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North African optimism

Making progress and attracting investment

South Sudan update: Working with regional neighbours

Digital technology for cost-effective operations

Project finance, satellite mapping, logistics, flow management, storage and safety clothing

Analysis: The impact of the oil price drop on Africa (p34)

What next for North Africa's oil and gas industry? See p13. Image credit: Adobe Stock

EDITOR'S NOTE

IN THIS ISSUE, we take an in-depth look at two diverse and important regions for the African oil and gas industry. Our cover story (page 13) looks at North Africa, a region which has pockets of peace and prosperity as well as areas which are still affected by political and civil instability. The challenges of 2020 have certainly affected oil and gas operators across all of North Africa, but the good news is that there are plenty of major projects which are still going ahead.

Meanwhile, Sudan and South Sudan are examined in detail on page 16. For South Sudan, Africa's newest nation, the road to peace has been rocky at times but there is serious determination within the country's public and private sectors to capitalise on the not-insignificant hydrocarbons reserves, with regional cooperation being a major priority. Time will tell if the ever-closer African Union and the African Continental Free Trade Agreement will help these two countries, and their oil and gas sectors, prosper along with their neighbours.

Georgia Lewis
Managing Editor

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Executives' Calendar 2020-2021

SEPTEMBER

16-17 **Africa E&P Virtual Summit**
www.africaepsummit.com

OCTOBER

7-8 **Africa Oil Week Virtual**
www.africa-oilweek.com

NOVEMBER

9-12 **Virtual ADIPEC**
www.adipec.com

DECEMBER

1-3 **Valve World Expo**
Dusseldorf
www.valveworldexpo.com

JANUARY 2021

18-20 **World Future Energy Summit**
Abu Dhabi
www.worldfutureenergysummit.com

FEBRUARY 2021

1-5 **Africa Oil Week**
South Africa
www.africa-oilweek.com

MARCH 2021

15-18 **NAPEC**
Algeria
www.napec-dz.com

MAY 2021

19-20 **Africa E&P Summit**
London
www.africaepsummit.com

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

ADIPEC 2020 goes virtual to meet COVID-19 challenges

THE ABU DHABI International Petroleum Exhibition & Conference (ADIPEC) Strategic and Technical Conference will take place virtually from 9-12 November 2020, with the next full in-person exhibition and conference to take place in November 2021.

Omar Suwaina Al Suwaidi, ADIPEC's chairman, said, "Despite COVID-19's global challenge, we are delighted that ADIPEC's strategic and technical conferences will be held virtually this year, allowing leaders across the oil and gas industry to come together to share ideas and connect with a range of major industry trends, challenges and opportunities.

"All ADIPEC participants' health and welfare is our highest priority, and we look forward to welcoming all visitors to the full exhibition and conference in person at ADIPEC 2021. Looking

Image Credit: dmg events

The next full edition of ADIPEC will take place in November 2021.

to the future, collaboration, technology, and innovation will be crucial levers as we continue to identify new opportunities for smart growth across the global energy landscape."

The virtual conference will bring together ministers, CEOs and leaders of the global industry to evaluate the collective measures that the industry is putting in place to continue recovery after COVID-19. Marking its 10th anniversary milestone this year, the ADIPEC Awards 2020 will be presented in an immersive and interactive virtual awards experience.

Christopher Hudson, Global Energy president at event organiser dmg events, said, "We are committed to ensuring ADIPEC remains at the heart of the global oil and gas landscape, driving forward the conversations, collaborations, and connections that address key challenges and fuel innovative ideas and strategies that shape the industry.

"By staging a concentrated and abridged virtual conference programme this year, ADIPEC will utilise cutting-edge technology that has evolved exponentially over the past four to five months, to ensure the industry and its community has a voice to discuss and share the learnings of this year and into the future."

ADIPEC is a leading global event for the oil and gas industry. Attracting more than 155,000 attendees and 2,200 exhibitors in 2019, the event brings together energy ministers, global CEOs and leading decision makers alongside businesses across four days of commerce, dialogue and knowledge transfer that address today's energy needs and define tomorrow's energy landscape.

For further information see the website at www.adipec.com

Frontier Energy webinar takes a look at what the future holds across the world

A FRONTIER ENERGY webinar held in August hosted leading speakers from around the world who shared their thoughts on the future of the energy industry and what this means for oil and gas operators which are seeking to remain competitive, emerge well from the COVID-19 pandemic and play their role in the global transition towards wider use of renewable enegy.

Olivier Mussat, chief investment officer, Global Energy, IFC highlighted the multiple ways the energy industry is coming under stress in these challenging times.

Mr Mussat talked about the importance of electricity in daily life and the impact of the low oil price, which has had a particular impact on developing countries who are dependant on oil for energy, adding that this has been coupled with power utilities seeing a serious drop in demand.

He added that the COVID-19 pandemic has exacerbated existing trends for energy companies and pure-play renewable companies' stocks have more than doubled versus pure-play oil explorers. Equinor, the hydrocarbon producer with the lowest carbon footprint amongst all of the majors, has managed to stay relatively stable but this does not compare to the gains seen on the market by the pure renewable plays, Mr Mussat told the webinar participants.

Tabrez Khan, director, EMEIA transactions, EY, talked about deconstructing the role of oil and gas in the energy transition and shared EY's view on fuelling the future and what scenarios we can see playing out in the short, medium and long term with regards to the mix between oil and gas and renewables.

According to Mr Khan, the variables that can impact demand and returns on energy are electric vehicles, energy efficiency, renewable energy and future of renewables, and how gas and renewables will work together. The gas and renewables interchange is a major question for the Future of Energy and a major interplay that needs to work well in the future, he said.

To conclude, Mr Khan presented four future scenarios of the energy landscape, all with varying degrees of rate of change in the future of energy depending on consumer attitudes and technological advances. However he maintained that oil and gas will remain an important part of the energy mix in the immediate and medium term.

Mr Khan outlined how oil and gas companies can win the transition competition, which he said must include maintaining a licence to operate, high grading portfolios, optimising cost and capital efficiencies, optimising profit from molecules moving through the value chain, recruiting, maintaining and motivating a workforce with the appropriate competencies and making innovation work in a corporate environment.

Could there be a new horizon for oil and gas operators prepared to adapt?

Equatorial Guinea seeks oil and gas engagement

GABRIEL MBAGA OBIANG Lima, minister of mines and hydrocarbons, Equatorial Guinea, has met with an oil and gas industry delegation in Malabo to discuss the COVID-19 crisis and market conditions.

The delegation included senior representatives of ExxonMobil, Marathon Oil Corp, AMPCO, Noble Energy, Trident Energy, EG LNG and Kosmos Energy. The minister thanked them for giving the Baney Epidemiological Laboratory with equipment to prevent and reduce the spread of coronavirus.

Mr Obiang Lima said he received a letter from the industry regarding concerns over forex regulations imposed by the Bank of Central African States. He insisted that mitigating the economic and business impact of the COVID-19 pandemic remained a priority for recovery and investment.

"COVID-19 is a major concern for the Government of Equatorial Guinea, and listening to the concerns of local and international private companies operating in the country is for us a way to ensure industry growth and sustainability," he said.

"Once the difficult times are over, we remain confident that oil and gas operators and all of the people of Equatorial Guinea will be able to work together, getting back to work and putting the economy back on a growth trajectory," Mr Obiang Lima said. "It is important that we plan our recovery efforts hand in hand with the industry so that we can move quickly and efficiently when market conditions stabilise."

Eni makes new oil discovery in Egypt

ENI HAS DISCOVERED new oil resources in the Western Desert of Egypt with a new exploration well in the South West Meleiha Concession. Production in the concession started a year ago.

The SWM-A-6X well is located in the South West Meleiha development and exploration concession located in the Egyptian Western Desert, 130km north of the Siwa Oasis.

The new well has been drilled close to existing production facilities and is already connected to the production network, continuing Eni's trend of bringing hydrocarbons into production in swift time.

The production from South West Meleiha Concession began in July 2019 and in just one year ramped up to 12,000 bopd thanks to the contribution of new discoveries. The SWM-A-6X well, drilled in the Faghur basin, reached a total depth of 15,800 feet and hit 130 feet of net oil pay in the Paleozoic sandstones of the Dessouky Formation. The well is already on stream with a daily production of 5,000 bopd.

Eni is implementing its near-field exploration strategy in the Egyptian Western Desert through AGIBA, a joint venture with the Egyptian General Petroleum Corporation (EGPC), quickly turning on production of the newly discovered resources.

The Italian company has been present in Egypt since 1954, where it is the largest producer. Eni's current equity production is above 300,000 barrels of oil equivalent per day.

For more updates on the oil and gas industry in North Africa, turn to our cover story on page 13.

Nigeria finalises Africa Trade Insurance Agency membership amid oil concerns

President Buhari signs up to the African Trade Insurance Agency Treaty.

NIGERIA'S PRESIDENT MUHAMMADU Buhari signed the instrument of ratification to the African Trade Insurance Agency's (ATI) treaty. This finalises Nigeria's membership in ATI in a process that began some years ago. Membership allows Nigeria to attract additional insurance capacity to help attract investments, and it also increases ATI's capacity to support sovereign and commercial transactions in the country.

Nigeria's membership comes at a critical time for the economy as a sharp drop in oil prices due to a COVID-related one-third decrease in demand, has impacted the country's spending plans. The IMF predicts that falling oil prices will halve Nigeria's export earnings to US$26bn, which traditionally accounts for 90 per cent of the government's budget.

In Nigeria, ATI has already provided significant support in the country's oil and gas sector by offering insurance to oil traders.

"As one of the largest economies in Africa with a vibrant private sector, ATI looks forward to working with the Ministry of Finance, the Central Bank, local financial institutions and corporate traders to support Nigeria's economic diversification plans and its post-COVID recovery," said Benjamin Mugisha, ATI's chief underwriting officer.

Democratic Republic of Congo seeks to push ahead with monetising gas projects

DESPITE ITS HIGHLY productive neighbours, oil production in the Democratic Republic of Congo (DRC) has lagged behind. In 2019, only French independent Perenco produced from the DRC, at an average rate of 25,000 boepd from 11 onshore fields.

President Félix Antoine Tshisekedi has made energy security and investment an important priority, seeking to get massive hydropower projects off the ground and diversify the country's energy mix.

President Félix Antoine Tshisekedi has big ambitions for DRC gas.

In another decision supporting the development of the DRC's hydrocarbons industry, President Félix Antoine Tshisekedi requested its Minister of Hydrocarbons, Hydraulic Resources and Power and its Minister of Finance to fast-track legal processes and permits pertaining to the valorisation of the natural gas produced onshore by Perenco. The decision was taken at the latest Council of Ministers in Kinshasa.

The move is expected to result in the monetisation of natural gas through power generation, especially to address the DRC's energy deficit and provide a stable supply of power to its booming mining industry.

Deepsea Stavanger welcomed to South Africa before going on duty at Mossell Bay's Luiperd prospect

THE DEEPSEA STAVANGER oil and gas drill rig was temporarily anchored in Cape Town, before transportation to the Luiperd prospect off the coast of Mossel Bay. The oil and gas exploration drilling campaign, which is expected to be between 180-300 days long, will see R1.5 billion invested, including a number of initiatives to create opportunities for employment and skills development in the local economy. Forty-three on-shore positions have been filled by South Africans from Mossel Bay, including seven women who have been specifically appointed as part of a continued skills transfer programme.

"The arrival of the drill rig is an exciting development for the South African oil and gas industry and a symbol of the investment that will be shared by the local and regional economy in the Garden Route and the Western Cape," said David Maynier, minister for finance and economic opportunities, when the rig arrived at the port. "As a result of COVID-19, this project has faced many challenges and I am grateful to all those at the Mossel Bay Municipality and the Western Cape government who have worked hard to provide the assistance needed to make this investment possible."

Image Credit: Western Cape Government

Deepsea Stavanger docked in Cape Town.

Mossel Bay municipal manager, Thys Giliomee, said, "Mossel Bay Municipality is looking forward to working closely with Total during the exploration off our coast, and hopefully Total will be able to conduct much of its on-shore operations from Mossel Bay. Given the economic challenges during COVID-19, Mossel Bay welcomes initiatives that may stimulate our local and regional economy and that may result in job opportunities."

"Although it is currently an exploration process, Mossel Bay is confident that the preparatory work will be successful and that it will eventually contribute to the existing petrochemical industry in our area. We also look forward to welcoming the crew as tourists in our community and region, and hope that they will invite their families to visit Mossel Bay as soon as international travel becomes accessible again," Mr Giliomee added.

Rainoil opens new LPG facility in Nigeria

DOWNSTREAM OIL AND gas company Rainoil has launched a new LPG facility with a tank capacity of 8000 metric tonnes at Ijegun, Lagos.

The LPG business offers a fleet capacity of around 40 LPG trucks that would ensure product distribution to bulk buying customers owning LPG filling facilities. In the coming months, Rainoil Gas will also meet customers' energy needs at the retail end. There are filling plants in the process where LPG can be supplied in cylinders to consumers.

The group managing director, Rainoil Limited, Gabriel Ogbechie believes that Rainoil Limited's expansion aligns perfectly with the company's vision and mission of continuously providing solutions to fill the gaps in the energy sector.

With a projected LPG market size of US$10bn, Nigeria has the fastest growing LPG sector in the world, with domestic demand increasing by 40 per cent. Rainoil Gas will support the policy of deepening LPG penetration by the federal government and will improve domestic LPG consumption nationwide. The business will increase LPG's flexibility in domestic storage.

Over the past 20 years, Rainoil Limited has grown to include three petroleum product storage depots across Delta State, Cross River State and Lagos State; more than 81 retail outlets across the country; a fleet of more than 100 tank trucks for efficient product delivery; and one shipping vessel with a total capacity of more than 20,000 metric tonnes.

Siemens signs preventive maintenance contract with Egypt's ETHYDCO

SIEMENS ENERGY HAS signed a long-term preventive maintenance contract with the Egyptian Ethylene and Derivatives Company (ETHYDCO), for its industrial complex in Alexandria, Egypt.

Siemens Energy will provide a 10-year service contract to the petroleum product manufacturer covering three Siemens SGT-800 industrial gas turbines which have been in operation since 2017.

As part of the agreement, Siemens Energy's Industrial Applications team will deliver the full spectrum of turnkey outage services, spare parts and repairs for the gas turbines. Currently, the power plant produces 150MW of electricity to power ETHYDCO's petrochemical complex in Alexandria, which is the largest in Africa.

The collaboration between ETHYDCO and Siemens Energy will allow all preventive checks to be carried out by the technical teams while minimising unnecessary downtime.

"As a major contributor to the petrochemical and downstream industries in Egypt, we focus on strengthening the all-round efficiency and safety standards of our plants," said Ayman El-Shafei, maintenance general manager at ETHYDCO.

"Reducing unplanned downtime and increasing the operational workflow is critical towards achieving our production targets. The long-term preventive service agreement with Siemens Energy is aligned with our strategy," he added.

The preventive maintenance solution from Siemens Energy improves the reliability and availability of the gas turbines by extending the duration between maintenance intervals, resulting in reduced operating costs. Furthermore, by reducing annual carbon dioxide emissions, preventive maintenance will help deliver additional environmental benefits.

"This latest agreement with ETHYDCO is representative of our growing relationship and symbolic of the benefits that Siemens Energy's service offerings can provide, not just in terms of operational and availability improvements, but also in terms of environmental benefits, with reduced emissions," said Ashraf Hamasa, head of the service and digital business unit at Siemens Energy in Egypt.

Tullow Oil reports a promising first half for 2020 with plans for debt reduction

TULLOW OIL HAS released a largely positive report for the first half of 2020, with the new CEO, Rahul Dhir, confident that the business can be rebuilt following the impact of the COVID-19 pandemic and low oil prices.

"Since becoming CEO on 1 July, I have been impressed by the quality of Tullow's people and the potential of our assets and I am confident that we can build Tullow into a competitive and successful business once again," said Mr Dhir. "Despite the challenging external environment in the first half of the year, Tullow has performed well; delivering production in line with forecast, agreeing the sale of the Ugandan assets and re-shaping the Group's structure and cost base. In the second half of 2020 our focus will remain on continuing to deliver safe and reliable production from West Africa, reducing debt and building a cost effective and efficient organisation that can compete in a low oil price environment."


Image Credit: Tullow Oil

Rahul Dhir, the new CEO for Tullow Oil.

Gross Jubilee production averaged 84,700 bopd, gross TEN production averaged 50,900 bopd and net production from the non-operated portfolio was 23,700 bopd.

Ghana operational performance has been strong, with uptime on both FPSOs in excess of 95 per cent. Completion operations on the Ntomme-9 production well at TEN are ongoing, with the well due onstream in August.

The impact of COVID-19 on the Kenya programme led the Joint Venture with the Kenyan government to call force majeure on its licences which will delay FID and impact the ongoing farm-down process. Discussions are ongoing with government regarding next steps.

Afreximbank invests US$400mn in Mozambique LNG

THE AFRICAN EXPORT-IMPORT Bank (Afreximbank) has committed up to US$400mn in guarantees and direct lending to Mozambique's US$24bn Area 1 LNG Project.

The financing will be used to partially fund the project development activities required to extract natural gas offshore, its transfer to onshore processing facilities and then its conversion to LNG for export to various markets around the world.

The initial development is expected to produce more than 16tcf of gas and 93mn barrels of condensate over a 30-year period. It is expected that investment will create jobs, and drive sustainable growth for the country and the region. The guarantee is done jointly with Export Credit Insurance Corporation of South Africa SOC Limited, which has enabled a significant African contribution to the overall financing. This joint collaboration is offered under the South Africa Trade and Investment Promotion Programme.


Image Credit: Africa Oil & Power

The Mozambique LNG project is ambitious.

Afreximbank is again deploying its ECA-Plus guarantee, offered under the Afreximbank Guarantee Programme, to support this project.

The ECA-Plus guarantee facilitates collaboration between Afreximbank and global export credit agencies where Afreximbank uses its guarantee to share risk with ECAs in African related transactions and projects by way of co-guarantees and re-guarantees. The objective is to help create capcacity, reduce risk and unlock capital for African trade and investments.

Prof. Benedict Oramah, president, Afreximbank, said, "We believe that the success of projects such as this will create a precedent through which other development projects in Africa can secure funding and gain international traction.

"We are delighted to be one of the key stakeholders involved in this project, which will accelerate the rate of growth of intra-African trade."

OPEC-Gabon meeting enhances cooperation and assists with investor confidence during a turbulent year

THE OPEC-GABON Bilateral Meeting, which was held in July, has underlined the importance of maintaining constructive dialogue and cooperation between OPEC and Africa's oil-producing countries. Gabon rejoined OPEC in 2016.

In particular, the meeting highlighted the need for international, high-level engagement in the wake of the production cuts which were agreed to in April this year. The Gabon delegation championed its support for global market stability and energy cooperation, with the aim of giving confidence to operators and future investors seeking to do business in Central Africa.

Gabon's ongoing 12th Offshore Licensing Round was launched in November 2018 and has met with significant success, resulting in the signing of a record number of PSCs in sub-Saharan Africa last year. In response to ongoing, often turbulent, market conditions and the impact of the COVID-19 pandemic, Gabon's Ministry of Petroleum, Gas and Mines extended the submission deadline beyond 30 April, 2020. The extended round gives investors an opportunity to keep studying this new upstream frontier, with 35 blocks on offer.

The country's Hydrocarbons Code, which came into effect in July last year, aims to put forward a more competitive upstream fiscal regime, provide a strengthened enabling environment for investors, and promote the development of marginal fields by local players.

Before the the COVID-19 pandemic and the subsequent production cuts, Gabon had reversed a historic decline in domestic oil production and had made new significant offshore discoveries.

As well as the bilateral talks, Gabon participated in the 20th Meeting of the Joint Ministerial Monitoring Committee (JMMC), which took place via videoconference in July, under the chairmanship of Prince Abdul Aziz Bin Salman, Saudi Arabia's energy minister, and co-chair Alexander Novak, the Russian Federation's energy minister.


Image Credit: African Energy Chamber

Gabon's petroleum minister, Vincent de Paul Massassa.

At this meeting, the committee reviewed the crude oil production data for June 2020 and praised the overall conformity level for participating OPEC and non-OPEC Countries at 107 per cent in June 2020, an achievement that found wide recognition in the market. The committee welcomed the participation of Angola, Gabon, South Sudan and Congo at the meeting, and noted that they had reiterated their commitment to the production adjustments and compensation plans.

Nigeria has new gas transportation network

THE NIGERIAN GOVERNMENT has inaugurated the national gas transportation network that sets out the terms of gas transportation specifically between gas producers, shippers and their agents.

According to Timipre Sylva, Junior Minister, Petroleum, this will help to grow the gas infrastructure, expand gas utilisation, curb gas flaring and provide codes to standardise the gas value chain in line, and go a long way in deepening economic development, improve gas supply and attract more investment opportunities in the nation's gas value chain.

Sylva said, "It is my firm belief that the implementation of the network code, which is a set of rules and principles guiding the use of and operations of gas transportation network system, will deepen the domestic gas market. It will also unleash the potentials of accelerated growth and economic development for our nation.

"In the coming months, this code, together with related intervention, will improve gas supply to power, growth of gas based industries, domestic LNG, LPG and CNG penetration, as well as enhance revenue to the government and create investment opportunities for our people."

Sylva said the Network Code Electronic Licensing and Administrative System, NCELAS, has been developed, which will be used by the regulator to issue all applicable licenses to all network players as well as administer all regulatory roles required to ensure the optimal market impact.

Somalia establishes its first petroleum authority following February legisaltion

SOMALIA'S MINISTRY OF Petroleum and Mineral Resources has approved the board members of the Somali Petroleum Authority ("SPA") and appointed Ibrahim Ali Hussein its first Chairman and Chief Executive Officer.

The Petroleum Law, ratified in February this year, provided for the establishment of the SPA to be the competent government authority to regulate the development of the country's oil and gas industry.

Ibrahim Ali Hussein has been senior economic advisor to the ministry since November 2014, playing a leading role in the development of the regulatory and commercial framework for the development of the oil and gas industry. The Petroleum Ownership Management and Revenue Sharing Agreement is designed to ensure equitable investment in development across the country while recognising the differing requirements in regions that will be closely involved in production.

Image Credit: Africa Oil & Power

Abdirashid Mohamed Ahmed, Somalia's petroleum minister.

"The establishment of the Somali Petroleum Authority is one of the first critical milestones of the implementation of the Petroleum Law. The Authority comes into existence when the country is commencing its first exploration activities," said Abdirashid Mohamed Ahmed, Somalia's petroleum minister.

Lukoil's expansion plans for Senegal receive a boost with Sangomar acquisition

LUKOIL HAS REACHED an agreement with Cairn to acquire their Senegalese assets, including a share of the Sangomar development. This suggests confidence in the assets on the part of Lukoil, according to Conor Ward, upstream analyst, Global Data.

"News that Lukoil is looking to expand in Western Africa comes as no surprise as the region has seen a flurry of spending from the company over the last decade – with its acquisition of a stake in major projects such as the Pecan field in Ghana, the Bonga Southwest/Aparo field in Nigeria, the Marine XII license offshore in the Republic of Congo, and the Fortuna LNG project in Equatorial Guinea," said Mr Ward. "Lukoil hopes to see major growth from these projects in the next decade as its foothold in Western Africa has potential to grow fivefold from approximately 14,000bd in 2020 to approximately 70,000bd by the mid-2020s. Sangomar will add an estimated 20,000boed to Lukoil's portfolio at peak."

Image Credit: Woodside Energy

An artist's impression of the Sangomar development.

ADM Energy pre-qualifies in bidding for Nigerian marginal oil fields as technical partner to OilBank

ADM ENERGY HAS successfully pre-qualified in the Nigerian Government's 2020 marginal field bid round. The company is participating in the bid round as the exclusive technical partner of OilBank International, a Nigerian integrated oil and gas service management company.

In June this year, the Nigerian Department of Petroleum Resources (DPR) launched a new bid round for 57 marginal fields covering onshore, swamp and shallow offshore fields.

The bid round, which is the first in Nigeria since 2003, is open to indigenous companies as well as companies such as ADM alongside local partners. After successfully demonstrating the required technical and financial capabilities, ADM and OilBank have now pre-qualified for the second stage of the Bid Round which consists of technical and commercial bid submission. The DPR is intending for all submissions to be returned by the end of August 2020.

ADM is participating in the bid round after signing a MoU with OilBank as its exclusive technical partner to support its bidding for any future development of the marginal fields. If OilBank's application for a Marginal Field Licence is successful and it is awarded a licence, the company intends to enter into an agreement with OilBank under which ADM expects to participate in any awarded fields.

Image Credit: Adobe Stock

The bidding round heralds a new direction for Nigerian oil.

"The MoU with OilBank gives us a high-quality local partner to work alongside our team of expert technical advisers. This, combined with the Trafigura strategic alliance for up to US$100mn of pre-financing, means we are in a strong position to evaluate and finance investment into attractive oil and gas assets," said Osamede Okhomina, CEO of ADM.

Biodun Otunola, director, OilBank, added, "We have great confidence in ADM as our exclusive technical partner for this marginal field round, the first to be launched in Nigeria in nearly 20 years."

Wood Mackenzie warns that oil and gas demand recovery is at risk if there is a second wave of the COVID-19 pandemic

AS OIL DEMAND recovers, but the risk of a second wave of coronavirus remains, which could have a second impact in the global oil and gas industry, according to Dulles Wang, director, Americas gas research at Wood Mackenzie, said, "Our H1 2020 outlook anticipates an oil price rebound as demand starts rising post-coronavirus. However, a second large-scale lockdown would deepen the recession, and possibly delay any rebound in GDP until 2022."

"In our base case forecast, Brent rises to US$86 per barrel annual average in real terms by 2030. In a coronavirus-lockdown second wave (CSW) scenario, this falls to US$70 per barrel," he added.

"Our Global Gas Model Next Generation (GGM NG) shows that a second wave of large-scale lockdowns would result in global gas demand reducing by 4.5 per cent in 2020 (vs 2019). Global LNG demand would also fall, putting further pressure on Europe to absorb the LNG oversupply – and causing further delays to LNG projects under construction," Mr Wang noted.

He said the pre-FID projects might become more challenging as the need for new supply of LNG could stall. Production of low-cost gas would drive prices. The energy transition weighs heavily on industry strategy, and could dissuade investment, particularly with tight budgets and low oil prices. When the oil price crashed, the lower 48 operators were already under pressure, and many are still in financial distress.

WHAT NEXT FOR NORTH AFRICA?

The North African region has not been immune to the challenges presented by COVID-19, the oil price slump and the likelihood of a global economic recession. However, there are some promising areas for investment. Georgia Lewis reports.

NORTH AFRICAN OIL and gas producers have not been immune to the challenges that have been presented in 2020, particularly the COVID-19 pandemic and oil prices, which reached historic lows earlier this year.

An examination of committed and planned investments is a good barometer of the long-term health of the oil and gas industry in the Middle East and North Africa (MENA) region. APICORP has released its annual investment report, the MENA Energy Investments Outlook Report 2020, which finds that the company has significantly reduced its investment outlook amount for 2020-2024 to US$792bn, a US$173mn drop compared with US$965bn in 2019-2023.


Image Credit: Adobe Stock

Petrochemicals could hold the key to investment success in Egypt.

This drop is largely attributed to COVID-19, the oil price crisis, and a looming financial crisis. Investments across the region are driven primarily by investments in Saudi Arabia, the UAE, Iraq and Egypt. The private sector's share in energy investments falls to 19 per cent in 2020 as compared to 22 per cent in 2019. Energy sector's capital costs were cut by at least 20 per cent, particularly in oil and gas, leading to a possible wave of mergers and acquisitions.

Compared to 2020's initial figures, planned upstream spending has been cut by 20-30 per cent across the board in the MENA region by oil majors, NOCs and big independents as a result of the price slump and unprecedented drop in demand in the wake of the COVID-19 pandemic. However, unconventional gas and non-associated gas developments aimed at domestic consumption and strategic market share positioning for exports are expected to offset the impact on the upstream sector in the MENA relative to the rest of the world, the report found.

> **"Egypt is a very prospective region with open-door licensing which may attract companies with significant free cash flow."**

In Egypt, the report notes, the country's petrochemicals drive is the most promising sector with a value of US$38bn.

Rystad, meanwhile, produced a report in July on global lease round scenarios after the oil price crash in which Egypt was described as "a very prospective region [with] open-door licensing, under which we might witness the willingness to participate from companies with significant free cash flow", although the report still described Egypt's prospects in lease rounds as "tentative".

Russia and China both have local players as the common bidders in Egyptian licensing rounds and might therefore still go ahead with their scheduled rounds, the report added.

In Libya, which has a long

history of political unrest, the onset of the COVID-19 pandemic came at a time when the country's economy is dramatically affected by a sharp drop in oil production in addition to the global drop in oil prices.

This has happened ion tandem with ongoing social and political disruption but there was some positive news when, in July, the Libyan National Oil Company announced the resumption of oil production and exports after a shutdown which lasted almost six months.

Force majeure had been declared due to conflict but this has been lifted, allowing oil production and exports to resume.

It remains to be seen if the lifting of force majeure is premature. At the end of June, Russian and other foreign mercenaries had, according to the NOC, entered a strategic oil field in southern Libya.

In a statement, the NOC said that mercenaries drove into Al-Sharara oilfield in a convoy of vehicles. When operational, Al-Sharara, which is run by the Akakus company, a joint venture between NOC, Repsol, Total, OMV and Statoil, produces 315,000 barrels per day, which is nearly one-third of Libya's crude output.

Elsewhere in the North African region, gas is playing an important role. In Morocco, for example, gas development is taking place in tandem with a growing renewable energy sector.

In bright news for the country, Moroccan-focused upstream gas company, Sound Energy, has renegotiated its Anoual Exploration Permits with Moroccan National Office of Hydrocarbons and Mines (ONHYM) with its partners in the project.

In the original contract, the initial exploration period was three years expiring on 31 August 2020. This included FTG-aerogradiometry, 600 kilometres of 2D seismic and 150 square kilometres of 3D seismic. Under the renegotiated terms, the initial period is now four years and four months, expiring in December 2021, with FTG-aerogradiometry and 600 kilometres of 2D seismic and one exploration well with Triassic objective.

Image Credit: Adobe Stock

Morocco and Algeria are seeking to balance the use of fossil fuels with renewablles.

Additionally, if the next round of exploration looks likely to yield commercial quantities of gas, the contract can be extended for an extra two-and-a-half years from 31 December 2021.If this turns out to be the case, Sound Energy will acquire 150 square kilometres of 3D seismic or its equivalent in 2D seismic data.

Conversely, if it is found that a commercially viable gas deposit is unlikely, more geological and geophysical studies will take place. However, there will be no obligation to acquire this extra seismic data.

In Algeria, the oil sector has been cheered by reforms which are designed to encourage foreign investment in energy projects and a new oil and gas law, which came into force in January this year. Under the new legislation, the tax burden on Sonatrach and its international partners will be reduced from 85 per cent to around 60-65 per cent.

However, the country's oil and gas industry has experienced setbacks, including a fall in crude sales in the first nine months of last year to US$24.6bn from US$29bn in the same period of 2018. Hopes of a shale gas oil revolution similar to the USA's suffered a blow with shale exploration potential expected to fall by 7bn barrels of oil, according to Rystad Energy.

In the gas sector, Algeria's pipeline exports to Spain and Italy fell by more than 11bcm year-on-year in 2019 to 21.1bcm, according to S&P Global Platts Analytics data. The S&P data went on to record that this export decline was only partly offset by higher LNG exports, which increased by almost 2bcm to 16.4 bcm of gas equivalent.

For Algeria, it could be beneficial to look at its local market for oil and gas opportunities. A growing population, currently at more than 43mn people, equates to growing energy demand for domestic, commercial and industrial use.

"Gas is playing an important role in Morocco as it is being developed in tandem with the renewables sector."

While the Algerian government is keen to increase the use of renewables in the energy mix, there will still be opportunities for fossil fuels. The government's goal is for Algeria to achieve 27 per cent of its total electricity production from renewable sources by 2027.

While 2020's low oil prices have had a direct impact on North Africa's oil and gas producers, the impact of low oil prices in the Middle East has had a knock-on effect on the broader economies of North African countries. A World Bank report found that remittances to the Middle East and North Africa region are projected to fall by 19.6 per cent to $US47bn in 2020, following the 2.6 per cent growth seen in 2019. The anticipated decline is attributable to the global slowdown as well as the impact of lower oil prices in GCC countries – it is a timely reminder that world economies are deeply interconnected and ensuring prosperity at a local level has become more important than ever.

SOUTH SUDAN LOOKS TOWARD POSITIVE REGIONAL RELATIONS

Understanding the relationship between South Sudan and Sudan, as well as relations with East Africa, is important for understanding how the hydrocarbons sectors across this challenging but dynamic region can be constructively developed in the coming years.

Safety and security remain important considerations as South Sudan seeks to progress economically.

Image Credit: UNMISS

FAR WARMER RELATIONS between Juba and Khartoum since the overthrow of Sudan's long-time president Omar al-Bashir last year could boost South Sudan's attempt to grow its oil industry and allow it to focus more fully on building regional trade ties.

Al-Bashir was unseated following popular protests that could help to bring peace to Sudan and greater economic security to its southern neighbour. South Sudan became independent in 2011 after fighting long secessionist wars against Sudan in 1956-1972 and 1983-2005. However, as one of the most oil revenue-reliant economies in the world, South Sudan was forced to continue piping oil across the border into its northern neighbour and on to Port Sudan for shipping around the world.

> "Even during difficult times, South Sudan has never failed to pay its northern neighbours."

Under the terms of a 2012 cooperation agreement between the two countries, Juba is required to pay Khartoum US$24.10/barrel of Dar Blend and US$26/barrel for Nile Blend – its two export crudes – which obviously leaves very little for South Sudan when oil is priced at US$30 or US$40/barrel.

As the table on the opposite page shows, the lion's share of these figures comprises the Transitional Financial Arrangement (TFA), which sets out the fees South Sudan had to pay to Khartoum to compensate the latter for the loss of oil income. It was due to expire at the end of 2016 but was extended for three more years because of falling output and lower international oil prices.

However, South Sudan has set 2020 as a year of peace and growth, underlined by the formation of the unity government as well as its active oil and gas sector and sizeable exploration opportunities.

Before COVID-19 sent the global energy sector into turmoil, the swearing in of the new transitional government on 22 February 22 this year sealed the 2018 peace deal and united South Sudan's opposition parties, leading the country to elections which are scheduled to be held in three years' time. In the oil and gas sector, Hon. Puot Kang Chol was appointed as the new Petroleum Minister and a licensing round was about to be launched. As a proven oil producing region, the country aims to attract more foreign investment while building its local capabilities, thanks to regained peace and an improved business environment.

At an Africa Oil & Power webinar held in July on preserving economic progress in the face of COVID-19, Felix Ataro, corporate banking head, Stanbic Bank Kenya, shared his thoughts on attracting investment into South Sudan: "Attracting investments into the country is quite important, however, from a commercial banking point of view, I wouldn't say there is much that has gone into that. The kind of organisations that will be better at that would be the developmental financial institutions (DFIs) because they have mechanisms to be able to manage that. Infrastructure at the moment has come from DFIs. Banks have to think beyond the commercial type of interest that would earn money and look at the other elements like being part of a community. Each bank is coming up with its own strategy."

The Transitional Financial Arrangement

The renewed TFA was due to expire at the end of last year, but has now been extended until March 2022 to give Juba more time to pay it off. In May 2019, the government still owed US$766 mn out of the original US$3.028 bn compensation.

United States Dollars	GNPOC (Nile Blend)	Petrodar (Dar Blend)
Processing Fee	1.60	1.60
Transportation Fee	8.40	6.50
Transit Fee	1.00	1.00
Fee Sub Total	11.00	9.10
Transitional Financial Arrangement	15.00	15.00
Total Fees	26.00	24.10

Source: Ministry of Petroleum, South Sudan

An outline of the financial arrangements which have been made so South Sudan can compensate Sudan for loss of oil.

Awow Daniel Chuang, Undersecretary at the Ministry of Petroleum, commented, "We will be able to breathe again once the TFA is fully paid up. Even during difficult times, South Sudan has never failed to pay our northern neighbours."

Sudan also relies heavily on the payments to supplement its own budget, so the dependency is not entirely one way. The 2005 peace deal left South Sudan with about three-quarters of their joint oil reserves, according to the United States Energy Information Administration, so its own direct oil revenues have considerably declined.

This gave Sudan great leverage over Juba, but al-Bashir's removal seems to have turned the situation around.

"We are currently on very good terms with Sudan. We pay Sudan fees, or tariffs, as set out in the agreement. This process has progressed very well to date, with no major issues but we did have some problems with the previous administration," noted Mr Chuang.

While the previous administration saw Juba as part of the problem in relation to its own internal difficulties, the new government in Khartoum sees it as part of the solution.

Juba even hosted the talks between Khartoum and the opposition Sudanese Revolutionary Front that resulted in last October's ceasefire in conflict areas across the country.

The president of South Sudan, Salva Kiir Mayardit, sponsored the talks, to which the African Union, United Nations and European Union also sent representatives. He was reported as saying, "If peace isn't achieved in Sudan, then South Sudan will also be in trouble. So we want to bring the two countries out from these crises and to concentrate only on peace".

Separate talks have also been held in Juba between the Sudanese government and the Sudan People's Liberation Movement-North, which is based in South Kordofan.

East African ties

In the longer run, Juba hopes to oversee the construction of a new pipeline from South Sudan to the Kenyan coast, either to the established port of Mombasa, or to the emerging new port at Lamu.

In an agreement signed between Juba and Nairobi, the pipeline would run alongside new road, railway and fibre-optic cable connections, helping to bind South Sudan more fully to the rest of East Africa. An alternative pipeline route through Ethiopia to Djibouti has been proposed, but funding must be secured for either option.

> **"If peace isn't achieved in Sudan, South Sudan will also be in trouble."**

The government of South Sudan is particularly keen to strengthen trade relations with the rest of East Africa via the East African Community (EAC). After years of campaigning, it managed to secure membership of the EAC, alongside Kenya, Tanzania, Uganda, Rwanda and Burundi, in 2016.

Juba recently defaulted on its membership fees as a result of economic difficulties brought on by low oil prices, but seems committed to the organisation.

South Sudan has also abandoned Arabic in favour of English as the official language. Established companies from other parts of the EAC, including Kenyan banks, have set up offices in Juba. The government hopes that this will attract investment and diversify the economy.

Mr Chuang explained, "We aim to improve our trade balance between us and neighbouring countries and possibly the international market. This will help us control some economic elements."

Working closely with East African neighbours is a smart move for South Sudan. In July, the African Development Bank released its forecasts for the region in the wake of the COVID-19 pandemic.

The bank found that economic growth projected was down to 1.2 per cent, after being projected at more than five per cent before lockdown, a promising figure particularly when compared with a 3.3 per cent average for the whole continent and a global average of 2.9 per cent.

Looking ahead, the good news is that the bank forecasts growth for East Africa to rebound to 3.7 per cent in 2021. In the worse-case scenario, in which the pandemic persists until the end of 2020, growth is projected at 0.2 per cent, still above Africa's predicted average of -1.7 per cent and -3.4 per cent under the two scenarios.

Image Credit: Adobe Stock

Funding from around the world is helping ensure positive progress on major projects across the continent.

PUBLIC, PRIVATE OR BOTH?

FUNDING THE MAJOR PROJECTS

Developing the oil sector in Africa relies heavily on major injections of finance from public and private sources – and even when the project does not directly involve oil, it can still play a role in keeping projects moving forward.

IN JANUARY 2020, the African Union Development Agency said African governments were the main source of infrastructure financing, with US$37.5bn (37 per cent of total commitments), followed by China with US$25.7bn (25 per cent of total commitments), while the private sector only contributed with US$11.8bn (12 per cent of total commitments). It would therefore like to see more private sector investment, as would many African countries. They continue to rely on traditional, with a few unconventional, mechanisms to fund projects.

In South Sudan, oil is playing an important role in project financing in areas apart from energy or petrochemicals. In the road transport sector, for example, work has started on national highways connecting the country to Ethiopia and Sudan. In 2019, the country contracted China's Shandong Hi-Speed Group to build a 392km highway running north from Juba. This project is being financed by allocating 10,000 barrels of crude oil a day to the contractor.

Neighbouring Kenya is a hub of activity, with many major infrastructure projects on the go, with oil development taking place alongside other major projects. Construction is well under way at Lamu Port in Kenya. This is part of the Lapsset Corridor Project, the biggest infrastructure project in East Africa, which will provide a road, rail and oil pipeline corridor from northern Kenya to Ethiopia and southern Sudan. Once completed, the 32-berth Lamu Port will become the biggest deep-sea port in East Africa. The total estimated cost of the project is US$5bn. The Kenyan Government has financed the first three berths of the port at US$689mn.

Oil discoveries have boosted plans by regional governments to to build a crude oil pipeline between Lamu Port and Kenya's oilfields in the Turkana Basin, Uganda's Lake Albert's Basin fields and those of South Sudan.

To western Africa, where the continent's richest man, Aliko Dangote, is building a huge oil refinery at an estimated cost of between US$12bn and US$14bn outside Lagos, Nigeria. With a capacity to process 650,000 barrels of crude a day, Dangote Oil Refinery will be one of the world's biggest oil refineries when it begins operations in 2022. While Dangote took on a US$3.3bn syndicated loan through Standard Chartered Plc, around 60 per cent of the project will be self-funded.

African governments have been self-funding many projects, while also using international loans, grants, private-sector funding and multilateral development finance institutions. The African Union Development Agency says countries need to create the enabling environments required to attract more private capital to Africa's infrastructure build. It believes future funding of major projects will increasingly rely on public-private sector collaboration.

GERMANY BOOSTS INVESTMENT IN AFRICAN ENERGY

In an exclusive webinar, "Germany-Africa Economic Relations: Making Deals Post-COVID-19," panellists sought to mobilise German investment into the African energy sector, establishing clean energy and digitalisation as two major pillars of economic and investment cooperation.

AFRICA HAS SHIFTED to the forefront of Germany's foreign policy and development agenda, with programmes rolled out under the country's US$1.1bn Development Investment Fund for Africa, which is primarily dedicated to easing the entrance of German businesses into African markets. Co-hosting the webinar, the Germany Africa Business Forum is a private think tank whose goal is to strengthen investment ties between Germany and Africa, co-founded by moderator Sebastian Wagner.

A prime example of German-African cooperation lies in Equatorial Guinea, which employed two German contractors in the construction of West Africa's first LNG storage and regasification plant located on the country's mainland.

"The resources are here. We just need to make sure that we have the technology to transfer the goods. In Equatorial Guinea, there is substantial opportunity for synergy between Equatoguinean and German companies. This is not a country that is uncharted territory, or in which the resources are not there. We already produce oil, gas, condensate, methanol and CNG, and are going to start mining. As a result, to enter the market requires technology of transformations," said Gabriel Mbaga Obiang Lima, Equatorial Guinea's Minister of Mines and Hydrocarbons.

Image Credit: Adobe Stock

Germany is making its mark with smart investment in African energy.

The G20 Compact with Africa (CwA) was initiated under the German G20 Presidency to promote private investment in Africa through improvements of the macro, business and financing frameworks. The efficacy of the initiative has been demonstrated in Senegal, which has a long-standing partnership with Germany, mobilising over €1 billion in funding.

"Germany-Senegal cooperation is rich in lessons, in terms of a project approach that is focused on the mode of intervention and implementation through Deutsche Gesellschaft für Internationale Zusammenarbeit and KfW Development Bank, which are focused on technical operation and financial cooperation, respectively," said Ibrahima Mané, director-general for cooperation and financing, Senegal. "Senegal is working on a new law for public-private-partnerships. The second phase of the Plan for an Emerging Senegal is focused on private sector development and bringing more clarity and transparency to help investors feel comfortable."

With a new investment law and a top regional ranking in the World Bank's Ease of Doing Business Index, Rwanda maintains an attractive investment climate for FDI, in part due to strong public and private collaboration.

"The [Rwanda Development Board] has a responsibility both on the policy side to keep the country reforming and improving, and on the project development side, in the promotion of projects and implementation," said Tim Gengnagel, deal accelerator for the Rwanda Development Board. "With many German companies, they try to sell products, which is a good first step into a market. However, if you are investing on the continent and in Rwanda, you are not only investing in a consumer market, but also making a regional investment and an export investment."

"Opportunities are immediately available, in terms of smart grids, automation of metering systems, automation of production lines and adoption of fintech," said Onyeche Tifase, head of strategy, technology & innovation, oil and gas divison, Siemens Energy. "For German companies that are in the high-tech space and have found ways to create a success story in advanced countries, now is the time to transition to Africa. Furthermore, with the African Continental Free Trade Agreement, we are seeing an even greater push toward industrialisation."

"Why would people consider entering the African market? The better question is, 'Can you afford to ignore Africa?' The return on foreign investment is the highest in the world, and the continent also carries a significant availability of land for agricultural production," said Kenneth Reed, managing director for GEA Group, Southern & Eastern Africa.

GOING DIGITAL FOR EFFECTIVE OPERATIONS

As oil and gas operators across the world seek to reopen for business, there is a strong commitment among many companies to double down on investment in digital technology. Georgia Lewis reports.

INVESTING IN DIGITAL technology is a sound move for oil and gas companies looking to move ahead as industries attempt to emerge from lockdown as cost-effectively as possible. Choosing the right digital technology can help operators become more efficient, reduce staff costs and improve safety when tasks can be performed remotely rather than in hazardous locations.

In a July edition of the weekly ADIPEC Energy Dialogue series, Morag Watson, BP senior vice president of digital science and engineering, said the oil and gas industry has been slower than other industries to open up to the possibilities of leveraging digital technologies to compete and succeed in the ongoing energy transition process.

"For me it is not just about the technology," Ms Watson observed. "Many of the technologies have been on a reasonably fast trajectory for a while. The industry has to be open to thinking, how can we do things differently?"

"It doesn't just happen by saying here are 10 robots that are going to do your work for you. It just doesn't work that way. You have to have the right business mindset to make it possible for the technology to radically change how you do things," she added.

Advances in Internet of Things (IoT) technology, for example, have been helping operators restart effectively but the oil and gas IoT sector has been growing since before the pandemic struck. The *"Digital Transformation Market in the Oil and Gas Industry Market"* research report by MarketWatch, which covers the sector between now and 2023 has forecast a CAGR of almost 16 per cent, with a year-on-year growth rate 17.58 per cent during that period.

The MarketWatch report focuses on the growing need for advanced technologies in exploration activities, as well as the importance of implementing mobility solutions in the oil and gas industry. The report forecasts a CAGR of almost 16 per cent between now and 2023 for the digital technology market in the exploration sector.

In regard to mobility solutions, the report says that these innovations can "help enterprises to reduce the time spent on routine activities and provides them with information to address issues and queries."

Deloitte is similarly upbeat about the potential of


Image Credit: Adobe Stock

Digital technology helps make remote operations safer and can help reduce staff costs.

> **The industry has to be open to thinking, how can we do things differently? It doesn't just happen by saying here are 10 robots to do your work for you."**

digitalisation to transform the industry for the better. In the report *"The new frontier: Bringing the digital revolution to midstream oil and gas"*, the consultancy says that the IoT is projected to add US$15tn of value to the global economy by 2030. The report concluded that "Industries are embracing technology to reshape their operating landscape and reap the benefits of improved productivity, higher efficiency, and increased cost savings. The oil and gas industry is not a stranger to this and is progressing towards digital maturity."

"Drilling for data 2020", a report by PwC's Strategy& division offered a case study about a medium-sized energy operator "building a digital strategy from scratch."

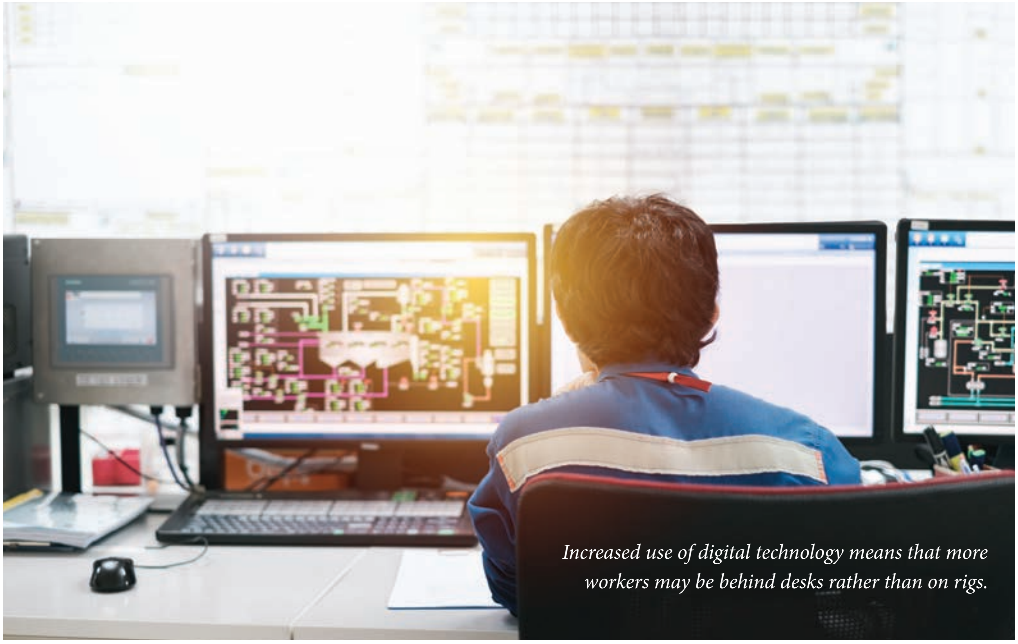
Strategy& worked with the company and said mini digital pilots were used, with the adoption of a mindset of "willingness to explore and 'fail fast', quickly pursuing new initiatives, such as Al, while adhering to lessons learned."

An example of one of the successful strategies was to adopt the use of Al in reservoir modelling. This meant that geologists could spend less time collating the data and more time interpreting it.

Digital twinning is another area where the oil and gas industry has started making significant strides.

In April this year, DNV GL issued an international call to oil and gas operators and the associated players along the supply chain to pilot a methodology that will prove whether the data generated by digital twins can be trusted, and if the technology is delivering value.

DNV GL's *Technology Outlook 2030*, a research report identifying transformative technologies in major industries, highlights a digital value chain run by machines and algorithms as a trend for the oil and gas industry in the decade ahead.



Increased use of digital technology means that more workers may be behind desks rather than on rigs.

Image Credit: Adobe Stock

"Solving the digital trust challenge will be key to the dramatic evolution that we expect to see in digital twin technology in the years to come. If more sophisticated digital twins are to be widely accepted and developed at scale by the oil and gas industry, they need to be supported by accurate, valuable and trusted technology," said Liv Hovem, CEO, DNV GL - Oil & Gas. "Technology decision-makers in our sector will increasingly offer support to the use of digital twins when they see the technology provide consistent, accurate information which brings tangible value against the investment needed. Our work with TechnipFMC and other partners through this new pilot aims to provide the industry benchmark to qualifying that a digital twin will perform as intended."

Halliburton is an example of a company which is leveraging digital technology to cut costs.

"Halliburton executives continue to work towards a target of US$1bn in cost reductions with 75 per cent reached by end of Q2. The main linchpin in its strategy is offering operators cost savings through improved efficiencies offered by an investment in digital technologies. The company's announcement of a five-year agreement with Microsoft and Accenture continues to double down on digital technology," said Effuah Alleyne, senior oil and gas analyst, GlobalData. "Since drilling activity is down, operators are likely to turn their focus on improving completion and evaluation techniques. However, although Halliburton remains optimistic on its ability to adapt and rebound, the market remains uncertain. The company still has to contend with some very real factors, including the scalability and reproducibility of implementing digital solutions, adoption of solutions by clients and overall depressed opportunities in the market resulting from decreased global oil and gas demand. Halliburton may have mitigated haemorrhaging, but it is unclear whether that is enough in this 'new normal.'"

> **" Since drilling activity is down, operators are likely to turn their focus on improving completion and evaluation techniques."**

Schlumberger has brought a new digital technology to the marketplace with Symphony* live downhole reservoir testing, a technology platform that enables operational control of the downhole testing toolstring to deliver real-time downhole measurements. Symphony testing unites Muzic* wireless telemetry with the downhole string, creating a digital solution that enables real-time control of the dynamic range of conditions during well testing operations. The digitally enabled toolstring is customised for the test objectives to position, isolate, connect, measure, control, sample, select and profile the reservoir with real-time verification.

"Symphony testing's digital enablement significantly increases operational control to acquire actionable data in real time, saving our customers operational time and achieving well test objectives more efficiently," said Aparna Raman, president, reservoir performance, Schlumberger.

IS THE OIL SECTOR STORING UP TROUBLE?

Africa's storage capacity is being put to the test after the world oil supply glut reached extreme proportions and oil prices crashed to an historic low earlier this year. Martin Clark reports on how this has played out since the beginning of the COVID-19 pandemic.


Image Credit: Adobe Stock

The spotlight has been on the oil storage sector after the perfect storm of the pandemic and low oil prices caused a glut.

A SUPPLY GLUT IN the early months of 2020 tested Africa's oil storage capacity to the limit. With the world reeling from the COVID-19 pandemic and an enforced economic shutdown drastically reducing fuel demand, producers were left sitting on billions of barrels of unwanted crude, putting huge strain on global storage infrastructure. By the end of March, as the health crisis played out in Europe and hit Africa and the Americas, experts estimated the world's storage capacity was nearing capacity. The situation affected all of Africa's leading producers but was most pronounced in the oil-rich Middle East.

Saudi Arabia absorbed much of any extra storage capacity via its fleet of Very Large Crude Carriers during the early months of the year. Iran, meanwhile – one of the countries worst affected by the virus – was still in much the same position in July, even as others eased restrictions and demand nudged upwards. Oil production in the Islamic Republic remains at its lowest level in decades, with tanks and vessels largely full due to the drop in exports and refinery run cuts.

But the situation is easing elsewhere, with millions of barrels of crude and oil products stored on tankers at sea now being sold, according to shipping sources.

In Africa, there were mixed experiences during the first half of this year. In Libya, storage tanks were used to meet domestic demand following a perilous drop in production and exports after militant attacks on oilfields.

"As production stopped, the limited storage capacity at ports was quickly drawn down, resulting in a sudden drop in crude exports," noted shipping analysts EA Gibson in June.

Libya has Africa's largest proven crude reserves and relies on oil exports for almost all of the state's revenues, but its energy infrastructure has been damaged during ongoing fighting over the past several years.

Nigeria, meanwhile, used tankers to store surplus crude in the absence of international buyers at the height of the pandemic and a dearth in domestic storage capacity. Head of the Nigeria National Petroleum Corporation (NNPC) Mele Kyari confirmed that the country shut output because of scarce storage facilities.

According to IHS Markit, Nigeria's weak storage capacity means it would fill up available local storage in just two days if no production is moved onward, based on its average daily output of 1.9 million barrels per day.

This contrasts with China at the other end of the scale, which may have as much as 52 days of daily storage available.

Angola fares slightly better, IHS Markit said, with an estimated 3.9 days of storage capacity if none of its cargoes are sold. It means rolling out additional storage facilities could be on the cards in the years ahead – if the money is there to do so and the market warrants it. This could spell opportunity for private investors going forward.

One of NNPC's many subsidiaries, Nigerian Pipelines and Storage Company, has been earmarked by officials for potential offloading to the private sector, which could yield investment in new capacity.

But there are still many unknowns, especially with the prospect of more lockdowns ahead, which would again eat away at demand. For now, Africa's oil producers are making do just like everyone else, under unprecedented circumstances.

HEAD TO TOE PROTECTION

The market for personal protective equipment (PPE) and clothing continues to grow as manufacturers come up with more innovations to help keep employees in the oil and gas industry safe on the job.

Image Credit: Adobe Stock

Smart technology has found its way into respiratory equipment to help monitor breathing.

THE SAFETY CLOTHING sector continues to innovate, providing industries such as oil and gas with products that are increasingly comfortable to wear while still offering the protection needed to keep employees safe in often hazardous environments.

In regard to footwear, quality and safety rather than price should be the main consideration, according to Abu Dhabi-based National Factory for Safety and Security Products. The company advises checking for the following attributes in safety shoes: light in weight; slip-resistant, water-repellant, acid, corrosive substance and oil and gas-resistance; rubber sole to resist high temperatures; breathability; and ankle and sole perotection and support, such as its EN12568 workboot.

"Our objective is to develop long-term relationships with our partners, our commitment is to join them at every part of the process to check our product performance and working together to improve and generate new technologies according to environment, conditions and workers' needs," said Jaime Andres Ramirez, the company's sales manager.

Rock Fall has released the R-Ten, a heavy duty boot that is resistant to corrosive substances and has a sole made of a specially formulated nitrile rubber compound for a long lifespan.

Red Wing Shoe Company, meanwhile, has launched the PetroKing range of footwear, which is designed for heavy duty use on oil and gas sites. The range includes lightweight construction, flexibility, slip and puncture resistance and abrasion protection for the heel and toe.

PPE designed to protect the respiratory systems of workers needs to take into account a range of factors, according to Ian Crellin from the British Safety Industry Federation. These include comfort; breathing resistance (which has improved over the years with better filter technology); proper fit on the wearer's head (too loose affects efficacy while too tight is uncomfortable for long shifts); and the use of smart technology. This includes systems which can monitor the breathing of the wearer in real time and indicate when a filter is ending its life so it can be replaced before it becomes a hazard itself.

> "Our objective is to join our partners at every part of the process to check our product performance and work to improve technologies."

For more information on respiratory PPE, go to www.bsif.co.uk

UNDERSTANDING COMPLEX FLOWS TO OPTIMISE PRODUCTION

Digital technology is transforming flow management but a solid understanding of multiphase flows and fluid behaviour is essential for getting the most out of these innovation, writes Anna Pieper, multiphase flow leader, TUV SUD National Engineering Laboratory.

DIGITALISATION SHOULD DELIVER improved understanding of reservoir behaviour, but a good understanding of multiphase flows and fluid behaviours is necessary too. This is because environmental conditions can cause chemical reactions which reduce production and cause stoppages or the complete loss of the well. A focus on flow assurance is therefore necessary, using expertise and chemicals to mitigate or avoid such phenomenon

Production is often escalated by increasing the wells choke size, leading to a significantly larger drawdown at reservoir level. Over time, this may cause reservoir weakening near the well bore and the production of solids. The maximum critical flow before sand production will change over time, potentially producing solids which will cause erosion.While erosion modelling and associated standards indicate possible erosion rates, they can be optimistic. In reality, the instant the pipe is not strong enough, a burst can happen well before complete erosion of pipe wall.

Image Credit: Adobe Stock

Operators should arm themselves with knowledge of multiphase flows to get the most out of oilfields.

If sand erosion and line pressure are not considered together, Computational Fluid Dynamic (CFD) models will be overoptimistic. CFD modelling should therefore be combined with Finite Element Analysis in real-time. Neither should corrosion be excluded from the analysis and should probably be a subject of study alone.

With time, a well will produce more water and for oil with long carbon chain components an emulsion will be created at the inversion point. The viscosity of the mixture will be at least 10 times greater than the expected oil viscosity for the same temperature, and this will lead to more friction and a significant decrease in oil production.

Test separation procedures do not accurately reflect a well's behaviour under normal production conditions. An inline system that collects continuous data will help to optimise oil flowrate production and identify slugging, which can cause operational problems.

A more global or holistic review approach should therefore be used to account for all means of production optimisation. A one-stop solution provider should be considered, which can factor in all of the different impacts, cumulative effects and their contributions to the flow measurement, pipe integrity, chemical reaction and fluid behaviour. However, the most important factor is the confidence level in the validation of the technology used and the data produced. It is meaningless to deliver a confidence level number if there is not an associated uncertainty and some form of traceability that is aligned to the process and method that has been used to reference it. A more global or holistic review approach should therefore be used to account for all means of production optimisation.

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MAPPING AFRICA'S ENERGY FUTURE IN A CHANGING WORLD

Geoscience firms have been adapting to a changing energy landscape in a year where change has been the only constant. Martin Clark looks at the ways the latest advances in satellite mapping and seismic technology are giving operators the edge.

Image Credit: Adobe Stock

Satellite mapping is growing in importance in the oil and gas exploration sector.

LEADING GEOSCIENCE FIRMS have long played a role in defining Africa's oil and gas potential, identifying fields and drill sites through satellite mapping and seismic imaging. That includes playing a part in opening up some of Africa's newest oil basins.

TGS has completed its flagship Jaan 3D seismic survey covering the MSGBC Basin in North West Africa, acquired in partnership with PGS and GeoPartners. Covering more than 28,000 sq km, the vast survey spans offshore Senegal, Gambia, AGC and Guinea-Bissau – all territories that have excited drillers in recent years.

The new survey was designed to map the Cretaceous Palaeo Shelf-Edge Trend and to shed light on untapped Jurassic potential – this has been the setting for the FAN and SNE discoveries, Africa's most successful play of recent times.

It is the setting for anticipated and ongoing bid rounds, including the Senegalese 2020 License Round, which offers acreage on-trend with the FAN and SNE finds. This core role in helping oil companies better understand what lies beneath the surface continues as ever, but there's no doubt the times are changing, as geoscience firms position themselves for an energy sector in transition.

CGG this year ended its land-based seismic data acquisition business, after completing its final contract in Tunisia, North Africa. It signals the end of its seismic data acquisition business entirely, amid planned exits from seabed and marine-based data acquisition. In February, the company unveiled a final 3D seismic dataset from its 15,400 sq km multi-client survey of the outer Zambezi Delta in the Mozambique Basin, another area that has emerged as an exploration hotspot following a wave of offshore discoveries.

> **"Satellite and seismic imaging technology is playing an important part in opening up some of Africa's newest oil and gas basins"**

Going forward, CGG is looking to tweak its business to better respond to the evolving needs of its clients. It wants to transition to an "asset-light people, data and technology company" supporting a wide range of clients along the exploration and production chain. Like its rivals, it has experienced massive shifts in the past couple of decades, with the arrival of big data and increased dependency on technology.

CGG has acquired a stake in AMBPR, a start-up which designs autonomous robots for repairing large metal structures used in the maritime and energy industries. It points to the direction of the industry, where technologies can perform tasks more safely and cost-efficiently than via human interventions.

THE IMPORTANCE OF TEAMWORK

Martin Clark reports on the logistics experts and the technology they are using to make things happen on the ground across multiple African oil and gas operations.

FINDING AND DEVELOPING an oil and gas field – especially in remote locations – is a team effort. Logistics specialists such as DHL play a vital role in helping operators bring together the thousands of different aspects on a large project – from transport and customs clearance, to storage and warehousing.

The process has been aided by technology, of course, with oil companies and logistics providers now able to work seamlessly together on shared platforms, often in real-time.

For a global industry, this has been a welcome advance. To illustrate the complexity, Bolloré Logistics was tasked with shifting 240-tons of upstream equipment from China to Egypt late last year – just a small fraction of Africa's overall oil and gas infrastructure.

But supply chain digitalisation is happening so fast and on many fronts, it's difficult to keep pace, notes DHL in an industry white paper. Disruptive technologies – robotics and autonomous vehicles, from drones to driverless forklifts – integrate with big data analytics, sensors, blockchain and other virtual applications. This is disrupting the traditional, linear supply chain model, "transforming [supply chains] into connected, intelligent, scalable, customisable, and nimble digital supply networks," says consultancy firm Deloitte.

Image Credit: Adobe Stock

The road ahead for oil and gas transport and logistics is expected to become increasingly digitalised.

According to McKinsey, companies that aggressively digitalise supply chains can expect to boost annual revenue growth by 2.3 per cent – that's a lot of cash when world-scale oil and gas projects can cost in excess of US$20bn. It means we can expect a shift to automation technology as operators align themselves closely with transport and logistics processes.

One leading player, DB Schenker, is scaling up its Africa activities after identifying it as high-potential future market. It expects to see big development especially in eastern and western Africa, which will call for advanced logistics solutions. The company has introduced autonomous robots with AI-powered vision to some international facilities, a trend that could become the norm in Africa's near future. Its robots are equipped with a visual perception-based system which combines deep learning with stereoscopic cameras to create the next generation of robot vision, designed to navigate around employees and equipment. Yet behind this, people still make the decisions. Navigating this complex digital environment means oil companies and logistics providers will work more closely to get things done.

> **"Aggressive digitalisation of oil and gas supply chains could lead to annual revenue growth of 2.3 per cent, according to research by McKinsey."**

WHY STAKEHOLDER ENGAGEMENT AND SECURITY IS CRUCIAL FOR LNG SUCCESS

C. Derek Campbell argues that successful security operations in support of Mozambique's LNG projects require a holistic approach that includes understanding information as a critical element affecting all audiences, and not just financial stakeholders.

THE SCALE AND enormous economic potential of Mozambique's LNG projects constitutes a seminal effort with national, regional and global implications and visibility. In fact, the Mozambique LNG project alone costs about $20bn and represents Africa's single largest foreign direct investment to date. Led by TOTAL, it gathers private and state-owned entities including Mitsui, Oil India, ONGC Videsh, Bharat Petroleum Corporation, PTT Exploration and Mozambique's ENH.

There are many important considerations to be taken into account to ensure Mozambique's burgeoning LNG sector has widespread benefits.

Image Credit: Adobe Stock

Given the stakes associated with this vital project, investors, government officials and all other stakeholders must be assured it will not suffer operationally due to security issues.

An essential element of that assurance requires project stakeholder leadership to actively demonstrate its value to Mozambique's citizens and simultaneously appreciate there is a regional and global audience to be addressed. In turn, those associated messages must be carefully crafted, and their content reflect cultural accuracy.

This engagement of Mozambique LNG's stakeholders must be active and well-constructed. While providing relevant information is critical, it must be timely, and its substance reflect institutional credibility. Further, project leadership must be prepared to counter misinformation at all levels – ideally, this is accomplished by active assessment of information atmospherics and by staying ahead of any negative messages.

The current threat to the LNG project has elevated the need to institute measures that account for all domains of security operations. This increasing sense of urgency is demonstrated by the deadly 27 June 2020 ambush of a construction contractor's vehicle near the Tanzanian border. The attack was meant to send a definitive message and the LNG project's stakeholder leadership must understand how information-related activities could have provided indications and warnings that may have prevented/mitigated this attack. Simultaneously, the LNG project will realise improved protection of vital operational information. It can achieve those results by consciously establishing and resourcing a dedicated information entity within the Security directorate. Their main functions will include the ability to synchronise actions with the project's senior leadership and they must be empowered to coordinate with the media, local populations, and law enforcement agencies at all levels.

Additionally, due to the varied nature of Mozambique LNG's infrastructure (offshore, coastal and interior facilities), security officials must account operational and administrative activities that potentially affect contested or culturally sensitive territory. It is essential to define the most effective manner to present security-related messages to audiences in those areas.

The security of Mozambique's LNG is an absolute. The development and implementation of capabilities that actively account for information's impact on all related goals and activities, to include the local community, is critical to the development and deployment of modern security operations in Mozambique.

C. Derek Campbell is the CEO of Energy & Natural Resource Security. Article written with supporting information from ENRS Strategic Partner, Andy Vonada, CEO – JB Management.

AFRICAN RIG COUNT

COUNTRY	May 2019	June 2019	May 2020	June 2020
ALGERIA	51	45	27	20
ANGOLA	5	5	0	0
CAMEROON	7	7	0	0
CHAD	0	0	0	0
CONGO	0	0	0	0
CÔTE D'IVOIRE	2	2	1	1
EQUATORIAL GUINEA	0	0	0	0
GHANA	3	3	0	0
KENYA	7	7	4	3
LIBYA	15	15	11	12
MAURITANIA	0	0	0	0
MOROCCO	0	0	0	0
MOZAMBIQUE	0	0	0	0
NIGERIA	14	14	8	9

Source: Baker Hughes

Forum develops remote piloting capability for ROVs

FORUM ENERGY TECHNOLOGIES has developed the ability to remotely operate Workclass and Observation Class (Perry and Sub-Atlantic) ROV systems between an offshore vessel and a remote location.

Continued development in software efficiencies, coupled with increased availability and reliability of the global 4G network, has allowed Forum to offer remote operations on its full range of ROV systems. The company's ICE and subCAN remote operations suites provide the abilty to pilot vessel or platform-based systems from an onshore control facility via a wired, 4G or satellite connection.

The Onshore Control Module provides a local hub for power and data connections. Existing offshore control station hardware can be upgraded to allow remote control and monitoring of power systems. The Offshore Control Module interfaces with the upgraded hardware, providing control and monitoring via the existing ICE/subCAN network. A key-switch, in conjunction with the software, ensures secure control of hand-over between offshore and onshore stations. The ICE & subCAN control software applies enhanced position control when a compatible DVL and gyro are fitted to the ROV.

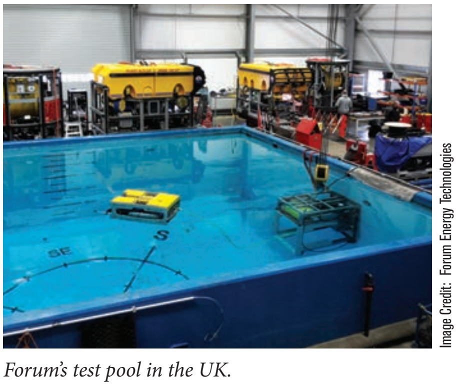


Image Credit: Forum Energy Technologies

Forum's test pool in the UK.

The new capability brings major opportunities to adapt operational practices in response to the latest industry drives, according to the company, allowing cost savings and reductions in HSE risks to be realised through reducing offshore crew sizes.

"Forum has a strong reputation globally for manufacturing high quality, robust ROVs and associated auxiliary products for a number of industries. This additional and important feature is part of our continued product support and development across the entire range.," said Kevin Taylor, Forum's vice president - subsea vehicles. "Remote operations can reduce the number of personnel offshore, particularly during complex processes or technical procedures which may require a specialist to be deployed. The capability also aligns strongly with industry drives to reduce carbon footprint and deliver safe, efficient operations."

The company has 50 years' experience producing Perry and Sub-Atlantic ROVs and has produced more than 800 ROV systems.

Halliburton launches Halliburton Labs

HALLIBURTON HAS ANNOUNCED the creation of Halliburton Labs at its Houston headquarters – a collaborative environment where entrepreneurs, academics, investors and industrial labs come together to advance cleaner, affordable energy. It will accelerate the growth of innovative, early-stage companies by providing access to Halliburton's lab facilities, technical expertise and business network. Accepted applicants will work with Halliburton Labs advisors to advance their products, secure needed financing and prepare for scale.

"Halliburton Labs reflects our commitment to the science and continued evolution of sustainable, reliable energy," said Jeff Miller, chairman, president and CEO, Halliburton. "We firmly believe that oil and gas will remain an affordable and reliable energy resource for decades to come. At the same time, we recognise the importance of developing alternative energy sources. We are excited to help advance solutions that have the potential for a long term, meaningful impact and align with our sustainability objectives."

The first participant is Nanotech, Inc, a materials science innovator whose breakthrough technologies reduce global energy consumption, while improving energy efficiency, fireproofing capabilities and safety. Additional companies will join in the coming months. Interested companies must have progressed their technology beyond the proof-of-concept phase.

For additional information, visit: www.halliburtonlabs.com.

New well integrity diagnostics technology

Image Credit: TGT

The new technologies enables operators to assess the condition of production tubulars more accurately than previously.

TGT HAS LAUNCHED Pulse1, a slimhole tube integrity technology that delivers actual wall thickness measurements in eight sectors with "all-around" sensing of tube wall condition. This advanced diagnostic capability underpins new answer products and enables operators to assess the condition of production tubulars more accurately than previously possible, helping the industry to ensure safe, clean and productive well operations.

Commenting on the launch, Mohamed Hegazi, TGT's CEO, said, "Proactive inspection and accurate diagnosis of well integrity is fundamental to ensuring safe production, and Pulse1 delivers on that promise for primary tubulars. Conventional measurements will still have a role to play, but the addition of Pulse1 diagnostics will address customer needs with greater accuracy and fill crucial gaps in the market. Pulse1 is a slim technology that delivers true sectorial thickness with high accuracy in multiple tubing and casing sizes, on any conveyance type, and in a single descent with no mechanical contact. Coupled with TGT's unsurpassed domain expertise, Pulse1 is defining a new benchmark in well integrity diagnostics."

Ken Feather, TGT's chief marketing officer, said, "Pulse1 has been designed to meet the growing industry need for 'no compromise' integrity management and overcome the drawbacks of current technologies, particularly mechanical calipers and conventional electromagnetics. This makes it a good choice for routine or targeted tube integrity surveillance, especially when accuracy is the top priority."

DORIS Group, AVEVA and Schneider Electric form digital twin alliance

DORIS GROUP, AVEVA and Schneider Electric have joined forces to create a digital twin alliance to address complex digital transformational challenges for the upstream oil and gas sector.

The three companies will combine offerings to bring engineering capabilities, asset lifecycle software solutions and digital specialisation to create a fully formed digital twin. The new solution will:

- Bring new assets on stream faster through the use of cloud-enabled software that enhances collaboration and increases engineering efficiencies
- Deliver enhanced safety leading to better business outcomes
- Improve traceability through a single point of accountability
- Enable remote operations and production assurance through a fully functional Living Digital Twin that mirrors all aspects of the operating asset.

Image Credit: Adobe Stock

The Digital Twin alliance will address complex digital transformation challenges.

Christophe Debouvry, CEO of DORIS Group, said, "Combining our expertise will offer our customers embarking on their digital transformation journeys optimised solutions throughout the lifecycle of their assets."

KROHNE provides additional diagnostics functionality for flow meter

KROHNE, A MANUFACTURER and supplier of solutions in industrial process instrumentation, has added additional application diagnostics for the H250 M40 variable area (VA) flowmeter in addition to the electronic device diagnostics. The new functions are implemented via intelligent software algorithms for signal analysis of the magnetic field sensors.

The existing NE107 device diagnosis is thus extended to include VA specific application diagnostics: the device now detects, for example, blockages of the float caused by impurities in the medium or by strong, repeated pressure surges. Pulsations in liquid measurements with positive displacement pumps or compression oscillations in gas measurements are also detected.

A message is reported if the float is installed in the measuring cone upside down or is completely missing after maintenance or cleaning. The signalling severity of the individual diagnostic functions can be configured according to NAMUR NE107 classes.

The H250 M40 variable area flowmeter now offers additional application diagnostics.

The new functions not only increase application reliability but also enable the measuring accuracy and service life of variable area flowmeters to be optimised with appropriate corrective measures. Existing devices can be retrofitted by exchanging modules in the field.

Gardner Denver launches new pump for HDD applications

GARDNER DENVER HIGH Pressure Solutions (HPS) has launched its new GD 250HDD pump for a range of horizontal directional drilling (HDD) applications.

The pump features a very high rod load rating of 50,000 lbs, making it extremely tough and long lasting. It is designed to run at much slower speeds while matching or exceeding the performance of existing pumps. By delivering fewer strokes, consumable life is extended.

Ryan Huseman, lead engineer on the project, said, “The GD 250 HDD packs a huge amount of power in a very small dimensional envelope, which makes it ideal for the HDD market. The pump runs incredibly smoothly due to the rigidity of the high strength ductile iron frame. Additionally, all of the bearings on the GD 250HDD feature a pressurised lubrication system, so the pump can tackle the biggest projects in the industry.”

Weighing less than 4,000 lbs, the GD 250HDD has a maximum flowrate of 460 gpm and the ability to reach pressures up to 3,000 psi. It offers a 5-in. stroke, 50,000 lbs rod load rating and 250 breaking horsepower (BHP).

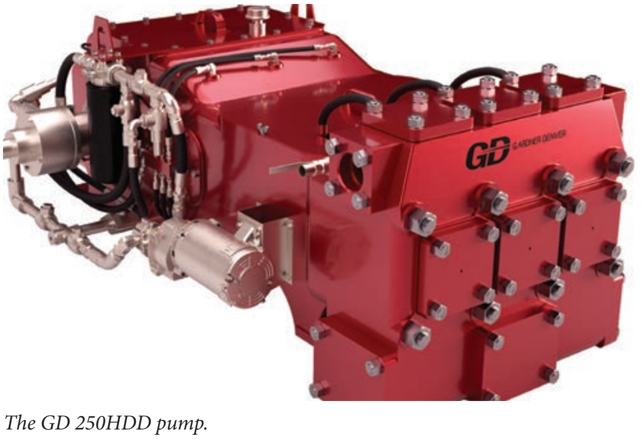


Image Credit: Gardner Denver

The GD 250HDD pump.

CGG Multi-Physics updates LCT software

CGG MULTI-PHYSICS HAS released an update to its LCT potential field software suite, which allows oil and gas exploration geoscientists to model, process and interpret their gravity and magnetic data for guiding integrated subsurface imaging.

The improved capabilities available in the new LCT R2017.06 release include enhancements to workflows to improve ease of use, bring overall risk reduction benefits and increase productivity to levels unavailable in previous versions.

Critical techniques required for comprehensive geological forward modeling, inversion, and management of potential field data have been extended and enhanced to rapidly deliver an accurate model of the subsurface:

The new LightTable module supports and integrates LCT’s existing 3MOD and 2MOD modules for producing realistic geological models, allowing seamless integration of 2D and 3D gravity and magnetic modelling. A new GDE (Gravity Depth Estimation) software module offers an equivalent source-based processing and modelling tool for producing gravity-derived depth volumes co-rendered with seismic for seismic depth migration.There are also enhanced and streamlined features in GRDFFT, the interactive module for gravity and magnetic grid enhancement processing and filtering

Greg Paleolog, SVP, Multi-Physics, CGG, said, “The technology updates demonstrate our commitment to delivering the innovations our users need to improve their geological understanding and exploration outcomes.”

NFPA 2112 certification for range of fabrics

CARRINGTON TEXTILES HAS announced the NFPA 2112 certification of its re-engineered range of flame retardant fabrics, which provide comfort as well as excellent performance against flash fire, electrostatic discharge, ultraviolet radiation, electric arc and chemical splash.

The NFPA 2112 standard protects workers from flash fire exposure and injury by specifying performance requirements and test methods for flame-resistant fabrics.

The Flameshield family in their 230gsm and 280gsm weight versions are 100 per cent cotton with lightweight, hardwearing properties and breathability. Flametuff 220AS, 250AS and Satin 330AS combine high cotton content with high tenacity nylon, offering antistatic properties and ultraviolet protection of 50+ UPF. Also providing antistatic properties, as well as incorporating CORDURA technology for long-lasting performance is Flametougher 280AS, Carrington Textiles' next generation of stronger, tougher and more hardwearing flame retardant workwear.

Carrington Textiles' sales & marketing director, Paul Farrell, commented, "Safety and performance are two of the most important pillars on which we based everything we do. That's the reason why we subjected these fabrics to more rigorous tests to reach the NFPA 2112 standard. All garments can look the same, but the difference between having workwear that's NFPA 2112 certified or not will unfortunately make the difference during an on-site accident."

STATS Group introduces remote Factory Acceptance Tests (FATs)

STATS GROUP, A pipeline technology specialist, has developed a system where customers, regardless of location, can witness a Factory Acceptance Test (FAT) without attending in person. A Factory Acceptance Test (FAT), provides assurance that equipment is performing to specification.

Utilising up to 12 cameras, remote live streaming captures every aspect of a FAT. This high-definition stream, with real-time voice communication, is combined with live data feeds, and securely shared through a centralised web console to any global location. All data captured during testing is securely stored and can be easily accessed for future reference.

Steven Byers, STATS Group director of operations, said, "Clients have been very positive on being able to remotely view Factory Acceptance Tests as they offer not only transparency and reliability, but lead to significant savings in travel and accommodation costs and time out of the office.

"Without the requirement to travel, remotely screened FAT's also help in reducing the carbon footprint of our customers and importantly during the COVID-19, reduce the risk of spreading the virus."

Image Credit: STATS Group

Remote monitoring for Factory Acceptance Testing at STATS Group headquarters in Aberdeenshire.

Celeros FT develops on-site Gas Filtration Test Skid

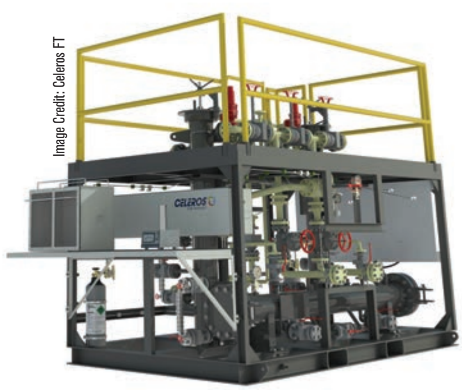
CELEROS FLOW TECHNOLOGY (Celeros FT) has developed an on-site Gas Filtration Test Skid that enables customers to gain a better understanding of their liquid process and filtration requirements without interrupting production.

Using data gathered during an on-site gas filtration test, it is possible to accurately determine the level of solid and liquid aerosol contamination within a gas processing system and support selection decisions on the most suitable filtration solution for the application. The benefits of correctly specified filtration can include enhanced product quality, a reduction in the use of anti-foaming additives and prevention of damage to plant.

The Celeros FT Gas Filtration Test Skid is suitable for deployment in both amine-based and glycol-based processing systems, as well as being of value in protecting gas turbo compressors, gas separation membranes, molecular sieves, turbines and NOx burners. ATEX Zone 1 rating means the skid can deal with even the most hazardous of application environments.

Supporting a 9,000Nm3/hr flow rate, the Gas Filtration Test Skid is suitable for midstream and downstream process gas applications. It can be used to undertake tests on coalescing efficiency at actual gas process conditions, covering pressures of up to 75 bar and temperatures reaching 65°C.

Image Credit: Celeros FT



The on-site Gas Filtration Test Rig helps midstream and downstream customers improve operational efficiency and reduce downtime.

Schlumberger launches Symphony live downhole reservoir testing

SCHLUMBERGER HAS LAUNCHED a technology platform that enables operational control of the downhole testing toolstring to deliver real-time downhole measurements.

Symphony testing unites Muzic wireless telemetry with the downhole string, creating a digital solution that allows the dynamic range of conditions to be controlled in real-time during well testing operations. The digitally enabled tool string is customised with real-time verification to position, isolate, connect, measure, control, sample, select and profile the reservoir for the test objectives.

"Symphony testing's digital enablement significantly increases operational control to acquire actionable data in real-time, saving our customers operational time and achieving well-tested goals more efficiently," said Aparna Raman, president, Reservoir Performance, Schlumberger.

Image Credit: Adobe Stock

The new technology delivers real-time downhole measurements.

"Our Symphony testing platform is supported by our Performance Live, digitally connected service that leverages domain expertise, cloud-based applications and automated data workflows to enable faster, more informed decision making."

Symphony live downhole reservoir testing reduces operating time, improves safety and efficiency while allowing informed decision making for a better understanding of the reservoir, reducing uncertainty in planning for field development.

Teledyne introduces new H_2S detector

TELEDYNE GAS & FLAME Detection has introduced the Multitox MOS Detector for H_2S detection in desert and Arctic environments. The Multitox DG-TT7-S (Type D), Simtronics provides best-in-class support when H_2S is a constant threat. By utilising the latest solid-state Metal Oxide Semiconductor (MOS) technology, inside a rugged and durable detector head, Teledyne enables H_2S to be detected easily, without the risk of poisoning, while providing sensor life of up to 10 years and an extended five years warranty as standard.

This, combined with the company's innovative Telecapteur Asset Management Software, being developed in partnership with the Abu Dhabi National Oil Company (ADNOC), enables automatic visualisation of key information, including instant access to historical calibration data, enabling quick and accurate analysis instead of relying on slower paper-based processes. The software simplifies calibration by reducing the number of operators required from two to one, decreasing OPEX spend and ensuring assets remain fully operational for longer.

Image Credit: Teledybe Gas & Flame Detection

The detector uses the latest MOS technology.

Partnership to streamline data flow for reservoir monitoring

ABERDEEN-HEADQUARTERED TENDEKA HAS partnered with OSIsoft EcoSphere to streamline data flow for oil and gas reservoir monitoring.

To assist customers in their strategies for digital transformation and integration, Tendeka will provide downhole tracking, analysis and modelling products. These new data sources will boost the reliability of the existing real-time information currently being stored by oil and gas customers in their PI systems. The PI System helps customers to cleanse, analyse and visualise this data to discover actionable insights in real time.

Andy Nelson, a senior software engineer with Tendeka, said, "Today, oil and gas producers are being bombarded with an ever-increasing volume of digital data from fibre optic systems to IoT sensors and devices.

"More of this information is being processed in the field as edge analytics comes into play. In the downhole environment, this edge decision making is affording the producers the ability to start optimising their assets in a real-time manner."

Annabel Green, chief technology officer with Tendeka, stated, "Integration with third-party systems, IoT devices and platforms like the OSIsoft PI System is integral to overcome the operational challenges faced in today's industry and accelerate our software offering to solve future issues. This successful integration solution will reinforce the producers' investment strategies."

Bringing IIoT remote monitoring to pipeline CP systems

MOBILTEX HAS INTRODUCED the CorTalk RMU1 LITE, which enables pipeline operators to quickly and easily automate the collection and transmission of pipe-to-soil potential measurement data from cathodic protection (CP) test stations in virtually any location, leveraging IIoT (Industrial Internet of Things) remote monitoring.

The battery-powered CorTalk RMU1 LITE transmits data by cellular or satellite networks, eliminating the need to physically visit CP test stations, often in remote locations, to obtain annual pipe-to-soil potential measurements.

The CorTalk RMU1 LITE offers user-selectable intervals, greatly enhancing the amount of pipe-to-soil data that is automatically collected. Pipeline operators can collect multiple measurements throughout the year, providing an enhanced data set to understand seasonal variations and short-term operating irregularities that can negatively impact CP system performance.

Marc Bracken, CEO, said, “MOBILTEX developed the CorTalk RMU1 LITE to bring pipe-to-soil potential measurement into the IIoT world Benefits are realised in many areas including safety, operational efficiency, and access to a much richer and complete dataset in order to improve CP performance and, ultimately, better protect assets and infrastructure.”

Data that is transmitted by the RMU1 LITE is received and stored by CorView, a powerful cloud-based software platform. CorView delivers measurement data, creates trending graphs and reports, and automatically sends alerts if measurements received are outside set thresholds or if data is not received at scheduled intervals.

Image Credit: Chris Jepsen/Flickr

The new technology from Mobiltex provides operators with access to a much richer data set to improve CP performance.

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COVID-19 AND THE OIL PRICE SLUMP: WHAT IT MEANS FOR AFRICA

In Africa, the twin challenges of the coronavirus pandemic and subsequent drop in oil prices are affecting countries in different ways – net energy exporters are braced for headwinds, but net importers have some relief from current account pressures.

GLOBALLY, LOCKDOWN AND social distancing has resulted in a sharp drop in demand for oil. The price of Brent crude fell from just under $US59 a barrel on February 19 to a 20-year low of around $US20 a barrel in late April, before an agreement from OPEC+ countries to slash global output helped prices recover to around $US41. In late April, with storage capacity running dangerously low in the US, the price of WTI crude oil futures plummeted into negative territory for the first time. The slump was felt by Africa's net energy exporters, which often rely heavily selling hydrocarbons.

With annual budgets premised on higher oil prices, many governments have cut expenditure or sourced extra finance, such as Nigeria. While oil makes up about 10 per cent of the country's GDP, it accounts for 57 per cent of government revenue and more than 80 per cent of exports. In its June "Global Economic Prospects" report, the World Bank predicted that Nigeria's energy sector will shrink by 10.6 per cent this year. The government's revised budget, altered the benchmark oil price from $US57 a barrel to $US25, while $US5.5bn in extra loans will help fund the new deficit.

Austin Avuru, CEO of Seplat Petroleum, told Oxford Business Group that, while the company

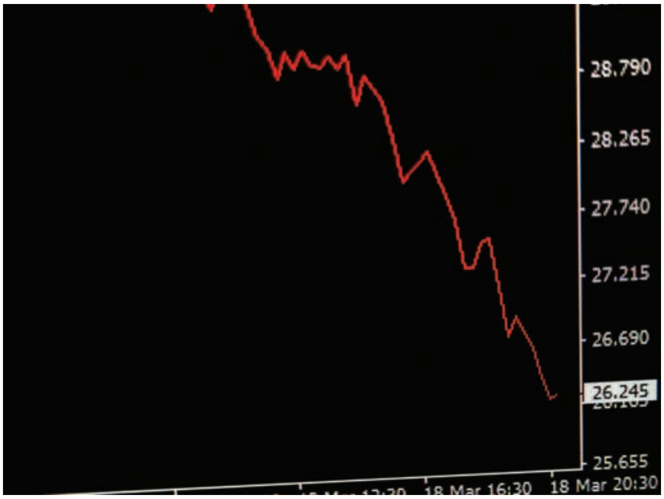

Image Credit: Adobe Stock

2020's oil price slump was a double whammy for the African oil and gas industry, along with the impact of the COVID-19 pandemic.

was continuing to invest in gas projects, efforts were being made to reduce operational spending: "Overall, our target is get close to a neutral cash flow position in 2020. So the main target of our budget restructuring is to be able to survive FY 2020, with the hope that during 2021 prices will climb back and we will manage to resume our planned investments. Meanwhile, in 2020 the key word is survival."

Low oil prices are set to have a significant impact on Angola and Algeria. In Angola, where oil makes up 90 per cent of total export revenues, the value of oil exports fell by nearly 50 per cent from April to May, while in Algeria, which derives more than 90 per cent of export revenue, the government announced in May that it would slash the 2020 national budget by 50 per cent.

In an indication of the importance of oil prices to the wider business environment in producing countries, while 34 per cent of respondents to OBG's Africa COVID-19 CEO Survey said that the fall in prices would affect their company's recovery plan, this rose to 60 per cent in Algeria and 65 per cent in Nigeria. While they are not immune to the economic fallout of COVID-19, net energy importers will be better insulated from the effects of low oil prices. Countries that do not rely on energy exports for a significant portion of national revenue will not directly suffer from the fall.

Those that source their energy from abroad will see some benefits from lower oil prices. But the World Bank has warned that the prospective benefits for energy importers will be minor comparied to the broader economic damage of virus-related lockdowns.

"In the context of the current restrictions on a broad swath of economic activity, low oil prices are unlikely to do much to buffer the effects of the pandemic, but they may provide some initial support for a recovery once these restrictions begin to be lifted," the June report stated.

One benefit from lower oil prices could be energy subsidies. Analysts have suggested that reformed subsidies in energy-importing countries, such as those seen after the oil price slump of 2014-16, could free up public funds for other pandemic recovery efforts.

Net importers are set to fare far better than exporters. According to the World Bank, MENA oil importers are expected to experience a 0.8 per cent average fall in GDP this year, compared to the 5 per cent average contraction projected for oil exporters in the region. In sub-Saharan Africa exporters are tipped to post a 3 per cent fall in GDP, slightly above the overall average of 2.8 per cent.

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