 60%.

"This will consolidate the company's position in the proven weathered and fractured basement play on the Utsira High, close to the **Edvard Grieg** facilities. The transaction, which is effective from January 2019, involves a cash consideration to Lime Petroleum of \$43m and a contingent payment of a further \$2m, with completion subject to customary government approvals," said Lundin.

Rolvnes is located 3km south of the Lundin Norway operated Edvard Grieg platform on the Utsira High and has a gross estimated resource range of between 14m and 78m boe.

As a follow up to the successful appraisal well and production test in 2018, an extended well test is due to be carried out

at Rolvsnes in 2021 in order to better understand the long-term reservoir behaviour.



The 2018 production test further de-risked the **Goddo** basement prospect in PL 815, on which an exploration well is planned to be drilled in 2019. The combined gross resource potential of the Rolvsnes and Goddo area is more than 250m boe, Lundin noted.

Alex Schneider, CEO and president of Lundin Petroleum, said: "I am very pleased to announce the acquisition of Lime Petroleum's working interests in Rolvsnes and Goddo, which not only further consolidates our position in one of our core areas, but also offers the opportunity to further

benefit from the significant potential in this successfully tested basement play, which is unique on the Norwegian Continental Shelf.

"This acquisition also provides further commercial alignment with Edvard Grieg, as we focus on using high-margin, tie-back developments to extend plateau production through the facilities beyond the current mid-2020 guidance," added Schneider.

## Production

### Norway December output data

Norway's preliminary production for December 2018 showed an average production of 1,849 b/d of oil, NGL and condensate, which is a decline of 26,000 b/d compared to November.

Total gas sales were 10.8 Bcm (381.24 Bcf), which is an increase of 600 MMcm (21.18 Bcf) from the previous month, said the Norwegian Petroleum Directorate (NPD).

Average liquids production in December was: 1,504 b/d of oil, 318,000 b/d of NGL and 27,000 b/d of condensate.

Oil production for December is around 2.5% below the NPD's forecast for the month and around 4% below the forecast for 2018.

"The main reasons that production in December was below

forecast is technical problems on some fields," said the NPD.

The figures include volumes of around 100 Mcm (3.53 MMcf) of oil from the test production of the **7220/11-1 (Alta)** discovery, which took place from June to August 2018.

Total petroleum production in 2018 was around 229.1 MMcmoe (8.09 Bcf), broken down as follows: around 86.3 Mcmoe (3.05 MMcf) of oil, 21.2 Mcmoe (748.36 Mcfoe) of NGL and condensate and around 121.7 Mcmoe (4.30 MMcf) of gas for sale.

The total volume is 9.3 Mcmoe (328.29 Mcfoe) lower than in 2017.

## Decommissioning

### Perenco gets UK decom nod

Perenco has received approval from the UK government for its decommissioning plans for the **Tyne** and **Guinevere** gas field installations in the UK Southern North Sea.

Perenco submitted its draft decommissioning programmes for the **Tyne South** and **Guinevere** installations in July 2018.

The Tyne field lies around 188km off the coast of Norfolk and 184km from East Yorkshire. It was discovered in 1992. The Tyne platform is a Normally Unattended Installation (NUI) with maximum personnel on board of 12 and a temporary overnight shelter.

Production from the field started in November 1996. Perenco ceased production from the field in November 2015 due to lower gas production.

The platform's topsides will be removed

and transported to shore for re-use of selected equipment, recycling, break up and/or disposal. The jacket and subsea template will be removed to shore for cleaning and disposal.

The Guinevere field was discovered in March 1988 and first gas was produced in June 1993. Production ceased in May 2017 due to reduced gas production.

The Guinevere field is located in **Block 48/17b** around 60km north of the Bacton terminal and 56km east of the Theddlethorpe gas terminal on the Lincolnshire coast.

The decommissioning programme includes well plugging and abandonment, as well as removal of platform and jacket.

The Guinevere installation is an NUI with a maximum personnel on board of 12 and a temporary overnight shelter.

### Drilling

#### BP extends Odfjell contract

UK major BP has extended its contract with Norway's Odfjell Drilling for the provision of platform drilling services offshore the UK.

Under the contract, Odfjell will provide platform drilling and maintenance services on three of BP's platforms in the UK North Sea.

The contract lasts for two years, with an additional two one-year options to extend.

The current contract will continue until the end of January 2019, followed by the start of the new contract. The firm contract period has an estimated value of up to US \$50m.

## Balder audit results

Norway's Petroleum Safety Authority (PSA) has carried out an audit of Point Resources and their assurance of the safety of structures and marine systems at the **Balder** field offshore Norway.

During the audit, the operatorship of Balder was transferred from Point Resources to Vår Energi.

"The objective of the audit was to monitor that the safety of structures and marine systems in operation was being provided for in compliance with the regulatory requirements," said the PSA.

The audit detected no non-conformities, although Point Resources itself identified the following improvement points as a result of the audit:

- Governing documentation.
- Risk management.
- Life cycle information management.
- Competence and training.

"We have asked Vår Energi to present a plan for how and when these improvements will be implemented," added the PSA.

## Askepott emergency preparedness study

Norway's Petroleum Safety Authority (PSA) has carried out an audit of KCAD's management of emergency preparedness and the working environment at the **Askepott** field offshore Norway.

"The background to our audit was a focus on various themes connected with robustness and employee participation. There was also a focus on barriers being safeguarded in a holistic and consistent manner so as to reduce as far as possible the risks of unintended operational incidents and work-related illness. The audit also followed up findings from the previous AoC audit. Askepott received its AoC on 28 November 2017 and has been in operation since February 2018," said the PSA.

The objective of the audit was to verify the company's compliance with the HSE regulations within emergency preparedness and the working environment at Askepott.

Within emergency preparedness, one non-conformity was identified relating to a systematic approach to the organisation and follow-up of emergency preparedness training on board, as well as one improvement point relating to descriptions of emergency preparedness tasks and responsibilities.

Within the working environment domain, six non-conformities were identified in the following areas:

- Chemical working environment.
- Noise exposure harmful to hearing.
- Ergonomic factors.
- Psychosocial factors.
- Joint, local working environment committee (FS-AMU).
- Non-conformity handling.

KCAD has been given a deadline of 18 February 2019 to report on how the non-conformities and improvement point will be addressed.

## Tambar walkway investigation

Norway's Petroleum Safety Authority (PSA) has completed an investigation of the "undesirable incident with a motion-compensated walkway" on the **Tambar** field offshore Norway on 28 July 2018.

"This has yielded important knowledge and revealed several breaches of the regulations. Little use has so far been made of motion-compensated walkways in Norway's petroleum sector. Tambar is the only producing facility on the Norwegian Continental Shelf (NCS) where an attempt has been made to land a walkway from a ship," said the PSA.

"The PSA is devoting attention to the utilisation of vessels and motion-compensated walkways, both through supervision and in terms of regulations. Its investigation on Tambar illuminates an area, which could be relevant for many players in the industry."

The Tambar field lies in the southern Norwegian North Sea and is operated by Aker BP. It came onstream in 2001.

Tambar is produced via a normally unmanned wellhead facility controlled from **Ula**. In normal operation, this facility is manned once a week for maintenance with personnel transferred to/from Ula by helicopter.

In connection with modification work on Tambar, Aker BP decided to use a ship with a motion-compensated walkway – or a walk-to-work (W2W) vessel – to transfer personnel to the facility. This was intended to reduce the number of helicopter flights and speed up completion of the modification.

Aker BP chartered W2W vessel *Island Diligence* in June 2018 from Norway's Island Offshore. Landing platforms to receive the walkway were installed on three sides of the Tambar facility.

The "undesirable incident" occurred in connection with a test landing of the walkway on 28 July 2018. During this process, the walkway missed the landing platform and hit the edge of the latter before sliding off. It then attempted automatically, in line with its design, to find a fixed point to engage

with on the receiving side.

The incident resulted in damage to railings and cable trays on the facility, but nobody was injured.

"The PSA's investigation has established that this incident, under slightly different circumstance, could have resulted in a major accident with the release of large quantities of hydrocarbons, substantial material damage and possible loss of life. This is because the incident could equally well have happened when using the landing platform at the southern end of the facility, where hydrocarbon pipelines and equipment could have been hit," said the PSA.

On 26 May 2018, the PSA had ordered Aker BP to secure consent before using the W2W vessel to accommodate personnel on Tambar.

Following the incident, Aker BP decided to cancel its planned use of a ship with a motion-compensated walkway on Tambar, and the consent application was withdrawn. The PSA therefore did not complete its consideration of the application.

"The PSA's investigation has identified several breaches of the regulations, all with their background in Aker BP's planning process for utilising the walkway solution," noted the PSA.

The principal observations apply to the following areas:

- dimensioning accidental loads.
- documentation of structural integrity.
- decision base and planning.
- organisation and coordination of roles, responsibilities and information exchange.

Aker BP has until 13 February to explain how it plans to deal with the non-conformities.

### Calendar 2019

**APRIL 1-5** 19th International Conference & Exhibition on Liquefied Natural Gas  
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## 2019 M&A sector faces struggle

Volatile oil prices and bearish equity markets will impede Merger and Acquisition (M&A) deal flow this year due to uncertainty, widening the bid-ask spread, altering financial conditions and making companies re-think near-term strategies, said consultants Wood Mackenzie (Woodmac).

In Q4 2018, as these factors emerged, deal count dropped to its lowest level since Q1 2015, with December the slowest month since January 2015, Woodmac said.

“It is difficult to see 2019 being a bumper period for upstream M&A. If volatility cedes to stable but lower oil prices, history suggests we’ll see a relatively sluggish year – we tend to see more deals when confidence and investment are high,” said Greig Aitken, director M&A research at Woodmac.

“That said, in any environment there are always motivated sellers and opportunistic buyers, players looking to re-engineer portfolios and companies with the desire and capacity to make counter-cyclical moves.”

Majors and IOCs (International Oil Companies) will continue using acquisitions and disposals to tighten portfolios. Since the downturn, the majors have worked exceptionally hard to focus businesses on long-life, low-cost growth assets.

That will continue this year, Aitken said, adding: “Expect more country exits, more portfolio high-grading and more exits from legacy assets. Acquisitions can still be expected – both bolt-ons to existing operations and more material purchases in core target areas.

“However, there are large discovered resource opportunities which will compete for the majors’ capital. In particular, Brazil’s 9 Bn boe surplus volumes of the Transfer of Rights contract (with an expected US \$30 Bn in signature bonuses), and Qatar’s North Field expansion,” Aitken added.

Most North American-headquartered independents have become increasingly North America-focused in recent years.

“We expect concentration to increase in 2019. In a low price environment, companies may rein in budgets so capex is organically funded, but overseas disposals will support balance sheet strengthening and shareholder distributions,” Aitken noted.

### More big deals to come in Permian

Scale was the word of the year in the Permian in 2018, as Concho and Diamondback spent a combined \$20 Bn catapulting themselves into the big league. Small-cap pure-play Resolute was exploring strategic alternatives when larger peer Cimarex swooped in November.

“Remaining small and mid-cap pure-plays will also be asking themselves some serious questions. In a play that is increasingly being dominated by larger companies, how do smaller companies compete for services? How do they compete on productivity and costs? How do they remain relevant to investors? We expect more combinations,” Aitken said.

“But M&A activity won’t be limited to the listed pure-plays. Though many of the larger privately held positions were taken out during ‘Permania’ in 2016/2017, at least two material positions are piquing interest. Encap-backed Felix Energy’s Delaware Basin position would offer materiality to most buyers.

“The true giant is Endeavor Energy. With over 300,000 net acres in the Midland basin, it is no surprise that Chevron, ExxonMobil and Shell are rumoured to have kicked Endeavor’s tyres. A deal in 2019 is not a foregone conclusion, but if Endeavor’s backers want a near-term exit, the IPO route looks a non-starter under current market conditions,” noted Aitken.

### Corporate consolidation gathers steam

A continued focus on discipline means that a recent uptick in corporate-level consolidation will likely gather pace. Balance

sheets can be quickly strengthened through corporate M&A, particularly if the deal currency is equity. Diversifying transactions can reduce the risk of exposure to worrisome pricing differentials. Increased size boosts operations through economies of scale.

“Moreover, three years of discipline has failed to provide tangible rewards for many shareholders; a late 2018 sell-off has left many companies trading at, or close to, multi-year lows. Small and mid-caps will be the primary targets. But combinations between large Independents should not be ruled out. North America is likely to be the hub of consolidation, due to the unrivaled diversity of its corporate landscape,” he added.

### Share price weakness to attract opportunistic acquirers

The E&P share price slide presents a unique opportunity. There are potential bargains out there – good quality companies which are undervalued due to cyclical, external factors.

“The question is, who’s in the best position to take advantage of this? Cash buyers would certainly accrue the biggest benefits, by avoiding paying for acquisitions using similarly undervalued stock. That requires a balance sheet, which is strong enough to withstand a period of low prices,” Aitken said.

“Some National Oil Companies (NOCs) may have the firepower to bargain hunt, but there is no sign that the Chinese NOCs still have the appetite for big deals. Other Asian and Middle Eastern NOCs are more likely candidates, based on recent form and clear intentions.

“Private equity, sovereign wealth funds and other investors are well placed. Discounted market valuations are exactly the type of scenario in which these companies can generate value,” added Aitken.

The long-term assumptions underpinning valuations tend to be less volatile than short-term oil prices, Woodmac noted. However, upside pressure will be weak. Buyers will be looking to pick up keenly priced assets; competition will be less prevalent in many regions. This will lead to a wider variability in agreed prices – more like 2018 than 2017, in that regard, Woodmac added.

### Siem sells three PSVs

#### Vessels

Norway’s Siem Offshore has sold three Platform Supply Vessels (PSVs).

Siem said that it sold the *Siem Sasha*, *Siem Louisa* and *Sophie Siem* PSVs but did not name the buying company.

The three PSVs are identical and of VS 470 MK II design. They are 73.4 metres long, 16.6 metres wide, and can accommodate 34 people.

The *Siem Louisa* and *Sophie Siem* were built in 2006, while the *Siem Sasha* was built in 2005. All three vessels were built by Vard shipyards.

Delivery of the vessels to the new owner is due in Q1 2019.

### DOF bags PSV charter

Norway’s DOF has scooped a charter deal one of its Platform Supply Vessels (PSVs).

The company said the contract was for the *Skandi Gamma* PSV, adding that the deal was for two years for “a major North Sea operator”, although DOF did not name the customer or the value of the work.

DOF said the contract was expected to start in Q1 2014. The *Skandi Gamma* is a 94.9 metre long, LNG-powered PSV that was built in 2011.

## BP boost AI with new investment

BP Ventures has invested US \$5m in Belmont Technology's Series A financing to further enhance BP's artificial intelligence (AI) and digital capabilities in its upstream business.

"The investment supports BP's ongoing work exploring opportunities to apply machine learning and cognitive computing in its global oil and gas business.

The Houston technology start-up has developed a cloud-based geoscience platform using AI. The platform has a string of unique capabilities including specially designed 'knowledge-graphs'," said BP.

"BP experts feed the platform geology, geophysics, reservoir and historic project information. It intuitively links that information together, identifying new connections and workflows, and creating a robust knowledge-graph of BP's subsurface assets," said the UK major.

Much like data searches available in the consumer domain, BP employees can then interrogate the data, asking the powerful knowledge-graph specific questions in natural language. The technology then uses AI neural networks to interpret results and perform rapid simulations, BP added.

Aimed at accelerating project lifecycles, from exploration through to reservoir modelling, the technology is targeting a 90% time reduction in data collection, interpretation and simulation.

David Eyton, BP's group head of technology, said: "This AI-based platform, which we've nicknamed Sandy, is expected to unlock critical data for our subsurface engineers at a much accelerated pace. Our experts will ask it questions about our reservoirs like, 'What factors control production in the **Chirag** field?'. Sandy will then interpret our data, including mapping out many more scenarios than are currently constructed, helping us make faster, better informed upstream decisions."

BP's investment will enable Belmont Technology to expand its workforce, extend Sandy's capabilities and accelerate the deployment of its product.

Belmont Technology's CEO, Jean-Marie Laigle, said: "Our technology enables real-time thinking for subsurface engineers, helping transform the way teams work, analyse data, understand situations and generate novel ideas."

## Ashtead-4Subsea tech pact

Ashtead Technology and 4Subsea have agreed a partnership for the global distribution of sensor technology to the oil and gas industry.

By combining sensor engineering competence, domain expertise and technologies for effectively ensuring the lifespan of subsea assets, the partners will support operators and vessel owners in reducing risk and operational cost, Ashtead said.

Under the deal, 4Subsea's autonomous, retrofittable sensors will be available via Ashtead Technology. 4Subsea will also look at using Ashtead's acoustic sensors for further developing its services.

Ashtead will further enhance its inspection, maintenance and repair services by adding 4Subsea's sensors to its portfolio and

gaining access to 4Subsea's domain experts within subsea production, well intervention and drilling.

4Subsea will strengthen its position in the global sensor market with hardware and digital services delivery through Ashtead's extensive sales and distribution network including facilities in Aberdeen (Scotland), Abu Dhabi, Halifax (Canada), Houston (USA) and Singapore.

"We are pleased and excited about building a partnership with Ashtead Technology. They hold a world-leading position in providing offshore equipment solutions to the oil and gas industry, and we regard this partnership as a joining of forces to enhance our offering to the market and drive greater customer success," said Peter Jenkins, CEO of 4Subsea.



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Contact the editor  
by e-mail at:  
**shamlen@ogilviepub.com**

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