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Ghana: Rising star

Hot prospects for Mozambique gas development

Investment in exploration on the agenda at Africa Independents Forum

Process automation: avoiding security risks

Recruitment challenges for African oil and gas

ENH chairman Omar Mithá speaks about Coral FLNG in Mozambique (p21)

For a full report on the broad discussions at the Ghana Summit, turn to page 15.

EDITOR'S NOTE

Welcome to the new look *Oil Review Africa*. We hope you like the updated design. In this issue, we focus on major events. The cities of Accra, Maputo, Dubai, Houston and London all saw industry leaders share their views on the current challenges, as well as offer solutions for helping the public and private sectors to encourage growth up and down the value chain.

Ghana continues to be a rising star with much progress being made in just seven years. This year's Ghana Summit was strong on new ideas, particularly in regard to improving the regulatory environment and boosting local content and employment opportunities at every opportunity.

Mozambique's Mining, Oil & Gas and Energy Conference boosted the country's standing as an emerging player, Tank World in Dubai covered storage challenges, and frank discussion was the order of the day at OTC in Houston. As ever, the African Independents Forum in London was a spirited event. Here's hoping the talk translates into positive action for the industry.

Georgia Lewis
Managing Editor

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JUNE

14 **SPE London Annual Conference: Adapting To A Challenging Oil Price Environment**
London
www.spe.org/events/lond/2016

27-29 **The 4th Annual Cyber Security for Oil & Gas Summit**
Houston
www.oilandgascybersecurity.com

27-1 July **2016 Exploration & Production Standards Conference on Oilfield Equipment & Materials**
Washington DC
www.api.org/events-and-training/calendar-of-events/2016/e-p

JULY

21-23 **World Congress on Petroleum & Refinery**
Brisbane
www.petroleum.omicsgroup.com

25-27 **SPE Artificial Lift Systems for Optimised Production Workshop**
Bangkok
www.spe.org

AUGUST

2-4 **SPE Nigeria Annual International Conference & Exhibition**
Lagos
connect.spe.org/spenc/naice/naice2016/

14-18 **EnerCom's The Oil & Gas Conference 2016**
Denver
www.theoilandgasconference.com

SEPTEMBER

4-5 **2nd Middle East Health & Safety Forum**
Dubai
www.hse-forum.com

6-8 **NACE Egypt Corrosion Conference**
Cairo
www.egyptcorrosion.nace.org

OCTOBER

9-13 **23rd World Energy Conference**
Istanbul
www.wec2016istanbul.org.tr

18-19 **The 37th Oil & Money Conference**
London
www.otlafrica.com

23-26 **OTL Africa Downstream**
Lagos
www.oilandmoney.com

26-27 **Bottom of the Barrel Technology Conference (BBTC) Middle East & Africa 2016**
Manama
www.bbtc-mena.biz

31-1 Nov **23rd Africa Oil Week**
Cape Town
www.africa-oilweek.com

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

South African shale gas exploration plans continue for Falcon

IRISH-BASED GLOBAL energy company, Falcon Oil & Gas has announced that it is progressing well with exploration plans in South Africa's Karoo Basin.

The announcement comes as Falcon released encouraging financial results, thanks largely to successful exploration, appraisal and drilling operations in Australia. According to a company statement, the processing of Falcon's exploration licence application for the Karoo Basin site "continues to progress" and the South African Department of Mineral Resources is expected to issue the licence this year. This is the culmination of more than five years work, with Falcon submitting the application for the Karoo Basin exploration licence in August 2010. In December 2012, Falcon entered into a cooperation agreement with Chevron to jointly seek unconventional exploration opportunities in the basin.

Philip O'Quigley, CEO of Falcon Oil & Gas, described the company's progress in South Africa as "solid".

"We remain optimistic on securing a shale gas exploration licence in South Africa's Karoo Basin in 2016," he said.

Falcon is "uniquely placed in this challenging oil price environment with its strong cash position, fully funded drilling programme and high quality assets, he added.

The financial statement released by Falcon on its 2015 performance revealed the company is debt-free with cash of US$12.7 mn, and a 38 per cent decrease in general and administrative expenses year on year to US$2.5mn, down from US$4 mn in 2014.

Ghana and Côte d'Ivoire successes bolster Anadarko's performance in Q1 2016

ANDARKO POSTED A net loss of US$1.034 bn in the first quarter of 2016, but positive news from the hydrocarbon sectors of Ghana and Côte d'Ivoire has contributed to a more optimistic outlook from the Texas-based operator.

In a statement outlining the company's financial performance for Q1, Anadarko cited the advancement of Ghana's TEN oilfield development and the successful drilling of the company's first horizontal deepwater well off the coast of Côte d'Ivoire.

The FPSO vessel arrived at the TEN offshore field earlier this year and while it has suffered turret bearing damage, all operaors involved in the project, including Anadarko, are confident the TEN project remains on track.

Image credit: Anadarko

The FPSO requires repairs but the TEN project in Ghana is still on track.

At the time of going to press, the TEN development was more than 90 per cent complete and remains on schedule for first oil in Q3 of this year.

Meanwhile, in Côte d'Ivoire, Anadarko continued its successful offshore appraisal programme, discovering approximately 100 net feet of vertical pay in the company's first deepwater well at Paon-5A.

Anadarko plans to drill the Paon-3AR sidetrackwell in Q2, followed by drillstream and interference testing, as it works toward Paon's commerciality.

Angola and Egypt operations spared from BP budget cuts after Gulf of Mexico spill costs

AFTER THE GULF of Mexico spill, which has cost BP US$55 bn since 2010, and the surprise departure of the company's exploration head, Richard Herbert, budget cuts mean BP is focusing on existing fields.

Angola and Egypt are among the five regions BP will be focusing its operations in the foreseeable future, along with Azerbaijan, the Gulf of Mexico and the North Sea. According to a report from Reuters, it is hoped that focusing on these regions will offset the impact of the Gulf of Mexico spill costs and other disappointments for BP.

These include a corruption investigation slowing down Brazilian operations; political unrest in Libya; stalled development of Canadian oil sands; and a refusal by Australian authorities to allow BP to explore southern offshore opportunites.

The existing operations in Angola and Egypt are considered to be among the successes of Mr Herbert's tenure at BP. By 2020, start-up projects such as Egypt's West Nile Delta and the North Sea's Clair Ridge field will have added 800,000 bpd oil equivalent to BP's oil and gas output capacity, CEO Bob Dudley told Reuters last year.

Image credit: Green Fire Productions/Flickr

The Gulf of Mexico oil spill has impacted heavily on BP's spending.

Oil outages due to Niger Delta pipeline attacks

NIGERIAN OIL OUTPUT is expected to be affected for at least the next 12 months because of a surge in pipeline attacks since the beginning of 2016.

A group called the Niger Delta Avengers (NDA) has claimed responsibility for many of the attacks and it is feared its emergence could herald a new generation of militants in the region intent on continuously damaging Nigerian oil assets.

In May 2016, Emmanuel Ibe Kachikwu, Nigeria's oil minister, announced that the country's oil production had fallen by 40 per cent from 2.2 mn bpd to 1.4mn bpd, which is the lowest level since the mid-1990s.

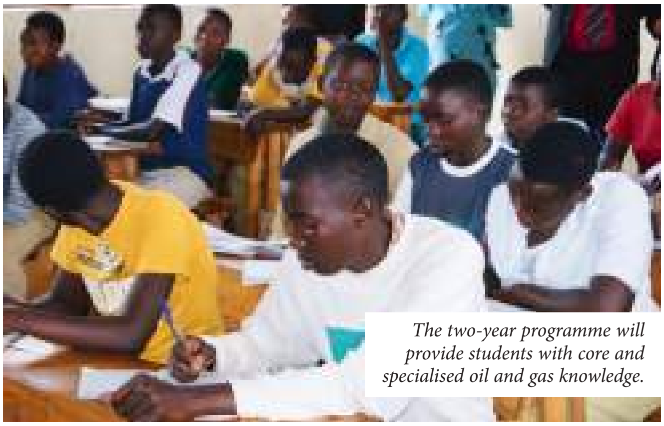
Two of the most devastating pipeline attacks happened in February and May, with NDA claiming responsibility for both.

In February, Shell's Forcados Terminal subsea crude pipeline was bombed, resulting in estimated losses of 200,000-300,000 bpd.

Meanwhile, in May, an attack on Chevron's Okan platform forced a closure of the facility and the loss of 90,000 bpd.

Such large attacks were rare in the Niger Delta since the Presidential Amnesty Programme (PAP) for militants was introduced in 2009. PAP had some success in reducing violence by providing payments, training and pipeline security contracts to militants. President Muhammadu Buhairi's government is looking to phase out PAP, although it has been extended for 12 months beyond its planned expiration in 2015. However, many stipends are now unpaid due to the impact of low oil prices on state finances.

Equatorial Guinea nationals to benefit from specialist oil and gas training



The two-year programme will provide students with core and specialised oil and gas knowledge.

Image Credit: gpforeducation/Flickr

THE MINISTRY OF Mines, Industry and Energy of Equatorial Guinea has signed an agreement with the Southern Alberta Institute of Technology (SAIT Polytechnic) to provide comprehensive technical training to Equatorial Guinea nationals in Canada

The two-year programme, which will provide the students with core and specialised oil and gas knowledge, is part of the government's drive to promote workforce nationalisation in the industry. SAIT's International Workforce Development and Workforce Nationalization Training has been successful in transferring technology to Africa countries, boosting national capacity and promoting local content. The first partnership between SAIT and Equatorial Guinea saw the training and development of the first nationals to work in the oil and gas industry, specifically on the offshore Zafiro complex, one of the country's largest oil fields.

The minister of mines, industry and energy, HE Gabriel Mbaga Obiang Lima said: "The Government of Equatorial Guinea is empowering its nationals with the technical tools they need to lead the next generation of our nation's oil and gas industry so we can be better stewards of our resources."

The plan is to provide the students with a curriculum that covers production field operations, energy asset management, maintenance of operations and electrical instrumentation and mechanical training. Underpinning the program will be safety training. Upon successful completion of the course, students will receive an SAIT Certificate of Achievement before returning to Equatorial Guinea.

Oil traders and upstream professionals launch DMWA

DMWA RESOURCES IS a vast network of industry contacts with extensive African oil and gas industry experience to offer service to NOCs and multinational companies operating on the continent.

The firm will target plays and partnerships across West and Central Africa and intends to capitalise on the extensive African knowledge and experience of among its management team and the financial firepower of large institutions to become the partner of choice for Africa's governmental and private oil and gas institutions.

"DMWA Resources is a knowledge and relationship-driven oil and gas advisory firm. Our African-specific expertise provides a strong platform to showcase our value in the markets where we seek to provide advisory services, acquire prospective acreages and specialise in the resale of crude oil, natural gas and refined products," said executive director Sebastian Wagner. "We assist our private sector partners in the industry's ongoing consolidation, as well as our governmental clients in their financial and knowledge-based recapitalisation."

Image Credit: DMWA

DMWA Resources executive director, Sebastian Wagner.

The firm is targeting African regions, including Equatorial Guinea, Chad, Congo-Brazzaville and Ghanaa and offers a range of petroleum industry and fiscal advisory services and partners with the capacity to undertake African E&P ventures.

IMF reviews economies of West African oil-producing countries

THE EXECUTIVE BOARD of the International Monetary Fund (IMF) has concluded the Article IV consultation with Islamic Republic of Mauritania acknowledging the economic deterioration since 2014.

The authorities have started adjusting their fiscal and exchange rate policies, including measures to strengthen revenues and contain current expenditures, and allowing for nominal depreciation. Growth slowed to about two per cent in 2015 due to lower mining activity and slower construction and fishing activity because of base effects, and is expected to rebound to 4.1 per cent in 2016.

In Ghana, the IMF conducted discussions on the third review of their financial and economic program supported by the IMF's Extended Credit Facility (ECF). The discussions focused on the implementation of the program, the medium-term outlook, and policies and structural reforms needed to restore debt sustainability, and a return to high growth and job creation, while protecting the poor.

The eight review of the IMF's staff mission in Niger had them reviewing the programme supported by the ECF arrangement. At the end of the discussion, Cheikh Anta Gueye, who led the staff mission issued a statement announcing that Niger could be entitled to a disbursement of SDR 12.34mn subject to approval by IMF management and the executive board.

Essel Group Middle East begins onshore seismic survey before drilling in Kenya

ESSEL GROUP MIDDLE East (EGME) and Simba Energy, through its subsidiary company Simba Africa Rift Limited, have awarded a contract for a 2D seismic data survey on Block 2A, in Kenya. Work on the survey commenced in May 2016.

The survey is being conducted by Africa Geophysical Services, and is intended to provide 2D seismic data acquisition and processing covering an approximately 500km survey line.

Once the survey work is complete, a full analysis of the data will follow. The survey represents an important preparatory step ahead of a drill programme for later in 2016.

"We look forward to completing the 2D seismic survey, and securing positive seismic results, with a view to starting the drilling process," said Gagan Goel, managing director of EGME and vice-chairman of Simba Energy. "We believe this next phase of work will reveal excellent upside potential for exploratory drilling across of number of high quality Kenyan prospects."

In December 2015, Simba entered into a definitive farm out agreement with EGME on Block 2A in Kenya.

Image Credit: Meng Zhang/Flickr

The acquisition starts south of Wajir. It is hoped that local people will be employed.

Challenging economic conditions hit Maersk's Angolan deepwater operations

MAERSK OIL HAS made cuts to its Angolan and American operations in the wake of tough market conditions. This means a reduction in the company's Luanda-based team and a closure of the company's Houston office. The Chissonga deepwater project is run from the Luanda office but Maersk's chief operating officer, Gretchen Watkins, insists the company remains committed to this project.

Ms Watkins said Maersk has "evaluated multiple options to commercialise these resources in the best interests of our partners and the Angolan authorities".

"A further restructuring of the Chissonga project team is a necessary step on the path to securing a furure development project for Maersk Oil in Angola," she said. "This difficult decision does not diminish our keenness to pursue the Chissonga project sanction in due course, provided we can achieve an attractive return on our investment".

The cutbacks mean the Luanda office staff will be reduced from 40 to 18 to continue work on the Chissonga project. Prior to making the decision to reduce the Luanda workforce, Maersk undertook extensive work to reduce capital expenditure and improve returns on the un-sanctioned project.

Image Credit: Blondinrikard Fröberg/Flickr

Tough decisions have been made from Maersk Oil's Copenhagen head office.

Positive financial results for Africa Oil

DEVELOPMENTS IN KENYA, Ethiopia and Uganda have helped Africa Oil report positive financial results for the first quarter of 2016. By the end of Q1, the company reported it had cash of US$523.6mn and working capital of US$474.4mn.

Maersk's acquisition of 50 per cent of Africa Oil's interests in Blocks 10BB, 13T and 10BA in Kenya and the Rift Basin and South Omo blocks in Ethiopia certainly helped the company achieve the healthy Q1 results. Upon final investment decision, Maersk will be obligated to carry Africa Oil for an additional amount of up to US$405mn, depending on meeting certain thresholds of resource growth and the timing of first oil.

In May 2016, Africa Oil announced details of an updated independent assessment of its contingent resources in Kenya's South Lokichar basin. The new estimate has increased by 150mn barrels, a 24 per cent increase on the 2014 assessment.

Prior to the first quarter of 2016, the governments of Kenya and Uganda announced that separate export pipelines would be developed for the export of production from the development of oil resources in their respective countries. Africa Oil announced plans to continue working closely with the Kenyan governmetn and upstream partners to move the upstream and midstream development projects forward.

The company expects that any standalone Kenyan pipeline plan will take into account the potential to accommodate the transportation of additional oil from neighbouring countries.

FIGHTING CORRUPTION, BOOSTING TRANSPARENCY

Tonye Cole, executive director and co-founder of the Sahara Group, spoke with the World Economic Forum about creating greater transparency in the Nigerian oil and gas industry.

What does greater transparency and integrity mean for oil and gas?
Greater transparency and integrity for oil and gas relates to an inherent and consistent problem – lack of trust within the industry.

It should focus on how to engender trust amongst the various stakeholders through the development and implementation of effective and efficient policies and regulations across the board.

How can this be achieved in Nigeria?
Trust is very dependent on who tells the story. Transparency and integrity can be achieved through honest and open stakeholder engagement.

The industry already has some of the highest standards of corporate governance but has very little or no advocates to speak on their behalf. By ensuring third party acknowledgement of these efforts in an unbiased, balanced and open way, trust can be re-established.

> “It is imperative that the tone is set at the top as this lays the foundation for ethical performance with a trickle-down effect on employees”


Image Credit: World Economic Forum

Tonye Cole is committed to improving the culture of transparency in Nigeria's oil and gas industry.

How has signing the Partnering Against Corruption Initiative (PACI) impacted your company?
Sahara has adopted this principle [of 'designing corruption out of the system' and this] has created an organised system through the use of technology via an Oracle ERP system to limit 'temptation' areas while driving the culture of the company and the PACI values through the entire organisation. The platform established under PACI has enabled us to limit corruption within our own system [and] helped to limit our level of exposure to corruption within the industry as a whole.

How important is setting the tone at the top for building a culture of integrity and trust?
It is imperative that the tone is set at the top as this usually lays the foundation for the organisation's ethical performance and the attendant trickle-down effect on employees of the company.

To build a culture of integrity and trust it is important that the top management also live and lead by the culture set in the organisation.

How can PACI and the community better contribute to increasing transparency?
One of the issues facing the oil and gas sector is the lack of trust which can be improved through transparency. PACI and the community can contribute to increase transparency in the sector through the use of self regulation from established industry standards, to setting and enforcing rules and guidelines relating to the conducts of companies in the industry.

[Also] creating awareness through praise and recognition of companies that are in line with industry standards and have performed effectively over time. [This] helps to increase stakeholder engagement, rebuild trust and strengthen accountability.

This is an extract from the World Economic Forum series of interviews with CEOs from the PACI community, which aims to rebuild trust, transparency and integrity in business. www.weforum.org

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NEW STRATEGIES FOR MOVING AHEAD AT THE GHANA SUMMIT

Boosting local content and greater opportunities for local SMEs along the value chain, improved governance, investment and the future of the power sector were all hot topics at this year's Ghana Summit. Georgia Lewis reports.

Image Credit: CWC

The Ghana Summit, held in Accra in April 2016, was ceremonially opened by the Minister of Petroleum, Mr Emmanuel Armah-Kofi Buah.

THE GHANA SUMMIT offered optimism and praise for the progress the west African nation's oil and gas industry has made in a short period of time. However, the optimism was tempered by calls to strike a balance between increasing local participation and attracting foreign investment.

In the opening session, "Ghana's Oil and Gas Potential: Plans, Policies and Priorities", Dr Rashid Pelpuo, Minister of State, said that small and medium-sized enterprises (SMEs) need to be "propped up" and more Ghanaians need to get involved in the petroleum sector.

Ghana has a relatively new petroleum industry, with oil first being produced in the Jubilee field in 2007. Output for this field is 100,000 bopd. The notion of getting local companies, particularly SMEs, involved along the entire value chain was a strong theme over the course of the summit.

Michael Aryeetey, Chief Operating Officer, for the GNPC Exploration and Petroleum Company, told the summit that GNPC has a four-pillar strategy for developing Ghana's hydrocarbon sector, already worth US$20 bn annually, through building capacity, replacing and growing resources, efficiency, and local content.

> **"Ghana has been relatively stable during the challenges presented by the low oil price environment"**

A "lack of local expertise" and the "low-risk appetite of Ghanaians" were cited as two of the biggest challenges facing the country's oil and gas industry, but added that "stronger joint ventures for skill and technology transfer" was an important strategy for increasing local participation and giving local people a bigger stake in projects.

Theo Ahwireng, Chief Executive of the Petroleum Council (PC), Ghana's regulatory body for the oil and gas industry, reiterated calls for increased local content, along with moving more projects from exploration to appraisal. Mr Ahwireng said the TEN FPSO, which went commenced installation, hook-up and commissioning in March, is "on budget" and all nine mooring lines have been handed over. He also spoke about progress made by the Offshore Cape Three Points (OCTP) development, saying he is "modestly excited by well-drilling activity" and he expects the project to go onstream in mid-2017.

"Ghana is an emerging regional petroleum hub," said Mr Ahwireng. "Many companies are relocating their offices to Ghana, creating jobs, and facilitating skill and technology transfer. This shows the confidence companies have in Ghana".

"Local companies should not just favour the 'low-hanging fruit', such as catering and accommodation"

Emmanuel Armah-Kofi Buah, Minister of Petroleum, described the oil, gas and power sectors as "key catalysts" for the Ghanaian economy.

"We are proud of our oil and gas sector but we don't take it for granted," said Mr Buah. "Steps to ensure transparency and regulation will attract investment."

A balancing act

The Ghanaian oil and gas industry needs foreign investment to grow and develop particularly as access to finance is difficult for indigenous SMEs, but investors need to transfer skills and technology to local people and companies and ultimately, state funding should be reduced as well as foreign companies pulling out of Ghana "over a reasonable period", according to Mr Aryeetey. A policy of PC-approved joint ventures is in place in Ghana.

Indigenous service providers have also benefited from Ghana's increased oil and gas activity. Mr Ahwireng said that joint ventures have stimulated this growth. This sentiment was echoed in Mr Buah's keynote address in which he said joint ventures with IOCs are a "win-win".

Ensuring local participation up and down the value chain was a prominent topic. Again, joint ventures, locally focused procurement and improved strategic partnerships were put forward as ways to ensure local companies are involved, capacity is built, local jobs are created and technology is transferred.

Genevieve Ocansey, director of the Centurion Group's Ghana office, spoke highly of the rule of law in Ghana and said that expectations for the oil and gas industry are high. She said that to boost local content, local involvement and technology transfer are "very important".

"To have the right kind of partnerships is crucial," said Ms Ocansey.

Dr Juliette Twumasi-Anokye, a consultant for the Petroleum Commission, talked about the fiscal multiplier effect of increasing local content and urged companies to not just favour "the low-hanging fruit", such as catering and accommodation. Technical capacity-building is important, she said, describing the Ghanaian approach as "learning by doing".

Access to finance was another hot issue, with interest rates in Ghana remaining high. Ms Ocansey described the financial constraints on Ghanaian companies as "speed bumps".

"Financial institutions are not always capable of providing large capital [particularly with] interest rates at 23 to 26 per cent," said Ms Ocansey, but she added that "significant progress" is being made.

"We need to do something about the banks," said Kwame Jantuah, CEO of African Consortium Limited. He suggested that syndicated loans could be used to raise funds for local companies that would otherwise struggle to obtain finance to participate in oil and gas projects.

His Excellency, Jon Benjamin, Great Britain's High Commissioner in Ghana was challenged by a delegate about what his country is doing for the local oil industry. Mr Benjamin described the low oil prices as a "mixed blessing" as it has allowed British companies to make significant investments in Ghana, including Tullow's US$600 mn investment in the Lonhro port project. He also spoke of knowledge-sharing between the two countries, with the Ghanaian president visiting oil projects in Aberdeen, Europe's oil capital.

He also spoke of Great Britain's work with the Department of International Development and the Oil and Gas Inclusive Growth Programme to strengthen regulations and improve revenue capture: "If, as hoped, oil prices recover, the impact on income will have a potentially transformative effect".

The upstream sector

Kwaku Boateng, director of special services for the Petroleum Commission, said that to boost the upstream sector, it was important to "minimise political involvement and promote investment". Infrastructure, such as cities and airports, is also important, Mr Boateng added.

Image Credit: CWC

Kwaku Boateng talked about the importance of minimising political involvement and maximising investment.


Images Credit: CWC

Mark Mensah spoke frankly about the prospects of the Ghanaian gas industry and the country's relationship with Nigeria.

While minimal political interference was cited as important by Mr Boateng, he did emphasise the importance of the exploration and petroleum bill and for accountability along the whole value chain.

Mr Jantuah pointed out that Ghana developed its oil industry "back to front": "We started production before the necessary laws were in place". He also said that stakeholders are "beginning to find holes" in the Petroleum Exploration and Production bill, and amendments will be required "down the road".

He discussed the progress being made with the FPSO to come online; future possibilities, such as using gas for power; improving job opportunities by developing the petrochemicals sector; oil rigs, pipelines, and broader infrastructure projects such as railways.

In response to a delegate's question about how to bring more small players into the market, Mr Januah talked about boosting Ghana's refining sector.

"We need refining as a base for when the oil price goes up," said Mr Januah.

Michael Amoah, Chief Financial Officer for GOSCO, said "the reality of economics" has to be taken into account when developing strategies for upstream development. He stressed that capacity building and strong partnerships are essential, making the most of Ghanaian entrepreneurship.

Ghana has been "relatively stable" during the challenges presented by the low oil price environment, according to Mr Amoah. He said that as long as opportunities along the value chain are maximised, "then Ghana can have real strength".

Gas growth for Ghana

Mr Aryeetey outlined GNPC's plans for gas development. He said that gas use has been promoted through national initiatives such as free gas bottles, promoting the environmental benefits of gas as a cleaner fossil fuel and Eni's offshore investment. Over the next three years, Ghana aims to triple gas production.

Additionally, Mr Aryeetey expressed GNPC's ambitions for gas to be used as a power generator. He sees Ghana as a "potential regional hub" if local gas markets can be developed. While oil is moving towards making up 50 per cent of Ghana's energy mix, there is a strong push towards using indigenous gas in power generation.

Plans for an LNG regasification facility to commence at the end of 2016, with an initial capital outlay of US$550 million, were also outlined by Mr Aryeetey, with a transfer all LNG assets to GNPC after a 20-year period.

> **"Ghana is an emerging petroleum hub with many companies relocating to Ghana, creating jobs and facilitating technology transfer"**

Mr Ahwireng pointed out that US$1.3 bn worth of petroleum industry contracts were awarded to indigenous companies between 2007 and 2015, and that the industry employs 7,000 people, 80 per cent of whom are Ghanaian. Among the IOCs present in Ghana, 1,301 employees are expatriates while 2,315 are Ghanaian.

Mr Buah also talked up the importance of boosting the role of gas in the power sector. But he added that it was important to develop a pricing mechanism and gas infrastructure, including east-to-west gas pipelines.

Mark Mensah, external relations manager for the West African Gas Pipeline Company, said the Ghanaian gas industry is "adapting to a changing landscape" and that Ghana will grow as a domestic gas producer, particularly with the Aje and Ogo fields. He added that there are "issues with gas supply from Nigeria" but Nigeria remains a "key strategic source of gas for west Africa".

Regulations and legislation

Multiple speakers highlighted Ghana's political stability, adherence to rule of law, and efforts to reduce corruption for a solid investment environment.

"Foreign direct investment will follow," said Mr Ahwireng. To date, FDI peaked in Ghana in 2010 at US$7.6 bn, dipping to US$1.63 bn in 2013 but picking up again to US$2.35 bn in 2014.

The Petroleum Exploration and Production bill is the latest attempt to ensure solid regulation. Mr Buah said that "a lot of progress" has been made.

> "Regulations already in place are testament to Ghana's forward-looking progress"

In his address on boosting Ghana's upstream sector, Mr Boateng emphasised the importance of a progressive system of accountability, particularly in regard to disclosure of beneficial ownership. He added that there is "scope [in the E&P bill] for an even tougher anti-corruption clause to criminalise conflicts of interest with public officials". These sentiments were echoed by Mr Jantuah, who also called for greater transparency in regard to ownership.

"We have bits and pieces of legislation," said Mr Jantuah, adding that it is important to be able to "map who owns what [with] all linkages traced".

In regard to gas regulation, Mr Buah said that a new gas policy bill was due for approval by the end of 2016.

Comparisons with Nigeria were perhaps inevitable but Mr Ahwireng said that it is important to be "humble as continually we grow oil as a percentage of GDP".

It was also pointed out by Mr Buah that Ghana has only been producing oil since 2007, compared with 50 years of production in Nigeria. In that context, speakers pointed out that much has been achieved in Ghana in terms of governance in a short period of time. However, Ayesha Bedwei, Africa energy tax leader for PwC Ghana added a different perspective, saying that Ghanaian regulatory bodies "need to speak to each other a bit more" and communicate more with investors so everyone is "singing from the same hymn sheet".

She said that more needs to be done to fight corruption, including "publish what you pay" provisions for auditing. Ms Bedwei questioned whether the Petroleum Revenue Management Act 2011 is fit for purpose and said multiple acts can cause confusion, but added that existing regulations "testament to Ghana's forward-looking progress".

In terms of a business-friendly tax-regime, Ms Bedwei responded to a question from *Oil Review Africa* by saying that Ghana has a "progressive" tax system with one of the lowest rates of corporation tax in Africa. She said hidden taxes and poor understanding of the income tax system can cause problems for operators and urged for "effective taxpayer education" and reforms to make compliance easier.

Ms Ocansey cited Ghana being a signatory to the UN Convention Against Corruption since 2007, the National Anti-Corruption Plan 2012 and the Extractive Industry Transparency Initiative as examples of good governance being taken seriously. She added that it is important that labour laws and human rights are not violated by Ghana's oil and gas industry employers.

What does the future hold?

Energy demand in Ghana is rising by 12 per cent per year, which has created an urgent need to upgrade the power sector. It is expected that alongside renewables, oil and gas will continue to play an important role in fuelling power stations.

"It is naive to say the oil price is not affecting the economy," Mr Boateng. "There has been some decline in jobs but the impact has been very minimal compared to the global level, where there has been a sharp decline".

Mr Amoah talked about how GOSCO is remaining relevant. He said GOSCO is the operator on two blocks and is positioned in the value chain to provide specific services.

Mr Jantuah talked about how exploring and developing the Voltain Basin is cheaper than working offshore and emphasised the importance of properly mapping the basin.

He said this development is a great opportunity for increasing local content in the Ghanaian oil and gas industry, but more education in capacity-building is required to meet these goals.

The Jubilee and TEN fields are "in partnerships with reputable companies", according to Mr Aryeetey. "There is US$6 bn in development and there are plans to expand to Greater Jubilee".

It is expected that the TENS field will come onstream later this year. Explorco is owned by GNPC and it is seeking out partners to help build operational capabilities.

Mr Aryeetey told the conference that there is an "agenda of building and learning from lead operators [with a] commitment to train our people".

The aim with Explorco's joint venture projects is to be fully independent of foreign operators by 2027.

"We are building operational capability, acquiring stakes in high impact exploration projects [for an] exploration-led growth strategy," said Mr Aryeetey. "Explorco is taking a measured risk [with a] balanced portfolio and asset base [and a plan to] develop organisational capabilities."

"True partnerships spread the risk and share the reward," said Mr Aryeetey.

Image Credit: CWC

Michael Aryeetey outlined Explorco's plans for partnerships as well as ultimately handing the oil operations back to Ghanaians.


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HIGH HOPES FOR MOZAMBIQUE'S ENERGY SECTOR

The fifth MMEC event provided a platform for major players in the industry to discuss and strategise for the future of Mozambique's burgeoning energy sector, with the development of gas projects as a source of optimism. Vani Venugopal reports.

Image Credit: AME TRADE

MMEC 16 focused on infrastructure development, growth and economic transformation in the Mozambique energy sector.

HOSTED UNDER THE theme "Mozambique's resources as the catalyst for infrastructure development, inclusive growth and economic transformation," the 5th Mozambique mining, oil and gas and energy conference and exhibition (MMEC) was held in Maputo from the 27 – 28th April 2016. The event was organised by AME Trade in partnership with Empresa Nacional de Hidrocarbonetos (ENH) and the Geological Mining Association of Mozambique with the support of the Ministry of Mineral Resources and Energy and provided a platform for a deeper dialogue between regulators, investors and experts from the energy industry to promote the sustainable use of Mozambique's resources.

> **"Mozambique's gas reserves, could contribute to making the country one of Africa's largest economies by 2028, an IMF report says"**

This year, the event focused on the dynamics of local content and the need for infrastructure development in the country. The overall message conveyed during the event was that despite tumultuous times in the oil and gas industry across the world, there is a lot of room for growth across all three sectors in Mozambique. There was great optimism at show about Mozambique's burgeoning gas industry.

Rise of Mozambique's energy sector

The event was held at a crucial point in the timeline of the country's energy sector. Over the past five years, East Africa, and Mozambique, in particular, has emerged as an exciting prospect for energy companies. The discovery of massive gas reserves in the country – potentially around 180 tcf – in the Rovuma Basin in 2010 is often cited as one of the most important natural gas discoveries in the last 20 years globally. The country has since then been catapulted onto the international investment radar and the potential of its natural reserves is seen as an economic game changer for its economy. According to a report by the International Monetary Fund (IMF), Mozambique's gas reserves, could contribute to making the country one of Africa's largest economies by 2028, when its gas production is predicted to reach its peak.

Estimates from two of the five exploration blocks in Cabo Delgado Province, where Mozambique meets Tanzania, indicate well over 100 tcf reserves of natural gas. The volume is equivalent to Nigeria's entire national gas reserves.

The production from the first phase of the project for natural gas exploration in Area 1 in the Rovuma basin in northern

Image Credit: AME TRADE

The event was inaugrated by the minster of mineral resources and energy, Pedro Couto.

Mozambique gas field is scheduled to begin in 2021 with an annual output of 12mn tons.

Mozambique, a net importer of fuel, aims to use the resources to build gas-to-liquids plants and also as a cheap source of electricity. According to figures supplied by the World Bank, 80 per cent of its population do not have access to electricity. IMF has reported that the country could supply half of its energy needs from natural gas by the mid-2020s. Currently, US company Anadarko and Italian operator Eni are developing plans to build LNG plants to market the gas, with a total investments amounting to more than US$100bn.

The IMF also projected that Mozambique could become the world's third largest gas exporter after Qatar and Australia. The Mozambican economy is expected to grow 24 per cent between 2012 and 2025, before falling back to the three to four per cent growth as late as 2028.

Mozambique's energy sector has seen growth last year, in spite of fluctuations in oil prices. Before the oil price drop at the end of 2015, Mozambique reported solid GDP growth, at 5.9 per cent in the first quarter, with the extractive industries one of the main drivers of this positive performance. There was a slump in GDP growth in the second quarter, when it dropped to just 1.1 per cent but by the third quarter, GDP growth was picking up again at 1.8 per cent.

According to the Economist Intelligence Unit, Mozambique's real GDP is projected to grow by seven per cent annually between 2016 and 2020.

Industry leaders sharing knowledge and views

Since 2000, when Mozambique's first offshore licensing round was launched, the ongoing hydrocarbons activity in the region has been a catalyst for the bi-annual MMEC show.

The event this year was officially opened by Pedro Couto, Minister of mineral resources and energy, Republic of Mozambique, represented by Alfredo Nogueira Nampete, permanent secretary, Ministry of Mineral Resources and Energy, who delivered the keynote opening address, alongside AGMM chairman Estêvão Sumburane, ENH chairman Omar Mithá, and other industry stakeholders. Representatives of the Geological Mining Association of Mozambique, Anadarko Petroleum, Sasol and ExxonMobil also participated at the opening session.

> **"19 exhibitors, 410 delegates, 59 speakers and 1000 visitors from 27 countries, took part in the event"**

Speaking at the opening session, Omar Mithá said, "Structural changes in the global natural gas market, marked by the entry of new producers and exporters, should not stop Mozambique from preparing its entry into this market." He pointed out that the market is going through a period marked by a relative excess of supply compared to demand, but added that statistics show that demand and energy consumption will increase, with some countries that want to exchange more polluting energies with other cleaner options, specifically natural gas.

The event saw a good turn out this year with participation from 19 exhibitors, 410 delegates, 59 speakers and 1000 visitors from 27 countries, both from throughout Africa and abroad. The high attendance at the event allowed for excellent networking opportunities during the show. MMEC showcased varied investment opportunities in the exhibition and provided a platform to learn more about opportunities in the mining, oil and gas and energy sectors. Improvements in regulation and governance and big picture development issues were strong themes during the conference.

"Very good and appropriate platform for oil, gas, mining and energy discussions and way out solutions," commented Mozambique ministry of trade and industry economist N L Sululo, when asked his participation at the show.

A wide range of companies and organisations were represented at the event, including Fluor Mozambique, Aggreko, Standard Bank, Matola Gas, Funae, Gesto Italia, Hidroeléctrica Cahora Bassa, National Council for Electricity, Gigawatt Moçambique and the Maputo Corridor Logistics Initiative.

Important issues on the agenda

The conference featured more than 40 presentations covering the mining, oil and gas and power sectors. Panel discussions addressing skills development, regulatory developments, anticipated local content policies and other related issues were also a part of the conference. Multiple stream sessions on the three sectors were held at the event. Each stream included keynote addresses, debates, project spotlights and presentations.

The mining stream conferences discussed topics such as leading corporate players, the legal and fiscal framework of national mining sector and international coal demand. Oil and gas sector saw discussions on topics including oil and gas legal frame work, gas monetisation, local content and infrastructure . The future of LNG and its implications for Mozambique were stressed at the conference.

"LNG is poised for growth even in the impending down-cycle," said KPMG LNG global head Mary Hemmingsen, who spoke about LNG pricing and financials.

> "A strong IPP programme has benefits in the form of job creation, industrial development, community development and local ownership"

Power and electricity stream conferences focussed on power sector developments and investment opportunities, PPPs for mega projects, regional partnerships, investment in renewable and others. Role of IPPs in Mozambique generation was one of the topics that were stressed. It was pointed out that with the growing demand for power in Mozambique and throughout Africa there is a strong need to attract IPPs to finance and build additional electricity infrastructure. Job creation, industrial development, community development and local ownership are some of the additional benefits that a strong IPP programme can cater.

The need to reduce Mozambique's reliance on hydropower, whose supply is negatively affected by climate change, was also stressed at the conference. The various avenues to achieving Mozambique's full power potential were discussed.

Nersa (South Africa) legal advisor Lindiwe Mvuyana remarked about the conference, "The programme gave me a completely different insight into how certain regulatory issues ought to be approached or may be approached even in my own jurisdiction. I will definitely use the information gained to see how best I can contribute in introducing some regulatory change in my organisation."

Sustainable development

A specialised panel discussion on local content focusing on the procurement of goods and services and skills development was included in the programme.

As the industry develops, a host of new job opportunities are opening up in the region and skill development has become paramount. The discussion also looked at practical aspects of sourcing local content.

Also of interest was also the roundtable discussion held on the topic "environmental management for natural resource development," which discussed the potential long term gains of environmental management including sustainable development, economic growth, environmental protection and strategies to achieve it.

The conferences were well received by the participants who had an opportunity to discuss and share their ideas and concerns.

"Having international and national speakers on the event made it interesting and practical as it allows to draw from international comparison into the reality in Mozambique," said BCI legal consultant Epifania Gove who participated in the event.

Speakers at the conference included AME Trade Founder and Managing Director Mahad Ahmed, Anadarko Mozambique president and managing director John Peffer, Africa House director Duncan Bonnett, INP exploration vice president Augusto Macuvele, Fluor Mozambique country manager James Hughes, Aggreko Southern and East Africa managing director James Shepherd and Gesto Energia CEO Miguel Barreto, among others.

The relevance of topics covered at the conference was appreciated by the participants.

"An excellent conference in terms of content," said Anuera Ltd (UK) managing director Adam Brown.

Image Credit: AME TRADE

There was special focus on environmental management for natural resource development at the event.

'A LOT IN STORE FOR AFRICA'

Africa's crude storage market potential was high on the agenda at Tank World. Rhonita Patnaik reports.

According to CITAC Africa report, 58 oil refineries have been built in Africa: 35 in sub-Saharan Africa and 23 in the five North African countries.

THE WORLD OIL demand increased by 1.4mn bpd in the first three months of 2016 compared with the same period in 2015, according to the International Energy Agency (IEA) recently. Floating storage on a global basis has jumped 19.5 per cent from Q1 2015 to Q1 2016.

This is the challenging backdrop to Tank World Expo. It took place in April at the Dubai World Trade Centre and future market plans in Africa were revealed at the event. With an estimated that 57 per cent of Africa's export earnings derived from hydrocarbons, the storage issued raised at Tank World are critical for the continent's oil and has operators.

Other factors relevant to the African market influenced discussion at Tank World. For example, Reuters reported that oil traders from Houston to the North Sea are tapping into plentiful storage onshore and offshore, evincing little sign of concern yet about mammoth supply losses from Canada to Nigeria that has knocked out about two million bpd of output recently.

Ample oil inventories near record highs on ships and land have left buyers in no hurry to lock down new crude supply. Many have even shunned offers of fresh cargo. This is also impacting on African operators with traders saying there was an overhang of physical oil in Nigeria, with more than 20 June loading cargoes available. In Angola, there were nearly 10 June-loading cargoes.

"There is simply so much crude on the market," said Eugene Lindell, oil analyst with JBC Energy, adding that buyers "are quite wary simply because there is so much stock available."

The conference programme hosted 20 leading authorities from the bulk liquid storage sector, including companies such as OTTCO, Orpic Logistics, Burgan Cape Terminals, CITAC Africa and Fujairah Oil Terminal.

Gary Still, Executive Director, CITAC Africa, said that in Africa, regional demand growth and the need for better supply chain are the two drivers factoring the growth of downstream market.

"The African GDP growth is driving the demand growth in the continent and outside and going forward we feel the infrastructure may take a leap role in determining the potential growth of the region. It is vitally important to have the right infrastructure in place. In 2015, sub-Saharan Africa GDP growth saw 3.8 per cent growth compared to average of 3.7 per cent globally. Total product demand from Africa was 3.8mn bpd in 2015. Infact, last year saw 70 per cent increase since the year 2000. Going forward, the total demand is expected to grow to 270mn tonnes by 2030, 50 per cent by today." Still, however, added that there is an increasing shortfall in African refining output, from 83 per cent in 2000 to 43 per cent in 2015 and this is expected to fall to 30 per cent by 2030.

In terms of volume, it has come down to 100mn tonnes in 2015 from 125mn tonnes in 2005. Logistically speaking also in Africa there is a huge difference between what the refineries are producing and what the clients require. Africa refining is still simple and lot of fuel has to be exported to create niche products. The continent imports transportation fuels like jet, diesel and gasoline for its domestic consumption.

According to CITAC Africa report, 58 oil refineries have been built in Africa: 35 in sub-Saharan Africa, and 23 in the five North African countries. Over the years, many African refineries have been forced to close as a result of low worldwide refining margins, tightening product specifications, small local markets, high operating costs (resulting largely from their small size) and unfavourable yields.

There is also a considerable increase in the imports of clean fuels in the last 10 years, which is now close to 18mn tonnes and is expected to cross 115mn tonnes by 2030. Still said that this is the time when refining and storage has a massive opportunity in the continent. Why is that?

He reveals that crude stocks and market is currently not very stable. Therefore, there is a race for storage. But there are structural changes in demand. There are crude still stored in refineries and these produce problems for imported fuels. Infrastructure needs to improve so do security. For instance During civil war in Cote d Ivoire, the plants were forced to divert the supply chain. This had an impact on price too.

There have also been a great number of new refinery announcements in Africa in the past decade. Since 2005, some 100 major projects for new refining capacity on the continent have been announced, the majority of which have been for new refineries. Of these projects, the only new refineries to have been commissioned are the Chinese-built refineries in Algeria (Soralchin), Chad (SRN) and Niger (SORAZ). There have also been capacity expansions and/or upgrades in Sudan (KRC), Morocco (Samir) and Algeria (Skikda and Arzew). Throughout the past decade, operating refineries in the region have made significant investments in improving efficiency and product quality, but few have increased refining capacity.

Around 81 per cent storage capacity is about less than 50,000 cu/m and only one per cent above 500,000 cu/m. There are also storage developments in transit markets in Djibouti and Ghana, supporting various industries.

Of all the factors that make it hard to build refineries,

Image Credit: grigvovan/Fotolia

From 2000 onwards, crude transportation via pipelines has considerably decreased compared to rail and roads.

commercial risk is the most important. Large amounts of capital are needed for long periods, but global refining profitability is currently precarious. Refineries must compete with other infrastructure projects on a global stage. Excess world refining capacity and low freight rates make it easy for oil products to move between regions. So a new refinery must try to beat the cheapest refining economics anywhere. In general, Africa's existing refineries fail to compete as unlike new plants in the USA and the Middle East they are old, inefficient, small, and weak at upgrading heavy products to light products such as gasoline.

Refining facilities too need a good transportation system. In the recent years, World Bank figures show that pipeline transport come down but rail and road conveyance remain steady. Majority of African market is covered by road and there is an increasing requirement to improve the quality of vehicle fleets.

CITAC Africa also revealed that governments also need to commit to the idea that hosting a refinery has advantages over importing products. That commitment will often be driven by greater regional supply security, consistent product quality, efficient and economic supply, enhanced industrial infrastructure, easier tax collection, and job creation.

Amec Foster Wheeler was recently awarded the project management consultancy contract for the development of Kipevu Oil Termial in Kenya.

NIRAS awarded the contract to support the next stages in the development of a project by the Kenya Ports Authority project for the offshore relocation and expansion of the terminal in Mombasa. The terminal will be relocated to a site adjacent to Mombasa port berth 16 and 17. It handles more than 90 per cent of the country's imports as well as transit products for Uganda, northern Tanzania, Rwanda, Burundi, Eastern DR Congo and southern Sudan.

In Ghana, construction has started on a marine gas oil tank terminal to serve as a supply point for vessels at the Takoradi Port.

The 4.5mn capacity tank facility is being financed by the Ghana Oil Company Limited (GOIL) and it will serve as a bunkering terminal which will berth import tankers with bunker fuel for vessels at the port. According to media reports, it is expected to begin commercial operations by the end of 2016.

Tank World Expo rebranded

StocExpo Middle East Africa (formerly Tank World Expo), has rebranded to align itself with Easyfairs' current portfolio of tank storage events and to capitalise on the reputation of the StocExpo brand within the sector. The event will take place at the Dubai World Trade Centre on 26-27 April 2017.

Nick Powell, event manager of Easyfairs' Tank Storage portfolio explains the reasons behind the rebrand, "I am thrilled to announce that Tank World Expo will now be called StocExpo Middle East Africa. The Middle East and African storage sector is experiencing exponential growth at the moment, and it doesn't look like it will be slowing down any time soon, which is fantastic for us and those working within it. We already attract the best and brightest from the tank storage world, but we have big plans for this show and growth is firmly on our agenda. It is great that our portfolio of events, which spread across the key bulk liquid storage hubs of Rotterdam, Antwerp, Singapore, Dubai, Hamburg and Shanghai, is universally recognised, and launching StocExpo Middle East Africa was key to our growth. These are exciting times, so stay tuned for more information."

THE FUTURE FOR E&P AND INVESTMENT AT AFRICA INDEPENDENTS FORUM

The 14th Africa Independents Forum gathered together leading independents and corporate players worldwide and from across Africa when the event was held in London. *Oil Review Africa* editor Georgia Lewis attended the event.

THE MODEST REVIVAL of oil prices helped create an atmosphere of cautious optimism at the 14th Africa Independents Forum. However, with oil prices hovering just under the US$50 a barrel mark during the conference, this positivity was tempered by reminders that cost-savings still need to be made.

Strong themes

Cutting capital expenditure (capex) was very much on the agenda for multiple operators. Tullow's Dr Ian Cloke and OMV's John Austin were both very vocal on the importance of signifiant capex cuts, which they see as essential to survive and thrive in Africa.

Opinion was mixed on whether onshore or offshore developments will be the way forward for independent players in the African market. Strong cases were put forward for both lower cost, lower risk onshore projects, as well as bolder calls for more investment in riskier but potentially lucrative offshore oil and gas plays.

Constructive partnerships with farm-ins and farm-outs are also important as well as maintaining good relationships with governments, according to many speakers at the two-day event.

On behalf of the US Department of State, Taylor Ruggles, the department's regional energy counsellor for Africa, said that it is interested in the success of the African energy industry because "energy security is part of national security". He outlined the ways the US government is prepared to help African independents, such as knowledge-sharing, cooperative agreements, contract mechanism advice and partnerships with willing governments.

Pade Durotoye gave an honest overview of the experience of independents in Nigeria.

Cutting capex and restructuring to survive

Dr Ian Cloke, vice president of new ventures for Tullow, said the company had to "re-set to deal with low prices" by "cutting capex pretty aggressively". This meant cutting staff from more than 2,000 to around 1,300, focusing on low-cost West African production and a strong hedging programme.

Woodside Energy has been "reinvesting and reshaping its Africa portfolio", according to Lee Marshall, the company's general manager. Its latest interests include onshore oil in Gabon in partnership with Repsol, and offshore projects in Senegal and Mauritania, where he said there is "potential for high impact exploration".

Where to invest

While Nigeria and Angola remain the two main players in the African hydrocarbons sector, other countries were also cited as hot spots for independents keen to invest in emerging markets.

In particular, there was much positivity about the prospects for independents keen to invest in Senegal and Mauritania on the North Atlantic margin.

East African gas opportunities also loomed large and Ghana was repeatedly cited as a reliable source of steady cashflow.

In central Africa, Cameroon, Gabon and Equatorial Guinea, as well as São Tomé and Prìncipe, were put forward as exciting new frontiers, particularly with exploration in Cameroon and production in Equatorial Guinea.

Cath Norman, managing director of FAR Limited, shared the remarkable success story of Senegal's SNE field, the world's largest oil discovery to date.

Dr Duncan Clark introduces speakers at the annual London-based event for Africa's independent oil and gas operators.

The two-day conference and exhibition was an excellent opportunity for networking and sharing industry knowledge.

Appraisal in November 2015 revealed all six wells to be successful. FAR is working on the project with ConocoPhillips, Cairn Energy and Petrosen, the Senegalese national oil company.

The project is fully funded through shareholders and Ms Norman said the benefits of working in Senegal include a good investment environment, a peaceful democracy, and a straightforward geological setting for operations.

Cooperation between Senegal and Guinea Bissau with the Senegal-Guine Bissau Joint Development Zone (AGC) has alrso led to much interest. Woodside Energy, for example, has a 65 per cent interest in the Profond Block, in partnership with Impact Oil.

Offshore versus onshore

The virtues of cheaper, lower risk onshore production were hailed by some speakers as the easiest way to get through the current downturn. However, there were also champions for offshore investment, such as Philip Birch, exploration director for Impact Oil & Gas, and Dr Paul Dailly, senior vice president exploration, for Kosmos.

Peter Ntephe, president and CEO of ERHC Energy, outlined the company's business model as "an oil company that doesn't produce oil" with its current offshore focus. With a business model that involves acquiring early stage projects with low entry costs, building it up and increasing asset valuation, then selling at a "tremendous profit" before going into production, offshore projects make better economic sense. The company's current interests include projects in Kenya, Chad and Nigeria.

After a project failed in São Tomé and Prìncipe, a renewed onshore focus was adopted.

Rogers Beall, executive chairman of Africa Fortesa Group, said the company's focus was "primarily onshore" in particular, in Senegal, where the Africa Fortesa has operated since 1991. He said a gas-to-power project has 92 per cent local content and villagers provide the security.

Operating in Nigeria

Pade Durotoye, chief executive of Oando Energy Resources, said that "tightness is here to stay" in regard to oil prices and keeping costs under control.

Describing the Nigerian market as "a promise that keeps on promising", Mr Durotoye is excited about the new NNPC leadership after a period of decline dating back to 2005.

He said pipeline security is the biggest concern for the industry and that the ongoing attacks are a "criminal issue and needs to be addressed as such".

Oando has delisted from the Toronto Stock Exchange because of a "decline in appetite for North America to fund Africa". However, Oando is still listed on the stock exchanges of Nigeria and Johannesburg.

The market outlook for Africa

Mike Lakin, managing director of Envoi said the latest downturn, driven by supply and demand issues, has led to a corresponding downturn in successful deals, but said the deals that have worked out well are "technically driven" and "successful in exploration" in particular. He said the FAR story in Senegal was an excellent example of this, as it was technically driven and tenancious.

"FAR got in cheap and got fantastic terms," said Mr Lakin.

Dr Stuart Amor, an independent advisor, said that majors, such as Exxon and Chevron, are in a strong position, and said that for independents, there is "good conventional exploration potential" across sub-Saharan Africa.

Ultimately, oil prices will be influential in investment choices and successful deals across Africa. Richard Savage, head of energy research for Mirabaud Securities, predicted that by the end of June 2016, oil prices could be up to US$57 a barrel and US$73 by 31 December 2016.

In a broad-reaching presentation, he outlined the multiple factors behind the oil price drop, explaining that "it is a supply issue, not a demand issue".

"Demand has been reasonably stable," said Mr Savage. He explained that initially the US led the charge towards oversupply but more recently, "this mantle was taken up by OPEC [with] Saudi Arabia, Iraq and Ian as the three main culprits". He said the rationale behind these three countries overproducing oil was "let's flood the market to drive out excess investment in the industry".

In 2016, Saudi Arabia and Iraq stagnated but Mr Savage said this still left Iran to overproduce oil, particularly once sanctions were lifted.

He also explained that despite a much lower rig count at the time of writing (208) than in October 2014 (1,134), the US industry has still recorded a "sharp uptick in production since 2015".

"The US industry is very good at adapting to change," he told the conference, explaining that even with fewer well drilled, they are being exploited more efficiently.

UPSTREAM FOCUS AT AFRICA OIL WEEK

Major players from across the co oil industry will be converging on Cape Town later this year for Africa Oil Week, representing a major opportunity for big and small companies.

NOCS, AFRICAN GOVERNMENTS, licensing agencies and corporate players will meet in South Africa to talk about the future of the continent's oil industry including: E&P, development, new frontiers, established basins, offshore projects, farm-ins, and deal flow.

Forging corporate-state relationships and driving investment into Africa's upstream landscapes will be high on the agenda. The "born in Africa" companies will have ample opportunity to make contacts and bolster their presence. African state oil firms and foreign companies looking for investment opportunities will be present. Banking institutions, equity investors, project financiers and transaction advisors will be on hand to make connections in Cape Town.

There will be a strong focus on new innovations and showcasing the role of the service and supply sectors in development and meeting local content goals. A local content forum will be held to help all players move forward. Other events include a women's luncheon, a young professionals event, and an exploration zone. As well as 175 speakers, it is expected that more than 40 governments, 180 exhibitors and more than 1,250 senior delegates will be present.

www.africa-oilweek.com

THE PETROLEUM INDUSTRY IS CHALLENGED AT OTC 2016

Despite the low oil price environment, leading speakers at OTC were not making excuses for inefficiencies. Instead, solutions were put on the table. Georgia Lewis reports.

THE OFFSHORE TECHNOLOGY Conference (OTC) was held for the 48th time in Houston, Texas, in May. Leaders from BP and Shell spoke frankly about the challenges the petroleum industry faces and how these challenges can be met. Offshore opportunities and increased capital expenditure for African offshore projects were also on the agenda.

Delegates from around the world descended on Houston, Texas, for the 48th Offshore Technology Conference.

Image Credit: OTC

BP and Shell leaders speak out

Bernard Looney chief executive, upstream for BP put the low oil price scenario into context.

"Is this particular price shock different to others? Is it lower for longer or lower forever?" he asked, repeating the questions that have been posed to him, particularly since BP had to lay people off. "Let me be clear. At BP, we don't think that it's lower forever. The long-term demand picture is strong – very strong".

He cited productivity as the avenue to a demand-led recovery. In light of the Paris climate change agreement, Mr Looney talked about the growing competitiveness of alternative energy, BP's profitable wind farm business, and the falling cost of wind, solar and lithium-ion battery production. This is in contrast to oil and gas where costs have risen. He said that collaboration led to innovation, continuous improvement and gains in safety and productivity.

"It is about being open to new ideas and suggestions from our partners," he said. "Here in the Gulf of Mexico, we have been collaborating with our suppliers on costs and it has allowed us to rethink our Mad Dog Phase 2 project. This was a US$20 bn project and we've brought it down to under US$10 bn with the expected returns improved despite a lower oil price".

> **"At BP, we don't think that the price shock is forever. The long-term demand picture is very strong"**

The example of Egypt was used to demonstrate the importance of collaboration.

"We gathered BP employees and contractors from our Egypt region to train in one of the most advanced drilling simulators in the world – Maersk's immersive state-of-the-art drilling simulation facilities," said Mr Looney. "This partnership has already delivered real benefits in terms of safety and capability. It has helped our rig teams in Egypt safely complete six of the best-ever wells in the Nile Delta Basin".

Harry Brekelmans, projects and technology director for Shell, also put his presentation in the low oil prices context, saying it exposed "dirty little secrets" of the industry, such as "inefficiencies, overpricing and arbitrary risk allocation in the design, planning and construction of oil and gas projects".


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"Today's industry leaders have to re-forge the links of supply chains to hammer out inefficiency, overpricing and arbitrariness," Mr Brekelmans told the conference. Like Mr Looney, he too emphasised the importance of collaboration.

"It is easy to blame our industry's current malaise on the sunken oil price, which since 2014 has been way below its 10-year average," he said. "But, frankly, much of what afflicts our industry is of our own doing – and it predates 2014 by more than 10 years".

Mr Brekelmans conceded that while some factors are beyond the industry's control, such as complex geological settings, oil finds in deeper water and the Chinese economic boom, he said these factors do not explain the increased engineering man-hours per piece of equipment, including Shell engineers.

"But it's not just Shell engineers who have become less productive – it's the entire oil and gas industry," said Mr Brekelmans. "Averaged around the world, it takes about 15 per cent more people to produce a barrel of oil today than it did 10 years ago".

He said it is an "uncomfortable truth" that the oil industry is in this predicament but it can be solved by "deliberately, openly, creatively stripping out waste and creating new sources of value for oil and gas projects".

"The design and technical specification of a project should – first and foremost – be aimed at assuring a minimum acceptable performance. Scope changes to give a project greater value - say, by increasing its throughput – or to give it greater robustness against risks – say, by increasing its operational flexibility – must then only be accepted with full awareness of the cost trade-off. Above all, the project must be kept competitive vis-a-vis comparable projects".

Image Credit: OTC

Harry Brekelmans emphasised the need for collaboration to help oil companies get through challenging times.

Perspectives on Africa

Dr Phaneendra Kondapi, director of subsea engineering at Texas A&M University and an adjunct professor of subsea engineering at the University of Houston, talked about the challenges that still exist for subsea separation. He addressed the subsea separation projects that have been installed in West Africa, as well as the North Sea, the Gulf of Mexico and Brazil.

He said there are limitations in making subsea separation viable and accessible to all operators, but technology needs and industry collaboration should overcome these challenges.

George Griffiths, a senior energy researcher from Infield Systems, one of the OTC exhibitors, wrote for the conference's daily bulletin about Africa's ultra deepwater outlook and the growth of subsea production systems spend. He forecast that over the next five years, Africa could see a 222 per cent increase in ultra deepwater capex compared to the period between 2010 and 2014. West Africa is expected to remain the largest focus of capex at 72 per cent, while emergent East Africa could account for around 17 per cent of offshore capex, with Mozambique expected to make up 77 per cent of this figure and Tanzania another serious player. Infield Systems expects Angola to dominate ultra deepwater capex demand at 59 per cent, followed by Nigeria at 27 per cent. In regard to subsea production systems spending, Mr Griffiths wrote that global demand will irise with Angola leading Africa.

> **"West Africa is expected to remain the largest focus of offshore capex at 72 per cent while emergent East Africa could account for 17 per cent"**

Award winners

The Distinguished Achievement award for individuals was given to Don Vardeman, vice president of worldwide project management for Anadarko, which has significant operations in Mozambique and West Africa.

The Marine Technology Society Dynamic Positioning Committee took out the prize for companies, organisations and institutions. The voluntary committee advises vessel owners, operators, marine class societies, engineers and regulators through conferences and workshops.

George Hirasaki and Yuri Makogon won heritage awards. Mr Hirasaki was recognised for his research on reservoir stimulation, EOR, formation evaluation, well logging and reservoir wettability. He worked for Shell for 26 years before joining the chemical engineering faculty at Rice University in 1993. Mr Makogon discovered enormous gas hydrate reserves, expanded knowledge of new physical gas hydrate properties, and researched kinetics, morphology and hydrate crystal transformation.

Eleven companies won Spotlight on New Technology awards: AFGlobal Corporation (riser gas handling system); Baker Hughes (cement evaluation service); FMC Technologies (InLine ElectroCoalescer); GE Oil & Gas (subsea control system); Halliburton (density and rheology unit); Lankhorst Ropes (soft rope systems); Oceaneering International (remote and automated control technology); OES Oilfield Services Group

Image Credit: OTC

Awards were given to companies, individuals and an organisation at OTC.

DOPP); One Subsea (water analysis sensor and subsea tree system); SkoFlo Industries (back pressure regulator valve); and Teledyne Oil & Gas (electrical optical flying lead).

Barge Master, producer of the Barge Master T40, a marine lifting device, won the Spotlight Small Business award.

Junior Achievement, a Texan charity, was the OTC beneficiary of a US$1,175,000 donation. Junior Achievement helps young people to succeed in a global economy through a network of almost 12,000 mentors.

OTC by numbers

More than 68,000 attendees from 120 countries descended on Houston for tOTC. It was the third-largest show in terms of exhibition space with more than 2,600 companies from 47 countries over 672,300 sq ft. Fifty-one per cent of exhibitors came from international companies. OTC 2016 featured 11 panel sessions, 24 executive keynote presentations and more than 325 technical papers. The OTC University R&D Showcase featured projects from Nigeria, the US, Germany and Japan.

> **"Averaged around the world, it takes about 15 per cent more people to produce a barrel of oil than it did 10 years ago"**

PROCESS AUTOMATION FOR OIL AND GAS: A RISKY BUSINESS?

As technology has evolved over the past decade, the oil and gas industry have seen a heightened risk around the security of their IP-enabled equipment. A report by BT highlights the risks and offers solutions for operators.

Image credit: Tim Evanson/Flickr

Oil and gas pipeline valves can now be equipped with readers that capture flow rates, temperature and other metrics.

TODAY, MOST OF the systems that capture operational data for the industry are networked and electronically connected to business systems which monitor and manage their day to day operations more effectively. For example, the valves on pipelines delivering fuel supplies to airports are now remotely operated and equipped with readers that capture flow rates, temperature and other metrics. Readings can simply be forwarded to the oil company to trigger an invoice to the customer and this is followed by an automatic payment to the oil company's bank account. None of this was possible back when they were manually operated.

There is no doubt that the rise in the use of big data has radically changed the way that natural resource companies conduct their business. Process automation brings huge advantages by improving the efficiency of field operations while reducing risks to health and safety, and lowering cost. Better use of big data also leads to better, more informed decision-making.

> **"Oil and gas companies can harness IT systems but it increases their exposure to cyber-attacks and viruses"**

But while oil and gas companies may be able to harness IT systems, it also increases their exposure to cyber-attacks, viruses and numerous other threats that have become a familiar part of the IT landscape. Recent press reports concerning the loss of hundreds of millions of pounds worth of production as a result of such attacks are not uncommon, and they usually take no account of brand damage. A report from the US Council on Foreign Relations in June 2013 claimed that energy companies were subjected to more cyber attacks than any other industry.

What are the main factors which threaten security?

There is no doubt the business risks are very real and significant. Distributed Denial of Service (DDoS) attacks poses a potentially lethal risk to the oil

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IECEX ELECTRO STATIC DISCHARGE ESD/UNDERWATER TOOLS

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Hydraulics/ Lighting/Lubrication/Machining/Material HandlingMotors/Office
Supplies/Outdoor Equipment/Paint/ Equipment and Supplies Plumbing/
Pneumatics/Power Tools/Power Transmission/Pumps/Raw Materials Reference and
Learning Supplies/Safety/Security/Test Instruments/Welding

Supply and leasing of equipment:

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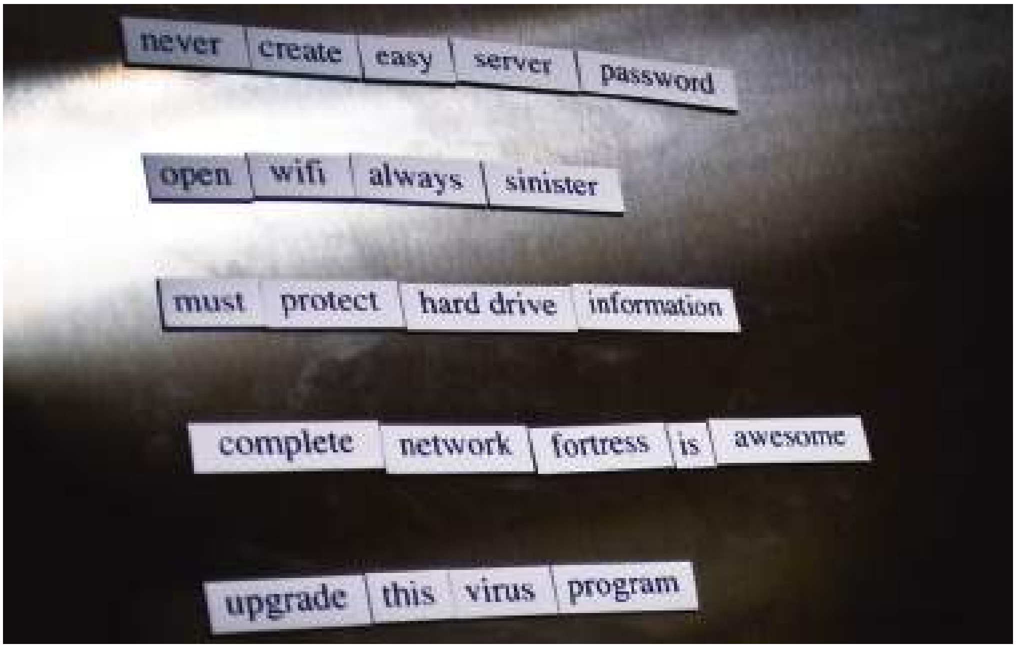
and gas industry. While a DDoS attack that brings down a customer facing web site is inconvenient, a successful attack on the hazard management systems at an oil refinery would be catastrophic.

In a global survey conducted by BT, IT decision makers around the world said they were increasingly concerned about the threat of DDoS attacks. The research reveals that 41 per cent of large organisations globally were hit by these attacks over the past year. Oil and gas are products for which there is little differentiation other than cost of production. Process interruptions due to cyber-attacks at a refinery or treatment plant will almost certainly be temporary; and the plants can be restored to full production within hours. But the cost-advantage of your downtime given to competitors may take much longer to recover.

Field equipment has traditionally been designed for reliability and ease of use, with security a lesser priority. But this creates a problem. There are countless instances where passwords providing access to important equipment have not been changed since the machines were originally installed. Some would say there has been a widespread failure by the industry to implement even the most rudimentary IT security precautions at field locations.

> **"Those behind security threats are increasingly determined to succeed. The right people, processes and technology can go a long way to securing defences"**



Some operators neglect even the most basic principles of password security and have not changed them since installation.

Due to the widespread IP-enablement of pumps, valves, compressors and almost everything else, field equipment is now directly connected to corporate IT and the internet. And with these connections come threats to which most field equipment is highly vulnerable.

Can cyber-attacks be stopped?

Not completely, but there are measures that can be put in place to reduce the threat before it reaches you and to mitigate the damage should an attacker attempt to damage your network.

Mark Hughes, CEO BT Security comments: "Those behind the threats are increasingly determined to succeed. But having the right people, processes and technology to assess, detect and respond to cyber-attacks can go a long way to securing organisations' defences."

Given the potential implications of an attack, oil and gas organisations need to put in place comprehensive and unified security policies, to prevent the landscape of converged systems from providing perpetrators of cybercrime with opportunities to affect their organisations.

Recommendations

Be prepared and be aware. Identify and deal with any vulnerability, and know exactly what to do should the worst happen. Some suggestions on how to do this are:

- Analysing the financial impact of an attack on your business.
- Evaluating your network and end-point security, then working to close as many of the gaps as you can.
- Implement the right communication solutions to correspond with offshore operations.
- Developing an incident response plan to deal with potential incidents.
- Consider seeking the advice of specialist providers of network security services to the energy industry.
- Ensure that the communications networks and control systems that sit between their IT systems and field equipment do not fall into ownership gaps.

In terms of business continuity and disaster recovery, it's like any other industry. Preparation is of paramount importance. Having a robust business continuity program that is maintained and tested on a regular basis and has the right resource behind it is crucial. BT's global research into DDoS attacks revealed that four in ten organisations globally do not have a response plan in place, while less than a quarter (23 per cent) strongly believe they have sufficient resources in place to counteract an attack. The oil and gas industry will continue to deliver a great performance using automated processes, but it's vital that they take the threat of cyber-crime seriously.
Energy companies need to consider how cybersecurity can be enhanced by sharing and combining IT security professionals with industry staff to plan and implement holistic security.

This is an edited version of a BT white paper on process automation for the oil and gas industry. For more information: www.globalservices.bt.com/mea/en/industries/oil_and_gas and www.globalservices.bt.com/mea/en/products/assure_denial_of_service_mitigation

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FIVE REASONS WHY THE OIL AND GAS INDUSTRY NEEDS SATELLITE CONNECTIVITY

Satellite connectivity is essential for efficient offshore oil and gas operations. Here are the main benefits of leveraging satellite communication to retain a competitive edge in 2016 and beyond.

OIL AND GAS operations often take place in the remote locations, where no terrestrial network infrastructure is available, so satellite communications are essential to support the industry and open opportunities for its expansion and growth.

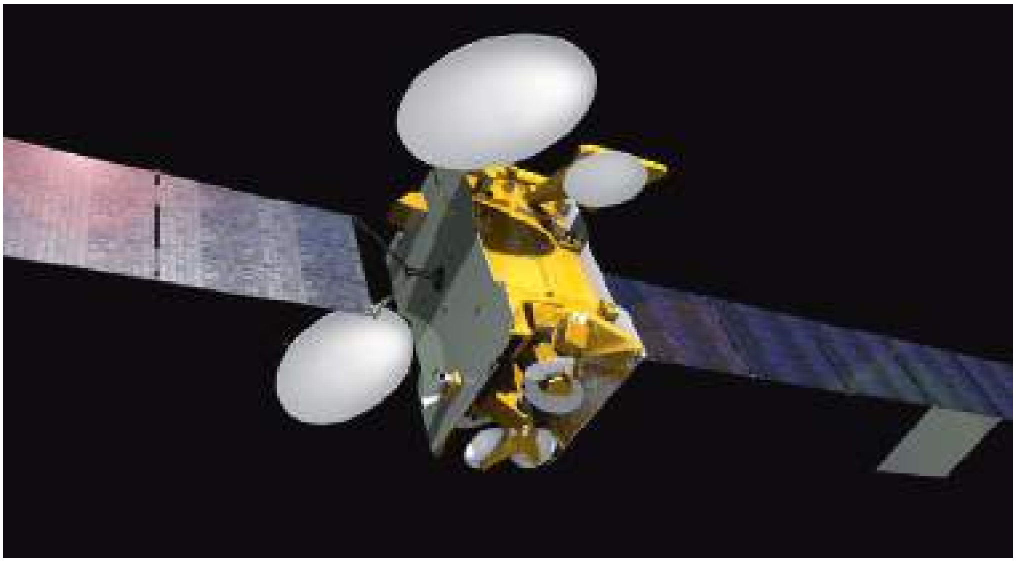

Image Credit: Airbus Defence and Space

Satellite technology needs to be harnessed by offshore oil and gas operations to stay competitive and improve performance.

> "Satellite communication is essential to open opportunities for growth"

1. Exchanging critical data with onshore experts

Data is constantly being pulled from beneath the sea during drilling and seismic surveys. Monitoring, sensing and sending this data back onshore via satellite can be critical to detect any areas of concern. In addition, secure intranet and internet access via satellite enables workers to communicate with headquarters from remote locations. Having the same access to applications as onshore colleagues can be essential in identifying and preventing problems.

2. Boosting operational efficiency

With remote offshore and the complexity of drilling operations, the oil and gas industry is benefitting from the Internet of Things (IoT). The IoT connects many types of machines in a network, allowing companies to benefit from knowledge of all operations and gain from the efficiencies of digitised automation. Mobility innovations drive development of new applications, enabling oil and gas workers to manage the vital signs of a pipeline network or monitor operations with mobile devices.

3. Ensuring environmental safety

Remote monitoring via sensors provides rig workers with data they need to identify any unusual situation, and activate asafety measure or emergency procedures. The IoT is enabling the oil and gas industry to enhance its exploring and drilling performance, constantly adapting to difficult and unexpected finds, and limiting the impact of its activities on the environment.

4. Health and training services

The reliable 99.9% availability of satellite links allows applications such as telemedicine to deliver clinical health care in emergency situations, or training on safety and best practices. Innovations in satellite technologies throughout all levels of the supply chain allow sufficient bandwidth to support real time video links connecting onshore experts who can help medics diagnose and treat patients.

5. Attracting and retaining top talent

As workers on offshore installations or vessels spend weeks and months at sea and are on shift for 50 per cent of their time at most, maintaining crew welfare via satellite has always been an important element to the oil and gas companies.

This is a contribution from SES: www.ses.com

MANAGING OIL AND GAS BUSINESSES DURING A DOWNTURN

Ian Fleming, Managing Director, IFS Middle East, Africa and South Asia, talks about the role of enterprise resource planning solutions in to ensure companies survive – and thrive in economic downturns.

LOW OIL PRICES make it a top priority to reassess all conventional ways of conducting business. While an enterprise resource planning (ERP) strategy leads to significant cost savings, it's still considered complex and time-consuming rather than beneficial by some oil and gas companies.

But another way of looking at this is to consider the real value an optimised and automated process can add to your operations. The best way to get through the current downturn and to come out with an increased competitive edge is to focus on internal improvements now.

As the average oil price has halved in the space of 12 months, no part of the industry is left unaffected. The pressure is on for offshore mobile asset owners, challenged as they are by multi-company structures, global supply chain, resource optimisation, visibility across an ever-changing global fleet, project control, and management of investments on top of the financial problems.

But how do you pursue cost optimisation without compromising on operational excellence? Enterprise operational intelligence (EOI) and ERP are reliable tools that enable you to do just that in order to start competing on cost.

> **"How do you pursue cost optimisation without compromising on operational excellence?"**

Good management, such as an ERP solution, can help avoid project abandonment in tough economic times.

Here are some of the benefits:

- Joint operational and maintenance planning.
- Inventory stock optimisation not only for a single asset but across the entire fleet.
- Improved spend on frame agreements.
- Centralised key operational support functions.

Other advantages include cost-savings through sharing capital equipment across a fleet so clients achieve capability to respond more quickly to market demands and maximise uptime.

Inventory value, utilisation of actual purchasing costs , project forecasting, and cost control can also be improved, and process time is saved thanks to finance process automatisation.

Together, these improvements can lead to a total reduction in operational costs by 20–25 per cent.

A good ERP solution provider makes available the entire library of documented best practices and processes, allowing for the right solution to be implemented on time and within budget, supporting project and training.

THE RECRUITMENT DILEMMA FOR AFRICAN OIL OPERATORS

Reduced recruitment across the African oil industry is a reflection of tough economic times. Annie Makoff-Clark asks leaders in the hydrocarbons recruitment sector about the current climate and whether there is hope on the horizon for a turnaround.

CANCELLED AND DEFERRED oil projects, particularly in Nigeria, point to a trend of reduced recruitment as oil companies cut capital expenditure (capex) on a global scale. Wood Mackenzie revealed in January that cancelled and deferred upstream projects, worth $380bn have reached 68 since 2014.

In February, Shell announced delays in FID on Bonga South West, while Tullow Oil cut capex in West and Central Africa to $100m a year, which is likely to remain low in 2018.

Figures released by Bloomberg in May revealed that Nigeria's oil output fell below 1.7m barrel bpd for the first time since 1994.

The Hays Oil and Gas Global Job Index Q1 2015, shows the job index for Africa dropped to below Q1 2011.

According to Tony Eaves, area director for Mozambique, at global workforce solutions provider Airswift, despite Africa historically experiencing "strong demand" for blue collar workers, the last 10 months has seen a significant decrease for such positions due to cancelled or postponed projects.

"This trend has also been mirrored in the demand for expatriate workers," he says. Meanwhile, company contractor day rates are down by 15 to 20 per cent and travel expenses and company benefits are being cut to save jobs, he adds.

Image Credit: James Yeary/Flickr

Further hydrocarbon exploration and development in Mozambique could prove to be a boon for recruitment in the region.

Yet recruitment specialists Fircroft insist that the industry has reacted positively to the difficult environment, with market professionals promoting cost-savings, enabling projects to operate in a sustained $45 per barrel environment and sub $60 medium term environment:

"South Africa, Nigeria and Kenya in particular are continuing to find a unique way to balance cost initiatives with longer-term indigenisation programmes that are critical to the respective sustainable local economies," says Aj Karwa, business director at Fircroft for sub-Saharan Africa.

However, Thabo Mabaso from PetroSA's Corporate Affairs and Shared Services division admits outsourcing recruitment, "depending on the circumstances", while Tullow Oil, which has operations in 13 African countries, uses a mix of internal and external hiring processes, stressing that they are 'only filling positions that have to be filled.'

> **"The outlook for the African oil indiustry job market depends entirely on oil price, especially if it remains in recession"**

"The outlook for the African oil industry job market depends entirely on oil price," says George Cazenove, head of communications at Tullow Oil, "especially if it remains in recession."

But Wood Mackenzie warns that the real impact of cost-cutting idue to low oil prices won't be fully realised until 2017.

"We expect the impact of capital expenditure cuts to be most felt in 2017, with around US$30 billion less expenditure in that year than we forecast two years ago," says Gail Anderson, research director, sub-Saharan Africa, upstream oil and gas at Wood Mackenzie. "This is the result of project deferrals and cancellations mostly on deepwater projects. A downturn on this scale is likely to impact the African industry job market."

Eaves acknowledges that 2017 is likely to be challenging but insists that East Africa, which covers a territory "six times larger than the North Sea" has only drilled 600 wells and a small section has actually been explored, has huge potential.

"There has also been recent positive developments with a number of major projects nearing the starting line," he adds. "In Mozambique, Anadarko's LNG plant and ENI's Coral discovery offshore could generate a much-needed lift to the oil job market in Africa."

FLUOR: OPTIMISTIC ABOUT PROJECTS ACROSS AFRICA

Providing diversified services to a range of clients has helped Fluor remain competitive in the African hydrocarbon sector. Taco de Haan, president of Fluor's Energy and Chemicals Europe, Africa and Middle East business line, shares his thoughts.

THE LOW OIL price environment has resulted in challenging times for doing business. Africa's economic outlook is under pressure, but Fluor is supporting clients' innovative strategies to ensure the continuation of capital investment and development.

Lower oil prices have impacted customers' ability to fund projects. They are cautious about deploying capital through new projects, favouring projects with a lower capital spend and/or high rate of return.

This pressure on clients' capital budgets is creating opportunities rather than insurmountable problems. It is a positive rather than a negative as this allows Fluor to engage as a strategic partner, being well positioned and capable to expand and deploy its diversified business activities across sub-Saharan Africa in support of clients' future strategies beyond the commodity cycle.

Our focus on capital efficiency, during feasibility studies and front end engineering design is resonating with clients and is a differentiator in the marketplace. The ability to offer innovative, integrated solutions to our clients in the execution phase enables them to move forward on projects that would otherwise not be economical. This approach includes utilisation of our global supply chain and commercial strategies, 3rd Gen Modular ExecutionSM and applying our own suite of construction and fabrication capabilities. The recent acquisition of Stork now allows us to bring detailed asset life-cycle expertise and execution capabilities to the table as well.

While the immediate forecast is not robust, there is still substantial activity on the horizon. Africa's economic outlook is expected to bounce back to 5 per cent in 2016 and as many countries in the region also continue to improve their investment climate and undertake macroeconomic policy reforms, foreign direct investment flows are expected to grow.

Fluor took a forward-looking approach and started investigating how capital efficiencies could be achieved for our clients about two years ago.

> **"The pressure on clients' budgets can be a positive rather than a negative as we can engage as a strategic partner"**

Image credit: Fluor

Fluor is very proud of its training successes in South Africa, which have helped developed local skills with more than 35,000 people trained so far.

Then the company looked across its business activities to identify and develop these opportunities.

Having a long history in Africa has helped too. Fluor is one of the leading engineering, procurement and construction companies in Africa and has a successful track record of executing more than 750 projects spanning 50 years. Fluor's presence in Africa dates back to the 1960s with the award of the Sasol Styrene Butadiene project and the construction of the Caltex Refinery (Chevron) in Cape Town, South Africa.

Major projects include the construction of Sasol II and III in the 1970s. Fluor has managed significant projects for Sasol including Sasol's major clean fuels initiative, Project Turbo. In 2015 Fluor and Sasol signed a three-year agreement with Sasol Group Technology to perform a range of projects as an integrated team at Sasol's facilities in Secunda and Sasolburg in South Africa.

Fluor South Africa also has a strong Mining track record and has completed significant expansion projects in Botswana at the Jwaneng Cut 8 diamond and Morupule Coal mines.

Additionally, Fluor has a great training story in South Africa and has to date trained more than 35,000 people.

With offices in South Africa, Mozambique and Botswana, Fluor is well positioned to provide engineering, procurement, fabrication, construction, maintenance and project management services in multiple sectors.

AFRICAN RIG COUNT - 2016

Country	April -15	May - 15	Apri - 16	May - 16
ANGOLA	19	19	14	12
EGYPT (Mediterranean)	16	15	11	1
NIGERIA	13	13	9	7
CONGO (Brazzaville)	4	3	3	3
GABON	5	5	1	1
GHANA	1	2	3	3
TUNISIA	2	2	1	1
SOUTH AFRICA	2	1	1	1
CAMEROON	1	1	1	1
SENEGAL			2	2
LIBYA	1	1	1	1
BENIN	1	1		
IVORY COAST	1	1		
EQUATORIAL GUINEA	1	1		
MAURITANIA	1	1		
MOZAMBIQUE	1	1		
TANZANIA	1			
Grand Total	**70**	**67**	**47**	**43**

Source: Luke Davis, Infield Systems

Himoinsa's gas-powered rental gensets to target O&G customers

THE RANGE OF diesel generators available in the rental genset market has been bolstered by the latest gas-powered models introduced by Himoinsa, as the Spanish genset manufacturer looks to add customers in the oil and gas market to the list of those being targeted by its new power systems.

The HRGP 25 T5 LPG, HRGP 40 T5 LPG and HRGP 60 T5 LPG models were launched at Middle East Electricity in Dubai earlier this year, with the gas-powered generators featuring an integrated LPG tank offering 25, 40 and 60 kVA of continuous power.

The new rental canopy version incorporates enough LPG storage for 24-hour continuous operation without refuelling, and each machine can be connected to an external tank to extend the length of its autonomous operation.

Himoinsa said that gas-powered generators were an "interesting option" for rental companies looking for profitable equipment, believing that the products could help meet demands for lower emission and more flexibility to oil and gas operators.

The HRGP models also guarantee low fuel costs and lower maintenance costs than diesel-powered generators.

Manuel Aguilera, gas product manager for Himoinsa, told *Oil Review Africa*, "We are going to make some developments with different products focused on gas and the first one of these is for the rental genset market. We realised that the construction sector could be a really interesting market for these applications, and the oil and gas industry could also be interested in these gensets. In the oil and gas industry, they tend to use gas-powered gensets, but they also have LPG tanks available, and these gensets are able to utilise three different ways of feeding the tank. Our main target with these gensets is the rental market, but companies in this sector often target construction and oil and gas firms," Aguilera explained.

The latest genset models from Himoinsa's telecom range help to reduce maintenance time and are able to overcome difficult climatic conditions

Aguilera noted that the cost of LPG was cheaper than diesel and the fact these machines have potentially lower emissions could help many firms meet future emission regulations in many parts of the world. "The rental market for small gas gensets is still growing, but at this power level it's still quite new," he added.

The integrated tanks have been LPG-certified for vehicles, making them a versatile option for the rental sector, where there is a high demand for mobile equipment.

A competitive advantage of gas generator sets in the rental sector is the type of fuel they require to operate, with the use of gas instead of diesel solving the problem of fuel theft, which is a leading concern within the rental genset industry.

Each of the new models from Himoinsa features a selector that enables the operator of the genset to switch between LPG and natural gas and there are three different possibilities of power supply: integrated fuel tanks or LGP or NG external supply.

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Real-time downhole flow measurement technology from Schlumberger

SCHLUMBERGER'S ACTIVE Q CT real-time downhole flow measurement servicedelivers real-time injection diagnostics and treatment evaluation in just one run in a well.

"With the ability to measure pressure, temperature and fluid velocity in real time during interventions, the ACTive Q service improves our customers' understanding of downhole wellbore and reservoir behaviors while intervention is ongoing," said Amerino Gatti, president, Well Services, Schlumberger.

Image Credit: Schlumberger

The ActiveQ service can provide real time measurements in multiple metrics.

With the ACTive Q service, which couples fibre-optic telemetry and calorimetric flow measurements, customers and Schlumberger can evaluate the flow rate contribution to each interval, review data in real time and adjust the pumping schedule as needed for diversion and subsequent stimulation stages.

The ACTive Q service has provided real-time flow measurement information for several operators in the Middle East, North Africa and Central America. In particular, it has been very successful on a Kuwait Oil Company project.

The ACTive Q service is part of the ACTive* family of real-time downhole coiled tubing service. *www.slb.com/ACTiveQ*

Aquatic carousel launched in the North Sea amid optimism for offshore projects

AN INNOVATIVE CAROUSEL system has been installed by Aquatic Engineering & Construction for a Bibby Offshore project in the North Sea. The project involves replacing subsea infrastructure in the Central North Sea as part of BP's US$1billion Eastern Trough Area Project (ETAP) Life Extension Project. Aquatic will deploy its carousel system to install 35 kilometres of umbilical ensuring electrical control capability between ETAP's central processing facility and the Machar field. The company will be providing a team of offshore supervisors and technicians to mobilise and operate its on-deck 1,500-tonne carousel and integrated five-tonne tensioner system, as well as a 15-tonne two-track tensioner complete with all ancillary equipment.

Image credit: Aquatic

The carousel system will revolutionise installation of umbilical on big projects.

The umbilical lay campaign is scheduled to commence in June and is expected to last approximately 30 days.

This is the first phase of Bibby's five vessel campaign, involving trenching, structure and riser installation followed by electrical diagnostics and commissioning works.

Aquatic has also been subcontracted to provide lay equipment and personnel for the riser installation campaign in September of this year.

New jack-up solution introduced at OTC 2016

AT THIS YEAR'S OTC in Houston, the Damen Shipyards Group and GustoMSC announced a collaboration to produce a range of self-propelled and non-self-propelled jack-up platforms for the offshore industries, the DG JACK range. The collaboration will be based on GustoMSC's track record in the design of jack-ups and provision of jacking systems, combined with Damen's experience in shipbuilding and vessel optimisation, financing and after-sales services.

These jack-ups form an expansion of the Damen portfolio targeting the offshore markets in oil and gas, renewables like offshore wind, and civil construction. The jack-ups will be based on GustoMSC's proven designs and will include GustoMSC's proven jacking systems.

Damen Chief Commercial Officer said: "The collaboration between Damen and GustoMSC represents a considered response to the needs of the entire offshore industry."

The decision to partner up and produce the DG JACK range is based upon feedback from the offshore markets. DG JACKs will operate across the offshore spectrum in renewable and non-renewable sectors.

Global plans for hoist solution aimed at LNG operations

HOIST SOLUTIONS FOR LNG systems present challenges for operators all over the world, especially as there are no simple catalogue solutions that work across all projects. As the requirements vary depending on the pump and plant manufacturers, EPC contractors and country of destination, customisable hoist solutions are essential.

STAHL CraneSystems has designed a wire rope hoist to address this issue. It has a special rope drum for maintenance cranes and it has been successfully tested on Chinese LNG operations.

The explosion-proof LNG wire hoist and rope drum are all based on STAHL's tried and tested technology from other products.

Long-term reliability is being hailed as a major attraction for this new wire rope hoist. The individual parts stem from STAHL's own serial production, ensuring a supply of spare parts for decades to come. This is particularly advantageous for operations where systems may last significantly longer than expected.

STAHL has already supplied three Chinese LNG plants with this hoist solution, with Shenzen LNG, Ningbo and Tianjim all successfully installing the system. The Shenzen termnal consists of four 160,000m^3 tanks and was commissioned in late 2015.

Image credit: STAHL

This system has been applied in China and STAHL has ambitions to take it further.

ADVERTISER'S INDEX

INTERVIEW: HYPROPS

Engr Okezie Akwiwu talks about how Hyprops came about, the company's exciting plans for the future and the importance of going beyond mere compliance when it comes to boosting local content.

How did the company get started back in 1997?

Hyprops Nigeria Limited (HNL) was incorporated in 1997 as a dynamic vehicle for the exploitation of the potentials offered by the Nigerian oil and gas industry in direct response to the government's determination to maximise indigenous participation in the sector.

Specifically, the company was established to provide engineering and related technical services to the upstream and downstream oil and gas sectors.

Since its incorporation, HNL has successfully provided services to the sector in areas of procurement, technical manpower services, inspection maintenance and repairs, and in 2010 increased our service offerings to include offshore marine logistics services.

Today, Hyprops provides front end and detailed engineering design, procurement and supply chain management covering items such as linepipes and fittings, marine hoses, valves, completion accessories, remotely operated vehicles, fabrication, static and dynamic commissioning, pre-commissioning, operations and maintenance services and EPCM services on a turnkey basis.

> "We intend to increase our footprint within Nigeria and extend to neighbouring countries such as Ghana"

What changes have you witnessed in the industry?

Our strategic trust for growth and capacity building,was to foster alliances and technical associations, based on the changing dynamics for oilfield services provision in Nigeria, in particular the increasingly marine-based nature of the industry in the country; and our long-term strategy of vertical integration, to position us to support clients through the lifecycle of assets.

Where do you see the biggest opportunities for Hyprops?

In spite of the collapse of oil prices resulting in significant economic crisis, it is still fair to say that exciting opportunities await companies investing in African oil and gas. West Africa still remains an investment destination for oil and gas companies, with Nigeria, Angola and Ghana as the main destinations. We intend to increase our footprint in Nigeria first, and further extend to neighbouring countries. We have incorporated Hyprops Ghana to provide the same bouquet of services as Hyprops Nigeria.

In Nigeria and Ghana, we will be pushing our facilities operations and maintenance services, incorporating the risk service contracting approach.

How important is local content to your business operations?

Beyond compliance, HNL seeks to significantly impact national development through its involvement in the sector, and through its current projects.

HNL is deliberately creating value in-country by developing capacity, investing in infrastructure and assets, utilising human, material resources and services at all levels of our business activities in Nigeria. At HNL, we want to see national growth, which will in turn translate to growth for businesses such as ours operating in Nigeria.

What do you think the future holds?

Oil prices will stabilise, the global oil and gas sector will adjust and adapt, so will companies operating in this sector, including Africa. We expect to see new developments coming up [including] East Africa, specifically Tanzania and Mozambique. Ghana's Ministry of Finance announced in January that the government came to an agreement with Eni to proceed with the $7 billion Offshore Cape Three Points (OCTP) integrated oil and gas project, Senegal and Mauritania are moving forward.

So far, 2016 has brought good news for many developments in Africa. We expect this trend to continue, albeit, on a lesser scale.

Image Credit: hYPROPS

Engr Okezie Akwiwu is optimistic about growth in Nigeria as well as Angola and Ghana.

What future plans does Hyprops have?

Hyprops' overall business approach will progressively focus on facilities operations and maintenance services, where it seeks to provide funding and technical support required for the upgrade maintenance, operations and extension of life for existing producing assets.

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- Computation of fluid reserves volumes;
- Outlines of the parameters for well design, drilling and completion;
- Reservoir production profiling and field production engineering;
- Greenfield and brownfield development programmes;
- Enhanced production studies and solutions;
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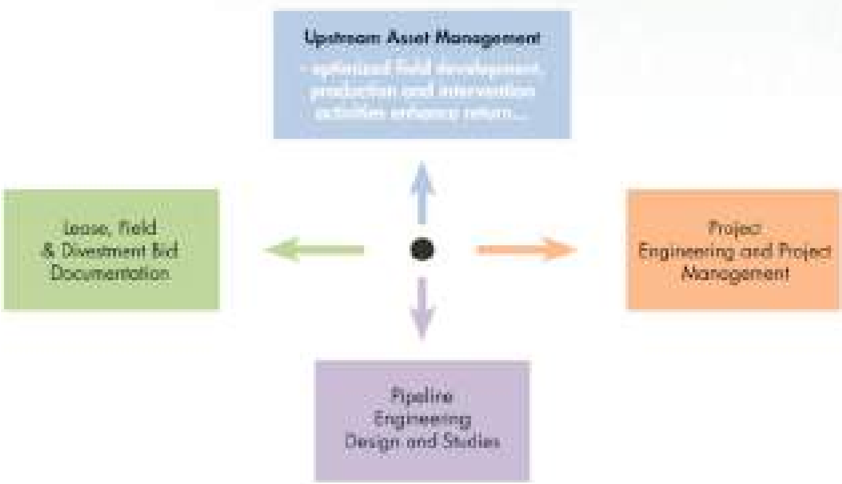

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