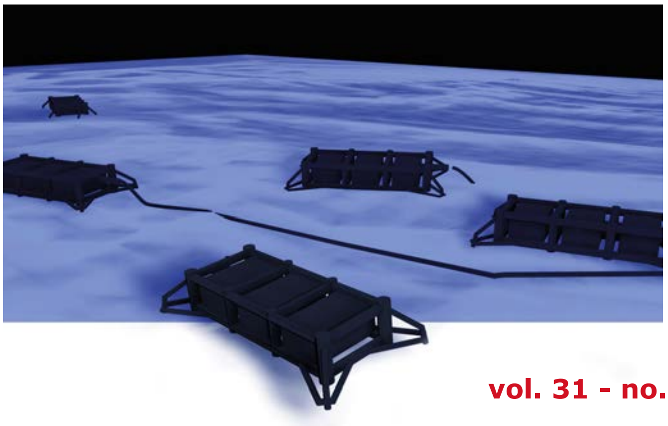

vol. 31 - no. 17 20 November 2014

HARTENERGY

SEN

SUBSEA
ENGINEERING
NEWS

BROWSE GROUP TO FOCUS ON FLNG

From Australia (RW): Woodside Petroleum has re-affirmed that floating LNG is the most commercially viable option for the proposed *Browse Basin* (SEN, 31/2) project, off Western Australia, as it released the draft environmental impact statement.

The operator has not, though, given any indication of possible production figures. Instead the statement says the FLNG proposal is nearing completion in the 'base of design' (BOD) phase.

Woodside says front-end engineering and design (FEED) will finish about 12 months after the completion of BOD. This is expected to lead to a final investment decision with offshore drilling likely to begin two years after that. Commissioning of the FLNG facilities would probably happen five to eight years after a successful FID. The project production phase would have a life of 40-50 years.

Retention rights

The *Browse* licence group has submitted applications for the renewal of the retention leases surrounding the three gas fields – *Torosa*, *Brecknock* and *Calliance* – that make up the project.

Up to three FLNG facilities measuring 488m long and 78m wide are planned, each capable of producing 3.9mt/a of LNG and 17,000-22,000b/d of condensate. However there is also the possibility of moving one of the FLNG vessels around to different locations on the three targeted fields.

This latter scenario could see two FLNG vessels located at *Brecknock* and *Calliance* for about half the reservoir life and two facilities at *Torosa* for half that reservoir's life.

Development includes setting up three drill centres each at *Brecknock* and *Calliance* and five at *Torosa* with 64 production wells forecast. There would also be construction of the usual other subsea infrastructure, including manifolds, flowlines, umbilicals, risers and moorings.

WHAT'S INSIDE

The project will potentially aim to produce up to 11.7mt/a of LNG and 66,000b/d of condensate. The estimated contingent reserve for the three-field complex is 425bcm and 441mmbbls of condensate. They are located about 425km north of Broome.

Public comment on the draft EIS will close on 19 December.

Although not mentioned in the EIS there have been reports that *Browse* consortium is considering construction of a regasification plant in WA to cater for the state's future energy needs. The plan would involve shipping LNG to southwest WA for conversion back into gas for the local market.

It is believed the idea is one of a number being considered in a study in preparation for a debate with the WA government over the *Browse LNG* project's obligations for the domestic gas market.

Woodside said only that the joint venture is investigating the practicality and economic feasibility of making gas available for the domestic market and to working with government in relation to the state's domestic gas reservation policy.

PROJECT UPDATES

UK ROUND OFFERS ONLY A GLIMMER OF NEW EXPLORATION HOPE

From the North Sea (NT): When offers for the 28th licencing round in the UK were announced, there were probably not a few observers who, on hearing Business and Energy Minister Matthew Hancock's claim that 'industry are falling over themselves to invest in the UK and explore for energy,' raised a quizzical eyebrow.

Six firm and four contingent wells do not look like rescuing the UKCS from its current exploration lethargy as it heads for an all-time low in E&A drilling.

The 134 licences awarded, covering 252 blocks, is 10% down on the 27th round, although a further 94 blocks may be awarded depending on the outcome of ongoing environmental studies.

A further sign of the reluctance to commit to investment is the high number of Promote licences – 83, almost three times as many as in the previous round, while the number of Frontier licences is down by two thirds, according to Hannon Westwood.

On the other hand, as the consultant points out, the seismic commitments will lead to five new 3D surveys and three new 2D surveys.

Among the interesting features of the awards are a number of virgin areas which are to be investigated. West of Hebrides is an unfamiliar province, but OMV has two new licences here, in Quads 154/164 and 158/159.

Explorers are also narrowing the traditional gap between the Central and Southern North Sea. Nexen has a licence stretching south into blocks 37/14-15, just 40km north of Ardent's licence which includes parts of 37/28-29 in the north of the southern basin. Also in the Central North Sea TGS has new acreage not far from shore in Quads 26&27, remote from any existing licences.

However, if the west of Shetlands (WoS) is the UK's most important frontier area, there aren't many frontiersmen left. Only five awards have been made out there - four to Total around its *Laggan/Tormore* (SEN, 31/16) hub and one to Chrysaor to the west of its *Solan* (31/13) acreage.

Many of the new licences are close to existing discoveries and could help trigger development. Enegi and Antrim have one covering 21/28b which contains the *Dandy* and *Crinan* discoveries, which could bring an additional 6mmbbl to their planned *Fyne* (31/4) development in the same block.

Parkmead has a new licence for 14/25 which is believed to contain an extension of the *Perth* (30/7) field, while its partner Faroe has another covering the *Fynn* prospect on 15/11&16d close to its *Lowlander* field.

A decision on the joint development of *Perth* and *Lowlander* is due at year-end. Another Parkmead licence, 20/3c&4a, contains the *Polecat* and *Marten* discoveries which are candidates for tieback to a future *Perth* hub.

In the Southern Basin, Independent Oil & Gas has a new licence between its *Cronx* and *Blythe* fields which contains the *Elgood* discovery. IOG hopes to see all three developed with *Blythe* as the hub.

The largest number of licences – nine - goes to Statoil, followed by EnQuest (eight), Nexen (seven), Parkmead/Deo (six) and Cluff and Total (five each). The 'firm' well commitments are to be drilled by BG, BP, E.ON, Nexen, PA Resources and Summit, and the contingent wells will come from Parkmead, Perenco and Statoil (two).

GOM OPERATORS TAKE LONG VIEW OF DEEPWATER PROSPECTS

From Houston (BN): Despite a declining oil price, operators are making long-term plans for exploration in some very deepwater (2,000m plus) in the Gulf of Mexico.

Freeport-McMoRan has won conditional approval to explore its *Kanzi* prospect in 2,200m in Alaminos Canyon 738-782-826, about 60km east of Shell's *Perdido Hub*.

The blocks are among assets F-M acquired from Plains Exploration (SEN, 29/19). The plan calls for drilling, completing, flaring and temporarily abandoning seven wells between 2017 and 2024, allowing 75 days for the first well and about 160 days for the rest.

Shell has won conditional approval to explore a prospect dubbed *Toolbrunup* in 2,225m in Walker Ridge 55 about 320km southwest of New Orleans.

The plan calls for drilling eight wells in the so-called Orca Basin between 2015 and 2022, allowing more than 200 days for each well. *Toolbrunup*, in case you are interested, is the name of a mountain in the Stirling Range of Australia, southeast of Perth.

Anadarko has won conditional approval to explore *Opal*, a prospect in Desoto Canyon 852-853-854-897. Water depth is 2,775m and the location is about 350km southeast of New Orleans. Plan calls for 12 wells between 2015 and 2027, each taking about 100 days to drill. Murphy is 50% partner.

Eni has won conditional approval of its exploration plan for *Vernaccia* in 1,060m in Mississippi Canyon 35 about 206km southeast of New Orleans. The plan calls for four wells between now and mid-2016, each taking about 90 days to drill and complete.

PIPELAY MARKET GETS EVER MORE CROWDED

The offshore contracting business is getting increasingly crowded as several new players are getting their foot in the door.

Dredging-rockdumping specialist Van Oord has picked up a contract with Shell in Gabon for the installation of a new dual looped oil export line.

The twin 10km 22in pipeline system is replacing an existing 30in line to a plem and allows for pigging.

Van Oord hit the pipelay market last year when it took possession of its shallow water laybarge *Stingray* which was ordered in 2011. It undertook its first jobs in the Asian market

SEN Online Glossary of Terms - click here

- the trenching and installation of a 42in pipeline and a plem for a single point mooring terminal at a refinery in South Korea and a similar job for at a Chinese Petroleum Corp refinery in Taiwan.

Also out there is Hilong of China which has picked up the pipelay for phase two of the *Weizhou* development for CNOOC. The contract covers seven infield pipelines with a total length of 38.5km.

Hilong acquired the pipelay barge *Hilong 106* from Shanghai Zhenhua Industries at the end of last year for $164mn. According to a company report, it was due to have been delivered in the spring, but was only delivered in September.

The barge can handle pipe up to 60in in waters to 300m.

Hilong seems set to expand and move into other markets having acquired Texas Internal Pipe Coating earlier this year. TIPC provides a powder-based internal coating service for oil country tubular goods (OCTG).

Ceona has picked up two jobs in Nigeria in cooperation with strategic partner Marine Platforms. It will install flexibles, umbilicals and a suction pile for a plem for the *Abo-12* satellite project for Eni. It will also handle some unspecified duties related to Shell's *EA* platform and the *Sea Eagle* fpso.

Sea Trucks has also won work in Nigeria, again with a local partner West African Ventures. It will use two of its pipelay construction vessel for Afren's *Okwok* project. It will install 60km of pipelines plus a plem, flexible riser and spoolpieces along with a wellhead jacket, piles, bridges and topside.

DOUBTS LINGER AFTER *ORMEN LANGE* APPRAISER

From the North Sea (NT): Results from Shell's *D Far South* appraisal well on the *Ormen Lange* (SEN, 31/9) gas field were not immediately clear-cut, according to the Norwegian Petroleum Directorate.

The licensees will now evaluate whether to drill new producers to develop this part of the field. If they do, the wells will be tied back to the southern template 7km to the north.

The well, 6305/8-2, which was drilled by the semi *Transocean Barents* in 615m, aimed to clarify whether the area is being adequately drained by southern template wells.

In the event it found a 28m gas column with good reservoir properties, although other target formations were water-bearing. The preliminary results provide no basis for increasing the recoverable reserves estimate for *Ormen Lange*, NPD said.

Up in the Barents Sea, Statoil capped a miserable drilling season with another dud, the *Saturn* exploration well (7227/10-1) in the North Cape basin. It was drilled by the semi *Transocean Spitsbergen* in 232m 30km southwest of a 2001 discovery by the company, but turned out to be dry.

Commenting on its 2013-14 programme in the Barents, Statoil was keen to pick out the positives. Of the five wells looking for additional resources in the *Johan Castberg* area, the *Drivis* discovery (31/4) was to be developed, said Irene Rummelhoff, senior vice president for exploration on the NCS.

The three wells drilled in the Hoop area had proved a working petroleum system, but more work was needed to find where the oil has migrated to. Overall a large variety of geological plays had been tested and the *Pingvin* (31/14) find northwest of *Castberg* was a play-opener in an unexplored area.

The 12 wells drilled accounted for 10% of all exploration wells in the Barents since it was opened in 1980 and Statoil would work hard to deliver a strong application in the current 23rd licensing round, Rummelhoff said.

PROJECT BRIEFS

From the North Sea (NT): Development of EnQuest's **SCOLTY** and **CRATHES** (SEN, 31/16) discoveries as satellites to the *Kittiwake* field in what is now known as the *Greater Kittiwake Area* (*GKA*) in the UK sector should be relatively straightforward.

Each field will have one horizontal subsea well, which will be gas-lifted. However, as both reservoirs have strong aquifer support, no water injection will be required.

Each well will be tied into a mini-manifold. A reeled 8in production flowline will run 9km from *Scolty* in 21/8a to *Crathes* in 21/12c-13a and then a further 16km to *Kittiwake*, where the wellstream will access the platform through a new riser.

Lift-gas will be supplied through a 4in pipeline. Due to space constraints on the platform, redundant drilling equipment will be removed to make way for the *Scolty/Crathes* equipment.

The fields are due onstream in July 2017, with a peak combined flow of 20,000b/d. By 2018, however, production will have dropped to an average 14,610b/d. Production is expected to continue for 10 years.

According to the output projections, which actually run to 2032, combined P10 reserves are somewhat in excess of 18mmbbl.

From the North Sea (NT): A bright future is foreseen for Norway's northern areas by Rystad Energy.

The consultancy predicts that by 2040 these areas – the **BARENTS SEA** and **NORTHERN NORWEGIAN SEA** – are likely to be responsible for the bulk of the country's oil and gas production.

By 2030, Rystad suggests, capex and opex could soar from NOK30bn to NOK170bn ($25.4bn) with nine production hubs in place – *Snøhvit*, *Goliat*, *Alta/Gohta*, *Johan Castberg*, the Hoop area and Barents Southeast in the Barents, and *Aasta Hansteen*, *Norne* and *Skarv* in the northern Norwegian Sea. In fact three already exist and two are currently under development.

The most eye-catching claim in the report is that break-even prices of $60-70/bbl can be achieved. This reflects some advantages found in the Barents, such as large finds – *Castberg* is estimated to contain up to 600mmbbl - with shallow reservoirs dampening drilling costs. Standardisation of equipment and the establishment of local support capacity will help push costs down.

A big volume at *Castberg* (SEN, 31/11) has not prevented Statoil from delaying the project for a year while it seeks to make 25% savings, and *Goliat* (31/16), which is running 50% over budget, is hardly setting an encouraging example.

The licencees on the **APHRODITE** (30/14) gas prospect, offshore Cyprus, have re-evaluated drilling data and upgraded reserves in place to 125-130bcm. Plans are now moving towards a joint development with the bigger Israeli **LEVIATHAN** (31/14) find.

Meanwhile old enmities between Greece and Turkey have re-surfaced with the former telling the latter to allow Cyprus to get on with developing its offshore resources without provocation. Turkey does not recognise Cyprus and no one but Turkey recognises North Cyprus as a separate political entity.

Nexen, aka CNOOC, has announced first production at **GOLDEN EAGLE** (28/22) in the UK from platform wells, while it continues to work on the tie-ins of the *Peregrine* and *Solitaire* subsea satellite fields...EnQuest is upgrading the subsea water injection system on its **DON** complex in UK waters.

From Houston (BN): Technip has landed a contract to fabricate and install the riser base gas lift system at Anadarko's **K2** (26/6) project in Green Canyon block 608 in the Gulf of Mexico. Water depth is about 1,300m.

SEN Online Glossary of Terms - click here

The contract covers design, fabrication and installation of two plems and four plets; installation of flowlines, jumpers and associated hardware; installation of one dynamic umbilical; precommissioning of flowline and umbilical gas lift system.

Technip expects to do the installation in the H2 2015 using its vessel *Deep Blue*.

From Australia (RW): McDermott International has won a three-year contract from Shell Petroleum to install pipelines and umbilicals for the **CHAMPION** and **AMPA** oil fields, offshore Brunei.

The initial work involves transportation and installation of about 100km of pipelines, including corrosion resistant alloy-clad lines as well as umbilicals and cables.

The company will use derrick barge *DB30* along with other commissioned vessels to support the program. It will move on to hydro-testing, pre-commissioning and the salvage of redundant risers.

Champion has complex geology and has been in production since 1972. Earlier this year McDermott was involved in transport and installation of four jackets for the field's waterflood B2/3 development. The water injection program aims to increase the field's recoverable reserves by 200mmbbls.

GE Oil & Gas has begun manufacturing **SUBSEA WELLHEADS** in Nigeria for the first time. It has invested $4.5mn in new facilities and recruitment at its Onne plant.

TULLOW OIL, like many other operators, is reviewing upcoming activity. It has reduced its exploration budget for 2015 to $300mn and plans to allocate no new funds to existing finds in Mauritania and French Guiana.

From Australia (RW): The Cairn Energy-led group has made a second oil discovery offshore Senegal with the **SNE-1** wildcat.

Partner FAR reported that the well encountered a 95m gross oil-bearing column with a net pay thickness of 36m in the Albian sandstone reservoir. High quality 32°API oil was recovered at the surface, but further information has been withheld by operator Cairn which has declared it a 'tight' well.

SNE-1 is in 1,100m about 100km offshore in the Sangomar block. Drilling is continuing to explore the potential in deeper horizons.

The find follows last month's oil discovery in the nearby *FAN-1* well to the north that intersected a 500m gross oil-bearing section in multiple stacked clastic reservoirs.

The two wells are the first to be drilled in deepwater off Senegal in 20 years. Both have significant follow-up potential.

The results from these two wells will be used to decide optimal follow-up drilling locations and determine the extent of the oil accumulations. Next round of activity is scheduled for 2015.

Cairn operates (40%) for ConocoPhillips (34%), FAR (15%) and Petrosen (10%).

FLOATER NEWS

OIL PRICE BLUES: PREMIER GOES SMALL AT *SEA LION*

Premier Oil has backed off plans for its first big international deepwater development by pulling the plug on plans for a tension leg platform for its *Sea Lion* project, offshore the Falklands Islands (SEN, 31/11).

With the oil price in freefall, it does not seem like a good time to be risking all on such a logistically difficult development which would involve transporting a large structure like a tlp to the south Atlantic.

Premier has decided to opt for a smaller, phased development based on an fpso with a smaller well count than originally planned. The company told SEN this week that it projected the first oil cost at 'below $2bn' compared with at least $2.2bn for the original tlp-based scheme.

It is believed that Premier has picked up some knowledge of fpso's based on the work it is doing for its *Catcher* (31/10) development project in the UK. The projects have similar forecast production of 50-60,000b/d.

There are likely to be additional wells drilled post-first oil with the cost of those wells not included in this figure.

The big saving will be on drillling. The initial concept would have seen more than 35 wells, while the revised figure is now a more modest 13 wells.

The new scenario will aim to develop the northeast sector of the field with the aim of producing 160mmbbls of oil - roughly half of the reserves in that area - over 15 years.

The company is keeping its cards close to its chest on future scheduling. It has thrown the fpso based FEED back to contractor Xodus, but would only say that it would expect the field centre construction would take three years compared with four for the tlp. It is still looking at a first oil date of 2019.

Premier and partner Rockhopper Resources expect the cost of the next phase - around $675mn - to be shared with Rockhopper retaining its development 'carry'. Premier says it has funding in hand for its portion, while Rockhopper said 'it will continue to review alternative funding sources'.

The partners agree that reducing the size of the project means that a farm-in partner is not necessary, although Premier has said it will continue to look for one.

From the south Atlantic has come a report that the government of the Falklands has taken note of the change of plans and has been quoted as saying that it appears to be 'a realistic solution' in light of the ongoing changes in the price of oil.

None of this uncertainty has dimmed the interest in finding more reserves here. At least a half dozen spuds are planned for next year in the North Falkland Basin.

FLOATERS TO LEAD GOM PRODUCTION SURGE

From Houston (BN): UK-based analyst Wood Mackenzie has forecast a surge in deepwater production in the Gulf of Mexico to 1.9mmb/d by 2016, off the back of a bunch of new floater projects coming onstream.

Output hit 1.8mmb/d in 2010 but fell back by 0.5mmb/d in 2013 after BP's big oil spill. WoodMac says startup of LLOG's *Delta House* (semi), Anadarko's *Lucius* (spar) and *Big Foot* (tension leg platform) and the expansion of *Thunder Horse* (semi) and *Mars* (tlp) will lead the way.

Deepwater output will then plateau with just eight additional developments coming onstream in between 2017 and 2020 compared with 15 from 2014 through 2016. Technological advances will be required to prevent a return to declining production by 2021 as some of the biggest fields start heading toward depletion.

Hess' *Tubular Bells* (SEN, 31/2) development in the GoM has started production via Williams' *Gulfstar One* floater, anchored in Mississippi Canyon 724. The three-deck spar, sited about 217km southeast of New Orleans in 1,310m, is capable of processing 60,000b/d and 3.7mcm/d.

Hess expects to be producing from three wells by year end in the multi-block unit anchored around MC725-726. In addition to Tubular Bells, Williams has agreed to a two-well tieback from Noble's *Gunflint* (31/4) project in MC948, about 27km southeast of *Gulfstar One*. The field is in 1,860m about 250km southeast of New Orleans. It is set to start up in mid-2016.

Noble has won conditional approval of a plan to drill 13 wells between 2014 and 2026 at *Gunflint*, aiming for a mid-Miocene trend and 30°API oil.

SBM Offshore has reported that conversion of a vessel into the fpso *Turritella* for Shell's *Stones* (30/16) project in the GoM is on schedule at Keppel Singapore. *Stones* is set for startup in 2016.

FLOATER BRIEFS

It has been difficult to get Shell to say anything about the upcoming redevelopment of its **PENGUINS** (SEN, 30/12) field in the UK sector to the north of *Brent* complex. Now we know more.

Circular fpso specialist Sevan Marine has done two phases of pre-FEED work on the project with FEED work due to begin early next year. As a subsea development, *Penguins* currently produces 65km to a *Brent* complex platform which will be abandoned long before *Penguins* finishes producing.

Sevan which was seen as possible supplier of an fso for *Sea Lion* (see Floater News) might now might be thinking fpso in a revised scheme. Its hulls which do not require a turret, because they do not weathervane, could be a good concept for this harsh South Atlantic location.

Premier is familiar with the design as Sevan is also doing FEED for its *Bream* (31/13) prospect in Norway.

From Australia (RW): The lower turret for the **ICHTHYS** (31/15) project's condensate fpso has been inserted into the hull at the Daewoo shipyard in South Korea.

Built in Singapore, the 31m 4,200t turret is a major feature of the vessel. Almost everything that enters or leaves the fpso will do so through the turret via chemical injection lines, transfer lines or control and power cables that provide the vessel with fluids, gas and power from the nearby central processing facility.

The turret will also provide the vessel with its mooring hub as the mooring lines connect directly to the turret. This will enable it to weathervane around the turret and withstand cyclonic weather conditions.

A manifold and gantry frame will now be added to complete the structure, making it one of the biggest in the world at 85m in height and more than 8,700t.

The fpso is 336m and can store 1mmbbls of condensate extracted from the gas flow at the central processing facility. It will have accommodation for a workforce of 200 people.

From the Editor: McDermott has also delivered the 6,500t 100m tall riser support structure to Inpex for the project. This will sit on the seabed near the semi production unit and will support a 125m arch for the risers.

McD is due to deliver flets, inline tees, manifolds and riser bases to the project, all built at Batam Island in Indonesia.

From the North Sea (NT): BP hopes to have its **SKARV** (29/20) fpso back onstream this month after production was halted by a short-circuit in a transformer on 2 November.

Production had anyway been reduced since September, when it was down by nearly 40% to 99,000boe/d, due to a fault in a riser valve making gas injection impossible.

Mitsubishi Heavy Industries and Chiyoda Corp have come up with an concept for a **GREEN FPSO** which would have a process system designed to deal with H_2 and CO_2, separated from produced gas, in an environmentally friendly way.

The hydrogen would be converted into a stable liquid compound (MCH) and be transported for use elsewhere, while the carbon dioxide would be reinjected for use in an EOR process.

The new concept has already received approval in principle from Japanese classification society ClassNK.

Cobalt International expects to make awards for its **CAMEIA** (31/4) project, offshore Angola, in Q1 2015 including the fpso, subsea hardware and structures and SURF...Ophir Energy has named Excelerate Energy as 'midstream partner' for its **FORTUNA** (31/15) floating LNG project, offshore Equatorial Guinea upstream and midstream FEED contracts to be awarded late this year or early 2015. Project sanction is due in 2016...BMT Scientific Marine Services will maintain the integrated marine monitoring system it supplied to ExxonMobil for its two **KIZOMBA** field tension leg platforms...GE Oil & Gas will supply the compressor train and associated equipment for Petronas' second **FLOATING LNG** vessel.

TECHNOLOGY

OGIC PROPOSES WELL INNOVATION CENTRE

From Aberdeen (IF): A new centre for well innovation (CWI) could make its way here.

The facility is being proposed by Ian Phillips, CEO of the newly-established Oil & Gas Innovation Centre (SEN, 30/23). CWI would be involved in early R&D activity, such as looking at the physics of drilling. It could focus on areas including construction, data acquisition, exploitation wells, well maintenance and monitoring.

CWI is expected to involve cross-industry collaboration and could come under the wing of the innovation centre (OGIC).

Oil industry veteran Phillips told SEN he is currently seeking industry and government views on CWI and, following feedback, a decision will be made by Easter on whether to pursue the proposal. If there is a thumbs up, it could be launched by the end of 2015.

He would like to see CWI based in Aberdeen, but it would also use facilities elsewhere, such as universities in other UK cities. It would focus on the North Sea, but its technology could eventually be exported worldwide. Phillips envisages CWI having a budget of £30mn – one third coming from government, with the remainder from industry.

Meanwhile, OGIC says it is already having an impact on accelerating new technologies to support the North Sea industry.

At its official launch last week, OGIC revealed that it now has its first approved and funded projects coming onstream and is in discussion with more than 50 companies regarding technology development opportunities.

OGIC says it provides a single access point to the Scottish universities for the industry. It can also part-fund and provide management support to projects with the potential to deliver technology solutions to the E&P and decommissioning challenges facing the UK Continental Shelf.

It links around 2,300 operators and service companies to more than 450 academic researchers working in related areas.

Many of the 100 technology development projects which OGIC aims to support in its first five years will have North Sea applications and export potential.

Scottish Energy Minister Fergus Ewing said OGIC 'will transform the nature of collaboration between industry, government and academic partners.'

CEO Phillips said the centre had been established to fill a need for 'a matchmaking service' to bring ideas and best-in-class academic resources together to get new technologies to the market quicker.

'Innovation is now one of the major priorities for the oil and gas sector locally and globally in order to maximise return from existing assets and to bring new, more challenging reserves into production,' he added.

TECH BRIEFS: Flow measurement specialist NEL says that poorly calibrated **MULTIPHASE METERS** are costing North Sea operators millions of pounds every year.

NEL says that calibration using live fluids is not as consistent as using refined oil which is more stable. The testing agency switched using refined oil in its multiphase flow loop testing set up. The inaccuracy of calibration in a meter could cause mis-measurement valued at up to $36mn per year for a well equipped with a single multiphase meter..

Classification society ABS is to develop **SUBSEA PIPELINE DESIGN CRITERIA** under contract from Hyundai Heavy Industries which also includes training. The criteria will be a supplement to its existing guide on subsea pipelines and will include guidelines on upheaval buckling and stability analyses.

Technology support organisation ITF has issued a wide-ranging **CALL FOR PROPOSALS** for the development of innovative technology for the oil and gas industry. For more information, go to the ITF website or email m.stone@itfenergy.com.

POLICY AND POLITICS

DIRTY LAUNDRY - OR UNDERWEAR - IS OUT IN THE OPEN IN BRAZIL

From Houston (BN): If you want to do business with Petrobras, beware of Brazilian women hiding cash in their underwear.

What surfaced last March as an investigation of money-laundering and bribery - and included the arrest of a female money dealer whose intimate attire included €200,000 - has exploded into a nightmare for Petrobras.

This week, Brazil's state-controlled oil company announced it will delay releasing unaudited 3Q 2014 results until at least 12 December and offered no target date for audited results.

The delay is needed to adjust financial statements for suspected overpayments to fund bribes to government officials and kickbacks to Petrobras executives. Meeting the new target is important to avoid debt covenant defaults. Prominent among projects affected by the colorfully named 'Operation Car Wash' is the over-budget, behind-schedule Abreu e Lima refinery and there have been hints offshore departments could be involved.

In freefall

Petrobras' stock, which peaked at $20.65 on the NYSE on 2 September, fell to $8.95 at the close Monday. The company's bonds have also been downgraded. In a conference call with analysts this week, CEO Maria das Gracas Foster and other executives faced questions about Petrobras' ability to meet deadlines on its huge debt and to keep borrowing to fund the pre-salt expansion.

Of interest is whether capital expenditures will change. The best executives could say was that they will try hard to right the ship and keep going. But they acknowledged that they do not completely control unfolding events.

Foster said the company is committed to fix its governance and compliance shortcomings and recover misappropriated funds. She said Petrobras has taken more than 60 steps to tighten controls and has hired two law firms to investigate wrongdoing.

Brazil's largest newspaper, Folha de Sao Paulo has reported court testimony by a former Petrobras director of supply that 12 senators, 29 deputies and a governor received kickbacks money from Petrobras. Folha also reported that companies under contract to Petrobras made suspicious payments into a Swiss bank account controlled by the scheme's ringleader. Reportedly, 18 people have been arrested and 11 companies raided.

And there was more bad news as a report from Morgan Stanley has suggested that Petrobras might have to take a writedown of up to $8bn on some of its assets as a result of the ongoing investigation.

Mea culpa

Meanwhile, SBM Offshore, a key supplier of fpso's, announced it reached an out-of-court settlement with Dutch prosecutors over 'illegal payments'. SBM will pay a $40mn fine and disgorge $200mn for improper payments overseas. The confessed payments were to sales agents and government officials in several countries from 2007 through 2011, including $139mn in Brazil.

SBM also said the US Department of Justice is dropping its related investigation in line with the OECD treaty barring double jeopardy within the zone. Brazil is not an OECD member and SBM officials said they would keep cooperating with Brazilian authorities.

Interestingly, SBM says Brazil's criminal law does not allow fines against corporations, though civil penalties are possible. In a statement SBM said it 'will soon reinstate its dialogue with Petrobras about the future of their relationship.'

Buried by all of this bad news were some upbeat Petrobras tidbits: oil production set a new record at 2.126mb/d in October. The November startup of the aforementioned $18.5bn 230,000b/d refinery is underway with a second train due to begin operation in May. And finally, startup of fpso *Cidade de Mangaratiba* at *Iracema Sul* field is three weeks ahead of schedule.

WOMEN REMAIN A RARETY IN THE OIL AND GAS SECTOR

From Aberdeen (IF): Efforts to encourage more women into the oil and gas industry are not yet working, it has been claimed in a recent survey.

The situation was revealed in the latest global workforce survey published by OilCareers.com and Air Energi.

Employees and hiring managers in every region around the world still perceive the industry as being male-dominated with survey responses highlighting that this masculine perception is a problem. Nearly half of employees and 53% of hiring managers reported that a culture created by a male-dominated environment was a contributing factor to the gender imbalance.

Skills gap

OilCareers.com managing director Mark Guest said, 'Given the chronic skills gap...the last 12-18 months has seen many companies waking up to the fact that there is a distinct lack of women joining the industry.

Guest said there was a need to encourage young women to study the STEM (science, technology, engineering and mathematics) subjects at school, but this will only impact the industry in the future.

'There are many women around the world who already have related business, science or engineering degrees and still don't consider oil and gas as a career option. This really needs to be addressed for the long-term good of the industry,' he said.

Air Energi CEO Duncan Gregson said the masculine image and perception of the industry pervades every region and this is a crucial barrier in the minds of many women.

'By...improving the scope and measurement of internal company initiatives, it is possible that we will start see a shift in the number of women coming into oil and gas at all levels of seniority. In short, someone in every company needs to be accountable for these initiatives,' he added.

Many companies have chosen to address the gender gap through recruitment quotas. But not even half of hiring managers who knew their firms had an active policy to encourage hiring more women could say for sure whether this policy was effective.

'Organisations cannot half-heartedly seek to recruit more women...while at the same time complain of a chronic skills shortage,' Guest said. 'The industry has to take an all-encompassing view to successfully address it.'

OGA ACTION NEEDS FURTHER LEGISLATION

From the North Sea (NT): The Wood report into the future of the UK North Sea (SEN, 30/23) has been widely welcomed, but it will be some time before its recommendations are fully implemented, it became clear at a conference with DECC input last week.

The new regulator, the Oil & Gas Authority (OGA), takes office on 1 January, but will only be endowed with full powers once the necessary bill has passed through Parliament next year. In the interim, the body will be referred to as an agency.

When fully set up, with a staff of 150, OGA will be empowered to lay down the law, for example, in resolving disputes over access to infrastructure. It will also monitor companies' performance and issue formal warnings, privately and then publicly, when companies are not showing proper stewardship of assets. This is an area that has to significantly improve, the meeting was told.

A new collaborative approach is needed, according to Wood, but the mindset built up over 50 years is showing little sign of change. Adopting the Wood way should lead to greater recovery, so the pie should be bigger for all.

Work is already under way on problem areas such as why exploration returns have been so poor of late – a study of well results in the central North Sea is to be carried out – and on strategies for improving performance through cooperation, such as decommissioning and a regional approach to development.

Meanwhile the industry hopes the government will be receptive to the wish-list of proposed tax changes in the current fiscal review: a cashable tax credit for exploration, a phased reduction in the PRT rate to zero to promote investment in late-life assets, a single investment allowance to replace the complex system of field allowances and a reduction in the headline rate of tax to 50%. It is acknowledged that Treasury ministers, while accepting the need for reform, have made no commitment to easing the tax burden. Attention is focused on Chancellor George Osborne's December statement.

Total's *Laggan-Tormore* (31/16) fields, west of the Shetlands are heading for start-up at the end of Q1 2015, nine months behind the original schedule. All offshore work has finished, but the Shetland Gas Plant is only 88% complete, due to adverse weather and contractor problems. Two wells have been completed and another two will be ready at start-up. Well productivity will be 3.3mcm/d.

Negotiations are under way to put gas production from Chevron's *Rosebank* (30/19) development through the *Laggan-Tormore* export line. That could save costs compared with the current plan of building a 236km line to deliver gas straight into the *SIRGE* pipeline east of the Shetlands.

POLICY BRIEFS

From Houston (BN): BP has asked a US federal judge to limit its maximum pollution penalty to $3,000/bbl rather than $4,300/bbl proposed by the government in the ongoing aftermath of the **MACONDO** accident and oil spill (SEN, 31/13).

Depending on a final determination of spill volume, the difference could amount to more than $5bn. The request comes as District Judge Carl Barbieri prepares for the third and final phase of BP's trial, due to start in January, which will determine the company's total civil penalty under anti-pollution law.

BP's latest legal gambit arises from the judge's finding, after phase one of the trial, that BP was 'grossly negligent' in the April 2010 spill. That level of culpability exposes the company to the maximum per-barrel penalty allowed by law under Environmental Protection Agency regulations. BP argues that Congress set the maximum at $3,000/bbl in 1990 when it passed the Oil Pollution Act.

The judge has not announced his decision on how much oil spilled (the subject of the trial's phase two), but whether he leans toward BP's 3.26mmbbl estimate or the government's 4.19mmbbl, there's a lot at stake.

More bad news from the BP spill: Scientists meeting in Brownsville TX expressed alarm that the spill sharply slowed what had been an accelerating recovery of the endangered Kemp's Ridley Turtle, Texas' state sea turtle. According to reports, the meeting was held a year earlier than planned due to the speed of the population decline. Who knew Texas had a state turtle?

From Aberdeen (IF): The chair of the UK's Health & Safety Executive says there is a tendency in the oil industry to focus on **FAILURE**. Judith Hackitt told the 2014 Oil & Gas UK Awards in Aberdeen a fortnight ago that the industry leads in worker engagement with the elected safety representatives system, as well as the new workforce engagement support team. She said these are excellent ways of engaging the whole workforce in managing risk.

'But we all need to constantly adapt. There is a changing demographic in the...industry as smaller companies emerge in the market. These smaller companies bring fantastic innovation, which these awards recognise, to the industry. Contractors now employ 85% of the workforce,' added Ms Hackitt.

The HSE chair said there is still a lot of learning for everyone to do - from one another and from good practices, as well as from current incidents.

'Aside from events like this one tonight which are about celebration, there is a tendency to focus on failure and to focus too much on specific detail,' she said. 'We need to be looking for and learning the broader lessons, which are there to be learned about the systemic and cultural improvements we can make to our organisations rather than living with poor communications and a workforce operating under stress and pressure.'

From Houston (BN): Is bidding for **EASTERN CANADA** offshore leases slowing? After the latest offering of Nova Scotian offshore blocks went begging, Newfoundland-Labrador has also come up empty. C-NLOPB's Call for Bids NL13-03 (Area B – Western Newfoundland and Labrador Offshore), which closed last week, drew no bids for four parcels offered. Nova Scotia Offshore Petroleum Board earlier said its Call for Bids NS14-1, which closed at the end of October, also drew no bids on Scotian Slope parcels out to 4,100m (31/16).

BUSINESS

FMC JUMPS IN WITH BOTH FEET ON LOCAL CONTENT

Local content (LC) is an issue that is not far from the thoughts of any oil company or contractor involved in the offshore sector, most notably in West Africa and Brazil.

The operators need to meet requirements which means they have to scrutinise what suppliers and contractors are doing when they review tender documents.

FMC Technologies has been involved in the growth of West African deepwater sector since Total's first big project - *Girassol* - nearly 15 years ago now.

For the first time, the subsea hardware market leader is engineering, manufacturing and assembling subsea xmas trees in Nigeria - for Shell's *Bonga Northwest* (SEN, 31/10) subsea tieback project. All ten of the trees will be produced at its facility in Onne with engineering done in Lagos.

This is just a warmup, though, for its biggest ever contract in West Africa for Total's *Egina* (31/16) development on which 44 subsea trees will be supplied.

This is happening elsewhere as well. Although Angola will be producing 2mmb/d at some point this year, Ghana is seen as being more advanced in manufacturing.

The second big deepwater project there - Tullow Oil's *TEN* (31/15) fpso development - is expected to be a transformational one for Ghanaian society with much project work expected to be done in country. FMC is expanding its facility in Takoradi to be ready to handle manufacturing and assembly of subsea xmas trees.

There are other sectors - both in West Africa and East Africa - where such facilities could be developed and FMC is looking to build capability ahead of demand in order to meet the requirements of international operators and the national oil companies.

With more local facilities, FMC's main plants in Houston and Dunfermline, north of Edinburgh, will focus more on closer markets. And while having local facilities do present 'challenges', the advantages in term of lead times and logistics offsets some of these.

OIL PRICE HIKE AND TOUGH TRADING HITS GRANITE CITY

From Aberdeen (IF): The strength of the oil industry has insulated Aberdeen from much of the economic woes which have hit other parts of the UK, but a big wave of belt-tightening has now begun here.

BP is the latest big player in Europe's oil capital to launch a cost-reduction exercise brought on by rising costs and toughening market conditions.

Service companies as well as operators want to trim expenditure and jobs are already going at various firms across the Granite City.

The pace of job losses could increase if the oil price falls further. This could have a major impact on the local housebuilding industry, which has been very buoyant in recent years.

New offices have also been springing up all around Aberdeen, but there could now be a large oversupply if the oil price situation worsens.

In its latest Scottish property review, Ryden reports that the office market in Aberdeen has turned and it has seen a relatively poor six months of take-up.

'The recent high level of activity in Aberdeen will be curtailed by lower oil pricing and we are likely to see a quieter period ahead in the short term,' the company has reported.

But Ryden says the medium to long-term prospects are still positive.

The firm is more upbeat about the Aberdeen industrial premises market, however, reporting strong demand.

From the Editor: The British Chamber of Commerce has called on the government to take the issue of energy security more seriously including having a more focussed interest in the oil and gas sector.

The BCC called on the Chancellor of the Exchequer George Osborne to reduce the tax rate for the sector in order to increase business confidence and give offshore licencees the view that they can get a good return on their investment.

Meanwhile, Oil & Gas UK has announced two projects aimed at stimulating exploration in the UK North Sea.

The first is a government funded study of all Central North Sea in the last decade. This area is deemed the most prospective in the sector. This is also a British Geological Survey study of the Palaeozoic potential of the UKCS based on data from operators.

AUSSIE MINNOWS TO MERGE

From Australia (RW): Australian minnows Neon Energy and MEO Australia have decided to merge into a 50:50 new entity.

It will be an all-scrip deal where MEO shareholders will exchange each of their shares for 0.74 Neon shares.

The deal will give Neon access to a wider portfolio, while MEO gains access to more funding. Neon had A$19.6mn in cash at the end of the Q3. The company also has an exploration permit in the Dampier Sub-basin off Western Australia. Neon recently withdrew from Indonesian and Vietnamese licences. MEO's permits encompass Asia Pacific, including New Zealand, Western and Northern Australia and Indonesia.

The boards of both companies have recommended the merger to shareholders. Pending approval, the merger is due to occur in late January-early February next year.

In other business news, Chinese company Fosun International has closed its takeover bid for Roc Oil (SEN, 31/13) after receiving acceptances 92.5% of shareholders. Fosun is now entitled to compulsorily acquire the remaining shares.

Singapore-based Ezion Holdings has sold its marine supply base business to construction-maintenance firm AusGroup for A$49.4mn. The deal involves Ezion's offshore logistics hub and Teras Australia business, formed in 2011 to expand Ezion's geographical footprint in Australia to support the industry.

Ezion is a 17.8% shareholder in AusGroup and has acquired 110mn share options in the company at an exercise price of 37¢/option.

Ezion says the consolidation of its supply base business into AusGroup will enable it to focus on rig servicing while continuing to participate in the marine base sector.

BUSINESS BRIEFS

From the North Sea (NT): The price of **OIL** continues to decline with both Brent and WTI below $80/bbl this week.

That's 30% below June's peak, but it seems the rout still has some way to go. According to the International Energy Agency, downward price pressures could continue building through the first half of next year.

Production growth is outpacing demand, despite expectations of an improving global recovery. China, once the demand champion, is now in a less oil-intensive phase, while Saudi Arabia, formerly Opec's swing producer, is now determined to defend market share. All eyes will be on the 27 November OPEC meeting, but there appears to be no clear consensus on a supply cut, says the IEA.

There has not been a bigger oil service sector deal than this week's acquisition of **BAKER HUGHES** by **HALLIBURTON** with an equity value of $34.6bn or $38bn if you understand what 'enterprise value' means.

What seems striking is that management of these companies think that this is a good deal for customers. Right. It might be good for BH shareholders who got a 40% premium on their shares and it will eventually be good for the new merged entity, but not customers. No matter how 'complementary' their businesses are, there will be less competition.

One other side issue - for those in the subsea world - is what effect this will have on the recently formed Subsea Production Alliance aka BH and Aker Solutions. AkerSol does not seem unhappy about the deal as it sees an even bigger partner with a bigger customer and extensive product portfolio.

Not much could push this deal off the top spot, but there is other action around the marketplace. Most intriguing is Royal Westminster Boskalis stalking **FUGRO**. This is an all Dutch affair and they are probably going to discuss it over a glass of genever, a piece of 'oud gouda' and a few herring.

Fugro was not amused when RWB announced it had acquired a 15% stake and said the two companies would 'fit together well', even though it later said it has no intention of making an offer for its compatriot. The target called the stake building 'unsolicited and unexpected.' It did, though, suggest that it would be happy to 'explore partnership options for the subsea division'.

From the North Sea (NT): Rosneft and North Atlantic Drilling have agreed to postpone completion of their $4.25bn **RIG DEAL**, due to be signed this month, until May 2015.

The deal, involving long-term contracts for a drillship, two semis and three jackups, was signed in late July just before sanctions were introduced by the US and EU restricting technology and services to Russia, including drilling in Arctic waters (SEN, 31/10).

As a subsidiary of NY-listed Seadrill, NAD is subject to sanctions and Washington has decided they will be applied retrospectively. The first contracts are believed to come into force later next year, so they may yet be reinstated without changing the timing.

Technip is to invest €68mn in upgrading its main **FLEXIBLE PIPE PLANT** in Le Trait in France. The modernisation programme will include installing new-generation winding machines and replacing existing 9.6m storage reels with 12m reels which double the capacity of each reel.

RESULTS: **Oceaneering** reported record quarterly earnings of $973mn up 5% led by rov and products-tooling...**Technip** had order intake of €2.2bn for Q3 and revenue of €2.8bn up 18% with backlog up 30% from the same period last year...**Subsea 7** said Q3 revenue was up over 20% from 2013 including recovering $40mn from its writedown on *Guará-Lula* riser buoy project, but backlog was down 20% to $9.4bn...**Aker Solutions** reported sales up 22% and margins up 20% and backlog up 25%, although order intake was down 30%.

Editor: Steve Sasanow. *Correspondents:* Ian Forsyth (Aberdeen); Rick Wilkinson (Australia); Bruce Nichols (Houston); Nick Terdre, John Sheehan (UK).

SUBSEA ENGINEERING NEWS (ISSN 0266-2205) is published twice monthly by Hart Energy Publishing LLP, Houston TX, USA. Editorial office: Knighton Enterprises Ltd, PO Box 27, Cheltenham GL53 0YH, UK; telephone: +44 (0)1242 - 574027; fax: +44 (0)1242 - 574102; e-mail: sen@btinternet.com; web-site: *www.subsea-news.co.uk.*

2014 annual subscription: £425 + VAT (where applicable), $675 USA. For multi-user subscriptions, contact us or check the website. Credit cards accepted subject to charges.