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Oil Review Africa

Oil · Gas · Petrochemicals

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Africa Oil Week: Major players in Cape Town

ADIPEC: Global focus in Abu Dhabi

Angola and Uganda: What does the future hold?

Training, satellite communications, maintenance, decommissioning and oil spill prevention

Abiodun Adesanya, President, NAPE (p46)

In this issue, we comprehensively cover Africa Oil Week and ADIPEC.

EDITOR'S NOTE

IN THIS EDITION we bring you comprehensive coverage of Africa Oil Week (page 14), which was, as ever, a lively conference and exhibition. Plenty of leading players were able to offer words of optimism despite another tough year of low oil prices. Interestingly, there are service companies who are not only surviving but thriving amid the downturn, and multiple speakers urged those looking to invest in African hydrocarbons projects to make their move while there are bargains to be had.

Oil Review Africa also visited Abu Dhabi for ADIPEC, which is a great opportunity to hear perspectives on the oil and gas industry from a wide range of global voices. Wale Tinubu, group CEO of Oando, spoke frankly on the opportunities and challenges facing Nigerian operators. Turn to page 23 to find out what he had to say to the delegates.

Finally, we'd like to wish all our readers a safe and happy holiday season and we look forward to reporting on the exciting and ever-changing world of African oil and gas in 2017.

Georgia Lewis
Managing Editor

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DECEMBER

26-27 **18th International Conference on Oil, Gas and Petrochemical Engineering**
Dubai
www.waset.org

JANUARY

23-25 **European Gas Conference 2017**
Vienna
www.europeangas-conference.com

24-26 **SPE Hydraulic Fracturing Technology Conference & Exhibition**
The Woodlands, Texas
www.spe.org/eventd

24-26 **Oil & Gas IP Summit**
London
www.oilandgasip.iqpc.com

FEBRUARY

8-7 **International Conference on Oil & Gas Projects in Common Fields**
Held concurrently in Amsterdam and Bangkok
www.waset.org

14-16 **Egypt Petroleum Show**
Cairo
www.egyps.com

21-23 **West African International Petroleum Exhibition & Conference**
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www.waipec.com

22-24 **Oil, Gas & Mines Africa (OGMA) Exhibition & Conference**
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www.ogmaxpo.com

27-2 Mar **Nigeria Oil & Gas Conference & Exhibition**
Abuja
www.cwcnog.com

27-2 Mar **Nigeria Power Forum**
Abuja
www.nigeria-power.com

MARCH

15-16 **Global Oil & Gas**
Istanbul
www.global-oilgas.com

21-24 **North Africa Petroleum Exhibition & Conference**
Algeria
www.napec-dz.com

26-30 **Corrosion 2017 Conference & Expo**
New Orleans
www.nacecorrosion.org

28-30 **International SAP Conference for Oil & Gas**
Lisbon
www.uk.tacook.com

Readers should verify dates and location with sponsoring organisations, as this information is sometimes subject to change.

Mozambique's leaders descend on Maputo for gas summit

THE MOZAMBIQUE GAS Summit was held from 30 November until 2 December, with a broad range of topics covered by the top-level speakers.

Among the speakers on the National Content Day were Dr vasco Nhabinde, director of the Ministry of Economy and Finance, Dr Amad Valy, chief operating officer of ENH Logistics and Wilson Chafinya. a local content specialist for Sasol.

The National Content Day covered topics such as legislation terms, the role of SMEs and best practice for implementing policy.

On 1-2 December, the focus of the conference shifted to strategic panel debates with international companies, such as Sasol. GE Oil & GAs, Standard Bank and Technip represented. Additionally, Dr Omar Mithá, chairman and CEO of ENH. Dr Carlos Zacarias, president of INP and Dr Estevão Pale, chairman of CMH, an HE Joanna Kuenssberg, British High Commissioner to Mozambique, and Joana Matsombe, a Banco de Moçambique board member, all spoke at the sessions.

Mozambique is becoming a leading gas conference destination.

The panel debates covered project updates, the role of technology, social and environmental impacts, infrastructure and economic diversification through gas.

FAR to drill two appraisal wells in offshore Senegal oil field


The drillship Stena DrillMAX has been contracted for drilling the two wells.

Image Credit: James Jones Jr/Shutterstock

FAR LTD HAS announced that operator Cairn Energy and its joint venture partners will carry out a drilling programme in 2017 consisting of two appraisal wells on the world class SNE oil field offshore Senegal.

The wells will be drilled in order to optimise the SNE field development plan before submission to the Government of Senegal for approval. The SNE-5 and SNE-6 wells, located in the SNE oil field and will evaluate the upper SNE reservoir units (400 series), specifically the connectivity of the reservoir section and depositional model interpreted from existing wells and high quality 3D seismic data. The wells are expected to provide important data for SNE reservoir management and will play a key role in optimising the proposed project development.

The two-well drilling programme is to commence in Q1 2017. The joint venture has completed an extensive rig tender evaluation process and executed contracts for the use of the Stena DrillMAX drillship. The drillship has been contracted for the two wells and additional option wells.

According to the drilling and evaluation plan, SNE-5 will undergo drill stem testing (DST) and have permanent gauges placed in the upper reservoir units. SNE-6 will be drilled immediately after SNE-5, and is expected to undergo an extended DST programme to generate a pulse that will be registered in the gauges installed within the upper reservoir section at SNE-5 and SNE-3. Successful flow and interference test results for the wells that support connected reservoir units could lead to higher oil recoveries by FAR from these reservoir units.

The joint venture is progressing towards the submission of a development plan for the SNE field as quickly and efficiently as possible. Pre-FEED activities are currently focused on determining the final project size and scope.

NOG to address future direction of oil and gas in Africa

NIGERIA OIL AND GAS Conference and Exhibition (NOG), one of Africa's leading oil and gas events, is scheduled to take place from 27 February-2 March 2017 at the ICC, Abuja, and will address major issues concerning the future direction for oil and gas in the region. The event aims to create a platform for the best of oil and gas industry professionals, investors, governments, financiers and others from across the globe.

This year, at the 16th edition of the NOG, the Nigerian minister of state for petroleum resources, Ibe Kachikwu, will deliver the official ministerial address.

Image Credit: NOG

The last edition of NOG saw participation from more than 250 companies and about 6000 visitors from around the world.

For the past 15 years, NOG has been developed in partnership with the Ministry of Petroleum Resources and NNPC. Given the current unstable oil and gas market in Nigeria, NOG 2017 is expected to serve as a platform for the government to showcase the direction in which they are taking the oil and gas industry in the years to come.

One of the main sessions of the event is titled "How Will New Legislation & Policy Develop to Transform the Oil & Gas Industry?" and will focus on the policies and legislative measures needed to improve the Nigerian oil and gas industry.

Many high level officials including other ministers and senators, senior government representatives from the Ministry of Petroleum Resources and NNPC and its subsidiaries are also expected to participate in the event.

NOG, which will be held as a part of the Nigeria Energy Week, will feature discussions from senior stakeholders in the upstream, midstream and downstream sectors. The event also aims to provide networking opportunities for industry players by bringing the entire value chain under one roof and helping participants connect with the right people. According to the organisers, the event is evolving to encompass the developing sectors and grow to be a one-stop shop for Nigeria's energy industry.

"The exhibition is a big opportunity for suppliers to exhibit their services which is very valuable. It is a unique opportunity for networking. Many businesses have taken off from here, so these are the advantages of NOG," said Olubunmi Obembe, former executive general manager at Total E&P Nigeria, who participated in the event last year.

Integrated energy project for rural South Africa involves Shell SA and local government

WITH THE IMPORTANCE of gas-to-power projects a strong focus of Africa Oil Week, held last month in Cape Town, the launch of the Angwaabe Integrated Energy Centre in Ngwaabe Village, Limpopo Province, is timely.

The centre is a community project launched by Tina Joemat-Pettersson, the South African energy minister, in conjunction with Shell SA and the Feta-Kgomo Greater Tubatse Municipality.

The centre promotes the use of diverse energy sources with a view to opening the market to cleaner alternative energy projects. As well as renewables, gas, in particular LPG, is expected to play a significant role in the centre's programme to bring energy to rural areas.

Image Credit: South African Tourism

The Limpopo province is one of the most energy-poor regions of South Africa.

Diesel, petrol and illuminating paraffin sales are also part of the centre's remit.

The Angwaabe centre is the ninth such intiative to be launched in South Africa, with centres now in four provinces, Eastern Cape, Limpopo, Kwa-Zulu Natal and Northern Cape.

"I am pleased to note that Shell SA gas has come on board with their first integrated energy centre here in Limpopo, which we know to be among the most energy-poor provinces nationally," said Minister Joematt-Petterson when she launched the centre in November 2016.

OPEC secretary-general champions stability

SPEAKING AT A side event at the Abu Dhabi International Petroleum Exhibition and Conference (ADIPEC) last month, HE Mohammed Barkindo, secretary-general of OPEC, said that long-term stability is critical to restoring confidence in the global oil market. He was addressing ADIPEC at the launch of OPEC's World Energy Outlook.

He told the conference that stability is essential for driving investment into future petroleum output expansion, which is needed to meet global demand for energy.

"The future potential for energy providers is huge," Mr Markindo said. "No doubt, there are challenges and uncertainties that we will face, but there are also tremendous opportunities, and they all equate to growing demand on all forms of energy – that is oil, gas, renewables, coal and nuclear – to meet the burgeoning demand levels."

"To meet the forecasted expansion in demand, the industry will naturally require significant investments," he continued in his address. "It is then essential for us to continue working towards securing orderly and stable markets with prices at levels that are conducive to a healthy and prosperous future for all concerned in the industry."

Image Credit: OPEC

HE Mohammed Barkindo was outspoken at the Abu Dhabi conference.

Cape Town report: active in oil and gas but depleted

A REPORT INTO the economy of the South African city of Cape Town found that while PetroSA offshore wells are hydrocarbon-scarce, the city is active further down the oil and gas value chain.

The Economic Performance Indicators for Cape Town (EPIC) report, released by the City of Cape Town, pointed out the city's rig repair sector and ancillary services, such as engineering, fabricating, geological and seismic surveying to the upstream sector, create economic opportunites. Additionally, Cape Town is home to one of South Africa's five oil refineries.

Operation Phakisa was cited as a positive example of how Cape Town is playing an important role in the oil and gas value chain. Launched in 2014 by the presidency, this programme aims to address the deficiencies in specialised oil and gas infrastructure needed in the Western Cape to consolidate its competitive position. The scheme includes deep and shallow water repair facilities at the Port of Saldanha, and refurbishments to existing repair facilties at Cape Town's port.

Project Khulisa, which has been implemented by the provincial government, identified the upstream sector as a priority and plans to work with Transnet to ensure timely implementation of Operation Phakisa and coordinate infrastructure, such as bulk services and roads.

The value of petroleum exports from Cape Town grew by 14 per cent from 2014 to 2015. This is a reflection of the country's weakened exchange rate but it has made petroleum exports more competitive.

Nigerian company develops global competence process

PRIME ATLANTIC CEGELEC Nigeria Limited (PACE), a Nigerian oil and gas services company has produced an Oil & Gas Petroleum Industry Technology Organisation (OPITO)-certified Competence Management System (CMS), a global process for developing competence. PACE has been operating in Nigeria since 2005 in oil and gas training, maintenance, commissioning and installation works. The collaborators try to challenge their technical solutions to support their clients with no compromise on safety and cost-effective solutions.

Image Credit: PACE

The company's trainers conduct regular on-site assessments.

The PACE training centre offers necessary equipment (workshop, simulator room, computer-based training classrooms, sport and leisure facilities), to execute instrumentation, systems, electrical, HSE, mechanical, process and behavioral trainings. The OPITO-certified Global Technical Training Standards ensure good quality. In the process of building local competence, PACE has trained more than 800 students to become operation and maintenance technicians.

The company's trainers also conduct regular on-site assessments to complete the training and the know-how of these technicians.

It trains its own staff and has been executing the general maintenance contract (instrumentation, electrical, HVAC and mechanical) of USAN FPSO for four years. After having performed all the maintenance, and inspection engineering work during its construction, PACE is now executing all the preventive and curative maintenance on-site with its dedicated team.

Challenge for the African oil economy post-COP 22

FINANCIAL NIGERIA INTERNATIONAL has issued a statement which puts forward a clear challenge to Africa's oil economies in the wake of COP 22, which was held in Morocco in November 2016. The statement calls for action in terms of investment in renewable energy sources and expresses concern about US President-Elect Donald Trump's pre-election claims that climate change is a hoax.

"As the drive towards decarbonisation gathers pace, Africa's oil economies will face more intense fiscal challenges," the statement said. "Given the strong link between government balance sheets and private sector balance sheets, this will result in serious constraint for business growth and profit."

Power and agriculture, industries which are traditional consumers of oil and gas, were cited in the statement as sectors that are leading the way in innovative climate solutions and green development.

The African Risk Capacity (ARC), founded in 2012 as an agency of the African Union with a mandate to finance climate resilience and crisis response, is planning to roll out an Extreme Climate Facility and one of its actions will be to issue climate change catastrophe bonds to attract investment from indigenous African banks and international financial institutions.

For Africa's oil and gas operators looking for finance, either from within the continent or internationally, this could make competition for much-needed cash stiffer unless renewable projects are included.

Solewant commissions a new pipe coating plant in Port Harcourt

SOLEWANT HAS COMMISSIONED a pipe coating plant in Alode-Eleme-Onne, Port Harcourt, in Nigeria's Rivers State, in what the chairman of the board of directors, Professor Sylvanus Ebohon describes as "a dream come true".

Professor Ebohon said the project started in 2004 with a collaboration between Solewant and Kema Coating, a Canadian company, with financial leveraging from Diamond Bank.

It is expected that the new plant will be instrumental in creating jobs for the community.

Image Credit: Solewant

The new plant is expected to be an important job-creator for the region.

"This plant is the product of the local content philosophy of the federal government and the new driving principle in the oil and gas sector," Professor Ebohon told guests at the inauguation ceremony. "We intend to prove that value-addition in the wellbeing of our economy [which] is a task that must be done through this world class project."

The plant was inaugurated in November 2016 in the presence of Chief Nyeson Wike, the governor of Rivers State, Dr Ibe Kachikwu, the minister of state for petroleum, HRH Don Awala. the paramount ruler of Alode, and members of the state executive council.

Lucrative agreements between Nigerian and Chinese players include oil and gas projects

EIGHT MEMORANDUM OF agreements (MOAs) have bene sugned in Abuja between Alpha Group, Oilserv, Chongqing Construction Engineering Group and Tianjin Energy to develop multi-billion dollar investment and infrastructure projects for Nigeria. The MOAs were signed with the support of the project's financiers, the Standard Bank of South Africa and the Industrial and Commercial Bankof China.

These agreements will start the process for jointly developing and financing high-profile infrastructure projects. These include crude oil and gas pipelines, oil refineries, ports, highways and railways across Nigeria. The Gas Revolution Industrial Park in Ogidigben, Delta State is already in development and Oilserv has partially completed Nigeria's biggest pipeline project, the East-West Gas Pipeline OB3, which is a 48-inch pipeline that is slated to transport gas to power plants across the country.

The next step is for the four companies to prepare formal proposals for the authorities, undertake joint feasibility studies and participate in joint steering committees with major stakeholders.

Image Credit: Alpha Capital International

The dealmakers in Abuja when the eight MOAs were signed.

Africa Oil to start drilling new Kenya wells in December

AFRICA OIL AND its partners in Kenya will drill up to eight exploration and appraisal wells, the company told Reuters.

Africa Oil chief executive Keith Hill told Reuters that constructing a pipeline for Kenya "makes us much more dependent on our own resources for justifying and financing that pipeline", in a push for further drilling to firm up oil discoveries.

"If we could get to a billion barrels of 2C and, say, 300-350mn of 1C those would give us a pipeline tariff and lending base which would work very well for us," he told Reuters.

According to Africa Oil, the latest drilling programme will start with two exploration wells, the first to be drilled at the beginning of December, which will then see the drilling of two appraisal wells to explore existing finds.

Image Credit: JHVEPhoto

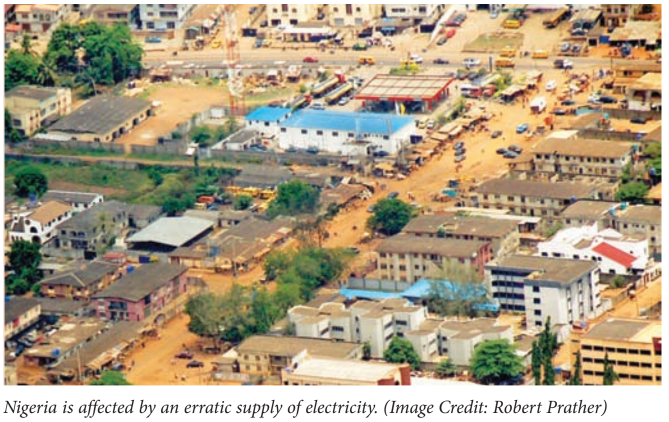
Two exploration wells will be drilled in December 2016.

The partners plan to secure a final investment decision for the Kenya project in the latter part of 2018, with full production due to begin around three years later. The Kenyan government revealed last month it aimed to enter a joint development deal for the pipeline in the near future.

The company has outlined it will begin small-scale production in 2017. Full-scale projection offers a 890 km (560 miles) pipeline, which will set the government back US$2.1bn.

Localisation vital for GE's oil and gas businesses in sub-Saharan Africa

GE'S NEW PRESIDENT and CEO of sub-Saharan Africa for oil and gas, Ado Oseragbaje, sees a promising future for GE in furthering the development of the industrial economy across the region. "People sometimes believe that localisation raises costs, but that's not true. We have to understand the obstacles that contribute to the increase in costs," stated Oseragbaje. According to Oseragbaje, one of the problem's Nigeria faces today is the erratic supply of electricity which affects local manufacturing: "There are also issues in the region around taxation, fiscal regimes and import, export costs that add to the overall project costs."



Nigeria is affected by an erratic supply of electricity. (Image Credit: Robert Prather)

GE is of the view that increasing spending in localisation is worth it. This has reduced the complexity of supply chains, lowered costs associated with transporting parts and job creation has boosted local economies.

"We have to start somewhere and if we don't, then 30 years from now, we'll still be having the same conversation. There will be marginal increases in cost as you try to ramp up, but thereafter, you would have built up sufficient competency to compete on a global scale," said Mr Oseragbaje.

Nigeria urged to boost investment in oil sector

AN ESTIMATED US$14BN a year in new investment for Nigeria is needed over the next five years to increase oil output to 2.2mn barrels a day (bpd) and even more spending to raise it to 3mn bpd, said Ladi Bada, chief executive of Shoreline Natural Resources, a joint venture with oil and gas interests in southern Nigeria. He noted around US$9bn a year is currently being invested in the oil industry from public and private sources.

"If we continue to invest US$9bn, we won't grow volumes," Bada told a business conference in Lagos recently. He added that at least US$14bn a year in new investment was needed for Nigeria to produce 2.2mn bpd of oil, the production level which the national budget is based on. According to Bada, Africa's top oil producer will need investment of between US$18bn and US$20bn every year for the next five years to boost output to three million bpd.

Nigeria is dealing with its worst crisis in more than 20 years, triggered by low oil prices which have lowered government revenues and severely affected the currency. At the same time, overall oil production has bounced back to around 2mn bpd after months of attacks, that were mostly carried out by the Niger Delta Avengers. Despite a number of joint ventures with oil companies the Nigerian government was in arrears of US$5bn. The government has said it was working on new oil and gas policies to encourage more private investors and boost crude production by 500,000 barrels a day by 2020.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VALVE WORLD EXPO NO. 1 TRADE FAIR FOR INDUSTRIAL VALVES

Düsseldorf welcomed the Valve World Expo where valves manufacturers and users from the oil, gas, petrochemical and power generation sectors came together to display the latest innovations from across the world.

OVER 700 EXHIBITORS from 40 countries and 12,350 trade visitors came to the fourth Düsseldorf Valve World Expo, which took place against the backdrop of a rather subdued business climate in the industrial fittings industry. Posting noticeable growth in both exhibitor numbers and square metres, it proved the biggest Valve World Expo in Düsseldorf so far.

"As a key technology, industrial valves are indispensable for just about every branch of industry. As an innovation platform and meeting point for this sector, the Valve World Expo has developed into what is the international "place to be" today," rejoices Joachim Schäfer, Managing Director at Messe Düsseldorf GmbH.

Halls 3, 4 and 5 of the Düsseldorf Exhibition Centre saw current technologies, components and systems presented from the most varied industrial fittings segments. Once again running as a parallel event was the Valve World Expo Conference in Hall 4.

Visitors at Valve World Expo 2016 were treated to a number of lectures and educational sessions. (ValveWorldExpo/Messe)

"As a key technology, industrial valves are indispensable for just about every branch of industry. As an innovation platform and meeting point for this sector the Valve World Expo has developed into what is the international "place to be" today."

Joachim Schäfer, Managing Director at Messe Düsseldorf GmbH

The 725 companies exhibiting at the Valve World Expo showcased the latest valves, valve components and parts, actuators and positioners, compressors, measuring and control technology, upstream supplies, service, support and consulting services and engineering services. Software as well as relevant associations and publishing houses supplemented the ranges.

Exhibitorswere satisfied with the placement of their products in Düsseldorf: "The Valve World Expo is also a must-go event for Hartmann Valves. We have invested heavily in our stand presentation. This really pays off since this trade fair is so important as a sectoral get-together. We also found that many international visitors came here this year. To my mind there is only one conclusion for us to draw: We have been part of it since the Expo has existed – and it will stay that way," said Sonja Seitz, marketing manager at Hartmann Valves.

Approximately 70 per cent of the guests came from abroad, most of them from Europe and Russia as well as from the fast growing economic regions in Asia, the Middle East and South America.

With two satellite events held biennially in the USA and China in the odd years, the Valve World Expo is also well positioned on the international stage. This means it continues to further expand its position as the number one trade fair in the industry.

In 2016 most trade visitors took an interest in valves, valve components and parts, actuators and positioners, engineering services and software, compressors as well as in associations and publishing houses. Some 50 per cent were users of valves and valve producers, followed by valve dealers, service providers, and trades and skilled crafts.

Visitors came from the oil and gas industry, petrochemical, chemical, food, marine and offshore industries, water and waste water management, automotive production and mechanical engineering, pharmaceutical and medical device technology as well as power plant technology.

The next Valve World Expo and accompanying technical conference will be held in Düsseldorf from 27 to 29 November 2018.


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LOOKING AHEAD TO A BRIGHT FUTURE AT AFRICA OIL WEEK

The mood was largely positive at Africa Oil Week, with plenty of speakers pointing out the opportunities presented by the low oil price environment, rather than the downside for the hydrocarbons industry. Georgia Lewis reports.

Image Credit: warrenski/Flickr

The Cape Town International Convention Centre was the scene of Africa Oil Week 2016.

THE LOWER-FOR-LONGER OIL price predictions were ever-present at Africa Oil Week, held in November in Cape Town, but the focus for many speakers was on opportunities rather than challenges for those seeking to operate in Africa's markets.

However, there were calls for improved regulations and greater transparency across African countries, especially in the up-and-coming hotspots as well as the more mature markets. The overriding perception is that African governments want clarity and consistency, said Ian Cross, managing director of energy advisor Moyes & Co. His view was that education in general is essential for success.

Namibia was seen as one of the top African hotspots, even though it is faced with the problem of small blocks. The significant discoveries in Senegal and Mauritania, as well as Kenya, Tanzania and Mozambique (see page 22) were also cited as enabling them to become emerging major players.

The ever-present challenge of access to finance was also a feature of the conference. In his opening address, Global Pacific's Dr Duncan Clarke talked about the "worldwide problem of raising capital" for oil and gas projects. Global Pacific is a leading advisory firm to the upstream industry. "It doesn't affect the potential, just the timing of unlocking capital," he said.

In terms of adding more independents to the mix in Africa, Dr Clarke's view is "the more the merrier".

Trends have emerged with deals done across the continent. Mike Lakin, managing director of Envoi Ltd, another upstream advisor, spoke about data from more than 5,600 deals done between 2000 and 2016 in Africa with 47 per cent onshore, 50 per cent offshore and three per cent in transition. He said that only 25 per cent of deals required seismic data and that there is "big potential" for unconventionals.

"There is still oil to find if we know how to go about it," said Lakin. "Africa has politically difficult areas but it can still be unlocked."

The importance of exploration and, therefore, geologists was another strong theme of the conference. Lakin pointed out that future E&P funding is a challenge.

"People have forgotten about exploration which is absolutely critical," said Lakin. "Geologists are vital. We need experienced technical staff to successfully replace the ones who will retire."

He spoke of "short-termism", in particular "the difference between industry and investor expectations", and the "knowledge loss" in which the industry is losing experienced technical staff and the need for them to be replaced in order for exploration to continue.

Olalekan Akinyanmi, CEO of E&P company Lekoil, said that "money, assets and people" are the three factors that are imperative to his company's success in Nigeria. In regard to the "people" part of the equation, he told the conference that Lekoil needs "people with a deep understanding of geology". He referred to the company's in-house training for geology - "the almost-lost arts" - so that Lekoil "keeps that knowledge".

Bruce Byrd, chief geologist for Rhino Resources, another E&P company, offered a "trick or treat" analogy for the industry's ongoing survival: "The trick is to maintain operational security, the treat is for the oil price to reach $50".

Byrd said the company's exploration strategy is low-price, curtailed exploration, budgets constrained, less competition and more attractive entry terms, along with exiting acreages once discoveries are made. Rhino is focused on South Africa offshore, AGC, Guinea Bissau, and Namibia with a new ventures programme focused on geology, and oil, rather than gas.

However, there were plenty of voices speaking up for a bright future for gas across the continent.

"Gas is the new oil for Africa," said Peter Elliott, director of NVentures. He said that exploration is essential and both North and East Africa's gas basins are showing great promise, while West Africa is experiencing "a challenging time". He added that more exploration in Angola and the Gulf of Guinea "has to happen".

Urging African hydrocarbons players to "embrace gas" along the entire value chain, Mr Elliott said that developing gas reserves will also have Corporate Social Responsibility (CSR) and environmental benefits in terms of job creation and as the cleanest burning fossil fuel.

According to representatives from the Baker McKenzie law firm, gas in South Africa is a bright spot, in particular the gas-to-power market. In the long term, the domestic market could prove rewarding, with projects expected to come online April 2017.

Helium could prove to be the wildcard commodity with prices hovering above US$100 per 1,000 cubic feet. Dr Peter Dolan, an independent explorer and investor with Dolan & Associates, cited Helium One as an example of how African companies can potentially profit from the development of helium from gas reserves. He said that in Tanzania "gas with high helium in surface seeps" is present and, while it is "early days", it is a gas that is increasing in demand. Byrd also mentioned the potential of helium, which has been discovered in South Africa's Karoo Basin.

Dr Dolan also offered advice for smaller operators interested in Africa. These included thorough understanding of target areas using recent and legacy tech data; technical competence to compete with larger companies; totally engaged founders; savvy negotiation for appropriate license terms; keeping shareholders informed as much as commercial confidentiality allows; and being opportunistic through calculated risks and networking.

Licensing rounds could also prove important for operators looking to get a foothold or extend their presence in Africa. As well as the first-ever Somalian licensing round being announced at the conference (see page 22), an update on the licensing round for Congo also took place in Cape Town. The 2016 license round was announced in October last year with online registration for interested companies opening the following month. From 15 October 2016, tender documents became available and the closing date for submission of offers is 31 January 2017. It is expected that by the end of March, bids will have been appraised and results announced. Congo has been an oil-producing country since 1960. In readiness for this licensing round, Congo's new petroleum code was ratified on 12 October this year.

The new frontier of Senegal

The world class oil discovery off the coast of Senegal is a game changer. Gordon Ramsay, executive general manager for business development for FAR, an Australian-based explorer which is in partnership with Kosmos in Senegal told the conference that it has taken just 21 months from discovery to statement on commerciality thanks to "good geology and good fiscal terms".

Senegal is the ideal area to invest in oil and gas, said Joseph O. Meadou, E&P director of Senegal National Oil Company. Petrosen said: "It is a new area of exploration, with ultra-deep channel and turbidite deposits and proven source rocks. There are multiple play types in the deep, and ultra offshore and potential for gas shales onshore."

The hydrocarbon production includes the 2014-2016 discovery of the Sangomar offshore Profond Block, with the first oil anticipated in 2021; the St Louis and Cayar offshore Profond Blocks; St. Louis offshore Profond, with the first gas by 2020-2021.

"The main reason to invest in Senegal is "an exceptional quality of life," he said.

Image Credit: Peter A. Harrison/Flickr

Off the coast of Dakar, the Senegalese capital, lie enormous offshore oil deposits, which could be a game-changer for the country.

Namibia, Madagascar and Comoros developments

Maggy Shino, petroleum commissioner, Namibia's Ministry of Mines and Energy, explained that the exploration for hydrocarbons in Namibia started around 50 years ago with seismic acquisition and further drilling onshore, without significant results. The first seismic and drilling took place in the 1970s with the discovery of Kudu gas field. There are now 32 wells in Namibia and, according to Shino, there is great potential for oil and gas.

"Despite the good start, the next 40 years were characterised by intermittent activities in terms of exploration. Nevertheless over the last 10 years, aggressive seismic campaigns and several wells changed the exploration rhythm. The year 2012 marked a new stage with drilling and the discovery of the first oil offshore Namibia in 2013," she said.

"The Kudu gas-to-power project is recognised as vital to address the growing demand for clean and sustainable energy in Namibia and the southern Africa region," she said.

Lekoil is also making early inroads into Namibia with the establishment of Lekoil Namibia, a separate company.

Olalekan Akinyanmi, CEO of Lekoil, described Lekoil Namibia as "exciting but there is still a lot of work to do."

"It is easier to do business in Namibia, [compared to some other African countries] but the regulations are still being tweaked," Mr Akinyanmi said.

John Austin, general manager, Sub Saharan Africa, for OMV has spoken positively about the possibility of Madagascar's Grand Prix offshore block going into production in the coming years.

Mr Austin told the conference that there are plans to drill in 2018. He described Madagascar as "still an important component of growth for the future". The Grand Prix work is part of a strategy that has become popular among companies investing in Africa during the downturn, that is, to acquire assets at a low cost with a view to monetising when the oil price picks up again.


Image Credit: jbdodane/Flickr

Namibia's gas-to-power project has been instrumental in meeting the country's energy needs.

OMV has acquired seismic data and is a 90 per cent stake holder of a license that expires in September 2019. According to the geological data, the Morondava basin is analogous to the Ivorian-Tano basin, and the Grand Prix block potentially contains "well over 2 bn barrels of oil". The company is now seeking a farm-out partner willing to take on a stake of up to 50 per cent.

According to Mr Austin, the project is "less about volume, more about value". He added that the Madagascar government offers an attractive fiscal environment with a take of less than 40 per cent.

Lalanirina Ranoroarisoa, Hydrocarbons Manager, Hydrocarbon Division, OMNIS Madagascar, gave a geology overview of Madagascar and of the Morondava offshore opportunities. OMNIS is the state-owned agency responsible for managing, developing and promoting Madagascar's petroleum and mineral resources.

Developments of E&P activities in the country include the dry gas discovery in onshore Morondava South basin. In discussing the resource potential of the offshore Morondava Basin, she said that sediments are more than 10km thick. The existence of working petroleum systems has been confirmed by well data and DHIs. There was the presence of mature source rocks expelling hydrocarbons prior to the formation of traps. There is the possible extension of hydrocarbons discovery in onshore to the offshore zone. Modern Seismic 2D Data with good quality. The Frontier basin is also promising for hydrocarbon exploration.

Dr Noildine Houmadi, Director, Geological Bureau of the Comoros, discussing the offshore zones, corporate players and exploration potential in the Comoros, said the oil industry is relatively new in the country. The Petroleum Law was adopted in 2012, and an agreement with Rhino PSC is, now being processed.

"The legal framework is stable and transparent and was initiated in 2012," he said. "License awarding has to be addressed by the Ministry of Petroleum."

He said petroleum contracts had been issued to Bahari Resources and Safari Petroleum-Western Energy. A third contract covering Block 17 and 24 has been awarded to the Rhino Resources Company. Exploration is strongly supported by geosciences data.

"The exploration potential in recent studies indicates the achievement of optimum conditions to allow oil exploration," he added. "So much more needs to be done."

Challenges in West Africa: Ghana, Nigeria and Angola

Ghana's new Petroleum Law was a hot topic of discussion regarding West Africa at the conference.

"Petroleum resources are finite, non-renewable resources that require optimal exploitation, conservation and efficiency principles," said Theo Ahwireng, acting chief executive officer, Petroleum Commission in Ghana, in explaining the country's new E&P Act 2016. "Providing environmental responsibility buttressed by the 'Polluter Pays' principle, and the principle of economic justice, inter jurisdiction of territorial equity, is crucial."

In the act, provisions have been made in an order that follows the sequential phases of upstream activities to provide

Because He founded the earth upon the waters...
And four fifths of the earth is under water

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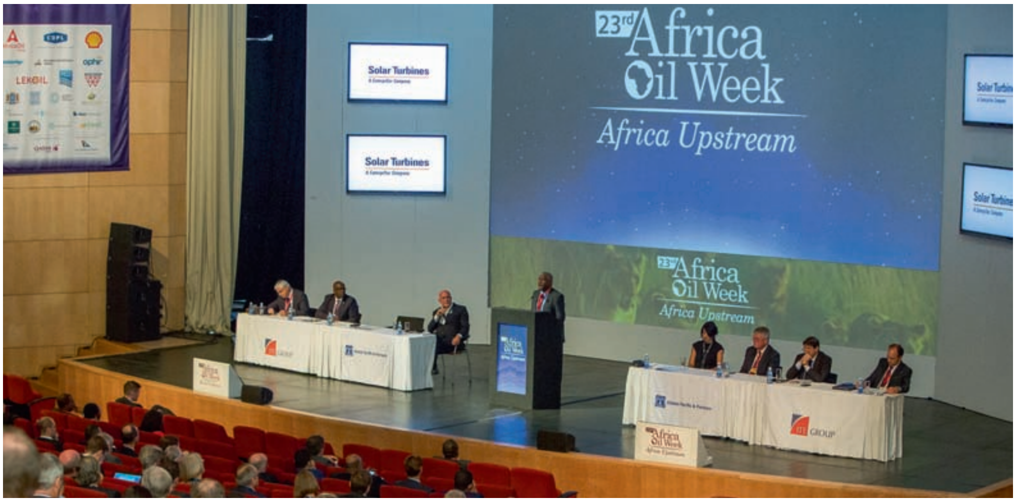

Image Credit: Global Pacific

Africa Oil Week attracted a range of quality speakers representing multiple sectors of the African hydrocarbons industry.

ease of reference and user friendliness.

"The act further clarifies the roles of the state actors which include: the Ministry of Petroleum as representative of the State and Developer of Policy; the Petroleum Commission as the Upstream Petroleum Industry Regulator; the National Oil Company (GNPC) which conducts petroleum operations either alone or in partnership with other parties," Mr Ahwireng said

"Transparency provision including open competitive bidding has been introduced and provisions for unitisation and coordination of activities have been enhanced," said Mr Ahwireng. "The management of Ghana's petroleum resources in accordance with the principles of good governance and transparency are the object of this Act," he added.

Speakers representing Nigerian operations were largely positive about the future.

Oisin Fanning, CEO of specialist oil and gas company San Leon Energy talked about OML 18, an onshore play in the southern Niger Delta near Port Harcourt. The site has 1,035sq km of mangrove swamps with nine fields, four of which are producing. The oil is transported via Nembre Creek to Bonny Terminal. He said security is important, local people are employed and no days have been lost to vandalism or theft.

Seinye Lulu-Briggs, executive vice chairman of Moni Pulo, outlined the company's success in the Nigerian market, with operational excellence as its foremost priority.

"We strictly adhere to industry standards," she said.

A "flexible, balanced portfolio of assets" means the company can "divest or bring in partners" Mrs Lulu-Briggs said of the portfolio which she describes as a "good geographical spread" of on- and offshore sites.

She also spoke of the importance of robust security, leading to "zero disruption or fatalities" and forming strong relationships with local communities.

"Our CEO is indigenous to the Niger Delta so we know where it bites," she said.

In his address to Africa Oil Week, Olalekan Akinyanmi, CEO of Lekoil, talked about developing corporate assets in the continent.

He said that Lekoil, "an indigenous E&P company" is "poised for strong production growth" and is "headed for commercial production", while keeping costs under control and creating value "throughout the cycle".

"Money, assets and people" are the three things Mr Akinyanmi cited as being essential for successful hydrocarbon operations. He said that money and "a solid group of backers" is the starting point, and this leads to investment in assets, technology and people.

"We are making painstaking efforts to build a strong team," said Mr Akinyanmi of the challenge to find the right people. He added to the growing group of voices at the conference calling for more geologists to get involved with oil and gas.

"We have in-house training in the almost-lost arts so we keep that knowledge."

There was also optimism from Friburge, an Angolan services company.

Speaking to Oil Review Africa, Dalila Iddrissu, Friburge's business development manager, said that the company is benefiting from the combination of the low oil price climate as well as governments introducing more stringent environmental regulations.

ABC Orjiako, CEO of Seplat told Oil Review Africa that the low oil price environment, as well as Nigerian local content requirements, present opportunities for the company.

The Nigerian E&P company has weathered the storm created by the oil downturn "very well" according to Mr Orjiako. He described the current challenges as "surmountable". Keeping an eye on costs, fiscal discipline and alternative routes for oil were all cited as solutions for ongoing success.

"We're small so we're nimble, we have no huge capex," Ms Iddrissu told *Oil Review Africa.*

Ms Iddrissu referred to an Angolan government directive in regard to water discharges and explained that Friburge is offering offshore operators new water treatment technology whereby the process happens in situ. The water is treated offshore via centrifuge and CTU methods and, when it is safe for discharge, it is released into the sea, saving onshore transport and treating costs.

The opportunity for operators to simultaneously lower costs and meet environmental regulations makes Friburge's services very attractive, according to Ms Iddrissu.

"Companies are more open to new technology and are more open to talking to us, it gives us that foot in the door," she said.

North Africa

Will Holland, executive vice president of Sound Energy talked about the company's onshore acreage in Morocco. Sound Energy has partnered up with an Italian private equity fund as well as Schlumberger. Production from Italian interests covers the costs in Morocco.

The Tendraka area, which borders Alergia is "known to be a very gassy area", Mr Holland said. He added that local companies did not have the best technology and a well drilled in 2006 was not drilled properly. Geologically, it is similar to Algerian sites and it covers 14,500km^2.

"The challenge is to prove it can be drilled properly," he said. Schlumberger farmed into the project and drilled a vertical well in early 2016, which Mr Holland said led to a "great result."


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Offshore gas in Tanzania's Mtwara region is helping the country meet its energy needs.

OPPORTUNITIES FOR NEW HYDROCARBON PRODUCERS IN EAST AFRICA

Mozambique, Kenya, Tanzania, Uganda and Somalia are all vying to be the next producing hydrocarbon nation in Africa. At Africa Oil Week, there was much positive discussion about how these new producers can move forward in challenging economic times.

EAST AFRICA'S NEW hydrocarbon prospects attracted much discussion at Africa Oil Week. Mozambique was described by Peter Grant, director of International Solutions, as the "jewel in the crown" with its Pande and Temane gas fields, Tanzania's promising gas deposits were highlighted, and Kenya may well get the jump on its southern neighbours in terms of pace of development. Meanwhile, the conference was also used as a platform for announcements about Somalian licensing rounds.

Gas in particular could prove to be a massive boon to East African economies.

"Gas is the new oil for Africa," said Peter Elliott, director of NVentures. He added that exploration is essential because both North and East Africa's gas basins are very promising.

Urging African hydrocarbons players to "embrace gas" along the entire value chain, Mr Elliott said that developing gas reserves will also have Corporate Social Responsibility (CSR) and environmental benefits in terms of job creation and as the cleanest burning fossil fuel.

Tanzania has an estimated 50 tcf of natural gas deposits and is already involved in the gas-to-power sector, with gas from Mtwara providing 60 per cent of the country's energy needs.

Additionally, opportunties for helium exploration and development were cited at the conference. Dr Peter Dolan, an independent explorer and investor with Dolan & Associates said that operators in Africa can potentially benefit from helium exploration. He said that in Tanzania, "gas with high helium in surface seeps" is present.

Martin M. Heya, Kenya's commissioner for petroleum, shared his insights into the oil and gas exploration wells that have been drilled in Kenya since 2012. He mentioned that wells intercepted commercial crude oil reserves in Blocks 10BB and 13T in the Turkana County Tertiary Rift Basin and the other in Block L8 offshore Lamu Basin. One well in offshore Block L10A, formerly operated by BG Group now Shell, has both crude oil and natural gas. The other three wells with minor discoveries include Mbawa-1 (natural gas) Block 8 Offshore Lamu Basin, Sala-1 (gas) Block 9 Anza Onshore Basin, and Sunbird-1 (both oil and natural gas) Block L10A offshore Lamu Basin.

> **"Gas is the new oil for Africa...exploration is essential, because both North and East Africa's basins are very promising"**

Heya said the commission was working on the National Petroleum Master Plan and that an early oil pilot scheme preparatory initiatives are on course for being commissioned in March 2017.

Despite the "depressed crude oil prices, ongoing reforms in the country's sector are on course," he said.

In his presentation on building an African portfolio, James Phillips, president and CEO of Africa Energy, cited Uganda's Lake Albert as a promising area. Exploration in the Albertine and Nile basins commenced a decade ago, and,

“Somalia’s first round of oil block bidding is expected to be launched in the second quarter of 2017”

while the country is yet to enjoy the benefits of oil production, significant investment has followed the first discoveries.

Africa Oil Week was the scene of an announcement in regard to Somalia’s first oil block bid round, which is expected to launch in the second quarter of 2017.

Jamal Mursal, permanent secretary to the Somalian Ministry of Petroleum and Mineral Resources, told the conference that details should be available by March 2017 in readiness for bidding to commence on blocks off the coast of Somalia. The 2D seismic survey data of the area, covering 20,566km, has been completed by Spectrum.

In contrast to the heavy focus on gas in East Africa at the conference, Dr Neil Hodgson, executive vice president of geoscience for Spectrum, outlined the geological findings of the survey at the conference and concluded: "This is an oil story, not a gas story."

In readiness for bids, the Somalian government has bolstered the country's legal and regulatory framework. With assistance from the World Bank, its laws pertaining to oil and gas have been amended in the wake of the country's federalisation, and drafting is now complete. A downstream law has been introduced and a new PSA model developed with assistance from the World Bank and the African Development Bank.

Tullow Oil has been involved in Uganda for several years.

BORDER DISPUTES: DRAWING THE LINE

The presence of oil and gas reserves frequently leads to disputes over boundary delimitations, particularly in offshore maritime areas. Stephen Williams reports from Africa Oil Week about issues facing companies and governments across the continent.

TWO MARITIME BORDER disputes are brewing in offshore West and East African waters, but these could well be just the first two of many such clashes to arise over the next few years, delegates at the Africa Oil Week in Cape Town were told in a special break out session. The issues involved were explained by Robert van de Poll, the international manager of Law of the Sea at Fugro; and Dr Pieter Bekker, a partner at Cameron McKenna law firm.

A presentation by the two men took a whistle-stop tour around Africa discussing each region's potential flash points when it comes to maritime boundaries and offshore oil and gas acreage.

Ironically, Congo-Brazzaville issued an oil licensing round during the Africa Oil Week, and at least one of the blocks on offer partially overlaps an area already awarded to Total by Angola

But the two disputes that are currently being argued are those between Côte d'Ivoire and Ghana, and Kenya and Somalia.

Côte d'Ivoire and Ghana have submitted a case that affects part of Tullow Oil's Tweneboa-Enyenra-Ntomme gas field discovery, which came onstream in August.

Tullow says the case will not have an impact on its block – but a decision is expected within the next 12 months, insists Tim

Tullow Oil's vice president for Africa, Tim O'Hanlon at Africa Oil Week.

O'Hanlon, vice president of Tullow in Africa. Nevertheless Tullow will halt further drilling in the Tweneboa, Enyenra, Ntomme (Ten) Project oil field as a result of this dispute.

The TEN project showcase is a joint-venture partnership between Tullow, Kosmos Energy, Anadarko Petroleum, Petro SA and the Ghana National Petroleum Corporation (GNPC). The maritime dispute ensued in 2014 when Ghana took Côte d'Ivoire before the International Tribunal on the Law of the Sea (ITLOS) over the Ivorian's claims.

In a company announcement, Tullow stated: "Drilling is not expected to recommence on the TEN field until after the resolution of the Côte d'Ivoire and Ghana border dispute through the ITLOS tribunal whose decision is expected in late 2017."

It's a high stakes game. Production at the TEN field expects to eventually reach 80,000bpd if the ITLOS ruling favours Ghana and the remaining 13 wells are drilled. The GNPC has already spent more than US$2mn on the dispute. Kenya and Somalia are also going to court over offshore fields, a dispute that affects deep-water assets like Eni's offshore blocks. Kenya has halted exploration on the block until a decision is reached.

Kenya's argument is that there has been a pre-existing agreement (MOA) signed between the two governments in 2009 that predates the UN's Convention on the Law of the Sea. That 2009 agreement set the maritime border as running due east from the land border. parallel to the lines of latitude.

Should the case be found for Somalia, four major offshore blocks licenced by Kenya would be affected. One highly placed Kenyan oil and gas official said, off the record, that in his opinion, Somalia had the stronger case.

There are, however, other ways of settling disputes – such as by companies buying up blocks on either side of a disputed area, as Kosmos Energy managed to do to avoid controversy over its exploration in Senegal and Mauritania. And there are examples of international agreements creating joint development zones such as struck by Guinea Bissau and Senegal to establish an area of joint exploration.

So too does the Nigeria-Sao Tome & Principe JDZ provide an example of how cooperation between neighbours can trump the expense and uncertainty of going to court.

OPTIMISM URGED BY SPEAKERS AT ADIPEC 2016

It was business as usual for oil and gas players at ADIPEC with more than 2,000 exhibitors, a busy schedule of speakers, and calls for investment even if oil prices at US$50 become the new norm. Georgia Lewis reports.

OPEC was high on the agenda at many sessions during ADIPEC 2016, held in November in Abu Dhabi.

Image Credit: ADIPEC

OIL COMPANIES THAT invest during the current downturn in oil prices stand to profit the most when supply and demand comes back into balance, according to the UAE's energy minister, His Excellency Suhail Mohamed Faraj Al Mazrouei.

Addressing the ADIPEC conference in Abu Dhabi last month, he said that the long-term demand for oil outstripped supply, and that for companies with strong balance sheets and a long-term view that now was the time to invest, not to withdraw.

"The oil industry is inherently cyclical, this is a basic point that often gets overlooked in the short-term noise – and finding an equilibrium between supply and demand is almost impossible," Mr Al Mazrouei said. "However, demand has consistently increased, and the business cycle that drives an increase in demand moves much more quickly than the oil industry can expand its capacity for supply."

Mr Al Mazrouei said around USD$200 bn worth of oil and gas projects had been postponed worldwide because of the fall in prices. With the industry needing between six and nine years to move from discovery of new deposits through to production, the dramatic fall in investment would leave companies making those cuts slow to respond when the market started to rise.

By contrast, those that invested while asset prices were low would be ideally positioned with to meet increased demand with additional capacity, gaining a bigger share of a future rising market: "The dramatic reaction in reducing investment will inevitably lead to demand coming back into equilibrium, and ultimately exceeding supply in the coming years. We can see the cyclical nature of the industry reinforced before our very eyes. For those companies that are strong enough to hold their nerve and make strategic long-term investments, this is a golden opportunity."

> **"For companies that are strong enough to hold their nerve and make strategic long-term investments, this is a golden opportunity "**

Mr Al Mazrouei said the very fact that oil had fallen so significantly in price could itself trigger a recovery. Lower costs acted as an economic stimulus for countries that were net energy importers, supporting growth in the global economy, and ultimately increasing demand in the commodities markets, he concluded.

Offering a Nigerian perspective, Wale Tinubu, group CEO of Oando, addressed the conference on the challenges and opportunities facing the country.

Mr Tinubu opened his address to a panel discussion on the resilience of oil and gas with a global perspective, discussing the importance of meeting COP 21 climate change commitments while meeting energy demands, particularly in the developing countries of Africa and Asia with a growing middle class. Additionally, he emphasised the importance of focusing on petrochemical development, increased refining capacity and playing a role in industrialisation.

"Is this the new norm? Fifty dollars a barrel for crude?" he asked the conference, adding that it is important to "ensure we drive the supply in a more efficient manner".

"We will have a soft market for a long time," Mr Tinubu said. "Cost reductions are appropriate for a company to ensure a good return."

He described Africa as "without a doubt an exciting prospect", with 7.6 per cent of global gas resources and particularly promising gas prospects in Mozambique and Tanzania, oil in Uganda, and oil and gas in Nigeria. Mr Tinubu added that there is an opportunity for Africa in terms of boosting production of refined products, moving away from being a net importer of crude oil, and becoming an exporter instead.

High capex poses a challenge to African operators, according to Mr Tinubu, citing costs in

Image Credit: ADIPEC

As ever, ADIPEC 2016 played host to an extremely busy exhibition with thousands of visitors daily.

Angola of $36.20 per barrel and $35.40 per barrel in Nigeria. Other challenges for Africa that Mr Tinubu highlighted include a drop in rig counts, project delays and cancellations, and a decline in export revenue.

In regard to increasing the role of renewables in the energy mix, Mr Tinubu said that alternative forms of energy are "not able to provide the speed we need to satisfy global demand" and that "renewables are not receiving the attention they should be receiving".

He then focused on Nigeria in particular, saying that operators need to "turn challenges into opportunities".

Mr Tinubu said that positives for the Nigerian oil and gas industry include providing customised security solutions, the government is restructuring the Petroleum Industry Bill, and joint venture budgets have been finalised for 2017.

"Indigenous companies [such as Oando] will focus on areas multinationals avoided," said Mr Tinubu.

During the question and answer session, Mr Tinubu was asked about the challenges faced by the Nigerian oil and gas industry for expansion.

"The best thing Nigeria can do is create a strong NOC," he said, with "improved transparency" and using resources to raise capital as the priorities.

"[Oando] had a torturous time [but we have built] a successful export business and we have 500-strong petrol stations, and big upstream production," Mr Tinubu said. Leveraging new technology and cost efficiencies were flagged up as being important to continue to expand.

"I think the worst is over, we are going to be ever-present," he said in his closing remarks.

> **"The best thing Nigeria can do is create a strong NOC with improved transparency, using resources to raise capital as the priorities"**

Among the exhibitors at ADIPEC, there was also optimism particularly in regard to the potential of the African market. Speaking exclusively to Oil review Africa at the event, Andy Leng, vice president of Kerui Petroleum, a service provider headquartered in China, said the current financial climate has created "opportunities to change strategies", such as taking a localised approach in the countries where they operate.

Mr Leng described the African market as important to Kerui and praised the Chinese government for facilitating their work in the continent with financial support. Egypt, Algeria, Libya, Gabon and Nigeria are all significant markets for the company.

Paul Olson, managing direcor of safety clothing manufacturer Red Wing, also spoke highly of opportunities in Africa, with the company being "well represented" in 12 African countries, including the major oil and gas markets of Nigeria, Angola, Egypt and Ghana, and emergent East African countries such as Kenya and Tanzania.


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THE PATH AHEAD FOR ANGOLA

OPEC's production cut may help Angola benefit from strengthened oil prices, but economic diversification is paramount. Luke Barras-Hill interviews a leading researcher on what lies ahead.

THE ORGANISATION OF the Petroleum Exporting Countries' (OPEC) decision to slash crude oil production by around 1.2 mbpd to bring its ceiling to 32.5 mbpd, effective 1 January 2017, is a clear attempt at addressing supply and demand imbalances. For Angola, OPEC said that production would dip from *1,751 tbpd to 1,673 tbpd under an agreed adjustment level. ORA asks Otavio Veras, research associate at the NTU-SBF Centre for African Studies at Nanyang Technological University in Singapore – a trilateral platform with government, business and academia that promotes knowledge and expertise on Africa – for his take on the path ahead for Angola.

***Oil Review Africa (ORA):* The oil markets are braced for more upstream investment cuts, risking a production shortfall in a few years' time and a potential boom/bust cycle in the 2020s, according to the IEA's World Energy Outlook. Combined with OPEC's decision to cut production, how do you see Angola faring short term?**

Otavio Veras (OV): I don't believe there will be a sharp and sudden hike in oil prices. I agree the last two years saw low upstream investments but, since most of the greenfield offshore projects take a few years from "final investment decision" date until the first oil, this gap in new developments will be sensed at some point. However, differently from what happened in the 1970s, the main oil consumer countries have a robust infrastructure for storage that can be used during times of shortage. These stocks will make a buffer to any shortage in oil supply and are likely to soften prolonged price rises.

I was surprised with OPEC's decision on cutting oil production. After so many attempts, it finally reached an agreement. The immediate consequence was a rise in the oil barrel price of some 9 per cent. However, there are a few points that have to be observed in the medium term. There are no penalties for countries that fail to comply with the oil production targets. In the 1980s, a similar decision was made by OPEC on cutting production. Saudi Arabia greatly decreased its oil output but other members of the group did not comply with the deal. That hit the Arab country hard, which led to 16 years of budget deficit as it lost market share in the global market. So, there is historical precedent on non-compliance of these deals and that was probably the reason OPEC took so long to finally take action.

Another point to keep in mind is that the US is not a net oil importer anymore. The shale

Image Credit: Nanyang Technological University

Otavio Veras is surprised that OPEC decided to cut production.

revolution led to the increasing domestic production of oil. The drop in oil prices made shale oil production unprofitable and many companies stopped producing. However, once oil prices rise to more than US$60, these wells become profitable again. In my opinion, the oil prices are likely to be capped around the US$60 threshold for the next couple of years.

Angola should not rely on a revival of the glorious times of high oil prices any time soon. The country still lacks strong institutions and a welcoming business environment. Adding to that, Angola's oil reserves are deepwater offshore. These conditions create a high cost of production. The advantage Angola has over Nigeria is that its main oil buyer is China. Demand for oil in China should grow in the next decade as its middle class becomes larger and householders start buying cars. More cars mean increasing demand for gasoline and, consequently, for crude oil.

***ORA*: The IEA report says high demand is projected to come from freight, aviation and petrochemicals in the future. Where do you see the main demand channels for oil in Angola?**

OV: As Angola develops and more people are drawn from rural to urban areas, the country will need increasing electricity generation. In 2014, 47 per cent of electricity came from oil. I believe the use of oil for this purpose will remain strong in the coming years.

***ORA*: As Angola battles with Nigeria to be Africa's largest oil producer, do you feel there needs to be more investment diversification in Angola away from oil?**

OV: Angola and Nigeria need to diversify their economies regardless of which country produces more. This diversification is something that should have been implemented years ago and it would have prevented the economic crisis these two countries are now facing. Agriculture, in my view, is the sector that should be targeted. Angola imports 90 per cent of its food at a cost of US$5bn per year. The food imports greatly depend on the oil revenue.
Once it is down, food security

OIL AND GAS TO PROPEL NATIONAL GROWTH IN UGANDA

Delivering the keynote address at the second Uganda International Oil and Gas Summit, President Yoweri Museveni described oil as an 'enabler' that will help to propel national growth.

SPEAKING AT THE summit, President Yoweri Museveni outlined his government's plans for Uganda's future oil revenues.

The two-day oil and gas summit ran under the theme "Uganda Oil and Gas Industry: a driver to national prosperity and regional integration."

Stressing that oil revenues will not be used to import consumer goods, President Yoweri Museveni said that Uganda will channel oil revenue to specific areas that propel national growth and form the backbone to national prosperity. He explained the oil revenues, which are currently estimated to be worth about US$50bn, will be consolidated into a fund that will be dedicated to the development of infrastructure. Particular attention will be given to areas such as electricity, railways, roads, human resource, scientific innovation and agricultural modernisation. The oil and gas revenue is to be integrated into the national economy to form part of the base to the country's modernisation agenda.

Image Credit: DFID/Flickr

The President Yoweri Museveni reiterated that oil revenues will not be spent on consumables.

The President, however, warned against over-dependence on the oil and gas sector. "Petroleum is a small aspect of a big story," he said, pointing out that as the country embarks on commercial oil production, Ugandans must realise that the country cannot survive solely on oil revenue. "It will only help us get quick money that we should use to build a durable economic base for Uganda for today's and future generations," he stressed.

> **"The exploration success in Uganda is 85 per cent higher than anywhere else in the world."**
>
> **Minister of energy and mineral development, Irene Muloni**

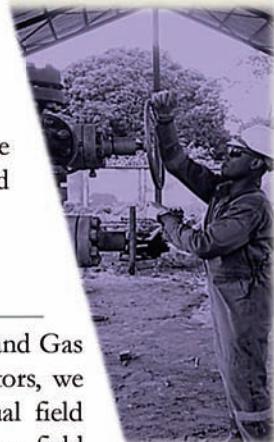
Extending support to investors

The president said that all measures will be taken to welcome investors to the country. He warned government officials against frustrating investors and reminded them that in an economy like Uganda's, which is private sector led, investors should be given all the needed information and support to facilitate investment. The minister of energy and mineral development, Irene Muloni, pointed out that it makes economic sense for any company to invest in oil exploration in Uganda as the exploration success in the country is 85 per cent higher than anywhere else in the world owing to cheap exploration at less than a dollar per barrel of oil.

She revealed that the Ministry's plan to issue more exploration licenses by the end of this year, adding that Uganda's target is to start commercial oil production by 2020.

As there is an ever increasing global demand for petrochemical based products, this of course implies a global increase in exploration, drilling, completion, as well as production cycles. More need for products means more drilling and production support structures are required to be put in place.

However, there is also an ever present need to utilize competent personnel equipped with both the skills and expertise necessary for handling such processes in order to keep working safely and achieving job tasks with greater to near perfect effectiveness and efficiency.



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A TAILORED, KNOWLEDGE-SHARING CULTURE FOR THE AFRICAN MARKET

Proactive promotion of tailored knowledge sharing in-country, rather than exporting learning formulas, will develop local skills, writes AGR's TRACS Training Director, Mark Bentley.

THE EMERGENCE OF a new generation of African technical professionals for oil and gas is on the horizon. How their skills are developed is a focus for governments and companies; significant money will be spent, learning and development is inevitable. Can this be done efficiently and effectively? The answer is optimal approaches.

Most see the benefit of knowledge transfer and local content policy, based on the premise that petroleum resources belong to a nation and its people – it is reasonable to expect resources to be developed for the benefit of local communities.

Within the industry, local content requirements are designed to ensure most goods and services for the whole value chain are locally supplied. There is more to this than just hiring more local employees, and IOCs are compelled to actively engage with the local workforce.

The need to draw on the global talent pool is clear, and the wish to replace that global assistance with a workforce of locally based talented individuals is equally clear. But how? This is where the attitude of existing training providers comes in. Sometimes the attitude is poor.

When an opportunity for new training business comes along, there is a strong tendency for providers to take their current materials and simply implant

Staff at land-based oil and gas operationss require training tailored for their needs, rather than for offshore projects.

Image Credit: James St John/Flickr

them in the new environment. This will be in spite of the fact that the materials will have been developed in another country, for another culture and perhaps even for a different purpose.

An extreme example of this is a major multinational company which exports skills for offshore developments, and runs training courses in countries which have only land-based activity.

> **"Petroleum resources belong to a nation so it is reasonable to expect resources to be developed for the benefit of local communities"**

This is a perfect example of un-tailored training. Standardised capability matrices are another example – written once for one marketplace but exported globally. This is profitable for the service providers it but not optimal for the recipients. Skill requirements for a country are not entirely generic – every country and every development area has specific needs.

For in-country development, one size does not fit all. Training providers are aware of this and also aware of the positive branding pioneered by TRACS and others associated with the word 'tailoring' so will generally advertise their products with strap lines such as 'tailored for you'. It is worth investigating what 'tailored' really means in a course context – it should be more than just changing the front slide of a PowerPoint presentation to add a new date and country location.

The hard truth is that implanting existing material is profitable and easy; developing tailored solutions requires more time, effort and skill and is intrinsically less profitable.

A more positive, and large-scale, model of skills transfer is the role the Norwegian government took in developing local content in the early days of its oil and gas industry. The country had a highly educated workforce with technical competence in manufacturing, shipbuilding and engineering but no domestic oil and gas industry. Predominantly via Statoil, the government ensured that technology and expertise from international oil companies flowed into Norway and stayed there. Knowledge was transferred and built on to develop innovative new technologies tailored to the local offshore environment. Norwegian companies now export that expertise internationally.

The characteristics of the approach are to focus on the in-country need, develop a tailored approach to skills development and do this while planning for the long term. These characteristics play out on a smaller scale too and revolve around the right attitude to skills transfer. It can be about forsaking short term financial gain for long term nurturing of talent.

The aim is to achieve a similar model of long-term transfer and local development the emerging African businesses. It comes down to good attitude – and giving up some profit to help another country.

There are several approaches to knowledge transfer: tutored classes, links with universities, blended learning techniques, secondment opportunities within partnered licensees, and drawing on specialist consultancies for expert knowledge. Identifying the different approaches to knowledge transfer is necessary to choose options – but these are just tools, not the solution itself.

Based on the logic of the positive model, and our own tutoring and training experience gathered throughout almost 25 years designing and running learning events, we argue that the key at the working level is the promotion of a knowledge sharing culture; one in which the instinct of all parties involved is to share for the benefit of others.

This culture is most likely to develop when providers and seekers include individuals who are passionate about the principle of sharing, irrespective of monetary gain. The onus on management is to ensure these individuals are at the forefront of the knowledge transfer activities, whatever form these take.

Such a culture at the working level – something which training providers can control – fits neatly into the larger scale positive model of long-term planning described above. Note: 'long term' refers to skills development of individuals in the country; the role of the external training provider is to transfer knowledge, then exit.

AGR has provided support for Africa in a number of ways which fit the model described above. Through NORAD, AGR aided the Sudanese Government

Image Credit: AGR

Desert-based training for young professionals who had recently graduated.

Image Credit: AGR

Mark Bentley says one size does not fit all when it comes to training.

in 2012 in developing local technical staff during the technical project for the Heglig oilfield. This was part of Norway's commitment to the Comprehensive Peace Agreement.

The Heglig Enhanced Oil Recovery project was selected, and the scope of work was administrated by the Norwegian Petroleum Directorate (NPD) on behalf of Oil for Development Programme (OfD). International Petroleum Associates Norway (IPAN) were contracted to be technical advisors to OfD for the NPD whereby the Norwegian oil and gas service company AGR was sub-contracted to perform the technical subsurface studies and conduct training of local authority employees.

To improve the Heglig oilfield's production, the OfD programme with representatives from Sudan's Ministry of Petroleum, the Greater Nile Petroleum Operating Company (GNPOC) and AGR technical expertise, set about investigating the best methodologies for enhanced oil recovery. AGR was tasked with managing the team, evaluating geological and reservoir simulation modelling and facilitating the transfer of knowledge as a retained skillset. The aim was to transfer, then exit, as we did.

Another example of knowledge transfer is our work with the Ghana National Petroleum Corporation (GNPC) which involved secondment of junior technical staff to AGR offices in the UK. The incentive for GNPC was to develop these young, well qualified, highly motivated staff, allowing them to experience and contribute in their own active consultancy project while learning from technical experts at AGR. This allows teams to shadow experienced practitioners and develop solid work practices and new skills, providing a model to adopt a similar approach to others in passing on their own skills. The project was then taken back to Ghana and AGR stood back. Transfer, then exit.

AGR is actively involved in mentoring and lecturing at Aberdeen University where there is a significant cohort of African students. During their studies AGR offers them the opportunity to conduct their MSc research projects within the professional environment of AGR's Aberdeen office. This provides access to both technical expertise and real-life experience of an active consultancy working in a mature oil and gas region.

A knowledge-sharing culture can be built from work-based learning, coaching, mentoring, and the creation of collaborative and cooperative learning communities of practice, but it is the behavior and attitude of individuals in the training organisation which ultimately counts more than specific techniques.

Established organisations have to run on a commercial basis, but effective knowledge sharing is about tackling an in-country need from the perspective of the nationals of those countries, not as an opportunity to embed untailored and stay indefinitely. The aim is to assess, tailor, transfer then exit; a process which is a business in itself, and a more rewarding model for all those involved.

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OIL SPILL PREVENTION: A NIGERIAN CASE STUDY

Nigeria's ambitious Delta clean-up could drive demand for oil spill prevention expertise and technology. Martin Clark found out more about how the Nigerian initiative could have wider implications across the industry.

SUDDENLY OIL SPILLS are back in the limelight. Nigeria's US$1 billion plan to clean up the oil-rich Niger Delta, where the bulk of slicks, sabotage and spills have occurred, shows intent by President Muhammadu Buhari.

The initiative, launched in June, could take a quarter of a century, experts believe, before all the swamps, creeks and fishing grounds are restored after decades of spills. On the ground, it generates significant local employment and throws up good business opportunities for specialist clean-up providers. It's also likely to concentrate minds on the challenge of spill prevention going forward.

An oil spill at Goi Creek, Nigeria, in 2010 had devastating consequences on the natural environment.

Image Credit: Friends of the Earth International/Flickr

Of course, when things go spectacularly wrong – the Deepwater Horizon explosion in the US Gulf of Mexico springs to mind - then oil spills will always make headline news. But in the case of Nigeria, it is a prolonged period, half a century even, of smaller, often unreported spills that have taken their toll.

Indeed, most of the world's major oil spills, accidents and tanker disasters have taken place away from Africa. Whilst this underscores a healthy commitment to prevention, myriad smaller incidents have left a legacy for today's clean-up.

Nigeria's largest international producer, Shell, which operates around 50 oil fields and 5,000 km of pipelines, admits to 1,823 oil spills since 2007, although many suspect the real number could be higher. Many of these have been deliberate acts of sabotage - casualties of the volatility that has plagued the Delta region more or less since production began there in the 1950s.

On the plus side, the big clean up is likely to stimulate local economic activity, both in dealing with the mess, and in driving industry's commitment to prevention going forward.

Nigeria's own talent pool in the oil spill prevention niche has been expanding for decades.

The National Spill Control School at Texas A&M University-Corpus Christi, USA, for instance, a world leader in the field, has provided training programmes for Nigerians since 1984. And it appears to be a growth business. The global oil spill management market size is expected to reach $126 billion by 2022, says a recent report by Grand View Research.

> "In Nigeria, a prolonged period of often unreported oil spills have taken their toll"

The stakes are high with Shell fighting off lawsuits brought by the Bille and Ogale communities in the Delta. These allege that oil spills, through pollution and sabotage, have wreaked environmental havoc on the region. Lawyers representing more than 40,000 people are seeking to have the case heard in the English courts, with Shell battling to hold the case in Nigeria where the alleged incidents took place. In theory, it could open the floodgates to similar lawsuits from other aggrieved communities, both in Nigeria and elsewhere, against the oil majors. Once again, oil spills are back centre stage.

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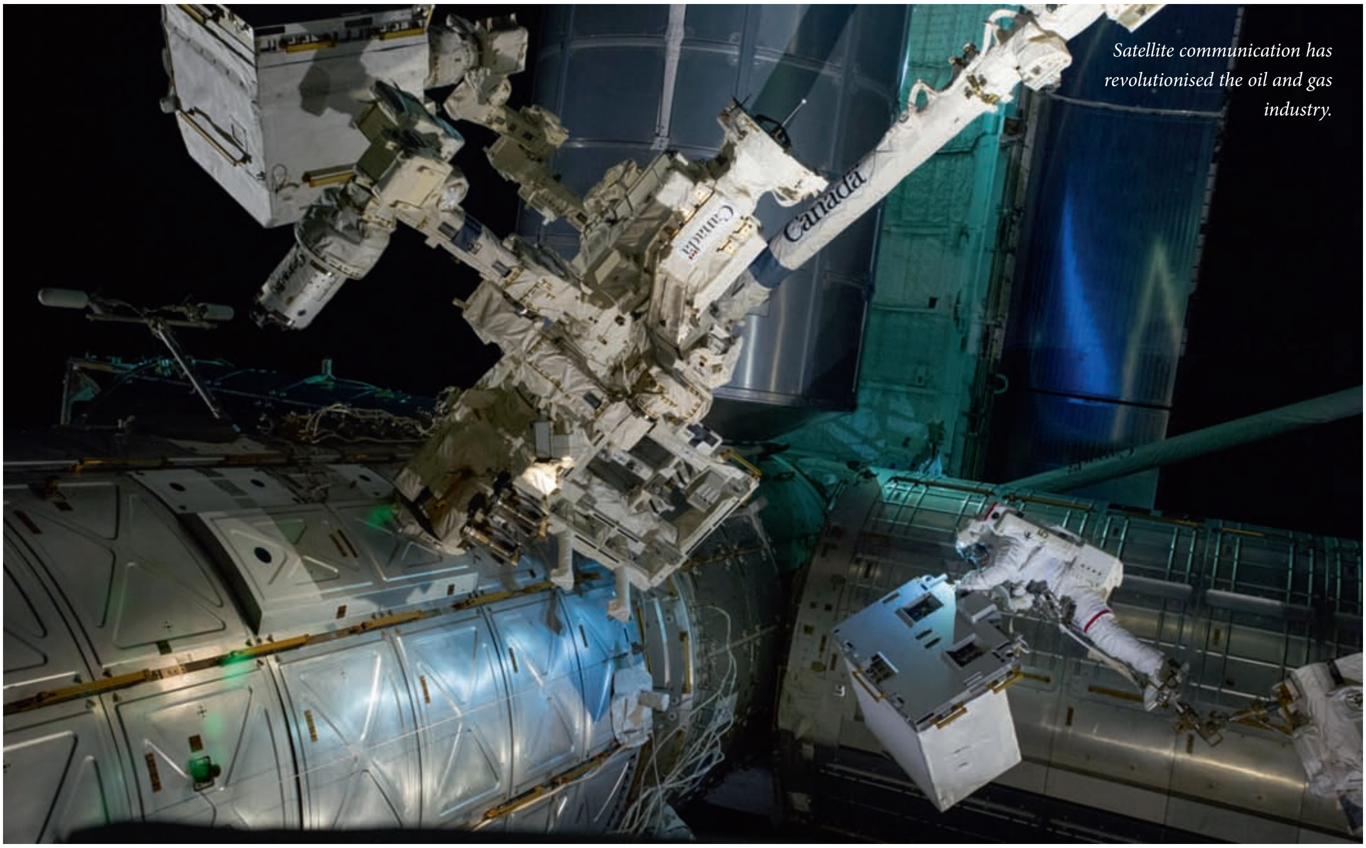
VALUE FOR MONEY WITH SATELLITE COMMUNICATIONS

There are more connectivity choices than ever before for offshore operators keen to optimise communication. But, as Vaughan O'Grady reports, the oil price decline means companies demand value for money as well as the latest technology.



Satellite communication has revolutionised the oil and gas industry.

Image Credit: NASA Johnson/Flickr

IF YOU'RE WORKING on an offshore platform right now it's quite likely you'll be able to videoconference with head office, download films and Skype your family – an incredible advance from even a decade ago. A lot of this connectivity is delivered by fibre optic links on an undersea cable. Wayne Nielsen, managing director of WFN Strategies, which designs and implements submarine fibre cable systems, says: "You can put the cable out as far as you need. It's not a technical issue; it's whether the cost of putting a fibre cable in is worth it to the user."

The same goes for depth: "There are rigs in the Gulf of Mexico that are in 1000-1200 metres of water, hooked up to fibre."

But if you're cost-conscious the cable doesn't need to be bespoke. "In the Gulf of Mexico we helped BP put in a 1200 km system," says Nielsen. "And off that 1200-km trunk cable are a number of what we call branching units." These are shared, for a fee, with other oil companies needing fibre connectivity.

Times have certainly changed – in more ways than one. Ian Theophilus is programme manager – Global WAN Programme, with Prosource.it, a managed IT services provider for the corporate enterprise market. He points out that the collapse in oil prices has meant that companies scrutinise communications costs more carefully than ever.

Which is what he helps them to do. "I'm reviewing telecommunications and wide area network provision within enterprise companies to identify whether there's a more efficient, more cost-effective way to deliver

Remote operations, especially offshore, are more effective when cost-efficient satellite communications technology is leveraged.

Image Credit: Maersk Drilling/Flickr

telecommunication / network services to meet the requirements of the operator," he says.

If you have a platform offshore that needs to communicate with an onshore office, the starting point is fibre, if it's available and affordable, because, says Theophilus, "fibre optic networks provide the most efficient low-latency communications that you can implement". He adds: "Backup communications could fall to any number of alternative technologies, from redundant fibre to microwave radio, dependent on location and availability."

Even 4G/LTE connectivity is now becoming more readily available offshore, provided that the subsurface fibre is in place as the backhaul connectivity. Where fibre optic or 4G are available, there is also the opportunity to deploy satellite communications for backup purposes providing resilience via an alternative technology. "The type of satellite communication chosen to provide services needs careful thought in these circumstances," says Theophilus. For example, the use of a Ka-band satellite system in a severe storm area (rain fade is a potential threat to Ka) might not be appropriate for primary communications but may be the most cost-effective for back up or crew welfare services – calls to family and friends, say.

Where no alternative communications mediums are available then the deployment of a resilient satellite system (using C-band or Ku band, for example) may be the only option, but whether you choose fibre or satellite there will always be financial issues to consider. "Do you lease a system so you spread that cost?" asks Theophilus. "Or do you pay it upfront and then spread the rental of the bandwidth over the opex budget? There is no correct or incorrect answer to this but it should be reviewed when investing in telecommunications systems."

But helping its customers save money isn't the only consideration for Prosource.it "We always take safety into account first. A few considerations when deploying a system should be: how many people do we have on the installation? Do we need resilient systems to provide remote management? What type of applications are running over the bandwidth from a safety and operational perspective? Do we need robust systems that support the use of ESDs (emergency shutdowns)?" Safety will also affect the decision about what equipment should be used at a remote facility: hazardous areas on a rig or platform will need to ensure that all transmitting equipment to be used in these areas are correctly rated to industry standard.

"What we'll then do," he continues, "is identify the bandwidth utilisation of the particular plant or facility to ensure that any system deployed is fit for purpose from both operational and safety perspectives. This also gives us the opportunity to provide the most cost-effective solution that provides the necessary safety and operational requirements".

Reducing the cost of ownership can also involve investigating the current contractual agreements. "For example, this may be achieved by renegotiating contract terms or by reducing the bandwidth following utilisation evaluation, therefore reducing cost."

With fibre connectivity, more than any other approach, come major safety and efficiency bonuses. As Nielsen explains: "When you make the step to fibre, it opens up videoconferencing. It opens up taking people off the platform and having them sit in an office back onshore where it's a lot cheaper," and, of course, safer.

Fibre connectivity is falling in price, though not at the same speed as oil revenue. However, says Nielsen, it's still good value because "the actual throughputs we can do with fibre today versus 15 years ago are magnitudes higher".

As for satellite, Theophilus says: "I review the current contract terms and work with satellite suppliers to identify ways in which costs to the client can be reduced. Providers are open to adopting alternative contractual agreements that help save the operators cost without impacting operational efficiency."

Susan Bull, senior consultant with specialised satellite communications consultancy Comsys, notes that satellite capacity for offshore and ocean coverage is more expensive than for land coverage. "Nevertheless we've seen a lot of changes in capacity pricing and that will affect offshore as well as onshore," she says. She adds: "If the rigs are relatively close to shore, they will probably be covered by the spillover from land. They will take advantage of that as well."

Do oil and gas companies have leverage over satellite bandwidth pricing? There's no clear answer to this. Some consumer offerings – notably satellite data – have not enjoyed big take-up outside North America, a factor that could benefit enterprise users. And obviously with the oil price so low there has been less production activity and less demand, so that operators like RigNet and Harris CapRock have had to review pricing.

Bull suggests that when the oil price recovers oil and gas companies may well be a little more cautious about buying into satellite. "Will [satellite communications] prices recover to the same degree as before? That's highly questionable."

The consumer revolution led by Ka-band services may also filter through to some less weather-affected oil and gas operations. Continuing Ka-band launches – such as that of the globe-covering Viasat III – will offer more and cheaper Ka-band capacity, conceivably bringing today's 300-1,000 dollars per megabit down to as little as 50-100 dollars. Bull says: "Viasat III is built as consumer service [but] if the price differential was ten times I think a lot of companies would be prompted to take this."

Satellite will retain a healthy share of the oil and gas market for some years to come. Some vessels can connect into a sub sea fibre ring. "But vessels such as cruise liners, or cargo vessels and anything that would be classed as mobile are not going to be able leverage this technology," says Theophilus. Essentially, fixed installations dominate the oil and gas fibre market.

Luckily, satellite equipment costs are declining, although the arrival of multi-frequency antenna systems and phased array electronic steerable antennas may be seen as a useful – if expensive – investment in the coming months and years.

Nevertheless satellite, where fibre is available, is unlikely to be first choice, due to latency – signal delay – issues with high earth orbit systems, although the arrival of middle and low earth orbit systems, such as global satellite service provider O3B, means latency can be significantly lower because the signal is not travelling as far.

And today's upgrade technology can improve the performance of fibre without requiring cable replacement. Nielsen, says: "We've had systems out there over the last six years that have been upgraded two, three and four times – up to the latest technology. The economic life of a system is getting pushed out." That could mean 30 years – or longer.

It's ironic then that, as Nielsen says, "oil and gas companies' use of bandwidth is a small percentage of what could be available to them. There are magnitudes more bandwidth on an existing cable that they already have available to them if they need it."

Bull agrees, but suggests that adoptions of applications such as automation, video surveillance and monitoring will eventually take up some of the excess bandwidth, underlining the continuing – and growing – importance of telecommunications to operational efficiency, even though any investment will continue to be carefully scrutinised.

THE ROLE OF SATELLITE SERVICE PROVIDER IN BRINGING VALUE TO IOT SOLUTION

Andrey Kirillovich, director for integration services and complex projects, Russian Satellite Communications Company, writes: There is a lot said about the internet of things (IoT) and the industrial internet nowadays, as well as satellite applications for it. Meanwhile the oil and gas sector has been doing supervisor control and data acquistion (SCADA,) via satellite successfully for many years, which can be regarded as IoT. The prices of satellite connectivity have been dropped dramatically, allowing oil and gas companies to increase the throughput at remote inland and offshore drilling sites under existing contracts. The amount of data received from the sites is constantly increasing, but for satellite connectivity service providers it is important to work closely with customers to ensure that companies are using the increased information wisely.

In IoT, the value is not only in connecting the sensor to the network. It is the data collected from the site that is valuable. That is why satellite service providers, in order to add value to their connectivity services, can cooperate with industry and in addition to connectivity offer a convenient platform for collecting, storing and delivering data from site to HQ.

A good example is described in a recent study on IoT done by McKinsey. In reality there is often a big gap between data collected on site and data analysed at the HQ.

According to McKinsey survey, on on rig the applications running on it were

configured in a very specific way and less than 1 per cent of the collected data was used in the operation process, mainly because this missing data was never transferred from the rig. This means almost 99 per cent of data from thousands of sensors was lost on its way to the analytic centre. As a result, owners of the oil rig have not received the efficiency they expected from IoT solutions.

In the old days, data transmission problems could be explained by expensive satellite traffic, but nowadays data transmission costs are significantly lower. That is why satellite service providers shall work closely with their customers on full implementation of IoT solutions to ensure all collected data is stored and transmitted. This will increase the overall traffic and help customers get better feedback from IoT implementation.

RSCC is the main supplier of satellite bandwidth and solutions to oil and gas companies in Russia. The company has recently extended its satellite coverage to entire African continent and plans to implement most advanced solutions for the oil and gas sector in Sub-Saharan Africa.

SAFETY BOOSTS EFFICIENCY DURING PLANT TURNAROUNDS

Investing in leading edge safety technology is a sound move for oil and gas plant operators. During turnarounds, which already add to operational costs, leveraging cost-efficient and effective safety technology makes good business sense.

The latest technology can save lives and money.

Image Credit: United Safety

UNITED SAFETY, AN oil and gas safety service provider, is responding to the call for efficiency as the solution for helping the industry survive the current downturn.

The company has launched a solution that provides increased efficiency and safety while curbing costs during plant turnarounds, which can become expensive if not properly managed by operators.

"Technology-enabled efficiency improvements such as the TeQ Shield™ Guardian, which allows visibility in confined spaces, bring a whole new level of productivity during turnaround," explains Dr Elie Daher, EVP and CMO for United Safety.

"With real-time video surveillance and the use of remote operational support and control centres, safety supervisors can now monitor workers to prevent incidents,"

Within confined spaces, atmospheric conditions such as oxygen deficiency, toxic atmospheres, and explosive atmosphere pose an increased risk of injuries to workers and rescuers alike. Improper identification of confined space risks, entry to a confined space without proper PPE or breathing apparatus, and complacency, have resulted in unnecessary, preventable accidents and fatalities.

"The system was tested by two operators in Canada this year. They found that the ability to continuously monitor gas readings reduced the operations workload and total required man-hours. The significant savings to the operator is crucial at a time like this," Daher concludes.

> **"With real-time video surveillance, remote operational support and control centres, safety supervisors can monitor workers to prevent incidents"**

Monitoring for safety.

OFFSHORE RIGS TURN TO NEW GENERATION COATINGS

Anti-corrosion innovations can help offshore operators in Africa save time and money. The downturn is even proving to be a catalyst for local production in the Nigerian and Angolan markets by providing cheap raw materials for paints and coatings. Nnamdi Anyadike reports.

A STUDY BY NACE International says that in the US corrosion costs the oil and gas industry US$1.4 billion a year. And the situation in Africa can be worse because of by high humidity and temperatures offshore.

But new high performance anti-corrosion coatings that provide a barrier against corrosion are on the market. By 2020, this market is forecast to grow at a CAGR of 13 per cent. Africa is projected to see the fastest growth. Nigeria and Angola are emerging as regional hubs for this market. A Frost & Sullivan report forecasts revenues for these two countries in excess of US$1.13 billion in 2019, up from US$675.1 million in 2014. Both oil producers are benefiting from the downturn. The slump is a catalyst for local production by providing cheap raw materials.

Frost & Sullivan Chemicals and Materials research analyst, Abdul-Baasit Abdullah said, "The drop in crude oil prices has reduced the base costs of paint through a reduction in raw material cost of 8.3 per cent, driving competitive pricing and consumption."

Manufacturing subsidies plus high import tariffs in Nigeria and Angola add to the attraction. This year, Epoxy Oilserv Ltd a distributor of marine coatings and paints, opened its second office in Lagos State. Its anti-corrosive epoxy paint systems complement other protective surface coatings on permanently immersed sub-sea equipment. Globally, epoxy coatings currently account for more than 50 per cent share of the high performance anti-corrosion coatings market.

Conditions in the Gulf of Guinea can lead to serious corrosion for oil and gas operators.

Image Credit: NASA's Marshall Space Flight Center/Flickr

Corrocoat SA's linings and coatings can be tailored to suit most corrosive environments including offshore installations. It used recoatable polyurethane to coat filter vessels on a FPSO facility offshore Equatorial Guinea. Plasmet ECP was applied to counter the high humidity conditions. This was followed by Corrocoat Zip-E for long-term anti-corrosion performance. The polyurethane topcoat was applied for aesthetic appeal and UV protection.

To the east, the coatings market is also taking off. Last year, Jotun announced a US$3 million investment in Kenya. At this year's East African Coatings Congress, delegates heard about the latest technologies. Nanomaterials allow offshore oil and gas companies to meet the demand for low-maintenance coatings with enhanced protection and longer operation life. They provide savings through fatigue- and corrosion-resistance. New 'self-healing' coatings and 'smart coatings' replace traditional paints.

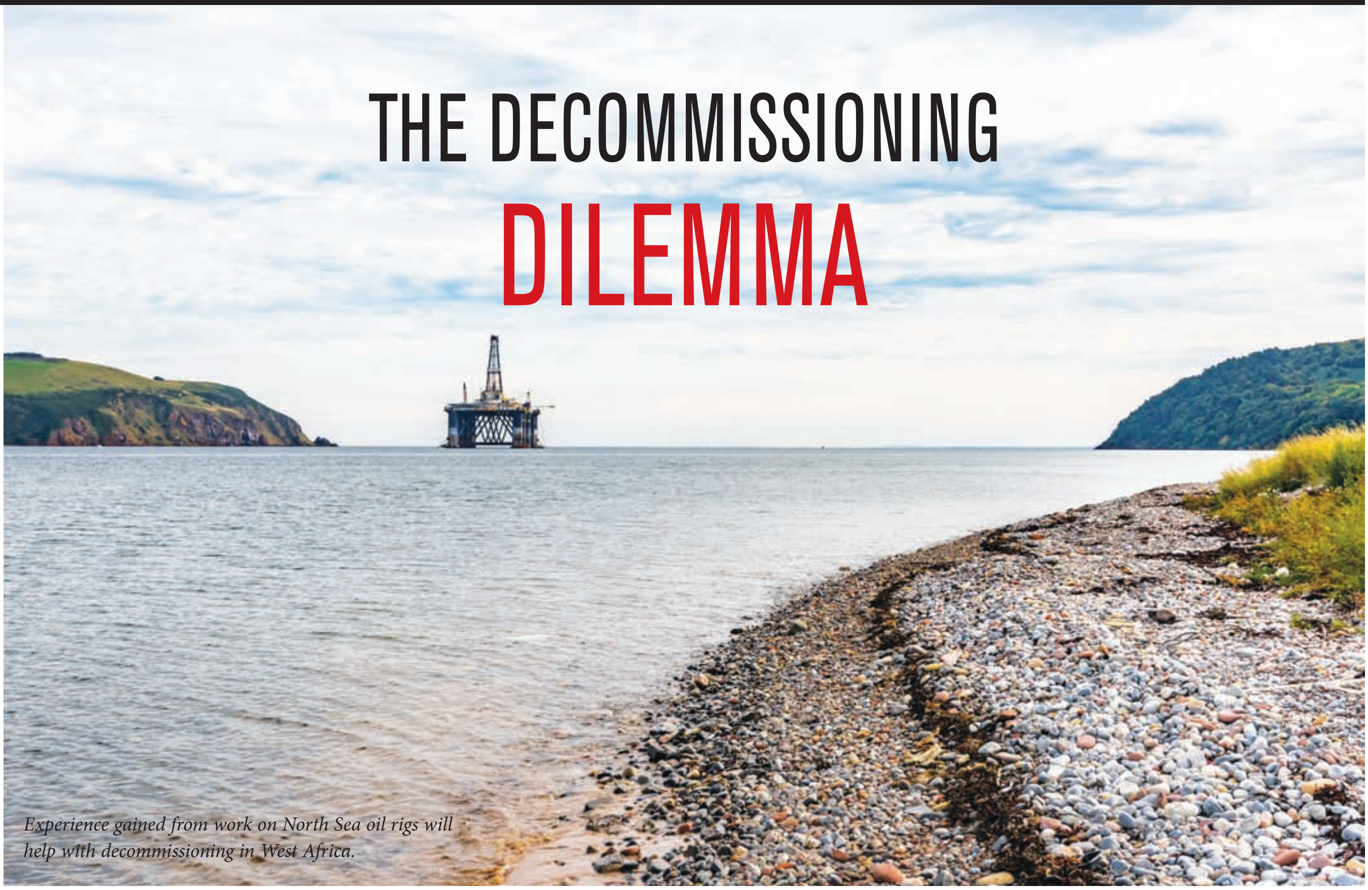
Hardide Coatings provides nano-structured tungsten carbide based coatings, which are also suitable for internal surfaces and complex geometries, the holy grail for offshore. In a global oilfield services provider case study, the company claims that its coating increased the life of critical components three-fold.

Faced with competition from nano-structures, traditional coatings such as chrome plating are not holding market share. Chrome plating was used in hazardous environments on account of its hardness. But new environmental regulations means it is being phased out. Another technology High Velocity Oxygen Fuel (HVOF) carbide coating is more environmentally friendly. However, HVOF lacks the durability to withstand harsh conditions and high impact.

Wire-arc thermal sprays provide a strong metal coating using galvanically active coatings such as zinc and aluminium. An electric arc forms molten particles of spray onto the substrate in a 'cold' procedure. This is also used for non-slip coatings. Fluoropolymer coatings blend high performance resins and fluoropolymer lubricants, such as polytetrafluoroethylene (PTFE). This offers a superior dry film lubricant for wellheads.

In the US, the Advanced Energy Consortium's nanotechnology laboratory is investigating ways in which nanotechnology can be applied. Tesla NanoCoatings has developed 'Teslan', a two-part carbon nanoparticle hybrid primer coating technology that allows the primer and epoxy topcoat to be applied in succession in a wet-on-wet process. Tesla claims the results demonstrate performance which exceeds the traditional three-coat zinc/epoxy/epoxy system.

THE DECOMMISSIONING DILEMMA



Experience gained from work on North Sea oil rigs will help with decommissioning in West Africa.

Image Credit: Nick Rowland/Flickr

With more projects slated for decommissioning in the coming years, West African producers must face up to the huge financial and technical challenge ahead. Martin Clark reports on the long-term plans that need to be made.

WEST AFRICA WILL face up to the challenges of decommissioning on a much greater scale in the coming decades, as many of its early projects near the end of their active production life.

With Nigeria's production dating back almost 60 years, many of its facilities are now old and destined for retirement; other producers like Gabon also have a long history. It's a trend that will be mirrored worldwide. Decommissioning of ageing offshore oil and gas facilities is set to increase "significantly", with annual spending rising to US$13bn by 2040, consultancy IHS Markit says in a new report. This compares to a spend of just US$2.4bn in 2015.

Beyond North America and Europe – traditional mature producing regions that have so far faced up to the challenge of decommissioning work in a big way – Angola and Nigeria will drive decommissioning spending in Africa, IHS Markit said. Globally, it says 600 projects are to be decommissioned during the next five years, with 2,000 more to follow through to 2040.

What that ultimately means for Africa is much higher spending on decommissioning of old rigs. How much that will be, however, is anyone's guess.

> **"West Africa's decommissioning dilemma should not be underestimated."**

Decommissioning costs vary across platform types, size, location and the availability of local infrastructure and services. In general, historical decommissioning costs for Gulf of Mexico rigs have been in the US$500,000 to US$4mn range for shallow-water structures. Costs rise for deeper water structures. One North Sea gravity-based system has an estimated decommissioning cost of US$2bn.

While West Africa's deep water industry is comparatively recent, the region faces other unique challenges, especially in safely decommissioning historic land-based structures.

Much of Nigeria's oldest infrastructure is sited in the swamp-like conditions of the Niger Delta, where armed militants have long hampered production, maintenance and repair efforts. The operational difficulties entailed with any large-scale decommission work here would be immense – if even possible – besides any cost-related issues.

While producers will be able to draw on a vast pool of experience from the North Sea and the US, West Africa's own decommissioning dilemma should not be underestimated.

Moreover, it all comes at a time of increasingly stringent regulation regarding decommissioning, generally, as well as sustained lower oil prices, and with more and more assets set for the scrap heap. "In terms of decommissioning, the global offshore industry is headed for a perfect storm," said IHS Markit's Bjorn Hem, one of the report's authors.

MODERNISING RIGS FOR OPERATIONAL EXCELLENCE

When modernising a rig, power generation is an important issue to consider, along with environmental and safety concerns. But when operators get their modernisation programme right, the life of the rig will be extended.

ROUGHLY 75 PER cent of rigs in use have the potential for an extended lifetime via upgrades. By improving a rig's power and control systems, its drilling performance and operation can increase dramatically.

Anyone in the industry is likely familiar with the frustration of an old or busted rig. Like relying on a beat-up old Ford truck, trying to squeeze as much life out of an old rig simply will not suffice for long. Old rigs eventually give out, so it is much better to reflect on how we can extend the life of such equipment.

Upgrades that directly improve drilling and operation can be placed in one category. Other upgrades for preventive maintenance to ensure that a rig is dependable with minimal downtime is a separate category. A third grouping includes any that improve safety. The last group is those that reduce or eliminate environmental hazards.

Converting a mechanical rig to an SCR can be financially and labour-intensive, but rewarding. Conversions from mechanical to SCR rigs mean increased elasticity while utilising reduced four-engine natural gas generators. By eliminating submaximal torque converters, an SCR rig can improve efficiency. Switching to an SCR rig from a mechanical can reduce maintenance costs by more than half. Also, with reduced fuel consumption of a SCR rig, the transition is an environmentally friendly conversion.

Some old oil rigs are the equivalent of driving an old truck rather than upgrading to a newer vehicle.

On a DC/DC system, it can use up to six engines, and while it is often considered a more viable option than a mechanical rig, there is room to improve. Switching to an SCR improves rig efficiency by implementing fewer diesel generators, which run on a constant speed with limited downtime. Using a SCR rig over a DC/DC provides improved top drive capability, as well as other systems to utilise various drilling programmes. Furthermore, the reliability of switching to a SCR rig is paramount over a DC/DC. This is mostly due to the ability for one engine to power any rig load. All inefficient components and generators are removed in the SCR, but perhaps the most significant add-on is the global air conditioning system, which regulates the rig's electrical systems during intense stress.

The improved safety of the SCR rig over the DC/DC is primarily due to a more secure drill floor, with improved control and power.

Modernising an SCR rig typically consists of a number of upgrades due to the increased power and control requirements. In terms of generator sets, typically, a fourth is added to an upgraded SCR, as well as top drive capability. An additional mud pump is usually added too. Modernising provides flexibility with advances, such as touchscreen diagnostics, live monitoring, remote access of rig performance, and anti-blackout prevision mode.

These upgrades have the potential to reduce downtime, substantially improving rig reliability. Also, the use of a PLC system on an upgraded SCR is a significant improvement over older electrical components, which inhibits rig performance.

Making the switch to SCR comes with investment but the safety improvements are reward enough. With reduced noise, improved engine controls and additional safety features, modernising is worthwhile. There is also the reduction of environmental hazards, including lower fuel emissions, due largely to precision control, modernised electrical components, and more accurate specifications.

Mechanical, and even DC/DC rigs are largely inadequate compared to the modernisation of an SCR rig. The tendency to drive old rigs into the ground is understandable but upgrading is worth the investment. From improved safety features, to the reduction of environmental hazards, upgrading to an SCR makes sense. While an older rig may last in the short term, sooner or later it will give out. Making the upgrade is at least something to aspire towards, because it is nice to have a well-performing rig at your disposal.

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AFRICAN RIG COUNT - 2016

COUNTRY	October 2015	November 2015	October 2016	November 2016
ANGOLA	19	15	10	8
EGYPT	13	12	9	9
NIGERIA	12	12	6	5
GABON	6	6	0	0
CONGO (BRAZZAVILLE)	4	4	3	3
GHANA	3	3	1	1
TUNISIA	1	1	2	2
SOUTH AFRICA	1	1	1	1
CÔTE D'IVORE	1	2	1	1
LIBYA	1	1	1	1
TANZANIA	1	1	1	1
CAMEROON	1	1	0	0
MAURITANIA	1	1	0	0
Grand Total	**63**	**61**	**35**	**32**

Source: Luke Davis, Infield Systems

Using laser scanning tools to control pipe bevel geometries

Verifying the shape of a bevel before welding is a crucial consideration for pipeline construction.

Image Credit: OMS

UNDERSTANDING AND VERIFYING pipe bevel geometry is a vital quality control step prior to fit-up of oil and gas pipelines with tight project tolerances. Pipe bevel geometry is of key importance for pipeline engineers, welders and quality control inspectors as accurate bevel geometry leads to more efficient pipe fit-up, improved welding and superior pipeline integrity.

In his paper, 'The Importance of Pipe Bevel Geometry', OMS technical reporting manager Alex Felce describes that while Vernier calipers or radius gauges have been traditionally used to provide dimensional feedback, these methods have proven time-consuming and limited in their practical application.

The paper examines the growing use of new laser-based technology in this field. Given the economic pressures within the oil and gas industry, Felce believes that this new generation of laser scanning tools are paving the way for increased pipeline integrity through advanced measurement technology.

Felce said, "Our experience shows that better control of pipe bevel geometry can lead to improved weld quality and superior pipeline integrity for oil and gas operators. The potential for huge cost-saving through better process efficiencies and fewer cut-outs is undoubtedly a major consideration for the sector in such a turbulent market."

Felce presented his paper at this year's Subsea Asia event (29 November – 2 December). Felce discussed the operation of laser bevel measurement tools and the range of bevel types and numerous features that require consideration by the pipeline construction workforce.

OMS Measure recently launched the Bevel 360, a pipe bevel measurement system that provides pipeline engineers with insight into critical pipe bevel geometry. According to the company, the system can be utilised integrated in-line with the user's facility, allowing for uninterrupted production and improved efficiency. The tool can be deployed immediately after bevelling, prior to pipes being moved into production and can perform a complete scan of a pipe end in around 25 seconds, thereby producing a 360-degree measurement profile of the bevel.

'Go for Zero' with on-site safety sign printing

WHENEVER A RISK emerges in the workplace, it often takes a long time to order and wait for new safety signs that can warn co-workers about danger and instruct them on how to avoid an accident.

Using a professional safety sign printer and software can help companies design, print and implement new signs quickly in order to support their 'Go for Zero' programme and avoid workplace accidents.

Prohibition, mandatory warning, first aid and evacuation or fire signs are instrumental in any 'Go for Zero' programme that aims to reduce workplace accidents to an absolute minimum.

The major advantage of safety signs is that they can easily communicate important information where it is needed most to avoid accidents. Examples include safe work procedures right next to a machine, the contents of pipes on the pipe itself or warning signs at the entrance of a dangerous area.

Brady has an extensive range of printers and safety software that aim to enable users to create durable signs in a great number of shapes, colours and sizes. Brady allow users to customise their messages, choose from a wide range of printers and durable materials and reduce the expenditure on safety signs.

According to Brady, an on-site printer is a great tool to support any 'Go for Zero' programme. It allows users to simply walk up to a printer and create signs to communicate the necessary precautions to co-workers when safety risks emerge in the workplace.

Oxifree Global launches polymelt service gun

OXIFREE GLOBAL LAUNCHED a new polymelt service gun, the SG1, a handheld, portable applicator designed for filling in sections of Oxifree TM198 coating that have been removed for inspection. It has been developed to further ease maintenance costs for asset owners within the oil and gas industry.

Thermoplastic coatings are in high demand, particularly in extreme climates, where environmental factors like abrasion and corrosion mean that metal components need replacing quickly. Oxifree Global's thermoplastic coating, Oxifree TM198, is an organic, patent protected formula which helps to combat corrosion and has been proven to increase the lifetime of metal components and reduce maintenance costs by

Image Credit: Oxifree Global

Oxifree Global showcased the SG1 at the Abu Dhabi International Petroleum Exhibition & Conference (ADIPEC) last month.

at least 40 per cent. It is claimed to provide protection against all corrosive contaminants with the commercial advantage of remaining extremely easy to apply and reuse. According to the company, Oxifree TM198 contains less than 0.5 per cent volatile organic compounds and therefore has no adverse ecological or environmental impact. With the SG1, asset owners can easily reapply the coating in small areas in situ, without the need for expensive specialist technicians.

Using simulation and modelling to optimise offshore logistics: a Gulf of Mexico case study

SHELL GULF OF Mexico Logistics moves more than 50,000 tonnes of materials and equipment to offshore facilities each month using more than 40 offshore supply vessels. With multiple offshore locations needing supply from multiple port facilities, vessel demand can be irregular yet very high. Port facilities have limited storage capacity and coordinating scheduled arrival of material at base with the expected loading times becomes challenging.

Shell aimed to devise a strategy to improve the utilisation of vessel capacity, eliminating idle time, and coordinating and optimising the demand through an IT tool. The company used the SIMIO tool, a probabilistic vessel scheduling software, to identify the components and the required inputs for it to create simulation models. According to a white paper released by the company, the use of SIMIO enabled predictive analysis for expected operations by optimising voyages, proactively sharing information of vessels transiting to a common field area and maximising the vessel's capacity for offshore asset material movements.

The tool allowed modellers to use the simulation function to ascertain the validity of the model configuration and identify ways to align to operational variances. It helps identify parameters that may be used by schedulers to adjust settings that reflect operating conditions.

Using the models and iteratively updated information, helped create schedules that allow for in-depth operational planning involving vendors, vessels and offshore locations.

Using the latest weather, demand requirements and vessel information, the IT tool optimised the use of the vessel fleet and improves efficiency of port operations.

Schedule data shows when materials need to arrive at the port, which vessels are to be loaded, expected load times, vessel transit routing and offloading times.

Shell commented that the use of SIMIO assisted it in achieving a fit for purpose fleet size and contributed to its ability to optimise vessel utilisation.

Final module for Suncor tank farm development project placed

FLUOR CORPORATION RECENTLY announced placing the final module for the Suncor Energy Oil Sands Limited Partnership's East Tank Farm Development project near Fort McMurray in Alberta, Canada. As part of its engineering, procurement, fabrication and construction scope, Fluor managed module fabrication and shipment of the modules, all of which were fabricated by Fluor's Supreme Modular Fabrication Inc. (SMFI) joint venture fabrication yard near Edmonton, Alberta. Engineering and construction personnel were integrated into the fabrication teams to support construction-driven execution through the phases and the 95 modules were fabricated and shipped in 10 months, aligning to the site setting schedule and on budget. "This milestone was achieved on schedule and on budget using Fluor's integrated engineering, procurement, fabrication and construction approach to clients' projects," said Mark Fields, president of Fluor's Energy & Chemicals business in the Americas region. "Fluor worked in collaboration with Suncor – the groups were closely aligned on fabrication priorities and module placement dates."
The East Tank Farm Development, which will be a Suncor-operated midstream asset, is currently under construction in the Wood Buffalo Region of Alberta. The facility will consist of bitumen storage, blending and cooling facilities and connectivity to third-party pipelines.

At the Suncor East Tank Farm development project.

Image Credit: Fluor

Oil flows to storage tanks ahead of evacuation

LEKOIL, THE OIL and gas exploration and development company with a focus on West Africa, has announced that oil is flowing at the Otakikpo Marginal Field to onshore storage tanks, where it will be evacuated upon completion of the offshore pipeline. All onshore facilities have been fully commissioned and signed off by the regulators, and the offshore pipeline leading from the storage tanks to the tanker offloading manifold is 80 per cent complete, according to a statement by the company.

Upon completion, the joint venture partners, Green Energy International Ltd as Operator and LEKOIL as Technical Partner, expects to start transporting to the export terminal and subsequently, be able to gradually ramp up production to 10,000 bopd.

Lekoil CEO Lekan Akinyanmi said, "We're delighted to announce this key milestone from the Otakikpo field. I would like to thank the entire team that has worked so hard on this project, our partners Green Energy, investors, debt financiers, our host communities and our government regulators for their continued support."

Leistritz product development driven by low oil price

TANK TERMINALS ARE often built with more development planned when the oil price fluctuates in order to deal with additional global surplus of oil. This has been a long-time trend for the industry.

However, innovative and flexible pumping systems contribute to smooth and cost-effectve operation of tank terminal.

Screw pumps appear to be used increasingly in this endeavour. German company, Leistritz Pumpen GmbH has responded to these market developments and recently presented the youngest generation of slim and economic rotary positive displacement pumps.

This pump series, which was especially designed for tank terminal applications, covers a wide range of areas and can also be perfectly used in the chemical, petrochemical and shipping industry as a loading or unloading, stripping and booster pump.

The basic premise of the series is a proven concept of Leistritz's twin screw pumkps which have been used in the industry for decades. The compact L4NC series is characterized by and complies with the API 676 3rd Edition.

The series consists of seven different pump sizes, each with four pitch variants, offering complete control for optimal selection for multiple applications and tank terminals.

New catalyst will enhance hydrocracking unit performance

HALDOR TOPSOE HAS launched a new nickel molybdenum catalyst HyBRIM with 25 per cent improved activity for nitrogen and sulphur removal to improve diesel and hydrocracking unit performance.

This new product aims to allow refiners to process more severe feeds, increase cycle lengths by several months, achieve larger volume swells, or maximise unit throughput.

In a statement, the company commented that the product's high activity offers new possibilities to either increase profitability of high-pressure ultra-low sulphur diesel production from heavy feed stocks or to guarantee a superior pre-treatment for the hydrocracking unit.

Image Credit: Haldor Topsoe

The product minimises the inhibition of the hydrocracking catalyst and delivers higher conversion and selectivity.

HyBRIM also supports profitability by substantially improving the cetane number of the final product.

The product utilises BRIM technology with an improved catalyst preparation step, which leads to optimal interaction between the active metal structures and the catalyst carrier, thereby increasing activity while delivering the same high stability.

The improved activity for nitrogen removal lowers the nitrogen slip from the pre-treatment step to the second stage in the hydrocracker and this leads to an overall improvement in hydrocracking unit performance.

The new product, TK-611, is the successor to TK-609 of the HyBRIM series. All HyBRIM catalysts are produced at Topsoe's ISO-certified and REACH compliant manufacturing sites.

ADVERTISER'S INDEX

TAKING THE HELM DURING A TURBULENT TIME

Abiodun Adesanya takes over the Nigerian Association of Petroleum Explorationists (NAPE) at a critical time for the industry in Africa and the wider world. He talks to *Oil Review Africa* about the challenges that lie ahead. Interview by Bola Olowo.

NAPE's vision is to be the preferred professional geosciences association with global reach. How realisable is this vision?
Basically, when we say "global reach", we mean NAPE should be able to have programmes that are subscribed to by the global professional community, and be able to attract global professional to come and participate in our activities here in Nigeria, and to a very significant extent, NAPE has achieved that.

NAPE is also associated with the geosciences associations in most parts of the world, and that also bears testimony to our global reach.

A lot of international bodies are part of us and attend our conferences and had always commended the quality of our papers.

The rate of oil exploration is declining in Nigeria. Does NAPE has plans to redress this?
Yes, rate of exploration had gone down, and it had been going down for a while, and there are several reasons for this – the counterpart funding from the government for the joint venture funding was not regular enough, [and] another reason being the uncertainty brought by the non passage of the Petroleum Industry Bill [PIB].The non passage of the PIB created a wait-and-see attitude by the operators and a maintenance of status quo, and so most companies were not willing to venture out and explore new areas but prefer to sustain current production.

Do you envisage any improvement?
Yes, the current administration of President Muhammad Buhari has broken up the PIB and, in the process, removed the contentious parts, and hopefully the PIB will soon be passed – albeit without the contentious and political parts that had worked against its passage.

This approach, I believe, will restore some measure of confidence that will enable some exploration activities to be restored.

On funding, the government may have to sell some of the equities in the majors and it is my personal view that shares arising from the disinvesting can be traded on the stock exchange wherein the government sell these shares to Nigerians through the stock exchange

The current government, though, had been innovative in raising funds through syndication of funds through some major oil companies, but it will have to raise more significant funding – and this it could do through disinvesting some of its shareholding in the multinational oil companies and

Abiodun Adesanya has great ambitions for exploration in Nigeria.

selling them to Nigerians. However to be on sound financial footing, not only for the present but also for the future, Nigeria will have to block wastages, as wastages more than anything else is responsible for where Nigeria is now and if unable to reduce wastages, it will be difficult to move forward.

Are there still issues with the security in the Niger Delta?
There had been all manner of security issues in the Niger Delta that had adversely affected exploration as operators are afraid of venturing into areas where they were not well known to explore for oil, and prefer staying where they are and maintaining production. And if the rate of depletion is more than the rate of replenishment, there is trouble.

However, if sufficient levels of confidence can be created between the Niger Delta communities and the government, then there could be some resolutions of the conflict –I am not confident, but I am hopeful that a solution will be found.

But there is a need to have an audit of what has come to the communities financially and how those monies had been expended.

Is NAPE involved with the talks in resolving the Niger Delta question and are any of these talks with the militants?
No, we are not. NAPE took a deliberate decision not to – NAPE is a professional body and does not want to overstep its boundaries.

Nigeria is officially in recession, with the recession brought about by the low price and the reduced production of oil. How has this impacted on exploration in Nigeria?
Yes, we are in recession, due to the low price and the reduced production, but it is also oil that will take Nigeria out of the

recession, given that it is the oil industry that can generate the foreign exchange.

The recession had impacted on Nigeria as a country, exploration of oil included, but with careful management of the oil industry, Nigeria will come out of the recession

We have an opportunity to reset the way we do things and learn important lessons, make necessary adjustments and launch out again, hopefully we will not repeat the mistakes of the past.

What is the state of the marginal fields, where most of the indigenous operators are?
There are more activities there now, but the operators are also going through challenges, since they are all hooked to third parties terminals and when those terminals are blown up, they are struck.

They are working on alternative measures, use of barges for instance, some may stand alone, some are forming a consortium, some are laying their own pipelines, but all these come at a cost, especially production cost. A lot of them are resorting to desperate moves to overcome these challenges.

The way out is to resolve the Niger Delta problem, and the government has to find a way of separating criminality and agitation.

"NAPE has made a deliberate decision not to talk with the militants – we are a professional body and do not want to overstep boundaries"

Is NAPE worried that Angola may have overtaken Nigeria in the oil market?
Of course, there are worries. But Angola does not necessarily have more oil. It just doesn't have the community issues that Nigeria has, issues that had impacted negatively on production. I am not too worried though about who is number one or two, but [about] how Nigerians will benefit from the oil proceeds, and its impact on poverty eradication, infrastructure and general wellbeing.

Mr Adesanya is "not confident but hopeful" that a solution can be found to the problem of militants who vandalise oil installations.

Image Credit: Stakeholder Democracy/Flickr

The Niger Delta basin is a matured basin, but other locations need to be explored.

But Nigeria is really a gas country - how come the gas reserves have not been adequately harnessed?
Yes, Nigeria is more of a gas country, but the problem is that infrastructure to harness gas is more demanding, and any gas project requires certification, both in terms of quantity and quality.

Yes, Nigeria has lots of gas reserves [and] flaring had gone down, but it needs infrastructure to bring the gas to the market.

There is also the need to be strategic – there is the need to stop flaring completely, and also to explore for more gas reserves in other basins beside the Niger Delta.

NAPE has previously advocated exploration oil in other basins – can you expand further on this?
The Niger Delta basin is regarded as a matured basin – so many wells had been drilled, so much production had taken place, and there are other green basins, and those basins need to be explored.
And we have a responsibility to explore these basins. Technology is evolving and oil may become obsolete in future and we should secure the future.

In exploring these basins and being competitive, Nigeria should reduce its exploration costs, especially the non technical costs comprising of security costs, as the technical cost is down already.

As the NAPE new President, what is your agenda?
[It is] not quite different from the previous presidents – NAPE has historically been an adviser to the government, and had made its own contributions to government policies, and this regime will continue to do that.

In addition, we want to raise the profile of the association. We want the public to be more aware of NAPE activities, we need to be more visible. We also want to devote more attention to the students, their condition of learning, their programmes and their teachers, and help students by also helping their trainers.