

# Oil Review

Oil · Gas · Petrochemicals

## Africa

VOLUME 14 | ISSUE 5 2019

## New horizons

### Southern oil and gas prospects

News review: Uganda International Oil and Gas Summit updates

West Africa focus: Emerging markets are taking on the old guard

Event previews: Africa Oil Week, ADIPEC, Mozambique Gas Summit

Technology: Fire protection, flow management, offshore vehicles, corrosion prevention, satellite communication, new innovations



Godwin Izomor, managing director, MG Vowgas. (p58)

# Explore South Africa!



**Petroleum Agency SA** was established in 1999 by Ministerial directive and is mandated through the Mineral and Petroleum Resources Development Act, 2002 (Act No.28 of 2002) (MPRDA) together with the National Environmental Management Act, 1998 (Act No.107 of 1998) (NEMA).

These Acts provide for Petroleum Agency SA to evaluate and promote oil & gas potential exploration and production activities in South Africa, to regulate oil & gas exploration and production industry and to archive all geotechnical data produced through oil & gas exploration.

The Agency acts as an advisor to the government on issues regarding oil & gas exploration and production, and carries out special projects at the request of the Minister.





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## EDITOR'S NOTE

In this issue, we explore a wide range of emerging markets. From Uganda to Namibia and plenty of places in between, the map of Africa is lighting up with new prospects, calls for investment, new licensing rounds and promises of first oil and gas in the very near future.

A large part of our news section this issue (page 8) is devoted to the Uganda International Oil & Gas Summit, which was held in Kampala in September. There is very exciting geological survey data available for operators interested in Uganda's latest licensing round. We will follow with the interest the developments during and after the bidding process, and look forward to finding out who will be taking a chance on some promising onshore blocks.

Moin Siddiqi, our resident economist, takes a forensic look at the prospects and possibilities across West Africa (page 25) and the future is looking bright for some emerging markets. Our cover story, meanwhile, is on southern Africa, ahead of Africa Oil Week in Cape Town (page 21).

**Georgia Lewis**  
Managing Editor

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*It is a mixed report card for the markets of southern Africa (p21). Image: Adobe Stock.*

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# Executives Calendar 2019

## OCTOBER

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[www.spe.org/events](http://www.spe.org/events)

## NOVEMBER

**4-8 Africa Oil Week**  
Cape Town  
[www.africa-oilweek.com](http://www.africa-oilweek.com)

**11-14 ADIPEC**  
Abu Dhabi  
[www.adipec.com](http://www.adipec.com)

**13-14 6th Mozambique Gas Summit**  
Maputo  
[www.mozambique-gas-summit.com](http://www.mozambique-gas-summit.com)

**21 Big Five Board Awards**  
London  
[www.bigfiveawards.com](http://www.bigfiveawards.com)

**21-22 Ghana Summit**  
Accra  
[www.cwcghana.com](http://www.cwcghana.com)

**26-27 East Africa Oil & Gas**  
Nairobi  
[www.eaogs.com](http://www.eaogs.com)

**26-29 GECF 5th Gas Summit**  
Malabo, Equatorial Guinea  
[www.gecf.org](http://www.gecf.org)

## DECEMBER

**2-5 SPE Workshop: Drilling & Completion Optimisation**  
Cairo  
[www.spe.org/events](http://www.spe.org/events)

**2-5 Practical Nigerian Content Forum**  
Bayelsa State, Nigeria  
[www.cwcpnc.com](http://www.cwcpnc.com)

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

## Nigeria leading Africa's Local Content Policy

DURING A RECENT media engagement meeting held in Abuja, Nigerian Content Development & Monitoring Board (NCDMB) Executive Secretary, Engr. Simbi Wabote expressed his opposition towards the creation of multiple Local Content Boards

According to him, "The NCDMB can modify its templates to suit other sectors. In our view, this is the prudent way to expand and entrench local content regime in Nigeria." The National Assembly plans to develop the extant Local Content Act 2010 to include other sectors of the economy for further domiciliation of contracts.

All signs now point to Nigeria strengthening its local content implementation and serving as an example in local content policy for other African countries. Celebrating the successes of the Nigerian Oil and Gas Industry



*Nigeria is serving as an example in local content policy for other African countries.*

Image Credit: PNC

Content Development Act nine years after its implementation, the industry now confronts new prospects of growth.

Nigeria – having just signed the African Continental Free Trade Agreement (AfCFTA) – is one of the latest African nations to join the entity of 54 African Union States that seek to reduce the economic barriers in pursuit of creating an Africa-wide customs union. Wabote also perceives joining the entity as a source of benefits for local oil and

gas service companies without threatening national sovereignty.

He said, "If you take the population of Africa and the potential market and given the general level of development of countries, the sky is the limit for any manufacturer that makes the right investment, has the right quality and partnerships."

A focus on shortening the contracting cycle, sectorial and market linkages and effective monitoring of local content delivery in the country has

characterised Nigeria's Local Content agenda in recent years.

Communicating the plan for further Nigerian content development will be the priority at the 9th Practical Nigerian Content Forum. Wabote will join more than 600 industry stakeholders at the four-day forum on 2-5 December in Yenagoa, Bayelsa, Nigeria. The forum is recognised as the leading platform to engage government and industry players from across the value chain to maximise business opportunities and increase Nigerian content implementation. Convene with senior government representatives and the entire oil and gas value chain to discuss the steps to unlocking the industry's potential through Nigerian content at the forum.

*For more information, log on to [www.cwcpnc.com](http://www.cwcpnc.com)*





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## US ambassador optimistic about Uganda's hydrocarbons future as long as time is used wisely

DEBORAH R. MALAC, US ambassador to Uganda, gave an optimistic welcome address at the Uganda International Oil & Gas Summit (UIOGS), which was held in Kampala last month.

She said the country's burgeoning oil and gas industry is "anxious to get to FID" although "first oil is at least three years away". Ms Malac told delegates that the major challenge is "how to best use the time between now and first oil" so that Uganda will have a competitive industry that is open to further exploration and development.

Ms Malac cautioned that while Nigeria is an example of the effects of the "oil curse" with ongoing issues of corruption, conflict and environmental implications, Ghana and Botswana have "used revenue wisely to invest in people and economic diversification."

Uganda's ambition to join the Extractive Industries Transparency Initiative (EITI) was applauded by Ms Malac as "a step in the right direction" as the organisation sets global standards for good governance in the oil, gas and mineral resources sectors. USAID has given US\$1mn to help Uganda increase transparency and accountability in the resource sector and assist the country in attaining full EITO membership.

"People are a sustainable resource," Ms Malac said when she addressed the need for the Ugandan oil and gas industry to be a force for job creation, with 1.4bn barrels of oil identified and extraction expected to take place over a 20-year period with a five-year window of peak oil. "Oil production is not labour-intensive once the initial construction is completed ... the key is to create jobs, building capacity to compete with the non-extractive sector, [using future hydrocarbons revenue] to diversify the economy and mitigate the impact of foreign investment."

The social and environmental impact of oil and gas development was a strong theme of UIOGS and Ms Malac emphasised the importance of biodiversity in the Albertine rift area, which is important to oil and gas exploration and development. She said that preserving the biodiversity of the region, particularly to support the tourism sector, was important.

"The area has an incredible natural heritage," she said, adding that the US government has invested US\$7.4mn to ensure the impact of hydrocarbon exploration and development in the Albertine Graben area is mitigated. Creating "environmental sensitivity atlases" has been an important part of this project.

## Mozambique's gas projects enter implementation phase

WITH A SECOND FID in two years, Mozambique has officially positioned itself as a major player in the global gas and LNG market for years to come. The latest FID led by Anadarko Petroleum, on the US\$20bn Mozambique LNG project, makes it the largest sanction ever in sub-Saharan Africa's oil and gas market.

Described by His Excellency President Nyusi as "one of the most important and transformational projects in the country's history", Mozambique LNG is set to be a game-changer for this East African nation of 31 million people.

According to Wood Mac, from the early 2030s state revenue from Mozambique LNG alone will reach US\$3 billion per annum, single-handedly doubling today's revenue as calculated by the IMF and World Bank.

This is not the only mega LNG project on the drawing board. ExxonMobil's Rovuma LNG project, which envisages a 15 million tpa two-train facility taking gas from its offshore area 4 block, is also lined up to take FID later this year. Meanwhile, Italy's ENI is already moving ahead with its 3.4 million tpa floating LNG facility, which will draw on 5 TCF of gas in waters more than 2,000 metres deep with first gas due in mid-2022.

"With strong LNG demand growth out of Asia, now is Mozambique's time," said Jon



The 6th Mozambique Gas Summit & Exhibition will present networking opportunities to expand business portfolios.

Lawrence, an analyst with Wood Mackenzie's sub-Saharan Africa upstream team, as news broke of the Anadarko FID.

With FIDs signed, the projects are now moving from the planning into the implementation phase. Hundreds of contracts are expected to be tendered for the construction, infrastructure and services needed to build and develop the megaprojects.

It makes this the ideal time to participate at the 6th Mozambique Gas Summit & Exhibition, in partnership with ENH, taking place on 13-14 November in Maputo. The event is the official platform to hear from key decision-makers in this fast-emerging LNG

hotspot, including major government figures, policy-makers and all the important project stakeholders who will be in attendance.

This edition is taking place at a time of exciting change including: the construction of FLNG, the progress in drilling activities in Cabo Delgado and Angoche, and the infrastructure development in Pemba Logistics Base. The event is organised with support from MIREME, INP and industry stakeholders ExxonMobil, Mozambique LNG, TechnipFMC, FNB, Sasol, and G4S.

For more information visit [www.mozambique-gas-summit.com](http://www.mozambique-gas-summit.com)





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## Regional cooperation and harmonisation essential to East African and pan-African oil and gas success

ACROSS THE TWO days of the Uganda International Oil & Gas Summit (UIOGS), held last month in Kampala, multiple speakers emphasised the importance of cross-border cooperation in the oil and gas industry on a regional and continental level. The development of the Uganda-Tanzania Crude Oil Pipeline (UTCOP) is a prominent example of the importance of regional cooperation.

Alex Nyombi, director of development and production for the Petroleum Authority of Uganda (PAU) said the decision on the pipeline route was important for economic progress of both countries. However, work has been temporarily suspended on the pipeline while the Total-Tullow impasse is under negotiation (see page 14 for more).

James Mataragio, managing director of the Tanzanian Petroleum Development Corporation, echoed Mr Nyombi's comments on regional cooperation, particularly in regard to UTCOP because "the greatest part [of the pipeline] is in Tanzania".

As well as oil transportation and cooperating with Uganda in onshore oil exploration projects, Mr Mataragio said Tanzania has ambitions to become a "gas hub to support Uganda, Kenya, Zambia and DRC" as well as meeting domestic energy needs.

Amelia Kyambadde, Uganda's minister for trade, industry and cooperation, spoke about harmonising regulations and standards for all industries, including oil and gas, across East Africa. On cooperation at regional, continental and international levels, she said, "We cannot operate in isolation ... we need to become members of OPEC, of all the



Image Credit: UNCTAD/Flickr

*Amelia Kyambadde had a powerful message of cooperation at UIOGS.*

global energy organisations, we need to co-exist with developed countries. We need regional consensus, to normalise networks and policies for the management of industry ... to ensure certification [and] think outside the borders [and] ensure benchmarks with oil-producing countries [to share] knowledge, information, expertise and technology."

## Laying out Africa's energy map at Africa Oil Week 2019

CAPE TOWN IS set to host a record-breaking 29 global ministers at the 26th Africa Oil Week (AOW) summit this November. The event will act as a platform for governments to lay out national strategies, issue licences, finalise tenders and find new partners. AOW

director of Government Relations and Strategic Partnerships Paul Sinclair commented, "This year is a watershed moment for ministerial participation in AOW. We have witnessed a growing appetite at government level for the mutual exchange of ideas, energy diplomacy and the forging of new partnerships that will drive forward Africa's social and economic development and energy security – actions which are increasingly necessary given the transformational era in which we are living."

The summit comes at a turning-point for South Africa in its energy journey. In the wake of Total's first significant deep-water oil find in the country earlier this year, and the recent purchase of offshore exploration blocks by Shell, politicians are preparing for further oil and gas investment, which could be instrumental in improving the country's shaky economic outlook.

Gwede Mantashe, Minister of Mineral Resources and Energy, will lead the South African national delegation. Western Cape Minister for Finance and Economic

Opportunities David Maynier and Premier Alan Winde will seek to promote their province to global investors in the event's new South Africa Showcase day.

Among those attending Africa Oil Week for the first time is Somali Minister of Energy, Abdirashid Mohamed Ahmed, who commented, "This year is a landmark in the development of Somalia's natural resources... the ministry has worked successfully with the federal member states to create an equitable and transparent framework to develop natural resources for the greater good of Somalia."

As well as emerging players, the summit will host established producers, including Algeria's Energy Minister Mohamed Arkab, who will highlight his commitment to modernise the country's oil and gas infrastructure at a live CNBC Africa Ministerial Panel alongside his counterparts from Tunisia, Equatorial Guinea and Uganda.

Africa Oil Week will also have a global presence from the US and UK governments. To learn more about Africa Oil Week, visit [www.africa-oilweek.com](http://www.africa-oilweek.com).



Image Credit: IFE Group

*The summit comes at a turning point for South Africa in its energy journey.*



## The Nigerian government promises a bold vision to revive the petrochemical industry ahead of Africa Oil Week

MALLAM MELE KOLO Kyari, who was appointed group managing director of the Nigerian National Petroleum Corporation (NNPC) this year, quickly vowed to reverse the trend of petroleum imports into Nigeria by improving the existing refineries and encouraging private sector investment in the refineries.

“We must end the trend of fuel importation as an oil producing country,” he said at a press conference shortly after taking on the role. “We will deliver on the rehabilitation of the four refineries within the life of this administration and support the private sector to build refineries. We will support the Dangote refinery to come on stream on schedule and we will transform Nigeria into a net exporter of petroleum products by 2023”.

He added that the government’s target of raising crude oil production and reserves to

three million barrels per day and 40 billion barrels respectively was possible and that he would galvanise the corporation to achieve it by 2023.

When it comes to rooting out the corruption that has plagued the oil and gas industry in Nigeria, he pointed out how much NNPC had changed over the past three years from the old image of a corruption-laden organisation, stressing that he would continue to entrench the culture of accountability in the affairs of the corporation.

“We are going to work to remove every element of discretion from our processes, because discretion is one of the greatest enablers of corruption”, he said. “NNPC will not be opaque, we’ll be transparent to all so that at the end of the day everyone will be in a position to assess us and say what we have done right or wrong”.



Image Credit: African Energy Chamber

OPEC’s Mohammed Sanusi Barkindo.

Nigeria’s plans have met with support from OPEC. Secretary General Mohammed Sanusi Barkindo, has commended the NNPC for its ongoing reforms aimed at changing the fortunes of the corporation for the better: “To lead such a sensitive and capital-intensive industry like oil and gas, you must have transparency and accountability as one of your core principles in order to drive change.”

### Challenging conventional thinking in today’s cost driven market



## Company and government leaders speak out on the importance of local content across Africa at UIOGS

MEETING LOCAL CONTENT requirements – and ensuring it results in the creation of meaningful jobs and long-term upskilling, rather than being a mere box-ticking exercise – was under the spotlight at the Uganda International Oil & Gas Summit (UIOGS), which was held in Kampala from 25-26 September.

In her address on the first day of the summit, Amelia Kyambadde, Uganda's minister for trade, industry and cooperation said the country's local content policy was put in place "to protect the upcoming industries, to protect procurement, to give opportunities to local producers".

However, she was quick to point out the importance of local companies providing products and services that "appeal to businesses [and] we should



Image Credit: papageorgiades/Flickr

*Local content challenges exist across the African continent.*

produce quality products".

Ismail Howard, business development director, PetroMarine, a South African company, took a pan-African approach to local content development.

"Local content is what drives us," he told delegates. "We develop local content within

Africa, we develop partnerships in the marine sector, with training and the certification of people ... We have to develop our economies."

Ranti Omole, chairman of Radial Circle and publicity secretary for PETAN (Petroleum Technology Association of Nigeria), spoke from a Nigerian

perspective. In regard to PETAN members, he said that of the 105 companies, 20,000 Nigerians have been employed, with cumulative positive financial impact on the lives of more than 100,000 people.

"We are proud and have worked very hard," Mr Omole said. "To have the ability to be competitive, with growth capacity and technology transfer, our standards must be the same as an international service company, we must meet international benchmarks and outcomes."

"We form strategic partnerships with multinational EPCs to develop niche capacities and technical capabilities," he said in regard to learning from bigger companies and organisations when upskilling local workers.

## African energy sector to send strong message on investment potential at ADIPEC

AFRICA'S ENERGY INDUSTRY will have a strong presence at ADIPEC, which takes place in Abu Dhabi on 11-14 November 2019.

As Africa's energy revolution accelerates, African energy officials from governments and the public and private sectors are participating in the leading global oil and gas event to send a strong message on the continent's potential and ambitions for the coming years.

The African Energy Chamber has signed an agreement with ADIPEC and is officially endorsing the conference and exhibition. It is inviting all its partners to join the African delegation.

"African countries have some much untapped reservoirs of oil and natural gas that have regrettably been underexplored. We need to attract investment in our oil and gas industry, explore, supply the market and also develop our countries. ADIPEC is a great place to meet potential investors. We have a unique relationship with the UAE through OPEC and



Image Credit: AP0

*There has been tremendous growth in co-operation between the UAE and Africa.*

the GECF. We have worked closely on various oil matters under the leadership of H.E. Suhail Al Mazroui and the Ministry of Energy and Industry," stated HE Gabriel Mbagha Obiang Lima, Minister of Mines and Hydrocarbons of Equatorial Guinea.

"We need to have Africa better represented within global investment shows like ADIPEC where major deals and contracts are being

discussed," declared Nj Ayuk, executive chairman at the African Energy Chamber and CEO of the Centurion Law Group. "The conference's focus on technology and the oil & gas sector 4.0 is especially relevant for Africa as the continent seeks to fully embrace digitalisation and the latest technologies to leapfrog into next-generation energy initiatives and developments."

ADIPEC will take place on the back of tremendous growth in investment and cooperation between the UAE and Africa this year, marked by the recent acquisition by ADNOC of Kosmos Energy's stakes in Senegalese and Mauritanian offshore licences. ADIPEC offers the perfect stage to promote additional opportunities for such deals across African oil jurisdictions.

The AEC will be organising a high-level African oil and gas panel with ministers and executives from across the continent to shed the light on the biggest trends shaping the future of the continent's energy industry.



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## Uganda hopeful of Tullow-Total resolution

UGANDAN PRESIDENT, YOWERI Museveni told delegates at the Uganda International Oil & Gas Summit (UIOGS) that he plans to meet oil company leaders at the UN General Assembly to resolve an impasse that has halted work in a major Albertine Graben block. The president was referring to the collapse of the deal in which Tullow Oil was expected to sell 21 per cent of its 33.3 per cent stake in the Kingfisher project to Total and CNOOC.

The two-year time limit on negotiations elapsed before the deal was completed. Failure to agree with the Ugandan government on taxation was a major stumbling block for the parties involved.

As a result, Total suspended pipeline work and, along with CNOOC, laid off employees. FID cannot be reached until agreements are made with all relevant parties.

President Museveni said he had “already squeezed oil companies quite reasonably” in regard to rates of taxation.

## Five new Ugandan exploration licenses announced at Kampala conference

UGANDA'S MINISTRY OF Energy and Mineral Development announced the second oil and gas licensing round at the Uganda International Oil & Gas Summit (UIOGS) in Kampala last month.

Originally planned to be a seven-block round, the revised plan is for five blocks in the Albertine Graben area to be opened for bids from IOCs and local companies willing to form joint ventures with IOCs. Forty per cent of the area has been explored with a 90 per cent success rate.

Applications are to be submitted by 22 November 2019, evaluation of applications between 25 November and 19 December 2019, bidding to take place between 6-10 January 2020 and licenses to be issued by the end of 2020.

At UIOGS, Frank Mugisha, representing the ministry gave delegates an outline of the prospects for each block.

The northernmost block, Aviv, which is Block 1, is 1,026km – and has 488km of 2D seismic data. Six years ago, three dry wells were drilled but according to seismic data, there is a working petroleum system.



Image Credit: Alexander/Alshie Stock

*The blocks are in the Albertine Graben area of Uganda.*

Omuka (Block 2) in the Buliisa area has 2D seismic data, as well as ground gravity and magnetic data. It is 750km in size. Like Aviv, three dry wells have been drilled in this block.

Kasurubani (Block 3), also in the Buliisa area, was drilled by Tullow and oil was found, but the company relinquished the block to the government. The biggest of the blocks at 1,285km also has 2D seismic, ground gravity and magnetic data.

Turaro (Block 4), the smallest of the blocks at 635km, has 2D and 3D seismic data as well as

ground gravity and magnetic data. Three exploration wells have found oil and gas but the gas contained carbon dioxide.

Ngaji (Block 5) has 480km of 2D seismic data from a 1,230km block. One well has been drilled but it was dry. Mr Mugisha described this block as “a bit controversial” as it lies in a heavily protected conservation area near the Democratic Republic of Congo. He added that it would be important for the successful bidder to “work closely with stakeholders” to ensure the environment is protected.





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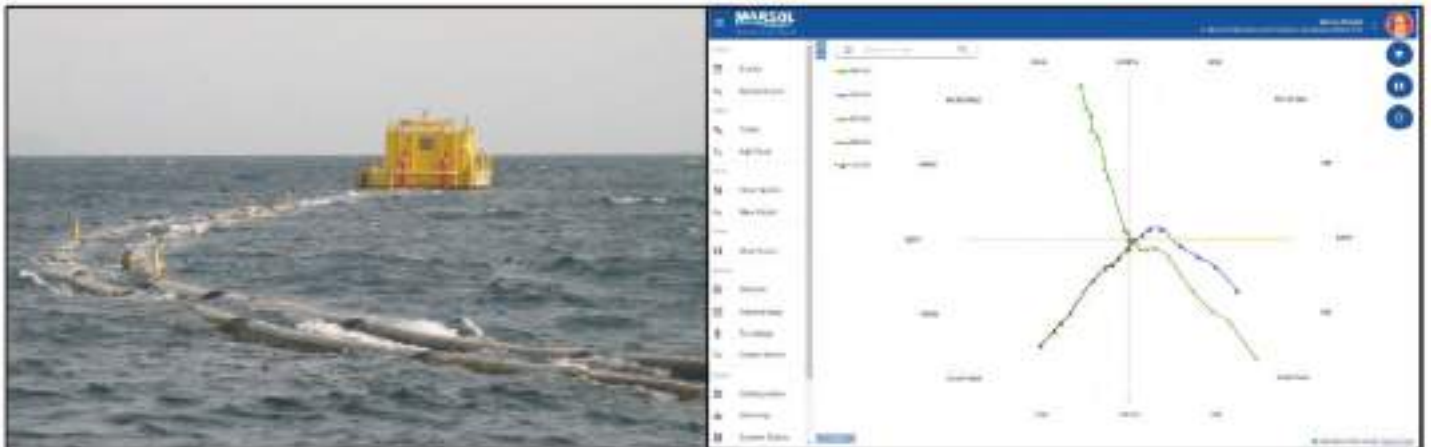
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## Progressive TSL wins contract for operations in Gabon and Tanzania

MAUREL & PROM, AN oil and gas company listed on Euronext Paris, has chosen Progressive TSL as their specialist team to implement finance and asset management solutions underpinned by the Progressive TSL's oil and gas framework to support plans for expansion in the growing Gabonese and Tanzanian markets.

Progressive TSL's proposed implementation of Infor SunSystems, Infor EAM (Enterprise Asset Management), Infor OS (IOS) and the Unity integration suite will be used.

Chris Walcot, CEO for Progressive TSL commented: "We are really excited to have the opportunity to work with the Maurel & Prom team on this project both in Paris and on the ground in Africa."



Image Credit: Courtesy of Maurel & Prom

*Local job creation is an important part of the new contract.*

Patrick Deygas, CFO for Maurel & Prom, added: "With Progressive TSL, we are not starting from scratch. We have benefited from their best practice frameworks, tailored to our industry, to support key aspects of our business, such as Joint Venture Accounting and Profit

Sharing. They understand the nuances of the accounting standards in the regions we trade. Progressive TSL is of a compatible size to Maurel & Prom and are able to work alongside our team in Paris providing hands-on support during the implementation."

## Total closes acquisition of Anadarko's shareholding in Mozambique LNG

TOTAL HAS ANNOUNCED the closing of the acquisition of Anadarko's 26.5 per cent operated interest in the Mozambique LNG project for a purchase price of US\$3.9bn.

This closing comes after Total reached a binding agreement with Occidental on 3 May, to

acquire Anadarko's assets in Africa (Mozambique, Algeria, Ghana and South Africa) and signed the subsequent purchase and sale agreement on 3 August.

This transaction follows receipt of requisite approvals by relevant authorities and partners.

Patrick Pouyanné, chairman

and CEO of Total, said, "Mozambique LNG is one of a kind asset that perfectly fits with our strategy and expands our position in liquefied natural gas. As the new operator, we are fully committed to the Mozambique LNG project and we will bring the best of our human, technical, marketing and financial capacities to further strengthen its execution."

The Mozambique LNG project is largely derisked since almost 90 per cent of the production is already sold through long-term contracts with major LNG buyers in Asia and in Europe. In addition, the project is expected to have a domestic gas component for in-country consumption to help fuel future economic development.

## Uganda refinery making FEED progress

DELEGATES AT THE Uganda International Oil & Gas Summit (UIOGS) were updated on the progress of the Albertine Graben Refinery Consortium (AGRC) project, a public-private partnership which aims to build, operate and co-own the Uganda Oil Refinery. The project was put out to government tender in 2016. At UIOGS, Paolo Pascuzzi, director, turbomachinery and process solutions, Sub-Saharan Africa, for BHGE gave a presentation on the project's progress so far.

Mr Pascuzzi said the project aims to "provide an environmentally friendly refinery, maximise local content and create jobs in Uganda".

In September 2018, the FEED (front end engineering design) launch took place and by January 2019, a refinery design had been submitted to the Ugandan government. This was approved in March 2019 and in June 2019, the Ugandan cabinet approved the FEED.

Mr Pascuzzi said that the next phase of the project, expected to be reached in December this year, is the completion of "key workstreams for process design, engineering, geotechnical, topographical and logistics, [as well as] EISA (environmental impact statement assessment) studies."

He said that the consortium is "[staying] positive we're on track for the completion of FEED by the end of this year".

He added that the project is expected to create more than 10,000 jobs for Ugandans. Other partners in the consortium are Yaatra Venturies, Saipem and Intracontinent Asset Holdings.



Image Credit: World Economic Forum/Flickr

Patrick Pouyanné,  
chairman and CEO, Total.





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# Eni starts gas production in the shallow water Baltim South West field, offshore Egypt

ENI HAS ANNOUNCED the commissioning and start-up of production of the Baltim South West gas field offshore Egypt.

The field is located in shallow waters 12km off the Mediterranean coast of Egypt under the Baltim South development lease. It lies 10km from the field of Nooros, but still within the Greater Nooros area.

With the start-up of the first well, BSW1, the field is producing an initial rate of 100 mscfpd from a new offshore platform connected to the existing onshore Abu Madi Gas Plant.

The development programme envisages the drilling of five additional wells to achieve a production target of 500 mscfpd by the second quarter of 2020. The volumes produced by Baltim South West will further contribute to Egypt's natural gas export capacity. The overall gas potential from the Great Nooros Area is



*Egypt's Mediterranean coast is proving to be a bountiful gas resource.*

approximately three tcf of gas in place, of which about two tcf are in the Nooros field and the remainder in Baltim South West.

The Baltim South Field Programme is divided between Eni's subsidiary Ieoc and UK Major

BP, each with a 50 per cent share. It is operated by Petrobel, a joint venture between Eni and the state-owned Egyptian General Petroleum Corp. (EGPC) on behalf of Medgas, jointly owned by EGPC and contractors Eni and BP.

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# A MIXED REPORT CARD FOR SOUTHERN AFRICA

Oil and gas is increasingly vital to economies in southern Africa. South Africa, Namibia, Angola and Mozambique are at different stages of development. Jamie Smith found out more.

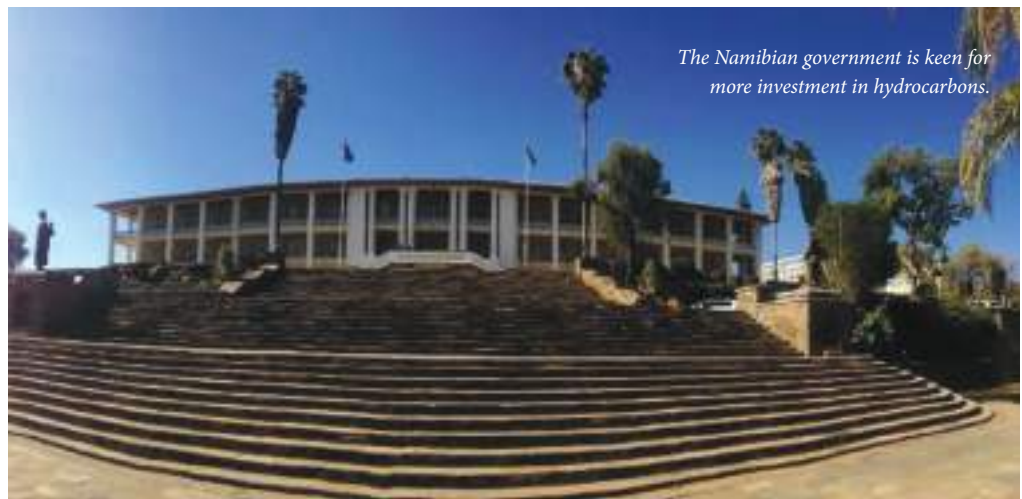
## South Africa

Environmental concerns have been raised about exploration projects in South Africa, but the country is pressing ahead. However, there has been some uncertainty in South Africa since 2017, when British firm Shell announced it would be pulling out of the Orange Basin.

Political uncertainty was cited by the company as the reason for its move, with the government having announced plans to give the state a 20 per cent free stake in all South African oil and gas projects. The Department of Mineral Resources and Energy has yet to turn these proposals into law but its Deputy Director-General Ntokozi Ngcwabe insists it will be good for development.

For Guillaume Doane, CEO of Africa Oil & Power, there is a risk the government's move backfires. "This is a wrinkle in the fabric for investors... South Africa should be in a position to demonstrate it's a market to compete worldwide and attracting major players," he said, speaking exclusively to *Oil Review Africa*. "For deepwater offshore, there is not an extensive list of companies with experience to develop these assets."

Sasol Africa and Eni South Africa have previously been granted authorisation to drill exploration wells off the coast of Richards Bay, but South Durban Community Environmental Alliance has signalled an intention to appeal - a move that



*The Namibian government is keen for more investment in hydrocarbons.*

Image Credit: Simon W/Flickr

could further stifle development.

At the Africa Oil & Power conference, held in Cape Town in October, Mtho Xulu, president of the South African Chamber of Commerce and Industry said that in order to incentivise banks and financiers to fund small- to medium-sized oil and gas companies, governments need to collaborate more with the private sector.

"Governments, I believe, need to start understanding that we live in a world of collaboration and some of the best ideas are sitting outside government," Xulu said, urging more private involvement in operating all

infrastructure projects and development opportunities.

At the same conference, Nhlanhla Gumede, chairman of PetroSA, emphasised the role of oil in energy security: "Energy security is a key issue in South Africa in the sense that a large part of our economy is dependent on energy. The oil side is even worse, in that half of our transport is actually oil based and remains oil based. I know that maybe in the future it will change to electric vehicles but, the need for oil will always be there."

Looking forward he said, French major Total's Brulpadda discovery has a big role to play in balancing the country's energy model and consumption. "We have to say 'thank you' to Brulpadda, perhaps South Africa's reliance on oil may change. We remain a largely oil consuming country but we need to plan for eventualities that may

emerge from that," he told delegates at the conference.

## Namibia

Since 2013's Wingat-1 discovery found light and sweet crude oil, Namibia's energy sector has been threatening to kick up a gear. With no previous oil discovery in the country, Namibia has been completely reliant on other countries but things could soon be set to change.

There was a blow for the development of Namibia's oil sector in 2018, though, when Tullow abandoned a well off the country's coast after "non-commercial hydrocarbons" were discovered. Tullow's exploration director Angus McCoss suggested "there is a working oil system in the area", however, indicating other developments could still proceed.

While neighbour Angola appears to be preferred by the

**“ Namibia has everything going for it that investors are looking for.”**

majority of energy producers right now, Eco (Atlantic) Oil and Gas holds a number of licences off the coast, including a majority stake in the Cooper Block, where drilling is expected to get under way in the coming months.

“The narrative for Namibia has been the same for some time, some interesting petroleum systems and companies are enthusiastic for the opportunities but is there a commercial discovery to break things wide open?” questioned Mr Doane.

“Namibia has everything going for it that investors are looking for a stable democratic regime with exploration licences that are favourable compared to Africa counterparts. Until there is a large discovery to carry things forward, being able to de-risk is kind of meaningless.”

## Angola

Already one of the largest oil producers in Africa, Angola has set its sights on improving production further under the new president who came to power in 2017 João Lourenço. Overseas foreign investment is now being welcomed by Angola, Lourenço recently told the United Nations General Assembly.

Maintaining democracy will be a challenge for Lourenço and his government, with oil prices having a key impact on the health of an economy that remains heavily reliant on the sector. Investment should help to stabilise Angola in the coming years but much will depend on whether Lourenço is able to keep hold of what could be a fragile grip on power.

The national oil company in Angola is Sonangol and they have a monopoly, but its recent past is controversial. Carlos Saturnino Guerra Sousa e Oliveira was placed in charge of Sonangol by Lourenço after accusations of nepotism and corruption dogged the previous government. President José Eduardo dos



Image Credit: Zai Rustam/Flickr

*Angola's Kwanza Basin could be the next frontier for the Angolan hydrocarbons industry.*

Santos sacked the company's entire board in 2016 and installed his oldest daughter, Isabel dos Santos, as chair, but his successor has proven to be a reformer.

Exploration is continuing in the oil-rich Lower Congo and Kwanza Basins, though Mr Doane notes Angola is strongly dependent on oil prices. He wants to see mid-sized firms enter Angola.

“Angola saw the writing on the wall it's not much different to a lot of legacy producers with systemic oil decline due to maturing fields and it is a challenge to replace lost reserves through new exploration, with little activity since the commodity price fell in late 2014,” he said.

**“ There is a concerted push by the Angolan government to make terms more attractive, to make entry to the market faster and easier.”**

“Now there is a concerted push by the government to make the terms more attractive, to make entry to the market easier and faster, and a concerted push to attract new activity in the country. The reforms passed by the new president were crucial to getting the country back on track.

“Right now there's only seven or eight operators, the super majors, so Angola needs to live down this outdated perception the market is only for big companies like BP, Total and ExxonMobil... we need to see if the market can create space for mid-sized independents.”

## Mozambique

Mozambique looks certain to become a key player in the liquid natural gas (LNG) world, though progress could be affected by the lasting impact of Cyclones Idai and Kenneth on the country.

Vital funds were provided recently when Total recently completed the acquisition of Anadarko's APC.N 26.5 per cent stake in Mozambique's liquefied natural gas project for \$3.9 billion. “Mozambique LNG is one of a kind asset that perfectly fits with our strategy and expands our position in liquefied natural

gas,” said Total's chairman and CEO Patrick Pouyanné.

The Golfinho and Atum fields will be developed as part of the project, while a two-trains liquefaction plant will be constructed with a capacity of 12.9 million tonnes per year. According to Total, the project is expected to come into production by 2024. Another important development saw Mozambique's national oil company ENH form a new partnership with independent oil trading firm Vitol, with the joint venture based in Singapore.

Coral South, Mozambique's first LNG export plant, should begin production in 2022 and Mr Doane believes the country can offer a blueprint to success for other African nations.

“This is a market that has direct access to Asian buyers and consumers, its positioning geographically is ideal and what's going on this year is a culmination of multi-year discussion on bringing East African gas to the market - Mozambique are the first and it's a watershed for them,” he said. “To bring more projects to FID is going to create a domino effect.” ♦





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# EXPLORATION SURGE BY NEWCOMERS IN WEST AFRICA

Economist Moin Siddiqi outlines the latest developments in the West African exploration market, with bold newcomers emerging alongside the established markets which continue to dominate the oil production sector.

**I**N THE 80 years since first significant exploration began in West Africa's onshore areas, the margin has emerged as a significant hydrocarbon-producing region. While Nigeria and lesser extent Congo (Brazzaville), Gabon and Equatorial Guinea continue to dominate West African oil production, flurry of newcomers (led by Ghana and Senegal) are emerging in terms of exploration potential along the West African Atlantic Margin. The US Geological Survey (USGS) estimated technically recoverable 'undiscovered' conventional oil and natural gas reserves in Western Africa at 36.66bn barrels and 163,570bn cubic feet, respectively, particularly in the Niger Delta.

There is a growing interest from majors and independents to explore basins in 'probable' yet underexplored petroleum systems, mostly northern part of the West Africa Atlantic Margin 'Senegal Province' – stretching from Mauritania, Senegal, Gambia and Guinea (Conakry) covering a total area of 230,000 km<sup>2</sup>, (of which 90,000 km offshore). "When you go for business development, trying to acquire licenses or make partnerships in West Africa, you can sense the competition," South African Sasol's senior VP for exploration and production, Gilbert Yevi told Bloomberg. He



*The Niger Delta area still contains significant quantities of technically recoverable oil and natural gas.*

Image Credit: dohuns5/Flickr

likened it to "a new California gold rush".

## Making headway

Development of Africa's newest westerly hydrocarbons province is gathering pace. The flagship SNE oil discovery in 2014 by UK-based Cairn Energy within the Rufisque-Sangomar-Sangomar

Deep (RSSD) acreage has put Senegal on the radar of IOCs. SNE field holds estimated recoverable resources of 563mn barrels. A final investment decision (FID) on SNE US\$2bn development is expected in H2 this year. The FPSO facility is expected to have a capacity of some 100,000bpd, with first oil

production scheduled for 2022. "Phase-1 development will target an estimated 230mn barrels of oil resources from the lower, less complex reservoirs and an initial phase in the upper reservoirs," Woodside statement. SNE field's breakeven price is estimated at US\$40/barrel.

Some 20km to the north of SNE, another discovery by Australian explorer Far shows some potential, with estimated contingent reserves ranging from 250-900mn barrels. The hydrocarbon column which the drillers found exceeded 500 metres long, with the net oil column being 29 metres.

**“When you go for business development in West Africa, you can sense the competition, it's like a new California gold rush.”**

Senegal's national oil company Petrosen has called for expressions of interest on deepwater acreage to the south of Gambia's A4 and A5 blocks, which it deems could yield 1.5bn boe. The background of President Macky Sall (a former hydrocarbons geophysicist) is helpful to Senegal's fledgling petroleum sector.

Ghana plans to expand oil production from 196,000bpd in 2019 to 500,000bpd by 2024, with a longer-term target of 1mn bpd. Mohammed Adam, minister of energy, is confident that petroleum sector can reach new highs through aggressive E&P programme. Ghana has 21 licensed blocks, of which 14 are in ultra-deep-waters. A recently discovered well (Central Tano-1) is classified as a large contingent resource with an estimated potential of 2.3bn barrels.

Aker Energy (Norway) is developing Ghana's Pecan field in Deepwater Tano Cape Three Points block which has received US\$100mn financing from Africa Finance Corp. Depending on a FID, Aker expects start-up by 2022-23 via a FPSO facility to tap estimated resources of 544mn boe with peak output at 125,000 bpd. First oil from Pecan field could be produced 35 months after FID.

Gabon is planning a new licensing round in January 2020, last year it offered 12 shallow water and 23 ultra-deepwater blocks to foreign operators. The country's revised hydrocarbon code provides better incentives for investors with a view to increasing oil output by 50 per cent by 2020-21. Consequently, Petronas (Malaysia) announced its signing of an agreement for two exploration permits which, once developed, will produce 200,000 bpd, while VAALCO Energy (US) intends to commence its 2019/2020 drilling campaign. In neighbouring Congo (Brazzaville), output at two large fields Moho North and



*BP has been very active off the coastlines of Senegal and Mauritania.*

Image Credit: BP

Banga Kayo is being expanded by 140,000 bpd and 50,000 bpd, respectively. Cameroon has opened eight oil blocks in highly prospective Rio del Rey and Douala/Kribi-Campo basins.

Elsewhere, the proposed 1,894-km Niger-Benin Export Pipeline is costing US\$4.5bn it is China National Petroleum Corp's (CNPC) largest cross-border crude oil pipeline investment – and it remains vital to Niger's ambitions to boost oil production by 'five-fold' to 100,000 bpd over the medium-term. Niger could export its first crude from Agadem to the Atlantic Coast by 2021. More than 100 discoveries from 137 exploration wells were reported by CNPC in the Agadem Rift Basin in recent years. Savannah Petroleum (UK) has mapped further 146 undrilled exploration prospects and has successfully drilled five wells in recent years. Sonatrach (Algeria) discovered oil in Niger's Kafra region.

### Emerging zones

E&P activities are underway in more 'marginal' oil-provinces. Côte d'Ivoire has redrawn parts of licensing map by expanding the size of blocks in deep-water acreage to entice IOCs in areas deemed more costly to develop. Terms for explorers are viewed as

amongst the most competitive in Africa. Bernard Looney, BP's head of upstream, praised the country's "low cost access with minimal financial commitments". Blocks are allocated via an open licensing system, rather than specific rounds. Total and Eni are reportedly negotiating production-sharing deals for four blocks in Côte d'Ivoire. Output averages about 70,000 bpd, but "the potential is a lot higher," said Minister of Petroleum, Energy and Renewable Energy Abdourahmane Cisse.

Following the September 2017 ruling by the International Tribunal for the Law of the Sea, which resolved Côte d'Ivoire maritime boundary dispute with Ghana, both countries have agreed to collaborate on any discoveries straddling the

boundary. Subsequently, Tullow Oil in early 2018 acquired Block 524 on the Ivorian side of maritime border adjacent to existing TEN oilfield in Ghana. BP and Kosmos plan joint drilling in 2020 on five deepwater blocks acquired in late 2017 covering 17,000km<sup>2</sup>.

The Mauritanian basin could be commercially viable, according to Total, which plans to drill a well on five blocks this year. ExxonMobil signed last year's production sharing contracts for three deepwater blocks; Shell signed a similar deal in two other offshore blocks. Also, drilling is continuing off Sierra Leone and Liberia. Two oil majors have expressed interest in Guinea and even Guinea-Bissau is attracting cautious interest.

Gambia hopes to emulate the success of its neighbours, but so far drawn a blank. The first well (Samo-1) drilled by Far in narrow maritime zone proved water bearing, but Far intends more drilling – attempting to spot a prospective resource of 825mn barrels in the area. "Oil shows were encountered at several levels indicating that the area has access to an active hydrocarbon charge system. The well encountered excellent reservoir and seal facies, indicating that all key components for a successful trap

**“ Gabon is planning a new licensing round in January 2020, with a revised hydrocarbons code providing better incentives for investors.”**



are present. But the outcome was not in line with our pre-drill expectations,” according to a Far statement.

**Risk-taking**

One of the world’s few hotspots for hydrocarbons discoveries is

**“ Frontier exploration zones are opening up thanks to risks taken by majors and independents, including junior players, backed by investment.”**

West Africa margin. Frontier exploration zones are opening up thanks to risks taken by majors and independents (including junior players) backed by powerful investment funds. Other factors are rising oil prices, the application of new E&P technologies, such as horizontal drilling, 3D seismic surveys and Geostream data for more accurate assessment of untapped resources in remote offshore acreage, thus increasing the risk appetite of investors.

Developing new fields often requires colossal (E&P) investment into unexplored deepwater and ultra-deepwater territories; innovative developments in enhanced oil recovery (EOR) technologies can help to recover the



Image Credit: Total

Gabon continues to provide opportunities for investors.

maximum existing oil and gas reserves. Since 2000, more than 275 new oil wells were discovered in West Africa (USGS estimates) – some in offshore acreage.

It’s an exciting time to be exploring in West Africa, but what’s needed to entice E&P investment is an “elephant” find,

the discovery of a billion barrels or more such as Total’s South African find earlier this year. The African continent is crucial for long-term growth of conventional oil. According to Global Data, about US\$194bn will be spent on African oil/gas fields over 2018-25. ♦

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# BECOMING AN OFFSHORE LEADER IN NIGERIA

This is the first of a two-part interview with Woji Weli, BW Offshore's Nigeria Country Manager. He talks about how the company has become a leader in the FPSO sector with more than 15 years of successful operation in Nigeria.

**Oil Review Africa (ORA): You had over thirty years' international experience in the oil industry. Can you share your experience with us and how it has been since you assumed your position?**

**Woji Weli (WW):** My long career with Shell was a rich one from the perspective that I was privileged to acquire different skills in oil and gas engineering and the management of projects, assets and stakeholders spanning the land, swamp, shallow and deep-water terrains. I was an oil and gas facilities design engineer, project manager and asset manager with assignments in Nigeria, the US and France. I was a pioneer staff of Shell's deepwater organisation in Nigeria and saw through the company's first deepwater field development in Nigeria from licensing to production.

In many ways, my Shell experience prepared me well for BW Offshore Nigeria. BW Offshore has a two-prong strategy to maintain and grow existing lease and/or operate businesses and at the same time mutate into an oil company by taking equity in selected new field developments where we provide the floating production facilities and/or operate it. In Nigeria, we are looking at continuing our FPSO lease and operate activities where we have a presence with two units in two fields, and even



Woji Weli of BW Offshore.

Image Credit: BW Offshore

expanding that line of business.

We are actively searching for small and medium offshore discoveries in Nigeria (and there are lots of them) that we would take equity in partnership with others, provide our facilities and/or operate the field. We would be bringing our global expertise in FPSO design, construction and/or operation in the form of existing or new units, in addition to capital, to such developments. The strategy is underscored by our experience in Gabon in the Dussafu field, where in 2018 we brought the field to first production in only

18 months from license acquisition. It is a modular development which is now in its second phase. These E&P developments are operated by our E&P subsidiary BW Energy. With the expressed intention of the company leadership and the committed and capable staff we have, I expect Nigeria to be our next E&P province.

**ORA: BW Offshore is a leader in FPSO services. How strategic is Nigeria in the global FPSO sector?**

**WW:** You are correct about our being a global leader in FPSOs,

having been involved in some 40 FPSO projects around the world over the past 35 years. We lease and operate 15 FPSO units worldwide, of which two units are in Nigeria. So, in terms of numbers, the only two other countries with as much FPSO presence are Brazil and Gabon. We have been operating FPSO's in Nigeria for more than 15 years, so Nigeria is important to us for sustaining current operations and for future growth. Nigeria is a proven, matured and prolific hydrocarbon province. Although there are peculiar risks that make Nigeria a difficult operating environment, we are aware of them and have been operating here safely, responsibly and with integrity over the years. As we implement our country strategy, we hope that the overall Nigeria business climate will improve so that the vast potential of Nigeria in oil and gas production will be fully realised for the benefit of all stakeholders.

As you know, the West Africa offshore oil developments lend themselves to the use of FPSO's on account of the benign metocean conditions, the lateral spread of many fields and absence of pipelines and offloading infrastructure. ♦

*The second part of this interview will feature in Oil Review Africa Issue 6, 2019.*





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# SHAPING SAFER WORK ENVIRONMENTS WITH INNOVATION

The latest fire protection technology for oil and gas operators seeks to make the industry a secure place to work, and it is bringing in some heavyweight backers. Martin Clark reports.

**M**ANY OF THE risks facing operators today are the same all across the world — they include fire.

In any oil and gas industry setting, from downstream petrochemical sites to offshore drilling platforms — from Africa to the Americas — this is one of the single greatest threats.

Fire protection technology continues to evolve, however, to create a safer working environment for employees, from protective suits and breathing apparatus to fire fighting equipment, bringing with it new standards and higher performance.

And, as big a threat as fire is to the safety of oil and gas operations, it is also big business.

The global fire safety systems market is expected to grow at more than 7.5 per cent a year through to 2024, one market research report stated recently.

Similarly, it is an area that is being supported by some powerful allies, including a number of US government departments and agencies.

One US-based company, HMA Fire, says it has developed a



*Desert areas have specific fire protection needs, which can be addressed with technological solutions.*

Image Credit: Bureau of Land Management/Flickr

“better way to fight fires” using an ultra high pressure water system.

Ultra high pressure is defined by the National Fire Protection Agency in the US as pump pressures above 1100 psi.

The firm’s origins date back to working alongside space agency NASA, developing propulsion systems which resulted in a greater understanding of high pressure fluid flows through nozzles dealing with extremely high

temperatures and rapid cooling.

HMA Fire says by flowing water at these pressures, 10 times the surface area is created by breaking down conventional water droplets into 64 smaller droplets allowing for at least a fifth of the water usage.

While that might not be an issue offshore where water is abundant, it could be critical in hot, desert-like environments.

Smaller droplets, the firm says, equals a bigger outcome: the greater surface area means more contact with the fire and more efficient heat absorption.

When the water droplet absorbs heat, it converts to steam, displacing oxygen, removing heat from the superheated

environment and extinguishing the fire.

The company continues to be at the forefront of developing technologies and apparatus that make fighting fires safer and more efficient, with potential ramifications for the oil and gas sector and indeed many other industries.

The US Department of Defence (DoD) is also funding research into fire fighting which could, in time, yield technologies that benefit the oil and gas industry.

The DoD is currently exploring fluorine-free firefighting foam and alternatives to aqueous film-forming foam (known as AFFF) — a foam that

**“ The global fire safety systems market is expected to grow at more than 7.5 per cent a year through to 2024, one market research report stated recently.”**



quickly extinguishes fuel fires on ships and airplanes — because of concerns about adverse health effects.

AFFF is typically used as part of fire suppression systems and in emergency responses at chemical plants, oil refineries and rigs as well as in aviation operations.

The DoD says there are concerns that the fluorine in these chemicals may have adverse health and environmental effects, so is seeking new technologies that can do the job without fluorine.

Technology is being used in other ways too to improve firefighting response.

Another US tech pioneer, MSA Safety Incorporated, recently unveiled LUNAR — a small, wireless, cloud-ready



*Fire will always be a risk on oil and gas rigs but it can be reduced.*

Image Credit: John Fowler/Flickr

**“MSA Safety Incorporated has unveiled LUNAR – a small, wireless, cloud-ready device designed to provide higher levels of protection for firefighters.”**

device designed to provide higher levels of protection for firefighters through enhanced vision, improved situational awareness and connectivity.

It includes features such as person-to-person ranging, which enables firefighters to find each other using distance and directional data, even when one may be incapacitated, GPS location, and personal thermal imaging.

Nish Vartanian, the firm's president, says the goal is to improve the notion of the 'Connected Firefighter' through technology and R&D.

While fire will never cease to be a threat on any rig or other oil installation there is a huge movement to improve firefighting technology aimed at keeping everyone safe. ♦



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# ADVANCED FIRE DETECTION BOOST FOR AFRICAN MARKETS

An exclusive distribution deal between HMA South Africa and Det-Tronics promises to expand the fire and gas safety market across Africa.

**C**OMplete fire and gas safety solutions that provide detection, notification, and mitigation in a range of industries are now available from HMA South Africa, thanks to an exclusive distributorship with Det-Tronics of the USA. The company is now set to make inroads into both the local and Sub-Saharan African market, according to Mark Hall, Sales Manager for HMA Instrumentation.

Det-Tronics' flame-detection solutions are based on performance (coverage, field of view, and range), reliability (superior protection of people, products, and property), and technology (patented signal processing and precision optics).

Advanced detection means that fires can be detected using UV, UVIR, IR or MIR technology. International certification includes SIL 2 for safety compliance, performance-certified to FM 3260, EN 54 and VNIPO in response to a variety of fuel sources, and NFPA 72 compliant LON output for safety system integration.

The South African subsidiary of the Australia-based HMA Group was established in 2016 when Uretech, a local manufacturer of polyurethane products such as wear liners for the mining industry, entered into an agreement with the HMA Group to have its product range



*Detection systems in action.*

Image Credit: Det-Tronics

distributed internationally. In turn, the HMA Group's wide product range is now available in Africa for the first time.

The latest addition to HMA South Africa's portfolio is the Det-Tronics agency.

"We have had a highly successful relationship with Det-Tronics for the past 20 years in both Australia and New Zealand, accumulating extensive product and application experience and expertise over that period," Jeremy Moore, operations manager for HMA Instrumentation, commented.

This has culminated in the South African distributorship, which will be used as a springboard to target the burgeoning oil and gas industry on the continent. "Our local customers will have full access to our international knowledge,

which will naturally extend to aftermarket support and technical back-up," adds Nathan Morris, Product Manager for HMA Instrumentation. Critical spares and common product items will be held locally, while application-specific technology will be imported directly.

"All Det-Tronics detectors pass rigorous flame testing, including exposure to multiple fuel sources and at varying ranges, both on and off axis. Skilled engineers also simulate specific applications to ensure uncompromising safety and performance," Hall highlights.

Leading products include the X3301 multi-spectrum infrared flame detector, a benchmark unit approved for a range of hydrocarbon fires, with best-in-class flame detection coverage and false alarm rejection.

Performance-approved at 81 m for a 0.3 m x 0.3 m n-Heptane fire, the X3301 features patented detection algorithms, optics, and signal-processing.

The Det-Tronics X3301 multi-spectrum infrared flame detector has proven technology for fast detection of invisible hydrogen flames and methanol, while the X5200 ultraviolet/infrared flame detector leverages UV and IR technology to detect fires.

The X9800 infrared flame detector offers high-speed detection in areas with infrared sources. The X2200 ultraviolet flame detector combines an ultraviolet sensor and advanced algorithm for rapid detection and false alarm immunity. The Det-Tronics Eagle Quantum Premier (EQP) safety system combines gas and flame detection with extinguishing agent release capability in a single solution.

The Det-Tronics' product range and service offering covers flame detection, gas detection, suppression equipment, control equipment, HMI programming, custom engineering, project management, system integration, factory approval testing, formal training, commissioning, field service, and technical support. Applications include chemical, fuel storage, LNG terminals, offshore platforms, petrochemical plants, pipeline compressor stations, refineries, and turbine enclosures. 🔥



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## France deepens its oil and gas relationships with Africa

BUSINESS FRANCE HAS identified Africa Oil Week (AOW) as one of the most important oil and gas events in Africa, and an ideal platform from which to develop business opportunities in the sector. The agency will be attending AOW 2019 with a delegation of established French companies with proven track records in meeting the needs of operators on the continent and across the globe. These include AEMC France, a majority-owned subsidiary of International SOS, the world's leading provider of medical and security services and remote sites medical support; and the ABSOGER Group, whose subsidiary CarboTrade specialises in the manufacture of custom-made nitrogen generators for the



oil and gas industry.

Business France is the national agency supporting the international development of the French economy, responsible for fostering export growth by French businesses, as well as

encouraging and facilitating international investment in France. It promotes France's companies, business image and nationwide attractiveness as an investment location, and runs the V.I.E international

internship programme.

Founded on January 1, 2015 through a merger between UBIFRANCE and the Invest in France Agency, Business France has 1,500 personnel, in France and in 70 countries throughout the world, who work with a network of public and private sector partners.

Business France and the visiting French delegation look forward to meeting and interacting with industry stakeholders, and to promoting French oil and gas expertise.

For more information, please contact *Stéfane Leny*, senior trade adviser – energy & environment: +27 (0) 11 303 7150 / 88, email: [stefane.Leny@businessfrance.fr](mailto:stefane.Leny@businessfrance.fr)

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# PIONEERING R&D PROGRAMME DEVELOPED TO BOOST FLOW MANAGEMENT

Enpro Subsea has developed technology to improve flow intervention services which has already been used successfully in West Africa, particularly in the Ghanaian market.

**E**NPRO SUBSEA, A production optimisation specialist, has developed pioneering subsea technology at its facility in Inverurie, Scotland. To date, its 10k pressure version of flow intervention services (FIS) technology has provided well stimulation for multiple campaigns in West Africa. The system has been proven to improve production, by stimulating the reservoir and increasing the ultimate recovery from existing subsea wells.

This latest development increases operating capabilities to support higher pressure (15ksi) wells, common in West Africa and the Gulf of Mexico. The new module is also configurable for other subsea chemical injection treatments, including hydrate remediate and flow assurance management.

The system can be deployed from remote offshore vehicle (ROV) support vessel or construction support vessel. By eliminating the need for a rig, operator savings can reach up to 70 per cent of traditional vessel and support costs, potentially worth US\$12 million on a 30-day multi-well intervention campaign.

Tom Bryce, Enpro Subsea marketing director, said: "As the industry continues to focus on maximising recovery from their existing assets, new technology is



Enpro Subsea's Tom Bryce (left) pictured with Jamie Hepburn, a member of the Scottish parliament.

essential. This investment, combined with R&D funding from Scottish Enterprise, provided us with the ideal opportunity to increase our capabilities in the deepwater intervention arena, building on our success to date. It was a great opportunity to be able to showcase this new technology to Mr Hepburn during his visit, and we thank Scottish Enterprise for their continued support."

As a modular system, the system can be used with any subsea flow access point to gain access to well or pipeline flow, including the company's proprietary flow access module (FAM) technology. In addition to

facilitating hydraulic intervention, the FAM open architecture has been selected by operators as an enabling technology for subsea production systems standardisation, leading to early first oil and future-proof field development strategies.

"Installing FAM hubs enables operators to retrofit any technology to its subsea architecture or react to any production challenges in future field life," explained Bryce. "FAM creates an enhanced production 'USB port' within the jumper envelope, which enables the use of standard subsea Xmas trees and manifolds, with the FAM providing life of field flexibility

within the system design."

FAM therefore delivers 'smart standardisation,' enabling a range of production enhancing technologies for metering, flow measurement, flow assurance and digital data access to be installed at any stage throughout the life of field.

The company uses this 'smart standardisation' to link with existing subsea infrastructure, Xmas trees and manifolds, and return significant cost savings during well operations compared with alternatives.

The combination of the FIS and FAM range of products throughout the life of field delivers maximum recovery from existing and new subsea wells while minimising risk and cost.

The business has seen more than 60 of its subsea FAMs adopted by operators in strategic regions, including Ghana since the product was launched in 2016. The team now aims to increase sales over the next two years in line with its international business plan.

Bryce added: "Looking ahead, we are focusing on high-integrity pressure protection system (HIPPs), pumping and data acquisition solutions using the same technology. FAM enables an open subsea architecture, allowing any subsea processing hardware to be retrofitted onto any well, achieving standardisation with flexibility for our clients. ♦



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# REACTIVATION OF OFFSHORE VEHICLES BRINGS ENGINEERING CHALLENGES

Neil Graham, technical director of diesel power specialists Royston, looks at the engineering and technical factors associated with bringing the engines of laid-up offshore vehicles (OSVs) back into service.

**R**EPORTS OF INCREASED offshore investment and a growth in seismic exploration activity have provided some grounds for cautious optimism among OSV operators – and this supports our own experience with a growing number of enquiries from vessel owners seeking advice and assistance in reactivating vessels ahead of anticipated new contract and tender opportunities.

Of course, over many lean years within the offshore services sector, there have been hundreds of vessels that have been laid-up with one study quoting the figure at over 1,700 or around 35 per cent of the total fleet.

In the circumstances, the reactivation of these vessels is not straightforward, and inevitably requires a balanced consideration of the costs involved against the likely rates of return. A major factor in this process are the engineering and technical aspects associated with bringing a vessel's engines out of a long term lay-up period and giving due consideration to the maintenance and inspection procedures carried out during the lay-up.

Laid-up vessels are normally maintained in Class. But if the lay-up period is extended beyond the due date for special survey, the notation 'Laid-up Surveys Overdue' can be assigned and a minimum number of surveys



*A marine health engine check is taking place on an offshore vehicle.*

Image Credit: Royston

agreed with the Society concerned. Complete suspension of Class will normally invoke a termination of insurance. Class may require a state of preserved or dry preserved engine.

Before a vessel can resume normal service, all overdue Class and Statutory surveys need to be completed – an accurate lay-up log is an essential requirement detailing the scope of any engine maintenance or service work carried out during the shutdown period. In addition, documents such as dry dock work lists and lay-up personnel handover reports are useful for planning engine reactivation measures.

Accurate running hours for machinery should be made available throughout the lay-up period in order that appropriate spares for the maintenance of machinery items at reactivation can be planned by the joining crew and any attending

technicians. In planning any maintenance works, careful consideration will need to be made of OEM lead times for spare parts.

Full consideration of the lay-up reports and log books should enable a formal reactivation plan to be developed to restore the engine room machinery and power systems to full working order. As part of this, any planned maintenance and service tasks that have been missed during lay-up periods will need to be checked.

Planning for reactivation should of course commence when vessels are first laid-up. Decisions taken around hot or cold lay-up situations – or maybe something in between – will ultimately determine the steps needed to re-introduce a vessel back into service.

Bringing a vessel out of a long cold lay-up inevitably includes

the risk of operational problems with engine function or performance and unplanned consequences that can extend the times and costs associated with any return to work.

In theory, the reactivation of a 'hot lay-up' vessel should be more straightforward but it is inevitable that owners will often have applied different levels of maintenance, technical attention and understanding to meet different Class or Flag State requirements while the vessel remained out of operation.

Determining the reactivation of any OSV therefore depends largely on the preparations made for lay-up – or lack of them – and the engineering and maintenance approach taken during out of service periods.

From an engineering perspective, there are a number of fundamental factors that need to be taken into account that can considerably influence the chances of an orderly return of a vessel to normal operation. Any preservation measures taken should always reflect the prevailing environmental conditions, for example, appropriate action should be taken to prevent any damage due to freezing. The risks of engine, component and associated system damage during lay-ups are many and varied, including the potential for corrosion, spalling, fractures, abrasive wear,



adhesive wear, porosities, seizure, fretting and cavitation.

An example often encountered is the effect of adhesive wear between a bearing shell and a crankshaft journal during the starting or slow turning of an engine during a lay-up period. This is one of a number of potential engine problems that needs to be identified before a return to service. Other regular problems encountered are rust and scale in pipeline systems, dirty lube oil in engine oil bores, and problems with sticking cylinder head and air start valves.

The possible deterioration of the lubricating oils and fuel oils during the lay-up period also requires proper consideration. Lubricants and fuels are normally hydrocarbon-based products that are subject to degradation and contamination over time, which poses a risk to the efficient and safe operation of engine parts.

Routine checking and testing of all lubricating and fuel fluids should therefore be undertaken ahead of any propulsion and generator system reactivation work, including the inspection, cleaning and renewal where required of all cartridge and centrifugal filters.

The impact of the presence of moisture and any impact on engine parts is another area of concern and the review of any dehumidification records during lay-up can also provide a pointer to the likely risks of corrosion-related problems. For example, any areas of the engine that have condensation markings, or where the records indicate that dehumidification has not been effective, will require more care.

Sea water, fresh water and compressed air lines all require attention before, during and after the lay-up period to avoid problems relating to corrosion, scale build up and blockages due to sediment.

It is assumed that if the engines have been in cold lay-up



*Well-maintained OSVs can serve for years.*

major overhauls (complete or partial to satisfy surveyors and maintenance requirements) will be conducted, and therefore tasks such as flushing through oil galleries will be done when the engine has had bearings etc removed.

With regard to the main engines, the current advice from engine manufacturers is for main engine crankcase spaces to be closed up and dehumidified during lay-up. However, this is not always the case and the recommended course of action is for a full crankcase inspection to be carried out, alongside checking the condition and security of rotating parts. In particular, the need is to ensure that no foreign objects may have inadvertently been left behind and that there has been no condensation damage, bacterial growth or other contamination within the engine and sump.

The pistons and cylinder liners should be protected with an inhibitor and regular crankcase inspections carried out to check general condition of engine internal components.

Blanking off of the exhaust gas system and air intakes is recommended to prevent moisture ingress into the engine.

For the lube oil system, consider blanking off or disconnecting the vent lines in the engine room. The LO pumps and priming pumps should be turned on a regular basis and run up prior to starting the engine. Purifiers should be run up to clean the oil as much as possible, with samples taken for analysis

before starting the engines.

Ideally the lube oil system should be flushed through with a recommended flushing oil prior to starting the lube oil pumps.

Fuel lines with residual fuels should be drained and flushed with MGO prior to lay-up. Any fuel remaining on board should be regularly tested for water, sediment, abrasives and microbial activity in the case of distillates. Water in fuel tanks should be drained off on a regular basis.

Fuel injection valves should also be cleaned, adjusted and refitted, and this requirement often applies to the fuel pumps also. The engine fuel system should be circulated prior to engine starting to ensure there is no leakage. It is recommended that the starting air system is drained and opened up, cleaned and left dry. Any machinery or pipeline system that is left open should be subjected to a dehumidified atmosphere in the engine room. Starting air valves should be removed and tested prior to start-up.

Note that the engine room temperature should always be a few degrees higher than the outside ambient temperature and never below freezing point.

Sea water systems, including pipelines and heat exchangers should be opened and drained of water, with the heat exchangers being flushed with fresh water before being cleaned. If possible, leave the system open to benefit from the dehumidified air.

Fresh water systems can be left filled if the appropriate chemicals are added and

regularly tested to prevent corrosion and settling of solids.

In general, all valves in all systems should have spindles greased and valves operated regularly to prevent seizure. This also applies to ships SW inlet valves but a blanking off of the SW system must take place to prevent SW ingress. The engines should be rotated regularly and the shafts should be returned to a different position each time.

A vessel's auxiliary diesel engines may have already been in need of overhaul at the time of going into lay-up. This is particularly the case if they had been run at low loads for months during any period of interim hot lay-up without appropriate maintenance being carried out or running hour logs properly kept. It is therefore important that these items of machinery are also carefully examined as part of the reactivation process.

If the auxiliary engines have not been run during the lay-up period, a sample of main bearings and connecting rod bottom end bearings should be opened for examination, with further examination and possible remedial attention being dependent upon the condition.

On completion of the various commissioning tasks that are undertaken after all checks and maintenance activities have been completed, full load engine and generator tests will be necessary to fulfil the requirements of the owner and class surveyor.

The downturn in the OSV market finally appears to have turned a corner. In response, owners and operators who plan to reactivate their hot or cold stacked vessels need to think carefully about how this can be best achieved. The danger is that rushing vessels back into service without the proper technical approach and attention to detail will only lead to further problems, undermining brighter market prospects that have taken so long to emerge. 📌

# INTERNATIONAL STANDARDS UPDATE FOR THE OIL AND GAS INDUSTRY

Meeting ISO guidelines is a common way for African operators to ensure they are able to compete on the international stage. Here are updates for two new standards that can positively impact the continent's oil and gas industry. Georgia Lewis reports.

## THE INTERNATIONAL STANDARDS

Organization (ISO) has a long history of developing standards for the oil and gas industry. At the Uganda International Oil & Gas Summit (UIOGS), held last month in Kampala, ensuring industry standards are harmonised across African borders and meeting international standards so African countries can compete on the global stage were strong themes. Additionally, when Equatorial Guinea's petroleum minister, Gabriel Obiang Lima, was interviewed by *Oil Review Africa*, he emphasised the importance of ensuring standards, particularly in regard to meeting international health, safety and environment requirements, were met across Africa's oil and gas markets.

Across Africa, many oil and gas operators pride themselves on meeting ISO requirements and gaining the relevant certification.

Maritime operators can benefit from meeting ISO/PAS 23263, in response to a bid to reduce shipping industry emissions, as spearheaded by the International Maritime Organization (IMO). The IMO has set an ambitious target of January 2020 for the implementation of a policy which limits the sulphur content of maritime fuel to 0.50 per cent. The current maximum is 3.5 per cent.

ISO/PAS 23263 contains



*A new standard could revolutionise fuel standards in the maritime sector.*

Image Credit: Adobe Stock

considerations for fuel suppliers and users in regard to maritime fuel quality, defining the requirements of these fuels and other technical considerations that

**“Across Africa, many oil and gas operators pride themselves on meeting ISO requirements and gaining the relevant certification.”**

apply to marine fuels on the market. The standard covers technical aspects such as cold flow properties, kinematic viscosity, stability and compatibility of fuels.

“This document will help both suppliers in the development of suitable marine fuels and users in making the change and will enable a smooth transition to 0.50 per cent sulfur fuels by the deadline,” said Nicolas Rouquette, chair of the committee which developed the standard.

Meanwhile, ISO 23251:2019, available for purchase from the ISO website is applicable to pressure-relieving and vapour-depressing systems. It is

primarily aimed at oil refineries but can be applied to petrochemical facilities, gas plants, LNG facilities and oil and gas production plants. The information provided in this standard is designed to assist in the selection by the operator of the system which is most appropriate for the risks and circumstances involved in individual installations. It is a supplement to a 2014 API standard, with any exceptions specified within the new standard document. ♦

*For more information, go to [www.iso.org](http://www.iso.org)*



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# PAINTING THE WAY TO BOOST PERFORMANCE

To safeguard against UV radiation, abrasion from sand storms, chemical spillages, heat, corrosion and chemical exposure, major paints and coatings specialists offer a wide range of advanced solutions for offshore and onshore equipment. Martin Clark reports.

**I**NDUSTRIAL PAINTS AND coatings have long played a role in maintaining facilities in the oil and gas industry, where vital equipment may be exposed to the rough elements for years on end.

This is especially important in extreme environments, from onshore production plants deep in the Sahara Desert, to offshore rigs hundreds of miles off the Angolan shoreline.

It is a niche integral to the oil and gas sector.

One specialist coatings firm, Surface Technology of the UK, recently added its Leeds site in England to achieve approval from TechnipFMC, one of the frontrunners in building Africa's big oil and gas projects.

Typical applications for its anti-corrosion products include subsea connectors and seals, blow out preventers, riser systems, valves and remotely operated vehicle system components, among other items.

Other major industry players working in this field include the likes of Norway-based Jotun and Finland's Teknos.

The latter produces a wide range of specialist paints and powder coatings products for the oil and gas industry, from upstream through to downstream applications, both onshore and offshore.

Its solutions for oil field equipment — drills, pumps and



*Corrosion, if left unchecked, can become a very expensive problem so prevention is better than cure.*

valves — help to protect against issues such as UV radiation, abrasion from sand storms, chemical spillages, heat, corrosion and chemical exposure.

Its products help to protect pipelines, refineries and storage tanks, among other vital assets.

As well as corrosion management, specialist paints and coatings can play other valuable roles, including boosting environmental performance.

Jotun has enjoyed a significant increase in sales during the first eight months of 2019, compared to a year earlier, supplying related sectors such as shipping.

China and South Korea, both big shipbuilders, are major markets, while in Africa it is investing in a new production

factory in Egypt.

The company recently announced a deal with the world's largest shipyard, Hyundai Heavy Industries (HHI) in South Korea, for a new type of marine paint that reduces solvent emissions by up to 90 per cent.

Again, while eco performance and corrosion management are vital priorities, products may even help to boost overall profitability.

One of Jotun's latest product offerings is TankFast, a range of tank linings with chemical resistance capabilities designed for refineries, petrochemical and chemicals plants.

It has been formulated to enable storage tanks to return to service quicker than ever before.

Michelle C Ystad Eriksen, global marketing manager of HPI, Jotun, says the business case for the products in the downstream segment is clear.

“If we consider, for example, a large refinery with a capacity of 400,000 barrels per day – if that has the possibility to return tanks to operation after two days instead of a week then it can refine an additional 324 million litres of crude oil.”

For more remote installations faced with tough weather environments, such as the offshore or desert climates, then any products that can lift the business case — at the same time as preventing corrosion to steel and other structures — will be warmly received by the industry. ♦



# PRIORITISING ASSET MANAGEMENT FOR ALL GAINS

Focusing on maintenance of ageing assets with the aid of new technologies across the oil and gas industry is central for improved health and safety in the energy sector, as well as for financial benefits. Martin Clark reports.

**M**AINTEINING THE INTEGRITY of assets throughout the energy sector — from entire rigs and pipelines, to parts and other components — is integral to profitability and reliability.

It is also a crucial determinant of safety. This area has come under increased scrutiny in recent years amid cost-cutting measures in the wake of subdued oil prices.

It becomes especially significant in ageing oil and gas assets, both onshore and offshore, where production has been ongoing possibly for several decades.

That would include numerous sites across West Africa and North Africa, the continent's two core production hubs.

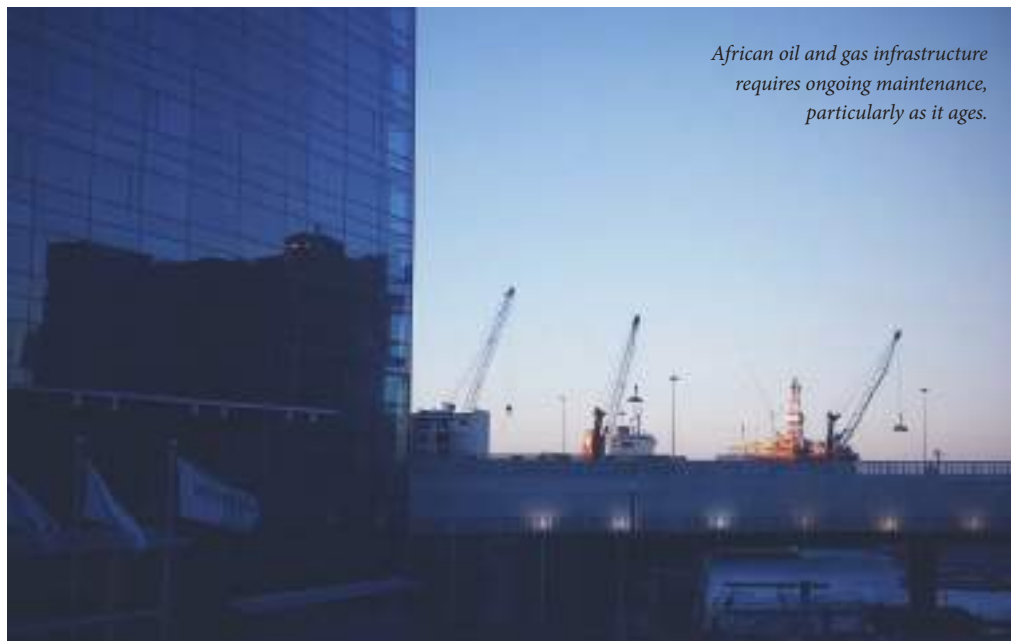
Some of Africa's oil and gas infrastructure now dates back half a century. And there could be good reason to worry.

A recent whitepaper entitled 'The State of Safety' notes that almost half of senior industry professionals believe that too little has been invested in safety in recent years.

Despite this, less than a third intended to increase safety spending, at least during 2018.

The paper, by DNV GL, also reports that less than four in 10 professionals reckon safety management is effective and does not need to change.

In a climate where firms are



*African oil and gas infrastructure requires ongoing maintenance, particularly as it ages.*

Image Credit: maliv/Flickr

under heightened scrutiny to avoid accidents and near misses, yet where budgets are squeezed, it is a problem.

While there are regional variations in spending, almost half of the respondents agree that the industry has invested too little in inspection and maintenance of installations and equipment in recent years.

One solution, however, is the increased use of technology and digitalisation, which may help to compensate for human error.

In the same paper, 40 per cent of respondents in the survey, said that digital tools and technologies had already improved safety over the past few

years, even where cutbacks had been widespread.

Going forward, this seems to be an area where there is a strong consensus view, in terms of boosting asset maintenance and safety: three quarters of respondents in the whitepaper reported that they planned to invest more in the area of digitalisation.

Oil and gas firms have long produced large amounts of data, but new digital technologies are now helping to use this beyond mere reporting compliance, and to provide critical insight that helps the industry better understand potential hazards and to make decisions.

Despite the increased use of digital tools and technology to monitor assets, there remains a potential gap as the industry recovers from the oil price collapse some years earlier.

"There is always a lag between periods of underinvestment and any associated safety impact," notes Graham Bennett, vice-president, DNV GL – Oil & Gas.

The greater shift to technology presents a clear direction to recover lost ground.

Where the industry has traditionally relied on mechanical and hydraulic safety barriers, it seems it may increasingly rely on more efficient and cost-effective digital barriers in the future. ♦

# OIL AND GAS COMMUNICATION FOLLOWS AFRICAN TRENDS

The satellite communications sector is growing across Africa and the oil and gas industry is just one part of the continent's economy that can benefit from advances.

**IT IS NO** secret that the African telecommunications market is growing year-on-year. From increased penetration of mobile phones across all demographics and leapfrogging technologies to leveraging the latest advances in satellite technology to communicate in remote areas and working environments and maximising the effectiveness of the Internet of Things (IoT), the continent is seeing incredible progress.

Indeed, a report in the International Telecommunication Union (ITU) magazine said that "building the framework for a global IoT infrastructure regardless of the application ... results in positive socioeconomic externalities, and the simplest means by which this can be achieved is through the use of satellites."

The ITU has called on governments and regulators to play their part in increasing access to satellite communication, saying these stakeholders "have an obligation to ensure a fair, open, and competitive regulatory environment that works for both incumbents and new entrants."

And communications companies are stepping up to the plate. Marlink, for example, has reported a significant boost in demand for more bandwidth and new installations from new energy sector customers and



Image Credit: Rawpixel/MASA

*Satellite communications have had a transformative effect for the oil and gas industry.*

increased activity from its existing customer base at sea and on land. The company is expanding in strategically important markets such as Africa and the Middle East, in terms of number of activated terminals, satellite connectivity and managed network and IT solutions, as well as onsite resources such as sales or in country field service teams.

For the oil and gas industry, innovations such as Marlink's Sealink Flex VSAT connectivity service provides high-speed bandwidth flexibility and a variety of options for seasonal users, making it attractive to companies with variable service

requirements and specific regional connectivity demands, such as operators working in the offshore oil and gas sector.

Tore Morten Olsen, president of maritime services for Marlink, said, "The presence of our high-speed coverage zones permits offshore users to tailor their bandwidth accordingly if, for example, they need to cater for the needs of additional guests on board, or if they have urgent business communications to manage within a set time limit."

As well as improved communications, satellites are being used to keep an eye on the oil and gas industry. Newly released estimates from World

Bank satellite data show global gas flaring increased by 3 per cent last year to 145 bcm, which is equivalent to the total annual gas consumption of Central and South America.

The global increase was associated with increased oil production in the US, where gas flaring rose by about 48 per cent from 2017 to 2018 and oil production jumped by 33 per cent. Africa could well be under the spotlight too - according to World Bank data, seven African countries were in the top 30 countries for gas flaring - Algeria (5), Nigeria (7), Libya (8), Angola (10), Egypt (13), Gabon (20), and Cameroon (25). ♦



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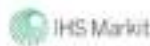
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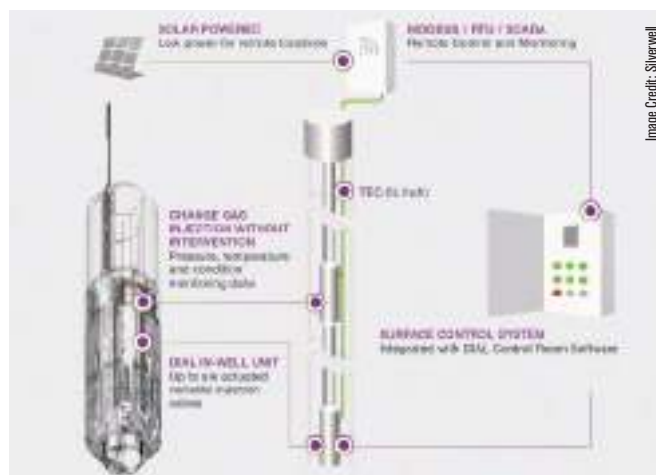
# PRODUCTION OPTIMISED BY DIGITAL ARTIFICIAL LIFT SYSTEM

A digital artificial lift system which has proved to be very effective in the Middle East could be applied to optimise production in African operations, overcoming the challenges presented by using gas lift.

**WHEN GAS LIFT** is used, gas is injected as deep as possible in the well to increase drawdown on the formation, and hence increase production, by reducing the weight of the column of produced fluid. Despite being compliant, conventional gas lift technologies can be vulnerable to challenges. The risks and costs associated with intervention for offshore and onshore wells can be high, while climate and remote locations can represent additional barriers to optimisation.

Other limitations include uncertainties around the effective monitoring and measurement of gas lift efficiency and intervention for valve deployment to optimise production. In the Middle East, where dual completion wells from stacked reservoirs are common, attempting gas lift from both strings has often been so hard that some operators have considered cutting this practice.

The combined effect of a lack of data and the need for costly intervention create production limitations and explain why the majority of gas lifted wells routinely operate non-optimally. However, a Digital Intelligent Artificial Lift (DIAL) gas lift production optimisation system developed by Silverwell, a producer of innovative solutions to the oil and gas industry, is



A diagram to demonstrate the DIAL process.

leading a cultural and process change in artificial lift.

DIAL encompasses a fully qualified, tubing conveyed surface-controlled multi-rate in-well gas lift unit, rated to 10,000 psi burst, 6,000 psi collapse and 125°C. Each unit includes up to six independently actuated orifice valves and on board pressure and temperature transducers. DIAL eliminates production uncertainty, instabilities and unnecessary operational costs with continuous, artificially lifted well optimisation. The enhanced lift efficiencies enable operators to achieve production optimisation and an accelerated return on investment. DIAL also allows less intervention with a reduction in opex and risk; more data to inform production optimisation through the

increased insight from multiple in-well sensors; and less uncertainty with the potential for improved management decisions.

The system integrates downhole and surface monitoring/controls to allow gas injection changes to individual or multiple wells in real time. The different sized orifice valves enable optimised gas lift design by accommodating a wide range of unloading and gas lift production operating conditions, thereby allowing optimisation of field-wide production. As conditions change, the injection rate and depth can be remotely adjusted from the surface to increase production, and confirmed via real-time data.

The DIAL design does not incorporate gas-charged bellows, meaning there is no requirement

for a gas charge with no dependence on pressure or temperature, and DIAL's gas lift valves are not pressure sensitive. This means they are less sensitive to uncertainties in well design variables; there is no requirement to design in at each unloading valve a pressure differential to avoid multi pointing and valve chatter, allowing for the deepest possible injection point to be determined; so the system is less prone to flow instability. Thus, the valve is well suited to highly deviated wells. The injection orifice size can be adjusted to optimise production without intervention, and onboard pressure, temperature and condition monitoring are achieved at all injection points in the completion string. The product range has been extended to accommodate tubing configurations from 2.7/8" to 5.5", while a slim version has is offered for dual completion wells.

A surface control unit powers and transmits data to and from the DIAL units via industry standard ¼" encapsulated and clamped TEC line and can be configured to support multiple units in a single well. The downhole control system assembly is hermetically sealed with electron beam welds to assure life-of-well system reliability, while the gas lift orifice valve assemblies are contained in a 10,000 psi burst rated housing. ♦



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H.S. Augusto Semedo  
Vice Minister of  
Mines & Energy  
Republic of Mozambique



“In this edition of the Mozambique Gas Summit, we are expecting 300 participants, nationals and from abroad, with the engagement of all the key players of the Mozambique industry. Our expectations are that this Summit will bring valuable contributions to the growth of our industry.”

Dr. Cesar Horta  
Chairman & CEO  
ENH



“Mozambique is destined to become one of the major sources of supply for global LNG over the next decade. (...) what is helpful here (at the Summit) is that it helps get messages or what we are actually doing on the project out to the wider community. That would include a lot of external stakeholders, who can be a part in helping us secure our goals.”

Steve Wilson  
Vice President & Country Manager  
Anadarko Mozambique Area 1,  
LDA



“The growth in this country is going to be tremendous. The opportunities are phenomenal. (...) I think 2019 is going to be a very exciting year in Mozambique, and the Gas Summit is a great iteration for us to meet not just the Government people, but also industry representatives, the local community and the business community are all here.”

Peter Mwanza  
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# PALLET SHUTTLES ARE A SOLUTION FOR HIGH DENSITY STORAGE

High density storage systems can increase capacity and improve access in new and existing warehouses.

**A**S BUSINESSES GROW, or seasonal demand fluctuates, the requirement for greater capacity and fast access within your warehouse operation becomes critical.

Most warehouse and logistics operations have palletised goods stored on a standard adjustable pallet racking set out with wide aisles. This offers access to every individual pallet, but can mean that 50 per cent of the warehouse space is given over to empty aisles. This is space which could be used to store products if it was accessible.

High density racking systems are used to increase the space available without a too great a compromise in product access.

Stoddec Trading specialise in the design and installation of a range of these high density storage systems including double-deep pallet racking, push-back pallet racking, pallet-flow, narrow and very narrow aisle racking, drive-in or drive-through pallet racking, cantilever racking, and powered mobile pallet racking systems, but one of the newest and most effective systems now is the pallet shuttle system.

Drive-in pallet racking with pallets supported on cantilever arms in dense blocks provides high capacity and is used widely where stock is slow moving. It requires forklift trucks to drive into the storage lanes to deposit or pick up pallets, and rear pallets can only be accessed by lifting out front pallets first. New pallet



*New shuttle systems have revolutionised lifting and carrying pallets.*

Image Credit: Stoddec Trading Ltd

shuttle systems have revolutionised the operation and value of this type of high density installation.

The shuttle unit runs on rails

**“ Stoddec Trading specialise in the design and installation of a range of these high density storage systems including double-deep pallet racking.”**

installed under the pallet support arms. The forklift truck deposits a shuttle unit into the required lane, and it is instructed from the driver's radio controlled handset to automatically carry out a range of functions. These can include lifting and carrying pallets into the storage lane, or bringing them to the front or it can perform stock control functions using barcode scanning or radio frequency identification.

Several shuttles can be operating at the same time in different lanes. The forklift truck only deposits and collects pallets from the front lane of the storage block, it never enters the rack so no rack damage occurs, and your

standard warehouse forklift can be used throughout (there is no requirement for special narrow forklift trucks). Shuttle units can deal with pallet loads up to 2,000kg, operate in -20°C to 40°C, can recognise and deal with different pallet sizes, and are driven by maintenance-free battery packs.

Storage lanes can be more than 50m long and stock rotation can be Last-In-First-Out (LIFO) or First-In-First-Out (FIFO) if critical to your product. Stoddec Trading Ltd design and install storage systems across the world. Visit [www.stoddec.co.uk](http://www.stoddec.co.uk) to see many examples and to download its new shuttle brochure. ♦



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# MEETING HSE AND LOCAL CONTENT GOALS

Michael Dumbi Amaeshike, managing director, West Africa Ventures Limited (WAV), talks to *Oil Review Africa* about staying competitive, safe and ethical in the crowded Nigerian oil and gas service market.

**Oil Review Africa (ORA):  
What are the challenges and  
opportunities in Nigeria's  
offshore sector?**

**Michael Dumbi Amaeshike (MDA):** With 37bn barrels of oil reserves, Nigeria is the second-largest oil-rich country in Africa, and the sixth-largest producer in OPEC. The sector contributes 83 per cent of Nigeria's export earnings, and 95 per cent of foreign exchange earnings. Statistics from a single offshore concession (Agbami) show an average daily production of 250,000 bpd, not to mention production figures from Akpo, Bonga, Erha, Egina fields.

Nigeria has an enviable amount of natural gas reserves, among the largest deposits in the world. But there are several challenges. The environmental impact from oil and gas activities is huge. The Niger Delta region has lost more than 40 per cent of its natural habitat over the past 20 years. Other challenges include oil spills, gas flaring and human rights violations. But with an estimate of 182 tcf of proven gas reserves, numerous opportunities exist for operators, the service

industry and the country. Huge earnings from exploration and production activities continue to accrue. Evolution towards LNG, and possible increase in refining capacity for local operators exist. There's a steady increase in local capacity utilisation and inherent increase in indigenous capacity building.

**ORA: Which areas of your  
business the most successful?**

**MDA:** WAV has operated in Nigeria as Sea Trucks Nigeria since 1977. In 1995 it became a 100 per cent indigenous entity. Over the years, we have acquired vast experience in marine support to major operators in the Nigerian market, through an enviable fleet of over 100 in-country vessels and barges. We have grown our business to include offshore accommodation, pipelay, offshore construction, SURF and fabrication. Our marine support and service base in Warri, and supply base/dry-dock facilities in Onne's oil and gas free zone are fully operational. Our success is from a mix of marine services and EPC. We continue to be actively involved in various projects in the



Michael Dumbi Amaeshike, MD

Image Credit: West African Ventures

pipeline; as well as 84m of 20-inch EDOP SSM pipeline. The optional scope of retrieving the pre-existing 100m cut section of the 42-inch pipeline and transporting to shore, was completed in record time. Currently, we are executing 10km of 12-inch and 4-inch pipeline and umbilical for AMNI.

**ORA: How important is it to  
meet HSE goals?**

**MDA:** Our priority is ensuring a safe and healthy working environment for all stakeholders. We believe that a fully implemented and accomplished HSE goal accelerates moral obligations, adherence to legal and industry requirements, corporate image and increased business profitability. We have achieved over 10 mn hours LTI-free, earning us many awards.

**ORA: What exciting plans do  
you have for 2020?**

**MDA:** We will increase our ever-growing vessel fleet towards meeting specific marine gaps in current and upcoming projects within Nigeria and West Africa. The growing number of indigenous players in our area of specialisation requires that we think out of the box to stand up to competition. We want to ensure the expansion of our fleet, and continuous improvement of our people. The resolve to remain a 100 per cent Nigerian marine support and EPC company is very dear to us. ♦

region, and have a cordial relationship with the oil majors. We resolve to remain a major player in these areas, while ensuring quality service delivery.

**ORA: Are there case studies  
WAV would like to share?**

**MDA:** WAV has been involved in the successful delivery of many offshore projects such as Erha North phase 2 (installation/transportation of pipes and manifolds), installation of 20-inch 30km pipeline on the Sonam project and installation of Delta South living quarters for Chevron, installation of 16-inch pipeline for NPDC and many others. This includes the pipeline repair contract for ExxonMobil/ Mobil Production Nigeria. The scope of work covered the installation, engineering, consumables procurement, fabrication, offshore installation and commissioning of 100m of 42-inch QIT-BOP

“ The growing number of indigenous players in our area of specialisation requires that we think out of the box to stand up to competition. ”



# AFRICAN RIG COUNT

COUNTRY	May 2018	June 2018	May 2019	June 2019
ALGERIA	50	50	51	45
ANGOLA	4	4	5	5
CAMEROON	2	3	2	2
CÔTE D'IVOIRE	0	1	1	0
EQUATORIAL GUINEA	0	0	0	0
GABON	4	3	6	6
GHANA	0	1	3	3
KENYA	9	9	7	7
MAURITANIA	0	0	2	2
MOZAMBIQUE	1	1	0	0
LIBYA	1	1	15	15
NIGERIA	14	13	14	14
SENEGAL	0	0	0	0
UGANDA	2	2	2	2

## Sulzer's advanced vessel internal electrostatic coalescer (VIECTM) solution boosts oil-water separation

SULZER CHEMTECH HAS developed a solution that enhances separation performance in the challenging oilfields.

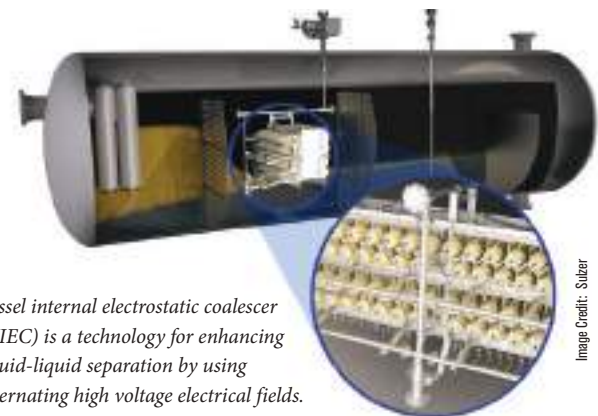
Sulzer's vessel internal electrostatic coalescer (VIEC) is equipped with fully insulated electrodes. It can be installed in new separators or retrofitted in existing vessels and forms a cross-sectional wall that forces emulsions through a high-voltage electrical field. As a result, while gas leaves the separator from the top, the water droplets merge together and fall to the bottom of the separator. At the same time, oil flows through the vessel for subsequent processing.

By fully insulating the VIEC's electrodes, Sulzer has built flexibility and robustness into its solution, allowing the VIEC to withstand any concentration of water and gas. This is the case even when the feed contains very high volumes of water. Therefore, it can be installed in the early separation stages to remove most of the water in the emulsion, as opposed to conventional electrostatic coalescers, which do not tolerate high amounts of water and gas.

Sulzer's solution can deliver crude oil with purities comparable or higher than systems featuring gravity separators, coalescers and dehydrators.

Consequently, upstream facilities can greatly streamline their processes, reducing the size of conventional oil separation trains and the number of stages. This leads to lower capital expenditures and noticeable improvements in overall separation efficiency.

The VIEC allows the separation process to run at lower



*Vessel internal electrostatic coalescer (VIEC) is a technology for enhancing liquid-liquid separation by using alternating high voltage electrical fields.*

Image Credit: Sulzer

temperatures, characterised by higher viscosity fluids, and reduces the volumes of demulsifying chemicals needed.

Water droplet aggregation is promoted by the electrical field, leading to faster growth rates and settling times. Upstream oil and gas companies can therefore benefit from substantial savings in operating expenses. By introducing this new technology to existing systems, VIEC can increase separator's capacity by enhancing the oil-water separation process.

[www.sulzer.com/vessel-internal-electrostatic-coalescer](http://www.sulzer.com/vessel-internal-electrostatic-coalescer)

## Schlumberger introduces Ora intelligent wireline formation testing platform

SCHLUMBERGER HAS INTRODUCED the Ora intelligent wireline formation testing platform to leverage a new architecture and metrology for enhanced performance, enabling dynamic reservoir characterisation in all conditions.

The Ora platform is rated to 200 degC (392 degF) and 35,000 psi and includes a new focused radial probe, a dual-inlet dual packer, laboratory-grade metrology, new measurements, and the highest flow rate pump in the industry.

The digitally enabled hardware can automate complex workflows, reduce operating time by more than 50 per cent and deliver the precision fluid analysis and zero contamination samples. Deep transient testing is now possible on wireline.

“Characterising dynamic



The Ora platform has successfully finished more than 30 field trials worldwide.

reservoir properties is becoming more critical and difficult than ever, as drilling for hydrocarbons is moving towards complex geologies and challenging environments. Moreover, analysing this data to make business decisions can take weeks if not months,” said Djamel Idri,

president, Wireline, Schlumberger. The Ora platform addresses these challenges, with new wireline formation testing hardware and digital edge solutions enabling customers to make faster and better decisions.

[www.slb.com/ora](http://www.slb.com/ora)

## Sercel launches next-gen wireless nodal system WiNG for land seismic industry

SERCEL HAS LAUNCHED WiNG, a fully integrated wireless nodal acquisition system that combines optimum field operational efficiency with the high-level of data quality available to support the precise imaging needs of the land seismic industry.

Leveraging the high performance of QuietSeis, Sercel’s broadband digital sensor, WiNG is the next-generation land nodal system of choice for data acquisition companies looking to achieve the efficient and productive seismic surveys.

Pascal Rouiller, Sercel CEO, said, “Sercel has established its market-leading reputation on its commitment to delivering the best seismic data quality in the industry. We have launched WiNG in response to consultations with our customers and the latest projections for the requirements of tomorrow’s geophysics. Sercel’s new nodal technology will boost survey productivity while delivering unprecedented data quality.”

Sercel represents the equipment business of CGG, which is a geoscience company providing geological, geophysical and reservoir capabilities to its customers primarily from the global oil and gas industry.



The new WiNG fully integrated wireless nodal acquisition system from Sercel.

## TAI, Modumetal to manufacture nanolaminated alloy product

TOYOTA TSUSHO AMERICA (TAI) and Modumetal have announced an agreement of a non-binding memorandum of understanding (MOU) for the establishment of a joint venture to manufacture Modumetal’s nanolaminated alloy product, NanoGalv globally for industrial fastener and bolting applications.

“We are very pleased to partner with Modumetal to bring its nanolaminated alloy technology to industrial markets,” said Arthur Harrison, senior vice-president and leader of the metals division of TAI.

The joint-venture company ModuTAI will set up a new production facility in Houston, Texas. The facility will extend the existing NanoGalv capacity in the market over ten times, bringing more than 100 tonnes per month of capacity into the market upon startup.

The ModuTAI would initially serve existing customers of the NanoGalv products in the energy sector, with plans to expand quickly into further industrial segments, including construction, marine and transportation markets. Modumetal has deployed licenses for NanoGalv production to existing oil and gas fastener suppliers in Houston, Texas, Singapore and Aberdeen, Scotland. Modumetal and TAI have plans to extend Modumetal’s existing licensing strategy across industrial markets.

“Our joint venture with TAI brings together the innovation of Modumetal’s patented, nanolaminated manufacturing technology with the scale of a global industrial partner,” added Modumetal founder and CEO, Christina Lomasney.



## Fieldbit adds AR data visualisation feature

FIELDBIT HAS ANNOUNCED the addition of real-time data visualisation (spatial computing) to its multi-source knowledge platform. Spatial computing empowers field service technicians and operators to more easily navigate in a crowded, multi-asset environment and to maintain, operate, and resolve issues more quickly and effectively.

Technicians and operators servicing oil rigs, refineries, and other process plants, can now easily locate specific devices or components via colour-coded status alerts, operational instructions, data and IoT information on their mobile devices. Using smart glasses, tablets or smartphones, technicians, operators, and even off-site managers can access real-time data and IoT information about machines - even when they are out of view and located behind or inside other equipment.

Spatial computing adds a new layer to the Fieldbit enterprise augmented reality platform and strengthens Fieldbit's ability to provide industrial asset manufacturers and asset owners with additional tools to overcome the challenges facing field service technicians.

Fieldbit's AR technologies enable the frontline workforce in remote locations to collaborate with subject matter experts and management in real-time via smart eyeglasses, mobile devices, and other knowledge sources.

Interactive collaboration includes a shared field of view, step-by-step automated guidance through logical procedures for preventive maintenance.

## Hawke launches seven gland innovations for harsh and hazardous environments

HAWKE INTERNATIONAL HAS unveiled a range of 28 new glands featuring seven innovations.

Manufacturer of glands for harsh and hazardous environments has developed a special conversion kit which enables Hawke's Universal 501/453 cold flow compliant cable gland to be easily converted into a barrier gland.

Hawke has unveiled a patented tightening guide which is integrated into all Hawke glands, as standard. The guide reduces the chance of glands being over or under tightened – a major health and safety issue for companies within harsh and hazardous environments.

The guide gives the installer and inspector a simple visual indicator, to show the cable gland has been tightened to the corresponding outside diameter (OD) of the cable being fitted.

Punched Seal Glands (PSGs) are another product development in the Exd barrier gland world. Hawke has increased the number of cores that can be passed through its PSG. It has developed a cost-effective, space efficient cable clamp which can be applied within 50mm of a gland.

The company has turned its attention to the



Image Credit: Hawke International

*Hawke has unveiled a patented tightening guide, which is integrated into all Hawke glands, as standard.*

overall ingress protection rating across all its glands. The protection ratings it now offers include IP66, which withstands high waterjet pressure and IP67/68, which tests the product when submersed in water.

## Ashtead Technology completes subsea installation monitoring for Ocean Installer

ASHTeAD TECHNOLOGY HAS successfully completed a subsea installation monitoring project for Ocean Installer AS in Equinor's Askeladd and Johan Castberg fields.

The subsea equipment solutions specialist provided its integrated deflection monitoring system (DMS) services and equipment to support the installation of eight integrated template structures (ITS) in the Northern Norwegian Sea fields.

During operations, the dual independent DMS systems monitored, calculated, displayed and logged structure deflection, heading, pitch, roll, depth and suction can differential pressures, in real-time. This method of real-time monitoring is vital during the placement of suction-can



Image Credit: Ashtead Technology

*Ashtead Technology's Deflection Monitoring System being installed for a project with Ocean Installer AS in Equinor's Askeladd and Johan Castberg fields.*

based subsea structures as it ensures any potential issues can be anticipated without delay, reducing the risk of structural damage.

During the placement of the structures, the DMS systems were

configured for autonomous independent operation, communicating data to one of the installation ROVs. They utilised a range of measurement sensors and positioning tools to enhance the accuracy of the data collected.

## Forum's latest remotely operated vehicle (ROV) successfully completes sea trials

FORUM SUBSEA TECHNOLOGIES' new remotely operated vehicle (ROV), the XLe Spirit, has successfully completed sea trials in Norway.

Smallest in the new range, ROV is capable of performing subsea maintenance and repair work. Additionally, it is suitable for the aquaculture market and capable of tasks such as net and tank inspection.

Working with its Norwegian partner, Innova AS, Forum tested the XLe Spirit at a fjord with a 500m water depth. The standard equipment function testing was confirmed utilising all ancillary equipment, including cameras, lights, altimeters and sonars.

The XLe Spirit benefits from an optional electric or hydraulic five-function manipulator arm. The self-regulating power feature



Image Credit: Forum Energy Technologies

*The XLe Spirit can maximise its stability for use as a sensor platform.*

compensates for tether losses ensuring a constant and stable power delivery to the vehicle, regardless of tether length.

The vehicle is the first observation class ROV to utilise Forum's integrated control engine to bring greater functionality, commonly only found in larger

work-class vehicles.

The advanced control electronics pod fitted to all Forum XLe observation class vehicles enables superior connectivity and expansion capabilities. Ethernet interfacing allows for seamless integration with other industry sensors.

## Deep Casing Tools develops plugging and abandonment technology for decommissioning

DEEP CASING TOOLS (DCT) in collaboration with the Oil and Gas Technology Centre (OGTC) and Total has developed a plugging and abandonment tool that can reduce the cost of decommissioning.

Plugging and abandonment (P and A) is the complex process by which a well is closed permanently and typically accounts for about 45 per cent of projected decommissioning

costs. The UK is expected to spend more than US\$18.3bn on oil and gas decommissioning over the next decade with the global figure for the same period estimated at US\$105bn.

Current technologies used for P and A – cut and pull; perforate and wash, and section milling – can create challenges with research revealing that around 20 per cent of all pulling operations take longer and cost more than anticipated.

Early trials have shown that DCT's Casing Cement Breaker can make these operations more predictable and reliable and can have a major impact on the length of an operation.

David Stephenson, DCT's chief executive, said, "We built a load of samples, ran the tool, and even in those early workshop tests we reduced the force required to pull a piece of casing by 90 per cent using the Casing Cement Breaker."

## GE executes PIP upgrade at plant's two gas turbines

GE POWER AND Indorama Eleme Petrochemicals Limited (IEPL) have successfully executed GE's 6B performance improvement package (PIP) upgrade on the first two out of six 6B gas turbines at the petrochemical facility in Eleme, Rivers State, Nigeria.

The upgrade increased Indorama's plant output by 15 per cent per gas turbine, more than doubling the expected increase of six per cent. The upgrade will help extend the interval for combustion and hot gas path inspections, reducing overall maintenance costs. In addition, this project is expected to increase power plant availability of up to 3,960 hours over 16 years.

"The growth in production is directly proportional to an increase in power needs and operational costs," said a senior management official of Indorama Group of Companies. "GE's technology will help us mitigate costs while ensuring there is enough power to support increased production at a lower cost."

At Indorama's Eleme plant, the turbines achieved an increased output of 5MW per unit, exceeding the expected benefits of 2.5MW. Over 16 years, this new schedule will save Indorama the cost of carrying out 21 separate combustion and four HGP inspections.

Elisee Sezan, CEO for GE's Gas Power businesses in sub-Saharan Africa, said, "At GE, we're always focused on understanding our customers' needs so we can tailor the right innovative solutions to increase the power plant's operational performance and profitability."



Image Credit: DCT

*DCT built a larger workshop prototype and approached the OGTC for assistance.*





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Bayo Ojulari, Managing Director, The Shell Nigeria Exploration and Production Company (SNEPCo)

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[saipec-event.com](http://saipec-event.com)

## SPX FLOW presents FLS 15 hydraulic flange spreader for tough applications

SPX FLOW BOLTING Systems has introduced the FLS 15 single-acting hydraulic flange spreader. It uses an integrated wedge concept with a very small closed nose, making it suitable for inspection of flange faces, replacing gaskets and valve removal – even where gaps are very narrow.

The unit is light weight and has a slim-line design, making it easy to use while offering power to meet tough applications. Its corrosion resistance makes the tool capable for offshore use with long life and reliability. The FLS 15 is flexible, with quickly interchangeable serrated or stepped shoes, and requires no special tools for maintenance.

Its high strength means it can remove stubborn, corroded or heat-seized nuts without damage



Image Credit: SPX FLOW

*The FLS 15 requires no special tools for maintenance.*

to the stud (a blade witness mark may be left). It is attractive for blind studs/captive stud-bolts, typical in valve and heat exchanger applications.

As with other Bolting Systems solutions, the ENS is designed for flexibility and low total cost of ownership, with an

interchangeable head to enable the splitting of different nut sizes, up to 5.3/8"/130mm across the flats. The triangular blade design increases operation efficiency by having three cutting edges and an easy removal facility.

[www.spflow.com](http://www.spflow.com)

## Septentrio unveils GNSS/INS receiver for unmanned aerial systems

SEPTENTRIO HAS INTRODUCED a GNSS/INS receiver designed specifically for unmanned aerial vehicles (UAVs). The on-board inertial sensor allows a compact design aimed at quick set-up and

integration. Light weight and low power consumption optimise UAV battery life resulting in longer flight times.

AsteRx-i S UAS combines GNSS technology with industrial-grade inertial sensor to

provide high-accuracy, reliable positioning and 3D orientation (heading, roll, pitch) to aerial drones and other compact robotic systems.

Septentrio's introduction of AsteRx-i S UAS builds on their existing UAV products, AsteRx m2 and m2a UAS. Its optimised SWaP (size, weight and power) increases UAV battery life, resulting in longer flight times and improved productivity. This credit card sized receiver is designed for easy integration into any unmanned aerial system (UAS) and is compatible with popular autopilots such as Pixhawk and ArduPilot. It is a single-package GNSS/INS product, with an on-board inertial measurement unit (IMU) and standard connectors, allowing flexibility of sensor choice.



Image Credit: Septentrio

*Septentrio's introduction of AsteRx-i S UAS builds on their existing UAV products.*

## AI project aims to utilise oil and gas industry data

A JOINT PROJECT involving researchers from the University of Aberdeen is using artificial intelligence (AI) to unlock the "treasure trove" of raw data collected by the oil and gas industry in order to maximise economic recovery.

The Intelligent Data Quality Improver (IDQI) project is an initiative involving the University and co-funders the Oil & Gas Innovation Centre (OGIC), HyperDAP, and The Data Lab.

The project aims to develop algorithms that will bridge the gap between the vast amounts of big data available to the oil and gas industry – predominantly in exploration and production – and its ability to analyse, interpret and manage it effectively.

Professor Wamberto Vasconcelos, from the University's Department of Computing Science, said, "The oil and gas industry alone produces 2.5 quintillion bytes of data each day, but only one per cent of this data is analysed, which is a missed opportunity in terms of asset value maximisation and new field discovery"

The IDQI aims to address this issue, using distributed optical sensing data to develop algorithms capable of performing automated analyses on digital exploration and production datasets.

"This means we can extract and interpret most of the hidden information in a matter of minutes using, among others, a range of AI techniques such as machine learning, fuzzy logic and rule-based reasoning. This has the potential to unlock a vast treasure trove of data that is not currently exploited," he added.



# voestalpine Tubulars launches an app for customers

AUSTRIAN BASED SEAMLESS pipe manufacturer voestalpine Tubulars has created an App called “myTubulars” to give its potential and existing customers the access to the closest worldwide technical, service partners and sales contact data, technical datasheets and certificates as well as brochures.

The App also includes a conversion tool and a function that marks updated versions of brochures and certificates and additional ones as “new”. The only requirement for customers is to open the App at least once a month to stay up to date. The App is available as a free download for iOS and Android devices.

With the data sheet generator, customers can generate product data sheets containing dimension and performance data and calculate load envelopes for combined loads for voestalpine Tubulars thread connections to check the recommended product application versus field requirements. This tool represents the standard product range and underlies continuous revisions and updates.

Customers of voestalpine Tubular can expect long-term experience in pipe production for the international oil and gas industry, flexibility in production lots and delivery time, full integration from raw material to final product, state-of-the-art

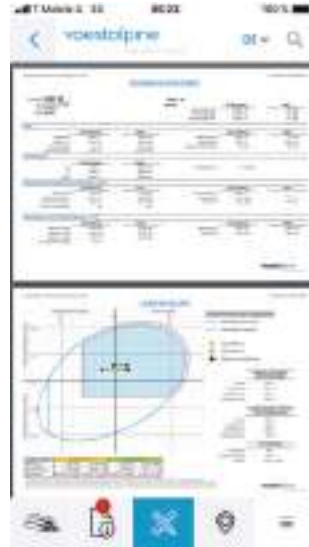


Image Credit: voestalpine

A data sheet, as generated by the free voestalpine app.

technology in production and inspection, strict quality control and tailor made solutions for special applications. voestalpine Tubulars VA-Series (e.g. high collapse, deep well, 3 per cent chromium) and premium connections (e.g. the gas tight VAsuperior connection, VAxplorer for rotated strings and bending applications) are tailor-made for numerous customer needs, and are available with DryTec, which is a lubricant-free solution for premium connections.

For further information, download the myTubulars App or visit the company’s web page [www.voestalpine.com/tubulars](http://www.voestalpine.com/tubulars)

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# KEEPING THE FOCUS ON THE NIGERIAN MARKET

Godwin Izomor, managing director, MG Vowgas is optimistic about myriad opportunities as a service provider for African oil and gas operators, as well its ambitious building project.

**Oil Review Africa (ORA): MG Vowgas offers a wide range of services – which services do you think will be the growth areas for the business in the next 12 months?**

**Godwin Izomor (GI):** There is a wide range of opportunities for the business to grow over the next year. In regard to oil and gas systems, there are opportunities for pipelines, facilities, flow stations, topside, in-house, pressure vessel, and process plant facility. In the fabrication sector, we expect growth in the fabrication and installation of piping spools and associated structures, skids. And in terms of manufacturing, dish head manufacturing should be a strong market segment for us. As for the next frontier, the company is divesting into building a world class shipyard facility.

**ORA: Can you tell us about an achievement by your company that you're particularly proud of?**

**GI:** Yes, absolutely. We are especially proud of

the journey we've been on, through becoming the first wholly local company to become ASME-certified (American Society for Mechanical Engineers) in Nigeria.

**ORA: What new technologies are you offering your clients to set you apart from your competitors?**

**GI:** We offer a one-stop-shop for all pressure vessel and dish head manufacturing from our modern fabrication facility. MG Vowgas prides itself as the first dish head manufacture in Nigeria.

**“ We offer a one-stop-shop for all pressure vessel and dish head manufacturing from our modern fabrication facility.”**



Image Credit: MG Vowgas

Godwin Izomor, managing director, MG Vowgas.

**ORA: Tell us about your corporate social responsibility programmes and meeting local content regulatory commitments. Local content, in particular, is becoming increasingly important for companies operating in Nigeria.**

**GI:** MG Vowgas, as a socially responsible company, organises annual scholarship programmes for undergraduates of tertiary schools, construction of access roads in our host communities, support to various orphanage homes, and training and employment in host communities.

**ORA: As well as Nigeria, what markets in Africa are important to the company for the year ahead?**

**GI:** In the interim, our focus is in Nigeria, which is unarguably the largest market in Africa and it is fairly untapped. ♦



Image Credit: MG VOWGAS

MG VOWGAS is proud to employ Nigerian staff across its operations.



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