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Oil Review Africa

Oil · Gas · Petrochemicals

VOLUME 16 | ISSUE 1 2021

The global oil market:

What to expect in 2021

Updates from the oil and gas industry in Nigeria and Angola

Adapting Big Data for operational efficiency

Safety systems, oil and gas logistics, AI and ML, EOR

Mele Kolo Kyari, group managing director of NNPC, is confident about Nigeria's oil and gas boost.

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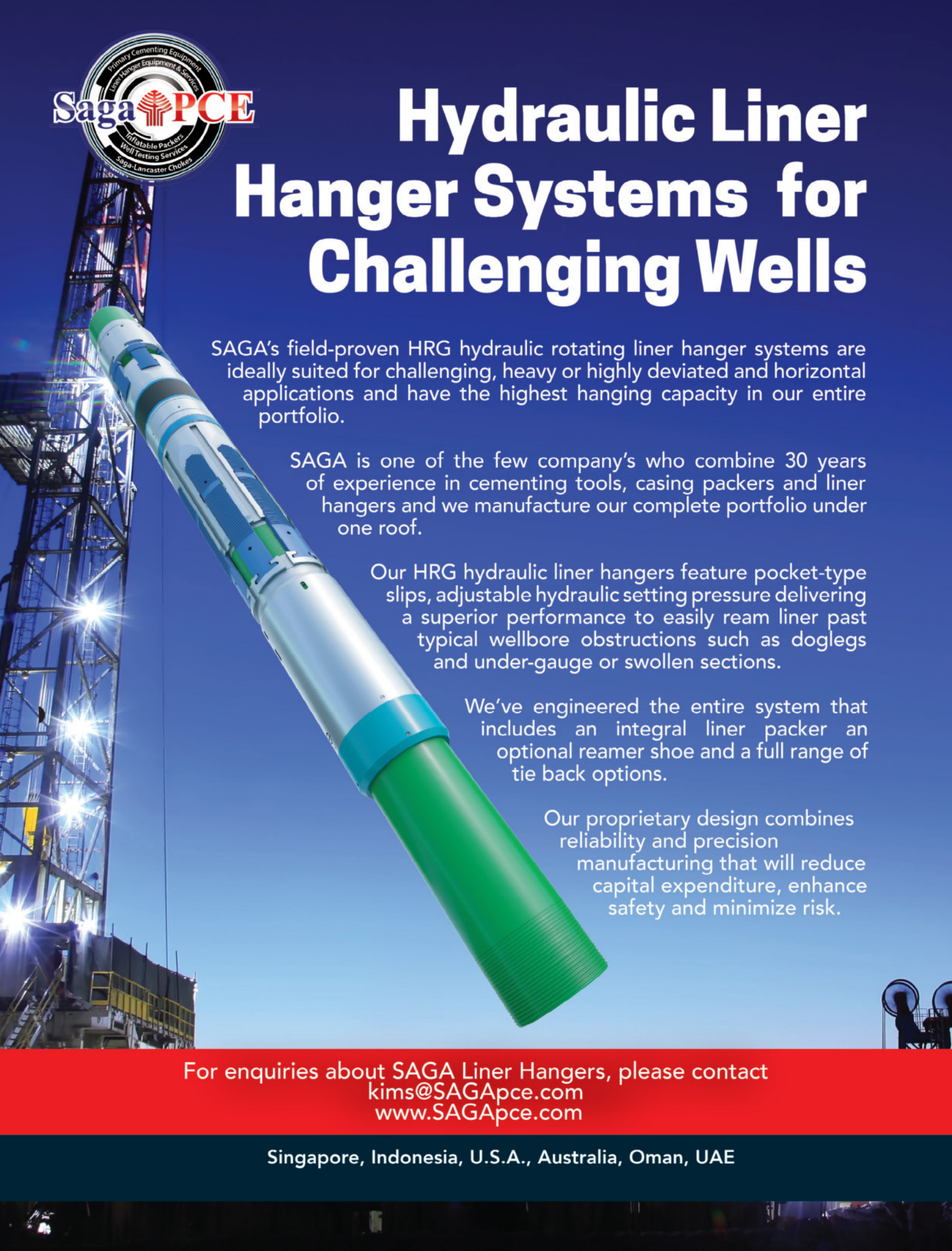

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A complete analysis of the oil market on page 11.
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EDITOR'S NOTE

THE OIL MARKETS around the world are expecting much-needed relief following the historic turbulence in 2020. "There are still many downside risks to juggle," says OPEC secretary-general Mohammad Barkindo. With positive developments on COVID-19 vaccines, a significant boost in the global oil market is very likely during H2 2021. In this issue, our resident economist Moin Siddiqi scrutinises the market upheavals (p11) and examines the key factors that will dictate the pace of oil recovery.

Also, it is high time for the African oil and gas industry to look forward and attract investments. This issue focuses on two major African markets – the hydrocarbon revenue-dependant Nigeria (p16) and southern African country Angola (p17). The prospects for offshore development in both these countries are strong, despite the pandemic causing delays to some projects. Meanwhile, Jozsef Marton from Preng & Associates highlights Africa's oil and gas recruitment landscape. See page 20 to know what kind of talent is "in" across the continent.

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Algiers, Algeria
www.securanorthafrica.com/en

MARCH

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Maputo, Mozambique
www.africaoilandpower.com/event/mozambique-gas-power-2021/

8-12 **SPE/IADC Virtual International Drilling Conference and Exhibition**
Virtual event
www.drillingconference.org/international

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

Future of hydrocarbons to be in focus at NIPS 2021

NIGERIA INTERNATIONAL PETROLEUM Summit (NIPS), the official industry event for the Federal Government of Nigeria, will be held in Abuja from 6-10 June 2021, focusing on the new approaches to the future of hydrocarbons.

The Commonwealth BusinessWomen's Network (CBWN) – Nigeria is the official partner of the NIPS 2021.

With extensive proven oil and gas reserves, Nigeria aims to position itself to be the foremost oil and gas investment destination in the coming decade. The official NIPS 2021 is set to provide an ideal platform for the international as well as regional investors to meet and network with top Nigerian oil and gas decision makers, government officials, directors and specialists from the Ministry, multinational organisations, academia and other relevant sectors.

Economic operators, national as well as international companies, potential investors and other important portfolios will take part in NIPS 2021, which will present new technologies and know-how in the petroleum sector.

Some of the confirmed speakers of NIPS 2021 include Timipre Sylva, Honourable Minister of State, Petroleum Resources, Nigeria; Bitrus Baku Nabasu, permanent secretary, Ministry of Petroleum Resources, Nigeria; Mohammed Sanusi Barkindo, secretary general, Organisation of Petroleum Exporting Countries (OPEC); Mele Kolo Kyari, managing director of the Nigerial National Petroleum Corporation (NNPC); HE Noel Mboumba, minister of oil, gas and hydrocarbon, Gabon; Xiansheng Sun, secretary general, International Energy Forum (IEF) and others.

The NIPS 2021 Prelude Event will be held on 29 March 2021 at Transcorp Hilton (invitation only) and online (live delegates).

With extensive proven oil and gas reserves, Nigeria aims to position itself to be the foremost oil and gas investment destination in the coming decade.

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Middle East and Africa's oil and gas industry sees 33.3% rise in deal activity in Q4 2020

THE MIDDLE EAST AND Africa's oil and gas industry saw a rise of 33.3% in overall deal activity during Q4 2020, when compared to the four-quarter average, according to GlobalData's deals database.

A total of 52 deals worth US$4.7bn were announced for the region during Q4 2020, against the last four-quarter average of 39 deals.

Of all the deal types, M&A saw most activity in Q4 2020 with 51, representing a 98.1% share for the region. In second place was private equity with one deal capturing a 1.9% of the overall deal activity for the quarter.

In terms of value of deals, M&A was the leading category in the Middle East and Africa's oil and gas industry with US$4.67bn, followed by private equity deals totalling US$30mn.

The top five oil and gas deals accounted for 77.3% of the overall value during Q4 2020.

Image Credit: Dad Pixtu/ Adobe Stock

Q4 2020 top deals

The top five oil and gas deals accounted for 77.3% of the overall value during Q4 2020.

The combined value of the top five oil and gas deals stood at US$3.63bn, against the overall value of US$4.7bn recorded for the quarter.

The top five oil & gas industry deals of Q4 2020 tracked by GlobalData were:

- Abu Dhabi Developmental Holding Company and Abu Dhabi Retirement Pensions and Benefits Fund's US$2.1bn acquisition of ADNOC Gas Pipelines HoldCo LLC
- The US$540mn acquisition of MISR Fertilizer Production Co by the Government of Egypt
- Energean's US$405mn acquisition of Energean Israel
- The US$348mn acquisition of Ham-Let (Israel-Canada) by Ultra Clean Holdings
- IPR Energy Resources' asset transaction with Dana Gas for US$236mn

Severn Glocon Group enters next phase of its five-year growth plan

BRITISH VALVE ENGINEERING firm Severn Glocon Group is consolidating its global network of individually branded businesses, all of which will now operate under the simplified 'Severn' brand name.

As Severn enters the next phase of its ambitious five-year growth plan, the new identity better reflects its position as a single source of complete valve solutions for the oil and gas market.

The Severn Glocon and Severn Unival brands, which have been associated with valve projects and aftermarket valve engineering for decades, have been rebranded as Severn.

Image Credit: Severn

CEO Colin Findlay.

The same is true of Severn Valve Solutions, which focuses on localised aftermarket support in key markets including Iraq and Kazakhstan. Severn Glocon Group's small bore subsea valve business LB Bentley has been repositioned as 'Bentley, a Severn company.'

"Over the past year we've introduced modern ways of working which foster better collaboration across our global entities to improve customer outcomes and experiences," CEO Colin Findlay explained.

OPEC+ and COVID-19 to impact 2021 oil markets

WOOD MACKENZIE'S LATEST outlook report has shown that the art of balancing oil markets and the refining sector in 2021 hinges upon three major themes – OPEC+ production, COVID-19 developments and the energy transition. Following 2020's unprecedented oil demand shock amid the COVID-19 pandemic, Wood Mackenzie expects 2021 total liquids demand to average 96.7 mmbbl per day, 6.3 mmbbl per day higher than the 2020 annual level.

Wood Mackenzie vice-president Ann-Louise Hittle said, "Our short-term forecast assumes vaccine distribution accelerating through 2021 and is underpinned by 5% expected growth in global GDP, according to our macroeconomic outlook, following the global economy's 5.4% contraction last year."

On the supply side, all eyes will be on OPEC+'s plan to ease production restraint. The group was due to ease its production restraint by two mmbbl per day to 5.8 mmbbl per day as of January 2021. But that has been waylaid by a complicated agreement made in December to bring output back in increments to be decided at the start of each month, along with the February-March additional voluntary cuts by Saudi Arabia.

Hittle said, "We are assuming output gradually rises from April as the group obtains the planned 5.8 mmbbl per day restraint level by Q3 2021. But OPEC+ decisions are a huge uncertainty for this year.

"Some production restraint is needed in 2021 for market balance, but compliance could wane with demand recovery."

Savannah announces gas-to-CNG agreement with Mulak Energy

SAVANNAH ENERGY PLC has announced that its Accugas subsidiary has entered into a new gas sales agreement (GSA) with Mulak Energy Limited.

The GSA envisages the supply of gas produced by Savannah's majority-owned Uquo field for an initial two-year period on an interruptible basis and the subsequent five years on a firm contract basis. During the Interruptible Gas Delivery Period, Mulak is able to nominate a maximum daily quantity of up to 2.5 mmscfpd.

Volumes in the Firm Delivery Period will be agreed by the parties before the end of the Interruptible Gas Delivery Period. The GSA is priced to reflect Mulak's status as an industrial customer; Accugas, therefore, expects to see its weighted average gas sales price realisation increase as a result of this contract, without the need for any incremental capital expenditure beyond our previously announced plans.

Mulak is a member of the Mansour Group, the leading Egyptian multinational conglomerate with operations in more than 100 countries and annual revenues exceeding US$7.5bn. The agreement for the supply of gas to Mulak's Compressed Natural Gas (CNG) Nigerian project represents Savannah's first gas-to-CNG sales agreement. Mulak initially plans to distribute CNG to its industrial customers in Rivers State with the CNG to be substituted for diesel in generators supplied by the Mantrac Group.

Gulf Downstream Association to host TRANSFORM virtual conference

THE GULF DOWNSTREAM Association (GDA) announces its virtual conference "TRANSFORM" on "The Evolving Future of Leadership and Project Management" for the region's oil and gas industry.

The event, to take place on 22-23 February 2021, will explore new ways of developing transformative leaders and realising true benefits from executing capital projects.

The free-to-attend conference will provide a unique opportunity for industry participants to discuss and share what kind of leaders will take the opportunity to forge ahead with strategic partnerships and bold investments to signal a positive 2021, whilst delivering efficient capital projects under current market conditions. Expected to take part are a range of regional and international operators, policy makers, plant owners, industry consultants, project management professionals, academics, engineers and business and service providers from across the oil and gas value chain.

Image Credit: GDA

The event will explore new ways of developing transformative leaders and realising true benefits from executing capital projects.

Day 1 focuses on "The New Reality of Transformational Leadership" and Day 2 goes on to explore "The New Reality of Project Management" and how the future of capital projects should be managed in light of the new business climate.

For further information see https://www.gdaconference.org/transform-gda-virtual-programme-bahrain-time-zone

Belltree wins national benchmarking analysis contract by ANPG

BELLTREE LIMITED HAS been awarded a significant contract to assist the Angolan Petroleum Regulator (ANPG) in its drive to optimise reserves and production from mature fields.

This contract builds on Belltree's extensive experience in highlighting asset potential via data-driven, national benchmarking projects for sovereign nations such as the UK, Norway, the Netherlands and the UAE.

Image Credit: jplenio/Pixabay

ANPG is looking to revitalise the mature fields in the Angolan oil and gas industry.

The ANPG benchmarking project commences January 2021 and will leverage ANPG asset data alongside Belltree's proprietary bMark software and data science expertise. The project will take six months to complete and will deliver ANPG a ranked portfolio of assets with upside reserves and production potential.

ANPG's production directorate said, "ANPG is looking to revitalise the mature fields in the Angolan oil and gas industry in order to improve the operational efficiency of these concessions by awarding a benchmarking project to identify and optimise candidates for mature fields."

Capital discipline to remain crucial for BP over the next few years, says GlobalData

OVER THE NEXT few years, capital discipline will remain crucial for BP, and as the company continues to increase investment in low carbon and convenience, the prospects of a rebound of investment in its core oil and gas business is unlikely, according Daniel Rogers, senior oil and gas analyst at GlobalData.

"In 2020 BP invested approximately US$14bn on activities across its portfolio, with oil and gas capital spent down 20% from 2019 levels. With COVID-19 continuing to limit capital allocation, plus growing investments outside oil and gas, it is unlikely that BP's oil and gas investments will rebound post-COVID-19," said Rogers.

"The impacts of the pandemic have forced BP to limit its capital allocation: the company reduced capital expenditure in 2020 by around 28% and divested over US$6bn worth of assets. The reduction in oil and gas spend was particularly significant, and going into 2021 the company expects to spend approximately US$9bn on this segment – around the same level that is targeted for 2025.

Image Credit: Adobe Stock

The company expects investment in its low carbon and electricity division in 2021 to be around US$2bn.

"2020 was a pivotal year for BP as the company embarked on its shift in becoming an integrated energy company, increasing investment in renewables and low carbon energy sources, setting out Net Zero emissions targets and re-shaping the company's workforce as almost 10,000 layoffs were announced."

NCDMB supports modular refinery project in Bayelsa, Nigeria

THE NIGERIAN CONTENT Development and Monitoring Board (NCDMB) has reported that the construction of a 2,000 bpd modular refinery in Brass Bayelsa is underway.

A statement, signed by Naboth Onyesoh, manager, corporate communications of NCDMB, stated that the project includes a power plant and logistics jetty to provide support for oil and gas operations.

According to Onyesoh, the minister of state for petroleum resources Timipre Sylva performed the ground breaking ceremony of an energy infrastructure park at Okpoama in Brass local government area of Bayelsa.

Atlantic International Refinery and Petrochemical Ltd, in partnership with the NCDMB, is developing the infrastructure.

The initiative is expected to ensure value addition to the crude oil, increasing domestic refining capacity, boosting local content development and curbing pipeline vandalism, according to Sylva.

Sylva has further urged the people of Okpoama kingdom and other parts of the Niger Delta to create a conducive environment to attract oil and gas and manufacturing facilities to the region.

It is set to ensure the total crude oil value chain.

Image Credit: Loïc Manegarium/Pexels

ANPG clarifies environmental impact of licensing round

1. IN COMPLIANCE WITH the guidelines established by the Angolan Government in the National Development Plan 2018-2022, for the oil sector, and in compliance with Presidential Decree No. 282/20 of 27 October, which approves Angola's Hydrocarbon Exploration Strategy 2020-2025, the Angolan Agency for Oil, Gas and Biofuels is promoting several public tenders for the assessment of the oil potential of several onshore interior basins.

2. The inner basins of Kassanje, which are located in the Angolan provinces of Malange and Uige, and that of Etosha/Okavango, located in the provinces of Cunene, Cuando Cubango and Moxico – in a total area of about 520,000 sq km – are sedimentary basins, in which there is a strong probability of occurrence of crude oil and natural gas.

3. Studies in these basins started in 2010 with an aero gravimetric survey that allowed the definition of their limits and the depth of sediments, an important aspect to assess the possibility of hydrocarbon generation (crude oil and natural gas).

4. At the end of this first phase, it was considered important to move on to a second phase which should start with environmental impact, restoration and repopulation studies to prevent against possible situations that may cause any damage to the environment.

5. Accessibility studies will be carried out to allow teams to move around the terrain and ascertain the geographical situation of the area, through topographic surveys and satellite images.

Hawilti and AEC launch gas coalition

THE AFRICAN ENERGY Chamber (AEC) announced the launch of the African Coalition for Trade & Investment in Natural Gas (ACTING), a non-profit initiative jointly managed with Hawilti Ltd.

ACTING will provide the central platform advocating for natural gas across Africa and will leverage on the core strengths of both the Chamber and Hawilti to promote natural gas as a transition fuel, attract capital in the African gas value-chain and engage stakeholders and societies on the benefits of natural gas consumption.

Leveraging the Chamber's pan-African and global network, ACTING will gather leading experts, executives and policy makers around key issues pertaining to natural gas in Africa, from upstream exploration and production, midstream infrastructure, downstream monetisation and gas-to-power. The coalition focuses on all the benefits that a broader adoption of natural gas can bring to Africans, especially when it comes to securing access to affordable, reliable, sustainable and modern energy for all, creating jobs and supporting industrialisation.

By offering the most comprehensive platform on African energy, Hawilti will be dedicating a substantial part of its investment research activities to natural gas in West, Central, East and Southern Africa.

"With the launch of ACTING, we have made it a priority to gather, develop and distribute the most updated data on natural gas and develop true ESG reporting practices on African energy markets to inform policy and promote sound investment," stated Mickael Vogel, director at Hawilti.

Honeywell process automation to help SIDPEC in its petrochemical complex

SIDI KERIR PETROCHEMICALS Company (SIDPEC) has selected Honeywell technology to upgrade the production capabilities of its flagship petrochemical complex in Alexandria, which produces ethylene and polyethylene for the Egyptian market.

The upgrade is part of an expansion of the facility to incorporate propylene and polypropylene production and increase the supply of petrochemical products to domestic and international customers. The decision was steered by Mohamed Ibrahim, chairman at SIDPEC.

Honeywell has replaced SIDPEC's legacy Honeywell TotalPlant Solution (TPS) production system with the latest version of its Experion Process Knowledge System solution at SIDPEC's complex in Alexandria.

Image Credit: Honeywell

Honeywell works with some of Egypt's major government and private sector entities in the fields of oil and gas.

The upgrade was achieved in just 10 days, allowing SIDPEC to get back to production as quickly as possible. The process automation improvements will support collective production at the site once the expansion is completed.

"We selected Honeywell for this important upgrade because of the reliability and performance of our previous Honeywell TPS system in Ethylene and Polyethylene, and our success with other Honeywell technologies at the site," said Mohamed Zayan, utility project manager, SIDPEC. "Honeywell's ability to upgrade the production system in such a short timeframe minimized disruption to our operations."

Shell Nigeria Gas seals 20-year gas distribution deal

SHELL NIGERIA GAS (SNG) signed a 20-year agreement with the Nigerian Gas Marketing Corporation (NGMC), for the domestic distribution of gas to industrial customers and manufacturing plants in Lagos and Ogun States.

SNG will also extend its distribution network to Badagry to serve a new market in the border community.

SNG's managing director, Ed Ubong, said the new partnership would deepen domestic gas utilisation in Nigeria, and enhance further industrialisation in Agbara, Igbesa and Ota areas of Ogun State.

Image Credit: Adobe Stock

The agreement aims to enable the parties to further unlock the potential of the domestic gas market and contribute to industrialisation in Nigeria.

"This agreement will enable local industries to thrive and create employment opportunities for Nigerians. We look forward to continuing to grow domestic gas distribution to industries and manufacturing plants in Ogun State and other parts of Nigeria while unleashing the industrial potential of Badagry," Ubong said.

Managing director of NGMC, Engineer Faruk Usman, said the agreement would enable the parties to further unlock the potential of the domestic gas market and contribute to industrialisation in Nigeria.

Deep Casing Tools secures new investment to accelerate global growth

ABERDEEN-HEADQUARTERED OIL AND gas technology development company Deep Casing Tools (DCT) has secured new investment of around US$2.19mn from Scottish Enterprise and its long-term backer, EV Private Equity.

The investment aims to allow the firm to increase CAPEX investment and bring new technologies to the global market. In early 2020, DCT announced that a UK patent had been granted for its MechLOK Drill Pipe Swivel (DPS), the industry's first mechanical DPS. This builds on its success in 2019, when the firm's Casing Cement Breaker (CCB), an industry first, was trailed by Equinor in the Huldra Field reducing the force required to pull a piece of casing by around 40%. At this time, DCT also entered into a unique partnership with the Oil & Gas Technology Centre (OGTC) to progress further trials of the CCB with future plans in place to create a full casing recovery system.

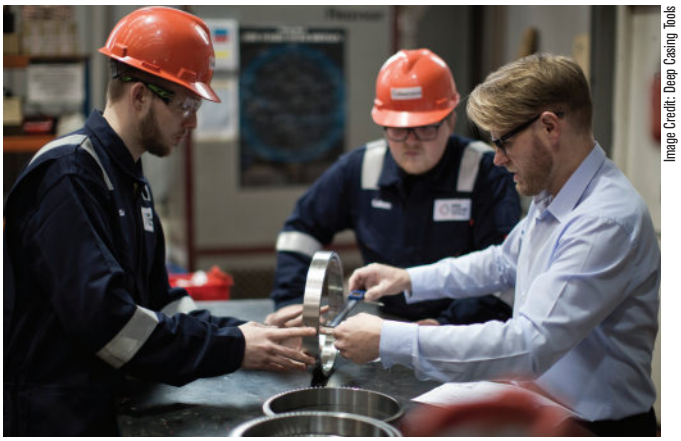


Image Credit: Deep Casing Tools

Deep Casing Tools' Aberdeep Workshop.

The funding will allow DCT to continue to trial and patent new technologies and help the firm further expand its global footprint and exporting capabilities on the UK Continental Shelf, Asia, the Middle East and the USA.

Tenaris supplies coated pipes and ancillary services for Ikiki project

TENARIS HAS DELIVERED its final shipment of coated pipes for Total's ultra-fast track Ikike Project, located approximately 20km offshore the Nigerian Coast, in the Gulf of Guinea. The scope included 28km of 12" seamless line pipe, produced at Tenaris' Dalmine plant in Italy, associated coating solutions for anticorrosion (3LPE), thermal insulation coating, TenCoatTM Marine 5LSynt and concrete weight coating (CWC) performed by Pipe Coaters Nigeria.

Image Credit: Tenaris

The scope included 28km of 12" seamless line pipe, produced at Tenaris' plant in Italy.

Ikike presented several challenges from execution and technical perspectives. It had a tight lead time from order to delivery, July to November, making it an ultra-fast track project, particularly critical considering the COVID-19 pandemic. Furthermore, the application of the CWC coating over the 5LSynt thermal insulation solution was an important milestone considering it had never been done before in Africa, and only in a few cases worldwide. For the undertaking, PCN had to undergo a complex qualification phase complying with stringent requirements, with very low tolerances.

SPDC completes sale of interest in OML17 in Nigeria

THE SHELL PETROLEUM Development Company of Nigeria Limited (SPDC) has completed the sale of its 30% interest in Oil Mining Lease (OML) 17 in the Eastern Niger Delta and associated infrastructure to TNOG Oil and Gas Limited.

TNOG is a related company of Heirs Holdings Limited and Transnational Corporation of Nigeria Plc (Transcorp) for a consideration of US$533mn. A total of US$453mn was paid at completion with the balance to be paid over an agreed period.

SPDC will retain its interest in the Port Harcourt Industrial and Residential Areas, which fall within the lease area.

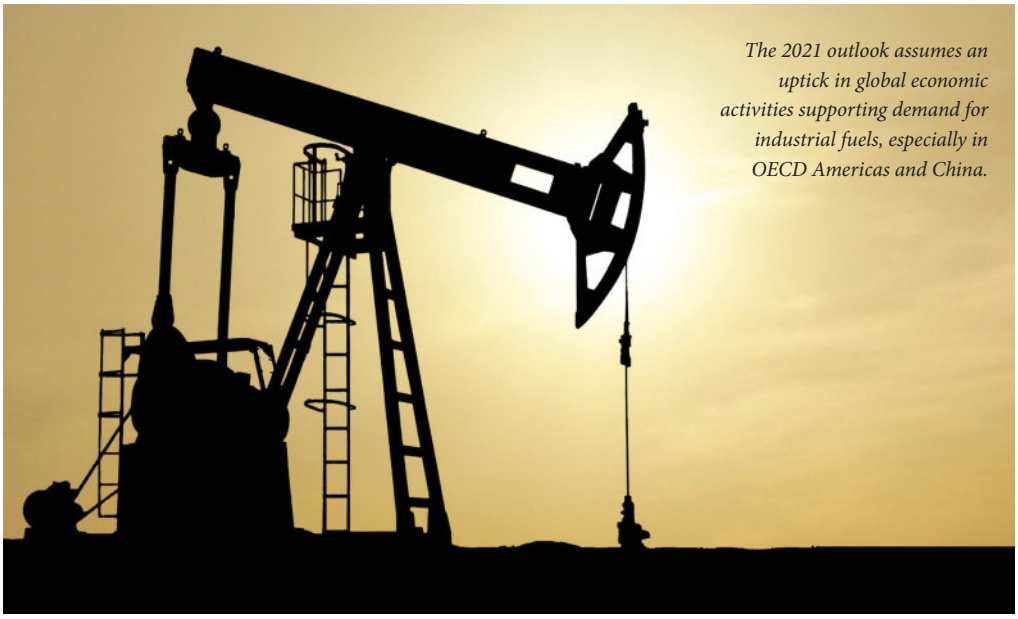
It aims to transfer OML 17 in an orderly and responsible manner to the new owner, which is expected to provide a sustainable long-term plan to unlock its full potential. The sale also enables SPDC to focus on supporting the Federal government of Nigeria's national energy agenda in its remaining OMLs through oil and gas production, payment of royalties, taxes and levies as well as advancing local content and providing social investments.

Osagie Okunbor, managing director of SPDC and country chairman of Shell Companies in Nigeria, said, "As with previous divestments, we will facilitate a successful transition to new ownership. Shell has been in Nigeria for more than 60 years and remains committed to a long-term presence here."

THE OIL MARKET:
UNEVEN ROAD TO RECOVERY

Should we expect the New Year to offer much-needed relief after the historic turbulence in world energy markets? The coronavirus and the global economy (together) will dictate the pace of oil recovery, along with several other factors.

THE COVID-19 OUTBREAK brought about an unprecedented decline in global oil demand of 30% on average in 2020 as lockdowns put a break on many petroleum-intensive economic activities. Oil was the worst performing commodity of 2020, falling behind even coal. Oil prices have stabilised since mid-2020, but "prospects remain highly uncertain and rely on both a recovery in global demand and the absence of adverse geopolitical developments" (World Bank). The outlook for the first half of 2021 is mixed, OPEC secretary-general Mohammad Barkindo said. "There are still many downside risks to juggle."



The 2021 outlook assumes an uptick in global economic activities supporting demand for industrial fuels, especially in OECD Americas and China.

Image Credit: Adobe Stock

1. Except China, the output in advanced nations and emerging market and developing economies (EMDEs) in 2021 is expected to fall below 2019 levels. Countries reliant more on contact-intensive services and oil exporters face tepid recoveries compared to manufacturing-led economies. After the rebound in 2021-22, global growth is projected to average around 3.5% over the medium term. Growing restrictions on trade and investment and rising geopolitical uncertainty could derail the recovery. On the upside, faster and more widespread availability of tests, treatments, vaccines, and further rounds of monetary/fiscal stimuli can significantly improve outcomes.

2. Forecasts by the International Energy Agency (IEA) and OPEC: Don't expect 2021 oil demand returning to pre-downturn levels. It could rebound by 5.5-6.0mn bpd on an annualised basis compared to 2020, but consumption still falling 3-5% below that of 2019. IHS Markit expects near-full recovery by early 2022. Generally, the 2021 outlook assumes an uptick in global economic activities supporting demand for industrial fuels, especially in OECD Americas and China. This includes higher infrastructure spending, as well as revival of construction and manufacturing sectors. Travel and tourism are not likely to achieve pre-COVID-19 levels of activity for the next few years.

3. The OPEC+ group aims to control the market by balancing the supply side of the equation. Monthly OPEC+ ministerial meetings will decide whether output should increase, decrease or hold steady. Demand for OPEC crude in 2021 stands at 27.2mn bpd, five mn bpd up on 2020. The OPEC+ discipline should reduce stockpiles in near-term, but inventory overhang is substantial. On the supply-side, the risks are skewed to the downside, with surging Libyan production and Norway ending its oil cuts from end-2020. Possible lifting of the USA sanctions on Iran and Venezuela in 2021 could boost the 'supply glut' even further.

4. Crude oil futures are strongly correlated with observable OECD inventories, which totalled three bn barrels at end-2020 (above the five-year average), according to the USA Energy Information Administration (EIA). Even if the global economy recovers robustly, there is still a crude storage glut (onshore and offshore) that needs to be drawn down before the market returns to a more sustainable balance.

A return to normal stock levels would see prices rising towards H2 2021. But upside price potential could be capped by large OPEC

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.

SOUTH AFRICAN AGENCY FOR PROMOTION OF PETROLEUM EXPLORATION AND EXPLOITATION

PETROLEUM AGENCY SA

Our Vision

A diverse upstream industry contributing to energy security through sustainable growth in exploration and development of oil and gas.

Our Mission

To promote, facilitate and regulate exploration and sustainable development of oil and gas contributing to energy security in South Africa.

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production capacity – estimated by the EIA at 6.1mn bpd end-2020 – which, in the event of higher prices, will lead to a rapid increase in oil production by OPEC and non-OPEC producers.

5. Oil recession put an abrupt end to the USA shale boom, which had hit 13mn bpd in February 2020. In May, USA output fell to 10mn bpd (the lowest level since late 2017) as producers slashed spending on drilling in response to plunging oil prices. The EIA sees 2021 average output staying at around 11.1mn bpd (down from 12.2mn bpd in 2019), as production rates from existing wells in the shale patch will fall faster than output gains from fewer newly drilled wells. Analysts cautioned against writing off the USA shale potential – expecting an upturn. Producers have slashed their average breakeven costs over the past year by 20% to US$45/bbl on average, which could help USA shale to rebound this year.

6. Transportation fuels have suffered demand destruction thanks to pandemic-related lockdowns and international travel restrictions. Recent data show that road traffic remained below pre-crisis levels by 5%, 20% and 40%, respectively, in Asia, Europe and the USA. The demand plunge for jet fuel and kerosene will account for 80% of 2021's 3.1mn bpd gap in overall fuel consumption versus pre-epidemic levels, according to the Paris-based IEA. Global jet fuel demand comprises 8% of total oil consumption.

7. Markets are buoyed by positive developments on COVID-19 vaccines that would boost economies and hence, fuel demand. Vaccines are unlikely to significantly boost demand until well into H2 2021. The coronavirus cases surge in the USA and Europe led to renewed lockdowns, while in Asia, virus infections are relatively under control and energy demand is healthy. Thus, until fuel usage in major OECD economies recovers to a more sustainable level, oil price gains will depend on Asia's demand (led mostly by China).

Image Credit: Adobe Stock

Return to a pre-pandemic oil market and economy is expected to take some time.

Factoring both upside-downside risks, oil prices could be in tight-bound range of US$45-50/barrel in H1 2021 before reaching mid-50s by the Q3 2021, helped by stock draw as the global economy and fuel demand gradually increase. Fitch Ratings "believes that the global oil and gas market will be on the way to recovery in 2021, though the improvements will be moderate and lack certainty."

Return to a pre-pandemic oil market and economy will, however, take some time; the market needs to address fundamental supply/demand issues and increase upstream investments. Most energy companies have curtailed their spending on upstream operations dramatically. The IEA estimated that global investment in upstream oil/gas fell by 32% over year to US$328bn in 2020 after three consecutive years of investment growth. Companies are not expected to significantly boost 2021 capital expenditure (capex) plans. Africa Energy Chamber expects a US$30bn cut in capex budget by African producers.

"If the upstream capex crunch of 2020 persists for a few more years, the oil market could be sleepwalking into a supply crunch and a price spike in the mid-2020s," warned the UK-based energy consultants Wood Mackenzie. Oil and gas is a depleting resource with an average annual production depletion rate of 6–7%. Norwegian oil consultancy Rystad Energy reported that the hydrocarbons industry must invest at least US$525bn/year to offset natural field declines and replace annual consumption.

MOIN SIDDIQI, economist

OIL PRICE PREDICTIONS 2021: IMF & Barclays projections

(Brent crude, the global benchmark for oil-prices)

	US$/barrel
Goldman Sachs	65.0
Citigroup	55.0
US. Energy Information Administration	52.7
World Bank	44.0
International Monetary Fund	50.0
Fitch Ratings	45.0
Moody's Investors Service	40-45 range
Barclays Commodities Research	55.0
SP Global Platts	mid40s-50
Rystad Energy	44.0

*The poll of 39 oil market analysts conducted in mid-December 2020 projected a combined average Brent price of US$50.67 in 2021.

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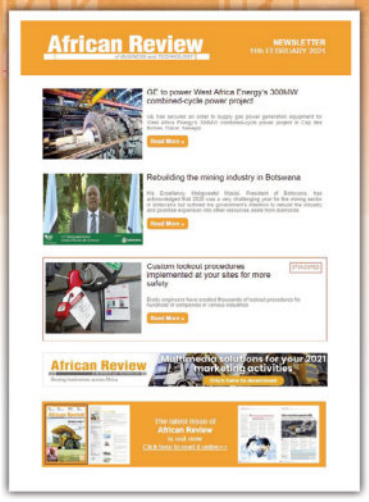

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NIGERIA DRILLING ACTIVITY RAMPING UP

According to Mordor Intelligence, Nigeria's oil and gas market is expected to grow at a CAGR of 5% from 2020-2025. The drilling activity in the country is ramping up, and is expected to continue on account of current and upcoming projects. Deblina Roy reports.

IN A REVIVING boost to opening more market opportunities, Nigeria's oil and gas sector shows steady growth in its exploration and production activities. The West African country is gradually recovering from the sad incidents in the past when militants attacked oil and gas infrastructure, due to which production was hampered.

Egina oil field, one of the most ambitious ultra-deep offshore projects in the continent, gives confidence to Nigeria's efforts to significantly boost production and cash flow. The development of Egina oil field (in water depths of between 1,400 and 1,700 m) by Total is a crucial project, which started production in the first week of 2019. According to Total, the oil field is expected to peak at 200,000 bpd.

Further, the Nigeria National Petroleum Corporation (NNPC) has signed an agreement for seven critical gas development projects, to deliver around 3.4 bcf of gas per day, in order to bridge the medium-term supply gap, by 2020, on an accelerated basis.

With Egina, Africa is host to one of the world's largest oil and gas projects for the first time, which has also involved a record level of local contractors. Six of the 18 modules on the FPSO were built and integrated locally, and 77% of hours spent on the project were worked locally. Start up has been achieved close to 10% below the initial budget, which represents more than US$1bn of CAPEX savings, due in particular to excellent drilling performance where the drilling time per well has been reduced by 30%.

Image Credit: Tenaris

Tenaris has delivered its final shipment of coated pipes for Total's ultra-fast track Ikike Project.

SNG signs 20-year deal for domestic distribution of gas

In a move to extend its distribution network to the West African country, leading domestic gas distribution company, Shell Nigeria Gas (SNG) has signed a 20-year agreement for the domestic distribution of gas to industrial customers and manufacturing plants in Lagos and Ogun States. In the new deal with the Nigerian Gas Marketing Corporation (NGMC), SNG will also extend its distribution network to Badagry to serve a new market in the border community.

SNG's managing director Ed Ubong said, "This agreement will enable local industries to thrive and create employment opportunities for Nigerians. We look forward to continuing to grow domestic gas distribution to industries and manufacturing plants in Ogun State and other parts of Nigeria, while unleashing the industrial potential of Badagry."

> **"Egina oil field is one of the most ambitious ultra-deep offshore projects in the continent."**

Additionally, SNG and its partners and local stakeholders have agreements to build infrastructure and deliver natural gas to more than 150 industrial and commercial customers, mostly in Ogun, Abia, Oyo, Rivers, Bayelsa and Lagos States. The agreements drive industrialisation and provide employment for skilled and unskilled local populations, in addition to directly improving internally generated revenues in these states.

In a further development, Nigeria has seen Tenaris deliver its final shipment of coated pipes for Total's ultra-fast track Ikike Project, located approximately 20km offshore the Nigerian Coast, in the Gulf of Guinea. The project presented several challenges from execution and technical perspectives, and had a tight lead time from order to delivery, July to November, making it an ultra-fast track project, particularly critical considering the COVID-19 pandemic. Furthermore, the application of the CWC coating over the 5LSynt thermal insulation solution was an important milestone, considering it had never been done before in Africa, and only in a few cases worldwide.

ANGOLA:
CALLING FOR INVESTMENT

The latest January 2021 OPEC+ production agreement allows Angola to boost oil production. As Luanda is expecting a growing demand for crude oil grades from Asian refiners, the West African nation is accelerating the development of its hydrocarbons sector, driving investments in its offshore fields. *Deblina Roy* reports.

LOCATED ON THE Atlantic coast in the southern part of Africa, Angola has proven crude oil reserves totalling 7.8 mmbbl and 343bn cu/m of natural gas, according to OPEC. The latest OPEC Monthly Oil Market Report shows that Angola produced on average 1.4 mmbbl daily during 2019 and just shy of 1.2 mmbbl during November 2020, making it OPEC's seventh largest oil producer behind Nigeria and ahead of Libya.

During H1 2020, Angola's crude oil production surpassed the OPEC+ production quota of 1.18 mmbbl daily, and OPEC asked Angola's government to curb oil output and ensure production with the agreed quota. By July 2020, Luanda agreed to comply with the cartel's target and implemented additional production cuts to make up for the lack of compliance. However, the latest January 2021 OPEC Plus production agreement allows Luanda to boost oil production. Now, Angola is allowed to produce an average of 1.267 mmbbl daily for the Q1 2021, which is an impressive 11% increase over December 2020.

This has given the West African nation a healthy boost to grow market share. Angola is seeing strong demand from Asian refiners for sweet light and medium crude oil grades, such as Angola's Cabinda blend, and the country is seeing a major investment drive in its offshore oil fields.

Energy consultancy Belltree Limited has been awarded a significant contract to assist the Angolan Petroleum Regulator (ANPG) in its drive to optimise reserves and production from mature fields. The ANPG benchmarking project commences January 2021 and will leverage ANPG asset data alongside Belltree's proprietary software and data science expertise. The project will take six months to complete, and is set to deliver ANPG a ranked portfolio of assets with upside reserves and production potential.

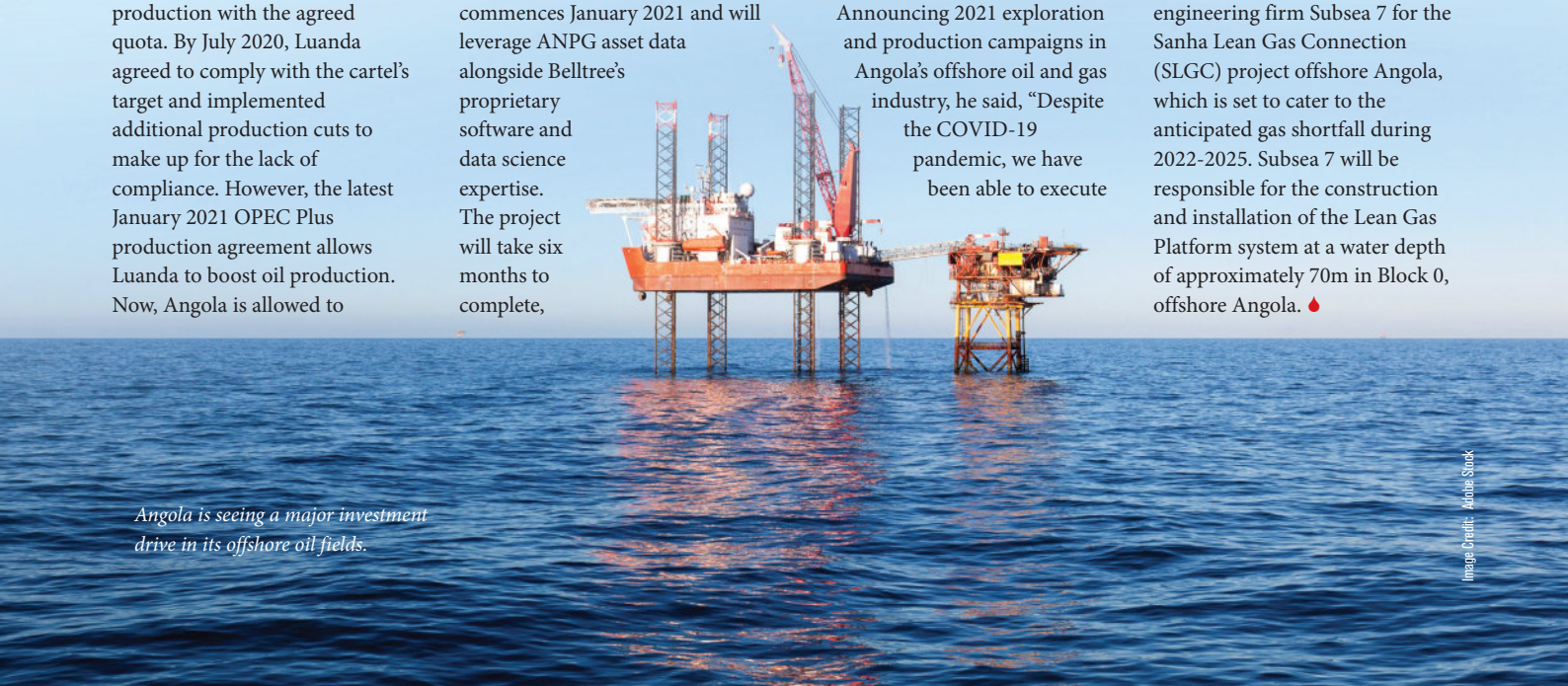
ANPG's production directorate said, "ANPG is looking to revitalise the mature fields in the Angolan oil and gas industry in order to improve the operational efficiency of these concessions by awarding a benchmarking project to identify and optimise candidates for mature fields."

During AOTC 2020, Total's E&P deputy general manager in Angola Mutombo Dondo said that the oil and gas major is planning to develop several blocks in 2021, with a focus on reducing deepwater project costs.

Announcing 2021 exploration and production campaigns in Angola's offshore oil and gas industry, he said, "Despite the COVID-19 pandemic, we have been able to execute some projects. Our projects include Zinia2, and we are working with our partners to execute the project. We have installed the sub-marine lines to commence production by Q1 2021."

He further explained that the Begonia project is expected to be implemented by 2021. Under the Clov2 project, the oil major is aiming to start production in the Q1 2021. Additionally, Total is focusing on boosting operation on natural gas production in the country, to supply gas to the Angola LNG plant.

In another significant development, Chevron's Cabinda Gulf Oil Company (CABGOC) has awarded a contract to subsea engineering firm Subsea 7 for the Sanha Lean Gas Connection (SLGC) project offshore Angola, which is set to cater to the anticipated gas shortfall during 2022-2025. Subsea 7 will be responsible for the construction and installation of the Lean Gas Platform system at a water depth of approximately 70m in Block 0, offshore Angola.



Angola is seeing a major investment drive in its offshore oil fields.

Image Credit: Adobe Stock

PROCESS SAFETY FUNDAMENTALS

A new report by the International Association of Oil & Gas Producers (IOGP) outlines 10 process safety fundamentals to support companies as they seek to reduce, and ultimately, eliminate fatal and high severity process safety events. Louise Waters reports.

THE OIL AND gas industry is by its nature potentially hazardous. Typical hazards include flammable liquids and vapours, combustibles, toxic chemicals, asphyxiants, corrosives, pyrophorics, and high pressure/temperature. Many of the operations or activities performed in oil and gas facilities are complex and/or have the potential to release hazardous materials if they are not performed correctly.

Data reported by IOGP members over a 10-year period shows that 128 people lost their lives in 56 process safety events. IOGP's Process Safety Fundamentals (PSFs) have been developed to support those working in front-line operations, maintenance, and on wells teams in the oil and gas industry to eliminate fatal or high severity events. Around 91% of fatal process safety incidents can be linked to the 10 IOGP PSFs, the association says.

"The PSFs are not intended to exhaustively address all process safety risks and hazards in our industry. Instead, they should be used to supplement a company's own underlying systems for process safety management," said the association's safety director, Olav Skår. The Association and hopes the PSFs should empower people on the frontline to raise issues and dilemmas as they arise, without fear of criticism, for effective process safety performance.

IOGP's 10 process safety fundamentals are as follows:

We respect hazards – Workers should understand the process safety hazards at their facilities and their roles in controlling them. Managers should discuss major accident hazards with frontline workers; check that risk assessments address both personal and process safety hazards; and encourage front-line workers not to become desensitised to process safety hazards.

We apply procedures – Step by step procedures are developed to perform tasks safely and prevent hazardous situations. These should be followed at all times. Job aids (e.g., sign off) can be used to confirm that key steps have been completed in the correct sequence as the activity proceeds. It is also important for workers to be familiar with, and practice, emergency response procedures.

We sustain barriers – A barrier is a risk control that prevents unintended events from occurring or stops escalation to harmful consequences, whether a hardware or human barrier.

We stay within operating limits – Overfilling and overpressure are the most common operating limit excursions that lead to process safety incidents. Excursions outside operating limits should be systematically investigated.

We maintain safe isolation – Isolation plans should match the particular task and be based on up-to-date process safety information. Process safety incidents have occurred when an isolation plan for a similar (but not identical) task has been used but did not address all the relevant hazards.

We walk the line – It is important to check that systems are in good condition and correctly set up each time they are started or their use has changed. Incidents have occurred when a process system was followed but its condition was not as intended, such as a valve inadvertently left in the wrong position or a piping joint not fully tightened.

We control ignition sources – Around half of the fatal process safety incidents reviewed by IOGP involved ignition. Some sources of ignition may be obvious, such as hot work or nearby fired heaters, but others are less so. Ignition sources can include vehicles, open flames, grinding tools, pyrophoric materials, electrical equipment, hot surfaces, lightning, static electricity, and other portable electrical equipment. Personnel need to understand the full range of potential ignition sources and the requirements for ignition source control. Control of work risk assessments should evaluate the potential for flammable hazards, even outside classified/zoned areas.

We recognise change – Management of change (MOC) failure is linked to many fatal accidents. Sometimes changes – whether of or to equipment, procedures, materials or operating limits – that might appear quite small, can have a large impact on process safety, either by introducing new hazards or degrading existing barriers. Change must be systematically managed in all situations to avoid unwanted incidents.

We stop if the unexpected occurs – Workers should be encouraged to pause and seek guidance when things do not proceed as expected.

We watch for weak signals – Usually there are warnings before major process incidents occur. Examples of weak signals include unusual vibration, ice unexpectedly forming on the outside of a pipe, weeps and seeps, reoccurring alarms, and abnormal field readings.

IOGP's PSFs have received endorsement from operating and contractor companies as well as regulators around the world. The report, which includes extensive guidance on the implementation of the PSFs, can be downloaded free of charge at https://www.iogp.org/bookstore/product/process-safety-fundamentals/

DELIVERING GREATER VALUE TO RESHAPE THE INDUSTRY

An integral part of oil and gas and to transport complicated freight shipments from around the world, logistics is often unaccounted for in terms of regulatory reforms and workforce development. With the oil price volatility due to the pandemic and its aftershocks, finding a cost-effective solution is even more important.

WHEN THE NIGERIAN government inaugurated the national gas transportation network last year to set out the terms and gas transportation specifically between gas producers, shippers and their agents, Timipre Sylva, junior minister, petroleum, was ecstatic. He stated, "The implementation of the network code, which is a set of rules and principles guiding the use of and operations of the gas transportation network system, will deepen the domestic gas market. It will also unleash the potentials of accelerated growth and economic development for our nation."

Image Credit: Adobe Stock

Finding a cost-effective logistics and shipping solution is particularly important for the oil and gas sector.

An integral part of West Africa's energy sector

Another West African nation, Senegal, is also currently developing its workforce to be able to supply efficient logistics for major oil production.

Senegal's government is encouraging a number of African and international players, as well as newcomers, to develop logistics hubs in the country. Bollore Africa Logistics is one of the leading companies in the sector, with operations in the ports of Dakar, Nouakchott and Conakry. Other logistics specialists include CMA-CGM, Hapag-Lloyd and DB Schenker. Apart from the heavyweights, Maritalia is a regional player that is working sharply in terms of meeting the local content objectives in the West African nation.

Mergers and acquisitions

North and East Africa is also seeing accelerated logistics mergers and acquisitions. In December 2020, CEVA Logistics continues to expand its presence in the African market by strengthening its presence in two countries through two joint ventures (JV) Egypt and Ethiopia. In the first week of January 2021, CEVA Logistics announced the acquisition of ASTI Group in Morocco. The acquisition will help CEVA Logistics to expand its range of export capabilities, specifically reefer services – in cooperation with its parent company the CMA CGM Group, a world leader in shipping and logistics – and Contract Logistics activities in both Casablanca and the Tangiers Free Zone.

> **"DHL Global Forwarding has stated in a whitepaper that digitalisation will play a major role in transforming the oil and gas industry in the Middle East and Africa region."**

In September 2020, Tata Consultancy Services (TCS) announced a partnership with Transnet Port Terminals (TPT) in South Africa, part of Transnet SOC Ltd, to help the latter develop an integrated online marketplace platform by bringing together cargo owners, shipping lines, clearing and forwarding agents and road/rail haulers. TPT focuses on creating a connected portal to simplify the South African logistics market and provide comprehensive logistics information to cargo owners and logistics players. It will create the new platform, named Cargo Connect, which is set to function as an online logistics marketplace.

RECRUITMENT: WHAT'S NEXT?

Jozsef Marton, managing director, London, Preng & Associates, has highlighted the recruitment landscape in Africa's oil and gas sector. He highlights how identifying and attracting talent around the world will impact shareholder value. Deblina Roy reports.

In terms of the talent pool, what is going on in the oil and gas sector? What kinds of talent are required?

JM: Companies are interested in candidates who can efficiently integrate upstream operation, asset management and business units. With the downward pressure of oil prices, companies are focused on generating profit at even US$40 per barrel price. They have had to really look very closely at operations and reduce the barrel cost while generating profits. For this, there is a much greater push for integrated operations and need for people who can bring together multi-disciplinary teams and get them working together, collaborating well and bringing about efficiencies. It's not easy because there aren't many people out there that have that expertise.

Finding people who are ready to get out into the field is another key area that companies are looking for. With the strange consequences of COVID-19, people are mostly working from home. But in oil and gas, there has been a much greater push to get people out in the field, working closely with the technical teams, getting to know their suppliers, government representatives and partners, rather than working from corporate headquarters. These are the two major areas where we have seen a much greater focus and desire from candidates, and I think it will continue going forward.

Jozsef Marton is the managing director, London, Preng & Associates.

How do you think recruitment has been impacted due to the COVID-19 crisis?

JM: Well, some people thought recruitment would become more difficult, particularly in the virtual interviewing process and hiring. This is something the companies have never really entertained in the oil and gas industry. They always want to meet the candidates in person and get to know their personality. However, more and more companies are embracing the technology these days. We have recruited people virtually now for the first time ever. For the Marathon role, the candidate has never met anyone from Marathon in person and the recruitment has been done virtually.

We have actually seen a slowdown in areas such as board level roles and CEOs. For this, companies still want to wait until they can meet the individuals before hiring. Now, of course, if the pandemic continues for another year or two, that attitude might change. However, the industry is expecting 2021 to be better than 2020.

What are the top five sectors in oil and gas which will drive recruitment in the coming days?

JM: In the upstream segment, production operations will be a top sector in driving recruitment. Every company needs to make their production as efficient as possible and as high as possible. Then comes financial skillsets. While doing deals or partnership agreements, ensuring that the right commercial agreements are put in place is going to be critical to make sure companies can make money. The third one is managing government relationships. This is going to be critical because due to COVID-19, a lot of governments, particularly in Africa and other emerging markets, are put under pressure.

The fourth segment is attracting the next generation of leaders. In the next five years, a lot of people are going to retire from the industry or cannot be in leadership roles. A big challenge is how to replace those individuals. The fifth call is around the ESG agenda. People are still working out what ESG means for a particular company and how it can help improve performance and attract new investment. Therefore, finding people who really understand those areas are going to be crucial.

WHAT'S LYING AHEAD FOR OIL AND GAS IN 2021?

Oil and gas companies across the world are trying to make exploration and production processes more efficient and optimised. This is driving the usage of AI, as Deblina Roy reports.

OIL AND GAS companies have increasingly been deploying artificial intelligence (AI) since the shale bust in 2015-2016 to improve operational efficiency and avoid bankruptcy. According to ResearchAndMarkets analysis, AI in the oil and gas market was valued at US$2bn in 2019 and is expected to reach US$3.81bn by 2025, at a CAGR of 10.96% over the forecast period from 2020-2025.

As the cost of IoT sensors declines, many major oil and gas organisations are bound to start integrating these sensors into their upstream, midstream and downstream operations, along with AI-enabled predictive analytics. The offshore oil and gas business use AI in data science to make the complex data used for oil and gas exploration and production more reachable, which lets companies to discover new exploration prospects or make more use out of existing infrastructures.

For instance, in January 2019, BP invested in Houston-based technology start-up, Belmont Technology, to bolster the company's AI capabilities, developing a cloud-based geoscience platform nicknamed Sandy. Sandy allows BP to interpret geology, geophysics, historic and reservoir project information, creating unique "knowledge-graphs."

Image Credit: Adobe Stock

The use of artificial intelligence in oil and gas has only began expanding.

The Oil and Gas Authority (OGA), too, is making use of AI in parallel ways, owing to the UK's first oil and gas National Data Repository (NDR), launched in March 2019, using AI to interpret data, which, according to OGA expectations, is likely to assist in the discovery of new oil and gas resources and permit more production from existing infrastructures.

> **"The AI tools are accelerating the record digitalisation and automation of geological data analysis."**

However, high capital investments for the integration of AI technologies, along with the lack of skilled AI professionals, could hinder the growth of the market. A recent poll validated that 56% of senior AI professionals considered that a lack of additional and qualified AI workers was the biggest hurdle to be overcome, in terms of obtaining the necessary level of AI implementation across business operations.

To address this, the market is witnessing many investments by big players in the technology. In February 2020, Royal Dutch Shell PLC announced the expansion of an online programme that teaches its employees artificial intelligence skills, part of an effort to cut costs, improve business processes and generate revenue. AI enables the company to process the vast quantity of data across the businesses to generate new insights, which can keep them ahead of the competition.

In October 2019, Microsoft announced the collaboration with energy industry tech company Baker Hughes and AI developer C3.ai to bring enterprise AI technology to the energy industry via its Azure cloud computing platform. It will allow customers to streamline the adoption of AI which is designed to address issues such as inventory, energy management, predictive maintenance and equipment reliability.

THE AGE OF ENHANCED OIL RECOVERY

New and existing enhanced oil recovery techniques have become ever more critical for industry players in Africa. Martin Clark reports.

ENHANCED OIL RECOVERY, or EOR, has become a major theme in Africa's oil sector in recent years. These techniques have proved their worth many times over as fields have matured, or on challenging reservoirs, especially in established producing territories like West Africa and North Africa.

As well as the oil majors, key specialists in the field include the likes of Schlumberger and Halliburton.

And the trend toward EOR is likely to come under even sharper focus amid lower oil prices and the natural depletion of individual wells as they age.

The average recovery factor for oil reservoirs globally remains at less than 40%; with existing fields declining at around 4% per annum on average, and few new major discoveries being made, the need to recover more oil and gas from existing reservoirs becomes apparent.

Typically, EOR refers to measures to achieve higher oil recovery than that obtained by water injection alone, which could include solvent (miscible) injections, chemical injections or thermal injections, ultimately to increase reservoir pressure and boost flow rates.

But, like most other areas of the energy chain, this segment continues to evolve, and the search is on to find more environmentally-friendly and biodegradable injection products for EOR.

"EOR is set to yield financial benefits for operators, especially when weighed against alternative solutions."

EOR activities are expected to gain momentum amid lower oil prices and the natural depletion of individual wells as they age.

Image Credit: Adobe Stock

DNV GL, the classification society, recently highlighted another new EOR concept – wind-powered water injection – as the sector transitions into an era shaped both by technology and sustainability.

It said such systems could be installed without costly retro-fittings on an offshore platform, integrating the compressor and water treatment equipment into the sub-structure of a floating wind turbine.

Christian Markussen, subsea business development leader at DNV GL – Oil & Gas, reckons it could yield financial benefits for operators, especially when weighed against alternative solutions.

"Traditional injection systems normally have a significant capex investment, CO_2 tax, and exposure to fuel costs," he noted.

The company believes nanoparticles could also offer a greener alternative to conventional polymers for EOR, with both inorganic and organic alternatives existing today.

Studies have suggested that this technology could make an impact in Nigeria's prolific Niger Delta region, which has now been pumping oil for more than 70 years, and where there is plenty of heavy crude scattered across Ogun, Ondo, Edo and Lagos states.

Many of its marginal fields – which have been prioritised among the nation's aspiring, indigenous producers – stand to benefit from these advances.

These companies are now competing for 57 fields, spread across onshore, swamp and shallow water, following their release by officials last year.

The availability of smarter solutions could help monetise these assets, as they have many others previously.

EOR projects of the past may have lacked sensing, testing, and intelligent control technologies, but not any more – the deployment of these advanced solutions in Africa may just be at the beginning.

A DYNAMIC SOLUTION FOR ASSET RISK MANAGEMENT STRATEGIES

Victor Borges, head of digital engineering content at Lloyd's Register (LR), speaks with *Deblina Roy* and elaborates how AllAssets is digitalising inspection and maintenance for the oil and gas sector.

Why it is important to remove coding complexity to manage oil and gas asset performance?

Victor: Many enterprise resource planning tools tend to include a module that can be used to plan what resources go to which parts of the plant. However, most companies have specific rules, standards and ways of managing their facilities. What this has driven is a requirement to have high levels of configuration in digital platforms that allow companies to replicate their processes within different applications.

High levels of configuration drive high cost, and high cost reduces the capability to deliver cutting-edge tools. By removing code complexity, we allow customers to set up their own environment, which eventually enables more companies to design their own workloads, own standards and own processes. It is, thus, a big enabler for people to start using digital capabilities and digital technologies, which ultimately accelerates the company's production and productivity.

There is a perception that implementing the methodologies that can actually help optimise maintenance activities is time consuming, complex, cumbersome and costly. This attitude, however, only drives a vicious circle of tackling small issues, instead of designing a systematic, informed and optimised maintenance strategy.

To break the cycle of 'firefighting', operators need to adopt a risk-based approach to maintenance, allowing them to cut unnecessary spend, free up resources and reduce the maintenance backlog. By understanding the balance between the cost of failure and the cost of maintenance, operators can focus the right resources on the right equipment at the right time.

Victor Borges is the head of digital engineering content at Lloyd's Register.

Image Credit: Lloyd's Register

How is LR's AllAssets software working to accelerate asset performance and boost production, while mitigating risks?

AllAssets is an asset performance and risk management tool which allows the user to identify the risk profiles of its facility's assets and enables the user to mitigate those risks through timely inspection and maintenance. Think about a storage tank – if you have a storage tank that holds sulfuric acid or gasoline, then there's a high risk, and the asset needs to be prioritised as such. Similarly, in a refinery or on an offshore platform, it is extremely important for the user to effectively assess and identify the assets that are of low risk, as well as of high-risk. AllAssets effectively does that.

How does the latest version of AllAssets stands out in the industry?

By re-emphasising the innovative software development strategy of a low code approach, we hope to empower companies to take control over their APM programme and reduce the burden of deploying the resources needed to optimise operations and maintenance.

Indeed, by applying a risk-based maintenance approach using its AllAssets software, LR has found that on average, FPSO operators could be spending up to 500 less manhours per specific equipment group (such as an electric motor supporting a compressor or a centrifugal pump) on maintenance activity, while reducing the risk of failure and preserving facility uptime.

These findings have identified room for improvement in the way maintenance is planned, highlighting the need for a consistent strategy across equipment groups, systems and production units. They identified that relying purely on original equipment manufacturer (OEM) guidelines meant that operators were unable to qualify whether maintenance activities were essential, also demonstrating that point-in-time OEM guidelines are unable to take into consideration the ever-changing nature of offshore operations.

CCS AND THE FIGHT AGAINST CLIMATE CHANGE

Baker Hughes has committed to reducing its carbon emissions by 50% by 2030 and achieving complete net-zero status by 2050. In pursuit of these objectives, engineers have been developing solutions with perhaps the most complex of these centred around subsea technology and carbon capture and storage (CCS). Robert Daniels reports.

AT THE BAKER Hughes Annual Meeting 2021, which took place virtually on 1-2 February, Julian Tucker, front end regional lead for Europe, Middle East and Africa at Baker Hughes, provided an in-depth presentation on CCS and explored the company's projects around this technology.

Tucker explained, "CCS is a process where CO_2 is captured from various sources and injected into a suitable store rather than being released into the atmosphere. One application of this technology is to capture CO_2 from industrial emitters, transport it offshore via pipeline or vessels and then inject it into depleted oil and gas reservoirs or even saline aquifers. These offshore locations are ideal candidates for CO_2 stores given their proven capability in trapping fluids underground, as well as the fact that they live in mature basins such as the North Sea which have been comprehensively explored and appraised."

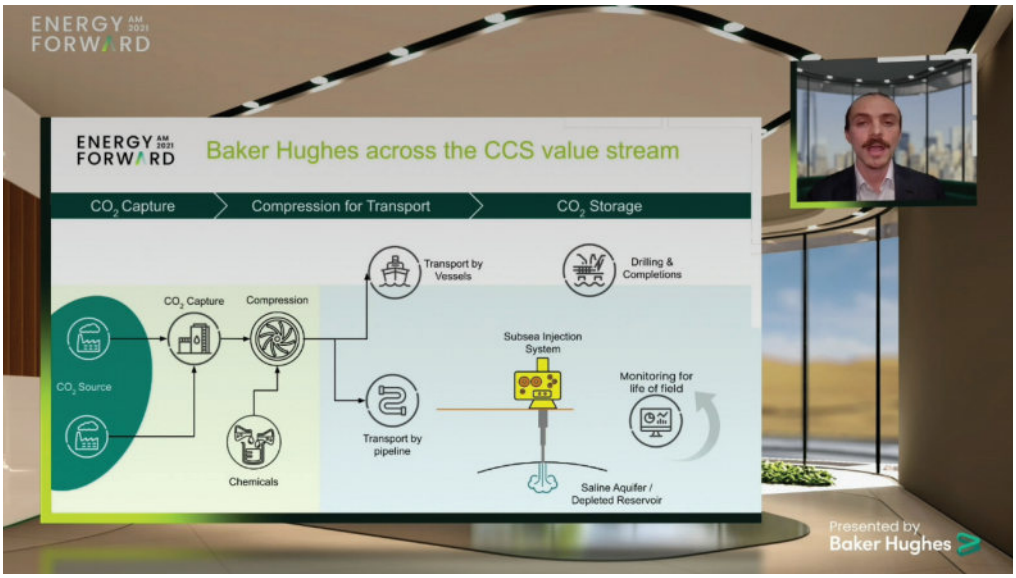


Image Credit: Baker Hughes

Julian Tucker presented at the Baker Hughes Annual Meeting 2021.

The injection process

Focusing on the injection system, Tucker outlined three key considerations that must be taken into account when developing technology for this; phase behaviour of CO_2 and the impact of this can have; corrosive potential of CO_2; and considerations of long step out distances to some of these offshore locations.

Tucker commented, "CO_2 is most efficient when transported in a dense phase, so is condensed and pressurised and can be in a supercritical state. This has several implications for materials selection, including solubility effects and fracture toughness. There is also the potential for low temperatures in the system which can occur if expansion drops due to pressure. This effect can be significant, especially when associated with a change of phase. The system, therefore, needs to be designed to manage these changes and the materials need to be properly selected and tested for these conditions."

"CO_2 is also highly corrosive to steel when water is present, and this will ultimately depend on the water content in the process stream. This can be mitigated by materials selection, dehydration processes or even through the use of chemical inhibitors, of which Baker Hughes has several dedicated products," Tucker continued.

Tucker added, "It is important to note that CO_2 injection systems are inherently different to hydrocarbon production in their operation as well as defining characteristics. These are governed by technical and economic drivers unique to these developments. In that regard, there is great opportunity for simplification, but careful consideration of the type of CO_2 store, the modes of operations, as well as the system design is needed to make sure equipment is fit for purpose."

CCS and the push for sustainability

Tucker stressed he believed that CCS would really help the industry achieve its green targets and could work in tandem, rather than discourage, the industry becoming more efficient or switching to cleaner energy.

Tucker commented, "I really think that CCS is just one tool available in the fight against climate change, one piece of the puzzle. The world's population and energy demand is still growing and this needs to be met."

CGG SIGNS MULTI-CLIENT AIRBOURNE GRAVITY SURVEY IN CONGO

Mobilisation is imminent for airborne data collection over onshore Congo Cuvette Basin. Samantha Payne reports.

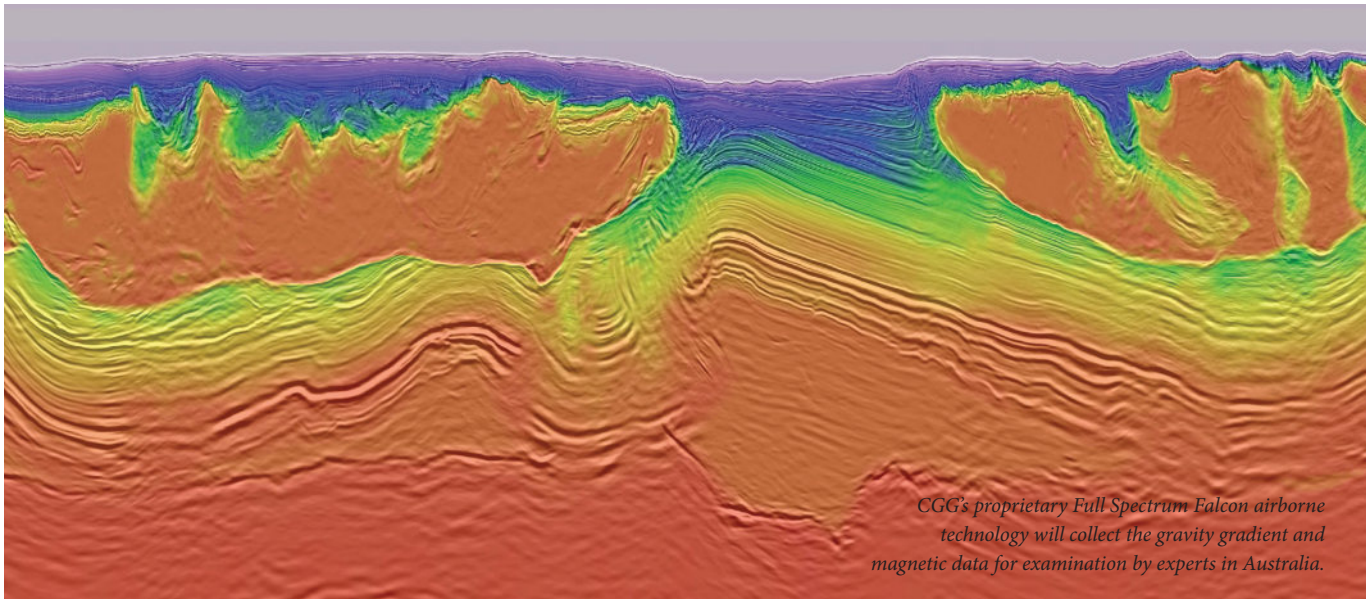


Image Credit: CGG

CGG's proprietary Full Spectrum Falcon airborne technology will collect the gravity gradient and magnetic data for examination by experts in Australia.

CGG IS MOBILISING to acquire the industry's first-ever multi-client airborne gravity and magnetic survey of the onshore Congo Cuvette Basin in the Republic of Congo after signing an agreement with the SNPC and the Ministry of Hydrocarbons. The project has already received significant prefunding from the oil and gas industry.

Scheduled for licensing in early 2021, the survey data will significantly support industry exploration initiatives by helping to assess hydrocarbon prospectivity and provide a backbone for future exploration of the area.

The Congo Cuvette basin is a large underexplored onshore sedimentary basin, in a logistically challenging area for resource exploration. This airborne geophysical survey will support the initiatives of the government of the Republic of Congo and SNPC to attract investment into this frontier area.

> **"The Cuvette Basin could be considered one of the last provinces in Africa to potentially hold giant to supergiant oil and gas accumulations."**

A specially modified aircraft equipped with CGG's proprietary Full Spectrum Falcon airborne technology will simultaneously collect the gravity gradient, gravity, and magnetic data, for interpretation by CGG's experts based in Perth, Australia.

The goals of the survey are to understand the sedimentary thickness of the Cuvette, and identify prospective structures using the low-noise Full Spectrum Falcon data. It is estimated that the Cuvette could contain sediments up to 9km thick, but with no modern data collected in the basin this will need to be verified. Geophysical data in the basin to date consists of 2D seismic data, acquired mostly along the Congo River in the 1950s and 1970s as well as an airborne gravity and magnetic survey in the 1980s.

Greg Paleolog, senior vice president, Multi-Physics, CGG, said, "Our Congo Cuvette Basin multi-client survey will utilise the world's best airborne geophysical technology in a truly frontier area. The Cuvette Basin could be considered one of the last provinces in Africa to potentially hold giant to supergiant oil and gas accumulations. It's exciting that the SNPC and our prefunders recognise the value that large-scale acquisition of high-quality data can add to their exploration programmes."

Source: www.cgg.com

Automation of oil and gas production can significantly prevent unnecessary drilling of wells.

Image Credit: Adobe Stock

DRILLING THE POWER OF BIG DATA IN OIL AND GAS

Africa's oil and gas industry is turning to big data number crunching to boost operational and production efficiencies. Martin Clark reports.

IN COMMON WITH most other industries, the oil and gas sector is leaning heavily on technology to get things done faster, safer or more efficiently.

That includes shaving margins from overall production costs to stay competitive.

With this technology reliance come huge amounts of data, giving insight into everything from real-time production flows at the well head to complex reservoir modelling analysis.

As in other producing regions of the world, operators in Africa are using these tools to improve performance, trim costs and ultimately boost profitability.

In an era where oil prices are under threat, especially in the wake of the COVID-19 outbreak, big data and analytics might just make all the difference.

> **"Africa has access to tech breakthroughs via its multinational operators and large service companies."**

But this adoption of technology does not end there, and has led to a virtual marriage between oil companies and tech firms in the past decade or so.

Computer giant IBM says the scope for yet more advances is pretty much unlimited, especially with the evolution of artificial intelligence (AI).

"An AI platform that learns from data to understand operational states and failures modes of assets can warn of impending asset failures," it noted in a recent industry paper, *How AI Can Pump New Life Into Oilfields: Fuelling Oil & Gas Industry Performance*.

Keeping oilfields running smoothly, without interruption, is a key test for operators worldwide – one lost day of production can equate to many millions of dollars in lost earnings.

Nigeria data centre

Nigeria, still reeling from the perilous oil prices of last year, hopes harnessing these trends can help lower its overall production costs.

In January, the Department of Petroleum Resources set up the National Oil and Gas Excellence Centre (NOGEC) to address

critical challenges facing the industry, including the rise of data and technology throughout the energy chain.

NOGEC's structure includes the Integrated Data Mining and Analytics Centre (IDMAC).

DPR director, Sarki Auwalu, said the new entity will help to drive the greater adoption and use of big data, AI and the internet of things across the nation's oil sector.

The ultimate goal is cutting the cost of getting oil from the reservoir to the petrol pump, after Nigeria's production costs came into sharp focus when prices plummeted.

At the NOGEC inauguration on 27 January, Roger Brown, the chief executive of Nigeria's Seplat Production Development Company, said direct production costs and gross taxes constituted the highest portion of the nation's production at 37% and 33%, respectively – significantly higher than lower cost basins around the globe.

"New AI techniques and technologies will help to address efficiencies and grow production," he said.

With overall production of some two mmbbl per day, any fractional saving has immense implications – and data and technology partners will play a fundamental role.

"The industry needs collaboration to drive costs down," he added.

Legacy systems

While technology has the potential to make such an impact – both on individual assets in the field and in terms of overall business performance – the processing of vast quantities of data is in itself a challenge.

A modern offshore production platform can have more than 80,000 data tags capable of streaming real-time data, including temperature, pressures and well conditions, for instance.

Image Credit: Adobe Stock

AI is used to process and store data when drilling wells and finding productive fields.

But while data flows out from well sites, pipelines, equipment and control systems, the insight it offers might still be constrained by outdated legacy systems, IBM says, again highlighting the potential role of AI.

Solutions are coming through thick and fast to handle this massive data rush.

It highlights AI software company Tachyus, for example, which has developed a platform for geoscientists and reservoir engineers to more quickly interpret data collected from the multitude of sensors and monitors in the field.

Fortunately, the global nature of the oil and gas industry means Africa has access to tech breakthroughs like these via its multinational operators and large service companies.

Cloud computing

Digital transformation is a process of continuous evolution, though.

Another industry giant, China's Huawei, also believes that Africa's legacy IT systems may not adequately support business growth long-term in the energy sector.

It recently worked with Sonatrach in Algeria after studying the group's approach to IT and its future requirements.

The tech firm put in place a three-phase digital transformation centred around the Huawei Cloud Stack, a hybrid cloud solution that integrates any existing IT resources and bringing together multiple data centres.

The roll-out will ultimately lay the foundations for the evolution of digitally-enhanced oilfields across the Sonatrach portfolio that maximise the use of big data and all its benefits.

With the growth of digital number crunching rising exponentially, both in the energy sector and other industries, outsourcing data management is another emerging trend in Africa, fuelling the shift to cloud-based solutions.

In 2019, Microsoft opened its first data centres in Africa, following the likes of Huawei and Amazon Web Services.

Microsoft said its new investments – with the opening of two initial facilities in South Africa – will help nurture digital transformation and advance technologies such as AI and cloud computing across Africa.

This has promoted talk of 'data sovereignty,' with Nigeria, for instance, among those to now require data to be hosted locally for strategic sectors such as oil and gas.

Remarkably, despite the data explosion of recent times, this marks only the beginning of a new era for the energy sector and other key areas.

> **"AI software company Tachyus has developed a platform for geoscientists and reservoir engineers to quickly interpret data collected from the sensors and monitors in the field."**

ON THE PROPAGATION PRESSURE OF PIPELINES

Elsevier Inc has published a new book in the area of pipeline engineering entitled the "Mechanics of Offshore Pipelines Volume 2." In the book, the authors Stelios Kyriakides, Research Center for Mechanics of Solids, Structures and Materials, The University of Texas at Austin, and Liang-Hai Lee Genesis Oil and Gas Consultants Ltd/Technip, USA, Inc, has outlined the technical details on the propagation pressure of offshore pipelines.

COLLAPSE UNDER EXTERNAL pressure is one of the main limit states governing the design of offshore pipelines. It leads to severe flattening of the pipe, rendering it unserviceable.

Consequently, a great deal of effort has been placed on developing dependable models for estimating the collapse pressures. The collapse pressure can be reduced if the pipeline experiences tension or bending simultaneously. Both types of combined loading are commonly encountered in offshore operations and consequently must be accounted for in the design of the pipeline also.

However, the damage caused by collapse under pressure or the combined loadings, although severe, is usually limited to a section a few pipe diameters long. In the case of offshore pipelines, unfortunately, such a damage does not remain local.

Collapse continues its propagation until it either encounters an obstacle, such as a buckle arrestor, or until it reaches a water depth that is shallow enough so the pressure can not sustain the propagation of collapse. The lowest pressure that can sustain the propagation of collapse is the propagation pressure, a characteristic pressure of the pipe. It is typically only a small fraction of the collapse pressure of a geometrically intact pipe (15-25%) and thus the potential of suffering a propagating buckle must be accounted for and designed against.

Image Credit: Adobe Stock

The collapse pressure can be reduced if the pipeline experiences tension or bending simultaneously.

A volume-controlled pressurisation procedure can be a solution

The propagation pressure of a pipeline is determined experimentally through a volume-controlled pressurisation procedure as follows. A section of pipe, usually more than 20 pipe diameters long, is sealed at both ends and placed in a stiff pressure vessel. To ensure that the internal pressure of the tube remains constant during the propagation of collapse, the tube is vented to the atmosphere through an umbilical, not shown in the figure. Venting to the atmosphere is particularly important when the test pipe is shorter, as is often the case in full-scale experiments on 20-inch or larger pipes. The vessel is completely filled with water, sealed and pressurised at a slow rate using a positive displacement hydraulic pump so that the propagation of collapse is quasistatic. (Note that the horizontally oriented vessel is at a small inclination to ensure complete venting of air from the vessel before the test commences.)

In the experiments conducted by Kyriakides and co-workers, collapse is typically initiated from a locally weakened location close to one end of the specimen. The local collapse pressure is reduced by mechanically introducing a dent approximately one diameter long either prior to or at the beginning of the test. During the experiment, the pressure in the vessel is monitored with an electrical transducer and its signal is recorded using a digital data acquisition system. The volume pumped into the vessel can also be monitored.

INNOVATIVE SPIRIT WILL COMBAT MAJOR GLOBAL CHALLENGES

IP Week Virtual is hosted by Energy Institute and will be held virtually from 23-25 February 2021. The event will explore how the oil and gas sector's engineering capabilities and innovative spirit will be pivotal in rising to major global challenges in the coming decade.

FROM MANAGING CLIMATE emergency and the pandemic aftershock to driving towards a profitable transition to a smart energy future – IP Week 2021 is all set to address the most recent challenges and opportunities the oil and gas producers are facing today.

Some of the key challenges oil and gas operators are facing include building a resilient recovery from the devastating COVID-19 pandemic; achieving the UN goal of universal access to energy for all populations and charting an ambitious course – at COP26 and beyond – for tackling the threat the operators are facing from the climate emergency.

During the online event, the oil and gas industry leaders will be joined by environmental NGOs to help define the sector's role in delivering a low carbon future. Conferences and round-table discussions provide a platform where delegates can debate major issues, share new ideas and insights and network to form new partnerships.

An important panel session will focus on the issue of investing in times of uncertainty and adapting portfolios for transformation. The session will discuss the impact of COVID-19 in the investments; emerging business models; the role of shareholders in the energy transition and their role to support oil and gas companies to contribute to the goal of the Paris Climate Agreement to limit global warming; climate change resilience and more. The session will be attended by Mark Gyetvay, CFO and deputy chairman of the management board, NOVATEK; Martijn Rats, head of European Oil and Gas Research, Morgan Stanley; Dr Stephen Barrie, deputy director of Ethics and Engagement, Church of England Pensions Board; and Sinead Lynch FEI, UK Country Chair, Shell.

Image Credit: Adobe stock

The event will discuss the crucial issue of tackling the threat the operators face from the climate emergency.

Other sessions include energy asset monetisation – releasing value to fund the energy transition; unlocking value in the alternative energy chain; drivers of geopolitics and their shifting axis/influence; reinventing energy – realising the opportunity; race to zero – the global campaign to achieve net zero emissions; disruptive technologies that are revolutionising businesses to drive the acceleration and many others.

During the event, the audience will hear from an impressive range of speakers including Bernard Looney, CEO, BP; Patrick Pouyanné , chairman and CEO of Total; Anders Opedal, president and CEO of Equinor; Gauri Singh, Deputy Director-General at International Renewable Energy Agency (IRENA); Wael Sawan, upstream director at Shell and many others.

Energy Institute are offering Oil Review Africa subscribers 20% off the published price. Please use promo code ORAIP20 when booking to take advantage. For more information and to book your place, please visit www.ipweek.co.uk or contact Amna at akhan@energyinst.org.

AFRICAN RIG COUNT

COUNTRY	Dec 2019	Jan 2020	Dec 2020	Jan 2021
ALGERIA	42	41	22	19
ANGOLA	5	6	3	4
CAMEROON	2	2	0	1
CHAD	7	7	3	3
CONGO	2	2	0	0
CÔTE D'IVOIRE	0	0	0	0
EQUATORIAL GUINEA	1	0	0	0
GHANA	2	2	0	0
KENYA	5	5	3	3
LIBYA	16	16	11	11
MAURITANIA	1	1	0	0
MOROCCO	1	1	0	0
MOZAMBIQUE	1	1	0	0
NIGERIA	17	14	7	6

Source: Baker Hughes

Shell, C3 AI, Baker Hughes and Microsoft launch Open AI Energy Initiative (OAI)

SHELL, C3 AI, Baker Hughes and Microsoft have announced the launch of the Open AI Energy Initiative (OAI), an open ecosystem of artificial intelligence (AI)-based solutions for the energy and process industries.

The OAI provides a framework for energy operators, service providers, equipment providers, and independent software vendors for energy services to offer interoperable solutions, including AI and physics-based models, monitoring, diagnostics, prescriptive actions and services, powered by the BHC3 AI Suite and Microsoft Azure.

The OAI augments BHC3 applications with partner-led, domain-specific solutions that accelerate deployment of AI-based reliability solutions to unlock significant economic value across the energy industry, while helping to make energy production cleaner, safer, and more efficient. The initial OAI reliability solutions offered by Shell and Baker Hughes enable interoperability between BHC3 Reliability, OAI modules, and existing industry solutions for such applications.

"Digital technologies and AI are helping us improve our core business today and build the energy businesses of the future. Over the last few years, we have been working with C3 AI to scale our AI-based predictive maintenance solutions to reduce costs and improve the productivity, reliability, and performance of our assets," said Shell chief technology officer Yuri Sebregts. "We are monitoring more than 5,200 pieces of equipment using machine learning across upstream and downstream manufacturing as well as integrated gas assets. We are excited to take this capability to market and want to develop an open ecosystem where others can offer AI solutions to help improve reliability across the industry."

Image Credit: Adobe Stock

The OAI provides a framework to offer interoperable solutions.

Cloud solution to tackle corrosion

SAP SE AND DNV GL have teamed up to deliver a new industry cloud solution,

Corrosion Under Insulation (CUI) Manager, designed to tackle CUI, the largest maintenance cost for offshore and onshore installations with insulated pipes.

In close collaboration with the industry, DNV GL has developed a new risk-based methodology, published a new recommended practice and turned the insights into an easy-to-use interface with the CUI Manager. Through the strength of DNV GL's models and the integration with SAP applications, this solution will provide an efficient and standardised way to address the risk of CUI.

CUI Manager continuously assesses and calculates the CUI risk, helping integrity engineers and managers prevent failure, increase safety and manage hidden threats. It optimises asset strategy and planning by providing detailed, instant insights on current and planned risk as well as the resulting cost development. The solution's full integration with SAP Asset Strategy and Performance Management enables calculation and visualisation of the complete risk picture using SAP Cloud Platform.

"The combination of DNV GL's deep technical insight and state-of-the-art software solutions with SAP's cloud-based solutions for intelligent asset management will generate significant value for our customers," said Liv A. Hovem, CEO of Oil & Gas at DNV GL. "We look forward to bringing additional solutions to the market jointly with SAP in the future."

Newly-licensed UK technology to improve marine oil spill response worldwide

THE UK'S AGILE Spray Response has been granted the export sales licence to manufacture, market and sell CONVERT400, the UK Maritime Coastguard Agency's (MCA) chosen oil dispersant spray system (ODSS). CONVERT400 does not require a dedicated aircraft, but is 'rolled on and rolled off' a cargo Boeing 737, as required, which eliminates the need for countries and companies to maintain fixed aviation assets to manage the risk of offshore oil spills. CONVERT400 is designed and developed to deal with the impact of oil spills on coastlines and marine ecology around the world, and is available to all global markets.

"CONVERT400 has been developed and extensively tested by the UK MCA to ensure that it meets all current international requirements for the successful management of oil spills in the marine environment. The overriding aim is to reduce the impact of oil spills on coastlines and marine ecology in a financially efficient manner and make the system accessible to all nations," said Phil Cole, Agile Spray Response CEO.

"In three hours the system can be installed in a Boeing 737, loaded with dispersant and be able to start spraying immediately," he added.

Image Credit: Agility Spray Response.

The system can be installed on a Boeing 737.

Emerson and QRI launch reservoir analytics software for reservoir opportunity identification

EMERSON HAS LAUNCHED SpeedWise Reservoir Opportunity, a fully automated, cloud-native reservoir analytics solution developed in collaboration with Quantum Reservoir Impact (QRI). The software applies advanced algorithms, data mining and workflow automation to significantly cut the amount of work required to identify field development opportunities.

"In today's turbulent marketplace, our goal is to give customers meaningful analytics to maximise efficiency, optimise reservoir management, and promote digital transformation across the exploration and production landscape," said Steve Santy, president for exploration and production software at Emerson.

"By combining the power of analytics with deep oilfield expertise, SpeedWise Reservoir Opportunity provides oil and gas operators with the knowledge needed to better identify opportunity criteria and develop more reliable field development planning."

The solution features automated geo-engineering workflows for identifying and ranking recompletion, vertical sweet spots and horizontal wells. By analysing historical field performance and benchmarking against analog assets, the flexible framework intelligently picks the optimal parameters for the identification process, tailored to address the unique geological and engineering challenges posed by each field.

"Oil and gas professionals can now identify field development opportunities with 10 times the speed and accuracy compared to present industry norms," said Dr Nansen Saleri, chairman and CEO, QRI.

Image Credit: Emerson

SpeedWise Reservoir Opportunity enables operators to obtain a better return on investment.

Rotork launches intelligent asset management system for governing flow control assets

ROTORK HAS LAUNCHED a programme of advanced analytics for the management of intelligent flow control assets. Intelligent asset management is a cloud-based asset management system of advanced analytics, to improve reliability and availability of key assets (such as valves) across all industries, that use flow control processes.

It is a robust, safe and secure online platform with a simple to use intuitive interface that can run on all operating systems. Summary views and colour coded maps simplify complex analytics into easy to understand visuals. By collecting data and monitoring asset status, Intelligent asset management can lead to long-term operational stability. Intelligent asset management uses the information downloaded from the data logs, recorded within intelligent actuator to prevent costly failure, and helps customers save money and reduce downtime.

It is an extension of the existing Lifetime Management service offering, within Rotork Site Services and available both, as a standalone offering, and as a part of a combined solution, to meet individual customer needs.

It can be used across multiple applications, including oil and gas, water and power, and chemical, process and industrial markets.

Image Credit: ROTORK

Intelligent asset management system is a secure online platform with an intuitive interface.

Logan Industries manufactures and delivers second set of small-footprint CT reelers

LOGAN INDUSTRIES HAS manufactured and delivered the second set of the new and innovative small-footprint coiled tubing (CT) reelers, which enable operators to perform open water well interventions, without bringing in a full drilling rig.

The new Logan CT reelers are suitable for storing and deploying 10,000ft of 2 3/8 in. tubing, as well as boosting efficiency and reducing costs.

The company claims, this is the largest CT reeler they have manufactured of this type; with the smallest footprint in the industry. Prior to Logan's development of this equipment, no fatigue evaluation models existed for CT performance.

Dean Carey, technical director of Logan Industries, said, "One of our most valued customers trusted our expertise to deliver them with a unique solution when nothing on the market met their needs."

Our new CT reelers are truly innovative designs and game changers for the offshore intervention market, because they feature such a small footprint. This enables customers to take on more well stimulant fluid load; meaning they can perform a bigger job for longer."

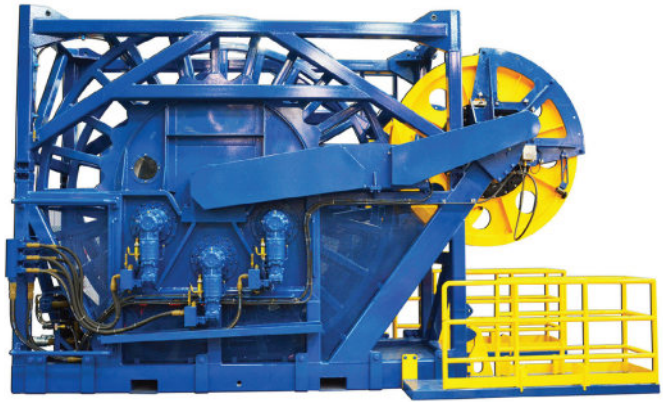


Image Credit: Logan Industries

Logan CT reelers are suitable for storing and deploying 10,000ft of 2 3/8 in. tubing.

Halliburton's electric frac pump: an industry pioneer

HALLIBURTON COMPANY HAS deployed the industry's first electric grid-powered fracturing operation, which is already working on several pads for Cimarex Energy Co. in the Permian basin, since November. So far, Halliburton has completed almost 340 stages across multiple wells, with the utility-powered electric frac pump's consistent performance.

The new equipment offers low emissions, compared to both turbines and Tier 4 dual fuel engines, and requires lower capital outlay, despite the additional operational reliability.

Michael DeShazer, Cimarex vice president - Permian Business Unit, said, "Cimarex has focused its infrastructure investment on creating operational efficiencies and reducing emissions including ownership of the electrical grid on our Culberson and Reeves County acreage."

The electric grid-powered frac pump aims to utilise the maximum power potential from the grid, allowing the customer to achieve a pumping performance which is 30%-40% higher than a conventional equipment.

"Electric fracturing aligns with our goal to provide the industry with lower-carbon intensive solutions and our commitment to a sustainable energy future," said

Michael Segura, vice president of Production Enhancement for Halliburton. "With Halliburton's leading electric fracturing capabilities, coupled with an innovative operator like Cimarex, grid power can offer one of the most effective and capital efficient solutions for electric fracturing," he added.

New jet pump hydraulic artificial lift for oil and gas production

WANNER INTERNATIONAL LTD has launched its new hydra-cell jet pump hydraulic artificial lift solution that offers the lowest cost of lifting a barrel of fluid, reducing costs in oil and gas production, generating huge savings over the lifetime of a well. The seal-free, no packing API 674 system is suitable for mainstream oil and gas production. It does not require a workover rig, pulling unit or slick line unit for servicing or well production optimisation.

The lifetime costs of this new artificial lift solution are lower than any other hydraulic artificial lift methods:

- Energy saving – when combined with the 90% efficient hydra-cell seal-less surface pumps, jet pumps have the best overall total process efficiency, in barrel per day produced per horsepower consumed.
- Maintenance and servicing saving – no workover rig needed – forward and reverse flow mode for easy retrieval of the jet pump for easy servicing and maintenance. The seal-less, packing-less design of the API 674 Hydra-Cell pump results means no separate lubricators, or site services for lubricators, no seal flushing and no fine filtration needed.

Image Credit: Wanner International Ltd

Wanner International Ltd's hydra-cell jet pump hydraulic artificial lift solution.

Paul Davis, managing director of Wanner International, said, "The Wanner hydra-cell jet pump hydraulic artificial lift solution can be installed at a significantly lower cost over the lifetime of the well. There are no downhole movable parts and the surface high pressure power fluid injection units can be operated by natural gas, diesel or electric powered drivers."

With production rates of 10 BPD to 10K BPD, typical applications of the artificial lift solution include conventional oil and gas production, high volume frac fluid unloading, gas well dewatering, well tests, and wells with bad casing. As well as standard production, the solution maximises production from a range of well types, including deviated or horizontal wells, or those with damage casing.

ADVERTISER'S INDEX

NIGERIA IN FULL GEAR TO BOOST ENERGY SECURITY

With enough projects on the plate, Mele Kolo Kyari, group managing director of Nigerian National Petroleum Corporation (NNPC), is confident that a very bright future lies ahead to retain Nigeria's enviable position as a regional oil and gas hub. Deblina Roy reports.

How do you see Nigeria's future as a regional oil and gas hub once the post-pandemic aftershock is over? What is going on in the West African country at the moment?

Nigeria enjoys quite a number of competitive advantages compared to other countries within the sub-African region. Ample capacity has been built for engineering integration , design and management hence any player within the region can easily leverage on the existing knowledge base and we are more than ready to export the capabilities. Nigeria is positioned to secure the energy security of the region through refining and petrochemical development. By 2023, Nigeria would be a net exporter of petroleum products and plug the existing gap within the region. We are extending our gas business and infrastructure in a manner to cut across the sub region with possible extension beyond the continent. Post-pandemic, the energy structure and growth of the region is expected to coalesce around Nigeria.

All our effort right now is geared towards making that feasible. We continue to engage partners and our own flagship company to bring new barrels to the market. While all these laudable efforts are ongoing, the country has undertaken major institutional reforms to boost transparency and accountability.

Image Credit: NNPC

Mele Kolo Kyari is the group managing director of NNPC.

Please brief about NNPC's ongoing and upcoming projects in Nigeria and how the Africa's leading state oil and gas company is broadening its ambitious growth plan?

In the gas and power sub-sector, we have the ongoing construction of US$2.8bn Ajaokuta-Kaduna-Kano (AKK) Gas Pipeline which is at about 20% completed. The AKK, flagged off in July 2020 by President Muhammadu Buhari, is massive and is expected to boost domestic gas consumption, power generation and industrialisation. The pipeline would move gas between the southern and northern parts of the country and eventually extend it to North Africa. The completion of the AKK Gas Project and expansion of the Escravos-Lagos Pipeline System (ELPS II) line is significant for a liquid and viable domestic gas market. The expansion of the Escravos-Lagos Pipeline System (ELPS II) line is significant for a liquid and viable domestic gas market.

The refineries rehabilitation project is underway. On completion, the refineries would be able to operate at least 90% of their installed capacity by the end of 2023. We have concurrently commenced the process of upgradation of the pipelines network and ancillary facilities using the build-operate and transfer (BOT) Model. Both rehabilitation projects are synchronised and expected to be completed by 2023.

The Niger delta basin has remained the dominant production centre in the country. The efforts have started yielding tangible results with discovery of hydrocarbons in the Benue trough. The Kolomani discovery has been considered a giant find with potential of more than 500 mmbbls reserve. Additionally, the effort towards digitisation is in full gear.

What message you want to share with the potential investors who are planning projects here?

The global investment space has witnessed a downturn and declining returns over the last few months. There are few locations within the industry that provide the returns far and above acceptable benchmarks. Nigeria is such a destination with good prospect, competitive fiscal provisions and enabling environment. For most of our incumbent partners, projects in Nigeria continue to rank highly in their portfolio.

Above all, we recognise the need to create synergies, reduce the overall cost of doing business and ensuring the protection of private property rights. Nigeria has large spectrum of opportunities from the upstream, midstream to retail space.

IPWEEK

Hosted By: energy institute

From crisis to low carbon opportunity: A decade of delivery for the oil and gas industry

IP Week 2021: Today's oil and gas sector faces the toughest of operating environments, but the ingenuity of its people, its engineering capabilities and innovative spirit are all pivotal in rising to these global challenges.

As the sector's leaders and influencers gather virtually for IP Week 2021, the urgency of action, together with the associated risks and opportunities in geographies around the world, will be at the heart of an unmissable agenda.

23 – 25 February 2021

VIRTUAL EVENT

Speakers include:

Bernard Looney
CEng FREng FEI
CEO
BP

Gauri Singh
Deputy Director-General
IRENA

Patrick Pouyanné
Chairman and Chief Executive Officer
Total

Anders Opedal
CEO
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Helima Croft
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