

# Oil Review

Oil · Gas · Petrochemicals

## Africa

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# Nigeria's new Offshore targets

News and views from across the continent

Namibia's emergence in the competitive petroleum exploration scene

Oil spill, IT Security, FPSO, online reservoir, drilling and completion and well control



*Sonangol's Ricardo Van-Deste on 'divest to invest' strategy. (p34)*



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Upcoming offshore growth projects are a testament to Nigeria's deepwater potential. (Image credit: Adobe Stock)

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## EDITOR'S NOTE

WORLD OIL MARKETS have rebounded from the massive demand shock triggered by Covid-19 but still face a high degree of uncertainty. Plus, the recent emergence of Omicron variant is testing the industry like never before. What is evident now is that although Omicron may not be as harmful to the global market as initially feared, some transitory implications are inevitable to oil demand, and a consequent effect on prices will be inevitable. It'd be interesting to see how the sector progresses in the coming days.

In the meantime, it has been a significant 2021 for Nigerian market. The country is finally aspiring to realise strength in energy sector and focusing on its proven gas reserves, with the Department of Petroleum Resources setting new gas reserve targets of 210 tcf and 220 tcf by 2025 and 2030. For more on this exciting region, turn to our cover story on page 9.

As 2021 draws to a close, I wish the readers and partners of Oil Review Africa a peaceful holiday season – I look forward to working with you in 2022. Thank you for your support.

**Deblina Roy**

Editor, Oil Review Africa

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# Executives Calendar 2022

## JANUARY

**25-27 MSGBC Basin Summit & Exhibition**  
Dakar, Senegal  
<https://energycouncil.com/event-events/msgbc-basin-summit/>

## FEBRUARY

**10-12 6th Oil & Gas Africa**  
Dar-es-Salaam, Tanzania  
[www.expogr.com/tanzania/oilgas](http://www.expogr.com/tanzania/oilgas)

**14-16 EGYPS**  
Egypt, North Africa  
[www.egypt.com](http://www.egypt.com)

**22-24 International Energy Week**  
Virtual and London  
[www.ieweek.co.uk](http://www.ieweek.co.uk)

**22-24 SAIPEC**  
Lagos, Nigeria  
<https://saipex-event.com/en>

**27 Feb- 3 March NIES**  
Abuja, Nigeria  
<https://nigeriaenergysummit.com/>

## APRIL

**14-15 ICNGO 2022**  
Cape Town, South Africa  
<https://waset.org/natural-gas-and-oil-conference-in-april-2022-in-cape-town>

## MAY

**19-21 9th Oil & Gas Africa**  
Nairobi, Kenya  
[www.expogr.com/kenyaoil](http://www.expogr.com/kenyaoil)

## JULY

**4-7 21st Nigeria Oil & Gas Conference & Exhibition**  
Abuja, Nigeria  
[www.nogevent.com](http://www.nogevent.com)

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

## Spotlight on East Africa's oil and gas sector in Tanzania

TANZANIA, ONE OF the major producers of natural gas, has 842 km of gas transmission pipelines, of which 58 km is utilised for industrial customers in Dar es Salaam. The discovered natural gas reserves amount to 57.54 trillion standard cubic feet (tcf), according to the Ministry of Energy data (December 2017).

Global oil demand is estimated at 104 MMbbl/d in 2025 and natural gas continues to expand its share across major markets, according to Research and Markets. In Tanzania, the dependence on oil and gas is further expected to increase as the country's infrastructure continues to heavily rely on petroleum-based products.

In addition to this, the market players are undertaking several investment plans to cater to the increasing demand for oil and gas products. Government policies



*The event will provide exciting networking opportunities to build strong business relations and develop the region's oil and gas sector.*

and support related to the exploration and production of oil and gas are playing a major role in the industry and encouraging companies to boost Tanzania oil and gas investments.

With as much as 100+ exhibitors spread out over a 5,000 sq m of exhibition space, the sixth edition of Oil & Gas Africa offers a nearly 60% increase in size from last year. More than

100+ exhibitors will be comfortably accommodated at the venue with a special showcase of the open display of machinery.

The event belongs to the largest chain of trade exhibitions in Africa. It is held in six African countries with the oldest being in Tanzania and Kenya for the last 24 years. With exhibitors from 22 countries in 2022, the events have been fully booked every year

since 2014.

Some of the exhibitor profiles include Delina Group, Portwest, Jingmen Hongtu Special Aircraft Manufacturing Co Ltd, Agrovision Limited, Petro Nikan Alborz, Pacific Petroleum Limited / Trinity Energy Limited, Real Flame, Distrilab, Hytera Communications Corporation Limited, Petrojet, Kopagas, Micansan Tanker Treyle, Valvulas Fevisa, Fanatech Engineering & Trading LLC and more.

Exhibitor profiles include Drilling, Lifting & Well Completion; Cranes and Winches; Offshore Platforms; Design, Floating & Refining Equipment and Services; Instrumentation & Control Technology; Health Products, Safety & Environmental Products and Management; Petrochemical Equipment and Services and much more.

# 'LOCAL COMPANIES CAN PLAY A KEY ROLE IN ENERGY TRANSITION'

From 23-25 November, the main AOTC conference programme addressed the fundamental issues affecting Angola's oil and gas industries moving ahead. The opening session discussed the crucial issue of energy transition and its need 'to be harmonised' with the oil sector.

**S**PEAKING ON THE sidelines of Angola Oil and Gas Service and Technology Conference (AOTC), the Angolan Oil & Gas Service Companies Association (AECIPA) president and chairman of AOTC Bráulio de Brito said that the conference focused on local content and how this can add more value to the economic diversification as well as socio-economic development in Angola.

He defended the local content legislation and highlighted the need for Angolanisation of the oil and gas and energy sector for inclusive development. Brito further expressed his hope that the full potential of the legislation will be realised once it is completely implemented.

Brito also spoke about the challenges faced by Angola's oil and gas sector. According to him, the management of COVID-19 and the obstacles that it created for the southern African nation as well as for other neighbouring countries is the crucial one as Angola has to heavily depend on the import of materials for the oil and gas sector.

While speaking at the opening of the AOTC in November, José Barroso, secretary of state for oil and gas, Angola, stressed on the need that the energy transition needs to be aligned with the oil and gas exploration fabric.

The energy transition agenda



Brito said that the conference discussed the economic diversification goals in Angola.

should be harmonised to ensure the sustainability of the economy, he added.

Local companies can play a fundamental role in combating greenhouse gas emissions, he explained. According to him, local companies can bring cutting-edge technological advancements in the market which, ultimately, can ensure efficient production with less

environmental impact.

Barroso also encouraged international oil and gas companies to form joint ventures with Angolan partners to both benefit from Angola's lucrative reserves and add value to the business opportunities that lie in the value chain – across upstream E&P as well as downstream transportation and marketing.

Barroso further noted that

232 local-content firms are registered in Angola that could create more than 16,000 jobs, predominantly for local staff and technicians.

Some of the other issues that the conference discussed included the latest exploration and production updates; the next licensing round; planning for 2022 and beyond; recovery and opportunities for the industry and business post COVID-19; presentation of the latest oil and gas technologies and services; major projects and project finance; development of Angola's refining capabilities; diversity in the workplace and more. ♦

**“ Around 232 local-content firms are registered in Angola that could create more than 16,000 jobs,” cited Barroso.**



## DNG Energy announces commercial launch of LNG products in South Africa

DNG ENERGY HAS announced to commence the delivery of liquefied natural gas (LNG) to commercial customers in the industrial, transport, marine and power sectors, with the aim of catalysing the growth of a new gas economy in South Africa.

The move also focuses on supporting the shift to more sustainable energy sources, facilitating industrialisation, creating new jobs and offering commercial customers more sustainable energy options.

Aldworth Mbalati, founder and CEO, DNG Energy, said, “The launch of DNG Smart Gas, our commercial LNG operations, brings us significantly closer to our vision of achieving energy security and stability in South Africa. This has been a long and complex journey with numerous

Image Credit: DNG Energy



*Aldworth Mbalati is the founder and CEO at DNG Energy.*

barriers to surmount – from securing financing to obtaining regulatory approvals.”

Last year DNG received final authorisation from the Transnet National Ports Authority to begin bunkering operations in the Port of Coega, in the Eastern Cape. The company has deployed a 125,000 cbm-capacity floating storage

unit (FSU) to support LNG bunkering operations.

This advanced infrastructure will be used to offer ship-to-ship transfers for international trading ships as well as onshore LNG transfers via road and pipelines. DNG has developed a network of gas supply, enabling reliable LNG supply to penetrate the energy market nationwide.

## Equatorial Guinea’s oil minister meets with Congolese President

EQUATORIAL GUINEA’S MINISTER of mines and hydrocarbons, HE Gabriel Mbagi Obiang Lima, met with Congolese President HE Denis Sassou Nguesso, delivering a special message on behalf of Equatoguinean President, HE Teodoro Obiang Nguema Mbasogo, regarding regional energy integration.

The meeting addressed growing South-South cooperation and encouraged the establishment of a more robust regional energy sector able to meet the needs of the citizens of Central African Economic

and Monetary Community (CEMAC) member states.

HE President Nguesso was also accompanied by Congolese minister of hydrocarbons HE Bruno Jean-Richard Itoua, who held his own bilateral meeting with H.E. Minister Lima. Both oil ministers participated in the CEMAC Energy Business Forum in Brazzaville, taking place November 29-30 and seeking to foster discussions among regional stakeholders and accelerate sustainable, regional energy growth.

The Republic of the Congo is not the only country at the forefront of Equatorial Guinea’s campaign to expand cross-border cooperation. In September, HE minister Lima met with Cameroonian President H.E. Paul Biya to boost cooperation in the hydrocarbons sector and enhance commercial exchanges between CEMAC member countries, with a view to driving economic development within the region. Intra-African cooperation is being positioned as the key to unlocking Africa’s energy prosperity, able to increase investors’ confidence, trigger large-scale projects that individual countries could not support alone, and generate a more active African influence within the global energy community.

Image Credit: African Energy Chambers



*Equatorial Guinea’s oil minister and Congolese President advanced CEMAC Energy Cooperation.*

## ‘Gas-fired thermal generation dominating Nigeria’s power mix’

THERMAL POWER WILL continue to make up the majority of Nigeria’s power mix in the next decade, rising from an 82.9% share in 2020 to 84.1% by 2030, according to GlobalData.

GlobalData has further noted that the country’s reliance on thermal power has meant renewable energy has taken a back seat, holding a meagre 0.2% in 2020 that is only expected to rise to 1.5% by 2030.

Rohit Ravetkar, power analyst at GlobalData, said, “The dominance of thermal power in Nigeria is doing no favours for renewables. The country has the ninth largest natural gas reserves in the world, and the largest in Africa. This has resulted in what started as a growing preference for gas-based generation, but has quickly turned into reliance.”

According to GlobalData’s latest report, *Nigeria Power Market Outlook to 2030, Update 2021 – Market Trends, Regulations, and Competitive Landscape*, thermal power capacity stood at 13.35GW in 2020 and is expected to rise to 20.15GW by 2030. Ravetkar added, “The Nigerian government has rolled out several policies to support the development of its renewable sector. This includes the Renewable Energy Master Plan (REMP) and the off-grid electrification strategy. In the short term, the REMP includes a moratorium on import duties for renewable technologies. The plan advises the design of further tax credits, capital incentives and preferential loan opportunities.”

## Impact announces spud of Venus exploration well, offshore Namibia

AFRICA OIL CORP has announced that Impact has spudded the Venus-1X offshore exploration well in Namibia Block 2913B (PEL 56).

This, together with the adjacent Block 2912, are held through Impact's wholly owned subsidiary, Impact Oil and Gas Namibia (PTY) Ltd. Both blocks are operated by TotalEnergies EP Namibia B.V., a wholly owned subsidiary of TotalEnergies.

The well is being drilled in 3,000m water depth by the Maersk Voyager drillship.

Impact holds a 20% interest in Block 2913B, was joined by TotalEnergies as operator in 2017, bringing significant deep-water drilling expertise to the Joint Venture, and in 2019 by Qatar Energy. TotalEnergies holds a 40% interest in Block 2913B, Qatar Energy holds a 30% interest, NAMCOR, the Namibian state oil company, holds a 10% interest.

Impact also holds an 18.89% working interest in the adjacent Block 2912, where it is partnered with TotalEnergies (operator 37.78%), Qatar Energy (28.33%) and NAMCOR (15%).

Siraj Ahmed, CEO of Impact, commented, "This is an exciting moment for Impact and our shareholders. Impact, together with our partners in the Government of Namibia, have been working to mature and drill the Venus prospect since 2014. Venus-1X is a world-class, basin opening well which, if successful, could be transformative for Namibia."

## Chevron signs production sharing contract for Block EG09 in Equatorial Guinea

AMERICAN MULTINATIONAL ENERGY corporation Chevron has signed an agreement with the government of Equatorial Guinea for Block EG09 – located in the Douala Basin on the border of Cameroon.

Representing a notable achievement for both Chevron as it moves to increase its penetration in the Equatorial Guinean market, and the country itself in its journey towards resource maximisation, the agreement grants Chevron 80% ownership with GEPetrol holding the remaining 20%.

Chevron is eager to expand its portfolio within Equatorial Guinea, with the company's acquisition of Noble Energy – completed in October 2020 for US\$13bn – enabling Chevron's entrance into the market. Having

completed the Alen Gas Pipeline project – a 950 million cu/f pipeline linking the Alen gas field in the Douala Basin offshore Equatorial Guinea to existing onshore processing facilities, with first gas achieved in February 2021, the company is on track to be a leading hydrocarbon producer in Equatorial Guinea. By working closely with the government, Chevron will carry out a work program that will lead to the potential development of Block EG09.

Several major finds over the last decade emphasise the potential of the Douala Basin, leading to a number of exploration and production companies demonstrating an interest in key block including EG09. During the country's 2019 bid licensing round – whereby

seven companies were selected and attributed concessions for 9 blocks - Block EG09 was awarded to Noble Energy and GEPetrol.

Block EG09, previously explored by South Africa's PetroSA, has the potential to hold sizeable oil and gas reserves owing to its close proximity to other Blocks where large-scale discoveries have been made. Notably, in August 2019, Noble announced the discovery of oil at the Aseng 6P well in Block 1 – which is already producing and located north of Block EG09. As Chevron takes over exploration, stakeholders are eagerly awaiting results.

"We welcome this agreement as this is a confirmation of the amazing prospects that still exist in Block EG09. With the right exploration game and technology"

## TotalEnergies EP Gabon finalises divestment of interests to Perenco Oil and Gas

TOTALENERGIES HAS ANNOUNCED the closing of its agreement to divest to Perenco Oil and Gas Gabon the Cap Lopez Terminal and non-operated assets of its 58%-owned affiliate TotalEnergies EP Gabon.

The company has announced this after receiving the approval of Gabonese authorities.

With this transaction, in an amount of US\$350mn before final adjustment, TotalEnergies EP Gabon is divesting its

interests in seven mature offshore fields operated by Perenco Oil and Gas Gabon, along with its interests and operatorship in the Cap Lopez oil terminal, to Perenco Oil and Gas Gabon.

The divested assets' production stood at 8,400 barrels of oil equivalent per day for the first three quarters of 2021.

Henri-Max Ndong-Nzue, president of TotalEnergies EP Gabon, said, "This transaction is aligned with TotalEnergies' strategy to enhance its portfolio by divesting mature, high break-even fields. TotalEnergies EP Gabon is refocusing on its operated offshore assets in the Anguille and Torpille sectors and remains a committed oil industry player in Gabon."



Image Credit: Adobe Stock

*The divested assets' production stood at 8,400 barrels of oil equivalent per day for the first three quarters of 2021.*

# HARNESSING THE POWER OF DIGITAL FOR AFRICAN UPSTREAM

At this year's edition of Africa Oil Week, a panel of experts delved into the need for technologies and innovations driving change in the industry, to benefit and enable the society at large. Fyna Ashwath reports.

**A**FRICA OIL WEEK 2021 hosted several engaging conversations around sustainable energy development for the continent, including the role of digitalisation and technology in Africa's future energy mix.

Setting the scene for the discussion on 'Safeguarding and strengthening African upstream portfolios through technology and innovation,' Henry Menkiti, COO, Asharami Energy (A Sahara Group Upstream Company) said, "Hope is here. Despite the push to reduce costs, project delays due to Covid-19, and other challenges, a lot is being done. Across several African countries, for instance, in Nigeria Tanzania and Angola, there are ongoing efforts to encourage investment within the industry."

Exploring the barriers to the use of technology in Africa, Patricio Whitney, vice president integration and digital operations, Americas, Europe and Africa, Schlumberger, outlined some basic problems that can make a huge difference for the continent. He observed that these include resistance to change, which is inherent to the nature of humans, the notion between cost and value, lack of incentives, for instance, business and

**“The 'S' in ESG makes a huge difference,” said Henry Menkiti, COO, Asharami energy, reinforcing the need to use technology and innovation for enabling the society at large.**



Image Credit: AOW 2021

*The panel on upstream value creation observed that the world has innovated through every downturn and the pandemic has been no different.*

performance models that hinder technology and innovation, as well as the regulations and infrastructure for digital capabilities.

Menkiti added to this thought by reinforcing the need to use technology and innovation for enabling the society at large.

"The 'S' in ESG makes a huge difference. We should include in the fuel development plan (FDP), a strategy for emissions, so we know the costs as well as benefits, which should be measured and benchmarked as we go along," said Menkiti.

## Upstream value creation

The panel discussion at Africa Oil Week on 'Upstream value creation: Unbounded opportunities post-Covid', provided insights on how frontier exploration is now all about being smarter, faster and carbon-neutral.

Discussing the role of frontier exploration in the new world, where the resilience to price, net zero and energy transition are all significant, Kevin McLachlan, SVP Exploration, TotalEnergies, said, "Africa is a place of focus for TotalEnergies and we believe it has a key role to play in the new world of energy transition."

Roger Brown, CEO, Seplat Energy, said, "Seplat is a Nigerian indigenous player. Indigenisation of the energy sector in Africa, brings a slightly different perspective in terms of understanding of how governments work, the long-term investment horizon, the government policies etc, giving a lot of opportunities in Africa. The skillsets and new technologies in exploration benefit everyone in the sector.

"There is huge potential within Africa, and we are going to see a lot of opportunities," remarked Brown.

John Hamilton, CEO of Panoro Energy commented, "There are unlimited opportunities but perhaps a shrinking universe of companies that can actually go after them."

The panel further offered insights on the enablers in Africa during the short to medium term. Brown observed that community models should be progressive and expansion should embrace social enhancements such as creating employment and providing long-term health facilities. "The social impact of our businesses is huge," he added. 💧



# NIGERIA FINALLY REALISING ENERGY SECTOR'S STRENGTH

The passing of the long-delayed Petroleum Industry Bill (20 years in the making) will strengthen state institutions, solidify regulatory/fiscal frameworks and attract much-needed foreign capital into the oil-gas sector – a mainstay of the economy.

**A**FTER YEARS OF stagnation, the reform would overhaul/deregulate much of the hydrocarbon's sector, reduce taxes and make Nigeria generally more attractive to international oil companies (IOCs). "The new law has enhanced the Nigerian petroleum industry's reputation, provided the pathway to new investments, and consolidated Nigeria's ability to play a significant role in meeting the world's growing demand for energy," said Nigerian petroleum minister Timipre Sylva.

Last June, Nigeria unveiled plans to boost output and proved oil/condensate reserves to four mnbpd (representing a 'three-fold' increase) and 40bn barrels, respectively, by 2025 through investing in marginal oilfields located on land, swamp/shallow offshore terrains in the Niger Delta. The Petroleum Industry Act (PIA), effective August 2021, will help hike oil production by 310% (Oil minister Timipre Sylva).

The new set of 57 marginal fields – unattended for 10 years from the date of discovery – are instrumental towards achieving the country's goals of eventually growing oil reserves to 50bn barrels, whilst tapping on an estimated 600 tcf of recoverable natural gas reserves to provide



*Nigeria expects to produce 1.88 mnbpd in 2022, though down from a peak of 2.5 mnbpd in 2005.*

**“ The new set of 57 marginal fields – unattended for 10 years from the date of discovery – are instrumental towards achieving the country's goals of eventually growing oil reserves to 50bn barrels.”**

clean/efficient energy over the longer-term. The Department of Petroleum Resources (DPR) has set new gas reserve targets of 210 tcf and 220 tcf by 2025 and 2030. It also aims to stop gas flaring by 2030.

Nigeria's oil reserves (world's 11th largest) have steadily depleted because of low capital expenditure (capex), security problems in the Niger Delta and regulatory uncertainties, which stifled investment in new exploration and development (E&D) programmes. Upstream activities are increasingly focused offshore, partially reflecting in-land security concerns with many IOCs divesting their onshore assets to local energy firms. Nigeria expects to produce 1.88 mnbpd in 2022, though down from a peak of 2.5 mnbpd in 2005.

### Unlocking stranded assets

Upcoming key offshore growth projects are a testament to Nigeria's deepwater potential, where oil majors have joint stakes notably in Bonga Southwest, Bonga North, Bonga Main Extension (OML 118), Prewei (OML 130), and Owowo (OML 139), see Table 2. The US\$10bn Bonga Southwest (BSWA) project,

**Table 1: Crude Oil Production (000' bpd)**

	2018	2019	2020	2021 (Jan-Oct)
	1718	1786	1579	1394
(%) Total OPEC	5.4	6.1	6.1	5.3
Incl. Condensate & Natural Gas Liquids	2007	2102	1798	
(%) Africa Total	24.2	24.8	26.2	

### Proved Oil Reserves (end-2020)

36.9bn barrels - 29.5% of Africa's Total (125.1bn bbl), second-largest after Libya & 11th worldwide.

Sources: OPEC & British Petroleum (2021).

Note: Production is affected by sporadic supply disruptions, technical or maintenance issues & lower OPEC+ quotas.

Image Credit: Adobe Stock

led by Shell Nigeria Exploration & Production Co. (SNEPCO) ties into the existing Bonga vessel, one of the world's largest floating production, storage and offloading (FPSO) vessels. BSWA (the first large project since 2019) will have a capacity of 150,000-200,000 bpd – expected online 2022.

The US\$13.5bn Ultra-deepwater Zabazoba-Etan project (depths ranging from 1,200-2,400 metres) is jointly developed by ENI and SNEPCO and has estimated total reserves of 560mn barrels of oil equivalent. The first output from integrated oil-gas fields is expected in late 2021. Oil produced from the Zabazoba field will be transferred to FPSO and offloaded onto tankers and crude vessels.

Total's Egina field in water depths of (4,593-5,577 ft) was the last major offshore project online that reached a peak production plateau of 200,000bpd at end-2019, with estimated reserves of 570mn barrels. About 44 subsea wells were drilled and connected, via umbilical and risers, to an FPSO designed to hold 2.3mn barrels of oil.

The Assa North/Ohaji South (ANOH) project led by Seplat Petroleum Development and Nigerian National Petroleum Corp; (NNPC) is among the seven gas production infrastructures underway. It will process 'wet gas' which, once fully onstream, boast a capacity of 1.2bn scf per day. The ANOH project is a vital gas supply hub in Nigeria's burgeoning gas infrastructure network.

The revamp of the legal, economic and governance framework of the oil industry should help ensure production growth due in the mid-2020s remains on track. Fitch Solutions said, "Existing discoveries of sizeable reserves are a most likely area of new investment as several are noted as a pre-final investment decision (FID projects) in various companies' most recent filings." Fiscal changes under the PIA are favourable, cutting taxes levied on operators to more globally competitive levels, with production royalties now ranging from (5% to 15%) depending on fields locations, down from previously (7.5% to 20%).

**Table2: Nigeria's Natural Gas Output (billion cubic metres)**

	2018	2019	2020
	48.3	49.3	49.4
(%) Africa Total	20.0	20.2	21.3

**Proved Gas Reserves (end-2020)**

193.3 Tcf - 42.4% of Africa's Total (455.2 Tcf), highest in the continent & 10th worldwide.

Source: British Petroleum (2021).

**Table3: New Crude Oil Projects in Nigeria**

Name	Operator	Location	Production plateau (000, bpd)	Est. start date
Qualbo	NNPC	onshore	90	2021
Zabazoba-Etan	ENI	deepwater	120	2021
Bongo Southwest Aparo	Shell	deepwater	225	2022
Preowei (OML)	Total	deepwater	50	2023
Owowo	ExxonMobil	deepwater	160	2024

Sources: U.S. Energy Information Administration & co. websites.

**Cautions over new targets**

Few observers, however, remain sceptical of Nigeria's ambitions to double oil output by 2025 mainly due to instability in the Niger Delta, where oil theft/spills from pipelines long affected IOCs – hence not conducive for the upstream investment climate. Crude oil losses due to theft/sabotage totalled 42.25mn bpd in 2019, valued at US\$2.77bn at an average price of US\$65.61/barrel according to figures from the Nigeria Extractive Industries Transparency Initiative (NEITI).

"Nigeria has not met a single production target for at least a decade now, in many cases because of security concerns," noted political risk analysis firm, SBM Intelligence.

Previously, Nigeria set the target of 2020 and later, 2023 to raise its crude reserves to 40bn barrels and output to three mn bpd. Maikanti Baru, group managing director NNPC, admitted our target is aggressive but "Nigeria is committed to meeting it."

Nigeria also faces competition from the likes of Angola, Brazil, Kazakhstan, plus newcomers Guyana and Suriname for new (E&D) investment. Fitch Solutions believes

**“ Nigeria’s ambitions also extend to its downstream sector with aims of tripling refining capacity to 1.52 mn bpd by 2025, thereby becoming ‘self-reliant’ in fuels.”**

global capex is likely to decline over the longer-term, as decarbonisation efforts divert more capital to alternative energy and high margin barrels.

**Tackling domestic fuel shortages**

Nigeria's ambitions also extend to its downstream sector with aims of tripling refining capacity to 1.52 mn bpd by 2025, thereby becoming 'self-reliant' in fuels, according to NNPC. Presently, the operating refineries with a total processing capacity of 445,000 bpd struggle to achieve full capacity due to the underinvestment in maintenance. The federal government is working with private operators to help curb costly refined fuel imports.

The 650,000 bpd Dangote refinery (due online 2022) will secure the bulk of the capacity hike. This mega integrated refinery/petrochemical complex (estimated cost US\$18bn) will also produce 4.6mn tonnes (mt) of diesel; four mt of jet fuel; 0.69 mt of polypropylene; 0.24 mt propane; 32,000 mt sulphur and 0.5 mt carbon black feed – making it the world's biggest single-train facility – with high potential for refined petroleum exports.

**Conclusion**

Nigeria is optimistic about reviving its underperforming oil sector. However, a crucial question is whether the "landmark" PIA will prove ground-breaking legislation for new investment. The Federal government is eager for a greater influx of foreign capital, but only time will tell whether IOCs are willing to invest 'big' in Nigeria over the coming decade. Private investments are crucial to achieving optimal hydrocarbons potentials. Besides competitive fiscal terms, funding to upgrade ageing midstream infrastructure (pipelines) and improved security for onshore operations are equally crucial to win back investment.

Africa's biggest crude oil supplier offers prolific opportunities in deepwater oil-gas exploration and production for foreign energy majors over the coming years. ♦

Moin Siddiqi, economist



## Digital oilfield technologies to be gamechangers in upstream oil and gas

THE PANDEMIC HAS been a wake-up call to the upheaval that a sudden drop in energy demand and/or labour availability can cause, and digital oilfield technologies such as digital twins and other remote monitoring solutions are seen to be gamechangers in upstream oil and gas operations, according to GlobalData.

Charlotte Newton, analyst on the thematic research team at GlobalData, commented, “Technologies such as digital twins have the potential to be the backbone of digitalisation in the sector. By creating 3D images and simulations of assets, systems, and processes, oil companies can imagine more sophisticated, and more reliable, machinery in oilfields both now and in the near future.”

Ravindra Puranik, oil and gas analyst at GlobalData, added, “The oil and gas (O&G) industry saw major disruption during the first waves of the COVID-19 pandemic, and companies are now looking to automate as many processes as possible to mitigate future operational risks. This is demonstrated by the fact that contracts activity relating to digitalisation in the upstream remained resilient in the last two years, despite the pandemic-led industry downturn.”

Operators in southeast Asian fields are also deploying digital oilfield technologies. There has been activity in the Oceania and Western Africa regions, which may gain momentum with improvement in energy prices.

## Maats Pipeline Professionals features high quality equipment for pipeline construction

THE NETHERLANDS-BASED MAATS Pipeline Professionals has featured its varied range of high quality equipment for the construction of pipelines.

Maats Pipeline Professionals focuses on sales and rental of new and used high quality equipment for the construction of pipelines with all common diameters.

For nearly 40 years, Maats is one of the leading suppliers and manufacturers of pipeline construction equipment and services to the pipeline industry.

Maats supplies a wide variety of specialised construction machinery such as pipelayers, welding tractors, bending machines and related equipment for new pipeline construction as well as for pipeline maintenance and repair. Maats produces high



Image Credit: Maats Pipeline Professionals

*One of Maats' primary objectives is to supply its customers with the specialised equipment they need for the construction of pipelines.*

quality pipeline equipment under its own label.

Renting equipment helps to avoid the burden of excessive investment, maintenance and other costs, and it provides the operators with the equipment when the operator needs it.

“The machines in our rental fleet are available for short, medium and long term rental. Not to be ignored these days is

that rental minimises environmental impact,” stated Maats.

Rental at Maats gives permanent access to the most modern and efficient fleet of equipment globally available. The company's equipment is regularly maintained by its own team of engineers ensuring customers have high quality and reliable equipment on site.

## Sound Energy enters gas sale agreement over Tendrara second phase in Morocco

SOUND ENERGY, THE energy transition company, has announced that material progress has continued to be made towards satisfying the remaining conditions precedents to the Phase 1 LNG Gas sales

Agreement announced by the company on 29 July 2021.

The LNG GSA, in relation to the Phase 1 liquefied natural gas based development of the company's Tendrara Production Concession, is in addition to the

Phase 2 development gas sales agreement announced by the company on 30 November 2021 in relation to the wider, pipeline based, development plan.

Sound Energy has now satisfied all CPs within its direct control and the material remaining CP to the LNG SPA not currently satisfied relates to the entry of the loan note agreement with Afriquia Gaz described in the company's announcement of 29 July 2021. Other CPs not satisfied by the date on which the Loan Note Agreement is entered as currently expected to be waived.

Graham Lyon, Sound Energy's executive chairman, commented, “Much work has been completed in the last month and contracts finalised with Ital Fluids.”



Image Credit: Adhbe Struck

*The company aims to grow its footprints on the North African country.*

# MANAGE THE DAMAGE FROM SPILLS

The United Nations Environment Programme (UNEP) explores the dire impact of oil spills, the cost of clean-ups and what can be done to limit damage to the environment and ecosystems.

**T**HE OCTOBER OIL spill in California and the sinking of the X-Press Pearl off the coast of Sri Lanka in July have renewed attention on the environmental dangers of such disasters, especially the toll they take on marine and coral life.

According to UNEP, there are many types of oil spills and most are minor, for example when oil spills from a ship when it is being refuelled. But serious incidents, such as the 2020 oil spill in Mauritius, bring consequences that can be felt for decades. Most of the major oil spills happen when a pipeline breaks, a tanker sinks or runs aground or when a drilling operation goes wrong.

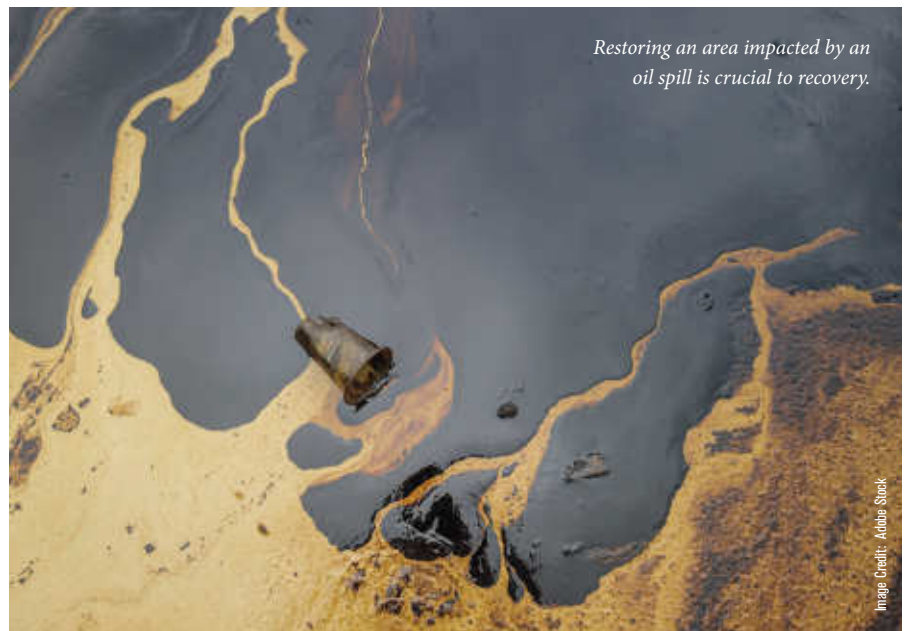
The oil spills have huge financial impact. “Not only does the clean-up have to be paid for, and in the cases of big spills this can run into billions of dollars, but the long-term impact of a spill also has an economic consequence. If, for example, like in Sri Lanka, the spill is in an area of outstanding natural beauty tourist numbers often decline, if the area is reliant on fishing, this often must be halted while the area recovers,” explained UNEP.

## Preparing for future oil spills

Governments and the oil industry must have preparedness plans in place and understand what to do when an oil spill happens. Equally important is conducting regular spill response training exercises. The quicker and better prepared the reaction the less the environmental impact. Oil spill response can be tiered so that small spills are handled at a local level, larger spills are handled on a national level and major spills call on an international response.

## Cleaning up an oil spill

It all depends on the time it takes for the



*Restoring an area impacted by an oil spill is crucial to recovery.*

Image Credit: Arabia Stock

clean-up crew to get to the site of the spill, the weather conditions, type of oil, shoreline type and environmental sensitivity amongst other factors. If a crew can reach a spill in a few hours, they can aim to contain and skim the oil.

Once the oil reaches the shoreline or spreads out it becomes harder to clean up. When oil gets close to the shoreline, manual clean-up campaigns are typically deployed, while floating dummies and balloons are used as a deterrent to get wildlife away from the impacted areas.

However, no solution completely removes the oil, in the best case scenario, only 40% of oil from a spill can be cleaned up by mechanical means. The ability of natural recovery to restore the environment can play an important role, and the actions to enhance its effectiveness need to be considered.

## Restoration after an oil spill

Restoring an area impacted by an oil spill is crucial to recovery. Before restoration can begin an understanding of the damage done by the spill needs to be undertaken, this is done through continued ecological, biological and chemical studies and analysis.

Once the damage is understood steps can be taken to accelerate the recovery, particularly those enhancing natural processes. Restoration can include the reintroduction of species affected by the spill, erosion control, if damage from the spill has sped up erosion, and a change in management practices, such as controlling fishing and hunting, in impacted areas. ♦

*To view the full article and links to further resources, see <https://www.unep.org/news-and-stories/story/how-manage-damage-oil-spills>*



# WHERE DOES AFRICA STAND IN THE ENERGY TRANSITION?

The use of fossil fuels and biomass will continue to play a large part of the energy mix for almost all of the jurisdictions in the next five to 10 years, finds DLA Piper's report.

**W**HILE MAJOR STEPS are being made in the decarbonisation of African countries, with 12 out of the 21 countries relying on clean energy as an important part of their power mix, many jurisdictions are still very much reliant on fossil fuel, according to the DLA Piper's report.

There are significant differences lying between countries in energy supply diversity and power systems

which are resulting in inconsistent development across the continent.

Despite these differences, the report has identified a clear theme of governments across Africa increasing renewable energy capacity, both as part of a pro-energy transition agenda and as the most effective way to meet rising energy demand, which is expected to double by 2040.

In Angola, Burundi and Ethiopia, this will take the form of


expanded hydroelectric capacity and in other regions such as Botswana, Kenya and South Africa, the focus is on developing solar and wind infrastructure in each case aimed at reducing dependence on fossil fuels and biomass sources.

The outliers such as Algeria, Angola and Nigeria continue to encourage and secure investment in new oil and gas developments. The key to achieving the energy transition will be implementation. ♦

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*The oil and gas industry needs to implement adequate protective measures to strengthen cybersecurity.*

# ARE YOU ONE STEP AHEAD OF THE HACKERS?

The rapidly increasing technological adoption in the oil and gas industry optimises operational efficiency without any doubt. However, the newest technologies brings the biggest risks too.  
Deblina Roy reports.

**T**HE GLOBAL PANDEMIC has led ship and offshore rig staff connecting their OT systems to shoreside networks to remotely and swiftly carry out diagnostics and upload software updates and patches themselves. This has eventually exposed the IT and OT systems as well as other critical components to the extreme risk of cyberattacks.

According to the cybersecurity consultancy Naval Dome, the maritime industry has seen a 400% increase in attempted hacks since February 2020. Such threats to key assets pose risks not only to energy, with its disruption possibilities, but to all critical national infrastructure, warned Naval Dome.

For example, the ransomware attack that shut down Colonial Pipeline's server systems in May 2021 prompted fuel shortages and a spike in gasoline prices,

resulting in unprecedented disruptions in numerous regions.

This just reflects a glimpse of what can be the real-time risk scenario if oil and gas companies fail to implement adequate protective measures to strengthen their cybersecurity.

During a panel session at the

**“As African coastal states continue to adopt port digitalisation, the opportunity for hackers to disrupt the operations of vulnerable ships and ports can be seen immensely growing.”**

2020 edition of the Nigerian International Petroleum Summit (NIPS) in Abuja, Justice Derefaka, technical assistant (gas business and policy) to minister of state for petroleum resources, urged the federal government to develop policies and legislation to protect the oil and gas industry's crucial data against cyber hack.

Recently, following the Transnet cyberattack in South Africa in July 2021, the Institute for Security Studies (ISS) brought cybersecurity professionals together for a webinar to discuss the security preparedness in Africa's maritime sector.

Africa's oil and gas exports hugely rely on seaborne trade. An estimated 90% of all African trade is conducted by sea, mostly via 90 major ports. Added to this, as African coastal states continue to adopt port digitalisation, the opportunity for hackers to disrupt the operations of

vulnerable ships and ports can grow immensely. To combat such attacks, and also to benefit from the African Continental Free Trade Area (AfCFTA), the safety of sea routes, ports and vessels should be a priority for African states.

Technologies such as the internet of things (IoT), big data, artificial intelligence (AI), application programmable interfaces (APIs) and sensors, together with the large amount of data that are now available, are being used to optimise operations, enhance efficiency, drive down costs and increase the uptime of vessels.

With Africa poised to grow rapidly in the coming decades, it will be interesting to see how technologies shape the future of this hydrocarbon-dependent region, and how IT security becomes embedded into the energy sector as it continues to evolve. ♦



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# AN INTEGRATED FLOATING ENERGY SYSTEM

FPSO systems continue to unlock Africa's offshore oil potential, as new FLNGs begin to pioneer deepwater gas extraction. Martin Clark reports.

**F**LOATING PRODUCTION STORAGE and offloading (FPSO) systems helped break open West Africa's offshore oil industry more than 25 years ago, and they are still playing a leading role today in securing essential energy for the world.

In Nigeria, BW Offshore recently signed an agreement with Addax Petroleum Exploration (Nigeria) Ltd, for a one-year extension for the lease and operation of the FPSO Sendje Berge, until at least the fourth quarter of 2022.

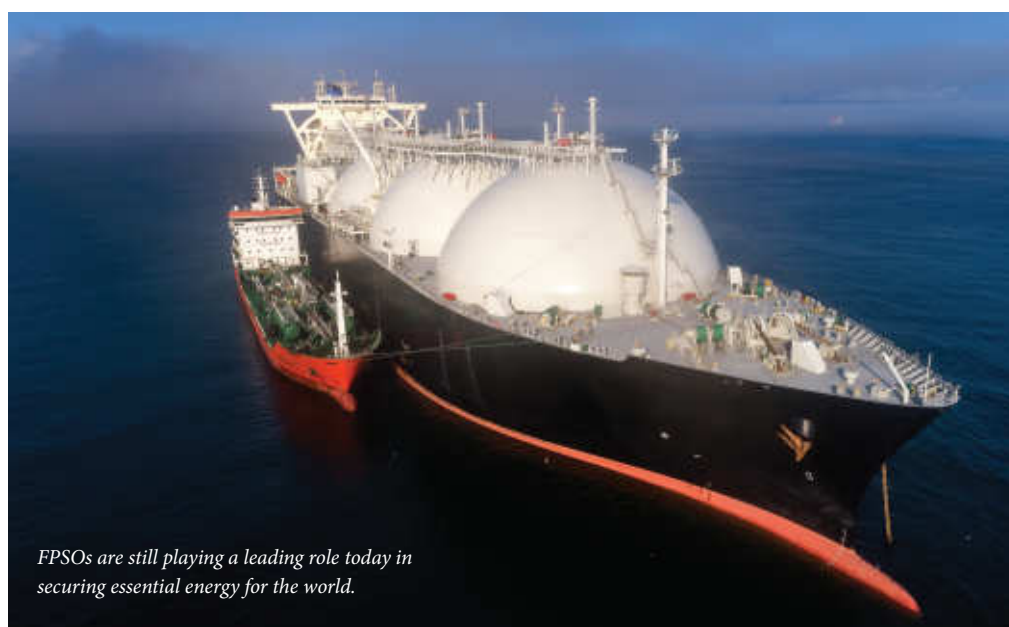
The latest new start-up is the launch of Angola's Platina field, which is being linked to BP's existing Greater Plutonio FPSO system in Block 18, which originally started up in 2007.

The new project will add around 30,000 barrels per day (bpd) of production capacity.

Eni also started production from its Cabaça North development project, in Block 15/06 of the Angolan deep offshore, via the Armada Olombendo FPSO vessel in September.

This project highlights how environmental and sustainability priorities have now become embedded in FPSO development in the current era.

The Cabaça North development, with an expected peak production rate in the range of 15,000 bpd, will increase and sustain the plateau of the Armada Olombendo, a zero-discharge,



*FPSOs are still playing a leading role today in securing essential energy for the world.*

Image Credit: Adobe Stock

zero-process flaring FPSO with an overall capacity of 100,000 bpd.

It marks the second start-up achieved by Eni in Angola in 2021, after the Cuica Early Production initiative launched in July.

A third start-up is expected within the next few months, with the Ndungu Early Production system in the western area of Block 15/06.

**“FPSOs are the key for the development of offshore oil and gas sector.”**

Just as FPSO technology has evolved over a quarter of a century to accommodate increased environmental concerns, similar giant structures are now doing a job on the other side of the continent as well, as East Africa seeks to monetise its newfound natural gas deposits.

In Mozambique, Eni is once again ready to sail its pioneering Coral-Sul FLNG – the first floating LNG facility ever to be deployed in the deep waters of the African continent – to offshore Area 4.

Production start-up here is anticipated in the second half of 2022.

The structure left Samsung

Heavy Industries shipyard in Geoje, South Korea in mid-November and will eventually be moored at its operating site in the Rovuma basin offshore, where it will form part of the Coral South project.

The Coral Sul FLNG is typical of the scale of some of these immense engineering feats.

It is 432 metres long and 66 metres wide, weighing around 220,000 tons, and has the capacity to accommodate up to 350 people in its eight-storey living quarters.

The vessel has a gas liquefaction capacity of 3.4 million tons per year, marking a new dawn in African deepwater gas processing and export. ♦

# IS DEEPWATER DRILLING ON THE RISE IN AFRICA?

According to a ResearchAndMarkets report, Africa is witnessing a significant growth in the offshore drilling segment. The recent play-opening discoveries echo that too.

**A**FRICA'S DEEPWATER DRILLING is significantly growing and companies are spending on new drilling activities in this high reward continent. Many countries are offering deepwater and ultra-deepwater blocks in their upcoming bidding rounds.

These include South Sudan, which launched the country's first-ever oil and gas licensing round at its new and existing blocks. In Nigeria, an FID is very soon expected on the Bonga South West deepwater project. Shelf Drilling plans five wells for the Baltic jack-up rig with Total E&P Nigeria – a contract estimated to be 380 days, plus additional option period.

TotalEnergies has recently exercised an option for the drillship Maersk Voyager to drill the ultra-deepwater Ondjaba-1 exploration well in Angola's Block 48. The company is also aiming to drill a Venus-1 well in offshore Namibia, and is expected to spud by the end of this year. Maersk Drilling also won a one-well contract from PC Gabon Upstream SA for the provision of a deepwater drillship rig that will be employed to drill an ultra-deepwater exploration well at approximately 2,100-metre water depth in Block F13 offshore Gabon.

Exploration is progressing very positively in the deep water off Senegal too. Woodside has completed the drilling of its first



*The seventh generation drillship Maersk Viking will be employed to drill an ultra-deepwater exploration well at approximately 2,100-metre water depth in Block F13 offshore Gabon.*

Image Credit: Maersk Drilling

oil well at Sangomar Offshore and Sangomar Deep Offshore site in Senegal. The oil field is jointly owned by Woodside and Petrosen and has an estimated 630 mmbbl reserve. As per Woodside's statement in August, the four wells have a capacity to produce 100,000 barrels of crude oil per day and are set to begin oil production in 2023.

North Africa is showing growth in drilling too. SDX Energy has successfully completed the initial three-well phase of its 2021 drilling campaign in Morocco, which will comprise up to a total of five wells over the year. Mark Reid, CEO of SDX, said, "The gross 1.5-1.6 bcf reserves added by these wells is in line with pre-drill P50 estimates and it is anticipated that this will enable us to continue to deliver gas to our

customers in line with their contractual requirements. We will now commence the preparations to drill up to two additional wells in Morocco later in the year."

"In Egypt, we are expecting to commence the drilling of the IY-2 step out development well at South Disouq in the coming days, and our planning for the potentially transformational HA-1X exploration well has significantly progressed, with spud expected in Q3 2021," Reid added.

SDX Energy has begun drilling in Morocco, launching the second phase of its 2021 campaign.

"This second phase will consist of two wells with the objective of adding reserves to allow us to continue to deliver gas to our customers in line with

their contractual requirements," Reid remarked.

According to a ResearchAndMarkets report, Africa is witnessing a significant growth in the offshore drilling segment, and the Angolan offshore is among the most prospective plays in Africa which continues to draw high levels of investment. The country has seen several high-impact discoveries in recent years. On the flipside, with Angola's most prospective acreage in the deepwater, ultra-deepwater and pre-salt areas, exploration can be characterised as high-risk, high-reward. The bulk of drilling is expected to continue to target deepwater and pre-salt prospects, spearheaded by industry giants, such as Chevron, BP, Eni, Exxon Mobil, Statoil and Total, along with national oil company Sonangol. ♦



# HELIX Q7000 CONTINUES TO IMPRESS IN WEST AFRICA

Neil Greig, sales manager at Helix Well Ops, has showcased the Helix Q7000 DP Class 3 semisubmersible vessel which has continued to prove its capabilities across multiple campaigns in West Africa.



*The campaign had a number of challenging 'firsts' for Helix involving a Nigerian crew with a brand new system and an untried IRS.*

Image Credit: Helix

**WHILE PRESENTING** AT the Offshore Well Intervention West Africa 2021 conference, Greig noted that Helix has accrued a lot of experience with well access and has successfully entered more than 1,500 wells globally. The company has an impressive fleet featuring the Q4000, Q5000, Siem Helix 1 and the Siem Helix 2 vessels, all of which are capable of a wide variety of applications. It is through their practice with these vessels that Helix has been able to launch themselves effectively into campaigns in West Africa with the Q7000 (which has similar topside equipment to its siblings) and has achieved efficiency from the start.

Greig explained that the newest vessel was delivered as part of the Subsea Services Alliance between Helix and Schlumberger and so benefits from the expertise of both

companies. By leveraging their combined knowledge, they have been able to reduce the crew size from wireline and slickline from 14 down to eight and have reduced the coil tubing crew by five. If an arbitrary figure of US\$1,000 per person per day is taken for crew cost this translates to savings of at least US\$1mn per 100 day campaign.

The Q7000 is suited to deepwater applications down to 3,000 metres but is also designed to work in shallower water with an 80 metre range. The Intervention Riser System (IRS) on board enables access to both convention and horizontal subsea trees in depths down to 10,000 feet and is capable of applications including coiled tubing, electric line, slickline, cementing, well abandonment and tree change outs.

## The story so far

Greig explained that so far the Q7000 has performed three

campaigns with Exxon Mobil, Total and Chevron (all in Nigeria) and is currently in the field under contract from SNEPCo.

In the first project, the vessel successfully delivered a five well campaign with scopes of work including the acquisition of reservoir data, water shut offs/zonal isolations, hydrate milling/CT clean up, and remedial safety valve operations. This was performed some 65 miles from Nigeria in more than 1000 metre depths.

At certain points of the campaign, instead of fully recovering the IRS it was lifted free of the well, and then the vessel moved to the next location with the IRS held at depth. This reduced time for deployment recovery operation significantly.

The campaign had a number of challenging 'firsts' for Helix involving a Nigerian crew with a brand new system and an untried IRS. Greig was happy to

report that all the personnel and equipment involved performed flawlessly, and at a time when Covid-19 was disrupting travel.

Greig concluded, "The Q7000 is something between a rig and a light well intervention vessel. It can't drill a new well, it is not sized for that, but it is sized for more efficient heavier intervention campaigns. With rigs, when they go into intervention mode you need to get the associated equipment brought on.

"There is nothing specific I can share for work in the future involving this vessel, but the 'build it and they shall come' mentality seems to be working. There is currently a huge appetite to go after oil, and if you have an asset in the field to do that it's going to make sense people will want to use it. We are certainly seeing an increase in work and this is great for everyone involved." ♦

# Vaalco’s workover of Etame wells increases crude production, benefits Gabon

ONE OF THE leading global hydrocarbon explorer, Vaalco Energy’s completion of two workovers at offshore Gabon is adding a total of 1,050 gross barrels of crude oil per day, incrementally increasing the production rate at the Etame field.

“We are pleased with the results from these workovers, in particular, the 1,050 gross BOPD of additional production. We purchased the mobile hydraulic workover unit earlier this year to allow us to quickly and efficiently react to ESP failures and to proactively prevent ESP failures as we deemed necessary,” said George Maxwell, Vaalco’s CEO.

As part of the campaign, Vaalco’s hydraulic workover unit (purchased in early 2021) was utilised to rapidly mobilise and replace electrical submersible pump units. It was able to do this more efficiently than a drilling rig, which had cost saving benefits.

The longest producing ESP unit at Etame was replaced and upgraded in the workover of EEBOM-2H which increased production from about 500 gross BOPD (255 BOPD net) to approximately 1,400 gross BOPD (715 BOPD net).

Additionally both the upper and lower ESP units at the ET-12H well were replaced and the ESP design was configured at the same well. This restored production to 1,800 gross BOPD (920 BOPD net), an increase



The aim is to maximise production in Gabon.

Image Credit: Adobe Stock

of approximately 150 gross BOPD (80 BOPD net) compared to the average rate prior to the workover.

“This allows us to maximise production and even incrementally increase production, which is particularly attractive in the current price environment. We will continue to efficiently operate at Etame which generates strong cash flow to fund our accretive strategic initiatives,” Maxwell added.

Vaalco has 58.8% working interest at the Etame Marin field and 63.6% participating interest. Other partners are Addax Petroleum and PetroEnergy.

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# THE ERA OF DIGITAL OILFIELDS

The role of the digital oilfield is expanding to encompass not only online reservoir management and other core processes, but potentially to assist in industry efforts to decarbonise in the years ahead. Martin Clark reports.

**N**EW TECHNOLOGY HAS opened up insights into oil and gas reservoirs that would have been impossible just a few short years ago. This insight can provide information into every aspect of an oil field, from discovery through to eventual maturity, helping to preserve the lifespan of an asset and improve its overall reliability and profitability.

As well as improved monitoring and decision-making, it also means better safety for workers, with online operations keeping people out of harm's way, thereby reducing potential risks.

The rise of the digital oilfield – essentially combining business process management with digital technologies – is nothing new, but it is an area that continues to evolve. The Covid-19 crisis has highlighted the need for greater flexibility and resilience across the oil and gas chain, and technology can play a key role.

Moreover, there is also a sense that this increased technology deployment can play a part in the industry's efforts to decarbonise in the years ahead. In this sense, with climate change concerns ever more pressing, the rise of the digital oilfield may have only just begun.

Major global technology firms working in this niche and supporting operators in Africa and worldwide include the likes of Huawei and Microsoft.



Image Credit: Adobe Stock

*The rise of the digital oilfield — essentially combining business process management with digital technologies — is nothing new.*

Huawei recently launched a new solution, Intelligent Oil & Gas Fields, designed to help energy companies to go digital. Its solution covers areas ranging from production inspection to predictive maintenance using a spectrum of data and intelligence technologies.

**“ Oil industry service company heavyweights are actively participating in the fields in Africa and in other producing territories.”**

The company demonstrated its technical capabilities at a recent trade show: the intelligent exploration and production (E&P) solution uses cloud, AI, and big data to quickly and accurately process seismic data, identify oil and gas reservoirs, and diagnose working conditions of pumping wells.

Oil industry service company heavyweights like Schlumberger are also actively supporting operators in the field in Africa and other producing territories. It recently teamed up with AVEVA in a new project to integrate its edge, AI and cloud digital solutions to help operators optimise their oil and gas production.


“By integrating our domain expertise, secure edge technology and digital applications in the DELFI environment with AVEVA, we will enable customers to increase efficiency and transform their production operations,” said Rajeev Sonthalia, president, Digital & Integration, Schlumberger.


AVEVA's chief technology officer, Andrew McCloskey, added that recent macroeconomic events “have highlighted the need for agility throughout all industries.” If digital transformation can help achieve profitable business outcomes and deliver sustainability, then expect it to be embedded in more projects in Africa and worldwide. ♦



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# IS THIS NAMIBIA'S TIME TO SHINE?

Namibia has positioned itself in the competitive petroleum exploration scene and drawn interest from oil majors including Tullow, TotalEnergies, GALP, Shell, ONGC and ExxonMobil. Namcor has taken a central position in shaping the country's prospects, commissioning a 10% interest in multiple international companies operating in Namibia.

**N**AMIBIA'S POTENTIAL OIL boom is a hot topic for African stakeholders. According to experts and analysts, the southern African nation is providing significant investment opportunities to traverse its hydrocarbon perimeters.

For example, recently, ReconAfrica and its joint venture partner Namcor, completed drilling operations on the 6-1 well in the Kavango Basin, its second stratigraphic test well in the country. ReconAfrica currently holds petroleum licenses comprising approximately 8.5 million contiguous acres in the deep Kavango Sedimentary Basin.

In addition to this, committed to a just energy transition, ReconAfrica has completed the drilling operations for 16 solar-powered water wells for local communities in the Kavango east and Kavango west regions, aiming to drill six more in the near future.

The wells, according to the industry experts, not only revealed an active petroleum system, but analysts have also compared the findings to that of the oil-rich Permian Basin in Texas, with 12% of the exploration footprint potentially uncovering 120 billion barrels of oil. With further drilling commencing, Namibia is on the precipice of an oil boom.

"Everyone is happy with the



Image Credit: Energy Capital & Power

*Hon. Tom Alweendo, minister of energy for Namibia, discussed the legal and technical aspects of the southern-African country's upstream sector in a panel discussion at the African Energy Week 2021 event in Cape Town during a spotlight focused on Namibia's upstream sector.*

way ReconAfrica is doing the exploration. This is what we want – the liberation struggle is gone, it is now time for economic freedom. We want exploration, to know what is under the ground," Hompa Eugene Siwombe, chairperson of the Kavango Traditional Authority Committee, said.

During a recent panel discussion at Africa Energy Week, Shakwa Nyambe, director

for the Association of International Petroleum Negotiators, spoke about the opportunities in this southern African nation. Nyambe indicated the necessity to develop policies that create an enabling environment to attract investors. "Namibia's energy approach, which is that of an energy mix, promotes all forms of energy. The same national policy promotes the exploration of oil and gas and

also promotes the traction of investors," he stated while speaking about the exploration opportunities that exist for Namibia's natural resources.

With regards to how Namibia's fiscal deficit and public debt levels will improve with the abundance of oil and gas resources, Hon. Tom Alweendo, minister of energy for Namibia, stated, "We are on the cusp of transformative activities that can transform the country," and added that Namibia has fruitful oil and gas prospects with the potential to deliver equity to the country.

Speaking with *Reuters* on the sidelines of the conference in Cape Town, Alweendo further stated that the country is set to award a 25-year production licence to ReconAfrica if it finds oil near the Okavango Delta.

The fiscal regime in Namibia is simple too. On the measures and adjustments for rent, royalties and taxes for exploration companies, Immanuel Mulunga, managing director for Namcor, commented, "The government will want to increase taxes in a progressive, competitive and transparent manner."

With all these robust developments and positive responses from industry experts, it will be interesting to see how the southern African nation is building one of the most exciting oil stories in the coming days. ♦

**“The fiscal regime in Namibia is simple too,” said Immanuel Mulunga, managing director for Namcor.**



# COP26 PLEDGE MAY LIMIT GLOBAL WARMING TO 1.6°C

Considering all of the pledges in COP26, along with our energy demand forecasts and other factors, total emissions are poised to decline fast enough to be closer to a 1.6° scenario than before, according to Rystad Energy's CEO Jarand Rystad.

**R**YSTAD ENERGY'S ASSESSMENT of the COP26 summit consensus is that the last-minute compromises can be seen as overwhelmingly positive towards averting critical levels of global warming.

The data-driven forecasts model different climate scenarios and, up until the Glasgow Climate Pact, and the research pointed to a likely outcome of 1.8°C.

"However, while we will not change our base case until further evidence justifies such a move, the commitments by global leaders to cut methane emissions and reduce deforestation, alongside faster than expected solar PV manufacturing capacity additions and EV penetration, could be a recipe for limiting the temperature rise to 1.6°C versus pre-industrial levels," stated Rystad Energy.

A coordinated global effort to cut methane emissions represents a vital step forward and offers a potential upside in the fight to reduce global warming. The long-term carbon budgets cited in the IPCC's AR6 WG1 report, released in August, included assumptions that significant methane emissions would continue to occur after net zero is achieved. However, the combined effects of more than 100 countries pledging to cut methane emissions by at least

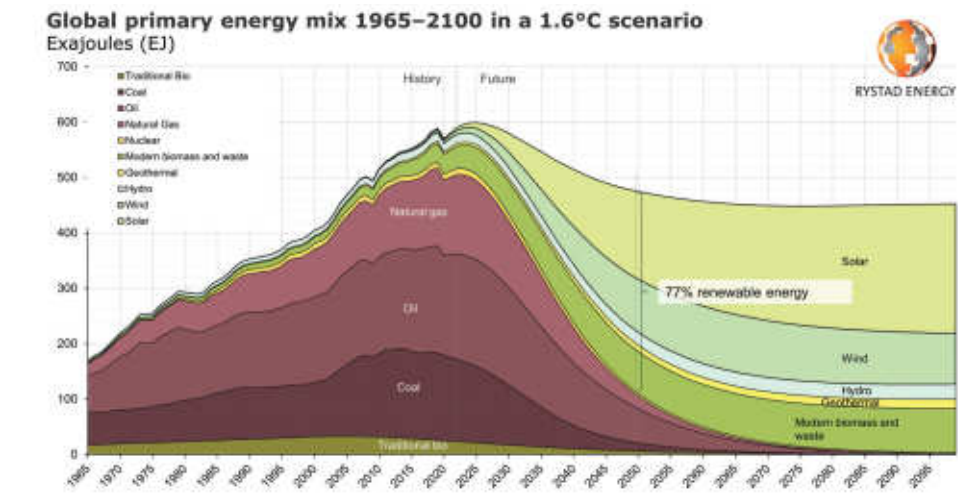


Image Credit: Rystad Energy

*A coordinated global effort to cut methane emissions represents a vital step forward and offers a potential upside in the fight to reduce global warming.*

30%, along with expectations of further support via technology improvements in coming years, amount to added leverage in the battle against global warming and provide an additional buffer for the likelihood of a 1.6° scenario.

Another positive contribution from the COP26 summit was the commitment to stop deforestation by 141 countries that collectively represent 91% of global forest areas. Deforestation currently contributes around five Gt of emissions per year, or 0.1°C of global warming over a 45-year period.

"Considering all of the pledges in COP26, along with our energy demand forecasts and other factors, total emissions are

poised to decline fast enough to be closer to a 1.6° scenario than before. More evidence of action is needed but it is not a stretch to say that if promises are kept the temperature rise can be limited to less than we previously anticipated. Even 1.5° is not totally out of reach," said Rystad Energy's CEO Jarand Rystad.

Considering all of the pledges in the Glasgow Climate Pact, along with the energy demand forecasts and other factors, total emissions can decline fast enough and increase the likelihood of a 1.6° scenario. In this scenario, annual CO<sub>2</sub> emissions are expected to decline from 37 Gt today to 31 Gt in 2030, and further to 14 Gt in 2040, three Gt in 2050, 0 Gt in

2056 and -2 Gt in 2060.

Total cumulative emissions before net zero is achieved will be 660 Gt, which is consistent with the P50 for global warming reaching 1.6°, according to the IPCC's AR6 WG1 report. A key downside to this scenario is the risk of slower deployment of renewables, potentially caused by supply chain challenges.

Rystad Energy, therefore, sees greater likelihood of limiting the global temperature rise to 1.6° based on the latest COP26 commitments and is looking forward to evidence of the promised change, along with the rest of the world, to move its base case scenario from 1.8° towards lower tiers in the future. ♦



# LIUGONG'S F-SERIES EXCAVATORS

## 'MOVE IT UP A GEAR'

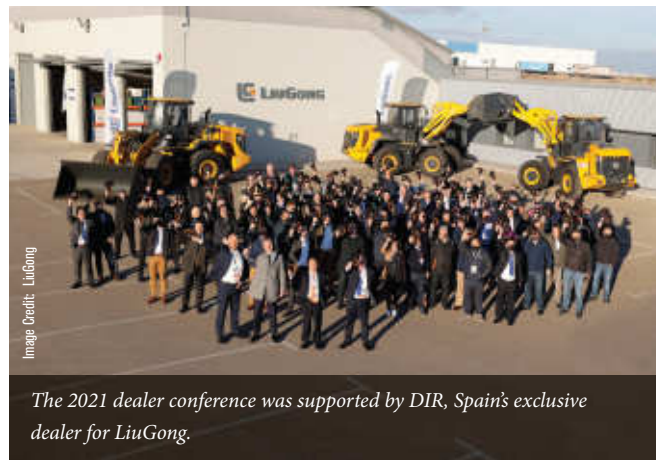
More than 100 LiuGong dealer partners from across Europe met in Zaragoza for SMOPYC exhibition to share LiuGong's exciting plans for 2022. Under the theme Moving Up A Gear, LiuGong has demonstrated how their accelerated approach to creating even greater value for their customers and dealer partners will continue at a pace in 2022.

**“IT'S AMAZING AND** quite emotional, to be able to meet our dealer partners face-to-face for the first time since November 2019,” explained Hakan Ilhan, vice-president, LiuGong Europe. “With new product launches right across our range, from the all-new F-Series excavators to our new Dressta TD-15M series-2 dozer, it was great to be able to switch off our web-based calls and touch, feel and experience these amazing machines in person.”

The 2021 dealer conference was supported by DIR, Spain's exclusive dealer for LiuGong. DIR represent the perfect example of LiuGong's approach to its business partners and with LiuGong's support, have enjoyed rapid expansion since their establishment in 2019.

“LiuGong provided us the perfect business opportunity,” explained DIR's CEO David Iglesias. “They have excellent products, built, tested, and supported in Europe, but they also have a long-term mindset focusing on building relationship and trust. Over the last 4 years, they have really helped us to establish LiuGong as a potential future leader in the Spanish market.”

LiuGong's Dealer Conference was scheduled to coincide with SMOPYC, Spain's leading construction equipment exhibition, where LiuGong and



The 2021 dealer conference was supported by DIR, Spain's exclusive dealer for LiuGong.

DIR showcased their latest F-Series excavators, the all-new 915FCR, 922F and 926F. These new models join the existing line-up of F-Series excavators that were launched last year which include the 9018F, the 9027F and the awesome 95-ton powerhouse, the 995F.

Harry Mellor, LiuGong's product manager for excavators for Europe explained, “With the F-Series range, we have listened to our customers & operators and have delivered a range of machines that are easy to use, easy to own and easy to maintain. It's not rocket science, it's just customer focus matched with intelligent design.”

Designed by LiuGong's UK based, Red Dot Award winning design team, the F-Series excavators take customer centric design to a new level. They

benefit from spacious, modern, high-visibility cabs with the highest levels of comfort and ergonomics. Visibility and safety are enhanced with the inclusion of 360-degree cameras. Ground level maintenance makes daily checks and servicing faster, safer, and easier. When it comes to power and control, the F-Series machines come with Stage V compliant engines and full electro-hydraulic systems.

LiuGong has a reputation for tough excavators and this will be further enhanced by the extended maintenance intervals enjoyed on the F-Series range.

Aside from the new F-Series excavators range, LiuGong has been moving up a gear across their product portfolio particularly in wheel loader product line and Dressta crawler dozers. Notable highlights from

the SMOPYC exhibition were the new Stage V 890H wheel loader and the new TD-15M series-2 crawler dozer. The TD-15M benefits from a new high visibility cab design, increased power output with improved operator control thanks to electrohydraulic joysticks and easy maintenance designed in. Pushing 173 kW (232 hp) and with a drawbar pull of 472 kN, the TD-15M is perfect for roads and highways, landfill sites, forestry and general construction.

Chairman LiuGong Europe Howard Dale added, “Our continued growth in Europe will be the result of close co-operation with dealer partners with proven aftersales infrastructure, supported by our industrial capability in Poland and our world-class parts distribution centre. Our proximity to our customers will significantly reduce shipping costs and provide faster delivery on a majority of our genuine LiuGong parts.”

With exciting new products in the pipeline, continued investment in people and network infrastructure and a consistent focus on delivering a leading brand and customer experience, LiuGong's dealer partners who attend the dealer conference and visited the SMOPYC exhibition clearly shared LiuGong's optimism for 2022. ♦

[www.liugong-europe.com](http://www.liugong-europe.com)



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# REMOTE INSPECTION: UP AND COMING

Autonomous inspections can effectively reduce O&M costs and prevent serious failures at industrial facilities. Percepto CEO Dor Abuhasira catches up with Deblina Roy to explain how companies can innovate solutions to optimise refinery operations.

**T**HE CORONAVIRUS IS pushing managers to increasingly consider autonomous inspection at industrial sites worldwide that also enables data collaboration and remote operations. As more and more companies scratch the surface of digitalisation during the pandemic era, integration of some levels of automation into daily workflows is seen to be exponentially growing.

Refineries too are constantly looking for ways to boost employee safety and reduce their environmental footprint, while also improving their bottom line. According to Mordor Intelligence data, the refining industry automation and software market was valued at US\$14.03bn in 2020 and is expected to reach US\$16.75bn by 2026, at a CAGR of 3% over the forecast period from 2021 to 2026.

This is leading many companies to rethink the role that autonomous technology – and specifically autonomous drones – can and should be playing in their operations.

Percepto AIM is an end-to-end inspection and monitoring software solution that fully automates visual data workflows, from capture to insights, while ensuring safety and operational efficiency. For oil and gas refineries, the automated inspection system helps boost productivity and safety.

For the pipelines, while providing a unique aerial perspective, Percepto's unique drone-in-a-box inspects infrastructure for leaks on a weekly or even daily basis, inspecting for tank roof leaks, pipe leaks, and doing a general sweep to inspect the ground and surrounding water for oil sheens.

Percepto AIM fully automates routine inspections, inspecting stationary and floating roofs and confirming tank integrity – inspecting for dents, unclosed hatches, leaks, objects on the rooftops, corrosion and more.



*Percepto AIM is an end-to-end inspection and monitoring software solution that fully automates visual data workflow.*

Image Credit: Percepto

Autonomous drones and robots collect high-resolution footage on a consistent and persistent basis, with automated reports and alerts generated to inform stakeholders of temperature anomalies, 3D models and visibly identifiable faults.

## Addressing safety concerns for oil and gas workers

Abuhasira explained that refineries today are constantly looking for ways to boost employee safety and reduce their environmental footprint, while also improving their bottom line. He further explained how it is important for companies to think outside the box and incorporate innovative solutions to optimise their refinery operations.

Percepto's autonomous drones and robots perform routine inspections at facilities, inspecting infrastructure on a consistent and persistent basis, and constantly looking for safety hazards and leaks. Percepto AIM converts data collected by robots to provide

insights and automated alerts, ensuring that no asset failure or safety hazard goes unnoticed. This avoids the need to physically send employees to industrial core points for inspection. Also, instead of spending time on rigorous outdoor inspection, the employees can spend their time optimising how the site is inspected and also maintained. At the end of the day, this translates into maximised uptime, streamlined environmental compliance and guaranteed employee safety.

Abuhasira spoke about issues concerning sustainability, stressing more about eco-friendly aspects. He explained how. In the event of a dam collapsing when hazardous materials outpour into facilities and in the nearby areas, the event can cause an environmental catastrophe. So if the facilities can reduce the number of dams collapsing, they can have a positive effect on maintaining sustainability. Percepto's solutions can automate multiple on-site tasks, maximising site productivity and safety for employees and the environment. ♦



# COP26 AGREEMENTS AND CONVERSATIONS TO PRACTICALITIES

ADIPEC 2021, the global energy industry's largest, most important and influential event, concluded following top-level discussions and underscoring the sectors' readiness to embrace the challenges of the energy transition.

**T**HE FOUR-DAY BUSINESS-CRITICAL platform was held under the patronage of His Highness Sheikh Khalifa Bin Zayed Al Nahyan, President of the UAE, and hosted by the Abu Dhabi National Oil Company (ADNOC).

During the strategic conference, four themes were discussed throughout the week, including new market dynamics in a changing energy world; fuelling the future: the new energy agenda; building the energy company of the future: new business models and investment flows; and transformational technologies: unlocking the engines of change.

Addressing the themes, HE Mohammad Barkindo, secretary-general, OPEC, said, "The challenge is managing how to reduce greenhouse gas emissions that have been impacting our climate. The Intergovernmental Panel on Climate Change (IPCC) and many other reputable scientific institutions have called upon the global community many times to deploy their resources, their ingenuity, come up with policy measures, projects and programs to address greenhouse gas emissions.

"The oil and gas industry is no exception. This industry has the capacity, resources and innovative mind, to rise to the



*HE Mohammad Barkindo, secretary-general, OPEC, addressed the themes of the event.*

Image Credit: dmg events

challenge. We need the world to understand that this industry must be part of the solution to climate change. We are not climate deniers, and we're ready to play our part in ensuring that the outcome of the Glasgow COP26 talks and the climate park that came out of Glasgow is comprehensively inclusive and fair manner implemented by all parties, including our member countries."

Tayba Al Hashemi, CEO of ADNOC Sour Gas and ADIPEC 2021 Chair, underscored the importance of industry collaboration as the event drew to a conclusion. She added, "ADIPEC 2021 returned as an in-person event at a crucial time for the energy industry as we take stock of the outcomes of COP26.

"This week we have seen organisations from across the energy world come together at

ADIPEC 2021 to explore, collaborate and chart the next stage of sustainable growth for our industry, delivering more energy and fewer emissions.

"We must do more to accelerate decarbonisation, but we cannot simply unplug from today's energy system and into a cleaner energy model of the future. This is what we have been exploring here at ADIPEC 2021."

HE Sarah bint Yousif Al Amiri, minister of state for advanced technology, commented, "We believe that advanced technology and sustainability go hand in hand, and it is this philosophy which underpins the Ministry of Industry and Advanced Technology's transition to Industry 4.0. At the forefront of our focus, we will drive new solutions to our sustainability and development priorities, emphasising 4IR in between and across the value chain. Meeting here on the eve of the UAE's golden jubilee, and as we look back on the remarkable achievements of the last 50 years, I cannot overstate the importance of the UAE, and ADIPEC 2021, in shaping the global oil and gas sector."

The Digitalisation Zone provided insights on big data, cloud and machine learning with 100 specialist companies showcasing the latest ways digitalisation can enhance the energy value chain. ♦

**“ ADIPEC 2021 provided a unique platform for the manufacturing industry to gain insights into the energy transition and identify the challenges and opportunities.”**

# TAPPING INTO THE HYDROGEN GOLDMINE

While the clean fuel of the future basks in glory, there are challenges that must be addressed, collectively and urgently. Reports Shilpa Chandran.

**H**YDROGEN AS A clean source to reduce carbon energy has been gaining reputation as the fuel of the future, and as per a recent study by Goldman Sachs, green hydrogen could meet up to 25% of the world's energy requirements in less than 30 years, with a market value above US\$10 trillion.

Countries have been tapping into this clean fuel alternative since the 1970s, with accelerated momentum to shift from the traditionally crude-oil dependent by global economies.

The emphasis on hydrogen in a diversified energy sector, the challenges it faces, the opportunities and the need to build strategic policies in promoting hydrogen deployment all came under the scanner during the Abu Dhabi International Petroleum Exhibition and Conference (ADIPEC).

"For us sustaining a reliable source of clean energy is one of the pillars of our future economy, in the next 50 years. That drove our commitment to COP, and made us consciously invest in attracting and regulating future energies. Hydrogen is one of the potential elements of the future, and in the UAE we are interested in producing the cleanest barrels in the world," said Suhail Mohamed Al Mazrouei, minister of energy and infrastructure in the UAE, during a Hydrogen

Ministerial panel at the event.

In November, the emirates announced the Hydrogen Leadership Roadmap, a comprehensive national blueprint to support domestic, low-carbon industries, contribute to the country's net-zero ambition and establish the country as a competitive exporter of hydrogen.

The roadmap is aligned with the nation's commitment to address global climate challenges, and supports the UAE's Net Zero by 2050 Strategic Initiative, which is in line with the 2015 Paris Agreement.

"We will regulate this new fuel enabling the business community and technology to give us solutions and scalability of its deployment. Secondly, we have announced large projects, the likes of which are the ADNOC blue ammonia project that will use hydrogen to produce relatively cleaner ammonia," added the Minister.

The UAE is already implementing several projects targeting export markets such as Japan, South Korea and Germany. Additionally, the country has already started building a green hydrogen plant, claimed to be the first in the Middle East. It aims to capture 25% of the global hydrogen fuel market by 2030.

He urged countries and companies, which have already embarked on a learning curve with hydrogen to share their

**“ Collaborations are the key between government, corporates and private sectors to develop the hydrogen industry.”**

expertise to keep pace with these ambitions, and on behalf of the UAE, vouched support to emerging markets, such as Africa.

## Hydrogen in Africa

In Uganda, upto 95% of its energy comes from renewables, including hydrothermal, solar, biomass and geothermal. "When we talk about hydrogen I am here to see how I can run with people in the field when I am just crawling," noted Ruth Nankabirwa Sentamu, Minister of Energy and Mineral Development of Uganda. While the country has been continuously integrating energy sources to provide energy to its far-reaching villages, there is concern on tapping into a source such as hydrogen considering its high costs.

The minister made an open invitation to investment into the country and welcomed collaborations to help navigate concerns over costs and eliminating one of the region's

pressing issues, energy poverty.

Lending support to the this cause, Al Mazrouei stressed the need for collaborative efforts between government, corporates and private sectors as the key to develop the hydrogen industry. With clarity of policy, boost in investments and unlocking new collaborations, hydrogen can be leveraged from a niche sector to being mainstream. "For our friends in Africa, they need their right of energy. It is unfair to ask a country that is just starting to deal with the availability of energy to all its population to follow the most expensive option. That is why we have to be pragmatic and practical in how we can take this forward, and build strategic roadmaps where we well define scalability, and supporting technologies for subsequent utilisation. Certain countries can afford it and go into it faster. These countries can help encourage technologies to be innovative."

He pointed out that while there may be several challenges to address, there is also relief in the fact that countries are engaging in open discussions to tackle them. "We are dealing with so many challenges at the same time, but I am glad we are talking about it and I can tell you that us in the UAE we will share our knowledge, do something about it and we will work with everyone who is ready to work with us to find solutions," he concluded. ♦

# HOW TO TACKLE CLIMATE CHANGE

The panel of energy ministers from Bahrain, Portugal, Senegal and Turkey highlighted the growing importance of natural gas and the importance of supporting developing countries through the energy transition.

**D**URING THE FIRST official ministerial COP26 Panel since the conclusion of the UN climate meeting in Glasgow, the ministers discussed a clear path for the energy industry to align itself with the outcomes of COP26 and the ways to shape government policy and industry behaviour in the months and years to come.

HE Dr Mohamed bin Mubarak Bin Daina, envoy for climate affairs and chief executive of the supreme council for environment, Bahrain, said, “We made our commitment [to net zero] by 2060 but we also made a pledge to ourselves that we would reduce emissions by 10% in 2025 and 20% by 2035. We are also committed to providing the most efficient and affordable state of energy mix. We need to help developing countries to grow and not put obstacles in front of their growth.”

HE João Galamba, deputy minister and secretary of state for energy, Portugal, commented, “There’s a virtuous relation between renewables in general and green hydrogen.

We have now created the conditions under which hydrogens cannot be hype; it has to be a reality. Hydrogen solves some of the problems of renewables and renewables make hydrogen possible. Countries that are competitive in their renewable mix will be



The ministers discussed the ways to shape government policy and industry behaviour in the months and years to come.

competitive in producing hydrogen. Bringing consumers on board is a critical success factor for any decarbonisation strategy.”

HE Dr Aissatou Sophie Gladima, minister of petroleum and energies, Senegal, added, “Today, in Senegal, 2% of electricity comes from clean energy, from wind energy, so the aim is to increase this level. However, due to the geographical constraints, we need to electrify our remote areas and to do that we need to create green energy, and produce more power from energies like natural gas. Energy transition needs to be done in a fair manner, a transparent manner,

and an increasing manner, all African countries need to work together to defence these principles.”

HE Dr Alparslan Bayraktar, deputy minister, ministry of energy natural resources, Turkey, said, “The infrastructure is there, the sources are there, all we need is political commitment and willingness, and a pragmatic and creative approach to make this happen. We believe that gas can play a major role for this transition, and we need to successfully manage this transition.”

Earlier this month, the UN Framework Convention on Climate Change (UNFCCC) officially announced that the

UAE will host the 28th Conference of the Parties (COP28) in 2023. The UNFCCC confirmation followed unanimous endorsement by the Asia Pacific Group of nations during COP26 in Glasgow.

Also announced at COP26 was the launch of the UAE and the International Renewable Energy Agency’s (IRENA) US\$1bn global finance platform that aims to finance 1.5GW of new renewable energy power in developing countries by 2030. The Energy Transition Accelerator Financing (ETAF) Platform secured US\$400mn anchor funding from Abu Dhabi Fund for Development (ADFD) as its first strategic partner. 🔥



# AFRICAN RIG COUNT

COUNTRY	October 2020	November 2020	October 2021	November 2021
ALGERIA	24	29	29	31
ANGOLA	2	3	4	6
CAMEROON	1	1	0	2
CHAD	3	3	3	3
CONGO	0	0	1	1
CÔTE D'IVOIRE	0	0	1	1
EQUATORIAL GUINEA	0	0	1	1
GHANA	0	0	1	1
KENYA	3	3	4	4
LIBYA	8	12	14	14
MAURITANIA	0	0	0	0
MOROCCO	0	0	0	0
MOZAMBIQUE	0	0	1	1
NIGERIA	7	8	9	7

Source: Baker Hughes

## Trelleborg launches interactive Dynamoor experience

TRELLEBORG'S MARINE AND infrastructure operation has launched an interactive experience and video to showcase its safety focused intelligent mooring solution, DynaMoor, which aims to facilitate safer, more efficient and sustainable berthing and product transfer.

Richard Hepworth, president of Trelleborg's marine and infrastructure operation, said, "The world of shipping is changing and this presents new challenges. Ports are busier due to larger vessels and increased traffic, while adverse weather conditions, including long period waves, cause unsafe loading and unloading issues."

"DynaMoor not only enhances the safety and efficiency of berthing and product transfer, but contributes to the decarbonisation of the maritime sector globally as it reduces the fuel consumption and emissions of those vessels involved in the transfer process. Thus, facilitating more sustainable port operations – a strategic focus for Trelleborg through the development of



*DynaMoor actively maintains tension in mooring lines to dampen vessel movements.*

cleantech and premium product design, as part of its commitment to supporting five of the United Nation's 17 Sustainable Development Goals (SDGs)."

DynaMoor actively maintains tension in mooring lines to dampen vessel movements, eliminating the effect that passing ships, sea swell and long-period waves have on moored vessels. This increases the range of

environmental conditions in which cargo can be transferred, improving throughput. The risk of parted lines and excessive vessel excursion is significantly reduced, protecting people, assets and increasing uptime. It further enhances safety by minimising 'snap back' zones.

DynaMoor combines the functionality of Trelleborg's class leading Quick Release Hook with constant tension capabilities to pay in and out mooring lines. Used on a standalone basis or with the ship's mooring lines and winches, DynaMoor can form part of a complete jetty solution integrated with Trelleborg's Quick Release Hooks, AutoMoor, Smart Bollards, or be deployed as a separate system.

DynaMoor has a built-in roller fairlead to allow for a wide range of mooring line angles and can come fitted with an optional capstan. Added safety interlocks prevent inadvertent or unauthorised release. The system also has the ability to release mooring lines remotely in an emergency and monitors loads in real time.

## TWMA's wellsite solution to reduce carbon emissions of drilling operations by 50%

**SPECIALIST DRILLING WASTE** management company TWMA has highlighted how its wellsite processing solution has been proven to reduce the carbon emissions of drilling operations by 50% at this year's ADIPEC.

The company has presented a technical paper at a session hosted by the Society of Petroleum Engineers (SPE) during the conference.

With sustainability and net-zero targets at the top of the industry agenda, TWMA is poised to further support customers to improve their environmental performance, especially in the UAE which represents a third of the company's business.

Halle Aslaksen, CEO at TWMA, said, "For 20 years TWMA has been lowering the carbon emissions of drilling operations using our TCC RotoMill wellsite processing technology. Since bringing this technology to the UAE in 2012, we have delivered safe, low cost and sustainable operations to some of the region's biggest projects, most notably the Upper Zakum development."

The TCC RotoMill wellsite processing solution allows drilling waste to be processed at the source, eliminating the need to ship drilling waste long distances for treatment. The solution lowers carbon emissions, reduces well cost and improves safety performance.

## Halliburton unveils iCruise X Intelligent Rotary Steerable service

HALLIBURTON COMPANY HAS released iCruise X Intelligent Rotary Steerable System, the next generation of the drilling platform targeted to longer, harsher applications to deliver precise well placement and reduced well time.

The iCruise X is equipped with an advanced steering head fit for greater durability in operations with variable fluid conditions and in fluids with high solids content. It delivers in high temperature environments and provides more power for steering. Halliburton designed the iCruise X steering section with the latest metallurgy and design techniques. The collar includes new connections to better resist torsional oscillation and cyclical bending at higher doglegs. The extra force available



*The iCruise X is equipped with an advanced steering head fit for greater durability in operations.*

for steering delivers geologically complex wells and curves faster and provides a stiffer assembly for straight well sections.

"We are excited to release iCruise X that extends the operating limits of traditional rotary steerable systems, so operators have the durability to deliver accurate, smooth 3D wells, and laterals faster in harsh

drilling applications," said Rami Yassine, vice-president of Sperry Drilling.

A large operator in the Middle East ran iCruise X to drill a curve section in a tough and abrasive formation. The system drilled the curve section in one run and beat the record for the basin by 30% saving the operator valuable well time.

## Satcom all set to maximise the efficiency of maritime sector

IEC TELECOM GROUP and Thuraya Telecommunications have collaborated to present at one of the leading offshore conferences held in Dubai, the UAE.

Added value and comprehensive service are now the expectation as the shipping industry's use of digital

communication matures and operators require more from their VSAT connection. And essential back-up systems can also work harder to protect business continuity.

Speaking at a recent offshore industry conference, Nabil Ben Soussia, CEO Asia, Middle East

and CIS at IEC Telecom Group, said, "Today we see far fewer ships operating just with a single line of communication. For example, it's now common practice to equip an onboard network with one or two back-up lines. In fact, VSAT packages now routinely include L-Band along with any Ka or Ku offer. The business is changing and now, more than ever, digital service providers need to keep up with the pace."

High tech ships and offshore installations are now offices at sea and the associated requirements for managing large volumes of critical data via reliable connectivity are increasing exponentially. Such reliance on data transfer and vessel monitoring ensure 24/7 connectivity for the operator.



*The march towards digitalisation, fast-tracked by the pandemic which drove businesses to find new ways of operating, is increasing the data-driven environment.*

## Speedcast SmartView to accelerate remote subsea inspections

SPEEDCAST, ONE OF the leading communications and IT services providers, has launched Speedcast SmartView, a remote video and audio communications solution that is set to help the energy, maritime, enterprise, telecommunications and government sector in accelerating their digital transformation agenda.

Speedcast SmartView aims to allow secure, high-definition video and audio to be streamed in real-time via satellite at a fraction of the bandwidth previously required. As a result, organisations looking to transform their operations through digitalisation can use Speedcast SmartView to conduct inspections and repairs for assets operating anywhere in the world, without requiring



Image Credit: Speedcast

*Speedcast SmartView aims to allow secure, high-definition video and audio to be streamed in real-time via satellite at a fraction of the bandwidth previously required.*

technicians to travel and work at remote sites.

Available in multiple formats, Speedcast SmartView can be used on remotely operated vehicles (ROVs) for subsea inspections and research, at remote sites for monitoring, and on wearable devices.

“Video collaboration

technologies can significantly improve operations in the field and in subsea,” said Jeffrey Irwin, vice-president, product management at Speedcast.

“Speedcast SmartView’s unique proposition is its ability to deliver high-quality video and audio content over satellite connection.”

## NGK Insulators launches CO<sub>2</sub> separation membrane for industrial exhaust gas

NGK INSULATORS LTD has developed a CO<sub>2</sub> separation membrane for industrial exhaust gas that aims to continue with development for further increases in separation performance, aiming for commercialisation in 2030 after demonstration testing.

In testing with simulated industrial exhaust gas,



Image Credit: NGK Insulators

*The CO<sub>2</sub> separation membrane for industrial exhaust gas makes use a difference in adsorption characteristics (affinity) for molecules to separate CO<sub>2</sub> from nitrogen and oxygen.*

the membrane achieved CO<sub>2</sub> separation factor approximately five times that of conventionally developed DDR-type zeolite membrane used for CO<sub>2</sub> separation.

NGK has developed a DDR-type zeolite membrane, which is one of the world’s largest ceramic CO<sub>2</sub> separation membranes. Demonstration testing of these membranes is currently in progress with a view to using them for separating CO<sub>2</sub> from associated gas and natural gas.

NGK has therefore used its large membrane manufacturing technologies and technologies for forming uniformly membranes to develop a new CO<sub>2</sub> separation membrane for industrial exhaust gas.

The CO<sub>2</sub> separation membrane for industrial exhaust gas makes use a difference in adsorption characteristics (affinity) for molecules to separate CO<sub>2</sub> from nitrogen and oxygen, which increases CO<sub>2</sub> separation factor. In testing uses simulated industrial exhaust gas, the new membrane was confirmed to have approximately five times the CO<sub>2</sub> separation factor of a conventionally developed DDR-type zeolite membrane.

## ‘Data-led innovation helps unlock sustainability benefits’

AVEVA HAS JOINED companies across the technology and energy spectrum to underscore the multifaceted role of digitalisation in helping to achieve net-zero carbon emissions across the ecosystem at AVEVA PI World conference.

The conference discussed how data-led innovation can help unlock sustainability benefits at every level.

Nine in ten companies expect to accelerate their sustainability activities over the coming year as businesses recognise their role in tackling climate change, an AVEVA-commissioned survey of more than 850 c-suite and digital transformation experts shows.

Four in five leading industries want to increase their digital investments to drive sustainable business models, demonstrating the enormous potential of advanced technologies such as smart data, artificial intelligence (AI) and cloud computing in enabling net zero and lower carbon industrial operations, explained Lisa Johnston, chief marketing officer and chief sustainability officer at AVEVA.

“Companies around the world have committed to reducing their environmental footprint. AVEVA believes the business community must now go further, by way of positive contributions to sustainability through our activities and partnerships – or in other words, our sustainability handprint. Given the nature of the capabilities AVEVA provides to our customers, our solutions make a constructive impact on environmental sustainability,” Johnston added.



# Expro's Octopoda achieves world record depth for annular intervention

GLOBAL PROVIDER OF energy services  
Expro has successfully deployed its Octopoda annulus intervention system to restore annulus pressure integrity and return a well to production in Piedemonte region, Colombia.

The Octopoda system successfully reached 300 metres in the annulus, a world record depth, and sealed the C annulus of the well. This removed the risk of casing collapse and gas migration to enable the well to produce and significantly extend its production lifespan.

Expro collaborated with its client to design and execute this high value-added intervention operation, which was completed at a cost that was estimated to be approximately 25% less than the cost of a conventional workover rig-enabled repair. Moreover, the Octopoda operation resulted in



Image Credit: Expro

*Octopoda removes the need for a heavy workover rig to allow controlled circulation of annular fluids and the installation of a resin plug at the external casing shoe depth.*

significantly lower carbon emissions than the conventional alternative.

Octopoda removed the need for a heavy workover rig to allow controlled circulation of annular fluids and the installation of a resin plug at the external casing shoe depth. This successfully sealed the annulus and enabled production to be resumed from the wellbore.

The system offers a safe and efficient method for removing shut-in casing pressure. It can be deployed to replace annulus fluid, to increase hydrostatic pressure, and solve casing shoe leakages by placing sealing material on the bottom of the annulus.

Utilising a unique design, Octopoda is deployed on annulus inlets, removing workover rig requirements, offering an alternative that can be rapidly deployed across all types of installations, onshore and offshore, to maximise operational uptime while reducing overall HSE exposure.

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# SONANGOL'S 'DIVEST TO INVEST' STRATEGY TACKLES FINANCING CHALLENGES

Angola is focused on driving the energy transition and, at the same time, calling for an adapted approach. Through the continued exploitation of its oil and gas reserves, utilising decarbonisation technologies, Angola stands to benefit from its significant resources, alleviating energy poverty while pursuing cleaner energy sources.

**I**N THE LIGHT of the energy transition initiative, and to ensure a smooth investment flow for the exploration and production projects, Angola's state-run oil and gas company has undertaken regeneration programme to find capital to expand its operations.

Despite being committed to oil and gas, using decarbonisation technologies to drive the transition, Angola has also expanded its renewable energy objectives with new programmes and initiatives driving progress.

While speaking during the African Energy Week last month, Ricardo Van-Deste, CEO for the exploration and production business unit, Sonangol, stressed on the necessities of finding an alternative solution to ensure capital inflow and a smooth running of the exploration projects.

"The question is where are we going to get the money from? How do we get funding for oil and gas projects in the energy transition? Sonangol, as does every other company, is facing the same challenges," stated Van-Deste.

If it started by alienating its various non-core properties, which included at a point, travel agencies, hotels and catering services among many other assets, it is now focusing on other types of assets.

## So, how to do this?

"We have identified eight blocks to be

**“ Angola is focusing on raising its percentage of the operated oil production from 2% to 10% in the coming years.”**



*Ricardo Van-Deste is the CEO for the exploration and production business unit at Sonangol.*

included in our 'divest to invest' strategy, where we have exploration blocks as well as producing assets. This gives an opportunity to interested companies with varying profiles to enter the market without having to go through a national bidding tender," Van-Deste added.

These eight blocks were selected because they either have lower profitability margins or have higher development costs and its sale will provide cash for Sonangol to be able to finance further investment on its more profitable assets.

This act of portfolio balancing is central to give the company breathing room for its financial obligations.

"We need to diversify the way we get money. We need to wait for the year end to assess what we can get from our divesting

programme and assess what other means of financing we can find," he added.

These other means of financing will likely mean the long announced IPO of the NOC, however, the date for that to take place remains elusive. In September, Sebastião Gaspar Martins, president of the board of directors at Sonangol, announced in Luanda that the company was planning to 'accelerate' the launch of its IPO, but it is uncertain exactly what that means.

Financing oil and gas projects in Africa may get harder as the energy transition progresses, and companies like Sonangol will have to get creative in order to remain solvent and continue to explore for oil, as for as much as the world might be getting warmer, it is still hungry for 100 mmbbl of crude oil, every day. ♦

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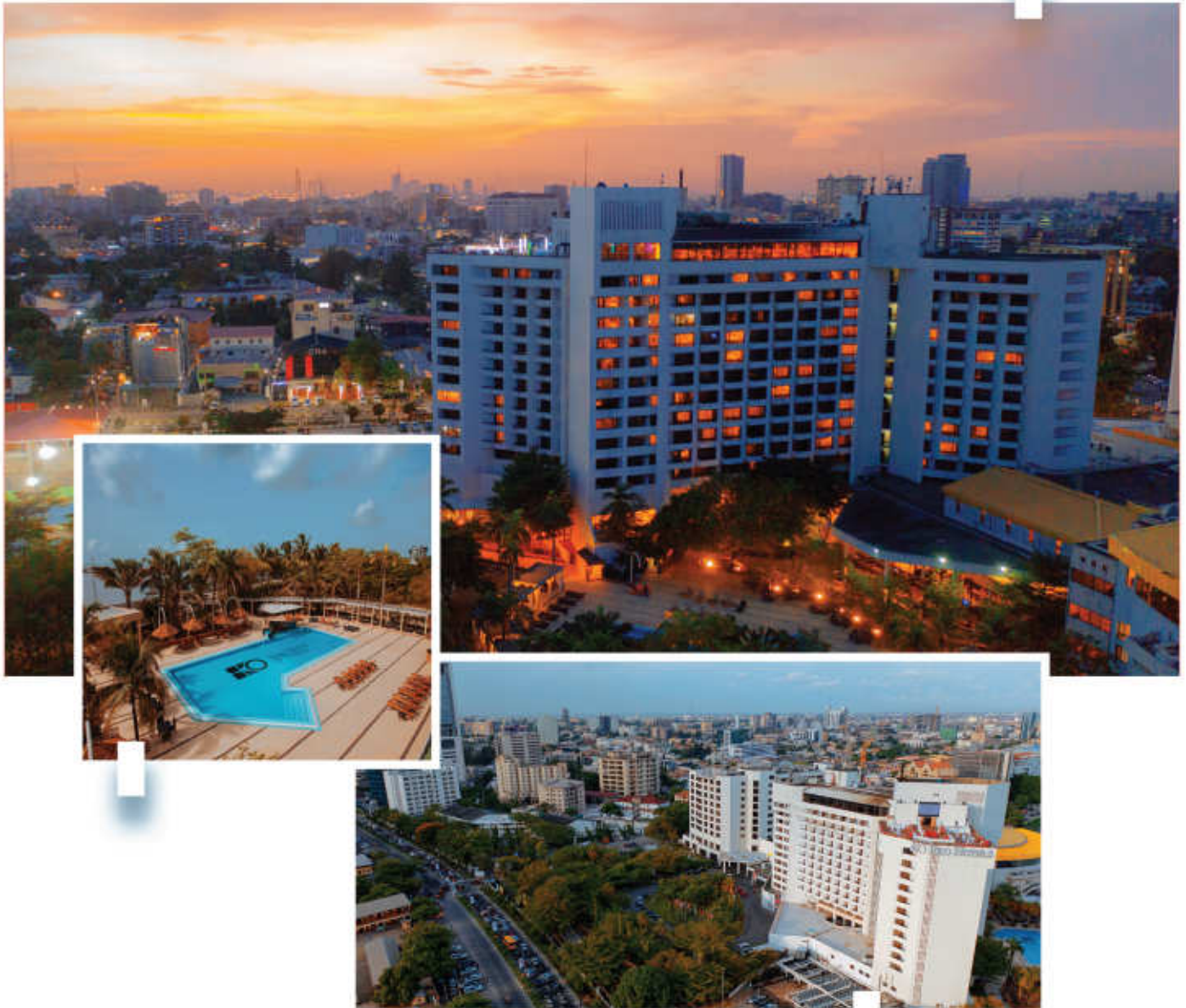
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