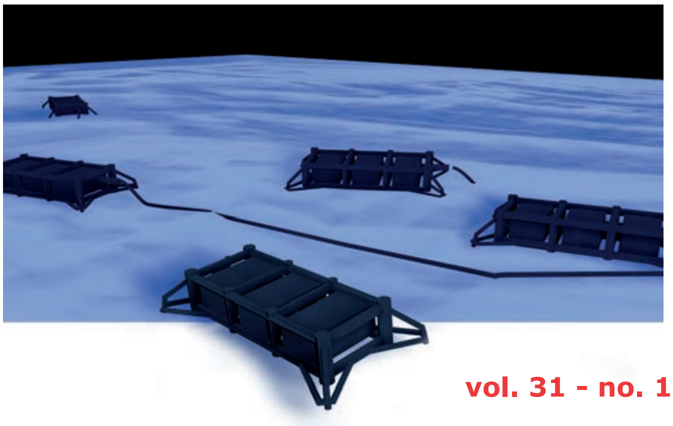

HARTENERGY

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SEN

SUBSEA
ENGINEERING
NEWS

CENTRICA EYES FPSO FOR *E FRIGG* COMEBACK

From the North Sea (NT): Centrica is mulling an fpso solution for the redevelopment of the *East Frigg* fields in Norway, originally developed by Elf for gas production.

The UK-based operator has appointed Stavanger consultancy Petrolink to perform a screening study for the subsea system. The study will produce recommendations - with capex estimates - for subsea templates, flowlines and the riser system including diameters and overall heat transfer coefficient solutions, which will be further matured into a feasibility study for the fpso concept. The study is due to be completed in the third quarter of this year.

The *East Frigg* accumulations consist of the *Gamma* and *Delta* discoveries, with combined reserves of 79mmbbl and 3.5bcm, according to the Norwegian Petroluem Directorate. They lie in block 25/2 of the North Sea, an area now lacking in infrastructure following the removal of the original *Frigg* complex facilities.

Taking the circular route

From the Editor: In other floater news out of Norway, Sevan Marine has confirmed that it will handle the front-end engineering and design (FEED) work for Premier Oil's upcoming *Bream* fpso development.

This is one of those really badly kept secrets. Once the licence group abandoned plans to use a converted tanker for this project (too expensive) and opted for a newbuild, it became clear that a Sevan-type circular floater was in the frame. Partner (now operator) Premier has been showing a circular floater in its corporate presentations for more than a year.

The associated subsea production system will feature separate drilling template and manifold. In addition to wells on the main *Bream* field, there will be water injection at *Bream SW*. There will also be production from *Mackerel*, a 17km tieback, and possibly *Herring*.

WHAT'S INSIDE

PROJECT UPDATES

ANOTHER NORWEGIAN OPERATOR TUGS ON THE REINS

From the North Sea (NT): RWE Dea has decided not to submit a plan for development and operation (PDO) for the *Zidane* gas field in the Norwegian Sea in October as planned.

'As further value enhancement is required to make the project more robust,' in the words of Hugo Sandal, managing director of the Norwegian subsidiary.

No new date has been given for submitting the PDO, but according to Sandal the postponement will delay start-up, previously set for late 2017, by at least a year.

Zidane, with reserves of 17bcm and 2.5mmbbls of condensate, is to be developed as a 15km subsea tieback to Statoil's *Heidrun* tlp, but with issues still to be resolved, tieback terms have not yet been agreed.

If this impasse is due to the *Heidrun* partners being too demanding, RWE can expect the support of the authorities, which ranks the interests of field licensees above those of infrastructure owners. However, RWE says only that there is a need to enhance the commercial value of the project before the investment decision can be taken.

The postponement is perhaps a sign that the path to development for Norwegian discoveries is not as smooth as it once was. Statoil has twice put back the planning process for *Johan Castberg* (31/12) and Det norske oljeselskap's attempts to redevelop currently appear to be stranded.

It is also bad news for *Polarled*, the new gas export pipeline out of the Norwegian Sea, which *Zidane* gas is to use. Although delayed, it has not disappeared as other potential customers such as Shell's *Linnorm* and Wintershall's Maria (31/12) have. The *Zidane* licensees – including Edison, Maersk and OMV - are all Polarled owners.

IONA SEES *KELLS* AND *ORLANDO* IN RACE TO FIRST OIL

From the North Sea (NT): Iona Energy is moving ahead with the development of *Kells* (SEN, 29/10) , the former *Staffa* field, having submitted a field development plan this summer, but reports slow progress on the approved *Orlando* project, which is now due onstream in 2016 rather than late 2015.

It may only just make it ahead of *Kells*, which is due to achieve first oil in October 2016, although partner Atlantic does not see start-up until 2017. *Orlando* and *Kells* are small oil fields in the UK's northern North Sea which are both being tied back to CNR's *Ninian Central* platform.

The *Orlando* delays are attributed partly to late equipment deliveries, but also to unresolved issues with CNR over the timing of infrastructure access, which Iona says will be the key factor in the schedule to first oil.

However, in August, Atlantic reported that negotiations with CNR were nearing completion. For the time being there is no sign that Iona has fixed a rig for the *Orlando* development drilling, which will involve one or two subsea wells.

Iona is looking to some new management blood to give its activities a boost. It has appointed Iain McKendrick, former CEO of Ithaca Energy, as executive chairman and Tom Reynolds, CEO of Bridge Exploration until its sale to Spike Exploration last year, as CEO and president.

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NPD REPORT MUDDIES PFS ISSUE FOR UTSIRA HIGH

From the North Sea (NT): The Norwegian government has reacted positively to a study by the Norwegian Petroleum Directorate which concludes that power from shore (SEN, 31/5) should be introduced on the current Utsira High field developments in 2022, when the second phase of the *Johan Sverdrup* (31/12) development is due on stream.

The alternative of attempting to switch *Edvard Grieg* (31/12), *Gina Krog* and *Ivar Aasen* (31/12) onto pfs when *Sverdrup* starts up in 2019 could cause delays to Statoil's upcoming giant project, NPD reasons.

To succeed in implementing a large, complicated project like *Sverdrup* on time, within budget and to the desired quality, it is crucial that FEED should be adequately completed before the investment decision is taken and the PDO delivered, NPD says. The FEED for phase one of the *Sverdrup* development, now in the final stages, is due to be completed in November so that the investment decision and PDO submission can take place in mid February 2015.

Widening the scope of the FEED at this point to include power supply to the other fields would entail an extra four to six months' work and delay *Sverdrup*'s start-up by around a year, according to the NPD.

Oil & Energy Minister Tord Lien said he noted NPD's conclusions and would make a proposal about an area-wide pfs scheme in a white paper to be issued next spring. Led by Statoil, the *Grieg*, *Krog* and *Aasen* licensees had opposed the introduction of pfs to their operations from 2019 on cost grounds.

NEW VESSELS SHOW UP FOR WORK DOWN UNDER

From Australia (RW): Mermaid Marine is to operate and manage a converted ferry as an accommodation unit on Chevron's *Greater Gorgon* (31/12) subsea gas-to-LNG project.

The A$105mn contract will involve the 202m *Silja Europa* cruise ferry, previously used by charter company Tallink as a leisure ship sailing between Finland and Estonia. It has been converted specifically for this contract.

The ship will house up to 1,400 people working on Barrow Island, including construction workers, catering and cleaning staff and local crew members. The contract term is 12 months with an option to extend.

Also down under, Neptune Marine Services has won a sub-contract from McDermott for the Inpex's *Ichthys* (31/12) gas development off Western Australia.

The work includes design and fabrication of specialist scour protection systems and grouting of the riser support structure and subsea production system. Neptune will do the engineering for the scour protection out of Perth with fabrication will take place at the company's facilities in Asia. Delivery will begin this quarter and grouting will begin once the systems are installed at the field.

The company was earlier contracted to deliver concrete mattresses to the project.

Diving 'cat'

Neptune has now taken on the new state-of-the-art dsv *Bhagwan Dryden* to do contract work for Neptune in the region. The 57m hybrid catamaran was built with Bhagwan Marine and has Neptune-supplied permanent air diving inspection and survey capabilities.

The DP2 vessel has 260m^2 of clear deck space, four-point mooring system, emergency hybrid capability, firefighting equipment and a 21t deck crane plus a 20t A-frame. It is built to operate in shallow water and has a light work class Comanche rov. The vessel will be based in Australia working on the North West Shelf.

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Finally, Sembcorp Marine has been awarded a $190mn contract to fabricate LNG processing modules for the Chevron's *Wheatstone* project off Western Australia.

The construction work, awarded by lead onshore facilities contractor Bechtel, will be carried out in Indonesia beginning in November this year.

The *Wheatstone* LNG plant is located 12km west of Onslow on the Pilbara coast. It will have an initial output capacity of 8.9mt/a and is due onstream in 2016.

PROJECT BRIEFS

From Houston (BN): Noble Energy has contracted SBM Offshore to handle production from its **BIG BEND** and **DANTZLER** (SEN, 31/12) subsea fields through the existing *Thunder Hawk* fpu in the Gulf of Mexico.

The hosting agreement which is expected to generate $400mn in revenue over 10 years targets flow from *Big Bend* for late 2015 and *Dantzler* for early 2016. *Thunder Hawk*, which started producing in 2009 and which SBM operates on behalf of Murphy Oil, has been substantially depleted, so there is spare capacity on the semisub.

The fpu, in Mississippi Canyon 736 in 1,850m, has the capacity to handle 45,000b/d and 2mcm/d and was designed to expand to 60,000b/d. The two tiebacks will use 85% of *Thunder Hawk*'s capacity and will be tied back using a dual pipe-in-pipe loop system.

Big Bend is in MC698 in 2,195m, 29km northeast of *Thunder Hawk* and *Dantzler* is in MC782 in 2,005m, 11km southeast of *Thunder Hawk*. The complex is about 246km southeast of New Orleans.

Noble operates *Big Bend* (54%) for W&T Offshore (20%), Red Willow (15.4%) and Houston Energy (10.6%) and *Dantzler* (45%) for Ridgewood (35%) and W&T (20%).

From Australia (RW): WHL Energy has raised the possibility of a stand-alone gas development in its acreage offshore Otway Basin of Victoria. The company is basing this on the early interpretation of the recent **LA BELLA** 3-D seismic survey.

The report suggests a total of 14 prospects with total potential resources of 28mcm and 32mmbbls of condensate and LPGs.

A group of four prospects have been mapped on the Ferrier Terrace immediately west of the existing *La Bella* gas field in WHL's acreage. They have been named as *Mylius*, *Mylius West*, *Ferrier* and *Ferrier South*.

The company says that in conjunction with *La Bella* itself these prospects could form a core gas development. The permit Vic/P67 is adjacent to existing Otway Basin projects so development could be routed through this infrastructure. Alternatively there may be sufficient gas for a stand-alone project. WHL is keen to prioritise and mature two of the new prospects for drilling in 2015.

This is one of those non-subsea stories that just begs to be mentioned. Statoil has installed a new compressor on its **KVITEBJØRN** platform which it says will add 220mboe in production and extend field operations there by eight years.

Why is this of significance? Because enhanced oil recovery is on almost everyone's lips and this new piece of kit will raise the recovery rate on the field from a good 55% to whopping 70%.

Statoil is actually installing new compressors on five other fields - *Åsgard*, *Gullfaks*, *Heidrun*, *Kristin* and *Troll* - which will add a total of 1.2bnboe in production. This is more additional reserves than on any single new development except *Johan Sverdrup*.

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From Australia (RW): Sunbird Energy has secured a A$25mn capital injection and gained a strategic partner for its **IBHUBESI** (31/7) subsea gas-to-electricity project in South Africa.

The pan-African investment company Vandasia Investments is set to acquire a 43.9% stake in *Sunbird* via a two-stage transaction that involves two capital raisings at the equivalent of $0.34 a share and the acquisition and conversion of 47.75 million existing $0.20 options.

The transaction also provides the funding required to develop *Ibhubesi*, including FEED studies, commercial negotiations and regulatory approval in time for the planned final investment decision next year.

Vandasia was formed by a group of industrialists from South Africa and Nigeria with the aim of commercialising the vast array of undeveloped gas resources throughout Africa. It has been structured to invest in LNG facilities and related infrastructure as well as gas-to-power projects such as *Ibhubesi*.

Operators of three upcoming UK heavy oil developments - EnQuest, Excite Energy and Statoil - are to collaborate on potential plans for a common **GAS IMPORT** solution to support production operations on their new fields - *Kraken*, *Bentley* and *Bressay*, respectively - in the Quad 3&9 area.

Statoil's subsea 'fast-track' programme continues to roll on with **FRAM H-NORTH** and **SVALIN** the eighth and ninth fields to come onstream under this scheme. The basis is standardised low-cost subsea solution, here benefiting from relatively short - 6km and 5km - tieback distances. The latter goes directly to the *Grane* platform, while the former links up to existing subsea infrastructure at *Fram West*.

The Italian government has approved the environmental impact assessment for the **TAP** gas pipeline which will bring *Shah Deniz II* gas to Europe...Premier has completed installation of all of the facilities - jacket, topsides and subsea storage tank - for its **SOLAN** development west of the Shetlands...Ithaca Energy has reported a 12,000b/d test flow rate from the fourth production well on the **GREATER STELLA AREA** development in UK waters...Production been halted again on Endeavour's **ROCHELLE** subsea field as a result of repairs to the export gas compressors on the *Scott* host platform in the UK sector of the North Sea.

Technip has picked up two contracts in the western hemisphere. The bigger one - which falls into the category of 'substantial' - ie €250-600mn - in its corporate jargon is for the field development for BP's **JUNIPER** project, offshore Trinidad & Tobago.

This involves a platform and topsides plus a network of 8in/10in flexible flowlines and the 10km 26in gas export line plus subsea structures and tie-ins. There is also the delivery of free-issue umbilicals and jumpers.

In the Gulf of Mexico, it will carry out the tieback work for Deep Gulf Energy's **KODIAK** field which will be linked to Williams' **DEVIL'S TOWER** truss spar which it operates on behalf of Eni and Marubeni. Here Technip installs 12km of flowline/scr and an 11km umbilical.

Oceaneering has picked up a one-year extension of its field support vessels deal with BP covering both Block 18 and 31, offshore **ANGOLA**. Both *Ocean Intervention II* and *Bourbon Oceanteam 101* will continue in their roles of providing light construction and IRM duties. A third vessel, *Bourbon Evolution 803*, already chartered through January, may be extended as well.

Composite pipe supplier Airborne Oil & Gas will provide a 1,600m downline to IKM Testing for the commissioning of flowlines and risers on Statoil's **AASTA HANSTEEN** (31/12) spar project in Norway...Aker Solutions has picked up a five-year **SUBSEA INTERVENTION** contract worth $465mn with Petrobras using the vessel *Aker Wayfarer*...Jee has had its pipeline support and inspection contract with **BP** extended by a further three years covering work in the UK and internationally including Angola, Norway, Azerbaijan and Trinidad & Tobago...GE Oil & Gas has won a $300mn plus contract to supply specially-designed injection **MANIFOLDS** with controls and retrievable injection modules to handle water alternating gas (WAG).

From the North Sea (NT): Statoil's **PINGVIN** wildcat, drilled to the north of the *Johan Castberg* prospect in the Barents Sea, has made a gas find, according to an early report from partner North Energy.

The company does not indicate how big the find is, though it says that the well, 7319/12-1, drilled by the semi *Transocean Spitsbergen*, has been cored and logged and liquid samples collected. But as Statoil's priority is to increase the oil reserves available for a *Castberg* development, a gas find must be considered disappointing.

This is the first well in which Russian state company Rosneft has participated, through a 20% stake provided by Statoil to its wholly owned subsidiary RN Nordic Oil.

Prior to *Pingvin*, the rig drilled Statoil's *Ensis* wildcat (7125/4-3) close to Norsk Hydro's 2007 *Nucula* discovery. However, the well was dry, extending Statoil's run of unsuccessful wells in the Barents this year.

From Houston (BN): Could there be oil and gas in the Pacific waters off **NICARAGUA**? Statoil and Geoex International have signed separate 'cooperation agreements' with Petronic, the Nicaraguan oil company, to consider finding out.

Statoil and Petronic together have asked the Nicaraguan Ministry of Energy to take the first steps toward offshore concessions. Geoex, meanwhile, is considering a 2D seismic survey in Nicaragua's Pacific waters.

Hope was not running rampant in Managua. The deals did not even merit a news release on the Petronic website, where the last news release posted was dated 2010.

Further south, off **COLOMBIA**, Statoil has signed farm-in agreements with Repsol, acquiring a 10% of *Tayrona* and 20% of *Guajira Offshore 1*.

Statoil acquired the COL4 license in the 2014 licensing round. Petrobras (40%) operates *Tayrona*, Repsol retains 20% and Ecopetrol owns 30%. *Tayrona* includes the *Orca-1* wildcat now underway.

Repsol operates *Guajira Offshore 1* and retains 30% and Ecopetrol holds the balance. The deals are subject to approval by Colombia's energy agency, ANH.

From the North Sea (NT): The latest round of Western sanctions against Russia over events in eastern Ukraine has brought a premature end to **UNIVERSITETSKAYA -1**,the wildcat well being drilled in the Kara Sea by the ExxonMobil-Rosneft joint venture.

ExMob has until 26 September 'to wind down applicable transactions' with Rosneft involving deepwater and Arctic E&P. The rig, North Atlantic Drilling's semi *West Alpha*, will be towed back to the Norwegian sector.

The previous round of sanctions (SEN 31/10) only applied to contracts signed after 31 July, thus allowing the jv to proceed with its plans. No time limits have been specified in the new sanctions provisions, which now apply to Gazprom, Gazprom Neft, Lukoil and Surgutneftegas in addition to Rosneft.

In the words of the US Treasury, they 'will impede Russia's ability to develop so-called frontier or unconventional oil resources, areas in which Russian firms are heavily dependent on US and western technology….[and] make it difficult for Russia to develop long-term, technically challenging future projects.'

North Atlantic Drilling will presumably also be unable to execute six contracts signed with Rosneft in July if the sanctions remain in force. The first contracts are due to come into force in 2015. A NAD spokesman declined to 'speculate' on the issue.

CNOOC has made a deepwater gas find in the South China Sea with the **LINGSHUI 17-2** well in around 1,500m. The well flowed at 1.6mcm/d...Eni has boosted the reserves around its Angola **BLOCK 15/06 WEST HUB** with a 300mmbbls find with the *Ochifugi-1* well. The find was made in 1,337m using the Ocean Rig drillship *Poseidon*...Petrobras has struck gas while drilling an extension of the **POCO VERDE** well in the Sergipe-Alagoas Basin in 1,200m...Faroe Petroleum has sold its 10% stake in the **GLENLIVET** gas prospect west of the Shetlands to operator Total for £10mn with part of the payment delayed until the field development plan is submitted and production begins.

From the North Seaq (NT): Forty seven companies have applied in the 2014 **AWARDS IN PREDEFINED AREAS** (APA) licensing round for mature acreage, down from 50 last year, the Norwegian Petroleum Directoratre reports. The number of applications is claimed to be a record, though it is not given. The acreage available has been expanded with the addition of new blocks in the Norwegian and Barents Seas.

Among the applicants long-standing players BP and Hess are absent, but Talisman, which is seeking to sell out of Norway, is present. Awards are due in January.

FLOATER NEWS

SHELL KEEPS *AUGER* BUSY WITH NEW SUBSEA TIEBACK

From Houston (BN): Oil prices are falling and analysts are less enthusiastic about deepwater operations, but Shell is ploughing ahead.

The company announced startup of its *Cardamom* subsea development through its *Auger* tlp in the Gulf of Mexico. When the field reaches full production of 50,000boe/d, *Auger*'s throughput will increase to 130,000boe/d.

The start-up is the seventh subsea tieback to *Auger* and makes uses of infrastructure that was initially installed and began producing in 1994. *Auger*, in Garden Banks 426 in 872m, was Shell's first tension leg platform (tlp) in the GoM.

(The first tlp installed was in 1984 at *Hutton* in the North Sea in about 150m. The first in the Gulf - actually a tension leg wellhead platform - was Conoco's *Joliet* in 1989 in 537m with *Auger* was the second GoM tlp.)

Cardamom - 362km southwest of New Orleans in GB427, next block east of where *Auger* sits - lies 6.4km beneath the seafloor under thick layers of salt. The deposit went undetected in seismic surveys until technology advances enabled geologists to 'see' it in 2010.

Modified

The tlp had to be modified for the tieback including an upgrade of an existing process train and to trim weight for increased liquid handling, cooling and production capacity.

The completed subsea system includes five-well expandable manifolds, dual 8in flowlines and eight well umbilicals.

Shell has also announced a discovery at its *Kaikias* prospect in 1,362m in Mississippi Canyon 768. It's near enough to the *Mars* tlp for a tieback. The size of the find was not disclosed, but it is not seen as enormous.

FLOATER BRIEFS

From the North Sea (NT): Talisman Norge's ill-fated **YME** (SEN, 31/12) production jackup is about to be reboarded in order to prepare the deck for removal.

The Petroleum Safety Authority of Norway has given permission for the *Maersk Giant* jackup drilling rig to be used as living quarters for the 70-strong team from Aker Solutions which will undertake the four to five months of work.

Removal by Allseas' giant single-lift decommissioning vessel *Pieter Schelte* is scheduled for next summer. Once out of the 500m exclusion zone, responsibility for the 14,000t deck will pass to its owner, SBM Offshore , which has contracted Veolia for the onshore demolition and disposal. This will be done in conjunction with Veolia's partner, Lutelandet Offshore, at its decommissioning site at Lutelandet in southern Norway.

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Keppel Corp is taking a big plunge into the **FLOATING LNG MARKET**. It has developed a close relationship with Golar LNG and its operating subsidiaries.

Having recently taken on the contract to convert one MOSS-type LNG carrier, *HILLI*, into a floating liquefaction vessel (FLV) for Golar Hilli, Keppel Shipyard is about to embark on a similar job on the *GIMI* for Golar Gimi. These are the first ever conversions of this type.

Keppel Corp has now taken a direct involvement in this market with a 10% stake in Golar Hilli from Golar GHK through its KSI Production subsidiary. There will be more action to come soon.

From Houston (BN): To the delight of LLOG executives and a small crowd gathered shoreside in Port Aransas, the **DELTA HOUSE** (SEN, 31/8) fps finally sailed from Kiewit's Ingleside TX last week.

The sail-out came seven weeks later than planned after the project faced last-minute glitches and weather delays. The platform will be moored 220km southeast of New Orleans in 1,350m in Mississippi Canyon 254.

Target date for first production is still the first half of 2015. *Delta House* is intended to pull in production from several blocks, some as far as 21km away. Its design capacity is 100,000b/d and 240mn cf/d.

From Houston (BN): Chevron's $7.5bn **JACK-ST MALO** (31/7) floater project reached another milestone as it heads toward startup targeted for later this year.

McDermott has completed installation of jumpers, flying leads, the pump stations, umbilicals and 'some of the industry's largest and complex umbilical end terminations' to the semi production unit moored in 2,200m in Walker Ridge 718.

The fpu is about halfway between *Jack* field in WR758&759 and *St Malo* in WR678, both of which are Paleogene (aka Lower Tertiary or Wilcox) discoveries.

McDermott's work was part of first-stage of development of the *Jack South*, *St Malo South* and *North* drill centres. McDermott's subsea construction vessel *North Ocean 102* and derrick barge *DB50* installed 105km of umbilicals as well as 21 high-spec rigid flowline, manifold and pump jumpers that McDermott produced in-house plus the three 209t pump stations.

From Australia (RW): Otto Energy has agreed to sell its interest in the **GALOC** oil field, offshore the Philippines, to Singapore company Risco Energy for $101.4mn.

Risco has paid a $10.14 million deposit and has assumed all production rights and liabilities backdated to 1 July this year.

Otto says it will divest 100% of its shares in the Galoc Production Co, the entity that holds 33% interest in the field. The move is in line with Otto's focus on unlocking value for shareholders according to CEO Matthew Allen, but will require shareholder approval at a meeting timed for later this year.

Proceeds of the sale will help fund Otto's exploration programme for the next two years as well as pay a proposed capital return of 6¢/share to shareholders. The company is looking to expand its existing position onshore Tanzania as well as focus on Service Contract 55 offshore Philippines.

Galoc field was discovered in 1981 and is producing 8,000b/d following completion of a Phase 2 development plan last year. It has an expected production life to 2020 with other potential prospects nearby.

The deal comes on the heels of Thai refiner Banchak Petroleum's (BCP) buyout of another *Galoc* interest holder, Nido Petroleum, for A$113mn in cash. BCP has moved to a majority interest in Nido and has declared its takeover official with a relevant interest in 1.1bn shares pushing it over the 50.1% ownership point. BCP's original cash offer of A$0.055/share came with the condition of 90% acceptance.

Nido had cash reserves of A$18.45 million and debt of $18.8 million as of 30 June 2014. The company recorded a loss of $3.16 million for the first half of 2014.

Fairmount Marine has completed the tow of the fpso **PETROJARL KNARR** from South Korea to Norway for Teekay. The unit is 256m by 48m and 135,000dwt...Knutsen NYK has placed an order for two newbuild DP2

SHUTTLE TANKERS to operate for BG Group in Brazil...Cairn Energy has sold a 10% stake in Premier's **CATCHER** fpso development to Dyas UK for just over $180mn in carried development and exploration costs on the five licence area...Petrobras' latest fpso *Cidade de Ilhabela* has sailed from a shipyard in Brazil to be moored on the **SAPINHÓA** field.

More newbuilds for the subsea sector, although for clients who are not exactly household names. The Timblo Drydocks in Goa has delivered a newbuild DP2 offshore construction vessel to **MARINOIL**. The 66m by 16m unit will support air diving, rov operations and light construction activities.

UAE-based Unique Hydra is to build and equip a multipurpose dsv for **ULTRA DEEP SOLUTIONS** which will be rated for 4,000m operations. The 143m by 27m DP3 unit will have an 18-man twin bell saturation diving system and a 400t main crane.

Kongsberg Maritime is supplying integrated well control systems for Siem Offshore's two new subsea well intervention vessel being built in Germany and which will be chartered to **HELIX ENERGY SOLUTIONS**...McDermott has christened its latest newbuild subsea constructon vessel **CSV108** which was built at Vigo in northwest Spain and designed with the flexibility for conversion for pipelay duties.

TECHNOLOGY BRIEFS

From Aberdeen (IF): Robert Gordon University here has launched a new centre for **SMART DATA** technologies. The unit will focus on big data analytics, particularly for the oil sector.

RGU says that the industry could secure huge efficiencies from the use of analytics to extract added value for processes such as increasing speed to first oil, enhancing production, improved asset maintenance and reliability, reducing risks in health and safety and the environment plus reducing costs.

The university adds that the oil industry has identified a strong need to make use of the data generated by E&P operations, with offshore installations providing terabytes of data daily.

The centre is launching with a team of 10 research staff building on RGU's expertise in data modelling, smart information systems and knowledge management.

It will provide a collaborative facility involving academic and industry partners, where there will be research aimed at solving key technical challenges in the monitoring and management of subsea fields. This initiative is aligned with the Data Lab, a national innovation centre in data science with a hub at RGU.

Another week goes by and yet another new technology organisation is borne. Industry body Oil & Gas UK is to set up the **TECHNOLOGY LEADERSHIP BOARD** that will see that technology development work directed to the UK sector is collaborative, directed and relevant.

It might be presumptuous to say this, but what the UK does not need is another organisation, but policies that encourage the use of existing technologies. Not more talking, but more walking.

From Houston (BN): Wild Well Control has unveiled its second **SUBSEA CAPPING STACK**, which will be staged at Singapore. The first was deployed three years ago in Aberdeen. The new two-ram, 18.75in 15k capping stack with HC/H4 connectors can operate in water up to 3,050m.

Unveiled in Houston, the 12m 109t $22mn stack was not actually on display. WWC Freddy Gebhardt said that since WWC responds to 80% of international well-control incidents (31 offshore in 2013, according to published reports), it wanted more flexibility to respond worldwide.

WWC chose Aberdeen and Singapore for staging because of easy access to ships and planes for delivery to remote areas. The company also felt that the Gulf of Mexico already has ample stacks available.

The full WWC intervention system staged at Aberdeen and at Singapore includes not only a capping stack but debris removal shears and hardware kits for subsea application of

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dispersant and hydrate inhibitors as well as other ancillary equipment.

Both stacks are available to the WWC-led WellContained, an organization that offers a five-year membership for $4.55mn which training, logistics, technical, engineering and personnel support to its 38 members.

Gebhardt said there have been a number of capping stacks built in the wake of the 2010 BP *Macondo* oil spill (at least six organizations, including Shell and BP, have equipped themselves), but he said WWC provides the most comprehensive service along with the hardware.

At ONS (31/12), we asked GE Oil & Gas doing what exactly it is doing about **PUMPS** (SEN, 31/12). The answer has arrived. On the esp front, it is already offering the pumps it acquired in last year's Lukfkin Industries deal. A spokesman told SEN, ' we have a range of esps suitable for subsea applications...(but) GE hasn't run any true subsea esps.'

On the multiphase pump work, development of a new centrifugal pump is being carried out in Bari in Italy.

IFP Energies Nouvelles has received a **TECHNOLOGY PIONEER AWARD** for work done in the 1970's and 1980's on the mechanical behaviour of drilling risers by Charles Sparks who was also honoured...DNV GL has put forward three new **PIPELINE JIPS** on freespans in trenches, pipeline repair and design of pipeline components.

SCOTTISH INDEPENDENCE REFERENDUM

DUST SETTLES AFTER SCOTTISH 'NO' VOTE

From Aberdeen (IF): The dust has now begun to settle following the historic decision by the people of Scotland not to break away from the rest of the UK.

One positive impact of the fiercely-fought independence debate was that the importance of the North Sea industry and the wealth it brings to Britain was widely highlighted on both sides of the border.

Prominent business leaders, such as Sir Ian Wood, were in the news in the lead-up to the 18 September vote with their views. Wood said after the result, 'I am pleased the Scottish people have chosen the best of both worlds, which I...believe will be in the best interests of our children and grandchildren.

'The UK Government must now deliver on...wider...responsibilities to the Scottish Parliament and every effort must be made to heal the rifts from the past few months. Scotland must unite...within the...UK to take full advantage of the opportunities.'

Sir Ian said there are two important initiatives underway - the fiscal review plus the set up of the new regulator, the Oil & Gas Authority.

'Our industry is currently struggling with a completely unacceptable low level of exploration and a significant number of our offshore assets potentially up for sale,' he said. 'The vote now allows...these...initiatives to be progressed and brought into play by UK government as quickly as possible.'

Sir Ian, Scotland's most successful oil sector entrepreneur, dealt a massive blow to Scottish National Party hopes for an independence. The businessman, who built the Wood Group into an international energy service giant, was worried for Scotland's future if it voted 'yes' to go it alone.

He warned there were just 15 years before depleting North Sea reserves began to hit jobs and the economy. Sir Ian feared the SNP over-estimated the amount of potential revenue available to an independent Scotland and that the country could be forced to import shale-gas from England.

Industry body Oil & Gas UK (OGUK) said after the vote that it looked forward to continuing working closely with both the UK and Scottish governments on maximising economic recovery of offshore oil and gas.

OGUK said the outcome of the referendum would not diminish the pivotal role played by the Scottish government in supporting the offshore industry.

OGUK chief executive Malcolm Webb said, 'The referendum...revealed the important role the offshore...industry plays in our economy...This is understandable, given this industry remains the UK's largest corporate taxpayer and largest industrial investor, and its crucial role in helping assure thousands of well-paid, highly-skilled jobs...(and...)energy security.

'To safeguard the industry's future, it is particularly important that that the government now presses swiftly ahead with fiscal reform as well as the implementation of Sir Ian Wood's recommendations to maximise...our oil and gas resource. The industry must not delay either in (the) effort to bring its escalating costs under control.'

The possibility of another bid for Scotland to become independent now seems to be off the table for at least a decade. Bookmaker William Hill think it is odds-on there will not be another referendum before 2024.

THE NORTH SEA FUTURE COULD BE BRIGHTER, SAY AU SPECIALISTS

From Aberdeen (IF): Specialists at Aberdeen University say that UK waters may contain more than 270 viable fields which could be brought into production by 2050.

Professor Alex Kemp and Linda Stephen also believe it is conceivable that the industry can be prolonged beyond 2050 at activity levels which, while small by today's standards, will still contribute to the national economy.

The pair are authors of a new paper on the future potential from the North Sea and have conducted detailed financial modelling of the prospects in the period to 2050.

They say the long-term future of the industry depends on resources, including future discoveries; the costs of exploiting these finds; and policies which can incentivise or retard exploration and developments.

Key results are that production over the period 2014-50 could be in the 14-15bnboe range, depending on the extent of the success in implementing the recommendations of the Wood review regarding production efficiency and access to infrastructure.

Further financial modelling has also been undertaken on the possible effects of tax reliefs following the current review. These could incentivise further field developments resulting in a plausible range of 15-16.5bnboe through 2050.

Kemp and Stephen say new commercially-viable developments triggered over the period to 2050 include not only 25 fields currently being assessed for development, but 147 discovered fields not yet at the detailed planning stage, and 99 further discoveries resulting from new exploration over the period to 2045.

The pair say technological advances can also be expected which will result in rates of oil recovery higher than the present average of around 45%.

'At the moment there are only a very few active tertiary recovery schemes,' Kemp said. 'Others are certainly possible, and, with sympathetic encouragement from government, many more could be implemented...such as low salinity waterflood, polymer flood, miscible gas injection and CO_2 injection. Recovery factors in the 60%-70% range would make a substantial extra contribution to aggregate production both before and after 2050.'

Re-opened

Kemp and Stephen say technological advances have already led to decommissioned fields being reopened.

'It can confidently be predicted that there will be more of these. Some will utilise producing systems with tanker loading for exporting oil and so reliance on existing infrastructure is reduced,' Prof Kemp said.

'As an example of what could be achieved with new technology, the decommissioned *Miller* field could be reopened, perhaps with a CO_2 EOR scheme. It will be recalled that the scheme which was aborted some years ago envisaged extra oil production of around 40mmbbls.'

The AU pair say it is not inconceivable that the industry can be prolonged beyond 2050.

SCOTTISH REFERENDUM NOTES

With passion on both sides of the referendum debate, it is not surprising that there were last minute attempts to influence the outcome and strong words after the result to ensure that the UK government keeps to its promises on the devolution of more powers and the significance of the oil and gas sector.

Two days before the vote, online recruitment agency **www.oilandgaspeople.com** attempted to boost the economic basis for independence with a report which suggested that that remaining reserves of oil and gas in Scottish waters could be bigger than suggested during various debates.

It collated data from the British Geological Survey, DECC, various UK sector operators, the Institute of Petroleum Engineering (IPE) and the Energy Institute. The conclusion is that there is potentially additional reserves to be found in Scottish 'firths', ie river estuaries.

Some of these possible reserves have been off limits as they are near British naval installations, but likely also near important wildlife areas.

Once all of the votes were in, lots of folk lined up to give their opinions on what's next.

The **Aberdeen & Grampian Chamber of Commerce** which surveyed the oil sector in the summer and found that 45% of the companies had investment and business plans affected by the vote. The same companies will be asked, post-referendum, if the result had an impact of future plans. What was clear was that the referendum had created uncertainty in the sector which had an impact on planning.

Scottish accountancy **Johnston Carmichael** stuck its head above the parapet and called for implementation of the recommendations of the Wood review which essentially called for a plan to maximise recovery of resources in the sector.

Of course, unless the UK authorities are going to legislate and give more powers to the new regulatory body, the Oil & Gas Authority, this task will be near impossible.

UK regulations are not even as stringent as those across the median line in Norway where a high level of recovery of reserves is seen as a national issue. Can the government require licencees to spend money to boost the recovery rate of fields? Tough call.

And how does the industry unlock those additional barrels of oil? With **enhanced oil recovery** technology.

The Centre for EOR, part of Heriot-Watt University's IPE, has been going for 17 years and says it is on the verge of making some significant breakthroughs.

These include a variety of techniques including low-salinity water injection and new gas injection technologies.

With all due respect, much work has already been done and is in operation in Norway. It is hoped that this not another example of reinventing the wheel.

POLICY BRIEFS

From Houston (BN): Brazil's National Petroleum Agency (ANP) is rejecting pressure from industry association IBP for regular **AUCTIONS OF CONCESSIONS**. ANP director Magda Chambriard did say there will be an auction in H1 2015, although she did not say which areas might be included.

At the recent Rio Oil & Gas Expo, IBP amped up its criticism of Brazilian energy policy, saying state control, excessive local content requirements, denying Petrobras world market prices for fuels and other policies are slowing development and discouraging foreign investment.

A Total official said that developing the *Libra* deepwater giant alone may cost $80bn. ANP officials said they are hoping to ease some restrictions on foreign operatorship of fields and that increasing production will quiet industry complaints.

The Brazilian regulator has also said it will issue new regulations on riser systems and well construction and abandonment for the Brazilian sector.

From Houston (BN): A New Orleans federal judge's finding that BP was 'grossly' negligent in the 2010 **MACONDO OIL SPILL** (31/12) could cost the company more than $18bn in Clean Water Act penalties.

That would be in addition to the $28bn already spent on cleanup and damage payments. BP's charges against earnings in *Macondo* so far total $42.7bn, including $3.5bn earmarked for pollution penalties.

The $18bn estimate assumes maximum penalties under the Clean Water Act of $4,300/bbl for the 4.1mmbbls the government estimates was spilled and not recovered. BP's own estimate of oil spilled and not recovered is 3.1mn bbls.

District Judge Carl Barbieri will decide BP's penalty after a trial on that issue set for 20 January. 'The court has wide discretion in its determination...on the volume of oil spilled and the application of statutory penalty factors,' BP noted in its 2013 annual report.

In a statement after Judge Barbieri's recent finding, the company said it disagreed with the ruling and 'will seek to show that its conduct merits a penalty that is less than the applicable maximum.'

The statement noted that the maximum fine is nearly four times the $1,100/bbl the law provides for simple negligence. Even at $1,100/bbl, the penalty would be $4.5bn.

BUSINESS

N SEA NEWCOMER VOICES COMMON CONCERNS

From Aberdeen (IF): One of the newest oil entrants to the UK North Sea today (Thurs) warned of the dangers presented by the soaring price of projects with rig rates and subsea work among the worst offenders.

Hungary's MOL Group in currently investing more than $500mn in North Sea licences and aims to become a significant player here. But it says new, more efficient ways of working have to be introduced as a matter of urgency.

The company has another $3bn which could be used for further UK offshore acquisitions and it plans to use this money to become an operator of producing assets next year.

Shocked

But Chris Bird, MD of MOL UK, told SEN that the increase in supply chain costs at home and abroad in recent years was 'shocking'.

'The cost of a simple subsea tie-back has now become phenomenal,' Bird said in an interview. 'It has gone up from something like less than $150mn to around $500mn today, but there has been no similar increase in the price of oil to compensate for this.'

Bird, an industry veteran with earlier roles including as boss at Venture Production, said moves have to be made now to reduce costs. He said this was possible as shown what was done at Venture.

Bird said MOL would be adopting a different approach to managing its supply chain, one which would benefit both it and contractors. He said the oil industry needed to break the vicious circle of competing for scarce resources such as skilled people.

'This is a supply-constrained market with over-committed resources,' he said.

The MOL managing director highlighted ongoing issues such as millions wasted annually on mountains of bid documents.

Bird said vast sums were also being spent on bespoke equipment - 'we like to engineer a lot, too much in many cases' - when cheaper, mass-produced alternatives would do.

The MOL managing director – who supports the findings of Sir Ian Wood's review into maximising UK oil recovery – said a collaborative approach was needed across the whole industry to maximise performance. He said getting this right would be a 'win-win' situation for both operators and contractors.

Operators could benefit from long-term fixed rates for drilling rigs and, in fabrication, good performance on cost and schedule. Subsea and drilling contractors could receive long-term work commitments.

Bird said if MOL is as successful here as he hopes, then this could lead to more new entrants being attracted in the basin. This summer, MOL announced its second significant UK acquisition in recent months, spending $130mn on six central North Sea licences from Premier Oil.

The portfolio includes interests in *Scott* (21.84%), *Rochelle* (15%) and *Telford* (1.59%), as well as interests in exploration licences such as the *Rochelle* Upper Jurassic deep prospect. Last December, MOL revealed a $400mn-plus deal to acquire 14 licences from Wintershall including a non-operating stake in *Broom* (29%) plus in the *Catcher* (20%), *Scolty/Crathes* (50%) and *Cladhan* (33.5%) developments.

MOL's current UK North Sea output is around 1,000b/d and the hope is to increase this to 30-70,000b/d within five years. The company now has a British workforce of 20 and is targeting it to rise to 200 people directly employed in the same time period.

ASSET DEAL HAS WINTERSHALL REACH NORWEGIAN PRODUCTION AIM

From the North Sea (NT): Wintershall has expanded its position in the Norwegian sector by agreeing to acquire a further basket of assets from Statoil, including stakes in the producing *Gjøa* and *Vega* fields, the *Aasta Hansteeen* development and the coming *Polarled* pipeline (SEN, 31/12).

Overall the German company is to pay $1.25bn for 2P/2C reserves totalling some 170mmboe and a further $50mn if *Hansteen* is executed according to the current plan. The transaction, which should be completed by year-end and will be backdated to 1 January, will lift its production in Norway by 22,000boe/d to around 60,000boe/d.

(*From the Editor:* Wintershall has said several times that its aim is reach 50,000boe/d from the Norwegian sector.)

The acquisition of Statoil's 5% in *Gjøa* sees the Norwegian company exit the licence and Wintershall raise its stake to 20%. This could have implications for Wintershall's nearby *Skarfjell* discovery, which CEO Rainer Seele says could be tied back to *Gjøa*. Statoil will also be out of *Vega*, its 24.5% holding lifting Wintershall's share to 54.5% and take over the operatorship from Statoil.

In the Norwegian Sea, Wintershall will get 24% in *Hansteen*, leaving Statoil with 51%, and 13.2% in *Polarled*, which will link *Hansteen* to the Nyhamna terminal, leaving Statoil with 37.1%.

In the *Asterix* discovery, which is expected to be tied back to *Hansteen*, Wintershall will receive 19%, leaving Statoil with 51%. The Germans will also get small stakes in four exploration licences in the *Hansteen* area.

Statoil says the deal will release some $1.8bn of capital expenditure in the period up to 2020. The two companies have agreed to extend their cooperation in developing EOR technology and exploration.

Wintershall acquired its first holdings in *Gjøa* and *Vega* from Statoil last year in another big asset deal, which also brought it the *Brage* operatorship and gave Statoil a stake in *Edvard Grieg* (30/10).

BUSINESS BRIEFS

Technip is exiting from the Gulf of Mexico diving services market by selling its US diving assets to **RANGER OFFSHORE**. The deal which has not been valued includes two dsvs - the Technip-owned *Global Orion* and the chartered *Norman Commander*. The A-list subsea contractor said that it intends to focus on deepwater and high-tech products and services and intends to plough back some of the sale funds into its GoM spoolbase.

The deal includes a multi-year diving service agreement between the companies.

From the North Sea (NT): Investment in **NORWAY**'s offshore sector next year continues to face a hefty fall.

According to the latest survey of oil company plans by Statistics Norway, the 2015 spend is estimated at NOK185.3bn ($29.4bn), 18% down on this year's NOK 227.3bn.

However the picture is likely to change in early 2015 when the PDO for the giant *Johan Sverdrup* (SEN, 31/12) field is delivered. PDO submission is the point at which a project enters the calculations, and *Sverdrup* is expected to call for investments of some NOK120bn concentrated in the next five years. PDO's for three smaller projects are also expected to be filed over the next six months, says SN.

Spending on decommissioning has nearly trebled this year to NOK8.1bn and is forecast to jump to NOK10bn in 2015. However, the exploration spend next year is expected to fall by 8% to NOK32.2bn and production operations by 18% to NOK78.7bn.

From Australia (RW): Hard on the heels of the failure of the proposed merger with Horizon Oil, the board of **ROC OIL** has unanimously accepted a A$474mn all-cash offer from Chinese combine Fosun International Group.

Fosun has offered A$0.69 per Roc share conditional on a minimum of 50% acceptance.

Roc directors say the offer represents a premium to the level at which shares were trading before it announced the Horizon merger back in April. That A$800mn deal fell through last month when Horizon decided not to compete with the Fosun offer.

The directors added that that the Fosun bid provides certain and immediate value and removes risk for shareholders.

On a stand-alone basis Roc has relatively limited opportunities for growth, they said. The company's asset portfolio largely consists of producing projects that are near to production decline or actually in decline. Roc said it was likely to need additional funding in the future so it can pursue exploration and development programs.

Roc's largest shareholder, the Alan Gray Group with 20% of the company, has also accepted the Fosun offer.

Siemens is to acquire compressor and pump manufacturer **DRESSER-RAND** in an all-cash deal valued at $7.6bn. D-R is to become the oil and gas brand for Siemens...Acteon has added survey and positioning specialist **UTEC SURVEY** to its portfolio of companies...Clough Engineering has bought Scottish engineering and controls firm **BOOTH WELSH**...Precision hardware engineering company **PREMIER HYTEMP** is investing £20mn in a new facility in Singapore, while flexible pipe supplier **FLEXTECH** is spending £0.5mn on a new manufacturing base in Grimsby in the UK.

Longtime hardware man **Charlie Jones**, formerly head of Hydril, has joined Plexus' US board as a non-executive director...**Andrew Norman** is to step down as ceo and director of JDR...**Alan White** has been named head of engineering with IRM specialist Harkand...**Tony Mackay** is the new operations director with Cortez Subsea.

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