We can’t just cost-cut

The oil industry needs to adapt quickly to the new oil price environment, but the answer is not just cost-cutting. Society of Petroleum Engineers 2015 President Helge Haldorsen has warned, ahead of today’s SPE Offshore Europe 2015 opening.

As news continues to flow on job cuts in the sector, driven by what has been described as the now systemic and sustained low oil price, Haldorsen says SPE Offshore Europe, a “flagship sharing event,” is crucial to helping achieve the industry’s “Extreme Makeover, E&P Edition”. Cost-cutting will not be enough, he says, with new technology, business models and collaboration required to achieve an E&P 2.0.

“This is a tough time for the upstream oil and gas industry and for SPE members losing their jobs,” says Haldorsen. The number of jobs lost in the industry this year surpassed 176,000 early August, according to oil-industry recruiter Swift Worldwide Resources, a figure it described as conservative.

But, Haldorsen says: “We...
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A bitter pill

The global offshore industry may be on the verge of a spurt in oilfield services consolidation as businesses look to go beyond cost cutting and others become targets amid the “lower-for-longer” oil price scenario.

Despite the current market environment, up to now, the UK industry has seen a drop in oilfield services transactions, due to an uncertainty over where and when the oil price will bottom out and the market will settle, according to professional services firm EY.

A number of sales have stalled as buyers re-assess the valuation of targets, says Barry Fraser, EY executive director in corporate finance. A number of businesses have also had to restructure or be re-financed, he says, particularly asset heavy firms, such as vessel operators.

But more is to come:

“The supply chain needs to change urgently to reduce cost and improve efficiency. This will lead to an increase in M&A activity, which typically starts with the major players, as has been seen with Halliburton / Baker Hughes and Schlumberger / Cameron.”

“Other leading players are analysing the industry’s changing landscape and figuring out how to secure their place in the supply chain as it evolves. As a result there will be further jumbo deals with businesses looking to broaden their offering to customers and drive through cost savings. This will then ripple right through the supply chain, which is dominated in most segments by a relatively few large players at the top end but is highly fragmented below and there needs to be, and will be, further consolidation.”

Douglas Westwood’s Andrew Reid suggests companies still face another 12-18 months of pain, as any upturn is now not anticipated until into 2017, further leading consolidation in the market.

But, while it’s a bitter pill to taste, the industry will come out healthier as stronger players remain and inefficiencies are weeded out. There are also more sector focused oilfield investors now than in the late 1990s, including turnaround investors, who see the downturn as an opportunity to buy businesses and assets at reduced prices, then restructure and improve performance with a view to selling them when the cycle turns, says Fraser.

It is a cycle the industry has seen before and will likely see again, says Reid. But, in terms of the majors, we are less likely to see the mega-oil major mergers we saw in the late 1990s.

“We are more likely to see majors buying up now-undervalued mid-sized players to gain entry to new plays or access specific resource plays,” says Reid. “We maybe have not seen as much of this as you would expect, but I think it will come, possibly because smaller players have been protected through hedging – they’re still earning say $80/bbl based on hedge deals made months ago. But this will come to an end.”

Continued from page 1

We can’t just cost-cut

have weathered storms before in this cyclical industry and we will persevere again. Oil supply and demand is out of balance short-term. Natural global decline and growing oil demand will, however, rebalance down the road. The job at hand is to quickly adapt to E&P2.0 to be more resilient and competitive at a lower price.

“But we can’t just cost-cut our way to greatness; new technology, new business models and collaboration2.0 are necessary to achieve the desired ‘Extreme Makeover, E&P Edition’. Offshore Europe 2015 is a flagship sharing event; everyone attending OE will leave with new good ideas they can try at home and with new important contacts. And new contacts always means new possibilities!”

Conference co-chairman and Expro CEO Charles Woodburn also says it is key that we also continue to “inspire the next generation” – this year’s conference theme – to make sure the industry has the skills and talent it needs in the future.

The stakes are high on the UK Continental Shelf. The Oil and Gas Authority’s Call to Action Report, published February, said the risks are that declining profitability in producing fields would lead to the premature decommissioning of critical infrastructure and that a lack of confidence could result in the failure to secure critical long-term investment.

Oil and Gas Authority CEO Andy Samuel says: “The sharp decline in oil prices over the past year has magnified the challenges that companies on the UK Continental Shelf (UKCS) have been grappling with for many years; increasing costs, falling exploration and ageing infrastructure, coupled with commercial and legal complexity.”

While new field development approvals have been thin and far between, there has been some recent good news on the UKCS, however, with Maersk Oil’s US$4.5 billion Culzean development approved by the OGA, Statoil ramping up activity on the Mariner project and BP starting a $1 billion investment in the ETAP facilities. First oil is due on stream – for the third time – from the former Argyll field and, while in some cases it may be coming too early, the decommissioning sector is set to create a new market in the basin.

All is still to be played for – find out more and your place in it at this week’s SPE Offshore Europe!
At sea depths of 10,000 feet (3,000 meters), there’s no margin for error. Umbilical tubes already have to withstand pressures up to 20,000 psi, and the pressure’s on to go deeper still. To take the lead, you need materials that won’t fail. Ever. We’ve maintained this record in a quantity of tubing that would stretch 2.5 times around the planet. And we’re constantly innovating to give you stronger, safer and more corrosion-resistant alloys. Need to go further and deeper? We help you get there.
Plexus unveils Python

Wellhead systems engineering firm Plexus Ocean Systems launches its Python subsea wellhead today, in a move it says will be game-changing for the industry.

Aberdeen-based Plexus’ HPHT POS-GRIP wellhead systems have already become an industry norm on jackup operations for high pressure wells, despite the firm being a small player in the America-led market.

Python was created out the HGSS JIP, launched in 2011, when, following the Macondo disaster in the US Gulf of Mexico, a number of operators tasked Plexus to provide a better solution for locking down casing hangers in the subsea wellhead.

CEO Ben Van Bilderbeek says, as well as solving the locking problem, the JIP has gone on to also make casing hangers readily releasable, for re-entry during side-track operations, annular seals have been developed with properties that match the integrity those in the rest of the well system, and the number of components in the system has been reduced, also reducing the number of trips required for installation.

Van Bilderbeek is launching Python on Plexus’ stand #121 today at 11am, in the presence of Fergus Ewing. Minister for business, energy and tourism.

“This is a very important day for Plexus,” says van Bilderbeek. “For me it is the culmination of 45 years in the offshore business, starting in Ventura, California, for Vetco. My first job was to learn about subsea wellheads, so I have seen a few of these developed. It gives me tremendous pride to have been part of something that is as game-changing as these well heads will prove to be.”

Van Bilderbeek says that Plexus has approached wellhead systems from a new dimension, changing the paradigm on this 50+ year old technology, adapted from onshore technology. “Wellheads are extremely important as the final line of defence when a well is drilled and completed and we identified after the Macondo incident, with the help of some of our supporters in the JIP, that the casing hanger connection in the wellhead should be at least as good as the premium coupling connections in the system,” he says.

Python uses Plexus’ proprietary POS-GRIP friction grip technology, which relies on squeezing the wellhead onto the casing hanger.

Van Bilderbeek says that the integrity of wellheads is an issue - a whole industry exists on the technology of being able to count bubbles subsea to establish the safety of abandoned and operating wells. The elimination of installation trips in certain applications could also achieve rig-time savings of up to 14 days, reducing cycle costs, he says.

Python is an 18 1/4in full bore subsea wellhead system, rated to 15,000psi at 350°F, which can be readily be upgraded to 20,000psi at 450°F. The system provides for 4,000,000 lb “instant” casing hanger lockdown capacity, exceeding compliance with API 17D/ISO 13628-4, having recently met additional operator requirements for “life cycle” testing. Python is currently going through final cycle testing and will be ready for offshore deployment in a trial well during 2016.

Plexus is seeking an operator for a trial well and van Bilderbeek admits that the current environment makes it hard to introduce new technology, but he says that Python’s increased integrity and installation savings should overcome the natural resistance the offshore industry has for change.

Craig Hendrie, technical director, Plexus, will give a talk on Python in SUT session 2 in the Deepwater Zone on Thursday.

Chairmen’s welcome to SPE Offshore Europe

Despite the current tough market conditions, oil and gas will remain indispensable to the world for securing heat, light, mobility and prosperity for many decades to come. Our licence to operate ultimately depends on addressing society’s concerns about the industry’s operations and the hydrocarbons on which the world relies.

International business leaders, technical specialists, regulators and academics are coming together this week to share their views, knowledge and expertise, with an aim to inspire the next generation of people who will take this exciting industry forward. I wish you all a successful and enjoyable visit.

Charles Woodburn
Chief Executive Officer, Explo And Technical Chairman, SPE Offshore Europe 2015

The choice of this year’s conference theme, inspiring the next generation, empowers our industry to address both the people and technical challenges facing the oil and gas business today.

At the heart of this is our need to attract and encourage the next generation of talent into our industry.

Visitors can look forward to learning from industry experts and sharing experiences, ideas and case studies with peers from around the world. We have selected 75 papers covering 11 topical themes which range from developing unconventional resources and subsea operations to process safety, well integrity and decommissioning. It should be abundantly clear that our industry has many exciting and successful years ahead. I look forward to meeting you this week.

Michael Engell-Jensen
Executive Director, International Association of Oil & Gas Producers (IOGP) and Keynote Chairman, SPE Offshore Europe 2015
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Busy day at SPE Offshore Europe? Not looking forward to sitting in traffic? Come and Beat the Rush, with 3M and Offshore Engineer each evening.

Now a staple of the biannual event, 2015 sees the return of the ever popular “Beat the Rush Bar” drinks reception at the Holiday Inn Express every evening between 4-7pm. Both companies will have staff on hand to answer any questions on their organisations, or to just ensure you have a place to unwind after a busy day at the event.

Entry to the reception is STRICTLY by ticket only, and they can be requested from the 3M booth – 5A101.

Whilst you are there, why not check out their demo zone, which will showcase some of their innovative technology with hourly speakers to dig deeper into key applications.

These start at 10am with a closer look at 3M Glass Bubbles, used for lightweighting drilling fluids and cements, as well as being used with alternative applications for insulation and buoyancy. This will be followed closely by a deep dive on 3M Ceramic Sand Screens at 11am.

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The fall in global oil prices has created challenging conditions on the Northwest European Continental Shelf (NWECs), both for E&P companies and contractors. Despite the challenges, Infield Systems believes offshore capex could increase by around 7% over the 2016-2020 period compared to 2011-2015, although further depreciation of global oil prices could negatively impact the rate of growth within the industry.

Norway and the UK are expected to continue to be the main focal points for offshore investment over the period, with activity also likely to be supported by other countries such as the Netherlands and Denmark.

The main focus of capital expenditure in the region will continue to be on projects situated in shallow water depths (<499m). Projects in deep water are anticipated to see a relatively modest increase in capex demand, compared to the previous period, with notable deepwater projects including Statoil’s Aasta Hansteen development in Norway. Statoil is anticipated to be one of the leading operators driving offshore investments in the region, with its key projects including Aasta Hansteen and the Johan Sverdrup field in Norway.

In terms of market sectors, Infield Systems anticipates that the pipelines market will account for the largest portion of offshore capex in the region over the coming period, largely driven by SURF lines, with the UK and Norway continuing to be key markets.

The longest pipeline project to come on-stream over the next five years is Statoil’s 460km Polarled gas pipeline, which will link Aasta Hansteen to shore as well as allowing for future tie-ins to existing and future nearby discoveries along its route. Infield Systems also expects the subsea market to see increasing levels of investment, with subsea tree installations projected to increase by 59% compared to the prior period; 96% of which will likely be installed offshore the UK and Norway. Decommissioning has become an increasingly important, particularly in the UK where there are a large number of ageing offshore assets, most of which will eventually need to be removed to shore for refurbishment, recycling or dismantling.

Despite the current challenges, the region is anticipated to see growth over the next five years, although the rate of growth will continue to be impacted by global oil prices.

**UKCS: down but not out**

In the first of three articles examining the UK, Norwegian and global offshore contracting environments, Neil Golding, Head of Oil & Gas at the Energy Industries Council (EIC), takes a look at the UK.

Analysis of contracting activity in the UK Continental Shelf (UKCS) shows that since Q3 2013 we have seen a decline in major contract awards on UKCS field developments (see graph), according to EICDataStream, the EIC’s online project database.

Contracting activity slowed despite the US$100/bbl environment, due in no small part to the increase in contractor costs in what is an expensive place to do business. With the new low oil price looking as though it is here to stay, will opportunities for the supply chain continue to decline?

Since the drop in the price of oil the number of contracts awarded has been at a low in the first two quarters of 2015. The expectation is that the number of awards will remain low throughout the remainder of the calendar year with few engineering, procurement and construction (EPC) contracts expected to be awarded within the next 12 months.

Maersk Oil has approved internally the HPHT Culzean project and is now awaiting approval from JV partners BP and JX Nippon. Government approval and a final investment decision are expected to take place before end 2015 with EPC contracts to be formally awarded thereafter.

As in most regions globally, operators have slowed down developments and new development options are being considered with a view to reducing costs and making projects commercially viable.

One such example is Chevron’s Rosebank development, where it has understood Chevron has simplified the topsides processing of the FPSO vessel, reducing the complexity of the turret and mooring system, while subsurface work has seen an improved reservoir management plan, reducing the number of development wells needing to be drilled and improving recovery by up to 20%. While times are undoubtedly difficult, opportunities still exist for the supply chain and it is worth noting that no new field development has been cancelled on the UKCS to date.

New opportunities are also emerging. The decommissioning market is set to grow in the coming years. The growing offshore wind sector could also represent a new market for the supply chain.

The EIC is hosting the largest pavilion at Offshore Europe with 42 member companies. Visit the EIC stand to find out more about EICDataStream.
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Going deep

The majority of future large subsea developments are due to be in deepwater areas, such as Africa, Latin America and North America, with over half are predicted to be in water depths greater than 1500m.

But, have we got the technology ready to explore and produce from these depths? OE/OE asked Dr Gordon Drummond, project director at the National Subsea Research Initiative (NSRI) for his views ahead of his presentation in the Deepwater Zone this afternoon.

“In deep water environments, the reservoir pressures are likely to be very high – around 400 bar – with gas dissolved in the oil, temperatures are therefore low (50-70°C) and CO2 is likely to be entrained within the fluids, giving rise to highly corrosive production fluids,” he says. “This invites a whole new tranche of subsea innovation, including gas-liquid separation, new chemicals for hydrate, asphaltine and corrosion management, as well as corresponding chemical transport and delivery mechanisms, so flow assurance remains the primary issue. Their physical location is likely to far offshore, remote from support harbours and facilities.”

For exploration work, Drummond notes that these operations would require more advanced drillships, with the ability to operate in 3000m+ water depth, reaching reservoirs 1000m below current capabilities. “Here, the seabed is likely to be flat and featureless with low mechanical properties,” he says. “New environmental sensing is needed for seabed current and wave data, as little information is known.”

He also says subsea positioning will need to be more refined to ensure infrastructure is placed correctly during the installation phase. Weather windows are likely to be short, necessitating “plug and play” systems. Transportation and logistics will play a more important role as smaller vessels will transit back and forth to bring out the subsea equipment to the field, with the construction vessels staying infield, he suggests.

The fundamentals of construction materials may also need refinement. Materials must be lightweight for ease of installation, but yet must be more durable. “Steel pipe will prove too heavy,” Drummond says, “and while composite materials offer an alternative, there is a trade-off between on-bottom stability coupled with thermal insulation performance.

Whilst thicker pipe may be made suitable for ultra-deep applications and corrosion tolerances, it could leave very little diameter for fluid flow.

New moorings will be needed, comprising alternative materials – such as synthetic fibres – and this has a corresponding effect on fabrication, installation, anchor pattern and maintenance, he says. On deck, current winches, cranes and wires are not yet capable of ultra-deepwater work and will be subject to the same drive for innovation.

For life of field operations, Drummond mentioned the importance of new ways of carrying out inspection, maintenance and repair: autonomous inspection vehicles (AIVs) and remote operated vehicles (ROVs) are not yet capable of conducting some procedures, such as cathodic protection or wall thickness measurement.

Design must therefore recognise these limitations – engineering must better accommodate component replacement, especially in the case of dynamic equipment with characteristic wear. Better consideration and research here would also translate into more accurate periodic replacement throughout the field life.

Underpinning all of these innovations will be new safety, redundancy and reliability requirements, as well as improved cost and estimating methods, he adds.

MONOPOLY comes to the oil and gas industry

No, we aren’t talking about one major buying another. We are talking about the most beloved board game in the world – MONOPOLY.

To mark its 40th anniversary, OE (Offshore Engineer magazine) partnered with Hasbro to create a custom version of the MONOPOLY game for the oil and gas industry: OE 40th Anniversary Collector’s Edition MONOPOLY.

Instead of Mayfair, Park Lane, Old Kent Road and the Kings Cross, you will find NOV, Halliburton, OneSubsea, FMC Technologies and other oil and gas companies and associations that sponsored the game. The game tokens consist of a scuba diver, drill bits, drillship, safety helmet, helicopter, and a ROV. Barrels of oil serve as currency in the game. Even the Chance cards and the Community Chest cards have been renamed to Exploration and Production respectively, and all the text has been customized to fit the industry.

Both OE and MONOPOLY are celebrating key anniversaries in 2015 - 40 years and 80 years, respectively. “We wanted to do something truly unique for our 40th anniversary,” said Brion Palmer, president of AtComedia and publisher of OE. Creating a custom version of MONOPOLY represented an ideal way to celebrate and promote the industry in a fun, interactive, and family-oriented way. The game could also be used for a team building experience. Additionally, and perhaps even more importantly, getting kids to play the game will hopefully inspire young minds about our great industry and get them interested in science, math, and engineering,” added Palmer.

So far, the game has sold 4000 copies worldwide in 40 different countries. The OE 40th Anniversary Collector’s Edition MONOPOLY is £35 or US$55 and can be purchased at Stand 3C180 throughout SPE Offshore Europe.
For any logistics project, it pays to call in the big players. We are the international energy industry's independent supply chain solutions provider with the expertise, acumen and resources to deliver real, tangible business benefits, whatever the task, size or location worldwide. If you want to make a difference with your next logistics project, speak to Peterson. We’ll focus on everything. Right down to the smallest detail.

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Douglas-Westwood (DW) expects deepwater capex to rise post-2016, driven by the continued development of deepwater fields off Latin America and West Africa, as well as new developments off East Africa. However, in the short-term, delays as a result of the oil price are causing significantly slower growth than was expected a year ago.

Douglas-Westwood expects deepwater expenditure to grow by almost 69% compared to the preceding five-year period, totalling US$210 billion between 2015 and 2019. This growth is driven primarily by Africa and the Americas, which account for 82% of capex. Continued development of traditional deepwater regions; West Africa, Latin America and Gulf of Mexico, coupled with the emergence of East Africa, drives growth to 2019. North America remains a key deepwater region despite a reduction in capex over the next five years.

We have identified a trough in expenditure in 2015, primarily driven by the collapse of Brazilian operator OGX in 2013, which resulted in numerous local project cancellations. The current low oil price environment is expected to slow the deepwater market, through reduced project sanctioning in the short-term. Notably, installations in 2018 are expected to be impacted. Projects already under construction are unlikely to be affected, but there will be delays to numerous projects that aren’t sanctioned yet. Consequently, deepwater capex is expected to be limited in the short-term, however, an expected oil price recovery over the mid-term will see increased Capex outlay from 2019.

Latin America continues to lead investment in deepwater activity, despite the corruption scandal and Petrobras’ ongoing financial struggles. As a result, delays in the delivery of Petrobras’ FPSOs are expected. Regions such as the Middle East and Western Europe – with historically low levels of deepwater activity – will experience considerable growth (albeit from a low base) over the next five years, primarily due to the installation of major deepwater trunklines. Despite imminent project delays, the deepwater market is now poised for a period of growth, with Capex totalling over US$214bn between 2015 and 2019.

Current industry consensus indicates that an oil price recovery is expected in the mid-to-long term. Whilst the economic feasibility of deepwater fields varies, typically the expected long-term oil prices of $80 per barrel will ensure the viability of the majority of developments.

**Global Deepwater CAPEX by Region 2010-2019**

**UKTI market briefing – Nigeria, 1:30pm-3:30pm. Visit stand Stand No 1B101 for more information. Places may be limited.**

**Aberdeen and Grampian Chamber of Commerce Offshore Europe business breakfast. AECC, 7:30am-9:30am.**

**The Norwegian British Chamber of Commerce is holding an event at the Douglas Hotel in Aberdeen in cooperation with Greater Stavanger and ONS. Registration from 5:30pm. Evening ends at 10pm.**

**UKTI market briefing – Azerbaijan, 10:30am-noon. Visit stand Stand No 1B101 for more information. Places may be limited.**

**NOF Energy is hosting min briefing “Country Hours,” on its stand (1G111), covering Iraq, Brazil, Mexico, Colombia, Venezuela, and south East Asia. Find out more at the stand.**

**Dirty Dancy is on at His Majesty’s Theatre 8 September to 2 October.**

**Fugro is inviting visitors to take part in a fun game on its stand (2A10) with prizes awarded each day. Hot dogs and fresh coffee will also be among the daily distractions.**

**NOF Energy is holding hour-long talks on opportunities in Iraq (10am-11am) and Mexico (12am-noon). To reserve your place contact nsmith@nofenergy.co.uk**

**Subsea UK: Deepwater Developments, Deepwater Zone, 2:30pm-5:30pm.**

**The Gallery, from 1.45pm: At this year’s Offshore Europe, The Lubricant Company will be hosting ExxonMobil experts to showcase advanced lubrication solutions for the oil and gas industry.**

**Rystad Energy information session – 3.30pm-5pm, Rox Hotel, Aberdeen. Free.**

**Keynote: The challenge of our generation. Session chairman: Brian Sullivan, Executive Director, IPIECA. 2:30pm-5:30pm in Gordon A.**

**NOF Energy is holding min briefing “Country Hours,” on its stand (1G111), covering Iraq, Brazil, Mexico, Colombia, Venezuela, and south East Asia. Find out more at the stand.**
Polymer lining firsts

Polymer linings specialist Swagelining has completed work across eight North Sea assets over the last 12 months, including a number of world firsts for the technology.

The contracts saw Swagelining design, fabricate and install almost 90km of polymer linings into water injection pipeline and included “first uses” of the technology by four major operators.

The work involved lining a 4in line, the smallest ever subsea water injection system to be polymer lined, and in another project Swagelining’s longest pulls to date for 1515m stalks on a 14in pipeline. Projects have been constructed for installation in both bundles and by reel lay.

David Whittle, business development director at Swagelining Limited, said: “We are seeing a marked increase in the use of polymer lining technology across North Sea assets, demonstrated by the number of projects we have been involved in over the last year and the uptake by operators using the technology for this first time. It is encouraging to see this growth. Polymer lining technology is a well-established and cost-effective method of preventing internal corrosion in carbon steel pipelines, however, its full potential for use in the oil and gas industry, particularly for hydrocarbon service and in high temperature environments, is still relatively untapped.”

Swagelining has a number of further projects booked throughout this year and into 2016 for North Sea and West African assets.

Find them on stand 2E20.

The offshore industry is experiencing a period of slowed growth, with low crude oil prices having an impact. As such, some projects are being disrupted and pressure is being felt across supply chains.

But is the industry working as effectively as it can in times of austerity, or are gaps between the supply chain, clients and oil companies having an effect?

Trelleborg’s Next Level Report, released today and being discussed at a roundtable event, reveals that businesses from every level of the offshore market could be making short-sighted decisions because of pressure.

A staggering 78% of OEMs, operators, contractors and consultants all admitted to changing the specification of a project to save costs. Whilst upfront savings seem appealing when every penny counts, there’s no doubt that deviating from specifications carries long term cost and potential risk.

You can pick up a copy of the full report on stand 1H81.
Behind the scenes

Each day during Offshore Europe we’re taking you behind the scenes at one of the many fabrication and assembly facilities across Aberdeen City and Shire. Today, we visit GE Oil & Gas, not far from AECC.

Global centre for subsea trees

You may be forgiven for thinking that GE Oil & Gas’ Broadfold Road facility in Bridge of Don, not far from the Aberdeen Exhibition and Conference Centre, isn’t terribly big.

You’d be mistaken. Stretching out behind the single story offices are a series of workshops, where subsea Xmas trees destined for offshore locations worldwide are manufactured - from Australia (such as the trees for Chevron’s Gorgon project) to Asia Pacific and from deep water Brazil to the Gulf of Mexico.

The manufacturing facility is one of the company’s primary locations for the design, assembly, testing and integration of subsea equipment, including chokes and valves. Last year, it underwent a refurbishment to the tune of £4 million - increasing structural capacity, adding new heavy-lift cranes and pressure test cells amongst other enhancements.

The site covers an area totalling more than 37,000 sq m and includes four gas test pits measuring up to 6m deep, and eight pressure test bays, with the capacity and capabilities to produce upwards of 100 trees per year. It has been laid out to maximise efficiency and incorporates test & assembly (T&A) areas, workshops and warehousing.

Lean manufacturing is a key focus for the site, with recent investments including a CAD CAM pipe bending machine which automates some of the plant’s pipe processing work for the hydraulic lines on the trees. It replaces what was previously a more manual task and accelerates production of these components to around 3-4 times faster. An automated flushing machine is also then used to make sure the pipes are clean.

The trees themselves are not simple structures. They will be expected to operate for 25+ years on the seafloor, in deep water and some in high-pressure, high-temperature conditions.

The master valve block (MVB), the heart of a subsea tree, is machined in GE Oil & Gas’ Brent Avenue facility in Montrose, before being transported to Broadfold Road where it undergoes final assembly – hooking up actuators, connectors, hydraulic piping and other components for testing. Each complete assembly is gas tight and fluid pressure tested before assembly.

After this, the MVB is crane lifted into the tree frame that is fabricated offsite, before the completed subsea tree is gas tight, pressure and hydro tested as a whole unit before systems integration testing in the yard.
5 GE Oil & Gas Subsea Tree Systems are designed to operate in high-pressure, high-temperature (HP/HT) conditions. This tree is being set-up to undergo hydro-testing in a re-enforced steel test bay.

6 Setting up the parameters for a gas testing operation in one of the site’s four gas pits.

7 A valve block is lowered into a gas test pit to test build integrity against a range of industry standards.

8 The site in Aberdeen has four gas pits in varying sizes ranging from 1.5M to 6M deep. The largest pit measures around 11M in length x 6M wide.

9 The systems integration testing area on a Scottish ‘summer’ day.

10 The goods-in warehouse on site.
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KENT INTROL TO SUPPLY THE JOHAN SVEDRUP OIL FIELD

KKI have been awarded a contract by Statoil/AkerSolutions to supply more than 400 control and choke valves to the Johan Sverdrup oil field.

The order comes as a result of KKI re-securing a long-term frame agreement with Statoil until at least 2020, with further options to extend to 2026.

Visit us at stand: Hall 3, B63

Supporting KKI in the execution of the contract is OME, KKI’s appointed representative in Norway.

www.omeas.com

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Force 10 for bolts

Atlas Copco Tentec has launched a new range of topside bolt tensioning tools - **Force 10 on Stand 1D61**.

The Force 10 range of topside bolt tensioning tools consist of 10 base tools covering bolt sizes from 3/4in to 4in (M20 to M100) and has been designed to fit on to most ANSI B16.5, ANSI B16.47 Series 1, MSS-SP44, API-6A and API-17D standard flanges.

The 10 tool range offers multiple tool variations per bolt size, only five tools are required to suit bolt sizes from 3/4in to 4in (M20 to M100). The enhanced bolt load offered allows for time efficient 25% and 50% tool to bolt ratio usage on most standard pipeline flanges, using the industry standard A & B tensioning pressure procedure.

A new feature on the tools is the provision of spring return rams. Force10 tensioners from models F10-04 to F10-10 feature heavy duty integrated springs that assist in resetting the tensioners in between pressure cycles, speeding up bolt tensioning and reducing the effort needed by the user.

Models F10-01 to F10-03 feature a mechanism that directs oil flow away from the operator in the instance the ram is over-stroked and exhausts oil harmlessly into the internals of the tensioner.

Force 10 models F10-04 to F10-10 feature internal hydraulic check valves that can sense the position of the tensioners hydraulic ram and again safely releases oil flow internal to the tool. All Force 10 Tensioners offer a maximum ram stroke of 15mm, in many cases this is sufficient to achieve a “One Pull” tensioning procedure.

### Harben powered pump

Flowplant is showing its latest pump, a multi-purpose high pressure pump unit for water based hydraulic control fluids, chemical cleaning and subsea applications, powered by Harben.

Tough environmental restrictions mean oil based hydraulic systems cannot be used in many offshore applications and control fluids have to be both water based and biodegradable.

Flowplant’s Harben radial piston pump has been designed so that all moving parts, with the exception of the inlet and outlet valves, are separated from the pump media by a tubular nitrile rubber diaphragm.

This diaphragm is suited to handling high pressures up to 700 bar and the inert characteristics of nitrile means that many different chemicals can be pumped without detriment to service life.

The design means all Harben pumps can run dry without fear of damaging any components because the pump design does not rely on the pump media to cool or lubricate the moving parts.

Powered by a Harben P type 420 bar pump with heavy duty bearings and a variable speed motor, Flowplant’s latest rig can operate as an umbilical test rig, a mobile HPU with a flushing unit, a hydrostatic and valve high pressure pump design does not rely on the pump media to cool or lubricate the moving parts.

Flowplant Group is on stand 6D26.

### Fast HVAC

Heinen & Hopman, stand 1C21, has developed a containerized fan room that can be completely pre-fabricated and tested before delivery to the vessel, shortening installation time.

A modified cargo or offshore certified container is used as the base for this fan room, ranging from 10ft-40ft-high.

The design includes air handling units with conditioned airflow up to 40000cu m/hr. Cooling capacities are available up to 800kW and are available in chilled water or direct expansion execution. Heating is normally executed with electrical heaters. Energy saving applications such as heat pump and heat recovery wheels can easily be integrated in the design.

The first pre-fabricated 40ft high cube fan room has already been delivered to Paragon Offshore and was installed on the B391 jackup drilling rig on top of the accommodation and replacing the old fan rooms inside. All ducting, chilled water piping, cables and control for a complete working system integrated in the container.

**Visit booth 1J105.**
Showcasing our young professionals

It’s a tough time for those looking to join the oil and gas industry, but it’s also a prime time for employers to pick up some top talent. Throughout this week, we’re showcasing some of the industry’s young graduates.

R

OSS TAYLOR, 29, has a BSc in Physics and an MSc in Petroleum Engineering by distance learning. His focus area was quantum mechanics specializing in semiconductors. He is looking to do his MSc thesis on production optimization in shale plays.

What sort of job are you looking for and what can you offer?
I am looking to work for an operator as a production technologist/petroleum engineer. I can offer this great industry passion and commitment, which I have developed through volunteering for the SPE Aberdeen section.

What inspires you to work in the industry?
The oil industry in Aberdeen is facing some very tough challenges with low oil prices and high operational expenditure. I am inspired to face these challenges head on to reduce these costs through greater production efficacy.

G

ABRIEL SMITH, 23, has an MEng in Mechanical and Offshore Engineering, and he focused on mechanical connections for use in rigid pipelay.

What job are you in and what can you offer?
I am currently employed as a graduate project engineer for a subsea services contractor and I have been on the graduate program for just under a year. I enjoy working as a project engineer because you get to see the whole life cycle of a scope of work from initial ideas to the implementation offshore. Completing a project also gives you a good sense of satisfaction that you have achieved something as a team.

What inspires you to work in the industry?
The aspect that I find most exciting is that every project is different, which means you are always learning and being challenged. New techniques and equipment are being engineered every day, which allows you to undertake tasks that were previously impossible.

L

ISA HUTCHISON, 25, is currently working towards an MSc in Project Management at The University of Aberdeen, combined with full time employment. She completed my BSc (Hons) in Physics at The University of Edinburgh in 2011. At present she is focusing on budgets and financial control moving onto commercial and contractual issues in the coming months.

What sort of job are you looking for/working in and what can you offer?
I am currently employed as a technology analyst for The Industry Technology Facilitator (ITF). Since graduating from The University of Edinburgh in 2011, I have worked with ITF to help launch Joint Industry Projects (JIPs) into the industry and I am able to offer a wide network of contacts along with a good understanding of the value proposition required to launch successful JIPs.

What inspires you to work in the industry?
Having grown up in Aberdeen, I was always inspired by the oil and gas industry and after a couple of summer placements at Baker Hughes, I knew that my career was set. ITF has opened up my knowledge of the business and ensured me that I have an interesting journey ahead.

Aging FPUs

With so many floating production units (FPUs) reaching the end of their design lives, the industry is facing the challenge of how to make sure aging assets can continue service safely. A newly introduced methodology is providing a way for FPUs to operate beyond their original design lives.

Multiple issues need to be addressed when evaluating an FPU for life extension. Typically, these units remain on location throughout their service lives, which means they have not undergone dry docking. Loads on production units can increase over time due to changing environmental conditions or weight growth from marine life. And changes in regulatory requirements can significantly alter performance expectations.

The ABS Guidance Notes on Life Extension Methodology for Floating Production Installations provides a way for asset owners to maintain production units in compliance with ABS Rules as they make plans for the unit’s continued onsite service. ABS engineers developed this methodology for asset owners that are evaluating their assets to determine if the units can continue safely producing hydrocarbons on site beyond their design lives.

Life extension methodology encompasses evaluating the current condition of the installation, verifying it for continued service and taking appropriate action to achieve the desired life extension. The process begins with a baseline survey to determine the integrity and condition of the hull and topside structures, the mooring system or tendons and marine and industrial systems and equipment. The baseline survey is followed by a reassessment of the global strength and remaining fatigue life. The final step is assessing and planning to achieve the extended operational goals.

Contributed by ABS.

Visit stand 5A120 for more information.
Innovation drives everything we do at Matrix. Take our IsoBlox product. It is a buoyancy building block system that’s suitable for mooring and large offshore installation tasks. The system is highly versatile as the blocks can be fastened together to produce any number of customised shapes, sizes and uplifts ranging from 3,000kg to 150,000kg or more. Along with reducing material costs, we also look to our innovative engineering to reduce time for product installation. Our distributed buoyancy clamping systems support umbilicals, hoses, cables and flexible risers. These take just 3 minutes to install significantly reducing clients’ total installation costs. Visit us at stand 6D28 or email matrix@matrixengineered.com and we’ll tell you more about how our solutions can help your projects.
Deliver cost savings in 100 days?

Certainly.

Tuesday 8th September 2015 - Technical Talks
12:00 - 12:20 Decommissioning strategy
13:00 - 13:20 Integrated operations
14:00 - 14:20 Real-time measurement of trace gasses
15:00 - 15:20 100 day cost challenge
16:00 - 16:20 Flow assurance

ABB can help UKCS operators to meet the challenge of identifying and implementing cost savings within 100 days. Through minimising or eliminating low value activities, maintenance costs can be reduced and production efficiency also improved. A series of marginal improvements can deliver significant overall gains.

We are running technical talks on the stand every day, pre-book at www.abb.co.uk/offshore-europe or visit our stand 3E 160.
Industry needs to adopt digitalization

As a CEO, with a technology and engineering background, how do you see the role of technology in today’s (upstream offshore) business environment?

We are moving towards an even more connected and data-savvy world and the industry needs to be prepared to take full advantage of digitalization and “internet of things” in terms of efficiencies and safety. There are many challenges as well and maybe one of the key ones is identifying and preventing increasing cyber security threats to installations and systems.

Where are the main opportunities in this space and what are the risks?

The greatest benefits in cost control will be achieved through standardization, replication, simplification and advanced supply chain management. If we take a look at the acceptance of standardization in the maritime and other industries, and compare that to oil and gas, we see a significant gap where complexity can be reduced, and cost efficiency can be increased.

In South Korea, unfamiliar specification and processes result in re-work and delays and variations in owners, operators and regulations requirements add more complexity.

We have initiated a JIP working with the yards there to help address that and we believe that we can trim new build costs resulting in a 7-15% saving potential through standardized processes. This would equate to a NOK 3.5 billion (£270 million) saving on total cost for a typical tension leg platform.

Put simply, standardization can reduce complexity in today’s operations, while also helping the industry to adapt and plan for tomorrow’s challenges.

Further, we have also been inspired by the space industry and their research development on advanced safety modelling of human and organizational errors as well as uncertainty assessments.

As a former board member for the Norwegian Space Centre, what could the oil industry learn from the space industry and vice versa?

The oil and gas industry can learn from the high tech space industry about leveraging the opportunities that IT development and use of big data offers us. I see that they have competence that can help us to develop new solutions.

We are for example currently working on developing sensor-based environmental monitoring so it is also about setting direction to encourage and empower a highly skilled workforce to engage.

Can we balance the drive for new technologies with the need to reduce overheads while maintaining safety?

The industry is very concerned with cost management, but I think the focus should be on managing complexity. By simplifying what we do as an industry, not only can we manage cost, but we can also minimize risk, enhance safety and open up for innovation.

At DNV GL, we believe that greater collaboration and the pan-industry development of new technology and innovation are key enablers to safely reducing costs.

Danish exports

Nearly 70% of Danish oil and gas industry suppliers are exporting to the UK, while 75% expect to increase their focus on the market during the next five years, according to a survey by the Danish Oil & Gas Technology Group, the largest network within oil and gas in Denmark.

Some 60% of Danish Oil & Gas Technology Group members who responded to the survey work within manufacturing and product development.

Twelve companies from the Danish Oil & Gas Technology Group, which is part of the Danish Export Association, are exhibiting at Offshore Europe this week. In total, the group has 124 members, delivering components, systems, services and counseling to the oil and gas industry.

“Danish suppliers, which show a considerable interest in the British oil and gas market, are typically the ones with North Sea expertise within maintenance, project management, lifetime extensions, design and subsea. However, these competences within oil and gas are only a part of the key areas, where in the Danes have products and know-how,” Merethe Wrang, Head of Danish Oil & Gas Technology Group, says.

“The Danish companies are known for innovative solutions,” Wrang adds. “Governmental focus in both Denmark and Norway have encouraged the Danish oil and gas businesses to think differently in terms of energy efficiency and cost effective solutions.”

The 12 companies exhibiting at Offshore Europe are: Saab Danmark, SafeEx, Halton Marine, AluFlam, VIKING Life-Saving Equipment, Metalock Denmark, SubC Partner, DESMI, BLUCHER Metal, Inexa TFN, BIC Electric and SubC Partner.

Find the Danish stand 1C81.
Hays Oil & Gas Middle East has partnered with one of the world's leading International Operating Company's headquartered in Qatar. Whilst the global Oil & Gas industry has been in a steady decline our client has remained committed to their current & future project schedules. There are several opportunities within their Drilling & Wells division including:

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- Drilling Supervisor (Offshore Assets)
- Drilling Supervisor (Onshore Assets)
- Operations Engineer (Offshore Assets)
- Operations Engineer (Onshore Assets)
- Specialist (Directional Drilling)
- Senior Performance Analyst (Drilling)
- Operations Engineer (Well Integrity)
- Wireline Supervisor (Well Integrity)
- Senior Completions Engineer (Well Integrity)
- Senior Petroleum Engineer (Well Integrity)
- Wellhead Supervisor
- Planning Engineer

If you are interested in being part of the successful growth and expansion of one of the world’s leading Operating companies please send your details to qatar@hays.com. Interviews will be held in various locations across the UK week commencing 21st & 28th September 2015

hays-oilgas.com
Schlumberger is showcasing its new SenTURIAN E&A well test subsea landing string electrohydraulic operating system, which enables operators to safely access, shut in, and disconnect from a well at seabed in less than 15 seconds in water depths up to 12,000ft (3660m) on stand 3D140. This is the latest addition to the SenTURIAN family subsea systems, designed for reservoir testing during exploration and appraisal operations.

The ability for a well test subsea landing string technology to respond quickly to unforeseen harsh conditions is becoming increasingly important for safer operations. SenTURIAN E&A is the world’s first subsea landing string electrohydraulic operating system that complies with International Electrotechnical Commission IEC 61508 SIL 2 certification. Electrical continuity can be confirmed at any time with a push of the button at the surface, providing additional verification on system continuity and functionality and additional diagnostic capability.

Designed to run with Muzic wireless telemetry, the system allows equipment functionality checks and enables full operation of the surface flow head, lubricator valves and SenTREE subsea test tree, as well as the monitoring of downhole pressure and temperature.

The system is designed to operate from floating vessels and allows customization and upgrades to meet project-specific requirements. It operates in all subsea applications, including arctic, ultradeep water, and HPHT well testing. The compact design makes it easy to handle and operate, and the small diameter umbilical allows for safer and faster deployment, reducing rig-up time and simplifying well testing operations. The system’s modularity is reflected on the topside equipment, which results in less preparation, make up time, easier maintenance and reduced rig footprint. The modular design also allows the tool to be lifted as a single unit; function tested in a single operation; and put in “rack back” mode if required after a job.

SentURIAN E&A incorporates pressure balanced accumulators (PBA), considerably shorter than standard nitrogen pre-charge accumulators. They are low maintenance and do not require field intervention to set the pre-charge required for changing hydrostatic pressures. SenTURIAN E&A also enables compliance with ISO 13628-7 by incorporating electronic redundancy and pressure feedback for each subsea function, if required.
How did you get into oil and gas?

I received a Bachelor of Science degree in Petroleum Engineering in 1983. Since 1980, during my studies, I worked in the field for Amoco Production Company over the summer months. Upon graduation I was hired by Schlumberger, where I have been employed for the last 32 years.

What upcoming projects are you excited to begin and why?

One of the most interesting projects is for the Statoil Gullfaks field, where OneSubsea has deployed the industry’s first true subsea wet gas compressor, the WGC4000. This technology development began several years ago and everyone involved is looking forward to commissioning the multiphase compression system, which is scheduled to take place in the latter part of 2015. This is a key industry milestone and many operators are paying close attention because of the advantages of multiphase compression in a subsea environment. In addition to this, OneSubsea was recently awarded the SPS FEED for the proposed WEL Browse FLNG development offshore Western Australia. We are excited to execute the FEED study in order to design the most cost-effective subsea production system for this major development.

What technologies are you keeping an eye on?

Subsea processing technologies (boosting, multiphase compression). With more subsea developments planned for deeper waters and longer tiebacks, these technologies are true enablers and mission critical. OneSubsea is working closely with many operators—utilizing our experience from more than 30 projects worldwide—to continue expanding the operating range to handle even the most difficult environments.

The integration of technologies is also important, for example combining a subsea production system with boosting and in-well artificial lift with a single control system. Technology developments that can reduce the cost of intervention also is important.

What advice do you have for students considering a career in oil and gas?

Oil and gas developments are becoming more technically challenging, particularly in deepwater. These challenges create opportunities for individuals and companies, some of which we cannot even imagine today. The best piece of advice I can give is to remain flexible in the type of position you are willing to accept and be ready to relocate in order to gain experience.

With respect to the downturn, are you still hopeful about the future of the offshore industry, and that of the UK, in particular?

Absolutely. The offshore industry and the production from subsea developments remain a key strategic pillar of growth for many IOCs, NOCs and Independents.

The industry cost base will adjust and activity will rebound on the UK Continental Shelf and in other offshore regions as it has done in the past. However, to become an even stronger industry operators and equipment and service providers need to collaborate more, drive innovation, and adopt new technology at a much faster pace than what has been done in the past.

Class support for FLNG

Momentum is building at ClassNK’s new Natural Resources and Energy Department of ClassNK.

The new department has been set up to coordinate the firm’s targeted R&D in the sector and broader service activities, reflecting ClassNK’s expanding presence in growth area in the offshore sector, where new designs and technical solutions require support from Class, while existing vessels require consistent service attention.

The Natural Resources and Energy Department is taking responsibility for the technical guidelines needed for the construction and survey of offshore facilities, but is also participating in the early stages of vessel design, and supporting the development of new technologies.

The new department combines ClassNK expertise on LNG with that of specialists from related fields. Already, it has overseen the updating of ClassNK’s Guidelines for Floating Offshore Facilities for LNG/LPG Production, Storage, and Offloading, released in 2011, to include FSRUs as well as FPSOs. The department also now takes oversight of ClassNK’s participation in the MODEC/TEC Micro-GTL (gas-to-liquid) plant project for an FPSO, applicable to small-medium gas reserve development (Floating-GTL). After completion of the first module, the system has been tested at the Petrobras Lubnor refinery in Fortaleza, Brazil, before its installation on an FPSO.

As part of a joint R&D project led by MODEC and leading plant manufacturer Toyo Engineering, ClassNK contributed to the risk and safety assessment of the LiBro FLNG system.

The department has also played the central role in ClassNK’s recent Approval-In-Principle (AIP) of the world’s first H2/CO2 FPSO design, developed by MHI and Chiyoda Corporation, the first such facility to receive this acknowledgement.
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Title Deed

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With 1 Jackup $175
With 2 Jackups $500
With 3 Jackups $1100
With 4 Jackups $1300
With Platform $1500

Mortgage Value $175

Jackups cost $200 each
Platforms, $200 each

PEMEX

With 2 Jackups $500
With 3 Jackups $1100

Mortgage Value $175

Jackups cost $200 each
Platforms, $200 each

SPE

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If 3 field developments are owned $100
If 4 field developments are owned $200

Mortgage Value - $100

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North Sea Flow Measurement Workshop

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Stop by our booth 1F101 and meet our team in Aberdeen!

safe software – safe operations
International expansion

The University of Aberdeen is building on its new campus in Korea and links with universities in Australia and China by developing links with institutions in Brazil and Mexico.

The Korean campus, the university’s first overseas campus, is scheduled to open in September 2016, specialising in offshore-related disciplines, including MSc’s in Oil and Gas Topside Engineering, Subsea Engineering, Petroleum Engineering, and an MBA in Energy Management.

Aberdeen has also developed links with Harbin Engineering University in China and Curtin University in Australia.

Seth Kunin, Vice-Principal for Internationalisation at the University of Aberdeen, said: “The University has also been active in Mexico, which has resulted in an agreement that will encourage collaboration between the University, PEMEX and the Mexican Petroleum Institute (MPI) to undertake research and educational programs, and to strengthen institutional links.

“In addition, our activities in Brazil have led to an agreement with BG Brasil and the Federal University of Rio Grande do Sul’s Institute of Geosciences (UFRGS/PPGEO) to offer fellowships to Brazilian citizens for dual PhD degree and post-doctoral opportunities. “Read tomorrow’s show daily to find out about new Masters programs the university is launching at stand 2C20.”

Historic Aberdeen

The history of Aberdeen has always been a tale of two cities, whose modern role as Scotland’s engine room fuelled by North Sea oil sits comfortably with its medieval past.

Universally known as the Granite City, from the sparkling silver rock used in the constructions of its many fine buildings, Aberdeen, Scotland’s third largest city grew out of two distinct communities.

Escape the city centre hustle and head for Footdee to explore the timeless cobbled streets of the quaint and peaceful conservation fishing village.

Footdee-or Fittie as it is known by locals – is one of the most unique communities in the UK huddled at the end of rewarding stroll along the beach front.

Situated beneath and to the south of Union Street is the historic merchant quarter. At is centre, The Green and its surroundings are amongst the oldest known parts of the city. The Green is one of four administrative medieval quarters recorded by 1399 and was an important point of entry to the city. Religious and mercantile activity has underpinned the life and economics of the area over a 750-year period.

The Green remains an important architectural and historic area reminding us of Aberdeen’s medieval urban origins through to its 19th century expansion.

Aberdeen’s Harbour has been central to the life and prosperity of Aberdeen since Roman times, one of the longest established businesses in the UK, starred in its own television series and Aberdeen Harbour, the city’s oil industry gateway is fast becoming a tourist attraction in its own right.

Challenging riser integrity

Deepwater spending is still growing, but not as fast as analysts had predicted (see pg.12). Today’s Deepwater Zone session, 2.30-5.30pm, will look at some of the subsea engineering and economic challenges facing the industry and will highlight examples of the innovative technology solutions.

Caley Ocean Systems sales director Gregor McPherson will give a talk on new developments in deepwater handling systems and Richard Dodd, COO at Newcastle’s BEL Valves will talk about solutions for deepwater high-pressure, high-temperature developments.

Gavin Rippe, VP, Business Development, Flexlife, will also discuss his firm’s solutions. He says: “Nowhere is the new economic reality more evidenced than by the number of projects struggling with free induction decay gating. Flexlife has tailored its riser design and integrity analysis to focus on each individual riser to tailor each specification around actual duty. While this may seem like common sense to many, Flexlife recently saved a West Africa project over US$ $50 million by doing just that. Further outputs were achieved via de-risked manufacture process, reduced top tensions and simplified turret design.

“Inspection, repair and maintenance suffer cost! pressure as much as new build projects. In 2013, dropped object damage to a deepwater Angola FPSO riser left the operator with integrity concerns. Flexlife performed ultrasonic scanning of the riser annulus and produced detailed imagery confirming annulus flooding, characterising breach location as well as armour wire condition around the breached area, saving the operator substantial replacement cost. “In another example of ‘repair not replace’, Flexlife is installing an ‘Armadillo’ repair clamp onto a dynamic riser located in Malaysia. The clamp is positioned over the breach location and injected with FlexGel which isolates the breach, preventing further seawater ingress and inhibiting corrosion of fatigue sensitive armour wire – thus avoiding costly riser replacement.”
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