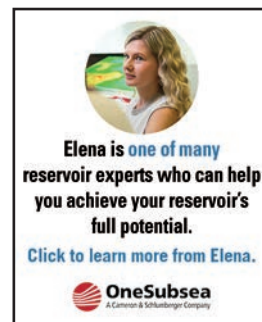


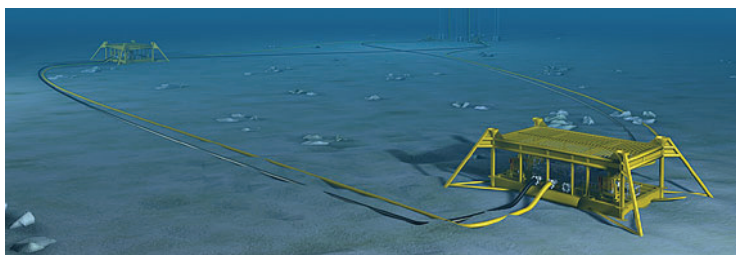
SEN

SUBSEA ENGINEERING NEWS

(with DEEPWATER INTERNATIONAL)



Lessons Unlearned, Attitudes Unchanged



Subsea water injection on Heidrun.

From London (SS): The offshore industry in general—and the subsea sector in particular—have yet to take onboard the changes in attitudes and behaviour that are necessary to cope in the current low-price, high-cost environment, a joint Subsea UK-SUT conference on subsea integrity and efficiency heard.

The main fingerpointer was Alex Hunt, ever the game-keeper turned poacher. Hunt spent most of his career working for big oil companies, Texaco and BG Group in particular, on technology and R&D.

Now as a consultant in this sector and elsewhere on the R&D process, he has a clear view of what the industry is not doing and lays much of the blame at the feet of the operators.

One of the main problems is that companies use terminology that means different things to different people. For example, he said that while “cost reduction” might mean cutting capex and opex to some, to others it simply means reducing head counts.

Companies should really be talking about increasing efficiency, he said, by reducing schedules and doing more with less.

There is also a conflict of priorities between operators and the supply chain. The operator, i.e. the customer, wants value for money, while the suppliers want to gain from providing equipment and systems in volume to reduce costs.

One problem that has reared its head over many years is the issue of “sharing.”

Operators don't want to share profits and even less want to share any “pain” in the contracting process, being quite happy to “pass it off” to the supply chain. Hunt said there needs to be more sharing of both.

And the dreaded “standardisation” issue reared its head once again. What the industry really wants or needs is not standardisation but replication.

It has been achieved to some extent by Statoil, which has used the same four-slot manifolds on its ongoing series of “fast-track” projects supplied by at least two different contractors and by Petrobras on its “replicant” FPSO units for some of its deepwater fields. Of even more importance, Hunt said, would be the use of standard contracts.

Every speaker wants to get at least one good chuckle, and Hunt got his when he mentioned collaboration.

He pointed out that the dictionary has multiple definitions: working with someone to achieve a goal and “traitorous cooperation with the enemy.” Some companies might just see it as thus.

Meanwhile, Neil Gordon of Subsea UK grasped the standardisation nettle saying that what the industry probably really needed is simplification.

While there is much focus on new technology on the production side, there was much talk here about various inspection technologies, notably for flexibles, which are very important with the U.K. in serious ongoing maintenance mode for its ageing infrastructure. TSC, Innospection and OMS all have something to offer the marketplace.

One technology that looks likely to grow in importance is seabed water injection, but Scott Wilson of One-Subsea said that it was important to lose the use of “raw water” when talking about such systems as it frightens some reservoir engineers who believe that untreated seawater will be injected into their reservoirs.

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FLOATERS

Appomattox to Test New Limits

From *Houston (BN)*: Shell said its **Appomattox** (*SEN*, 32/15) project in the Gulf of Mexico might present the industry with its hottest temperatures yet in deepwater offshore, and Shell and its contractors including FMC Technologies are developing equipment to meet the challenge.

The equipment will be rated to handle 204 C flowing at the seabed, a Shell spokeswoman said of Shell's latest Appomattox plan, conditionally approved and made public by regulators.

Appomattox and the nearby **Vicksburg** (32/14) discovery that will be tied back to it are in the Norphlet trend, known for HP/HT, with temperatures being the bigger challenge.

The spokeswoman said oilfield operators have safely managed temperatures above 176 C onshore and in shallow water but not in deep water.

So, to quote from the latest plan, the Appomattox project "will utilise certain wellbore and subsea equipment (including casing, tubulars, capping stack, completions, wellheads and trees) with temperature properties constituting an extension of existing, well-established oil and gas equipment and technology."

The filing also noted that "certain wellbore and subsea equipment and the marine riser could potentially change local water temperature within several feet."

But Shell said the effect on sea life will be minimal. Before the new equipment can be used, it must undergo third-party validation and win Bureau of Safety and Environmental Enforcement approval.

Pressures in the Norphlet are expected to be 15,000 psi or below, so the new equipment will be qualified to that level but not the 20,000 psi that is the latest "holy grail" of advanced subsea technology.

There's other news in the latest plan filed. It calls for 28 subsea wells, including two exploration, 19 development wells and seven injectors to be drilled between 2016 and 2020.

The original total was 15 producing wells and five injectors when Shell announced its final investment decision last July.

A separate Appomattox-related pipeline filing indicates the Appomattox floating production system (FPS) will tentatively be located in Mississippi Canyon Block 437 in 2,200 m of water about 260 km southeast of New Orleans.

And it will be served by six 10-in. production steel catenary risers (SCRs), two 10-in. water-injection SCRs, one 8-in. service SCR, one 12-in. gas export SCR and one 20-in. oil export SCR.

As part of last July's final investment decision announcement, Shell announced a new 24-in. pipeline dubbed Mattox would export production to an existing South Pass facility.

The existing line to be linked to wasn't named or specifically located, but there are candidates in SP Block 89. They include the BP-operated Endymion segment of the Mardi Gras system, which has a hub in SP Block 89, about 150 km west-northwest of MC 437.

Also from SP 89, a 20-in. gas line operated by Texas Eastern (Spectra) heads towards shore.

Shell in its July announcement disclosed a lot of other detail. The project will jointly develop Appomattox (MC 392, 391 and 348, discovered in 2010) and Vicksburg (in MC 393 and Desoto Canyon 353, discovered in 2013), with Appomattox the hub and Vicksburg the tieback.

The project needs a breakeven oil price of \$55/bbl at startup targeted for 2020.

Plans call for a four-column semisubmersible FPS with 175,000-boe/d capacity to produce the estimated 650 MMboe contained in Appomattox and Vicksburg.

Shell is still reviewing possible tiebacks from nearby **Rydberg** (MC 525, found in 2014) and **Gettysburg** (DC 398, announced last February) adding a potential 150 MMboe to the overall development.

Shell owns 79% of Appomattox and Vicksburg, and Nexen (CNOOC) owns 21%. Shell and Nexen are 80% to 20% partners in Gettysburg. Shell owns 57.2% of Rydberg, Ecopetrol 28.5% and Nexen 14.3%.

Goliat Subsea Power Link Complete

Eni's delayed **Goliat** (*SEN*, 32/11) Field in the Barents Sea offshore Norway has at least had some welcome news with the successful commissioning of the subsea power link for the project.

The \$6 billion Goliat project has been plagued by delays and cost overruns, but Eni still insists it will come onstream before year-end 2015.

The Goliat Field is the northernmost oil field in the world. It will process up to 100,000 bbl/d of oil and store nearly 1 MMbbl, which will then be transferred to shore by tankers.

ABB's high-voltage alternating current (AC) cable system will supply power from the Norwegian grid to the *Goliat* FPSO.

The 105.5-km subsea power cable system is the longest of its kind in the world.

ABB's high-voltage AC three-core cable system includes a 104-km-long static cable section on the seabed and a 1.5-km-long dynamic cable section.

The high power rating enables an increased energy supply, if needed, to provide power for additional fields in the future using the same cable system.



The subsea power link to Goliat has been commissioned.

The 75-MW, 123-kV capacity link will supply about 50% of the platform's electricity needs from shore, cutting CO₂ emissions by half as a result of reduced fossil fuel consumption in the gas turbines.

FLOATER BRIEFS

Noble Energy has brought BG onboard as it looks to develop its **Aphrodite** (SEN, 32/6) natural gas discovery in Block 12 offshore Cyprus.

BG has taken a 35% stake in the field for \$165 million and will bring its local knowledge as well as its technical, financial and marketing capacity to the partnership.

Plans call for an FPSO development, which would produce 8 Bcm/year and construction of pipelines to Egypt and Cyprus.

At the same time, the Block 12 partners also are exploring further options to develop Aphrodite, including as an integrated development with adjacent reservoirs in the Israeli economic zone, which includes the **Leviathan** and **Tamar** reservoirs.

J. Keith Elliott, Noble Energy's senior vice president of Eastern Mediterranean, said, "We are continuing to work with the government of Cyprus to finalise Aphrodite development plans. In conjunction with that work, we have recently commenced gas marketing efforts, primarily targeting customers in Egypt, including both domestic purchasers and underutilised LNG plants."

Meanwhile, Noble has sold its 47% interest in the **Alon A** and **Alon C** licences offshore Israel, which include the Tanin and Karish fields, to the Delek Group for \$73 million.

Octanex has moved forward another step on its **Ophir** (32/12) Field development project offshore Peninsular Malaysia with the award for the construction of a well-head platform to Muhibbah Engineering.

ABB's turnkey solution includes the design, engineering, supply, installation and commissioning of the cable system.

The dynamic cable section hangs in the water between the cylindrical FPSO and the seabed and has been specifically designed to withstand substantial mechanical stress and fatigue caused by currents, waves and the vertical movement of the platform.

An important feature of the solution is an innovative corrugated metal sheath for this section, designed to withstand the stresses imposed on it over time.

In the current downturn, the cost overruns have hurt the profitability of the project, with analysts at Citigroup saying the project needs an oil price of \$122/bbl to make it profitable.

"Goliat is not an example of the industry's finest execution," said Alistair Syme, global head of oil and gas research at Citigroup. "Assumptions they made were wrong, and now there is no question that Goliat is in the upper part of the industry cost scale."

The Ophir oil field in Block PM 305 is being developed via three production wells, a wellhead platform and leased FPSO vessel.

The Ophir platform will be fabricated at the Muhibbah yard at Klang, about 40 km southwest of Kuala Lumpur, before being installed in the field in third-quarter 2016.

A jackup drilling rig will then be mobilised to site and development drilling will begin.

The current schedule has the Ophir Field commencing oil production in late 2016.

From Australia (LB): Monadelphous has been awarded a long-term maintenance and modifications services contract associated with Shell's **Prelude** (32/17) FLNG project, valued at more than \$200 million.

The engineering firm will provide maintenance, brown-field modifications and turnaround services to the LNG process plant, support utilities, hull and nonprocess infrastructure including accommodation and control rooms.

The contract also includes the delivery of fabrication services from Darwin in support of offshore operations.

Monadelphous Managing Director Rob Velletri said the contract was of significant strategic importance to the company.

"Our successful history of delivering maintenance services to LNG facilities around Australia demonstrates our leadership in oil and gas maintenance and our capability to deliver a diverse range of operations and maintenance services for both onshore and offshore facilities," he said.



Monadelphus has grabbed a contract for work on *Prelude*.

With a number of FLNG facilities being considered for development around the world, Velletri said it was the company's long-term goal to become the partner of choice in the provision of FLNG services.

Prelude, which is being developed in the South Korean city of Geoje, will be the largest floating offshore facility ever constructed and will revolutionise the way offshore natural gas resources are developed.

The *Prelude* oil and gas fields are located in the Browse Basin, about 475 km north-northeast of Broome.

Only four floating production systems (FPS) have been ordered so far this year, but the Gulf of Mexico (GoM) is expected to lead a rebound in 2016, according to analysts Douglas Westwood (DW).

The area is expected to have as many orders next year as there were globally in 2015, and this positive upturn already has started with the Appomattox floating production semisubmersible being awarded in third-quarter 2015, the most expensive unit ordered all year.

A few years ago this would have been unthinkable, with interest in the deepwater GoM waning as numerous companies gave up their offshore acreage to focus on the shale market onshore.

Yet the declining oil price has, if anything, bolstered interest in the region.

A crucial point found in DW's new World Floating Production Market Forecast 2015-2019, fourth-quarter 2015 update, however, was that units ordered in 2016 will be significantly cheaper than those ordered before the downturn.

For the U.S., cheaper developments already were the norm due to smaller reserves, leading to a preference for "mini-FPS" developments. The downturn has seen even these costs slashed with the Mad Dog Phase 2 development that was uneconomical at \$110 per barrel being ready for a final investment decision in 2016, after numerous FEED revisions, despite the bleak oil price forecast.

Fugro has begun a significant survey over Ophir Energy's acreage in Equatorial Guinea (Block R) where the **Fortuna** (32/12) FLNG project is being developed.

Fugro has deployed three of its specialist vessels—*Fugro Searcher*, *Fugro Scout* and *Fugro Frontier*—to perform AUV surveys as well as geotechnical, environmental and met-ocean surveys.

The significant survey programme is taking place to the west of Bioko Island, where Ophir is planning a large FLNG installation and associated subsea structures.

Offshore operations are scheduled for completion in January 2016.

Fortuna sits within the Block R licence offshore Equatorial Guinea, which is located in the southeastern part of the Niger Delta complex. Ophir holds an 80% operated interest in Block R.

There have been seven commercial discoveries to date in Block R, five of which were made by Ophir. *Fortuna* is estimated to have 3.4 Tcf of gas. An FLNG development concept was selected because the gas discovered in Block R is biogenic and as a result is about 99% methane, with no contaminants or heavier hydrocarbons.

The *Transocean Arctic* semisubmersible has been booked by Det norske oljeselskap to drill four wells in the **Alvheim** area off Norway in a deal worth about \$45 million.

The contract covers the drilling of one exploration well (West Volund in license 150B) and three production wells (two wells in license 150 and one in license 203 / 088BS, respectively).

The *Transocean Arctic* is a harsh environment mid-water semisubmersible drilling rig also certified for drilling wells in the Barents Sea and under HP/HT conditions.

Ocean Installer will tackle its first contract offshore Nigeria after landing a deal to perform the offshore construction work on phase 1 of Panoro Energy's **Aje** (32/12) FPSO project.

The scope of work includes mooring buoy installation and hook up, flowline and umbilical installation.

Offshore operations will be carried out by the construction support vessel *Normand Vision* and begin in first-quarter 2016. Engineering for the fast-track project will be done from Stavanger, Aberdeen and Houston.

The aim for Stage 1 is to produce 10 Mbbbl/d through the reentry of Aje-4 as the first producer and Aje-5 as the second.

The development plan includes the use of Rubicon's *Front Puffin* FPSO vessel, which previously operated on the now defunct **Puffin** (31/10) Field in the Timor Sea. The vessel is undergoing modifications in Singapore.

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DEVELOPMENT

New Era Dawns for Penspen

Engineering and management services company Penspen will be revisiting work it carried out more than 20 years ago after winning an engineering study for the development of a field in the Niger Delta offshore Southern Nigeria.

The project will include an evaluation of the OML-122 field development, subsea gas pipeline and onshore central processing facility and the overall investment required for the project.

The study is being carried out as part of Project Dawn, a three-year development project worth \$1.2 billion that includes the construction of a pipeline network to deliver natural gas to the Escravos – Lagos Pipeline System, which was designed and constructed under the supervision of Penspen more than two decades ago.

The gas from Project Dawn will feed power plants and different industrial applications in Nigeria.

The project is one of several Penspen is focussing on in West Africa as it looks to increase its international reach.

Penspen Chairman Peter O’Sullivan told *SEN*, “I took over two years ago and since then we’ve been focussing on developing a global strategy for Penspen. We’re very much oil and gas focussed covering engineering from wellhead to storage tank to distribution and everything in between.”

He said the history of Penspen was very much in pipelines but that this was now broadening out with the acquisition of process engineering company DPS, bringing it FPSO processing equipment expertise.

He said the Middle East is also a target area for growth for Penspen, which has had an office in Abu Dhabi for more than 40 years. The Abu Dhabi office now houses more than 350 staff members.

“We are going to use this as a base to grow from in the United Arab Emirates, Kuwait, Saudi Arabia, Qatar and Oman as well.

“We target everything from national oil companies to international oil companies, and offshore is an area we are looking to grow in.

“We have brought some of the team from Aberdeen, where we have a lot of offshore and experience from the North Sea, to Abu Dhabi because we see this as a region where there will be demand for that.”

He said there was scope for the design of subsea pipelines and engineering FEED and detailed design for top-sides projects.

New reality

O’Sullivan said he expects projects to pick up in 2016 after this year’s downturn, during which the Abu Dhabi National Oil Co. cut its budget by 40%.

“Everyone I have spoken to expects the oil price to remain where it is for the next few years. This is the new

reality. There is a lot of consensus around that. Our clients are planning on that basis.

“2015 has been a transition year from the old world to the new in terms of oil price. Plans were revised because the year turned out to be a lot different to expectations at the beginning.

Next year [there will be] a lot more predictability in terms of what gets awarded and when. Work that is planned will get done,” he said.

But he said he was concerned over the future of the U.K. North Sea, which has seen a huge slowdown. “I worry about the North Sea where capital has evaporated,” he said. “Costs are high, the fiscal environment has changed three times in 10 years and there have been no big discoveries. The U.K.’s lack of predictability puts people off.”

Walter Drives Deep with Coelacanth

The third largest fixed platform has been installed in the Gulf of Mexico (GoM) for the **Coelacanth** (*SEN*, 32/15) project.

The installation of the 400-m fixed-legged platform marked a milestone for Walter Oil & Gas as it pushes closer to first oil in the deep Flex Trend.

Plans are for oil to flow from the field, which spans four blocks total in the Ewing Bank area, in mid-2016. The platform was built at Gulf Marine Fabricators yard in Ingleside, Texas.

Located at a water depth of about 362 m, the platform is the third largest fixed platform in the GoM trailing Shell’s *Bullwinkle* and BP’s *Pompano*, which stand at water depths of 412 m and 395 m, respectively.

“At the base, the main legs form the corners of a 100 sq m by 100 sq m, enough room for two football fields side by side,” the company said, adding the platform will be held in place by 14 piles.

Now that installation of the platform—designed to serve as a production host for other future discoveries nearby—is complete future plans include setting the rig on the platform this winter and completing the first well.

Walter will reenter and complete the 2010 discovery well and drill several more wells into the main Miocene 6,100-m sand oil reservoir. At this time, the company could not say how exactly many wells would be drilled in the next two years.

The Coelacanth platform is capable of producing up to 30,000 bbl/d oil and 1.68 MMcm/d of gas.

“The EW 834 Coelacanth project, despite significant obstacles, is a geologic, commercial and engineering success story, which will have a meaningful impact for years to come,” Jim Looke, Walter’s vice president of drilling and production operations, said.

Mozambique Deal Brings Development Closer



The *Deepwater Millennium* drilled off Mozambique for Anadarko.

Anadarko and its partners in Area 1 and Area 4 in the Rovuma Basin offshore Mozambique have signed an unitisation deal for the two blocks to bring a coordinated LNG development closer.

Under the terms of the deal, the **Prosperidade** and **Mamba** straddling natural gas reservoirs will be developed in a separate but coordinated manner by the two operators until 24 Tcf of natural gas reserves (12 Tcf from each Area) have been developed.

All subsequent development of the unit will be pursued jointly by the Area 1 and Area 4 concessionaires through a joint-venture operator (50:50 Anadarko and Eni).

“We appreciate the cooperation of the Government of Mozambique, Eni and our co-venturers in Offshore Area 1 for their collaborative efforts in achieving this Unitization and Unit Operating Agreement (UUOA), which

is fair, equitable and consistent with best industry practices,” said Mitch Ingram, Anadarko executive vice president, global LNG.

“We have already made tremendous progress advancing the natural gas resources in the **Golfinho** and **Atum** fields that are fully contained within our block, and with this UUOA, we also can expect to move the Prosperidade and Mamba straddling reservoirs forward more efficiently, while capitalizing on greater economies of scale.”


Anadarko also has reached a memorandum of understanding (MOU) with the Government of Mozambique to provide natural gas from its Mozambique LNG development for domestic use.

Under the terms of the MOU, Offshore Area 1 will provide initial volumes of approximately 50 MMcf/d per train (100 MMcf/d) for domestic use in Mozambique.


Anadarko said the natural gas will be provided at pricing that is fair to all parties and supports local natural gas development, and the concessionaires are prepared to sell up to 300 MMcf/d of additional volumes into the domestic market in future years as projects are matured and commercial terms agreed.

“Signing this MOU is an important step,” added Ingram. “We look forward to continuing to work with the Government of Mozambique to finalize the legal and contractual framework that will enable us to deliver natural gas for domestic projects and LNG cargoes for export to premium markets around the world, both of which will benefit Mozambique through a reliable source of cleaner energy and significant revenue generation.”

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DEVELOPMENT BRIEFS

Lundin Petroleum has begun pumping oil from its **Edvard Grieg** (SEN 32/17) Field in the Norwegian North Sea.

Edvard Grieg has been designed as a field centre and will receive oil and gas from the neighbouring **Ivar Aasen** (32/15) Field for further processing. The oil is being transported via the Grane pipeline to the Sture terminal on the west coast of Norway, while gas will be transported via a separate pipeline system to St. Fergus in Scotland.

Lundin said development drilling with the *Rowan Viking* jackup rig will resume shortly and 10 production wells and four water-injection wells are planned to be drilled with plateau production expected during second-half 2016. The drilling of the development wells is expected to continue into 2018.

The Edvard Grieg Field is part of PL338 on the Utsira High in the North Sea, about 180 km west of Stavanger. The field was discovered in 2007 with Lundin Petroleum's first operated exploration well in Norway.

From Australia (LB): Cooper Energy has boosted its 2C contingent resource estimate for the **Sole** (32/17) Field off Victoria, Australia, as the company progresses FEED work for the project.

Contingent resources have increased by 15 petajoules (PJ) to 121 PJ following reinterpretation of the results of special core analysis of the reservoir section in the Sole-2 well located in the Gippsland Basin.

Cooper said the resources had been assessed using probabilistic simulation modelling for the Kingfish Formation at the Sole Field.

The Sole gas project is expected to comprise a single vertical subsea well and pipeline to the onshore Orbost gas plant, which is connected to the Eastern Gas pipeline.

Cooper has a 50% stake in the Sole Field while Santos holds the balance and is the operator.

The joint venture is working towards making a final investment decision on the Sole development in the September quarter of 2016 in time to supply gas to eastern Australia from early 2019.

The Sole gas field is located in VIC/RL3, offshore Victoria about 62 km from the Orbost gas plant.

Airborne Oil & Gas' thermoplastic composite pipe (TCP) technology is continuing to gain traction and the Netherlands-based company has been awarded a contract by Shell for the supply of a downline, jumpers and deployment system for acid stimulation in deepwater offshore Nigeria.

Airborne will supply a 1,450-m-long, 3-in. 5,000-psi working pressure TCP downline and TCP jumpers, the latter connecting the downline to the injection skid and subsea wellhead.

In addition, Airborne Oil & Gas will supply the complete deployment spread, including reeler, tensioner and all pipe ancillaries such as end fittings and bend restrictors.

Airborne will perform all related engineering including global dynamical analysis of the downline system.

"Following the other orders that Airborne Oil & Gas won recently, on downlines and acid stimulation systems, this most recent order is clear evidence of a growing acceptance of TCP technology in the offshore industry and of our leadership position in the acid stimulation and intervention business," said Martin van Onna, Airborne Oil & Gas's chief commercial officer.

"We are working with all of today's leaders in the field of intervention, stimulation and plug and abandonment and see a strong growth over the coming period. Cost-effective intervention is key to enhanced oil recovery for subsea wells. Especially in these times, where cost reduction is a central theme for many operators, our technology provides new ways to increase recovery ratios in the most cost-efficient manner," he said.



Alba B3 is en-route to West Africa.

The *Alba B3* compression platform has set sail for its final destination in Equatorial Guinea from Heerema Fabrication Group's Zwijndrecht yard in the Netherlands.

The 5,800-mt topside will compress the gas from the existing **Alba** Field to the processing facilities on Bioko Island.

The topside measures 40 m by 40 m and is 35 m high. The jacket was constructed in Vlissingen, weighing 2,600 mt and with a height of 91 m. The 33-m-long bridge that connects the *Alba B3* platform to the existing *Alba B2* platform and the 73-m flare was built by the local subcontractor ECG in Malabo.

The barge carrying the *Alba B3* topside, jacket and pile sleeves will meet Heerema Marine Contractors' crane vessel *Thialf* early next year at its final offshore destination in the Gulf of Guinea.

Eni is eyeing up fast-track development of three oil fields located in the Bay of Campeche after signing a production-sharing contract (PSC) with the country's Comisión Nacional de Hidrocarburos (CNH).

The PSC covers the development and exploitation of the **Amoca, Miztón** and **Tecoalli** oil fields offshore Mexico.

The fields are in conventional waters at a depth of 20 m to 40 m close to shore.

According to the official estimates by the CNH, the combined oil volumes in place for the three fields amount to about 800 MMbbl of oil and 13.44 Bcm of associated gas.

Eni will now delineate the fields by drilling four new wells before drawing up a fast-track development plan.

Apache North Sea has awarded qedi a commissioning contract for the brownfield modifications on all its North Sea assets.

This will include the provision of ad-hoc commissioning management services such as technical resources, commissioning expertise and qedi's GoTechnology solutions.

The three-year contract will see qedi work alongside Apache's engineering, procurement and construction contractors as part of a combined effort to support Apache's ongoing operations in the North Sea.

From Australia (LB): Subsea 7 has handed Hydratight a contract to support its emergency pipeline repair system (EPRS) project in Australia.

The repair system is part of the contingency planning for multiple pipelines associated with Chevron Australia's LNG assets and Inpex's **Ichthys** LNG project off the northwest coast of Australia.

Hydratight, which has been providing the EPRS coverage since the late 1980s, said the win was the result of its established track record in the industry for pipeline repairs and connectivity with the MORGRIP mechanical connector.

This is in addition to a two-year R&D testing program conducted by Hydratight's engineering team based in the U.K. in collaboration with Subsea 7.

"This latest self-supporting connector design is capable of withstanding both pressure and external loading," Hydratight EPRS Product Manager David Tromans said.

Protea has delivered its 23rd BOP-handling system to the Keppel FELS shipyard in Singapore for installation on the Falcon jackup rig.

The system, comprising of two single girder overhead cranes (each with a safe working load of 100t), successfully completed its factory acceptance test at Protea's production facility in Kluczbork, Southern Poland.

Aker Solutions has picked up a framework agreement to provide maintenance and modifications services to BP-operated oil and gas fields offshore Norway.

The contract is fixed for five years and worth up to \$371 million. It has options to extend for up to four years.

The agreement is for work on the North Sea fields **Ula**, **Tambar**, **Hod** and **Valhall** as well as the **Skarv** deposit in the Norwegian Sea.

The work will be managed and executed by Aker Solutions' maintenance, modifications and operations units in Stavanger and Sandnessjøen and at the company's fabrication yard in Egersund.

Expro has made its first move into Qatar after winning a five-year contract for the provision of well intervention and slickline services including high deviation and heavy-duty wireline fishing offshore Qatar as well as in drilling and workover locations in-country.

Tarek Hekal, senior area manager, Middle East, said, "In current market conditions, Expro recognises the need for operators to lower production costs. We will work closely with operators in the region to bring planning, operational and technical expertise that adds real commercial benefit to the cost of intervention."

EXPLORATION

Statoil Backs Barents Sea



Statoil is backing its belief in the Barents Sea in its application for acreage in the 23rd licensing round on the Norwegian Continental Shelf (NCS).

There has been some debate about whether resources in the Barents Sea can be commercially viable as the low oil price continues to bite.

"We believe otherwise, and our application is proof enough of that. Statoil's preparations for our 23rd round

application have included developing technology solutions that will reduce the breakeven price per barrel for the significant discoveries we hope to make in the Barents Sea," said Jez Averty, senior vice president Exploration Norway.

The round represents the first opening of new acreage on the NCS since 1994 and includes the southeast of the Barents Sea, which is an area that was clarified as Norwe-

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Statoil is banking on new Barents Sea acreage.

gian territory under the border agreement with Russia that came into effect from 2011.

It is expected that the Ministry of Petroleum and Energy will announce the awards late first-half 2016.

“Statoil has been the guarantor for exploration and development in the Barents Sea since the mid-1980s, and we have a clear ambition to remain in that role. The acreage offered is interesting and important, and we hope we will earn the opportunity to drill as early as in 2017,” Averty added.

In the run up to this licence round, the cooperation within the industry has been unprecedented. In the Barents Sea Exploration Collaboration project, 16 companies are cooperating to find common solutions for exploration operations in the Barents Sea and to ensure cost-effectiveness and good safety standards.

In 2014, Statoil was operator for a group of 33 companies cooperating on seismic surveys in areas included in the licensing round.

EXPLORATION NOTES

From Houston (BN): Eni will plug and abandon its **Ver-naccia** wildcat in Mississippi Canyon 35, regulator records show. The target—a four-way Miocene structure—always was modest, and clearly it turned out to be too modest to develop. Partner Stone had described the prospect, in 1,060 m of water about 177 km east-southeast of New Orleans, as potentially 100 MMbbl and said it could be tied back to Stone’s *Pompano* platform 36 km to the west. Partners were Eni (50%), ConocoPhillips (33.3%) and Stone (16.67%).

Marathon’s **Solomon** wildcat in Walker Ridge Block 225 will be plugged and abandoned (P&A). The well reached 10,546 m and pierced the Lower Tertiary target interval, but results obviously were disappointing. Marathon operated with 58% ownership. Venari owns 22% and Murphy owns 20%.

In another disappointing outcome, Murphy reported its **Thunder Bird** sidetrack in Mississippi Canyon 819 found 23 m of “producible hydrocarbons” in reaching 6,675 m in the Middle Miocene. But due to current low oil prices, Murphy has decided to P&A. And, in another illustration of the effects of collapsed prices, Murphy said it will nearly double its fourth-quarter 2015 exploration expense to \$235 million of which \$197 million will be dry hole costs. Murphy operated with 87.5% ownership. Calypso owned the rest.

Energy reform in Mexico continues to take shape. Eni announced formal signing of a production-sharing contract with Mexico’s hydrocarbons agency, Comisión Nacional de Hidrocarburos, to develop the **Amoca**, **Mizton** and **Tecoalli** fields in the Bay of Campeche. Eni won the rights in Mexico’s Round One, Phase Two auction on Sept. 30.

Eni plans to drill four new wells in an effort to improve recovery. The fields are in 20 m to 40 m of water with estimated total volume in place of 800 MMbbl and 13.44 Bcm. Eni outbid eight competitors to win the opportunity, prom-

ising to spend 33% more than the minimum capital required and to give the government 83.75% of profit production.

Total has booked the *Maersk Venturer* drillship to drill a 120-day exploration well in ultradeepwater in **Block 14** offshore Uruguay.

The deal is worth \$44 million excluding mobilisation. The drilling programme is expected to get underway in more than 3,000 m water depths in March 2016 and is in frontier territory for Total.

Maersk Venturer is the third in a series of four ultradeepwater drillships in Maersk Drilling’s fleet.

Martin Tiffen, Total’s vice president for development, said the company was developing technologies in flow assurance, subsea separation and boosting, pipeline electrical heat tracing, seawater treatment and injection, subsea power transmission and subsea chemical storage to be able to develop deepwater finds in places such as Uruguay.

Sterling Energy has expressed its surprise that authorities in Cameroon have counted the offshore **Ntem** Concession as an “open block” on the Société Nationale des Hydrocarbures (SNH) website.

Sterling said it is the current holder of the Ntem concession and disputes the government and SNH’s rights to re-litigate the concession. Sterling declared force majeure over the Ntem Concession in May 2014 due to overlapping maritime border claims affecting the Ntem Concession by the Republic of Cameroon and the Republic of Equatorial Guinea.

Sterling said, “As a result, the First Renewal Period has been suspended since May 6, 2014, and therefore the Ntem concession has not expired. In the event force majeure is lifted, approximately 10 months remain in the First Renewal Period.”

Sterling said it is trying to seek a “collaborative” solution to the problem.

VESSEL BRIEFS

Solstad Offshore will supply its derrick lay barge *DLB Norce Endeavour* to Chevron for work offshore Thailand.

The vessel will install multiple new wellhead platforms and subsea pipelines for Chevron in the Gulf of Thailand commencing in 2016 under a four-year deal with three one-year options.

The offshore scope of work commencing in 2016 includes the installation of wellhead platforms and pipelines

North Atlantic Drilling (NADL) and the Jurong Shipyard have agreed to a “standstill period” for the delivery of the sixth-generation harsh environment semisubmersible drilling rig *West Rigel*.

During the standstill period until June 2016, NADL will continue to market the rig for an acceptable drilling contract while it remains at the Jurong Shipyard in Singapore.

Jurong and NADL also can consider other commercial opportunities for the Unit during this period.



West Aquarius has been working on the Hibernia field.

From *Houston (BN)*: The aggressiveness of the Canada Newfoundland-Labrador Offshore Petroleum Board’s

“near-miss” reporting system was highlighted by a recent Seadrill filing. The company reported a “high potential” incident on Nov. 28 aboard *West Aquarius* when emergency strip lighting and batteries weighing 726 grams (1.6 lb) were knocked loose by a tugger line and fell 54 m to the drill floor. The U.S. system is equally granular (mind you, not minimising the potentially fatal consequences of the Seadrill incident). Both systems require reporting dropped objects. But U.S. reports do not publicly identify companies involved in incidents. The *West Aquarius* has been working for Exxon Mobil in the **Hibernia (32/12)** Field.

DOF Subsea has agreed to sell the *Skandi Protector* subsea project vessel to the Australian government. Delivery to new owners is expected in first-quarter 2016.

Skandi Protector was built in 2007 and served under contract with the Australian authorities from 2010 to year-end 2014. In 2015, the vessel has been operated as a subsea project vessel for the Asia-Pacific region.

DOF Subsea said it will allocate another subsea project vessel to the Asia-Pacific region to operate under existing and new contracts.

AOS has completed its 2014 to 2015 workscope on Inpex’s pipelay programme off Australia.

AOS’ four X-Bow platform supply vessels, *Ocean Turquoise-1*, *Sea Spear*, *Sea Swift* and *Sea Frost*, were chartered by Saipem to support the work on the **Ichthys** gas export pipeline.

AOS’s workscope consisted of transporting pipes between Indonesia and Saipem’s *Castorone* pipelay vessel.

The gas export pipeline will deliver gas from the Ichthys gas-condensate field to the onshore facilities at Bladin Point near Darwin for processing.

CONFERENCE REPORT

Realism Aplenty at OEC as GoM Players Look Ahead

From *Houston (MT)*: A gathering of the Gulf of Mexico’s (GoM) great and the good is always bound to produce the full gamut of views, and Hart Energy’s second GoM Offshore Executive Conference (OEC) proved to be a rich source of varying opinions.

But there was throughout a real acknowledgement and understanding of the industry’s current plight as well as the likely path that it will take on the long road to recovery. This was perhaps not so surprising, as the vast majority of

the audience were mostly individuals who have previously experienced at least two or three similar downcycles.

Kicking off the event as opening speaker was Noble Energy’s CEO Dave Stover, who stressed that the key for his company in the GoM is maintaining a high exploration success rate, having competitive economics and an inventory that contains “a prize worth chasing.” Dire market conditions might have caused some to consider halting investment offshore, especially given the strong shale presence onshore.

But in the U.S. Gulf, according to Stover, “the resource visibility has probably never been greater.” Technology improvements that paved the way for deeper drilling and seismic advances have given improved visibility to the region’s resource potential, and Noble sees the opportunity. “We see an opportunity this year to get into some low-cost entry positions on things that probably wouldn’t have been available in other years,” he said.

Developments offshore might have taken the backseat to headline-grabbing onshore unconventional plays in the U.S. But the resurrection of the GoM quietly continues due in part to the region’s low above-ground risk, favourable fiscal terms and low breakevens. Investment research by Goldman Sachs of 420 oil projects revealed the breakeven for the GoM was as low as \$40/bbl, but that was, admittedly, as of May 2015.

“One of the keys that has continued to drive our involvement has been our track record of success and our exploration and discovery rate,” Stover said. “We’re bringing on about 20,000 bbl/d net in new projects. It’s going to give us great momentum as we end this year and into next.”

Since entering the U.S. Gulf in 1968 when it acquired a single block, Noble has grown its portfolio to 524,000 acres, now holding about 42 MMboe in proved reserves as of year-end 2014. It’s eight producing fields flowed more than 18,000 boe/d in 2014, but that recently increased when production—mostly oil—started at its operated **Big Bend** (*SEN*, 32/16) and **Dantzler** deepwater projects. Stover turned to the projects’ short cycle times and prolific rates, providing an example of how offshore projects can compete economically with new unconventional plays.

The two fields in the Mississippi Canyon area, both subsea tiebacks to the **Thunder Hawk** (32/16) platform, are expected to add more than 40,000 boe/d, half of which is net to Noble. Big Bend went from discovery to production within three years, while Dantzler moved even quicker, moving from discovery to production in

just two years. “That’s how you compete economically,” Stover said.

“You can still have very good margins in the Gulf compared to some other areas,” he commented, adding that “the resource prize has to be there. ... There has to be a prize worth going for.”

Recent data from Wood Mackenzie showed that production continues to grow in the deepwater GoM despite falling rig counts. Liquids production rose from about 1.4 MMbbl/d of oil in 2014 to about 1.5 MMbbl/d by August 2015, while the average rig count dropped 32% since 2014.

According to Stover, the 10-year deepwater commercial success rate for the industry is 20%, while Noble’s is 55%.

In 2016, the company’s focus will be on exploration and appraisal in the GoM, he added. “We’ll hit the ground running at the beginning of the year on a new exploration well, followed by our **Katmai** appraisal well later in the year.”

Noble also hopes to have operations at its **Gunflint** discovery, also in the Mississippi Canyon area, up and running by mid-2016. The subsalt Miocene find also will be a subsea tieback, to the *Gulfstar One* facility. So far, the second development well has been sidetracked and completion operations along with the installation of pipelines and subsea installations have begun.

Stover also said that opportunities for the industry generally in the GoM are represented by areas such as further advances in 20,000-psi technology to drill deeper wells in HP/HT reservoirs, the potential use of high-integrity pressure protection systems, which are prevalent globally but not in the U.S. Gulf, and—of course—standardisation as a path towards reduced costs, cycle times and project delays.

Challenges that it also faces, he added, include post-Macondo regulations, which need more proactive engagement with regulators, and the highly-competitive environment in what is a mature basin.

Costs and collaboration

Costs were the main subject of a panel of speakers at the OEC conference, who all flagged up technical innovation and more collaboration and standardization as part of the solution.

“We’re always looking at technology; it is part of the solution. But you can’t keep doing this the same way as before and then expect to see costs drop,” said Michele McNichol, CEO of Wood Group Mustang (WGM).

Amol Phadke, vice president of asset support, U.S. offshore for Statoil (which has two rigs working in the Gulf of Mexico [GoM] at present), said, “We love technology and we have a significant R&D program going on. But to really understand which technology makes a difference is very important.”

W&T Offshore’s CEO Tracy Krohn added, “Technology has a role, but it has a cost before you can save money with it. You have to make sure it doesn’t cost more than the savings it delivers to you. You’ve got to develop it, buy it, train on it.” Krohn has been operating in the GoM for 30 years but has just one rig running at the moment. “It’s not so much about the price [of oil and gas]; it’s really about your margin. When margins get back to where we need them to be, then we’ll go back to work,” he said.

WGM’s McNichol also noted that the industry has already done the easiest bits of cost cutting through 2015, but that further cuts will be more difficult to attain. “I do think there is still work to be done in the Gulf of Mexico

on how to innovate and get these projects scoped appropriately, to continue to get the costs out. That is the hard work that needs to be done in 2016,” McNichol said.

Statoil’s Phadke said he has seen a 20% reduction in drilling costs, but it’s not enough, especially in deep water. He cited the ever-present need to reduce cycle times further. Statoil has been championing more standardized equipment and engineering in offshore facilities instead of each project being customized. “Changes in fit-for-purpose requirements will drive costs lower,” he said.

Ron Neal’s company, Houston Energy, partnered with LLOG Exploration on the Delta House field development, a deepwater floating production system tied back to three fields in Mississippi Canyon. “I know that our group

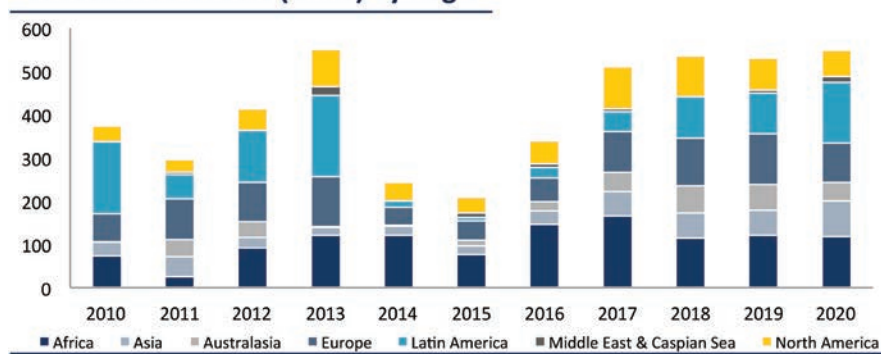
and LLOG are looking at duplication of Delta House and if we can do that with moderate improvements, it’s got to drive down costs,” he said.

The companies are partners in other wells that were drilled by separate groups but are sharing infrastructure, “so collaboration is not only a real situation, but it is about our survival to lower costs. After the lease sale is over, companies can join together—we can be competitors and partners,” he said.

Krohn noted that in the end it is the operators who drive down costs because they are the ones who sanction projects or delay them. “You have to ask for that and speak louder. It’s a simple formula: oil and gas have dropped by 50% so costs have to drop by 50%,” Krohn concluded.

Subsea Tree Orders and EPIC Capex

Subsea Tree Orders (Units) by Region



Subsea tree orders are expected to recover by 2017.

Speaking at the Hart Energy conference, senior associate for Infield Systems Ltd., Adrian Dorsch, flagged up the latest forecast for subsea tree orders as part of his presentation.

He first pointed out that the impact of persistently low oil prices has been felt throughout the offshore supply chain. Global offshore engineering, procurement, installation and construction (EPIC) capex is anticipated to fall by 9% this year from \$91 billion in 2014 to \$83 billion in 2015, followed by a further decline to \$78 billion in 2016.

The number of subsea tree orders is, of course, considered a barometer for activity in the offshore industry.

Tree orders specifically for the Gulf of Mexico (GoM), he said, have collapsed from 85 in 2014 to 36 in 2015, but Infield projects the number will recover strongly by 2017 to about 100 units or so. Subsea will account for 47% of future capex demand (2015 to 2020) in the GoM, driven by the region’s deepwater focus. A significant amount of this future capex estimate relies on Shell’s Walker Ridge, Mississippi Canyon and Alaminos Canyon projects, added Dorsch, who also stressed that forecast activity post-2016 was still at risk of further project deferrals.

Worldwide, about 2,500 subsea trees are expected to be awarded between 2016 and 2020, with the growth mainly attributed to large developments offshore Africa in the short term, and Brazil in the longer term.

According to his presentation, about 200 subsea trees will be ordered in 2015, with that figure expected to rise to more than 300 in 2016, led largely by the African market. In 2017, the global figure is forecast to recover to about 500, according to Infield.

“At an average sanction cost of around \$35/bbl, the offshore industry remains competitive compared with unconventional resources,” Dorsch said.

He continued, “We all know that the oil price drop and the volatility that we are seeing have created significant uncertainty. We do, however, see signs of stabilization. We see a reduction in oversupply and also depleting assets not being replaced. This leads the potential for stabilization in 2016.”

Today most operators are focused on existing fields to maintain margins, he said, or bidding on fields with low geographic risk and known reserves at high prices. Deepwater GoM acreage in particular has been highly susceptible to oil price due to the more complex economics.

But when the recovery arrives, Infield believes it will be led by deepwater activity. Given the expected recovery in oil prices and cost cuts, “We do believe the Gulf of Mexico will be critical for the deepwater industry going forward,” said Dorsch. But its recovery “depends on a stabilization of oil prices probably happening in 2016, potentially in 2017.”

(Additional reporting by Velda Addison, Leslie Haines and Erin Pedigo)

POLICY

Door Closing on U.K. North Sea?

The Treasury has been accused of abandoning the U.K.'s struggling oil and gas industry after no short-term fiscal support was offered during Chancellor George Osborne's autumn statement.

There are fears that without such support, the government is closing the door early on much of the U.K.'s remaining offshore reserves.

Ian McLelland, analyst at Edison Investment Research, said, "With the Chancellor's autumn statement announcing Office of Budget Responsibility estimates that oil and gas revenues are dropping 94%, there is little here to provide broader support.

"Following the 2014 Wood Review, the recently formed Oil & Gas Authority is doing an excellent job trying to encourage activity in the North Sea, but today's statement offers no material support to combat the pain

of sustained low oil prices or arrest the plummeting levels of investment we expect to see across the industry."

McLelland said that without support a number of oil and gas companies are likely to be swallowed up in mergers or simply fold.

Mike Tholen, Oil & Gas U.K.'s economics director, said, "Since the last budget, the oil price has declined further, and we must continue to do as much as we can to help boost confidence and encourage investment in the U.K. Continental Shelf. If the oil price continues to be lower for longer, there is little doubt that alongside industry's own concerted effort to improve its efficiency, we will need to work with the Treasury on additional measures, including revisiting the current headline tax rate—consistent with the government's commitment to the sector's tax rate falling over time."

U.S. Well Control Rules in the Spotlight

From Houston (BN): A government-proposed—and industry-feared—post-Macondo offshore well-control regulation was the subject of a hearing before the U.S. Senate committee on energy and natural resources.

Director Brian Salerno of the Bureau of Safety and Environmental Enforcement (BSEE) told members the need for the rule is clear because loss of well-control incidents are occurring at the same rate as in 2010, when BP's Macondo well blew out.

There were seven so-called loss-of-well control (LWC) events in 2014 and eight in 2013, he said. All were much less severe than the **Macondo** (*SEN*, 32/17) accident, which killed 11 workers, sank Transocean's *Deepwater Horizon* rig and spewed millions of barrels of oil into the Gulf of Mexico.

But Salerno said there is still a need for safety enhancements in well design, cementing, BOP maintenance and operations and real-time monitoring.

He pledged, however, that BSEE is seriously considering the 5,000 pages of comments from 170 people during

a 60-day comment period after the proposed rule was made public last April. And he said the agency will adjust the rule where appropriate.

Chair Lisa Murkowski (R-Alaska) said safety of offshore operations is crucial but so is finding a regulatory balance that supports oil and gas E&P.

Ranking member Maria Cantwell (D-Washington) called for swift approval of the tighter rule, giving her own LWC incident count—23 since 2010—and saying "we can't afford this kind of risk."

Murkowski expressed particular concern about the impact of tougher post-Macondo regulation on her state, noting Shell and Statoil have pulled back from the Arctic in recent months.

She said U.S. companies and regulators need to be active in the Arctic to help set high operating standards for other Arctic countries, most notably Russia.

Cantwell said a coming surge in Arctic activity internationally requires oil-spill cleanup skills that U.S. agencies have said are not adequately developed.

BUSINESS

North Sea Confidence Hits Rock Bottom

The confidence of North Sea oil and gas contractors is at an all-time low, with more redundancies on the horizon, according to a new survey.

Four in five contractors (79%) surveyed say they are less confident in their prospects than a year ago, compared to just 1% that are more confident.

The findings, from the 23rd Oil and Gas Survey, conducted by Aberdeen & Grampian Chamber of Commerce in partnership with the Fraser of Allander Institute, also reveal the lowest level of firms working at or above optimum levels on the U.K. Continental Shelf (UKCS) since the survey began in 2004.



Confidence in the North Sea is at an all-time low.

Just 16% of contractors report working at or above optimum levels, down from 21% in the previous survey.

Confidence has not been helped by a high level of recent redundancies in the industry. Some 64% of firms have reduced their workforce in 2015 compared to just 14% who increased numbers.

Worryingly, 85% of respondents think the job losses will continue over the next year.

James Bream, research and policy director at Aberdeen & Grampian Chamber of Commerce said, “The low confidence levels being reported come as no surprise, and the outlook suggests there will be more pain ahead for the sector.

“However, if we are not complacent, a long-term future still exists for the sector and players such as the Oil & Gas Authority will have a major role alongside the industry itself.

“The fact is that the UKCS is a frontier basin and always has been. This provides a unique set of opportunities, which can continue to allow our supply chain to be active around the globe, but this success is not guaranteed.”

Change of Focus

North Sea firms responding to the survey report a range of unusual challenges that are currently posing problems.

Four in five firms (80%) said they are seeing an abnormal increase in the number of projects being cancelled.

The survey showed 76% are seeing an unusual increase in the time taken to make procurement decisions, and 45% have noticed a particular spike in late payments.

In the face of this challenging economic environment, North Sea businesses are giving serious consideration to alternative revenue streams.

Some 78% of all firms questioned expected to be more involved in decommissioning work in the next three to five years; two-thirds (67%) of firms expect greater involvement in unconventional oil and gas activities; and nearly half (46%) expect greater involvement in renewables work.

Firms report that the attributes most in demand over the coming three years would be decommissioning experience, followed by international experience and project management skills.

Uisdean Vass, oil and gas partner at law firm Bond Dickinson, which sponsored the survey, said, “This is probably the most negative survey we have ever had and while there is little to be positive about in the short term, there are some glimmers of hope.

“Over the next three years, 28% of contractors expect their numbers of core staff to increase. Neither contractors nor operators see the North Sea disappearing.

“They believe the industry can survive at \$50 per barrel and that there will be a price upswing over the next three years with more room for oil company profitability because of enhanced efficiency. Contractors will also benefit from enhanced efficiency.

“As the old saying goes, ‘What doesn’t kill you makes you stronger.’”

Innovation Key to Deep Offshore Challenges

From Houston (VA): Only 14% of the world’s estimated deep offshore resources—about 350 Bbbl—are produced today, meaning that 86% is still to be developed or discovered, according to Total’s Khalid Mateen.

But getting to these resources and being able to produce both hydrocarbons and profits means overcoming an array of challenges, some of which were not present a decade ago.

The fields that are being discovered today are smaller than the elephant fields that packed hundreds of millions of barrels of oil nearly 10 years ago, the vice president of engineering and technology for Total recently told a crowd gathered for Teledyne’s Technology Focus Day in Houston.

Plus, today’s discoveries are more remote, meaning they are more difficult to develop as standalones, he continued. Operators nowadays are developing fields as tiebacks,

which he believes could grow in length to 75 km to 100 km long and push costs higher.

In some areas, the quality of oil is more complex, he continued, which adds to flow assurance management costs. “These costs are likely to go higher as we go to longer tiebacks and deeper water depths,” Mateen said.

Add to this commodity price conditions that test the economic viability of already high-cost, high-risk deep offshore projects. Capex and opex costs for such projects have nearly doubled in the last 10 years, bringing down the probability of deepwater projects.

“A lot of the cost increases came from unnecessary customisation or complexity of the facility, variations in specifications and prevented any kind of standardisation in the industrialisation of the equipment,” Mateen said. “All of that added up. The question now is how to reduce those costs.”

Composite materials, which can be used in risers and intervention lines, can stand up to harsh subsea environments and are seen by some as a viable, lightweight alternative to steel.

“Composites have a lot of potential when it comes to reducing the pipeline lay costs, but composites are cost prohibitive,” Mateen said. “There is no reason why the companies should not collaborate there” to get costs down.

DNV GL is doing just that. In September, the organisation launched two joint-industry projects (JIP) to study

affordable composite components for the subsea sector and qualify technology for more efficient linepipe production processes.

The DNV GL Affordable Composites JIP aims to lower the cost of qualifying composite components for subsea use by replacing large-scale tests with certification by simulation.

The second JIP—New Material Solutions for Flowlines—targets use of high-frequency welded/submerged arc welded pipes.

BUSINESS BRIEFS

BW Offshore said it made a net loss of \$7.3 million in the third quarter this year compared to net profit of \$19.6 million in the last quarter.

Operating revenues for Q3 were \$308.7 million, up \$65 million compared to Q2 2015.

BWO said the U.K. North Sea **Catcher** (*SEN*, 32/17) FPSO project remains within budget with expected first oil in 2017. Good progress was made on engineering, procurement, and construction activities for topside, turret mooring system and hull.

BWO said that although hull activities had slipped behind schedule, a mitigation plan has worked well and there has been no further slippage.

At the end of the quarter 77% of the projected project cost has been committed.

The recovery project for Cidade de São Mateus, which was hit by an explosion continues, where the unit now has been freed of gas and condensate has been offloaded. The next significant step is to disconnect the risers and mooring lines so that the unit can be towed to a yard for repairs.

Meanwhile, BWO has received a two year contract extension for the lease and operation of the FPSO *Polvo*. The FPSO is operating on the Polvo field offshore Brazil for Petrorio.

The firm period has been extended to third-quarter 2018, with options until Q3 2022.

Scana Industrier has been awarded a contract to deliver machined riser forgings for use in the Gulf of Mexico.

The scope includes forging and machining of riser joints in low alloyed steel.

Manufacturing is planned to start immediately and deliveries will commence from third quarter 2016 to second quarter 2017. The contract will involve Scana Steel Björneborg and Scana Subsea.

Following the sale of its stake in the Shah Deniz gas field, Statoil has agreed to sell its 20% interest in the **Trans Adriatic Pipeline** (TAP) to the Italian gas infrastructure company Snam for \$220 million. When constructed, TAP will be the westernmost section of the Southern Gas Corridor, a 3,500-km-long gas pipeline linking **Shah**

Deniz Stage 2 in the Azerbaijan sector of the Caspian Sea to gas markets in Europe. It will be 882 km long with an initial 10 Bcm/year capacity. It will connect with the Trans-Anatolian Natural Gas Pipeline (TANAP) at the Greece-Turkey border and cross northern Greece, Albania and the Adriatic Sea before coming onshore in southern Italy, where it will link up to the Snam-operated Italian natural gas network.

From Houston (BN): A federal judge has imposed a penalty of \$159.5 million on BP nonoperating partner Anadarko following the *Deepwater Horizon* oil spill.

The government had been seeking penalties of \$1 billion to 3.5 billion. Judge Carl Barbier said Anadarko did not legally cause the spill but, under the Clean Water Act (CWA), bears some responsibility as a partner in the project. (BP owned 65% and was operator; Anadarko owned 25% and MOEX 10%.)

A penalty against Anadarko of \$159.5 million “strikes the appropriate balance between Anadarko’s lack of culpability and the extreme seriousness of this spill,” Barbier wrote.

Anadarko said in a statement it is “pleased” that the penalty is far less than the government sought but nevertheless is considering an appeal. “Penalising a nonoperator for events beyond its control is inconsistent with the intent” of the CWA, Anadarko said.

MOEX, by the way, paid \$90 million. BP and Transocean, owner of the rig, paid billions.

In another prosecution arising from the *Deepwater Horizon* spill, the Justice Department dropped involuntary manslaughter charges against Macondo wellsite supervisors Donald Vidrine and Robert Kaluza. Charges of violating the CWA remained.

Bankrupt ATP has agreed to pay nearly \$42 million in penalties for illegal discharges of oil and dispersant from its *ATP Innovator* floating production system, discharges discovered in early 2012. The rig was producing the **Gomez** Field in 914 m in Mississippi Canyon Block 711, about 72 km offshore of Louisiana. The company filed for bankruptcy a few months later and is no longer operating. The rig is out of service.

In other legal news, criminal indictments have been returned against Black Elk Energy, Grand Isle Shipyard and Wood Group PSN in a 2012 platform fire and explosion that killed three welders. Operator Black Elk and contractor Grand Isle Shipyard were charged with involuntary manslaughter and violating federal safety and environmental laws. Wood Group PSN was charged with violating safety and environmental laws. The accident occurred in West Delta Block 32 about 30 km southeast of Grand Isle, La.

The U.S. Bureau of Ocean Energy Management (BOEM) announced appointment of **Mike Celata** as the BOEM regional director for the Gulf of Mexico. Celata has been serving as acting director and has been with BOEM and predecessor agencies since 1988.

In Brazil, the workers' strike against Petrobras is ending, but instability continues at the top. Petrobras Chairman **Murilo Ferreira**, who had been on leave since Sept. 14 for undisclosed reasons, has stepped down. He was replaced by **Luiz Nelson Guedes de Carvalho**, acting chairman since Ferreira took his leave. Carvalho will serve at least until the next board meeting. Ferreira still has plenty to do. He is CEO of mining giant Vale.

As arrests continue in the **Carwash** bribery-kickback scandal, Petrobras has created new avenues for workers to report misconduct and submit complaints.

Whistleblowers can now call a telephone number or access a website 24 hours a day, seven days a week. The services will operate in Portuguese, English and Spanish. Reports will be taken and sorted by an independent company, then submitted to an ombudsman general.

The new ombudsman general is **Mário Vinícius Claussen Spinelli**, chosen from a list supplied by Korn Ferry, the executive recruitment firm. He is a former undersecretary in Brazil's comptroller general's office, where his duties involved fighting corruption. He also served as comptroller general of Minas Gerais state.

Rockhopper and Falkland Oil and Gas Ltd. (FOGL), two of the biggest players in the Falkland Islands, are to merge as they look to shore up value in their businesses during the oil price crunch. The merger will result in Rockhopper shareholders owning 65% of the company and FOGL investors the remaining 35%. The combined entity will be the largest holder of licences to drill in the North Falkland Basin.

Subsea equipment manufacturer SMD is to shed between 70 to 80 jobs after it lost its largest ever order because of sanctions against Russia. A contract to provide two sets of cable laying and burial equipment was delayed as the firm was denied an export license due to EU sanctions against Russia. SMD said it would appeal the decision and noted the outcome will have a "significant impact" on the final redundancy numbers.



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