Petroleum Africa

May/June 2019

ISSN 1757-1383

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May/June 2019 | Vol. 16 Issue 3

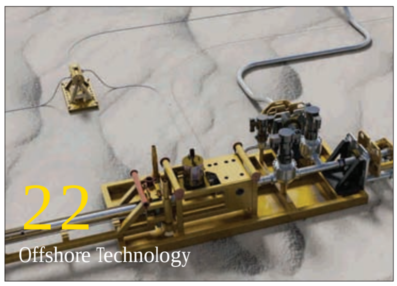
Contents

Source: ATB Riva Calzoni

28 African Refining

New Products & Services

Technology and Solutions



Source: NOV

22 Offshore Technology

Source: Savannah Petroleum

36 GW215 Mast Raised at Bushiya-1 well site

Monthly Focus

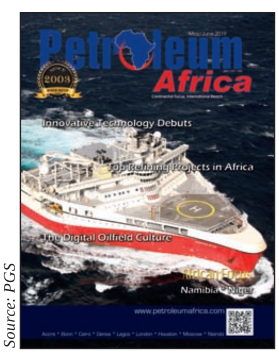
Downstream Focus

Local Impact

African Focus

DEPARTMENTS

ON THE COVER



Source: PGS

The Ramform Atlas completes MC3D survey offshore Guinea

MOVING ON

International Petroleum Corporation has promoted Daniel Fitzgerald, VP Operations, to the position of COO. Fitzgerald's appointment was effective April 1. At the same time, Ryan Adair, formerly VP Reservoir Development, will assume a senior role in the Canadian management team as VP Asset Management and Corporate Planning of IPC Canada.

Carlo Santurino

Sebastiao Gaspar

Carlo Santurino, head of Angola's state-run oil and gas firm Sonangol, was let go by the country's president, João Lourenço. Saturino was replaced by Sebastiao Gaspar Martins. Martins, is an oil industry veteran who has worked at Sonangol for nearly four decades, recently serving on Sonangol's board as an executive administrator.

OPITO appointed Richard Roberts as VP of strategic development for the Middle East and Africa region. Roberts has over 25 years' industry experience in senior roles ranging from operations to regional human resources. His appointment follows the recent announcement of Hart Victor joining as VP for Asia Pacific. In addition, OPITO appointed Brandon Grosvenor to the new role of VP of strategic development for the Americas region.

Jay Bhattacherjee

Tom Mackay

Aminex announced that due to health reasons, Jay Bhattacherjee has stepped down as CEO and director of the company. The board of Aminex appointed Tom Mackay as interim CEO. Mackay joined Aminex in September 2014 as a non-executive director and is currently the senior non-executive director on the Board. Linda Beal takes over as the senior non-executive director.

Ismael Ripoll was appointed as a new advanced analysis lead for the Exodus Group. With more than 12 years' experience in subsea pipeline and FEA engineering, Ripoll joins Xodus from Intecsea where he acted as technical authority of the advanced analysis team.

Gwede Mantashe

Jeff Radebe

South Africa has a new Energy Minister, Gwede Mantashe. Mantashe takes over the energy portfolio from Jeff Radebe. The change in ministers follows South Africa's combining of the mineral resources and energy ministries with the combined ministry falling under Mantashe who previously held the mining portfolio.

Aqueos Corp. named Eric Legendre to the position of VP – International Business and Strategic Development. Legendre has 18 plus years of industry experience complementing Aqueos' existing team.

Fenix International added digital finance expert Junior Zerubabel Kwebiiha to its core leadership team as its chief commercial officer. Kwebiiha has over 10 years of commercial experience in mobile money, digital financial services and building sustainable businesses. Prior to joining Fenix, Kwebiiha served as a Digital Financial Services Expert at the United Nations Capital Development Fund in Zambia.

Paul Welch

Paul Welch resigned as a director, and as President and CEO of SDX Energy. Welch's resignation was effective May 31. Mark Reid, company CFO, assumed the role of interim CEO until the company recruits a new CEO.

Dr. Bill Higgs has been named CEO and member of the board of Genel Energy with immediate effect. Higgs has 30 years of global experience in the industry, formerly holding executive positions with Ophir Energy and Mediterranean Oil & Gas. Murat Özgül will not stand for re-election at the AGM and has stepped down from the board. In addition, Genel appointed CFO Esa Ikaheimonen to the board.

Martijn Bergink has been appointed CEO of Framo. The former CEO of Framo, Sameer Kalra, moved to Framo's parent company, Alfa Laval, as the new head of the Alfa Laval Marine Division and a member of the Alfa Laval Group Management.

Cairn Energy has two new independent non-executive directors, Alison Wood and Catherine Krajicek. Both appointments are effective July 1.

WFS Technologies added to its senior management team with the appointment of Richard Adams as Sales Channel Director. Adams' appointment comes weeks after Moray Melhuish took up the post of Commercial Director at WFS Technologies.

Mark Gregg-Macdonald

South Africa's state-owned Transnet appointed Mark Gregg-Macdonald acting CFO, with effect from May 13. He will also serve on Transnet's board. His appointment follows the naming of acting CEO Mohammed Mahomedy on May 2.

Royal Dutch Shell appointed Khaled Kacem as the new country chairman and managing director in Egypt, replacing Gasser Hanter. Kacem was appointed in 2017 as the director of Shell Hasdrubal Ltd. He was previously assigned the role of Shell Tunisia Upstream director in 2016, and before that, he was appointed as President of BG Egypt in 2015. He assumed the chairman and MD position in May.

The executive eirectors of the World Bank selected David R. Malpass as president of the World Bank Group for a five-year term. Malpass' term began April 9. He replaces Kristalina Georgieva.

Josephine Wapakabulo

The CEO of Uganda's state-run oil and gas firm, Uganda National Oil Company, Josephine Wapakabulo, submitted her letter of resignation. Her resignation is effective August 13. Wakakapulo cited the need to focus on her family and new opportunities as the reason for her resignation.

Malin React, a newly launched arm of the Malin Group, appointed Graham Penman as a business unit manager to head up its operation. Penman has over 25 years' experience in engineering, subsea installation, construction and project management with positions previously held at Subsea 7, DOF Subsea UK, Bibby Offshore, Helix Energy Solutions and GAP Subsea Ltd.

BiSN named Hema Prapoo VP of Sales. Prapoo brings 15 years of experience to the company, starting his career as a wireline field engineer at Baker Hughes for a decade, before joining Allied-Horizontal Wireline Services. Prapoo brings extensive experience in business development, sales, customer service and account management.


Eghosa Oriaikhi Mabhena

Eghosa Oriaikhi Mabhena will be joining Puma Energy effective July 1 as Head of Africa. Eghosa joins the team from Baker Hughes where she has been executive director for their sub-Saharan Africa oilfield services business. Eghosa will join the Puma Energy Executive Committee and will be responsible for Puma Energy operations across Africa.

Arja Talakar has been appointed CEO of Siemens Oil & Gas. Talakar's appointment was effective April 1. Prior to taking this new role, he was responsible for Siemens' Saudi Arabia operations.

BCCK Holding Company appointed Don Tyler as director of engineering. He has more than 40 years of combined engineering, design, project and discipline management experience.

Corrosion Resistant Alloys LP appointed Tommy Najar as VP of commercial. Prior to joining the team, Najar amassed more than 17 years of industry experience, serving in various engineering roles for Chevron and Hilcorp Energy Company.

Geoquip Marine appointed Jean-Luc Laloe to its board of directors. Laloe has close to four decades of experience in the offshore oil and gas industry, previously working for companies like Technip, Stolt Offshore and Acergy/Subsea 7.

Lincoln Electric Holdings is mourning the loss of John M. Stropki, Jr., former chairman, president and CEO of the company. Stropki passed away on May 11 at the age of 68. He was with the company for 41 years serving as the company's seventh CEO from 2004 to 2012.

A. O. Smith Corp. named Hammam Amaireh as general manager – Middle East and Africa. In his new role, Amaireh will be responsible for sales in the Middle Eastern and African (MEA) markets. He previously worked for Pentair, where he led MEA sales operations.

i-Tech 7, Subsea 7's Life of Field business unit, appointed Craig Roberts as its new regional business development manager for the Asia Pacific and Middle East regions. He has more than 25 years-experience in the offshore oil and gas industry, most recently with Total Marine Technology.

Unique Group appointed Matthew Gordon as the new regional VP for Europe & UK. Gordon has over 22 years of experience in the subsea oil and gas industry, with previous senior management roles held in Fugro Survey, Subsea7 and Viking Seatech.


Sherif Barakat

Sherif Barakat has been named the new Country Director for Thales in Egypt. Barakat's previous role was VP & CCO of Samsung Egypt. He has also served as country director in both Saudi Arabia and Egypt with Samsung.

SOCO had some recent changes to its board. Ambassador António Monteiro, non-executive director, retired at the conclusion of SOCO's AGM. Marianne Daryabegui was appointed as an independent non-executive director, effective in mid-March.

Alhaji Mohammed Ahmed has been appointed as the new managing director of APM Terminals Nigeria. Ahmed is an experienced leader, serving across a number of markets and industries in Africa, Asia, Middle East and Europe.

Siemens Gamesa Renewable Energy (SGRE) appointed Alfonso Faubel as the company's new Onshore Business CEO, effective July 29. Faubel, who has 30 years' experience in the automotive and energy industries, joins SGRE from Sentient Science, where he was chief revenue officer of Energy and president of Europe.

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Texas, United States-registered company.
PO Box 1571 Montgomery, TX 77356

MESSAGE
FROM THE EDITOR

This year the Offshore Technology Conference in Houston (OTC) celebrated its 50th Anniversary. On the occasion, there was additional pomp & circumstance commemorating the milestone. One of many features at this year's OTC was the inaugural Around the World Series, which offered analysis of offshore growth in the nine featured countries; Ghana represented Africa. During OTC week each year, I always look forward to meeting the delegations from Africa that make the trip. As with every year in recent memory, Angola and Nigeria had a significant presence, and Ghana, as it has over the past 6-7 years, was also well represented.

Additionally, from North Africa, Libya made the trip during that same week looking to strengthen existing ties and establish new relationships, and of course, attract investment into its beleaguered oil and gas industry. NOC Chairman, Mustafa Sanalla, participated at the U.S. MENA Country Dialogue Series: Libya and Iraq, organized by the Bilateral US-Arab Chamber of Commerce (USBACC). Days earlier, Sanalla was bestowed the *2019 Visionary Leadership Award* by the USBACC for his "perseverance and dedication in his tireless effort to keep Libya NOC afloat in challenging times." And a huge challenge it is!

While speaking at the dialogue series, Sanalla said "NOC is struggling to keep out of this conflict," emphasizing that NOC looks to remain neutral on the political spectrum. He did add that he is "gravely concerned" and that it is "crucial that a ceasefire be reached" or else the result would be a "political vacuum." For now, Sanalla chooses to keep focused on the job at hand – increasing production, rebuilding infrastructure, conducting new exploration and attracting new investors and partners. To that end, NOC has established its first international office in Houston. "Our presence in Houston signals the important role that US companies and expertise can play in the development of our oil and gas sector," Sanallah said. He also touted the quality of American technology and available expertise, along with its commitment to transparency.

Over the course of his speech, Sanalla laid out NOC's vision and plans which includes increasing production to 1.5 million bpd in the near term and to 2.1 million bpd by 2023. He said the country has 56 major projects, both new and brownfield, along with plans for invigorating the downstream. I wish Sanallah and NOC the best of luck in these pursuits. With General Khalifa Haftar's LNA making gains across the country and into Tripoli, it is my sincere hope that no matter what the political outcome, that NOC will carry on as the standard bearer for Libya's oil and gas industry.

Inside these pages, you can find more information on the technologies featured at OTC as well as developments out of Libya. Our Africa Focus this issue includes Namibia and Niger; one an oil producer and one still in search of the big find! African Refining features in the Downstream Focus, be sure to have a look at the world's largest single train refinery coming to Nigeria, as well as updates on other planned refineries. As always, your comments and suggestions are welcome and can be sent to info@petroleumafrica.com.

Dianne Sutherland
Chief Editor

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London / 2019

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Sudan: Protestors Fired Upon

The situation on the streets of Khartoum and throughout Sudan have continued to heat up. Just prior to Petroleum Africa going to press on June 3, security forces fired on pro-democracy protesters in the capital, leaving a number of dead and many more injured.

Source: United Nations

The situation in Sudan began back in December following then-president Omar Al Bashir cutting subsidies, with fuel and bread price increases igniting the country's citizenry, especially among the many poor. By April Al Bashir was forced out in a bloodless coup. The Council of Generals took over on April 11 but have been unable to quell the unrest and return the country to normality.

This latest round of violence prompted the United Nations chief's condemnation and an appeal for "peaceful dialogue" to resume. Secretary-General António Guterres "strongly condemns the violence" and "the use of force to disperse the protestors at the sit-in site," said a statement issued by his Spokesperson, adding he was also alarmed at reports that "security forces have opened fire inside medical facilities."

Mr. Guterres reminded the Transitional Military Council of its responsibility for "the safety and security of the citizens of Sudan," and urged all parties to "act with utmost restraint," including their responsibility to uphold "the human rights of all citizens, including the right to freedom of assembly and of expression."

"The Secretary-General urges the parties to pursue peaceful dialogue and to stay the course in the negotiations over the transfer of power to a civilian-led transitional authority, as required by the African Union (AU)," the statement continued. It concluded with the UN chief's commitment to working with the AU in support of the process, saying that the UN "stands ready to support the Sudanese stakeholders in their efforts to build lasting peace."

Pan-African Free Trade Pact in Force

The Africa Continental Free Trade Agreement (AfCFTA) came into force in late May after being ratified by the parliaments of 24 countries. The commissioner of Trade and Industry for the African Union, Albert Muchanga, confirmed by tweet that the agreement is now in force and that a unified market would be launched July 7.

Surprisingly, Nigeria, Africa's most populous country and largest economy, has not signed on to the agreement, saying it needed to consult economic stakeholders before deciding on whether or not to participate. At present, 52 African nations are onboard with the deal, leaving just Nigeria, Benin, and Eritrea on the sidelines.

According to the Brookings Institution, "The significance of the AfCFTA cannot be overstated: It will be the world's largest free trade area since the establishment of the World Trade Organization (WTO) in 1994."

The AfCFTA is expected to greatly facilitate the movement of goods between nations and reduce tariffs dramatically. Once in effect, participants will be required to drop 90% of their tariffs for imports from other African states. According to the United Nations, this could boost intra-African trade by 52.3%.

Libya: Opposition Hires US PR Firm

Field Marshal Khalifa Haftar and his Libyan National Army (LNA) hired Linden Government Solutions, based in Houston, according to a foreign agent registration document released by the US Justice Department. The leader of the LNA is looking to gain international support for his bid to take over Libya.

According to an AP report Linden, which would receive about $2 million under the 13-month agreement, also will assist with "international coalition building, and general public relations" for the LNA.

Haftar is reported to have spoken to US President Donald Trump on the telephone. The two were said to have shared their vision of "Libya's transition to a stable, democratic political system."

The Linden executives leading the firm's representation of Haftar and the LNA, Stephen Payne and Brian Ettinger, have extensive knowledge of Libya, the company said in a statement. Payne, Linden's president, said he has been in communication with Haftar for the past five years, according to the statement.

NOC Condemns Attack at Zellah

In Libya extremists stormed the main gate between Zellah city and a local oilfield operated by NOC unit Zueitina Oil Company (ZOC). According to reports on the state-run firm's website, the attack resulted in three casualties.

NOC, in its statement condemned the attack. The incident caused no immediate impact on operations. ZOC management held an emergency meeting to review security protocols, requesting that the local Petroleum Facilities Guard take necessary precautions.

NOC chairman, Mustafa Sanalla denounced the attack and warned of the risk to the oil sector from current hostilities: "NOC strongly condemns today's terrorist attack that could have easily endangered oil sector workers and infrastructure. The incident highlights the fragile security situation in our country and the need for an immediate ceasefire. Ongoing hostilities have created a security vacuum that extremists are now taking advantage of – potentially plunging Libya into even deeper chaos."

Algerian Election Canceled

Political uncertainty will continue in Algeria as its planned July 4 election has been canceled. The country's constitutional council cited "a lack of candidates."

Given the current political and civilian climate in Algeria, the prolonging of the political transition could incite more anger from protesters. The move will likely extend the rule of interim President Abdelkader Bensalah, who was due to stay on only until the vote to elect a new president, following the resignation of former President Abdelaziz Bouteflika after weeks of protests.

Source: Embassy of Algeria

Abdelkader Bensalah

In a statement on state television, the constitutional council overseeing the country's transition, said two candidates had come forward but were deemed invalid. The two candidates had not met the quorum of 60,000 signatures in support, a political source told Reuters.

Buhari Sworn-In for Second Term

Muhammadu Buhari was sworn in for a second term as Nigeria's president, after winning the election with 56% of the vote. His closest competitor, former Vice President Atiku Abubakar of the Peoples' Democratic Party (PDP), took 41%.

Buhari, now 76-year, was sworn in on May 29 amid tight security in the capital Abuja. He ran this campaign focused on tackling security threats and rooting out corruption.

Like in previous elections in Nigeria, the results are being disputed. Abubakar filed a petition which will be adjudicated in Nigeria's appellate court.

U.S. Embassy Commends Moves Toward Peace in Mozambique

The Embassy of the United States of America commended the President Filipe Jacinto Nyusi, and Renamo President Ossufo Momade for their joint announcement committing to completing the disarmament, demobilization, and reintegration (DDR) process in the months of June and July and expressing intent to sign a definitive ceasefire agreement and permanent peace accord in August. The US statement said it welcomed this news of progress toward achieving these key milestones in advance of the October general elections and urged both sides to continue taking concrete and simultaneous steps to fulfill their respective commitments to reaching a timely and complete DDR of Renamo combatants.

"The cooperation between President Nyusi and Renamo President Momade to advance the peace process, especially in the wake of the devastating and tragic cyclones that struck Mozambique in March and April, stands as a testament to the two leaders' desire to unify the country. The United States congratulates the Government of the Republic of Mozambique and Renamo, and remains committed to working within the framework of the International Contact Group to provide the support necessary to achieve the durable peace deserved by the people of Mozambique," the statement read.

New UN General Assembly Head Appointed

Tijjani Muhammad-Bande, Nigeria's current UN Permanent Representative, was elected to head the world body by acclamation on June 4 in the General Assembly Hall in New York and will succeed Ecuador's Maria Fernanda Espinosa.

"Peace and security, poverty eradication, zero hunger, quality education, climate action and inclusion will constitute a major priority of my presidency," said the Nigerian ambassador.

When he takes the reins at opening of the 74th session in September, he is committed to "promoting partnerships that are needed from all stakeholders to achieve our objectives, and ultimately ensure that we do our best to ensure peace and prosperity, particularly, for the most vulnerable."

Muhammad-Bande spoke about a number of September's high-level events that will be

Source UN Photo Evan Schneider

Ambassador Tijjani Mohammad Bande

convened at UN Headquarters in New York to support the Sustainable Development Agenda, including a High-Level Political Forum, the Climate Change Summit, the High-Level Dialogue on Financing for Development, the High-level meeting on Universal Health Coverage, as well as the high-level meeting to review progress made in addressing the priorities of Small Island Developing States (SIDS).

"The promotion of human rights and the empowerment of women and youth deserve special attention, and I will be devoted to the promotion of gender parity throughout the whole UN system, starting from my own Office," said the president-elect.

Noting that the 75th anniversary of the UN's founding would be commemorated during his tenure, he called it "a unique opportunity for us to reduce the trust deficit between nations."

Dana G Spuds East Med Well

Dana Gas spud the Merak-1 well offshore Egypt on its North El Arish concession on May 20. This block is in the Eastern Mediterranean Basin where giant natural gas discoveries, such as ENI's Zohr discovery, have been made in recent years.

Source: Infield

Tungsten Explorer

The Merak-1 well is being drilled using the *Tungsten Explorer*, on hire from Advantage Drilling Services. The well is estimated to take approximately 70 days to drill.

Prospective resources to be added from this well in the case of exploration success could reach 4 Tcf of natural gas. The discovery of a world-class resource of this size could easily support an offshore field development. If Merak-1 is successful, additional exploration and appraisal drilling will follow.

Rockhopper Busy on Egypt Portfolio

Rockhopper Exploration provided an operational update on its Egyptian portfolio, in which the company holds a 22% working interest. The Al Jahraa-11 in-fill well reached TD of 4,150 meters MD in mid-April in the Kharita formation. Mudlogs and petrophysics indicate combined net pay of 28.7 meters.

The well was successfully tested across the ARC, ARG and Bahariya and has been completed with a dual string to produce from these three reservoirs. The well is currently producing approximately 787 bpd gross. In addition to the oil production from Al Jahraa-11, the operator, Kuwait Energy, is evaluating a gas commercialization solution through bids for the construction of a sales gas pipeline from Al Jahraa to the gas plant at El Salmiya.

The Al Jahraa -7 in-fill well was spud on May 26, as of June 2 it was drilling ahead at 1,195 meters in 12 1/4" hole. This well is planned to reach TD in the Kharita formation with its primary objective being an infill oil producer in the ARC reservoir and having a secondary objective in the Bahariya. The well is planned to take around 60 days to drill and complete.

The next well in the program will be Al Jahraa Water Injector-1, followed by the SW-ASH commitment exploration well.

On the Abu Sennan 6 development lease, which was awarded on March 25, the ASX-1X discovery was brought onstream shortly thereafter. The well is currently producing 150 bpd gross. As of June 2 the total gross production from Abu Sennan was 5,135 boepd.

Nigeria Looks to Re-Write Exsisting Contracts with Shell

Nigeria has begun renegotiating oil contracts with Shell. According to Minister of Petroleum, Emmanuel Ibe Kachikwu, the government is looking for better terms than were seen in the previous PSCs with the international oil firm.

Nigeria has several types of contracts with energy majors including JVs for onshore blocks, in which the government has an equity stake, and production-sharing agreements for the deepwater blocks.

The state signed production sharing contracts in the early 1990s with companies including Shell, France's Total, ENI, and ExxonMobil.

Kachikwu said the old agreements favored the foreign companies, giving them as much as 80% of the oil that was produced after costs – known as profit oil – against the 20% for the state. "That is a non-starter," the Minister said. "It's got to be better."

He said the new contracts should start at 60% or lower in the company's favor. Under these types of contracts, the companies take the greater share in the initial stages of operation, before gradually shifting in favor of the state as the companies recover their investments.

Kachikwu said NNPC has already entered into renegotiations with Shell, which in 2023 will be the first company to see a contract expire. Others will expire by 2028. "The Shell model, when they finish, will then be the basis of what we do with all other PSC contractors," he said.

Development Lease Approved in Western Desert

TransGlobe Energy received approval for a new development lease in Egypt. In the Western Desert on the South Ghazalat, the company received notice that its Development Lease (DL) application for the SGZ-6X discovery well was approved by the Ministry of Petroleum.

The SGZ-6Z discovery well tested at a rate of 3,840 bpd of light oil.

The 29.8 sq km DL has a 20-year primary term with a five-year extension available. In addition to the $1 million DL bonus (as per the concession agreement), the company has committed to drill a minimum of one exploration well on the DL within the first four years of the primary term.

Upon receiving approval of the South Ghazalat DL and having met all the commitments for the first two exploration phases, TransGlobe elected not to enter the final 18-month exploration period and relinquished the balance of the South Ghazalat exploration lands.

The near-term development plan is targeting first oil production from the SGZ-6X discovery well in Q4 of 2019. The initial development includes the construction of an EPF and equipping the SGZ-6X well for production. The company is targeting to initially produce the SGZ-6X well at about 1,000 bpd from the Upper Bahariya formation to assess reservoir performance. Subject to finalizing transportation agreements with neighboring operators, the crude produced will initially be trucked to a nearby facility which is connected by pipeline to the El Hamra Terminal.

Concurrently, TransGlobe is planning to drill an appraisal well in Q3/Q4 (subject to rig availability) which, if successful, would be tied into the EPF and potentially be producing prior to year-end. In addition, it has initiated a project to merge and reprocess two existing 3D seismic surveys over the DL area to better define prospects and leads identified from current mapping for future exploration and appraisal drilling.

KBR Wins Algeria's RKF Contract

KBR, Inc. will be working in Algeria providing the Basic Engineering Design (BED) and Front-End Engineering Design (FEED) for the redevelopment of the Rhoude el Krouf Field (RKF). The contract comes from state-run Algerian firm Sonatrach and its partner on the RKF, Cepsa.

The RKF field, located in the Algeria desert south-East of Hassi Messaoud, includes an oil and gas CPF with gathering network and all associated structures. The redevelopment will add an additional oil and gas treatment train to the existing facilities. This project is part of the objectives set by partners Sonatrach and Cepsa to support the increase of Algeria's oil and gas capacity.

The project will be executed from KBR's London and Chennai offices over an eight-month period.

NOC Meets with Schlumberger

Libya's NOC chairman, Mustafa Sanalla, met with the chief operating officer of Schlumberger, Olivier Le Peuch, on May 9. The two discussed onshore and offshore field development.

Source: Schlumberger

The two parties also agreed to sign a MoU in June on joint drilling and training projects.

Sanalla and Le Peuch discussed soon to commence drilling and early production projects in the Murzuq and Sirte basins, as well as training centers that Schlumberger will establish in Tripoli and Benghazi to give the next talent pool of the oil sector a skills boost.

Libya to Develop North Hamada Oilfield

National Oil Corp (NOC), Libya's state-run oil and gas firm, said in a statement that it planned to launch the development of the North Hamada oilfield in the northwest of the country on Concession 47 through one of its JVs, Nafusah Oil Operations.

Nafusah Oil Operations, a JV between NOC and Indonesia's PT Medco, holds the right to develop Concession 47 where the field is located.

"A technical team held a workshop on May 20 to discuss proposals submitted for the development of the field," the statement said.

El Fayum Drilling Program to Start in June

Soco International, following the completion of the acquisition of Merlon Petroleum El Fayum Company, reported average production from the El Fayum concession in Egypt at 5,551 bpd.

The company reported that a second rig was contracted and drilling operations with this rig are expected to commence next month. The focus will be on drilling more production wells and additional injector wells to enhance the secondary water flooding in the core El Fayum fields.

In addition, Soco said it was making good progress in reducing diesel-fired electrical power generation by introducing new gas-fired generators, which will both reduce CO_2 emissions and the amount of gas going flared off.

The team in Egypt has been integrated with Soco's operations to manage this expanded program of activity. Soco anticipates a 2019 exit rate in excess of 6,500 bpd from the El Fayum concession. Its goal remains to increase production from the concession to 15,000 bpd by 2023.

The company is considering short and long-term options for off-take arrangements in Egypt, including various different refinery and pipeline options to provide maximum flexibility for future developments.

Block 15/06 Sees 5th Discovery in a Year

ENI made another discovery in Angola on Block 15/06. The discovery marks the company's fifth on the block in one year. The well has been drilled on the Agidigbo exploration prospect, and analysis of post drill results indicate between 300 and 400 million barrels of light oil in place.

The Agidigbo-1 NFW was drilled using the *West Gemini* drillship in a water depth of 275 meters and reached a total depth of 3,800 meters. Drilling showed a single hydrocarbon column composed of a gas cap of about 60 meters and 100 meters of light oil.

ENI said the discovery has further upside that will be proved by an appraisal campaign planned for early-2020.

Due to its proximity to East Hub's facilities and subsea network, production from Agidigbo can be fast-tracked, thus extending the *Armada Olombendo* FPSO production plateau.

The Agidigbo discovery follows the discoveries of Kalimba, Afoxé, Agogo and Ndungu. The five discoveries altogether are estimated to contain up to 1.8 billion barrels of light oil in place with possible upside. These new discoveries further confirm the exploration potential of the block and the effectiveness of the exploration skills and proprietary technologies that ENI is utilizing to unlock the full potential of the area.

SPDC Targets 600 Mmcf/d

SPDC, Shell's unit in Nigeria, said it is targeting gas output of 600 Mmcf/d from its Assa North and Ohaji South. This follows the company taking the FID on the two projects earlier this year. The two fields, currently under development, are expected to generate energy equivalent to 2,400 MW.

Osagie Okunbor, MD of SPDC stated that "the projects would be a major game-changer in Nigeria's quest for energy sufficiency and economic growth as we look to grow the domestic gas market."

This production will see 2.4 million Nigerian homes with an uninterrupted power supply, the company said.

Sirte Oil Company Increases Flows at Istiklal Oilfield

NOC unit, Sirte Oil Company (SOC), saw the successful completion of the FF03-6 development well within the Istiklal oilfield. The activities of SOC were fully supported by the state-run firm as part of its drive to increase and maintain production and ensure regular gas supply to coastal region power plants.

Source: Sirte Oil Company

The testing of the well was conducted on May 12 and drilled utilizing Aphron technology – a modern drilling fluid system utilized under the supervision of the Al-Jowfe Service Company. According to a statement on the NOC website, the results were encouraging.

The well saw condensate production of 7,103 Mmcf/d and condensates of 263 bpd on a 64/32-inch choke. It saw higher production rates was testing on a 64/68-inch choke; gas flowed at 13,979 Mmcf/d and condensate at a rate of 455 bpd.

Well completion is to be finalized using production pipelines and well accessories designed according to specific reservoir conditions.

TransGlobe Drills on West Bakr Concession

TransGlobe Energy saw a development well drilled on the West Bakr concession in Egypt's Eastern Desert. The K-63 development well was drilled to a total depth of 4,741 ft and cased as an Asl A formation oil well. The K-63 well encountered an internally estimated 74 ft of net oil pay in the main Asl A pool based on well logs and samples. It is expected that K-63 will be completed and placed on production by early June, along with the previously drilled H-30 development well.

Also on the West Bakr concession, the HW-2X discovery well is producing at a rate of around 700 bpd. During drilling the well encountered an internally estimated 113 ft of net oil pay.

The drilling rig is scheduled to move to TransGlobe's NW Gharib to drill the NWG 38D-1 exploration well. The well is targeting the Red Bed formation in an adjacent fault block to the east of the company's producing 38A pool. TransGlobe initiated water injection in the NWG 38A Red Bed pool during Q1 to maintain reservoir pressure and increase recoveries.

Algeria's Hydrocarbon Law Ready for Approval

Algeria's latest version of its hydrocarbon law is complete and will be submitted to authorities for approval according to Mohamed Arkab, the country's Minister of Energy.

The draft hydrocarbon law covers institutional, contractual, fiscal and environmental terms.

Africa's third-largest oil producer and number one natural gas producer is looking to revamp its exploration strategy and attract fresh investment. A decline in reserves has been noted in the past few years despite several recent discoveries. Meanwhile, the national demand for hydrocarbon products is increasing and the country is facing a whopping seven percent annual GDP growth. The draft has been finalized according to the orientations of the Inter-Ministerial Council and has been handed over to the various ministerial departments for possible add-ons," said Arkab. He did not provide a deadline as to when to expect final approval.

During the announcement, Arkab mentioned the 51/49 rule, which forbids foreign investors from owning north of 49% of any company in Algeria, would not be withdrawn from the future bill. "We will not alter the 51/49 rule. However, further amendments will allow us to improve investment conditions from a legal, institutional and fiscal point of view," Arkab said.

Arkab went on to say that the aim of drafting a new law was to is to counter a "slowdown in new exploration and production contracts" as well as "restore the country's extractive industries attractiveness, increase production levels and bring in foreign direct investment in the petroleum sector, without threating national sovereignty."

ENI Knocks Out Angola Discovery

ENI has made a new light oil discovery in Block 15/06, in Angola's deep offshore. The well was drilled on the Ndungu exploration prospect. The new discovery is estimated to contain up to 250 million barrels of light oil in place, with further upside.

The Ndungu-1 NFW well is located a few kilometers from ENI's West Hub facilities and was drilled by the *Ocean Rig Poseidon* drillship in a water depth of 1,076 meters and reached a total depth of 4,050 meters.

The Ndungu-1 NFW proved a single oil column of about 65 meters with 45 meters of net pay of high quality oil (35° API) contained in Oligocene sandstones with excellent petrophysical properties. The result of the intensive data collection indicates a production capacity in excess of 10,000 barrels of oil per day.

Ndungu is the first significant oil discovery in Angola inside an already existing Development Area. It certifies the concrete validity of the recent legislation, promoted through the Presidential Legislative Decree No. 5/18 of 18 May 2018, which defines a favorable legal framework on additional exploration activities within existing Development Areas.

Being located about 2 km from the Mpungi field, the new discovery can be fast-tracked to production due to the proximity to the subsea production system. Production will be routed to the *N'goma FPSO*, therefore extending the West Hub's production plateau.

Ghana's Akoma-1X is a Hit

ENI's drilling offshore Ghana on CTP-Block 4 resulted in a gas and condensate discovery. The well, drilled on the Akoma exploration prospect, revealed an estimated volume between 550 and 650 Bcf of gas and 18-20 million barrels of condensate.

The discovery has further additional upside for gas and oil that will require further drilling to be confirmed.

The Akoma - 1X exploration well was drilled by the *Maersk Voyager* drilling ship in a water depth of 350 meters and reached a total depth of 3,790 meters. It is located northwest of the Sankofa hub where the *John Agyekum Kufuor* FPSO sits.

Source: Maersk

Akoma - 1X proved a single gas and condensate column in a 20 meter thick sandstone reservoir interval of Cenomanian age with good petrophysical properties. The well is the first drilled on CTP-Block 4 and represents a discovery of a potentially commercial nature, due to its close distance to the existing infrastructures. The discovery can be put in production with a subsea tie to the FPSO with the aim to extend its production plateau.

Savannah to Test Niger's Amdigh-1

Savannah Petroleum revealed that it expects to proceed with its planned Amdigh-1 discovery well test in H2 2019. Its previously announced Pre-Stack Depth Migration (PSDM) seismic processing project on R3 East is now complete.

The PSDM dataset shows an overall improvement in seismic imaging at all levels vs. the existing Pre-Stack Time Migration (PSTM) dataset. The interpretation phase, which is planned to start this month, will assist in confirming drilling targets to support the proposed EPS as well as identifying additional prospectivity in the deeper Yogou and Donga Cretaceous intervals.

TE-10 Disappoints, No Commercial Flows

Sound Energy's TE-10 gas discovery on Morocco's Tendrara permit failed to find success while on test. While the well flowed gas to the surface, it did not achieve commercial flow rates following the stimulated well test.

Both internal and external petrophysical interpretations of wireline log data, integrated with FMI (high definition formation micro-imager log), and side wall core analyses, estimated net pay of up to 15.4 meters in a succession of thinly bedded gas bearing intervals distributed throughout the 110 meters gross TAGI reservoir interval. The presence of moveable hydrocarbons was further supported by the successful recovery of a gas sample from 1,937 meters MD (mMD), with no evidence of water, using a modular formation dynamics tester (MDT).

A mechanical stimulation was carried out over the uppermost primary zone (1,932 to 1938 mMD) by an experienced crew of Schlumberger engineers, deploying 'state of the art' Schlumberger Hi-Way technology, the first use of this technique in Morocco. Wireline data acquired during the operations indicated that the stimulation was successful and that the formation was likely fractured over an interval between 1,924 mMD and 1,946 mMD. After the initial clean up this zone was flowed and recovered a mixture of gas and liquid, largely comprising the fluid used in the stimulation. Two nitrogen lift operations were subsequently performed in an attempt to increase the gas flow rate, followed by nitrogen injection into the fracture network.

Serinus Ramping Up Operations in Tunisia

Serinus Energy is ramping up operations in Tunisia after a prolonged period of inactivity due to the difficult social conditions in the country. The company's local team commenced the reopening of the Chouech Es Saida field in southern Tunisia in late Q1.

Initial steps include the re-hiring of employees, road clearing, inspection of down hole equipment and consumable inventories, tendering for services and site inspections. These procedures are ongoing, with work to replace the pumps due to commence during Q2 and production anticipated in early Q3 2019.

Serinus also expects to deploy additional capital to the Sabria field in the form of a re-entry into a well that was mechanically damaged during completion many years ago by a previous concession holder. The company views activities like this as excellent capital allocation with low exploration risk and technical risk that has been mitigated over the years by improving technology.

The Sabria field has been producing, since its discovery, on simple primary production. Serinus is considering applying artificial lift to this field. This capital investment work at Sabria is anticipated to start in late-2019.

Two Majors Pull Out of Ghana's Bidding Process

US-based ExxonMobil and the UK's BP pulled out of Ghana's ongoing licensing round. The pair had submitted applications for direct negotiations for Blocks 5 and 6 but then recently withdrew their interest.

Ghana is offering six oil exploration blocks, three though competitive bidding process, blocks 2, 3, and 4. While Blocks 5 and 6 were supposed to be for direct negotiations; the last block has been set aside for GNPC.

ENI, Vitol, and Tullow Ghana Limited all submitted bids for Block 3 with First E&P submitting a bid for block 2.

The original pool of companies that put in a bid for the three oil blocks included CNOOC, Cairn Energy, Qatar Petroleum, Global Petroleum Group, First E&P, Sasol, Equinor and Harmony Oil and Gas Corp. Total, Kosmos Energy, and Aker Energy were also participating in the licensing round.

Shell Looking at South Africa

Shell is looking to acquire acreage in South Africa, the Petroleum Agency South Africa (PASA) confirmed to Bloomberg. The firm has applied to take a stake in OK Energy's license in deep waters off the country's west coast.

"We have indeed received an application which is awaiting ministerial approval," PASA told Bloomberg.

According to reports, Shell could acquire a 40% stake from Anadarko Petroleum in deep-water block 5, 6, and 7 off Cape Town.

The news on Shell follows South Africa coming close to finishing separate oil and gas legislation. Shell had left the country's Orange Basin two years ago due to policy uncertainty.

ENI Adds Stakes in Mozambican Blocks to Portfolio

ENI picked up new stakes in Mozambique's offshore arena. The company acquired rights to explore and develop Blocks A5-B, Z5-C, and Z5-D in the Angoche and Zambezi Basins. The acreage comes through a farm-in agreement, signed with ExxonMobil and authorized by the Mozambican authorities. ENI will gain a 10% stake in all three blocks.

Block A5-B is located about 1,300 km northeast of the capital Maputo, in a completely unexplored area off the city of Angoche. It has an area of 6,080 sq km at water depths ranging from 1,800 and 2,500 meters.

Blocks Z5-C and Z5-D cover a total area of 10,205 sq km, at a water depth between 500 and 2,100 meters, in a scarcely explored area facing the delta of the Zambezi River, about 800 km to the north-east of the capital Maputo.

The three blocks, assigned under the 5th Licensing Round, are operated by ExxonMobil (40%), in partnership with the Mozambican State company Empresa Nacional de Hidrocarbonetos (ENH, 20%), Rosneft (20%) and Qatar Petroleum (10%).

ENI holds a 59.9% stake in Block A5-A offered in the country's 5th Licensing Round. The block is adjacent to Block A5-B. Other partners are Sasol (25.5%) and ENH (15%). A farm-out agreement enabling Qatar Petroleum to acquire a 25.5% participating interest in Block A5-A, reducing ENI shares to 34%, is pending authorization by the Mozambican authorities.

Pre-qualification for Equa G Blocks Closing Soon

Equatorial Guinea's Ministry of Mines and Hydrocarbons' 2019 Oil and Gas Licensing Round – EG Ronda 2019 – will see the pre-qualification for bidding window close June 3.

The licensing round is comprised of 26 blocks; 24 for exploration and two for appraisal/development of hydrocarbons already discovered. The deadline for companies to submit bids is September 27. Winning bids will be announced November 27 at the Gas Exporting Countries Forum 5th Gas Summit in Equatorial Guinea.

"We want to welcome all investors from the oil industry to join us in developing our vast resources for the benefit of our country, and our international partners, in an environment of clear and stable legislation, fantastic incentives for the companies and extraordinary untapped potential of our benevolent geology," said Gabriel Obiang Lima, Minister of Mines and Hydrocarbons.

The country already hosted roadshows in Cape Town, Malabo, and San Antonio between February and May. Equatorial Guinea has scheduled additional roadshows in London (AOP Investor Forum, June 17), Cape Town (AOW November 4-8) and Malabo (CEGF Gas Summit, November 26-29).

PGS Completes Guinea MC3D

PGS' latest MultiClient 3D (MC3D) GeoStreamer acquisition offshore Guinea has been completed. The MC3D survey covered blocks A4 and A5 and was completed on May 8. The Guinea MC3D survey is PGS' first MultiClient project in collaboration with Guinea and marks the start of a series of planned acquisitions.

Source: PGS

The survey was conducted using the *Ramform Atlas* over a 7,900 sq km area in water depths of 60 to 4,500 meters. The survey commenced operations in mid-February and took 84 days to complete.

A PGS statement read: "The competent and well-managed PGS crews delivered excellent HSEQ performance, in line with our corporate commitment. The speed of operation, together with a highly effective seismic spread, reduced overall survey duration, maximizing efficiency and minimizing environmental impact. Online barnacle scraping lessened noise and improved data quality while reducing exposure to HSE risks. Evaluation of the acquired separated-wavefield data (P-UP) confirms the high standards achieved.

"PGS brings GeoStreamer technology with a true broadband imaging solution to the Republic of Guinea. Broader bandwidth and rich low-frequency content provide clearer reservoir details in all play types, with reduced sidelobe artifacts."

The project includes the acquisition and processing of seismic, gravity and magnetic data over open acreages. Commercial, strategic and technical benefits are available now to early participants in the survey.

Room for Partners on South Sudan's Block B2

Companies who had an interest in South Sudan's Block B2 prior to its award to South Africa's Strategic Fuel Fund (SFF) may have another chance to get take a stake. According to the country's Minister of Petroleum, Ezekiel Lol Gatkuoth, SFF has "room to farm in" a partner in carrying out activities on the block.

The recently signed $1 billion exploration and production sharing agreement will see the SFF conduct exploration activities in the block and build a 60,000 bpd refinery and pipeline in South Sudan.

Gatkuoth told Bloomberg that the South Sudanese government has the right to approve any partners, with the transaction being subject to capital gains tax. In approving any partnership, the government will consider the role the relationship will play in boosting production as the country works to restore its output to pre-war levels.

Under the agreement, the SFF will own and operate Block B2 alongside South Sudan's national oil company, Nile Petroleum Corp.

Shearwater Wins SNE Shoot

Woodside Energy has contracted Shearwater GeoServices to conduct a high-density multi-azimuth 3D seismic acquisition campaign over the SNE field offshore Senegal. Woodside is the operator of the SNE Field Development JV.

The contract covers the Sangomar, Sangomar Deep and Rufisque Offshore blocks, which include the SNE discovery.

The work, designed as high density and multi-azimuth survey, will be acquired by the *Polar Marquis* using 14 streamers, and Flexisource triple source. Starting in early Q3 2019, the survey will take approximately 90 days to complete.

"We are pleased to see the award by Woodside of this complex multi-azimuth triple source contract over these significant Senegal discoveries" said Irene Waage Basili, the CEO of Shearwater GeoServices. "The award reflects our capabilities as a full-service geophysical service provider and the *Polar Marquis'* excellent record operating offshore Africa."

KBR Wins New Job on Greater TortueAhmeyim Project

KBR picked up more work on the Greater Tortue Ahmeyim Project offshore Senegal and Mauritania. BP awarded the company's UK operating subsidiary the EPCM contract to provide facilities integration and terminal quarters and utilities.

KBR will manage the Hub/Terminal QU contractor, provide services for the QU Integrated Control, Safety System ICSS, Telecoms Systems and Supplemental Services – system engineering, support and verification – for the marine and civil elements of Hub/Terminal.

"KBR is delighted to continue supporting BP during the execution of the integration and QU for Phase 1 of the TortueAhmeyim Project," said Jay Ibrahim, KBR President, Energy Solutions – Services. "We are proud to be part of this groundbreaking project which will deliver LNG revenues and gas to Africa for decades to come."

South Sudan to Get Production Boost in June

South Sudan's Minister of Information Michael Makuei Lueth, while speaking to reporters said that the government plans to increase production by 30,000 bpd by the end of June.

According to figures recently released by the Ministry of Petroleum, current production in the country is 175,000 bpd.

The Minister said that profits from marketing this additional volume will be used to finance construction and roads and other public infrastructure. He also said that these funds will help pay part of the salary arrears of officials who have not been paid for nearly five months.

This increase in production is due to the lull in the country's main production areas that has been observed for several weeks.

Chariot's Sees Resource Upgrade in Morocco

Chariot Oil & Gas' remaining recoverable resources have been upgraded to in excess of 1 Tcf, according to its recent Competent Persons Report (CPR) completed by NSAI over its satellite prospects adjacent to the Anchois-1 gas discovery in the Lixus Offshore License, Morocco. The Lixus license covers an area of approximately 2,390 sq km, 30 km north of Chariot's existing Moroccan acreage, with water depths ranging from the coastline to 850 meters. The area has been subject to earlier exploration with legacy 3D seismic data covering approximately 1,425 sq km and four exploration wells, including the Anchois gas discovery.

The company has identified five satellite prospects to Anchois that have tie-back potential, all of which have now been audited by NSAI, giving Anchois and the satellites total remaining recoverable resources in excess of 1 Tcf. The excellent quality reservoirs in the Anchois discovery offer the potential for high rate wells and the consequent possibility of a low-cost development. The combination of excellent commercial contractual terms, high domestic gas prices and growing energy demand mean the Anchois discovery offers the potential for a material, high-value project. Furthermore, the low risk prospect inventory offers running room for additional, low-cost tie-back opportunities.

An additional five prospects have been identified in Lixus in similar geological settings as Anchois but are currently without the appropriately conditioned 3D seismic data to confirm comparable anomalous seismic signature. The company estimates these prospects to have gross best estimate prospective resources ranging from 66 Bcf to 330 Bcf. Seismic reprocessing will be undertaken to reduce the risk for these additional prospects after which a CPR is to be conducted on these prospects. Chariot is also evaluating leads identified in the section below the Nappe, which has the potential for giant scale prospective resources.

The initial license commitment, for which the company is fully funded, includes a technical program of 3D seismic reprocessing and evaluation to access the additional exploration potential of Lixus. Chariot will also further evaluate the gas market, test development concepts and seek strategic partnerships and alliances to progress towards a development of the Anchois discovery.

ENI and Total Pick Up Acreage in Cote d'Ivoire

E&P firms ENI and Total have picked up acreage in Cote d'Ivoire. Government spokesman Sidi Toure told journalists that the government had awarded four new offshore oil and gas blocks, two went to Total and two to ENI.

"The government adopted a communication regarding talks on four contracts to share production with companies Total and ENI," Toure told journalists.

Total will operate offshore blocks CI-705 and CI-706, with an investment of roughly $90 million during the exploration period. ENI scored access to blocks CI-501 and CI-504 and will invest about $95 million in the first exploration period.

The country's state-run oil and gas firm, Petroci Holding, will hold a 10% stake in each of the blocks, Toure said.

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New LNG SPA for Mozambique LNG1 Company

Anadarko Petroleum revealed that the Mozambique LNG1 Company, the jointly owned sales entity of the Mozambique Area 1 co-venturers, has signed a Sale and Purchase Agreement (SPA) with JERA and CPC Corp. The SPA calls for the delivered ex-ship supply of 1.6 mtpa for a base term of 17 years from the commercial start date.

Mozambique LNG's portfolio of long-term sales now includes four of the top five LNG importing markets in the world.

Anadarko is developing Mozambique's first onshore LNG facility consisting of two initial LNG trains with a total nameplate capacity of 12.88 MTPA to support the development of the Golfinho/Atum field located entirely within Offshore Area 1.

NPDC to Unveil New LPG Facility

Nigeria's state-run oil and gas firm, NNPC, will unveil the largest LPG and propane storage and dispensing facility in Oredo, Benin City. Company spokesman, Ndu Ughamadu, speaking in Abuja on May 19 said NNPC's subsidiary, NPDC, would unveil the facility as part of its efforts to fast track the use of LPG in the domestic market.

"The facility, which is an extension of the Integrated Gas Handling Facility (IGHF) plant, has the capacity to dispense 330 tonnes of LPG and 300 tonnes of propane daily, in addition to the 100 Mmscf/d and 260 bpd of condensate from the IGHF plant," he said.

Ughamadu noted that the managing director of NPDC, Yusuf Matashi, said the IGHF would be a game changer for the National Oil Company, as both facilities (IGHF & LPG bay) when commissioned, would be a huge revenue stream for the government.

"Before the end of 2019 NPDC would be producing 40% of the nation's LPG requirements," he quoted Matashi as saying.

Currently NPDC is the single largest supplier of gas to the domestic market with about 90% of gas supply targeted at power generation to drive the nation's economy positively.

Santos Reaches Milestone in Expansion of PNG LNG

Santos reached an important milestone towards the expansion of the PNG LNG plant by signing a binding LoI to acquire a 14.3% interest (pre-government back-in) in Petroleum Retention License 3 (PRL 3), which contains the P'nyang natural gas field in Papua New Guinea.

The PRL 3 participants propose to undertake the development of the P'nyang field in coordination with the participants in the PNG LNG Project to leverage the advantages available with the existing infrastructure.

Under the binding letter of intent, the parties have agreed for Santos to pay $187 million in total for the 14.3% interest, approximately $120 million of it is due following the execution of a fully-termed sale and purchase agreement. The remainder of the contingent installments is subject to the award of a production development license to replace PRL 3 and the FID for the construction of an additional LNG train at the PNG LNG plant site for the liquefaction of gas from the P'nyang field.

The execution of a sale and purchase agreement remains subject to agreement between the parties on entry into FEED for PNG LNG plant expansion.

Santos Managing Director and Chief Executive Officer Kevin Gallagher said Santos' strategy in PNG is to work with its partners to align interests, and support and participate in backfill and expansion opportunities at PNG LNG.

Trans Forcados Up in Smoke, Remains Closed

Shell's Trans Forcados pipeline in Nigeria remains closed after a fire broke out on the line, according to the company. While the line remains closed, Shell has yet to declare a *force majeure*.

The fire occurred at a spill site along the pipeline within the Chanomi Creek in the Yeye community. The pipeline is the major trunk line within the Forcados pipeline system, which is the second largest network in the Niger Delta and transports oil, water and associated gas from fields in the western delta to the Forcados oil terminal, which has an oil export capacity of 400,000 bpd.

Shell manages the crude export terminal, while Heritage Energy operates the pipeline.

Kenya to Export First Crude Shipment in June

Kenya is expected to export its first shipment of crude sometime in June, according to the East African country's Petroleum Cabinet Secretary John Munyes. Munyes said so far Tullow Oil has transported 87,000 barrels of crude oil from Lokichar to Mombasa's Kenya Oil Refineries Ltd. tanks for storage.

The country will only be able to make its first crude oil shipment after hitting the 200,000-barrel mark.

While speaking at the official opening of the 9th East Africa Petroleum Conference in Mombasa, Munyes said Kenya is poised to become a huge crude oil exporter.

"By June this year, we hope the oil that we have been trucking from Lokichar to Mombasa will hit the 200,000 barrels. We'll have the 200,000 barrels getting into vessel, ready for shipment," said Munyes.

Rwanda Increases LPG Storage Capacity

Rwanda has increased its LPG storage and filling capacity. Thanks to an investment by SP Petrol Rwanda, the country has seen its LPG storage and filling capacity double, going from 160 m^3 to 320 m^3.

SP installed eight new plants, each with a capacity of 20 m^3 and capable of filling 1,000 bottles a day.

This comes in response to the country's growing demand, which has tripled just in the last two years. In 2016 the amount of LPG imported into Rwanda was just over five million kilograms, however, by 2018 that number had risen to more than 18.2 million kilograms.

Source: SP Petrol

The increase in this demand is attributed to the Rwandan government's policy to reduce the amount of charcoal used in the country. Measures are being taken in this direction, including the establishment of a strategic reserve in the event of a possible shortage or increase in prices.

Seplat Takes FID on Pipeline

Dr. Ambrosie Orjiako, chairman of Seplat Petroleum, revealed that the company's board had taken the FID for the ANOH and Amukpe to Escravos alternate export pipeline in Nigeria. Addressing journalists at the firm's yearly general meeting he said: "As you are aware, our results from the previous two years were characterized by the extended period of *force* *majeure* at the Forcados Terminal from February 2016 to June 2017.

"As we enter 2019, our reliable production base, low unit cost of production and discretion over capital commitments will allow the business to remain highly free cash flow generative and profitable. In the absence of any major interruption or *force majeure* event, this will enable Seplat to honor its dividend policy and provide an attractive yield to our shareholders in addition to the potential for capital appreciation."

Orjiako added that the company will selectively invest in low-risk oil production drilling opportunities within the existing portfolio and continue the expansion of its gas business, with 2019 set to be the year that activity intensifies at the large scale Assa-North and Ohaji-South (ANOH) gas and condensate development.

Uganda to Pay Higher Tariff for Crude Exports

Uganda, in a bid to boost its crude oil exports once production begins, announced that it will pay a higher tariff to use the pipeline planned to run through neighboring Tanzania. The pipeline, which spans 1,445 km, will take crude from Uganda's Lake Albert region to the coast of Tanzania at the Port of Tanga.

The government was initially set to pay a tariff of $12.20 per barrel of crude shipped through the pipeline. However, following negotiations with investors it was agreed that the tariff would be increased to $12.77 per barrel.

The Ugandan fields are jointly owned by Total, CNOOC and Tullow Oil. At a cost of $3.5 billion, approximately two-thirds of the project's cost will be debt-financed jointly by a Ugandan unit of Standard Bank Group and Japan's Sumitomo Mitsui Banking Corp.

Rovuma LNG Gets Go Ahead

Mozambique Rovuma Venture saw the government of Mozambique approve its development plan for the Rovuma LNG project. The project will produce feedstock for an LNG development from three reservoirs located in the Area 4 block offshore Mozambique, two of which straddle the boundary with neighboring Area 1.

"The development plan approval marks another significant step toward a final investment decision later this year," said Liam Mallon, president of ExxonMobil Upstream Oil & Gas Company. "We will continue to work with the government to maximize the long-term benefits this project will bring to the people of Mozambique."

The Rovuma LNG project will work to build the local workforce through focused recruitment and skills development. "This is the third development plan approved in this five-year period to enable the sustainable development of the huge natural gas reserves discovered in the Rovuma basin and represents the government's commitment to ensure the implementation of projects that will drive the development of Mozambique," said Minister of Mineral Resources and Energy Ernesto Elias Max Tonela.

"We want Mozambican entrepreneurs and Mozambicans to be the main beneficiaries of the various business opportunities made available by the multinationals because we believe that these companies should grow with the national businesses and with Mozambique," added Tonela.

The marketing effort for the LNG produced from the Rovuma LNG project is jointly led by ExxonMobil and ENI. Sales and purchase agreements for 100% of the LNG capacity for trains 1 and 2 have been submitted to the government of Mozambique for approval, which together will produce more than 15 million tons of LNG per year.

"The expected production from the Area 4 block will generate substantial benefits for Mozambique and the Area 4 partners," said Alessandro Puliti, ENI's chief development, operations & technology officer. "The development plan details our commitment to train, build and employ a local workforce and make gas available in support of Mozambique's industrialization."

The Rovuma LNG partners have developed a series of plans to support community development in line with the government's priorities. During the production phase, the Rovuma LNG project expects to provide up to 17,000 tons of LPG per year in Mozambique from Area 4 resources, which is currently about 50% of the country's LPG imports, and will dramatically improve access to energy. The Area 4 partners also plan to distribute up to 5,000 LPG burners and cooking stoves in the Afungi area to replace the burning of wood.

ExxonMobil will lead construction and operation of natural gas liquefaction and related facilities on behalf of MRV, and ENI will lead construction and operation of upstream facilities.

AIM Wins Braefoot Bay Terminal Job

Asset Integrity Maintenance (AIM) was awarded a major contract by ExxonMobil to aid in the extension of the life of the US supermajor's jetty facility at Braefoot Bay Marine Terminal in Fife. The tanker terminal exports LPG to Europe and the US after being produced at the Fife Ethylene Plant (FEP) using feedstock from developments in the North Sea.

A team of six specialists from AIM have started working at the 233-meter long jetty for the first phase of a major upgrade program. This phase alone represents an investment of some 3,000 man-hours. As part of the work, they will be using a cutting-edge temporary access structure, which will be suspended below the jetty and encloses the work area to ensure no environmental impact to the Firth of Forth below.

Source: ExxonMobil

The project represents the beginning of a major investment in the jetty, which handles shipping of ethylene from FEP to ports in mainland Europe. AIM's scope of work will focus on the refurbishment, repair and protection of the jetty's steelwork coating and will use abrasive materials and a vapour blasting technique that are environmentally friendly.

Sonangol Awards Refined Products Tender

Sonangol awarded its refined products buy tender for the next 12 months to Total and Trafigura. Total will supply Angola with gasoline while Trafigura will supply diesel and marine diesel.

The news of the tender comes on the back of Angola facing one of its worst fuel shortages in years. Sonangol blamed the shortage on difficulties accessing hard currency as well as unpaid debts owed to the energy company by industrial clients.

Algerian Gas Exports Down in 2018

Sonatrach, Algeria's state-run oil and gas firm, reported that the North African country's natural gas exports for 2018 were down compared to its totals in 2017.

According to the company, Algeria exported 51.5 Bcm of gas in 2018, down from 54 Bcm in 2017. Of the total exported last year, 75% was through pipelines and 25% via LNG shipments, Sonatrach said in a statement.

ULO Systems Launches New-Generation RJM

ULO Systems, a wholly-owned private company and provider of services within the oil and gas, renewable offshore wind and construction industries, has unveiled the latest addition to its fleet of proprietary grouting equipment – the new-generation recirculating jet mixer (RJM) and high-capacity pump.

Source: ULO Systems

In trials, ULO Systems' RJM achieved a mixing and pumping capacity of up to 120 m^3 per hour, an output 400 percent higher than traditional RJMs, enabling grouting works to be completed 75 percent faster. ULO Systems designed and developed the RJM to meet the requirements of the oil and gas, construction and renewables sectors for the execution of specialized grouting projects in challenging offshore environments. During the concept design, selection of components, system integration, assembly, fabrication and testing, ULO Systems placed an emphasis on output for faster execution and sustainability for a wide range of products. Colin Reilly, General Manager at ULO Systems, explained: "ULO Systems has also introduced a new pump to complement the RJM, to further optimize results. Clients are able to choose two variations – a single pump or double pump set up on a single DNV 2.7-1-certified 6M ISO skid.

"The single pump provides three times the capacity of industry-standard pumps, and a double pump performs at four times the capacity. Additionally, twin surge tanks, which can be filled from two silos simultaneously, feed cement at a higher rate. This new equipment enables our highly-trained personnel to complete grouting work at a pace never before seen."

The new-generation RJM can grout and flush two separate annuli via its two holding tanks and water manifolds on one of the skids, while the second skid houses the pumps. Additionally, the RJM features two higher-capacity recirculating jet mixers on a single skid, facilitating higher capacities and thicker mixes. Two jets feed one mixer drum, creating a much more turbulent vortex for better colloidal dispersion of solids, resulting in a grout that will last as long as the asset's lifecycle.

ULO Systems also incorporated features into the advanced equipment to reduce downtime and increase reliability. In addition to the high-power inverters fitted to handle excessive loading needs when working with higher capacities and flow, a third inverter has been installed as a backup in the event of failure of any of the inverters.

The new RJM and high-pressure high-capacity pump were launched recently during a demonstration for customers, including All Seas, Boskalis, GeoSea, Heerema, Seaway 7, Van Oord and Jumbo, in Rotterdam, the Netherlands. For its first project, ULO Systems' RJM has been deployed on the Valhall Flank West Platform in the Norwegian sector of the North Sea.

Unity Launches First Multi-Functional Shallow Intervention System to Secure Cost Savings

Unity, a leading provider of well integrity technology, services and engineering solutions, has launched the industry's first multi-functional, near-surface intervention system following a successful commercial project for a major operator in Northwest Africa.

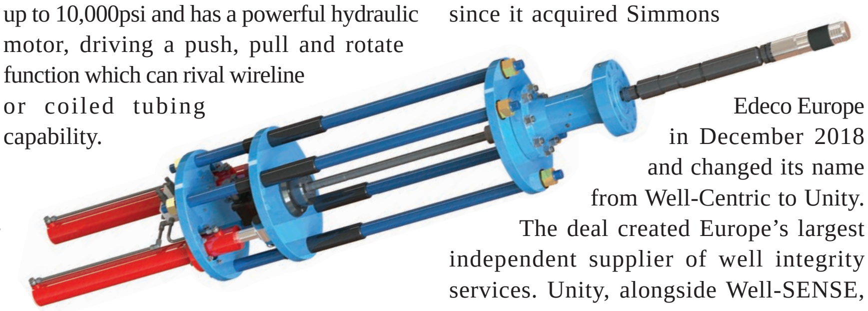
In its first deployment, the Surface Intervention System (SIS) was mobilized off the coast of Tunisia to set two frac sleeves on two wells. Each sleeve was successfully set in under three hours, including rig-up and rig-down time – a significant speed compared to the c.24-hour schedule for conventional intervention methods.

Gary Smart, Unity CEO, said: "Unity is investing in technology and services that are designed to deliver significant benefits to the oil and gas industry. Working closely with our customers, we recognized a clear opportunity to develop a multi-functional shallow intervention system which combines heavyweight capability within a compact and mobile package. Being simple to operate, compact to ship and fast to deploy, the SIS offers cost savings of up to 75% when used as an alternative to conventional equipment. We believe this is a ground-breaking technology offering rapid and streamlined operations which will open up new doors to improved efficiency gains for operators."

Wireline or coiled tubing intervention often requires multiple vendors with considerable manpower, heavy well control packages, and a large wellsite footprint resulting in significant cost and risk for the operator, especially offshore. While this equipment is necessary for deeper well intervention, the SIS provides a refined and more cost-effective solution for shallow operations.

With the option to include an integrated well control package, the SIS can be used across a variety of operations including plug or tubing hanger setting, Xmas Tree removal, well inspection, milling and well-bore clean out. Consecutive tasks can be performed during the same deployment, with the system operated by just two people, increasing efficiency.

The SIS is fully compatible with industry standard tools. This enables simple switching between functions using sectional hollow rods at the wellsite. It can operate in pressures up to 10,000psi and has a powerful hydraulic motor, driving a push, pull and rotate function which can rival wireline or coiled tubing capability.



Source: Unity

According to the Oil and Gas Authority's 'Wells Insight Report 2018', well integrity problems were the single biggest cause of production losses, accounting for 43% of the total 33 million boe loss, of which 10 million boe was due to wellhead, xmas tree and annulus failures.

Smart added: "Near surface well integrity is extremely influential in avoiding and recovering production losses., so we see a clear opportunity for the system's use in safeguarding the integrity of producing wells in the UKCS and across global oil and gas regions.

"The SIS is also ideally placed to assist in the end phase of well P&A activity through plug setting and the removal of xmas tree and wellhead surface equipment. In addition, it can be used to carry out inspection and remedial work of the internals of the surface equipment and tubulars prior to removal."

The commercial launch of the SIS marks another significant milestone for the company since it acquired Simmons Edeco Europe in December 2018 and changed its name from Well-Centric to Unity. The deal created Europe's largest independent supplier of well integrity services. Unity, alongside Well-SENSE, ClearWELL and Pragma, is part of FrontRow Energy Technology Group, a group of complementary upstream oil and gas technology focused businesses that are bringing new solutions to market to meet industry challenges and reduce costs.

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Logan Industries Introduces New Passive Heave Compensation Winch

Logan Industries (Logan), a hydraulic repair, manufacturing and rental company, has launched a new Passive Heave Compensation Winch.

The new Passive Heave Compensation Winch system, a set of winches engineered to safely provide constant tension through the rated range of motion, is primarily used in subsea drilling and completion activity, but applicable to any environment where a load experiences resistance to movement due to hydrodynamic drag (ROVs, PLETs, etc.). Far less complex than an active compensation system, the winch is electrically powered and uses a custom-built Hydraulic Power Unit and control set to monitor winch status and activity.

With a design life of 20 years, the winch provides passive compensation over a wide range of movement. Traditionally, passive compensation is provided via hydraulic cylinders, whose compensation range is limited to the overall stroke of the cylinder. This new winch greatly widens this window and provides passive compensation in a very small footprint.

Source: Logan Industires

Dean Carey, technical director, Logan, said, "We receive many requests for active compensation winches, but these machines are typically difficult to troubleshoot and few technicians can work on them. Alternatively, we believe adequate compensation for many tasks can be achieved with a less complex, passive compensation device. The difference in load variation between the 'active' and 'passive' is usually insignificant and the trade-off in reduced complexity is definitely worth it to most operators. The Passive Heave Compensation Winch will ultimately reduce operators' costs."

The Passive Heave Compensation Winch, which can be controlled from a Local Operator Console, is equipped with two independent winch drums per Winch Skid. Each Winch Skid features an energy regeneration circuit to provide continuous heave compensation. The system is designed to operate the winches autonomously and only requires periodic pressure monitoring and maintenance. To date, two Winch Skids with a common power unit have been delivered and installed on a semi-submersible.

Wild Well Control Announces Online Introduction to Drilling Operations Course

Wild Well Control, a Superior Energy Services company and a leader in well control, engineering and training services, has launched a new online well control e-learning course, 'Introduction to Drilling Operations.'s

This e-learning course meets all regulatory guidelines and is IADC WellSharp™ accredited. As an introduction to well control for oil and gas drilling operations, the course is intended for operators, contractors and service company personnel, as well as non-technical and non-industry personnel. The course includes detailed visual animations to increase students' awareness and understanding of drilling and the importance of maintaining well control at all times.

Bill Mahler, executive vice president, Wild Well, said, "Over the past three years, our Wild Well team has spent thousands of hours developing a detailed, high-quality course that will provide lasting value for the industry."

Throughout the 20 animated lessons, students will learn about land-based and subsea topics that will increase their knowledge of drilling and well control. "The level of detail that we have included in the lessons brings the subject matter to life. As a teaching tool, the 3D course animations help students gain a better foundation of well control concepts by illustrating complicated and otherwise unseen downhole topics," added Ken Smith, General Manager of Training at Wild Well.

Source: Wild Well Control

The quality of Wild Well's course provides valuable information for industry personnel to be informed and to work safely in the office or in the field. This course functions as a continuing education tool for experienced oilfield workers and as an introductory on-boarding tool for office and non-industry personnel.

Mark Denkowski, IADC executive vice president accreditation operations, said, "The coursework objectives were developed and designed by IADC member subject matter experts to focus specifically on new technology and operations, and the introductory course addresses the basic fundamentals of good well control practices. As one of IADC's trusted training providers, we are excited to see Wild Well launch their e-learning WellSharp Introductory course."

Mahler continued, "As the leading training provider of IADC-issued certifications, Wild Well is committed to the continual improvement of its well control course curriculums under the IADC WellSHARP program, and, more importantly, the quality and experience of its certified well control instructors. Wild Well has invested in both curriculum and instructor development in order to create the highest-quality courses."

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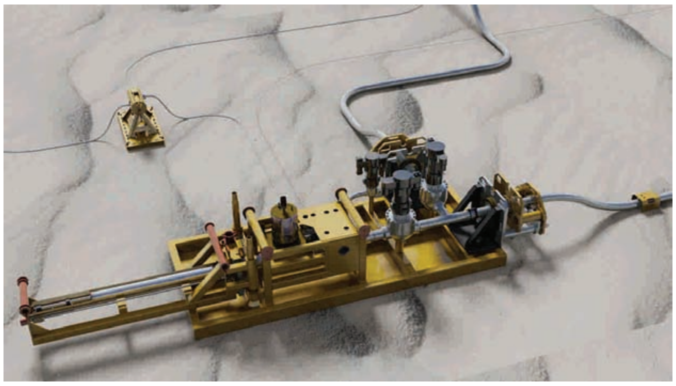
Innovative Offshore Technology

Each year the Offshore Technology Conference (OTC) hands out its Spotlight on New Technology awards for exhibitors, recognizing the most advanced and innovative technologies being introduced. Here we feature a handful of OTC's picks for 2019 that Petroleum Africa found most exceptional.

NOV – Automated Pig Launcher (SAPL)

NOVs Subsea Automated Pig Launcher (SAPL) solution enables operational pigging without vessel or ROV support during pigging. The SAPL is mounted on a subsea structure, and is loaded with pigs from a retrievable cassette. The cassette can house a number of pigs which can be launched individually from shore or platform at desired time. Subsea pigging technology is today an essential part of offshore field development in fields with different flow characteristics, sizes, geographies, water depth and weather conditions.

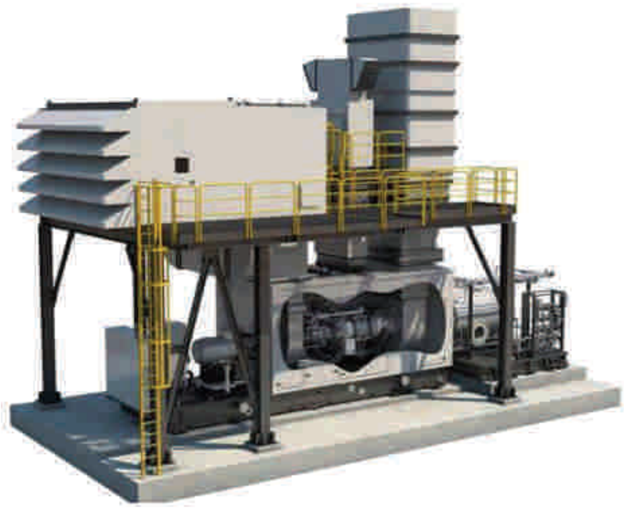


Source: NOV

The Subsea Automated Pig Launcher (SAPL) will simplify operations related to pre-commissioning and commissioning, wax control, slug control and intelligent pigging (inspection).

Baker Hughes – NovaLT16

This two-shaft gas turbine is designed for mechanical drive and power generation applications. With a power turbine speed of 7,800 rpm, it is ideally suited for pipeline compression – with direct coupling to the latest PCL pipeline compressors featuring high performance stages and 89% or higher compressor efficiency. It is full of exceptional advantages for any operation – including up to 99% availability. It is designed for a 35,000-hour mean time between maintenance, which translates into four years of non-stop running for the gas generator module or eight years for the power turbine module.

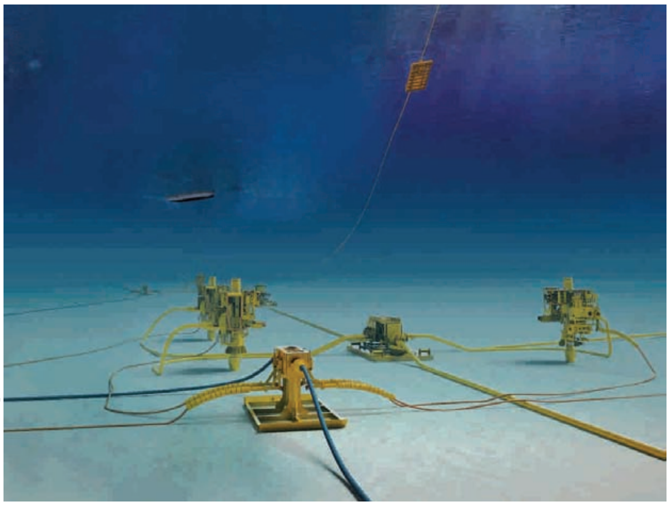


Source: BHGE

In addition to long intervals without maintenance, the NovaLT16 enables extremely short intervals for maintenance activities. In fact, the modular maintenance philosophy is optimized so that a cold-condition engine can be swapped in just 24 hours. Beyond the mechanics of the turbine itself, the complete package is designed with the ultimate performance and support features as standard – fully equipped with integrated monitoring and diagnostics sensors and remote tuning capability. Control room location is up to you, while oil and starting systems are easily accessible outside of the enclosure, making routine maintenance safer and more ergonomic (lower noise, lower heat).

TechnipFMC – Subsea 2.0™ In-Line Compact Robotic Manifold

TechnipFMC's Subsea 2.0™ In-Line Compact Robotic Manifold has transformed the traditional manifold design to improve subsea field development economics. The compact manifold design reduces size, weight and manufacturing cost. It incorporates a robotic arm for valve actuation, can be installed using the same vessel laying the flowline and increases the flexibility for CAPEX spend over the life of the field. The product is designed to be half the size and weight of its conventional



Source: TechnipFMC

counterpart and reduces cost and delivery up to 30%. In addition, its production schedule can be compressed up to 30%, providing faster time to first oil and return on investment.

The new compact manifold integrates all the functions of the conventional manifold pipe work and structure into a few cross drilled blocks with integral valve cavities and common interfaces to bolt on the branch and header hubs. All hydraulic functions have been eliminated to further reduce the complexity through the use of manually operated valves. The result is a simpler manifold that can be produced with 10-times fewer parts and requires no structure for support or lifting. Furthermore, production of manifolds now shifts from a customized project design to a modularized, configurable product that enables true standardization and industrialization.

2019 SPOTLIGHT WINNERS

- AFGlobal, producer of Active Control Device (ACD)
- AFGlobal, producer of DuraStim® Pump
- Baker Hughes, a GE company (BHGE), producer of NovaLT™16
- Dril-Quip Inc., producer of Double Expansion XPak™ Liner Hanger
- FutureOn®, producer of FieldAP™ – a FieldTwin™ Platform Application
- NOV, producer of Subsea Automated Pig Launcher (SAPL)
- Oceaneering International, Inc., producer of Subsea Pumping Technology
- Saipem, producer of Offset Installation Equipment (OIE)
- Schlumberger, producer of Concert well testing live performance
- OneSubsea, a Schlumberger company producer of Vx Omni Subsea Multiphase Flowmeter
- SIEMENS, producer of BlueVault™ Energy Storage
- SIEMENS, producer of Subsea Power Grid
- Stress Engineering Services, Inc., producer of Condition Based Maintenance of Drilling Riser Systems
- TechnipFMC, producer of Subsea 2.0™ In-Line Compact Robotic Manifold
- Weatherford, producer of TR1P™ Single-Trip Completion System

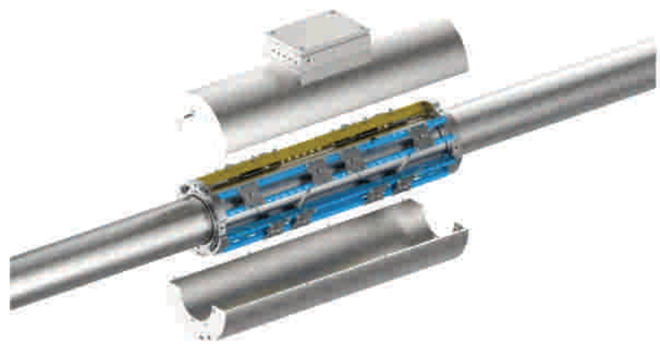
2019 SPOTLIGHT SMALL BUSINESS WINNERS

- HYTORC, producer of LITHIUM SERIES® II
- Green Pin®, producer of Green Pin Tycan®
- XSENS AS, producer of XACT™ Ultrasonic clamp-on Flowmeter

XSENS Flow Solutions – XACT™ Ultrasonic Clamp-On Flowmeter

XSENS AS product XACT™ Ultrasonic clamp-on Flowmeter also won a Spotlight on New Technology Award, selected among 450 award applications.

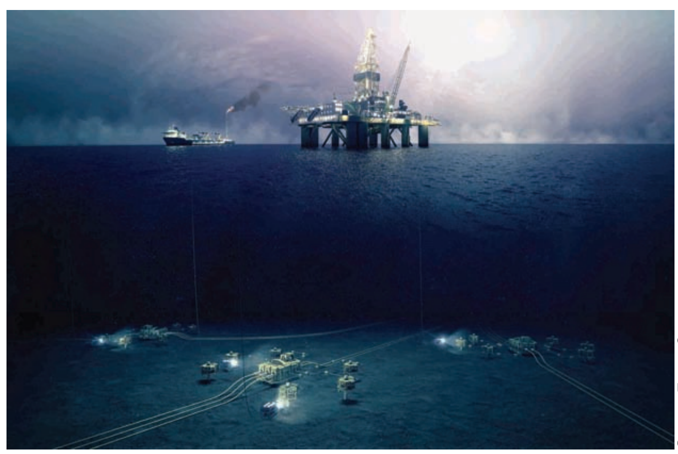
XSENS AS's game-changing XACT™ Ultrasonic clamp-on Flowmeter, provides flow rate and fraction measurement at accuracies that were until now only obtainable by in-line technologies. Installation of an XACT clamp-on flowmeter does not compromise pipeline integrity. XACT's size and weight are just a fraction of conventional flow meter systems and is ideal for retrofit applications.



Source: XSENS Flow Solutions

FutureOn – FieldAp

FieldAP™ is the Industry 4.0 cloud-based application enabling digital subsea field planning, subsea data and asset visualization, and installation planning for subsea projects. The platform allows you to easily integrate with other backend systems and offshore engineering software already in use in your organization either for field design, field planning, or activity scheduling.



Source: FutureOn

A FieldTwin platform application, FieldAP enhances collaboration among teams globally while reducing risk. Through digitalization, FieldAP is improving project margins and maximizing investment returns on existing talent.

By Scott M. Shemwell, D.B.A.
Managing Director
The Rapid Response Institute

The Digital Oilfield Culture

Transformational Value for the Organizational Ecosystem

By one account, the Digital Oilfield global market is forecasted to grow from $20.10 billion in 2016 to $27.10 billion by 2022. Value is expected to be realized from enhanced production, workflow process optimization and significant reductions in unplanned downtime.

Much has been written regarding opportunities for value, including by this author. In the June 2018 edition of this publication, our article *System of Systems Asset Lifecycle Performance: The Internet of Things Meets Augmented Reality* articulates four areas of value that operators can realize from digitalization:

- Digital Platform – Potentially enabling innovation exponentially faster at one tenth the cost
- IT – OT Convergence Across Ecosystems – Up to 25% increase in automation and productivity
- Predictive Analytics – Potential for 30% improvement in asset availability and process optimization
- Augmented Reality – 30% to 50% improvement in human efficiency

These numbers are staggering and the potential enormous. The energy sector is struggling with a long-term low commodity trading range and disruptive changes with its workforce as well as societal pressures, *aka* Safety, Green, etc. Successful implementations of Digital Oilfields (including cyber security) is imperative. This may be the difference between strong Balance Sheet supported by good margins and the organization's demise.

However, many digitalization initiatives do not deliver expected returns. There are many reasons for these failures including poor project management and unrealistic goals coupled with poor metrics, etc.

The consulting firm McKinsey writes, "Most digital strategies don't reflect how digital is changing economic fundamentals, industry dynamics, or what it means to compete." In other words, this is a cultural metamorphosis – very different from the ERP rollouts of the past.

Cultural Transformation

Change management initiatives fail at similar frequencies as IT projects. Often the two are tied together as management seeks to use new tools enabling the long-sought value believed available.

Many transformational efforts are actually simple change management. One can argue that the adoption of a new technology may only be changing the way we interface with a machine.

A case in the recent news. Sears Roebuck is the original Amazon. Readers received a catalog of goods, made their selection and mailed their order and payment. Sometime later, the package would be shipped and received.

Essentially, this is the same business model used by Amazon today. Work processes are faster and their organizational cost structure lower; however, the fundamentals are basically the same.

So why did Sears fail? Why did IBM lose the PC operating system to Microsoft? The list goes on as all economic actors have access to the same technologies, yet some are winners and others, losers. Management misses the point when it attempts to change the way we do business from only a process perspective.

An organization's culture can be defined as, its "Who We Are." The culture must be transformed as well.

Culture is a set of shared values and beliefs often evolving over many decades or even longer. As such it has a certain level of resiliency or tendency to 'snap back' to its stable state.

Cultural transformation changes the '*Who We Are*' part of the equation

So, what is a Digital Oilfield Culture?

An environment where humans oversee the digitalized enterprise is different from one where humans make decisions from data and information generated by machines. There are no instances of a full upstream digitalized ecosystem at present. However, there are business models that are appropriate to adopt for this new era.

High Reliability Management has been widely adopted by critical infrastructure sectors such as medicine. That sector defines these five HRM principles for providing world class health care:

- Preoccupation with Failure – Good judgment is critical to provide patients with the best care and absent-mindedness can lead to death

- Reluctance to Simplify – Understand that organizations and processes are complex and be careful not to over generalize as patient health depends on these capabilities
- Sensitivity to Operations – Focus on understanding the rationale behind policies and protocols and look for ways to improve performance in healthcare delivery
- Commitment to Resilience – Respond to setbacks and consider them opportunities for improvement in patient care
- Deference to Expertise – Contribute evidence-based expertise when you can and defer to those whose knowledge is greater as necessary for the best patient care

One example of HRM in healthcare is the Ebola crisis of 2014. Readers may recall that there was fear of a pandemic in the USA following the arrival in Dallas, Texas of an individual from Liberia. The pandemic never happened and in this writer's opinion, that sector followed these five principles and contained the outbreak.

HRM requires a robust organizational governance model. We have coined the term Strong Bond Governance to define the role of senior executives and the Board of Directors in the critical infrastructure sectors required by High Reliability Organizations.

The upstream sector has been slow to adopt HRM. However, these principles are well suited for an organizational ecosystem where its members depend on digitalization to enhance their Bottom Lines. Markets are competitive with little expectation of help from higher commodity prices.

We have previously defined a Safety Culture and adapt that definition as follows for the Digital Oilfield Culture.

Internalizing the New Culture

Missing in most discussions about the Digital Oilfield is how do you sell it to employees, customers, suppliers and other stakeholders. Management must answer the "What's in it for Me" question!

From a marketing perspective, creating and sustaining Digital Oilfield Culture is all about branding. A branding strategy provides an organization with a sustainable competitive advantage that differentiates the organization from its competitors. This is exactly how most see their organization's culture.

As part of a branding strategy, organizations often develop a Brand Wheel. Its construct is very straightforward and encapsulates both the hard 'Fact" side as well as the more emotional "Personality" of the product or solution. The process of going through this procedure is usually best done through a series of workshops.

Input can come from focus groups and/or other input from end users, employees, management, the public, regulatory agencies and other stakeholders. We define these individuals as 'ME.' It is important to understand that the constituents are *people* and not their organizations – people buy from people!

Around the core "Brand Promise" (Digital Oilfield Culture) readers will find answers to four questions:

Facts & Symbols

- What the Product (or Solution) does for ME
- How I would Describe the Product (or Solution)

Brand Personality

- How the Brand makes ME look
- How the Brand makes ME feel

For example, BMW brands their automobiles as, "The Ultimate Driving Machine." This answers the question, "What's in it for Me" very clearly. A Digital Oilfield Culture must be this understandable for its stakeholders as well.

The following figure depicts this approach towards branding the Digital Oilfield. It addresses all needs of participants in the ecosystem. Interested readers are invited to customize it to their situation.

Space precludes a detailed review of the components named below but all of them are discussed herein. While it may appear to be complex, working through the process is straightforward. Moreover, developing the construct is interactive but when the first version is finalized, it will set the stage for a successful transformation.

This model helps management assure that stakeholders 'Buy In' to the new culture, thus removing the 'Snap Back' resiliency. Since most change management models do not include this process, success becomes fleeting. It is worth the time and energy required to complete the exercise.

Implementation Guidelines

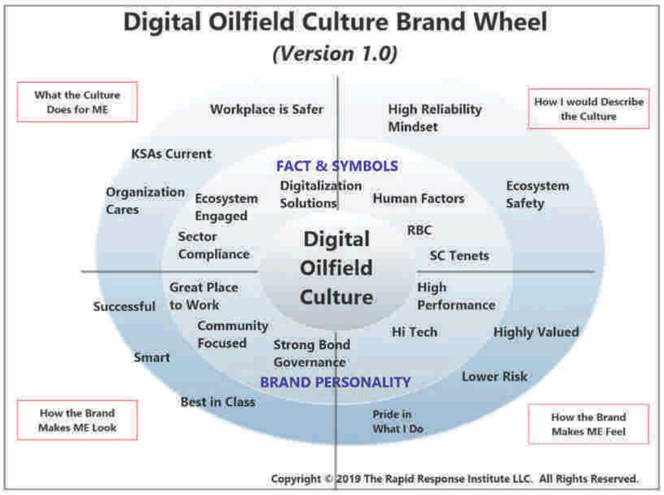
The Digital Oilfield is all about the relationship individuals in the ecosystem have with each other and the technology automating field operations, among other tasks. However, a new or different Relationship is dependent on changing Behaviors and situational Conditions.

Human relationships are a function of the environment one finds themselves in and the behaviors of others in that environment. For a Digital Oilfield, management needs to understand that humans will also have new/different behaviors with machines.

Conditions will be different when digital decisions are made independent of human operators. No amount of change management processes will be effective unless organizations understand and train personnel for their new behaviors in this new condition or environment.

This R B C construct must overlay any implementation approach. Failure to understand these dynamics will most likely negatively impact the initiative.

> Systemic Digital Oilfield Culture can be defined as the Core Set of Values and Behavioral Economics of ALL participants of the extended organization and its Enterprise Risk Management strategy that reflect a Strong Bond Governance commitment to behaving as a High Reliability Enterprise Ecosystem in a Safe and Environmentally responsible manner.



Most importantly when individuals interact with digital devices and processes, Human Factors need to be addressed. In the Digital Oilfield context, this is defined as how humans behave physically and psychologically in relation to particular conditions, digital tools, or processes. If this issue is not actively adopted, Digital Oilfield cultural transformation may be sub optimal.

Knowledge, Skills, Abilities

An automobile with an automatic transmission is easier to drive than one with a standard transmission. Moreover, today's drivers assimilate and process information while rapidly navigating crowed highways. Yet the automobile has not materially changed in 100 years other than the continued advancement of conveniences and safety devices.

Most likely, a driver from the era of the Model T would have trouble dealing with the everyday driving all of us face. As the industry becomes digital, Digital Oilfield individuals' KSAs will need to evolve as well. Those on a technical track will need to stay current. Those in management will need to understand new work processes and technologies very well. This includes top management – Strong Bond Governance.

One example; humans will need to understand when a highly automated process must be interrupted manually, i.e., taking control from a driverless automobile. What if he or she is mistaken in that decision? As with the Safety Culture Tenant quoted below, there needs to be no negative repercussions for honest mistakes. "A work environment is maintained where personnel feel free to raise safety and environmental concerns without fear of retaliation, intimidation, harassment, or discrimination."

Overseeing the automated and complex processes of digitalization requires additional KSAs from those used to manage today's process control systems – HRM is a better construct. Individuals will still drive the Digital Oilfield automobile, but it may then be the ultimate driving machine!

Final Comments

To put things in perspective, if the Digital Oilfield market forecast is correct, in 2022 the upstream sector will spend almost as much as ConocoPhillips' 2017 revenue or approximately 10% of ExxonMobil's in that period. Troubling; by some accounts more than 70% of IT projects are perceived as failures.

While the promises of the Digital Oilfield are attractive, history suggests that unless something changes rather dramatically, the destruction of shareholder value may approach appalling levels. Certainly, the promised greater Earnings Per Share (EPS) and Competitive Advantage will not materialize.

The approach towards cultural transformation described herein will help assure every individual in the ecosystem will have a good 'What's in it for Me' experience. This will then be reflected in a strong, sustained Digital Oilfield organization culture – *Who We Are*.

In an era of low commodity price points the organization's culture is key to not just thriving, but surviving. Management owes all stakeholders (include employees every step of their careers) no less than successful transformations to this business model and new ones that will undoubtably be forthcoming. As the saying goes, "the only constant is change."

About the Author

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By Rosário Paixão and Nuria Brinkmann
Miranda Law Firm

Top Refining Projects in Africa

The era of fossil fuels, far from being over, is starting a new chapter, especially after the recovery in crude oil prices in recent years. According to most forecasts, fuel demand shall peakin 2030, only then starting to decrease. Experts agree that, whether one likes it or not, petroleum will remain the world's main energy source for the next half century. In fact, demand is expected to rise from 79 million bpd in 2003 to 121 million bpd in 2025. In order to meet such demand, global crude oil refining capacity is expected to increase at an average annual growth rate of 4% from 102,603 mbpd in 2018 to 125,163 mbpd in 2023.

Although Asia is expected to lead the global refining industry between 2019 and 2023, both in terms of capacity and capital expenditure, the African continent has shown signs of a significant boom in the downstream sector in many countries. Major greenfield projects were announced in Nigeria and Uganda, while Angola is investing in the improvement of existing facilities and the development of new units, and Algeria's strategy for growth includes the acquisition of a refining unit abroad.

Angola – João Lourenço's 'Regeneration Program' boosts the downstream sector

Almost immediately after taking office, President João Lourenço announced his intention to make Angola's hydrocarbon sector more competitive and self-sufficient.

In addition to a major reform in the upstream sector, which included the replacement of the State-owned company, Sonangol EP, as the national concessionaire for the petroleum sector by the recently created National Oil, Gas and Biofuels Agency and significant simplification measures for tender procedures in the petroleum industry, President João Lourenço also decided to reorganize the downstream sector, focusing on the reactivation of dormant projects. A new legal framework applicable to refining activities, concluded in 2017 with the enactment of a new statute on technical and procedural rules for the design, construction, operation and maintenance of refineries, also eased the way for local and international players seeking to invest in the sector.

The Lobito refinery project, which had been suspended in 2016 by the former Chairman of Sonangol, allegedly to reevaluate the scope of the works considering the fall in international oil prices, was re-launched in 2017 with an open international tender.

Private investors responded enthusiastically to this opportunity. The international tender for the construction of the Lobito facility registered a massive participation, with a total of 16 proposals selected by Sonangol in the first phase, seven of which were pre-selected. The award of the project has not been officially announced yet, but the refinery is expected to be completed by 2025. Once it starts operating, the Lobito Refinery should be processing around 200,000 bpd of crude oil.

The tender for the construction of a new unit in Cabinda, launched in 2017, is also on the horizon. Of the nearly 70 proposals initially submitted by national and foreign companies, seven entities were selected and subject to additional evaluation and due diligence procedures. Sonangol's board of directors announced in 2018 the award of the construction of the Cabinda refinery to the United Shine consortium, the members of which are yet to be disclosed. Negotiations with the consortium members are underway and expected to be concluded in the first half of 2019. The new refinery will have a processing capacity of approximately 60,000 bpd and completion is expected by the end of 2021.

A third project that has long been in the Government's pipeline is the optimization and expansion of the only existing refinery in Angola, the Luanda refinery. After the recent award of the project to Italian oil major ENI, it is expected that, after conclusion of the work in 2021, the refinery will increase by four times its current capacity and there by dramatically reduce the country's continued dependence on imported refined products. The improved Luanda refinery will increase gasoline output to 1,200 daily tons, against the current 300 tons.

Nigeria – the largest refinery in Africa

Nigeria, the largest crude oil producer in Africa, is now half-way through the implementation of the country's first privately owned

Source: USTDA

Hydrocracking unit bound for Dangote Refinery

refinery and the world's largest single-train refinery. The controversial plan by cement magnate Aliko Dangote to turn Nigeria into a massive fuel exporter seems to be back on track after taking into consideration important criticisms and having to change the project's location.

Even though the 'Giant of Africa' has been topping the ranks of African petroleum and fuel producing countries, with a crude oil production of 1,999,885 bpd and a refining capacity of 445,000 bpd, fluctuations have always been significant, not only in the downstream but especially in the upstream sector. In recent years, violent attacks by local militant groups, many times blowing up pipelines and kidnapping foreign oil workers as a protest against poverty and environmental pollution, resulted in many operations having to be interrupted or even abandoned because of lack of security.

At the same time, although Nigeria has a considerable potential refining capacity which, if effective, would exceed domestic demand and allow for exports to neighboring countries, the State-owned Nigerian National Petroleum Corporation (NNPC)continues to import the bulk of the country's refined products' consumption. This is a consequence of the national refineries traditionally operating way below their fullest capacity, mostly due to sabotage, lack of maintenance for over 20 years and technical failures. The Minister of Petroleum recently explained that Nigeria's four refineries in Port Harcourt, Warri and Kaduna had still not concluded repair works, more than four years after their original constructors completed the technical assessments on the facilities, because it was concluded that most of the units were simply obsolete and could either hardly produce again or effectively increase their current production.

Fixing the decrepit existing refineries seems to be a never-ending challenge that has already cost Nigerian a fortune. Although plans to revamp the current units have not been entirely set aside, the Government is now more interested in planning the country's first green field project in more than 30 years, by supporting the construction of the Dangote refinery. Aliko Dangote had already announced his plans to enter and cause a major change in the refining industry in 2016. Back then, he was already considered the richest man in Africa, his net worth being estimated at $11.2 billion. The lack of expertise in the sector – Mr. Dangote's fortune was mainly made in the cement and food industries – did not stop him from entering into this extremely ambitious $14 billion project, presumably to be financed, more than 60%, by his company Dangote Industries Ltd.

While Mr. Dangote hopes the refinery could be producing annually 10.4 million tons of gasoline, 4.6 million tons of diesel and 4 million tons of jet fuel by 2020, most experts seem to suggest this may not happen before 2022.

The Dangote complex will also include a 3-million metric ton/year fertilizer factory and a petrochemical plant. The unit will be powered by gas, which will be piped from the Niger delta via two 550-kilometer underwater pipelines.

This should result in the Dangote project being able to supply fertilizer, kerosene and gasoline to the entire Nigerian population and still have plenty of products to export to neighboring countries, bringing in important foreign exchange reserves.

Uganda – a late but big entry into oil production and refining

Uganda first hit oil in late 2000, although production operations have been successively delayed since the Government failed to reach an agreement with the potential operators, namely regarding tax and strategic matters.

The country expects to be able to start commercial production of crude oil in 2022, two years after the initial target announced for 2020. Oil will be produced by France's Total SA, China's CNOOC, and Irish firm Tullow Oil Plc.

At the same time, Uganda is aiming to refine petroleum domestically in order to reduce importation of oil products. By mid-2018 Uganda had already signed a framework agreement with a consortium, led by General Electric, to build and operate a 60,000 bpd refinery that is expected to be fully operational by 2023.

Algeria – political and economic changes give rise to investment opportunities in the downstream sector

Despite overcoming the Arab Spring's revolutionary movements, Algeria's President Abdelaziz Bouteflika could not avoid his health issues and the increasing need of change that the Algerian population was protesting for in the streets of Algiers. After two decades in office, Algeria's longest-serving President recently announced his resignation.

The North African country is now facing considerable political and economic changes, which could entail significant opportunities for attentive investors. Hydrocarbons have long been the backbone of Algeria's economy, accounting for almost 60% of State budget

Source: Sonatrach

Algerian refining sector has seen some rehab

revenues. With 12.2 billion barrels, the country ranks sixteenth in proven oil reserves, a large part of this potential still being unexplored. To attract additional foreign investment to the area, a new and much anticipated hydrocarbons law was recently announced, a first draft of which, according to publicly available information, should now be under analysis. The amendments are expected to include tax incentives, a bigger variety of contracts and the alleviation of administrative procedures to improve the attractiveness of the sector to international players.

Both the upstream and the downstream sectors of the national oil industry are essentially owned by the State. The national oil company, Sonatrach, owns roughly 80% of total hydrocarbon production and Naftec, a subsidiary of Sonatrach, operates Algeria's four current refineries: Skikda, Hassi Messaoud, Algiers and Arzew.

Despite the four refineries' combined capacity being 450,000 bpd, domestic consumption still outstrips supply (currently, Algeria imports approximately around 2.9 million tonnes of gasoline and diesel annually). In order to balance out its product demand within the next 10-15 years, Algeria is putting in place a series of major reforms to the oil sector, including the new Sonatrach strategy (SH 2030), which is a combination of measures aiming at facilitating foreign investment, revitalizing the downstream sector and developing Algeria's shale gas deposits.

Several measures had already been announced by Sonatrach back in 2012, including a five-green field-facilities downstream development program. Two of the new refinery projects (Hassi Messaoud – near the country's biggest oilfield – and Tiaret) have already reached the tender phase.

Algeria also launched a modernization plan of the existing refineries more than a decade ago. Skikda's refinery upgrading works were completed, although the unit is still not working at its full capacity. The upgrade of the Sidi R'cine refinery was recently completed, and the unit inaugurated in February 2019. Sidi R'cine is the result of rehabilitation and expansion work on the pre-existing Algiers refinery. The project was awarded in 2016 to China Petroleum Engineering and Construction Corporation, a subsidiary of China National Petroleum Corporation, and increased the refinery's capacity from 59,000 bpd to 79,000 bpd.

Finally, Sonatrach has recently announced the acquisition of ExxonMobil's Augusta refinery in Sicily, a 10-million-ton capacity facility, and three oil terminals in Italy. Plans to buy other refineries overseas have not been set aside if the opportunity arises. According to Sonatrach's CEO, with the refineries of Augusta, Sidi R'cine and Hassi Messaoud, domestic production would largely meet the country's needs and allow exports of refined products, turning Algeria into one of the few self-sufficient countries in terms of fuel balance.

Refining gap – an opportunity for investors

The so-called African refining gap has been a hot topic for years now among experts, stakeholders and policymakers in most African countries. The fact that many major petroleum producers are still importing a large share of refined products to meet their populations' needs is a paradox that weights heavy on the respective States' budgets and that urges immediate and effective solutions.

Although prospects for green power are on almost all African agendas, the truth is that electricity and transportation in the region will continue to be based on fuel for the coming years. Demand for fuel will grow rapidly, thereby increasing pressure to increase domestic production and to improve the quality of refined products. Since refining facilities in almost all African countries are obsolete, inefficient or simply scarce, these countries are now facing the great challenge of building new refining facilities and upgrading the existing ones. Projects are being pushed aggressively by local governments since the need to revert the current trend of exporting crude oil and importing refined products to meet the domestic demand is enormous.

Emmanuel Ibe Kachikwu, the Nigerian Minister of State for Petroleum Resources and former Chairman of NNPC recently gave a speech which very much reflects this trend: "We are very much committed to repairing what we call the existing Big Four which are the four refineries we have located in Port-Harcourt, Kaduna and Warri. If everybody had ran at the speed that I wanted to run, we should have that up and running quite frankly all done and functioning by 2019. Not for election purposes, but for the fact that it will be such a sad day for this country if at the end of 2019, we're still hopping around the world trying to import product. It costs us a lot of money, it's waste of vital foreign exchange that we shouldn't pay and it deprives our people of good jobs at hand. We need to hurry up that process."

The same applies to Angola, where the intention to move on to a new era in the refining sector was made very clear with the enactment of the most recent legislation, to Uganda, a country that is only now entering the refining industry but already has big plans, and to Algeria, where the sector is undergoing a major modernization phase.

Notwithstanding the challenging singularities of African countries in general and the refining sector in particular, these developments are good news for foreign investors wishing to make the most of the momentum and leaving their mark in the process of overcoming the chronic refining gap that these countries have faced for decades.

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Worley's ESD Initiative a Testimony to Positive Transformation

Launched in 2013, the Worley Parsons Enterprise Supplier Development (now Worley Enterprise Supplier Development) initiative supports meaningful transformation of the southern Africa economy by providing tangible opportunities for small businesses to prosper and expand. As the initiative matures, the list of successful partnerships continues to grow, highlighting the critical role businesses play in driving inclusivity and sustainability within the environments in which they operate.


Gladwin Mfolo

Gladwin Mfolo, Worley Senior Project Manager, says that in South Africa, transformation is often driven by compliance considerations rather than being viewed as a catalyst to address the country's socio-economic challenges of inequality, unemployment and poverty.

"There are hundreds of development incubators in South Africa but not all have social development programs aligned with the company's business strategy," says Mfolo.

He believes that a corporate transformation strategy is fundamental to any social development programme, not only to maintain an organisation's relevance in a changing economic and business environment, but also to ensure benefit to all.

"The Worley ESD initiative is one of the corporate social responsibility programs in South Africa with real success stories that attest to how positive transformation can happen," says Mfolo, citing Gridbow Engineering and Technical Services as one such example.

This award-winning electrical engineering company specializes in energy audits, generator installations, and UPS services, and is now an alumni partner company in the Worley ESD program. Enterprise alumni partners are companies that have graduated from the Worley ESD program and continue to work closely with Worley in pursuing work and executing projects.

"Gridbow's entrepreneurial journey with Worley has been an amazing success story, and the company has grown to over 60 permanent employees and has expanded its business operations as far as sub-Saharan Africa and Australia," says Mfolo.

COO of Gridbow, Farai EJ Chabata, reflects on being an ESD partner: "The journey as an entrepreneur is long and a helping hand is one of the key things. The helping hand that the Worley (then TWP) program gave us was priceless. The world-class office space and open working environment set us up for success. All we had to do was look for work and execute the projects."

Mfolo cites iX engineers as a further example. Established in 2016, iX engineers are a Worley ESD extended partner company offering professional consulting engineering services. ESD extended partners are companies already established in their own right, and who are able to partner with Worley to execute major projects.

iX engineers have worked nationally as well as across most continents and are well versed in international best practices, routinely applying state-of-the-art technology and systems to support a more efficient project process.

"These two companies are now at the point where they are able to fulfil their own socio-economic obligations and can operate independently. The wheel has come full circle and their success is testament to our ESD program working the way it was intended," comments Mfolo.

With the Worley ESD initiative now fully into its implementation phase, Mfolo is not short of other success stories.

ST Nubian Architects, an extended ESD partner, is currently engaged with the design and layout of a simulated underground mining environment for the University of Johannesburg, following successfully tendering for the project with mining engineering assistance from Worley.

Worley is also taking a lead role in the design and layout of the simulated mine and has, through its global engineering expertise, assisted ST Nubian Architects to tap into new markets.

Mfolo adds that while design projects such as these are not usually undertaken by Worley, the project nevertheless fits well with their ESD initiative by supporting an educational institution that may in turn potentially provide valuable human resources to Worley.

A Worley ESD core partner company, UNN Surveys, specializes in land development, land management and engineering consulting,

Source: De Beers Group

De Beers' Venetia Underground project

offering comprehensive solutions in the infrastructure and development sectors.

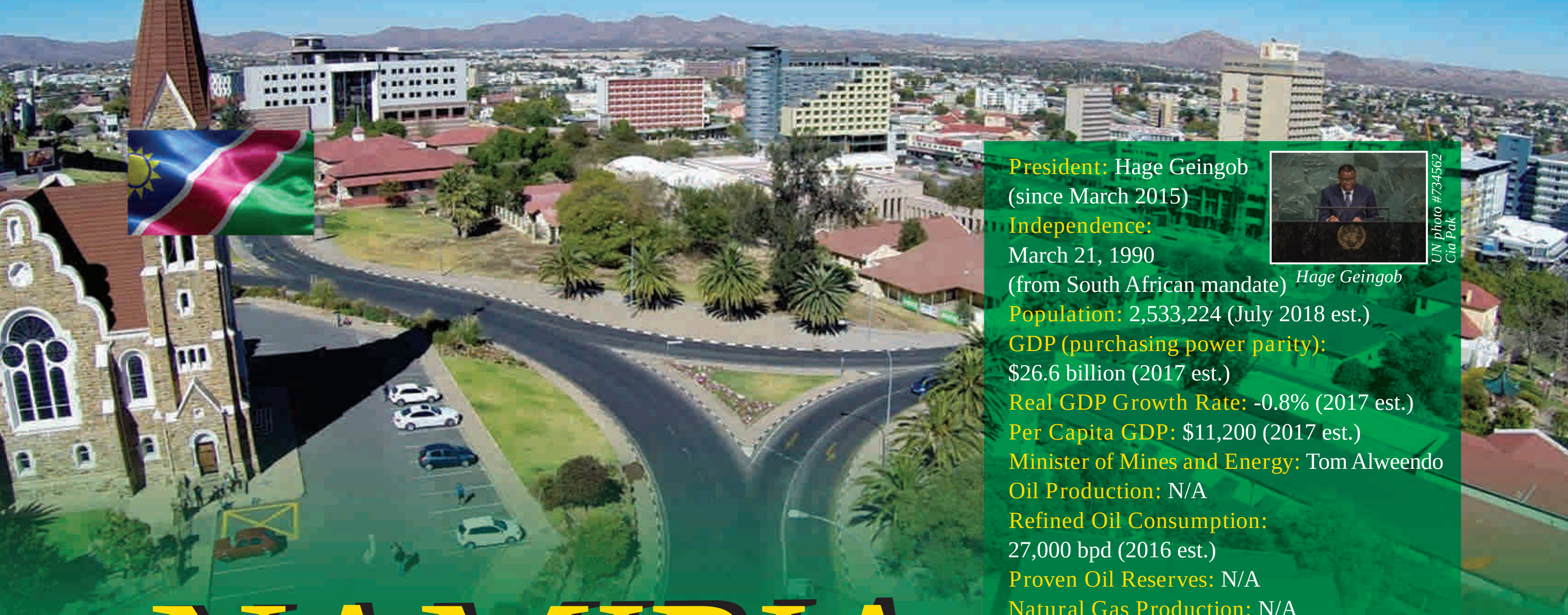
Mfolo says that this 100% black women-owned enterprise is in discussions with an international land surveying company about collaborating on future projects. "This will be beneficial to both parties as UNN Surveys can access global expertise and resources while simultaneously assisting an overseas organization to gain entrance to the local market."

NBi Quantity Surveyors is a black-owned cost engineering consultancy firm offering quantity surveying services with a specific focus on the mining environment. As an extended partner within the ESD program, NBi is currently providing quantity surveying services to the De Beers Venetia Underground Project, one of Worley' flagship projects. Mfolo comments that the NBi resources seconded to the project are executing work well with Worley resources in delivering this project for De Beers.

At present, Worley has 12 enterprise supplier development partners in its ESD program. These range from ESD core partner companies to ESD extended partner companies and ESD alumni partner companies. The program assists the ESD partner companies with capability and capacity building, with special focus on value-added activities within the South African industry through service-related functions.

"Our intention is to jointly deliver services in the hydrocarbons, mineral, metals, chemicals, power and infrastructure sectors with our ESD partners and we believe that the engineering sector and its associated infrastructure in South Africa has much to gain from this initiative. As the program continues to mature, we expect to see more and more joint delivery of services while exposing our ESD partner companies to world-class delivery systems and transferring skills and capabilities to help these companies and the industry as a whole grow," concluded Mfolo.

By Jennifer Nickle, Deputy Editor



NAMIBIA

Hage Geingob

UN photo #734562 Cia Pak

President: Hage Geingob (since March 2015)
Independence: March 21, 1990 (from South African mandate)
Population: 2,533,224 (July 2018 est.)
GDP (purchasing power parity): $26.6 billion (2017 est.)
Real GDP Growth Rate: -0.8% (2017 est.)
Per Capita GDP: $11,200 (2017 est.)
Minister of Mines and Energy: Tom Alweendo
Oil Production: N/A
Refined Oil Consumption: 27,000 bpd (2016 est.)
Proven Oil Reserves: N/A
Natural Gas Production: N/A
Natural Gas Consumption: N/A
Natural Gas Imports: N/A
Proven Natural Gas Reserves: 3.3Tcf (January 2017 est.)

Source: CIA World Factbook

Politics & Economy

What is today the African nation of Namibia was formed through a number of treaties between several European nations that visited its shores. The first was the Portuguese in the late-1400s, with Germany and England coming along a little later. As previously stated, Namibia's present international boundaries were established by European treaties, or more specifically German treaties with Portugal and Great Britain between 1886 and 1890. Germany annexed the territory of South West Africa (SWA) during this same period.

Namibia's neighbor to the south took over the territory during World War I, five years later the League of Nations granted South Africa the mandate to govern SWA. South Africa kept its hold on SWA for the next half-a-century despite opposition from the UN and the people of SWA itself. In 1946 the UN refused to allow South Africa to annex SWA and in turn South Africa refused to place SWA under UN trusteeship. Over the next 15 years opposition parties to South Africa's rule arose, most notably Herman Toivo ya Toivo and others, creating the opposition Ovamboland People's Congress, which would later become the South West Africa People's Organization (Swapo).

In 1961 the UN General Assembly demanded that South Africa terminate the mandate and set the establishment of SWA's independence as an objective. Namibia's neighbor was not quick to react to do the UN's bidding which led to Swapo launching an armed struggle against South African occupation. SWA was officially renamed Namibia by the UN General Assembly in 1968 and in 1973 it recognized Swapo as "sole legitimate representative" of Namibia's people. While the UN may have recognized the independence of the Namibian people, South Africa took a bit longer. It was not until 1988 that South Africa agreed to Namibian independence in exchange for the removal of Cuban troops from Angola where South Africa had been assisting UNITA in the country's civil war.

Namibia's first elections took place in 1989, supervised by the UN. Swapo came in as the winner. In 1990 Namibia became independent, with Sam Nujoma as its first president. He went on to win the next two elections however, in 2001, he said he would not stand for a fourth term and stepped down with his presidency expiring in 2004.

In November 2004 President Nujoma's nominee, Hifikepunye Pohamba, won the presidential elections. He was inaugurated in March 2005. During his tenor as president, Pohamba was praised for overseeing strong economic growth with gross domestic product per capita rising from $3,297 in 2004 to $5,693 in 2013, according to the World Bank. Under his leadership his Swapo party was applauded for making strides in gender equality, with 25 of 72 parliamentary seats filled by women. The party was also commended for improving national health services and increasing Namibia's life expectancy from 55 in 2004 to 64 in 2012. The strides made by Pohamba in the areas of boosting governance, media freedom and human rights in the southern African country while in office, led to him being awarded the $5 million

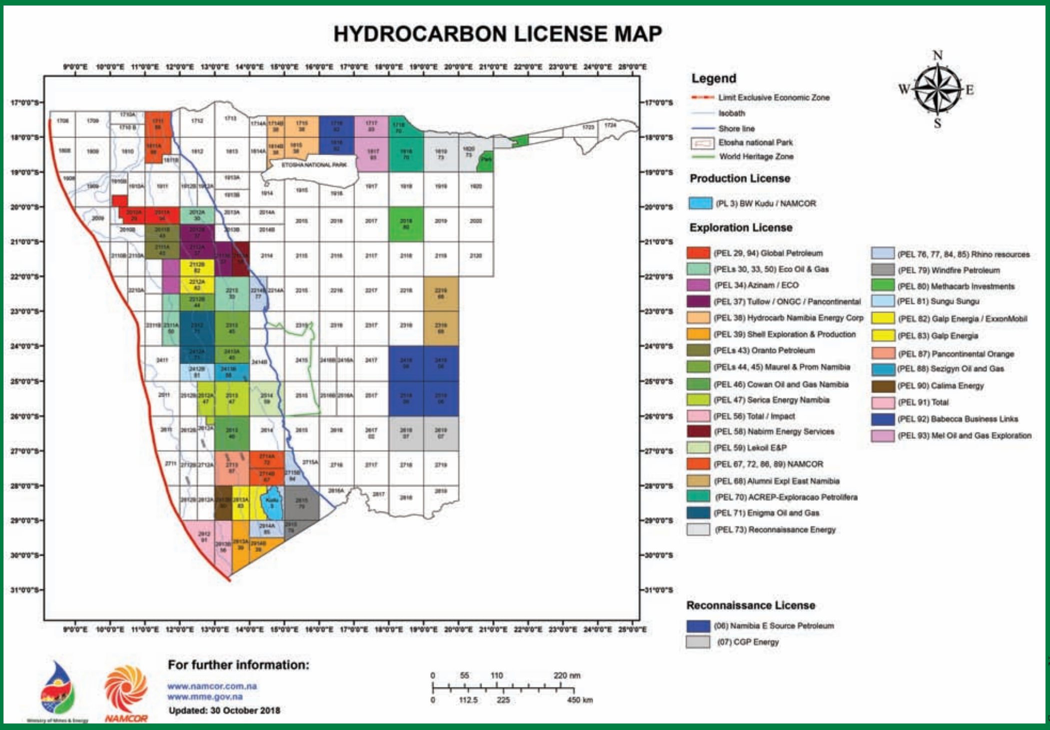
Mo Ibrahim prize for African leadership when he left office in early-2015. The Mo Ibrahim prize is given to an elected African leader who governs well, raises living standards and then leaves office.

Like his predecessor Nujoma, Pohamba stepped down at the end of his constitutional term limits. Namibia once again elected a Swapo party member. Hage Geingob won the 2014 elections with 86.7% of the vote. Just recently the country's Chief Electoral and Referenda Officer, Theo Mujoro, announced that Presidential and National Assembly elections will be held on November 29 of this year. The upcoming elections will take place against a background of negative economic growth, expanding income inequality, high poverty levels, youth unemployment, unsustainable government deficits and debt as well as massive rural-urban migration. In recent times elections in Namibia have come to be viewed as a means of employment creation.

On the economic end, Namibia's economy is heavily dependent on the extraction and processing of minerals for export, particularly Uranium. Unfortunately for the country's coffers, the price of Uranium has taken a dip, hurting its bottom line. Diamonds are also a big revenue generator for Namibia, however the rising cost of mining diamonds, especially from the sea, combined with increased diamond production in Russia and China, has reduced Namibia's profit margins. Namibia also produces large quantities of zinc and is a smaller producer of gold and copper. Namibia's economy remains vulnerable to world commodity price fluctuations and drought. Authorities emphasized the need to add value to raw materials, do more in-country manufacturing, and exploit the services market, especially in the logistics and transportation sectors.

A high per capita GDP, relative to the region, obscures one of the world's most unequal income distributions. The current government has prioritized exploring wealth redistribution schemes while trying to maintain a pro-business environment. GDP growth in 2017 slowed to about -0.8%, however, when 2018 numbers are in the country is expected to show a modest recovery.

UPSTREAM



Source: Namcor

Namibia has yet to become an African producer. While massive natural gas discoveries were discovered off its coast well over a decade ago, no set development has moved forward to take advantage of these resources for various reasons. A number of exploration programs over the past several years have seen wells drilled off its coast, as yet, none of these programs have resulted in any new discovered resources.

While no new resources have been discovered, that has not stopped firms from coming to Namibia's shores. The country plays host to a number of independent firms and majors are starting to make their way to Namibia's offshore arena. Firms like Chariot Oil & Gas, Tullow Oil, Tower Resources, EcoAtlantic Oil & Gas, and Shell have all been present in the country for a few years; more recent entrants include Kosmos Energy, Total, and ExxonMobil.

Since last covered by *Petroleum Africa*, ExxonMobil entered Namibia, picking up stakes in PEL 82 from Galp Energia in February 2018. The license is located in the Walvis Basin, and covers an area of 11,444 sq km in water depths ranging from 300 meters to 2,000 meters. The US supermajor added to its position in August that same year with the purchase of a 30% interest in PEL 44 from AziNam. ExxonMobil was not yet done picking up acreage and added approximately 7 million acres in April of this year. The company signed an agreement with Namcor and the government for blocks 1710 and 1810 and a farm-in agreement with Namcor for blocks 1711 and 1811A. The blocks extend from the shoreline to about 135 miles offshore Namibia in water depths ranging up to 13,000 ft. In a statement, the company said that it plans to begin exploration activities this year, including acquisition of seismic data and analysis. ExxonMobil will operate blocks 1710 and 1810 with a 90% interest, Namcor will hold the remaining 10%. The company will assign a 5% interest to a local Namibian company. ExxonMobil will be the operator of blocks 1711 and 1811A with an 85% interest with Namcor holding the remaining 15%.

In May 2018, Calima Energy was awarded a 5,433 sq km exploration block in the emerging deepwater oil play of the Orange River Basin, Block 2813B. The petroleum agreement is for a 56% stake and operatorship under an initial four-year term. The company recently reached an agreement with Tullow Oil to sell its stake in the block to the Irish company. Prior to the sale, Calima held a 56% stake and was partnered with Trago Energy, Harmattan Energy, and Namcor.

In Q4 2018, Kosmos Energy expanded its position in Africa picking up acreage in Namibia. The company entered into a strategic exploration alliance with Shell to jointly explore in a Shell license area. Initially, the alliance will focus on Namibia, where Kosmos has completed the farm-in to Shell's acreage in PEL 39.

At the same time as Kosmos joined Shell on PEL 39, Namcor executed two Joint Operating Agreements (JOA) with Total and Impact Oil. The JOA has Total joining Impact and Namcor in deep water Block 2913B. Block 2913B covers approximately 9,000 sq km about 300 km offshore Namibia in a water depth of 3,000 meters. The acreage lies along the western toe of the Orange River delta, where deep marine fan sands are contained within large structural traps. While Block 2913B is located 150 km west of the Kudu Gas field, recent exploration wells along the outer fringes of the Orange Basin have demonstrated that there exists a rich oil prospective zone running through the block. In addition, the Namcor and Total partnership concluded a JOA in respect of Block 2912 also located in the Orange Basin. Namcor holds a 15% carried interest in the block and Total holds the remaining interest. Total will act as operator of both Block 2913B and Block 2912.

As stated previously the country has seen some drilling over the past several years but with no clear indication of new resources in place. In September 2018 Tullow Oil and its partners, which includes Pancontinental Oil & Gas, spud the Cormorant-1 well on PEL 37. It was hoped that Tullow's extraordinary luck seen in Ghana, Kenya, and Uganda would transfer to Namibia. The Cormorant-1 was drilled by the *Ocean Rig Poseidon* in 545 meters of water, to a total depth of 3,830 meters subsea. Unfortunately, the results of the Cormorant well did not clear up the question of Namibia's prospectivity. According to Tullow, the well encountered hydrocarbons, however they were non-commercial and as a result the well was plugged and abandoned. Tullow said that important geological data was gained and, in combination with high quality 3D seismic data, would provide valuable insights into the prospectivity of its Namibian acreage in PEL-37 and PEL-30. Tullow operates the PEL-37 license with 35% equity and is partnered with ONGC Videsh Ltd (30%), Pancontinental Oil & Gas (30%) and Paragon (5%).

Namibia's next offshore well spud a short time later, this time it was Chariot Oil & Gas doing the drilling on its Central Blocks license, also using the *Ocean Rig Poseidon*. Chariot is the operator of the license and is partnered with Azinam, Namcor, and Ignitus. The well was spud on Prospect S, which is independently estimated to have a gross mean prospective resource of 459 million barrels and a probability of geologic success of 29% by Netherland Sewell Associates.

In September 2018 Eco (Atlantic) Oil & Gas received necessary approvals from the Namibian Ministry of Environment and Tourism to drill an exploration well on PEL 30 (Cooper Block). The approvals are for the final Environmental Clearance Certificate. The company completed seven years of exploration on the Cooper Block, including regional geological studies, fracture analysis, slick studies, the review and interpretation of 5,000 km of 2D and 1,100 sq km in 3D surveys. In addition to its own ongoing interpretation, Eco has also contracted independent studies from Petroleum Geo-Services, Azinam, Tullow Oil and Gustavson Associates. In October 2018 Tullow announced its departure from the Cooper Block and transferred its 25% working interest back to Eco. Following this, Eco entered into active discussions with potential farm-in partners to replace Tullow and to jointly drill the Osprey Prospect with JV partner AziNam. Eco also holds an 80% interest in the Tamar Block (PEL 50), covering 7,500 sq km adjacent to PEL 71, and is considering the same channel and fan systems that lead on to PEL 50. Accordingly, the company will monitor the results of the well on PEL 71 and will further analyze them once the well has been completed.

Namibia awarded Global Petroleum new acreage offshore the country in September of last year. The company signed a petroleum agreement with the Namibian authorities for Block 2011A in the northern Walvis Basin. Global will hold an 85% interest in the new block as operator. Namcor, and a local private company, Aloe, will have carried interests of 10% and 5% respectively. The new block is located immediately to the east of the company's current license, PEL 0029, which is made up of Block 1910B and 2010A. The combination of the two licenses gives Global an aggregate of 11,608 sq km offshore northern Namibia and makes it one of the largest net acreage holders in the region. The company said that it believes that Block 2011A contains the same plays as those detailed in the Competent Person's Report for PEL 0029, which was published in January 2018.

Under the Block 2011A work program, in the first two years of the Initial Exploration Period, Global will carry out various studies and will reprocess all existing seismic in the license area, which includes a 3D seismic data survey shot in the western section. The studies and reprocessing will enable the reservoirs in the Welwitschia structure and elsewhere in the acreage to be mapped with more confidence, and the leads to be identified more accurately. At the end of two years, Global has the option either to shoot a new 2,000 sq km 3D seismic data survey in the eastern part of Block 2011A, or alternatively to relinquish the license.

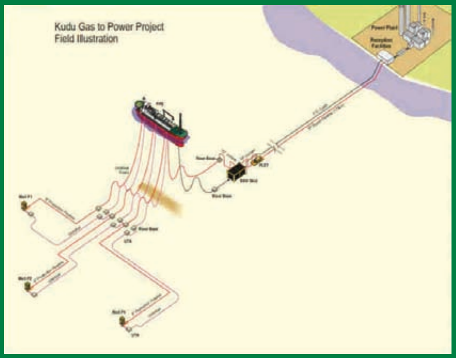
On its PEL 0029, Global agreed to a work commitment for Phase 3 with the Namibian Ministry of Mines and Energy. The firm's additional work program consists of various studies, including mapping of source rock, mapping of contourites deposits, fault studies and amplitude versus offset (AVO) analyses and extended elastic impedance (EEI) studies on seismic data. In addition, and carried over from the First Renewal Period extension, is the acquisition of 600 sq km of 3D seismic data, contingent upon Global concluding a farmout, and the drilling of one exploration well. The Ministry has also waived the requirement to surrender a further 25% of the original license area, which is normally required at the end of the First Renewal Period, 50% had already been surrendered in accordance with the Petroleum Agreement at the end of the Initial Exploration Period (Phase 1). Significant prospective resources have been calculated on three prospects and two leads in the acreage; Albian carbonates are the main reservoir for the three prospects, with the primary prospect, Gemsbok, also having prospective resources in two deeper layers. One of the two leads, Choje, has Upper Cretaceous deep-water sandstones as its reservoir. Both the Albian carbonate and Upper Cretaceous sandstone plays are currently being worked up further, both in the license and in Global's adjacent License PEL0094.

In November of last year Tower Resources signed a new petroleum agreement (PA) with the government of Namibia covering an 80% interest in offshore Blocks 1910A, 1911, and 1912B. The agreement was also signed by Namcor and ZM Fourteen Investment CC, Tower's partners. The PA covered 23,297 sq km of the northern Walvis Basin and Dolphin Graben, encompassing Blocks 1910A, 1911, and 1912B. The area is an under-explored region in which recent drilling results have proven the presence of a working oil-prone petroleum system and good quality turbidite and carbonate reservoirs. This is also an area that Tower knows well since Blocks 1910A and 1911 formed part of Tower's original license PEL0010, which Tower and its partners, Repsol Exploration (Namibia) and Arcadia Expro Namibia, relinquished in 2015.

The PA is structured to comprise an Initial Exploration Period of four years (which may be extended to five in appropriate circumstances), followed by options for Tower and its partners to enter a First and Second Renewal Period of two years each. The work program for the Initial Exploration Period comprises regional play fairway evaluation and acreage high-grading activities including CRS mapping, sequence stratigraphy, sedimentology and basin modelling, geochemical, gravity and magnetics analysis, 2D and 3D seismic interpretation and mapping, and petrophysics and well failure analysis, based on a data base build comprised of the acquisition of 5,000 km of existing 2D seismic and relevant well data; analysis and, if necessary, reprocessing of existing 2D data; acquisition of at least 1,000 sq km of 3D seismic data; and the acquisition of oil seep satellite data and piston-coring reports.

DOWNSTREAM

Namibia imports petroleum products for domestic use and is a weigh point for distribution to other countries in the region. In May 2018 it was revealed that the Namibian town of Usakos had teamed up with MDL International and foreign financiers to develop an oil storage facility that could store over 200 million liters of fuel to be distributed to markets in the Southern African region. The massive investment, projected to cost over R3 billion, could transform the quiet town into an urban logistics center and generate significant employment opportunities for the community. MDL International and its investors see the establishment of a fuel and gas storage terminal as a way to distribute products to countries like Angola, Botswana, the Democratic Republic of Congo, Zambia and Zimbabwe. Phase 1 of the project has already begun with the establishment of a logistics center. Phase 2 involves the actual construction of the storage terminal. It is expected that the terminal will take around two years to construct.



Source: Namcor

Perhaps the country's oil and gas industry is best known for the long-delayed Kudu gas-to-power project. The Kudu project has been on the books for some time although it never seems to make any significant progress. In August 2018 the project took another hit when Tom Alweendo, the country's energy minister, said the project may not be viable. Speaking on state broadcaster, Namibia Broadcasting Corp., Alweendo said he was not sure the project would take off after years of delays due to the related export agreements. Namibia's offshore Kudu Gas Fields have proven and probable recoverable reserves estimated at more than 3.3 Tcf and could drastically reduce the country's dependence on imported power. However, the project has been delayed for more than two decades and has also seen a number of firms participating in the project come and go over that time.

Despite Minister Alweendo's views, the project did make the news recently when it was reported that the Kudu project could make a revival. According to reports, the project has seen a revival by BW Kudu Limited, who says recent technological advancements as well as a consistent market for reliable economical energy makes the electricity project viable. BW Kudu Ltd, a subsidiary of BW Offshore, became the operator for the Kudu Gas field in 2017 with a 56% shareholding with Namcor holding the remaining 44%. Reports have BW Kudu's Namibia Country Manager, Klaus Enderesen, being fairly confident that the necessary local and international investors could be secured to mobilize the approximate $2 billion needed to bring the 475-MW project to fruition. Enderesen was cited in an interview with New Era as saying that once all the necessary elements are in place, it will take about three years to see the Kudu Gas-to-Power project providing stable and reliable electricity to the Namibian market. However, he noted that it will take another year for all the additional elements to be in place, including sufficient research on exporting that power to supply electricity to South Africa.

To make the project more cost effective, the single buyer model that has been touted for the project, which would have seen all the electricity produced sold to NamPower, is being modified to a multi-buyer model. This modification has been refined to include a private energy supply concept that would most likely see Kudu Gas also supply electricity directly to private buyers and Independent Power Producers (IPPs). BW Kudu explained that the Kudu Gas development plan is based on two wells together producing 250 Mboe over 25 years, the redeployment of an FPSO provided by BW Offshore, and a gas export pipeline from the FPSO to shore where a 475-MW power plant would be constructed to serve the domestic and regional market.

By Jennifer Nickle, Deputy Editor

NIGER

UN photo #695419 Cia Pak

Issoufou Mahamadou

President:
Issoufou Mahamadou
(since April 2011)
Independence:
March 21, 1990
(from South African mandate)
Population: 2,533,224(July 2018 est.)
GDP (purchasing power parity):
$21.86 billion (2017 est.)
Real GDP Growth Rate: 4.9% (2017 est.)
Per Capita GDP: $1,200 (2017 est.)
Minister of Petroleum: Foumakoye Gado
Oil Production:11,000 bpd(2017 est.)
Refined Oil Consumption:
14,000 bpd (2016 est.)
Refined Petroleum Exports:
5,422 bpd (2016 est.)
Proven Oil Reserves:
150 million barrels (2018 est.)
Natural Gas Production: N/A
Natural Gas Consumption: N/A
Natural Gas Imports: N/A
Proven Natural Gas Reserves: N/A

Source:CIA World Factbook and World Bank

The African nation of Niger started out its modern history being occupied by France. The French began their occupation in the late-1800s and Niger's colonial history and development was parallel to that of other French West African territories. France administered her West African colonies through a governor general in Senegal, and governors in the individual territories, including Niger.

After the establishment of the Fifth French Republic in October 1958, territories of French West Africa and French Equatorial Africa were given the right to hold a referendum on membership in the French Community, including Niger. Membership in the French Community allowed for some limited self-government and was viewed as a path to eventual independence. Niger took on independence in 1960 with its parliament electing Hamani Diori as president.

Hamani Diori was overthrown in a military coup led by Lt-Col Seyni Kountche in 1974. Kountche held on to his position until 1987 when he died of a brain tumor. Ali Seybou succeeded Kountche and two years later a new constitution brought Niger back to civilian rule with Seybou being re-elected as president. Following Seybou's re-election, he legalized opposition parties when faced with a wave of strikes and demonstrations. He held on to his position until July 1991 when a constitutional conference stripped him of his powers and set up a transitional government under Andre Salifou.

In 1992 a new constitution was ratified, allowing for multi-party elections. The following year Mahamane Ousmane was elected as president and his coalition, the Alliance of the Forces of Change, won a majority of seats in parliament in 1993. No one president held on to office for long and coups abounded in Niger as just three years later, Ousmane was ousted in a coup led by Col Ibrahim Mainassara, who banned all political parties. May of that year brought yet another constitution, this one giving the president increased powers. While the new constitution lifted the ban on political parties, Mainassara was able to win the presidential election held in July. Like his predecessor, Mainassara was removed from office, this time by assassination. In April 1999 Major Daouda Wanke assumed power following Mainassara's assassination by his bodyguards.

Yet again, another constitution was drawn up, this one reversing the increase in presidential powers. In November 1999 Mamadou Tandja was elected president and his party, the National Movement for the Society in Development, won a majority of seats in parliament. In December 2004, Tandja won a second term in office with 65.5% of the vote in a second-round ballot. While the country's constitution held presidential term limits to two, Tandja wanted a third term. In mid-2009 he suspended the constitution and assumed emergency powers after the Constitutional Court ruled against his plans for a referendum on whether to allow him to seek a third term. In August the referendum went through giving Tandja three more years and broader presidential powers. Tandja's constitutional shenanigans led to him being ousted in a coup and the military junta appointed a transitional government headed by a civilian prime minister, Mahamadou Danda.

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The country hosted elections in March 2011 with Mahamadou Issoufou winning the office of president. Issoufou was re-elected in a run-off election in 2016 which was boycotted by supporters of his exiled opponent, Hama Amadou, who was later sentenced to a year in prison for child smuggling. He was not in court and denied the charges, describing them as politically motivated.

Economy

On the economic end, the country relies mainly on subsistence crops, livestock, and its uranium deposits which are some of the largest in the world. Agriculture contributes approximately 40% of GDP and provides livelihood for over 80% of the population, according to the World Bank. Niger was ranked as the second least developed country in the world by the UN in 2016. The UN's ranking of Niger was due to multiple factors including food insecurity, lack of industry, high population growth, a weak educational sector, and few prospects for work outside of subsistence farming and herding.

The UN reports that GDP growth has been relatively flat the past several years, coming in at 4.3% in 2015 and 4.9% in both 2016 and 2017. The government relies on foreign donor resources for a large portion of its fiscal budget; however, plans to exploit its oil, gold, coal, and other natural resources are in the works to sustain growth in the future. The country has sizable oil reserves but its production leaves it dependent on the vagaries of the oil markets booms and busts.

Formal private sector investment needed for economic diversification and growth remains a challenge, given the country's limited domestic markets, access to credit, and competitiveness. Although President Issoufou is courting foreign investors, including those from the US, as of April 2017, there were no US firms operating in Niger. In November 2017, the National Assembly passed the 2018 Finance Law that was geared towards raising government revenues and moving away from international support.

Oil Industry Update

Niger produces crude from fields operated by Chinese firm CNPC. The firm took on acreage in 2008 that had been abandoned by some of the industry's biggest players and just three years later struck oil and started production. Between 2011 and 2014, CNPC made 95 discoveries from 129 exploration wells, confirming over one billion barrels in oil reserves.

Prior to CNPC, the country had only seen 25 wells drilled and five minor discoveries. Yet despite all the wells and discoveries made by CNPC, Niger only produces at a rate of 20,000 bpd. What is hindering Niger is not a reserve problem, but an infrastructure problem. Targets of 60,000-90,000 bpd have been set but delays are pegged with the lack of export infrastructure. Being landlocked, Niger has no pipeline connecting it to neighboring nations and any increase in production would lead to a significant storage problem.

Despite the infrastructure problem one independent decided to plant its flag in the country with much success to date, Savannah Petroleum out of the UK. The company, as of October 2018, has recorded five consecutive commercially viable discoveries on it R3 and R4 PSC areas in the Agadem Rift basin (ARB), in the southeast of Niger. The Amdigh, Bushiya, Kunama, Eridal, and Zomo wells all resulted in discoveries for the company.

Source: Savannah Petroleum

GW215 Mast Raised at Bushiya-1 well site

Following the successful results of the five exploration wells drilled to date, Savannah Niger has elected to commission Pre-Stack Depth Migration (PSDM) processing of the R3 East 3D seismic dataset. The PSDM processing project was completed in 2019 and showed an overall improvement in seismic imaging (better event continuity and fault definition) at all levels vs. the existing Pre-Stack Time Migration dataset, according to the company. The interpretation phase, which is planned to start in June, will assist Savannah in confirming drilling targets to support the proposed EPS as well as identifying additional prospectivity in the deeper Yogou and Donga Cretaceous intervals.

The company also received an additional 400 km of 2D seismic data on the R3 Central area in H2 2018. Savannah said the data reconfirmed many of the previously identified exploration targets on the area as well as identifying several new targets. A new drilling campaign is expected to commence in early 2019, initially focusing on the R3 East and R3 Central areas, before likely proceeding to the R1 Dinga 3D area and, potentially, the R2 Dinga Ridge area. Savannah Niger continues to expect to perform a well test on Amdigh-1 in 2019.

Savannah also intends to develop a domestic-focused early production system (EPS) utilizing resources discovered on R3 East, with oil expected to be sold into the Société de Raffinage de Zinder (SORAZ) refinery, which is connected to the ARB via the third party owned 463-km Agadem-Zinder crude oil transportation pipeline. There is also talk of a pipeline to connect the oil fields to the export pipeline in Chad that takes crude to the Atlantic coast in Cameroon.

Savannah's success brought Niger to the attention of Oranto Petroleum. The company's chairman, Prince Arthur Eze signed a MoU with the Ministry of Petroleum for the rights to explore blocks R5, R6, Dibella and Dallol in the Tenere and Agadem Basins. Both R5 and R6 border Savannah's other exploration licenses in the Agadem Basin, R1 and R2, which have also registered considerable oil and gas prospects in recent years and that have been assessed by CGG as containing up to 1.6 billion barrels of oil equivalent in reserves "yet to find."

As stated previously, there is talk of a pipeline to link Niger to the Chad-Cameroon pipeline. The potential of this infrastructure could bring a huge change to the face of Niger's oil industry. The Niger government has said for a number of years that construction on the pipeline would begin, but as yet no movement has been seen. If it goes through, Niger could be a de facto oil exporter by 2020 or 2021 and have access to a new influx of capital to continue to finance the industry's growth and the country's overall economic development, particularly if oil prices see a rise.

Source: Savannah Petroleum

Seismic vibrator truck operating on R3 Eas

Niger could also become an exporter of refined products as plans were concluded earlier this year with neighboring Nigeria to establish a new oil refinery to be located in the border town between the Niger and Katsina state in Nigeria. The multi-million-dollar plant would help meet the need for refined products in both countries and could leave some for export. After meeting with the President of Niger, Mahamadou Issoufou and Minister of Petroleum Foumakoye Gado, Nigeria's Minister of Petroleum Emmanuel Ibe Kachikwu disclosed that "A mutually beneficial agreement was reached for the construction of a refinery in the border town between the Republic of Niger and Katsina State, Nigeria and a crude oil pipeline from the Republic of Niger to the new refinery." This was back in 2018 but since then, not much has progressed on this front. With the latest Nigerian election recently concluded, the project could gain new traction, but with all of the refinery woes it has on its plate domestically, for now the project will remain uncertain.

GNA Calls for Firms to Fix Legal Status

Libya's internationally recognized government, the Government of National Unity (GNA) have issued a grace period of three months for firms operating without licenses to fix their legal status. These firms include at least one oil and gas major.

The Ministry of Economy and Industry said in a decree that the firms, including French oil major Total, would be suspended as their licenses had expired. This was seen by some as a way to pressure the EU to stop an eastern military offensive against the capital of Tripoli.

The Ministry cited legal procedures, but the action comes as the Tripoli-based government seeks to drum up support to fend off an assault by Khalifa Haftar's Libya National Army (LNA) force, which has been trying for one month to take the capital.

The decree was published a day after Tripoli Prime Minister Fayez al-Serraj met French President Emmanuel Macron in Paris, coming from Berlin and Rome, to bolster his case.

"Officially, those 40 licenses were scheduled to be expiring now," he said. "In reality, the decree is motivated by a desire to show European states that their leniency towards the eastern-Libyan faction has immediate consequences on their economic interests."

Angolan Reform Agenda Pays Dividends

The ambitious reform agenda of Angolan President João Laurenço and his Minister of Mineral Resources and Petroleum, Dr. Diamantino Pedro Azevedo, has already resulted in increased investment by the country's biggest European operators. The country has emerged as a hub of foreign direct investments within the continent. This has resulted in increased investments out of Europe and the prospects of attracting more FDI this year are bright.

According to the African Energy Chamber, this current state of play now presents an opportunity for North American companies to re-engage and re-invest in the Angolan market.

Angola just released a new oil licensing strategy up to 2025, and for the first time is about to launch a bidding round that includes marginal oil fields with an attractive fiscal framework. Angola's economic recovery is being driven by investments in the country's oil and gas sector, with the country's energy sector attracting well over $1 billion of investment commitments over the past few months.

The charge is notably led by international oil companies increasing the size of their operations in the country, including Total at Kaombo, ExxonMobil in the Namibe Basin and BP at the Platina Field. US oil & gas service companies like Halliburton and Baker Hughes GE also still dominate the sector and are likely to further invest in technology as the country ramps up exploration efforts. American firms have traditionally led investments within Angola's oil sector, especially under the Strategic Partnership Agreement the US has with Angola, one of just three in sub-Saharan Africa.

Lekoil Drops Suit Against Kachikwu

Lekoil advised that it has dropped its legal action against Nigeria's Minister of Petroleum, Emmanuel Ibe Kachikwu. The company received a letter from the Ministry of Petroleum Resources relating to an application for an extension (re-award) of the OPL 310 license. In a statement on its website, the company said that the letter notes the license expired on February 10 and ownership reverted back to the government, according to Nigeria's Petroleum Act.

The letter from the Ministry said that a re-award of the block to Lekoil would not be considered until the suit filed by the company against the Minister was withdrawn. The letter from the Ministry said that failure to do so by Lekoil and other parties in the suit within 30 days would negate any consideration for re-award.

Lekoil received the letter on May 13, however it was dated May 8. The company decided to withdraw legal action. It will also continue engagements with the regulator and Optimum Petroleum Development Company Ltd., the operator of OPL 310, to conclude agreements and resolve all outstanding issues.

Liberia Transfers Regulatory Functions to LPRA

The government of Liberia, through the Liberia Petroleum Regulatory Authority (LPRA), and the National Oil Company of Liberia (NOCAL), are set on rebuilding a viable oil and gas program. The plan to be initiated by LPRA and NOCAL includes improving governance, transparency, accountability and equity participation of all Liberians. The move is in keeping with Section 78 of the Petroleum (Exploration and Production) Reform Act of 2014.

A statement from the government was released to inform the public and its partners that the Transfer Plan, referred to and required in the Petroleum Law, was now complete. The news signals the full transfer of all regulatory functions from NOCAL to LPRA allowing NOCAL to focus on improving the commercial capabilities and promoting the government's interest and citizen participation. This also allows for LPRA to immediately commence key activities leading to future bid round activities for offshore acreage.

Liberian president, George M. Weah, challenged the CEO of NOCAL and the Director-General of LPRA to engage with international oil companies and other global partners in building an economically successful and sustainable oil and gas sector, one that will maximize government's take, ensure environmental sustainability, and equitable participation of all Liberians.

The President further stressed that, "while the country is in desperate and dire needs to discover commercially viable quantity of oil, we must not lose sight of the attending consequences that could evolve when the right policies, regulations and laws are not developed or adhered to."

BP to Sell GUPCO to Dragon Oil

BP has agreed to sell its interests in its Gulf of Suez oil concessions in Egypt to Dragon Oil, the Dubai-based oil and gas company. Under the terms of the agreement, Dragon Oil will purchase producing and exploration concessions, including BP's interest in the Gulf of Suez Petroleum Company (GUPCO).

The deal, which is subject to the Egyptian Ministry of Petroleum and Mineral Resources' approval, is expected to complete during the second half of 2019 and is part of BP's plan to divest more than $10 billion of assets globally over the next two years. Financial details are not being disclosed.

Panafrican Energy Services and Wire International Team Up

Panafrican Energy Services Group and Wire International Ltd. are bringing well intervention services to the African continent. The pair will bring together the engineering advisory potential of Panafrican Energy Services Group and hands-on experience of Wire Group and its know-how to integrate the latest slickline and cased hole services technologies into new markets.

Wire Group will provide operations support to its partner in services lines such as slickline Services, data acquisition, cased hole services (well logging, pipe recovery, perforations – both wireline & tcp), fluids sampling & analysis, surface well testing, and production systems.

WIS & Rhône Capital to Acquire Fishing and Tubulars Businesses

Wellbore Integrity Solutions (WIS), an affiliate of private equity firm Rhône Capital, and Schlumberger entered into an agreement for WIS to acquire the businesses and associated assets of DRILCO, Thomas Tools, and Fishing & Remedial services, along with part of a manufacturing in Houston.

The transaction is valued at approximately $400 million and is subject to regulatory approvals and other customary closing conditions. The parties expect to close the transaction by year-end 2019.

WIS expects to operate the combined businesses as a global, customer-focused provider of drilling tubulars services; tubing work strings, rentals and accessories; and fishing and remedial services for drilling, intervention and abandonment activities for the oilfield services industry.

TGS-NOPEC/Spectrum Merger Plan Approved

The respective boards of TGS-NOPEC Geophysical and Spectrum have unanimously approved and decided upon a final merger agreement and merger plan in line with the terms previously announced. The merger plan is now to be submitted to and registered by the Norwegian Register of Business Enterprises.

Completion of the merger is subject to approval by extraordinary general meetings in TGS and Spectrum, expected to be held on or about June 21. Notices for the general meetings will be sent to shareholders shortly. As previously reported, Spectrum shareholders representing more than 34% have given their support to the transaction and undertaken to vote their shares in favor thereof.

Aqualis Offshore and Braemar Technical Services to Join Forces

Aqualis ASA, the parent of marine and offshore engineering consultancy Aqualis Offshore, today entered into an agreement to acquire the Offshore, Adjusting and Marine business lines from Braemar Shipping Services Plc.

The combined company, to be renamed Aqualis Braemar ASA, will be a leading offshore, adjusting, marine and renewables consultancy with a broadened service offering across all major basins.

Aqualis Offshore is a specialized offshore marine and engineering consultancy firm, focusing on the shallow and deep-water offshore segments of the oil and gas industry. The company has a broad service offering within the offshore oil and gas segment, leading within engineering services, rig moves and complex offshore transportation. Braemar Technical Services also provides a broad service offering within the offshore oil and gas segment, leading within engineering services and rig moves.

The combined company will be divided into four divisions, each with a strong presence in their respective markets: Offshore, Marine, Adjusting and Renewables. It will have a total of more than 430 full-time equivalent employees globally. The combined company's revenue for the twelve months ended December 31, 2018 was approximately USD 76 million, with Aqualis and Braemar Technical Services representing approximately USD 36 million and USD 40 million respectively.

Completion of the transaction is subject to the approval by Aqualis' shareholders at the Annual General Meeting, expected to be held on or about 11 June 2019. The transaction is not subject to any regulatory approvals. Given approval at the AGM, the transaction is expected to close by the end of June 2019.

Chevron Out – Oxy In

One of the most talked about acquisitions in the industry in years was initiated during the period, Chevron's buy of Anadarko Petroleum. Unfortunately, the intended buy did not go well for Chevron as fellow US firm Occidental Petroleum stepped into the mix, topping Chevron's bid.

The Chevron bid offered Anadarko $50 billion. Occidental, who had been talking to Anadarko prior to the Chevron deal, upped the ante to $57 billion. Occidental is offering $76 a share but the new bid has it paying 78% in cash and 22% in stock. The $57 billion transaction was initially structured as a 50-50 cash-and-stock deal when Occidental first made its public bid for Anadarko.

Occidental's bid attracted some powerful interest, securing $10 billion in support from Berkshire Hathaway and France's Total SA said it has agreed with Occidental to acquire the African assets of Anadarko for $8.8 billion. Other players such as Italy's ENI, are said to also be interested in acquiring the African assets. In the end, Anadarko accepted the Occidental bid and Chevron chose not to up the ante, bowing out of a bidding war.

Appomattox Starts Production in US GoM

Royal Dutch Shell subsidiary, Shell Offshore Inc., saw production start from its latest operated project in the US Gulf of Mexico (GoM), the Appomattox floating production system. The Appomattox began production ahead of schedule, opening a new frontier in the GoM.

Source: Shell

According to Shell, the Appomattox, which currently has an expected production of 175,000 boepd, is the first commercial discovery now brought into production in the deep-water Gulf of Mexico Norphlet formation. The company said it creates a core long-term hub for Shell in the Norphlet through which it can tie back several already discovered fields as well as future discoveries.

In a release, Shell said that the Appomattox was a story of "efficiency through innovation." By way of optimized development planning, better designs and fabrication, and expert drilling execution, Appomattox has realized cost reductions of more than 40% since taking the final investment decision in 2015. The start of production at Appomattox is only just the beginning of further maximizing the flow of resources in the prolific Norphlet surrounding Appomattox.

Safe Eurus Brazil Bound

Prosafe and Petrobras entered into a contract for the use of Prosafe's *Safe Eurus* semi-submersible vessel for safety and maintenance support offshore Brazil. The contract will commence in Q4 2019 with a firm period commitment of three years.

This is the first contract for the *Safe Eurus*, a vessel designed and built to service the Brazilian market. *Safe Eurus* will be the third Prosafe vessel under charter in Brazil, with sister vessel *Safe Notos* also on charter to Petrobras, and *Safe Concordia* on charter with MODEC. The total value of the contract is approximately $80 million.

Petro Matad Prepares for Mongolian Spud in July

Petro Matad updated its preparations for its 2019 drilling campaign in Mongolia on Block XX. The company said that well site construction has commenced on the Heron 1 location. The site construction contractor will then move to the Gazelle 1 location and from there to Red Deer 1. All three sites are expected to be complete by the end of June.

The work is being carried out by the same construction contractor that successfully prepared the sites for the company's 2018 drilling campaign. A contractor has been chosen to drill two water supply wells, one for operations at Heron and Gazelle and one for Red Deer. The contractor will mobilize to Heron in early June.

Permitting, procurement activities and rig preparations are progressing well, ahead of the exploration drilling campaign. The DQE rig has completed its pre-move testing and certification and the required electrical upgrade is expected to be completed in the first week of June. Petro Matad is targeting an early-July spud date for the Heron well, with the Gazelle well immediately following. The Red Deer will follow in the second half of July.

In addition, the company said that the applications for entry into the final two-year term (to July 2021) of the Exploration Phases of Blocks IV and V, submitted in mid-April 2019, are under review by the regulator (MRPAM), with final clarification meetings expected shortly.

FID Coming Soon for Liza Phase 2

Hess Corp. and ExxonMobil Corp. received regulatory approval from the government of Guyana and have made the FID to proceed with the second phase of development of the Liza Field on the Stabroek Block, offshore Guyana.

Liza Phase 2 will utilize the *Liza Unity* FPSO vessel which will have the capacity to produce up to 220,000 bpd of oil. Six drill centers are planned with a total of 30 wells, including 15 production wells, nine water injection wells and six gas injection wells. First oil is expected by mid-2022. The development is expected to have a gross capital cost of approximately $6 billion, including a lease capitalization cost of approximately $1.6 billion for the FPSO, and will develop approximately 600 million barrels of oil.

The FID is expected later this year for a third phase of development, Payara, subject to government and regulatory approvals. The Payara development is expected to produce between 180,000 and 220,000 bpd with startup as early as 2023. Following the recent Yellowtail and Tilapia discoveries, the Turbot area is also expected to become another major development hub, and additional development potential is being evaluated in other areas of the Stabroek Block, including at Hammerhead.

Vroon Offshore Crosses Pond to Trinidad and Tobago

BP Trinidad and Tobago LLC awarded Vroon Offshore Services Aberdeen a multiple year, multi-million pound contract. This award will see industry recognized North Sea emergency response vessels and expertise transferred to international waters.

Vroon Offshore, the North Sea's largest operator of emergency rescue and response vessels (ERRVs), will provide three specialist vessels to support BP's operations in the Caribbean: the *VOS Gorgeous*, the *VOS Fabulous* and the *VOS Grace*. Dedicated to supporting offshore operations 24/7 365 days a year, ERRVs are fully equipped to recover and rescue people from the water, provide a place of safety and medical aid. They also monitor the safety zone, helping to avoid collisions, act as a first response in handling oil spills and as a reserve radio station.

These vessels and their specialist crews have departed from North Sea waters to service the contract and Vroon Offshore will establish a local presence in Trinidad and Tobago to support them. This contract follows a 2018 agreement between BP and Vroon Offshore to supply five ERRVs in the North Sea and West of Shetland on a long-term contract.

CUPET Offers Up 24 Offshore Blocks

Unión Cuba-Petróleo (CUPET), Cuba's state-run oil and gas firm, in partnership with BGP, ran a promotional event related to its 2019 licensing round, alongside the EAGE conference. CUPET is offering up 24 offshore blocks in the Cuban economic exclusive zone of the Gulf of Mexico.

The roadshow took place on June 3, at the Institute of Directors, Pall Mall, London. The presentations provided an opportunity to review and discuss the exploration opportunities, the contractual and fiscal terms, and the legal framework for upstream petroleum activities in Cuba. Data viewing was available at the Aloft Hotel on June 5 and 6.

Offered blocks for the 1st Licensing Round include 24 blocks associated with the highest exploratory potential geological scenarios. Classification criteria is based on available information and data packages were available to registered and qualified companies.

All Four Rever Vessels Deployed in North Sea

Rever Offshore has deployed of all four of its vessels in the North Sea since the start of April. The Rever fleet, which includes the saturation dive support vessels *Rever Topaz*, *Rever Sapphire* and *Rever Polaris* along with the heavy construction support vessel *Normand Clipper*, was fully employed for several key clients on projects within the UK sector of the North Sea.

Source: Rever Offshore

The *Rever Polaris*, which has recently completed an eight-week dry dock, and the *Normand Clipper*, have been working simultaneously on a large subsea decommissioning scope recovering flexible flowlines and various subsea structures. Prior to this, the *Normand Clipper* was configured in construction mode where she successfully completed a multiple flexible flowline installation project.

The *Rever Topaz* has been working on saturation diving IRM scopes and has now commenced a long-term commitment in the southern sector of the North Sea. The *Rever Sapphire*, having also focused on IRM scopes including sat diving, has now changed mode on to ROV survey and inspection works.

SBM Awarded More Liza Contracts

SBM Offshore was awarded contracts for the next phase of offshore Guyana's Liza project by ExxonMobil unit, Esso Exploration and Production Guyana. Under these contracts, SBM Offshore will construct, install and thereafter lease and operate for up to two years the *Liza Unity* FPSO. This follows completion of FEED studies, receipt of requisite government approvals and the FID on the project by ExxonMobil and block co-venturers.

The *Liza Unity* FPSO design is based on SBM Offshore's industry leading Fast4Ward™ program as it incorporates the company's new build, multi-purpose hull combined with several standardized topsides modules. The FPSO will be designed to produce 220,000 bpd, will have associated gas treatment capacity of 400 Mmcf/d and water injection capacity of 250,000 bpd. The FPSO will be spread moored in a water depth of about 1,600 meters and will be able to store around 2 million barrels of crude oil.

Saipem Wins New Contracts in Norway and ME

Saipem has been awarded contracts for offshore drilling in Norway and the Middle East totaling over $100 million. One contract was signed with Repsol Norge AS for the drilling of a well for operations in Norway expected to commence in Q3. Works will be executed by the sixth-generation semisubmersible rig *Scarabeo 8*.

Furthermore, Saipem has been awarded a new three-year contract in the Middle East. Operations are expected to begin in Q4 and involve the use of a high spec jack-up. For this project, a vessel operated by Saipem will be utilized.

Sparrow Selects J.S. Technical as Agent in Thailand

Sparrows Group selected Thai service and supply company J. S. Technical Services Co., Ltd. (JST) to act as its sole agent in Thailand. The agreement will create a partnership that can provide a broad range of equipment and services to support reliability and operational safety in the energy, industrial and renewable industries.

As part of the collaboration, JST will have exclusive rights to supply Sparrows Original Equipment Manufacturer parts and components in Thailand. This includes all crane brands that Sparrows hold intellectual property rights for, such as American Aero, Houston System, Bucyrus Erie Marine, Weatherford and Energy Cranes.

As well as supplying parts and components, JST's infrastructure in the country will enable Sparrows to provide crane management and operations and maintenance; inspection, testing and certification; design and engineering support; and equipment rental.

Tatweer and Total Sign MoU

Tatweer Petroleum-Bahrain Field Development Company and Total E&P Activités Pétrolières signed a MoU to cooperate in progressing oil and gas exploration opportunities, knowledge sharing and the supply of LNG to Bahrain. The signing took place as part of an official visit to France by a high-level delegation from the Kingdom of Bahrain, led by His Majesty King Hamad bin Isa Al Khalifa, King of the Kingdom of Bahrain, to further enhance ties between the two countries. Patrick Pouyanné, Total's Chairman and CEO, signed the MoU in the presence of a number of officials from the National Oil and Gas Authority, Tatweer Petroleum, Total and CEOs of other oil and gas companies.

The MoU will allow for further discussion on collaboration between Tatweer Petroleum and Total, including sharing of experience, expertise and support on ongoing exploration and production activities in the recently discovered unconventional Khalij Al-Bahrain Basin, as well as training and development of professionals from Tatweer Petroleum in the fields of LNG trading and oil and gas exploration and production.

Siccar Point Energy Completes Blackrock Well

Siccar Point Energy completed drilling the Blackrock exploration well 204/5b-2 in the West of Shetland. The well was drilled with the *Diamond Ocean GreatWhite* semi-submersible on License P1830 in 1,115meters of water, 10km north of the Siccar Point operated Cambo field.

The well was targeting the intravolcanic Paleocene Flett reservoirs of the Colsay Member which lie on-trend with equivalent oil filled sandstones in the Rosebank field. The well encountered a 34-meter gross package of intra-volcanic siliciclastic sediments which contained a number of thin oil-bearing sandstones from which oil samples were obtained. Gas was also encountered in the overlying Hildasay supra volcanic Member.

Source: Siccar Point Energy

The well proved the existence of intra-volcanic charged reservoirs between the Cambo and Rosebank fields. The well results will now be incorporated with existing regional data to better define and target thicker reservoir packages.

CGG Launches First Multi-client OBN

CGG launched its first multi-client ocean bottom node (OBN) survey in the north-central region of the Gulf of Mexico. This dense OBN survey will provide well-sampled, full azimuthal coverage with long offsets, to deliver exceptional data for imaging the geologically complex structures in Mississippi Canyon.

Acquisition services were provided by Seabed Geosolutions and the data will be processed by CGG Geoscience's Subsurface Imaging in Houston. Implementation of CGG's most advanced OBN processing techniques will provide a fine-tuned velocity model and improved definition of drilling targets. Preliminary products will be available in Q3 2019, and final products are expected in Q1 2020.

Supported by industry prefunding, CGG's Mississippi Canyon Node survey paves the way for further CGG multi-client OBN surveys in the future.

Gazprom Gets Approval for Kara Sea Discoveries

In Russia the Federal Agency for Mineral Resources approved the expert opinions of the State Reserves Commission with regard to the discovery by Gazprom of new hydrocarbon fields on the shelf of the Yamal Peninsula, namely the Dinkov and Nyarmeyskoye fields.

Source: Gazprom

The Dinkov field is situated within the Rusanovsky licensed block in the Kara Sea. The field is unique in terms of gas reserves: its recoverable reserves in the C1+C2 categories total 390.7 billion cubic meters.

The Nyarmeyskoye field is located in the Nyarmeysky licensed block in the Kara Sea. In terms of gas reserves, it is a large field with the recoverable amount of 120.8 Bcm in the C1+C2 categories

Vintage and Firetail Enter Heads of Agreement

Vintage Energy entered into a binding Heads of Agreement with Firetail Energy Services that will make Firetail a JV partner in the EP126 permit onshore Australia's Northern Territory in the Bonaparte Basin.

Under the terms of the agreement, Firetail will earn a 10% interest in EP126 through the provision of $850,000 of services for the testing of Cullen-1, the total cost of which is currently estimated at $3.2 million. This contribution by Firetail, and the formation of the JV places considerable value on the EP126 permit and its exploration potential. Vintage will retain a 90% interest in the permit and operatorship.

Firetail will add value to the JV through its relevant experience and access to equipment.

Subject to receiving all the necessary regulatory approvals, ministerial approval of the farm-in and satisfaction of conditions precedent, the JV plans to test the Cullen-1 well prior to the wet season this year. This testing will take place over four zones in a thick section of carbonates, which are interpreted to exhibit natural fractures and vuggy porosity, an occurrence of large, irregularly shaped pore spaces that can reservoir oil and gas.

Encouraging gas shows were observed during the drilling of Cullen-1, which the previous operator cased and suspended for future testing. A positive result from the test would likely lead to further seismic acquisition and exploration/appraisal drilling. The conditions precedent of title transfer registration (Beach Energy to Vintage) and entering into a services agreement with Firetail, are expected to be fulfilled shortly.

QP Awards McDermott FEED Job

Qatar Petroleuma warded the FEED contract for the North Field Expansions offshore pipelines and topsides facilities to McDermott Middle East.

The scope of this FEED includes engineering design for eight unmanned wellhead platform topsides, four 38” trunk lines and four 28” intra-field lines and is expected to take 12 months to complete.

22 Investors Enabled to Compete for 20 Areas Offered by Columbia's ANH

After having been validated by the firm ‘Gestión y Auditoría Especializada S.A.S., independent auditor, the National Hydrocarbons Agency of Colombia published the final list of investors that are enabled to compete for the 20 areas for exploration and production of hydrocarbons. These areas were released on February 21 during the launching of the Permanent Process of Area Allocation (PPAA), for the first stage of 2019.

Among the qualified companies are operators of recognized trajectory in Colombia and in the world, and the presence of two new players who venture into the local market, with headquarters in the United States, stands out. These are the companies Noble Energy and Hunt Overseas, who have expressed their interest in entering the national market thanks to the investment opportunities offered by the government of President Iván Duque.

The audit study evaluated five aspects of the interested parties, for purposes of shaping the final eligible list. The areas of study were: legal, financial, technical, environmental and social responsibility. Once this stage has been completed, the selected companies will be able to participate in bidding for the 20areas that were initially offered.

The 20 areas of conventional deposits postulated by the ANH for the first stage of 2019 correspond to an area of 1,418,000 hectares, 18 of which are located in the contintenal zone and two in the offshore zone.

The short list of authorized investors can be viewed at following the link: http://bit.ly/2MgufnK.

OMV Petrom Starts Gloria Decommissioning

OMV Petrom started the decommissioning of its Gloria offshore platform in Romania. The field reached the end of its economic lifetime limit after more than four decades in service.

It is a complex process, which will be undertaken for the first time in Romania. GSP Offshore, a Romanian company, has won the tender for removal services, with an estimated value of approximately €5 million.

Source: OMV Petrom

The company took the decision to decommission Gloria in 2018. Later in the same year, a tender was launched for the removal services which was won by GSP Offshore. The decommissioning solution consists of reinstating the platform jacking system, positioning the Gloria platform on a cargo barge and then transporting it to the shore.

The Gloria platform was the first offshore drilling platform in Romania. It was commissioned in 1976 and was built based on a license from Offshore Co., USA.

DNV GL Promotes Wind Turbines to Power Water Injection for Oil Recovery

DNV GL is urging offshore oil and gas operators to implement a new solution using floating wind turbines to power water injection for oil recovery. 'WIN WIN' (WINd powered Water INjection) was conceived in 2013 by DNV GL and is now ready for prototype development after two joint industry projects have shown the concept to be both cost efficient and technically feasible.


Source: DNV GL

Water injection is an effective tool in exploiting oil reserves, but the process is often inhibited by the high costs associated with large gas or diesel generators and complicated subsea infrastructure. By using a floating wind turbine, the WIN WIN concept allows the injection system to operate independently, eliminating the need of long flowlines from the platform.

DNV GL has worked extensively with oil and gas companies since 2015 to bring the 'WIN WIN' concept to prototype readiness. The first phase of research explored the techno-economic feasibility of the wind powered water injection, while the recently completed second stage involved advanced proof-of-concept lab tests. In the latest round of research, DNV GL conducted a joint industry project (JIP) with funding provided by ExxonMobil and Vår Energi AS. Jayme Meier, vice-president, ExxonMobil Upstream Research Company, says, "The completion of phase 2 of the WIN WIN JIP drives us one step closer to a technically viable and commercially deployable system."

ENI and ETAP Join Forces in Solar

In Tunisia, ENI inaugerated its Tatouine asset in the south of the country. The site includes a PV plant with an installed capacity of 10 MW. The project, which was awarded to the ETAP-ENI consortium following a public tender issued by the Tunisian authorities in accordance with the country's licensing regulations, will supply electricity to the state-owned company Société Tunisienne de l'Electricité et du Gaz (STEG). The project will be carried out by a new joint venture between ENI and ETAP which focuses exclusively on the production of energy from renewables.

The plant, equipped with a solar tracking system capable of optimizing the energy produced, will provide the national grid with more than 20 GWh/year of electricity and saving a total of about 260,000 tons of CO_2 during its planned 25 years of operation.

The Italian firm will also complete its construction of the Adam solar PV field in Tataouine this year, which will have a maximum installed capacity of 5 MW, whose power will be used directly from the industrial site. The new site has been built with innovative hybrid and energy storage systems that will be integrated into the plant's existing turbines, reducing gas consumption, operating costs and carbon dioxide emissions into the atmosphere.

With these initiatives, ENI and ETAP demonstrate their continued commitment to the decarbonization of the Tunisian energy system towards a low-carbon scenario.

DHYBRID to Supply Hybrid Power Plant in Senegal

German hybrid specialist, DHYBRID, will supply seven PV-diesel hybrid systems in remote Senegalese locations with sophisticated hybrid control and energy storage systems. The total output capacity is 2 MW and the storage capacity 2 MWh. The plants will enable Senegal to supply power for very isolated sites and to diversify its energy mix.

DHYBRID was selected by French EPC and main contractor Omexom, the energy brand of the VINCI Energies Group.

The total project will generate enough power to cover the annual needs of 140,000 people and will avoid atmospheric CO_2 emissions amounting to up to 19,000 tons per year, equivalent to the emissions of a car driven 135 million km. It will be part of a €26.8 million investment, financed by the German bank KFW and Senelec, the national electricity company of Senegal, consisting of the hybrid sites and an additional 15 MW PV-installation.

The project sites will be spread over four large regions: The Saloum Islands and the Thiès region in the western part of the country and the Tambakounda and Kolda regions in the east. DHYBRID will supply their proprietary Universal Power Platform (UPP) – a modular and manufacturer independent Energy Management System (EMS) and SCADA solution that will manage, control and monitor the interaction between diesel generators, PV inverter and energy storage system to minimize the electricity costs and CO_2 emissions. In addition to that, the German company will supply containerized Lithium-Ion energy storage systems, automatic generator controllers and the main electricity distribution panels.

Egypt Sees 6,000 MW from RE

Egypt successfully produced 6,000 MW of electricity from renewable resources, as it seeks to boost the renewable energy share in the country's energy mix. Of the 6,000 MW of renewable energy power generated, 2,000 MW is generated by solar and wind farms according to Mohamed El-Khayat, the Executive Chairman of the New and Renewable Energy Authority (NREA).


Source: Benban

Through its 20 solar plants, the Benban solar park has been added to the national electricity grid with a capacity of 900 MW, El-Khayat stated, adding that the total number of stations planned to be built at Benban solar park stands at 32 stations with a total capacity of 1,465 MW.

Egypt Considers Selling Power Plants

According to Mohamed Shaker, Egypt's Minister of Electricity, the government is considering selling three recently built power plants to private investors. "The negotiations are still in the early stages," Shaker told Reuters by telephone. He declined to disclose further details.

The plants, tagged at the time as the world's biggest, were built by Siemens AG in a $6.7 billion deal signed in 2015 and inaugurated by Egyptian President Abdel Fattah al-Sisi in July. Companies said to be interested in the plants include the Blackstone Group and Edra Power Holdings.

EDP and ENGIE Join Forces to Create a Global Offshore Wind Player

Antonio Mexia, EDP CEO and Chairman of EDPR and Isabelle Kocher, ENGIE CEO, announced the signing of a strategic Memorandum of Understanding (MoU), to create a co-controlled 50/50 joint-venture (JV) in fixed and floating offshore wind. The new entity will be the exclusive vehicle of investment of EDP, through its subsidiary EDP Renewables (EDPR), and ENGIE for offshore wind opportunities worldwide and will become a global top-5 player in the field, bringing together the industrial expertise and development capacity of both companies.

Under the terms of the MoU, EDP and ENGIE, will combine their offshore wind assets and project pipeline in the newly-created JV, starting with a total of 1.5 GW under construction and 4.0 GW under development, with the target of reaching 5 to 7 GW of projects in operation or construction and 5 to 10 GW under advanced development by 2025.

The JV will primarily target markets in Europe, the United States and selected geographies in Asia, where most of the growth is expected to come from. The JV's ambition is to be self-financed and the projects that will be developed will respect the investment criteria of both companies.

This ambitious alliance follows EDPR and ENGIE's successful six-year cooperation as consortium partners in the Dieppe Le Tréport and Yeu Noirmoutier fixed offshore wind projects in France and Moray East and Moray West in the UK. EDPR and ENGIE are also partners in 2 floating offshore wind projects in France and Portugal and in the Dunkerque offshore wind tender currently ongoing in France.

Ethiopia Rations Power, Suspends Electricity Exports

Due to a drop in water levels in Ethiopia, the country has started to ration electricity for domestic and industrial customers. Minister for Water and Electricity, Seleshi Bekele, said the drop in water levels at the country's Gibe 3 dam had led to a deficit of 476 MW. Speaking at a news conference, Seleshi said that the deficit was more than one-third of the country's electricity generation of 1,400 MW.

In addition to rationing domestic supplies, Ethiopia has also suspended electricity exports to neighboring Djibouti and Sudan. The rationing program will run until July.

Power Africa Supports 121 Power Generation Projects

The US' Power Africa Initiative is currently supporting 121 power generation projects, with a total capacity of 10,000 MW. This support is provided by technical and financial experts who have brought their experience to mobilize the necessary funds for these various initiatives.

A total of 160 institutional and individual partners are involved in this project, which was launched in 2015. These include US government agencies, the African Development Bank and the United States, United Kingdom, France, Japan, Korea, Israel and Sweden, to name a few.

"Our role, as we see it, is to support the private sector in removing the various barriers to electrification. One of our recent successes has been to bring energy to 500,000 people in Nigeria for the first time," said Andrew Herscowitz, the project coordinator.

Launched in 2015, Power Africa aims to facilitate the installation of 30,000 MW of new power plants on the continent, by 2030, reaching 300 million people.

Geothermal for Ethiopia

Reykjavik Geothermal will undertake a geothermal energy project in Ethiopia. The company is about to start drilling in the localities of Corbetti and Tulu Moye.

The two power plants are planned to be located in these zones, each will have a capacity of 500 MW, which will make the company the leader in the geothermal energy sub-sector in the country. The first phase of these projects will allow the installation of 50 to 60 MW of capacity on each site. It will cost $175 million per site, which has already been mobilized by the RG and its partners.

ExxonMobil Partners with NREL and Others to Advance Energy Technologies

The US' National Renewable Energy Laboratory (NREL) and ExxonMobil have partnered up. The two signed a $100 million agreement that has ExxonMobil funding the partnership with NREL, the National Energy Technology Laboratory (NETL), and other US Department of Energy laboratories over a 10-year span.

The partnership will focus on "developing transformative advanced energy technologies with a focus on reducing emissions," NREL director Martin Keller said. Keller further added, "What excites me is that there are different mindsets coming together and, in my view, the breeding ground of tremendous breakthrough ideas."

ExxonMobil's commitment is "the largest single external investment in research at NREL in the laboratory's history."

The agreement will foster research collaboration on projects with the potential to move beyond the laboratory, improving energy efficiency and reducing emissions on a global scale.

"The partnership with the national labs really goes back to the fundamental challenge that we're facing as a society, which is: How do you provide scalable energy to 9 billion people while addressing the risks of climate change?" said Vijay Swarup, vice president of research and development at ExxonMobil Research and Engineering Company.

Sharm El Sheikh's First Solar Plant Commissioned

Schneider Electric commissioned the very first solar power plant in the Egyptian Red Sea town of Sharm el Sheikh. The plant has a capacity of 5 MW. The company worked on the project with Intro Energy and Gila AlTawakol Electric, local companies that act as lead developer, site layout manager and co-developer respectively. Schneider is involved in this project as a technical partner. Expansion work is already underway to increase the capacity of the Sharm el Sheikh solar park to 40 MW.

Source: Gila Altawakol Electric

The entire installation will operate with a digital management solution from Schneider Electric, including "EcoStruxure". It is an open, interoperable, ready-to-use and IoT compatible architecture and platform that optimizes carbon footprint by up to 50% and engineering costs and lead times by up to 80%.

Aggreko Installs Power Plant in Burkina Faso

In Burkina Faso, power generation is being boosted by an additional 50 MW provided by a temporary plant installed by Aggreko. The establishment of the temporary power plant came at cost of about $90 million.

In addition to this additional solution, the country has started construction of a 50 MW power plant in Kossodo and a 150 MW power plant in Ouaga East.

Transcorp Wins Bid for Afam Power Plant

Transcorp, owned by Nigerian businessman Tony Elumelu, was successful with its offer for Afam, which operates a natural-gas fired power plant in Nigeria's southern Rivers state. Elumelu said in a statement that he plans to invest as much as $2.5 billion in power projects in Nigeria.

Nigeria broke up its state-owned power monopoly in 2013 and began selling distribution units and the hydro- and natural gas-powered plants it ran to attract investment needed to expand supplies. Companies including Transcorp, Korea National Electric Co. and Forte Oil Plc have paid more than $3 billion for controlling interests in 15 power generators and distributors.

Namibia to Get Floating Solar Plant

In Namibia, independent power producer Droege Energy will establish a floating solar power plant on Lake Malawi. The solar plant, which will have a capacity of 20 MW, will be the first of its kind in the country.

Droege also signed a contract to buy production from a wind farm. The Mphamvu Mzimba wind farm will have a capacity of 50 MW.

These projects are part of the 14 power purchase agreements signed by Namibia's Electrical Regulatory Authority to increase the country's power generation capacity.

In total, the national power sector has 20 contracts with independent generators that will build plants with a combined capacity of 367 MW.

Total Starts Solar Production in Japan

French oil firm Total started commercial operations at its 25 MW-peak solar power plant in Miyako, Japan. Miyako is located on Japan's Honshu Island. The plant was completed two years after construction began and will produce enough energy to power over 8,000 Japanese households.

"We are proud of the successful start-up of our second solar power plant in Japan. The success of the Miyako project is fully in line with our ambition to develop low-carbon electricity worldwide," said Julien Pouget, senior VP Renewables at Total.

The solar power plant is designed to fully meet Japan's stringent earthquake-resistant building standards. The facility is operated with nearly 77,000 high-efficiency SunPower solar panels, ensuring the highest performance in difficult weather conditions, including snow and low temperatures. The plant is connected to the electricity distribution grid to supply energy through the regional utility company.

FACTS AND FIGURES

African Rig Count

Country	2019		
	March	April	May
Algeria	52	52	51
Angola	5	5	5
Benin	0	0	0
Cameroon	2	2	2
Chad	7	7	7
Congo	3	3	3
Congo (DRC)	1	1	1
Cote D'Ivoire	1	1	1
Djibouti	2	2	2
Egypt	27	25	24
Equatorial Guinea	0	0	0
Ethiopia	2	2	2
Gabon	7	7	6
Ghana	3	3	3
Guinea	0	0	0
Kenya	8	8	7
Liberia	0	0	0
Libya	15	15	15
Mauritania	0	0	0
Morocco	1	1	1
Mozambique	0	0	0
Namibia	0	0	0
Niger	1	1	1
Nigeria	14	14	14
Senegal	0	0	0
Sierra Leone	0	0	0
South Africa	1	0	0
Sudan*	0	0	0
Tanzania	0	0	0
Togo	0	0	0
Tunisia	2	2	2
Uganda	0	0	0

*Data not available

Source: BHGE

World Oil Production
(million barrels per day)

Country	2019		
	February	March	April
Americas	23.47	24.01	23.76
Canada	5.14	5.28	4.93
Chile	0.01	0.01	0.01
Mexico	1.93	1.94	1.93
United States	16.38	16.78	16.89
Asia Oceania	0.48	0.46	0.47
Australia	0.41	0.4	0.4
Others	0.06	0.06	0.06
Europe	3.53	3.45	3.38
Norway	1.82	1.78	1.73
UK	1.2	1.18	1.17
Others	0.51	0.49	0.48
Total OECD	27.48	27.93	27.61
Total Non OECD	31.43	31.36	31.05

Source: IEA Oil Market Report

Africa Production of Crude Oil
(including Lease Condensate, Thousand Barrels/Day)

Country	2019		
	February	March	April
Algeria	1026	1019	1013
Angola	1448	1454	1413
Cameroon	79	76	75
Chad	103	108	111
Congo (Brazzaville)	321	344	335
Congo (Kinshasa)	20	20	19
Cote d'Ivoire (Ivory Coast)	28	28	27
Egypt	639	650	650
Equatorial Guinea	121	120	110
Gabon	185	211	186
Ghana	125	122	124
Libya	902	1105	1176
Mauritania	0	0	0
Morocco	0.5	0.5	0.5
Niger	20	20	20
Nigeria	1723	1728	1819
South Africa	3	3	2.5
Sudan and South Sudan	177	180	188
Tunisia	48	48	49
Total Africa	6968.5	7236.5	7318

Various sources including EIA, IEA and OPEC

OPEC Oil Production
(Thousand Barrels/Day*)

Country	2019		
	February	March	April
Algeria	1026	1019	1013
Angola	1448	1454	1413
Congo	321	344	335
Ecuador	524	528	528
Equatorial Guinea	121	120	110
Gabon	204	211	186
Iran, I.R.	2726	2718	2554
Iraq	4647	4517	4630
Kuwait	2709	2707	2697
Libya	902	1105	1176
Nigeria	1723	1728	1819
Saudi Arabia	10118	9787	9742
UAE	3068	3057	3060
Venezuela	1021	740	768
TOTAL OPEC	30558	30034	30031
OPEC exluding Iraq	25911	25534	25531

Source: OPEC

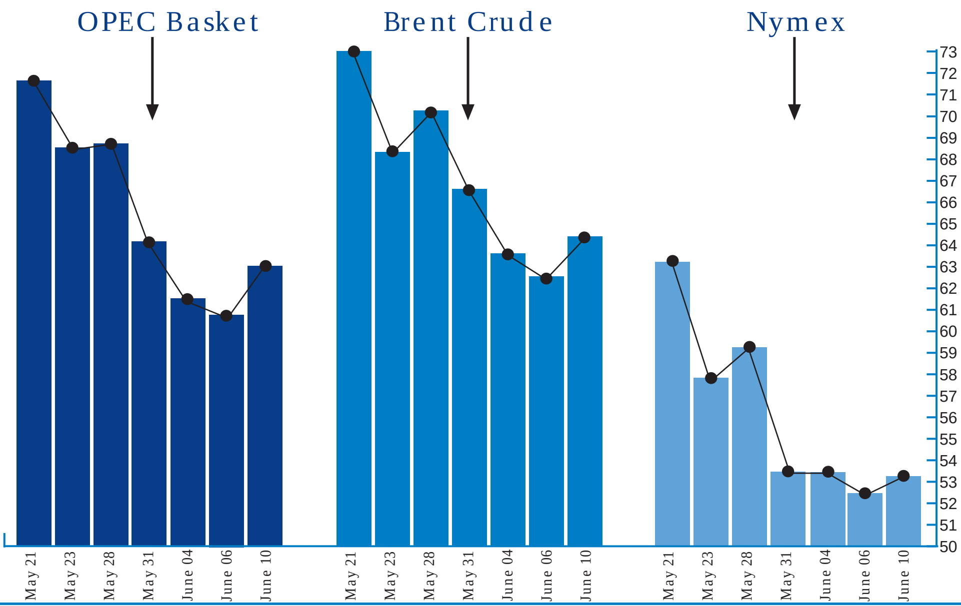
* *Based on secondary sources*

International Rig Counts

AREA	Last Count	Count	Change From Prior Count	Date of Prior Count	Change from Last Year	Date of Last Year's Count
US	June 7, 2019	975	-9	May 31, 2019	-87	June 8, 2018
CANADA	June 7, 2019	103	18	May 31, 2019	-9	June 8, 2018
INTERNATIONAL	May, 2019	1,126	64	April, 2019	159	May, 2018

Oil Prices

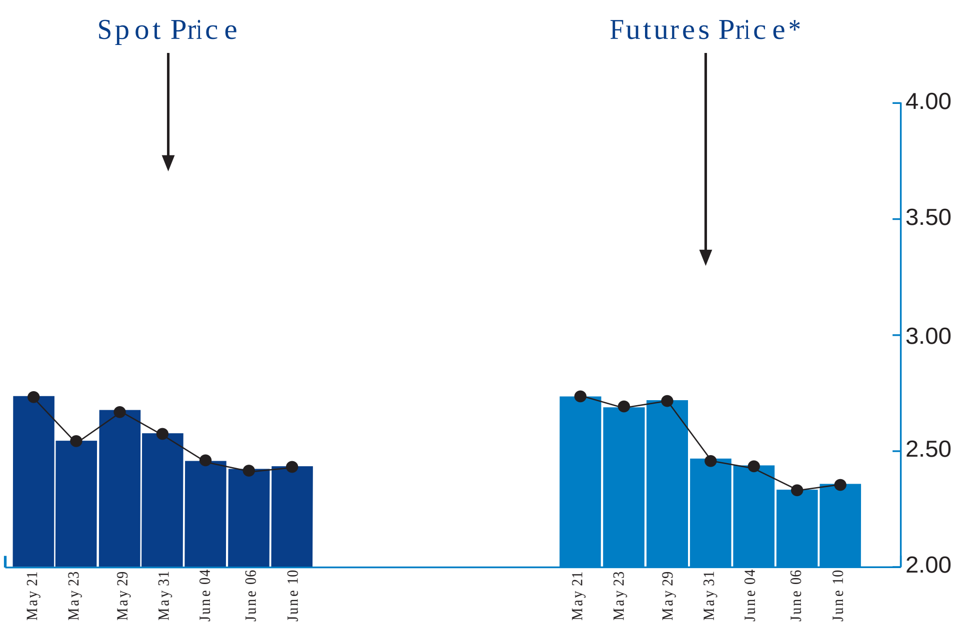
May 21	$
OPEC Basket	71.71
Brent Crude	72.94
Nymex	63.13
May 23	
OPEC Basket	68.56
Brent Crude	68.37
Nymex	57.91
May 28	
OPEC Basket	68.84
Brent Crude	70.19
Nymex	59.14
May 31	
OPEC Basket	64.15
Brent Crude	66.78
Nymex	53.50
June 04	
OPEC Basket	61.63
Brent Crude	63.56
Nymex	53.48
June 06	
OPEC Basket	60.88
Brent Crude	62.77
Nymex	52.59
June 10	
OPEC Basket	63.01
Brent Crude	64.31
Nymex	53.26



Gas Prices

May 21	$
Henry Hub	2.73
New York	2.64
May 23	
Henry Hub	2.56
New York	2.59
May 29	
Henry Hub	2.69
New York	2.62
May 31	
Henry Hub	2.59
New York	2.46
June 04	
Henry Hub	2.45
New York	2.41
June 06	
Henry Hub	2.40
New York	2.32
June 10	
Henry Hub	2.42
New York	2.35

Dollars per BTU



Data compiled by Petroleum Africa from various sources including OPEC, EIA and others

CONFERENCES

JUNE 2019			
4-5	Offshore Well Intervention – West Africa	Accra, Ghana	www.bit.ly
4-6	Angola Oil & Gas 2019	Luanda, Angola	www.africaoilandpower.com
11-13	17th Edition SIEPA – Senegal 2019	Dakar, Senegal	www.ametrade.org
11-13	17th African Energy and Petroleum Summit (SIEPA)	Dakar, Senegal	www.ametrade.org
17-17	London Investor Forum 2019	London, UK	www.africaoilandpower.com
18-20	5th Annual Upstream West Africa 2019	Dakar, Senegal	www.upstreamwestafrica.com
JULY 2019			
1-4	Nigeria Oil & Gas 2019	Abuja, Nigeria	www.cwcnog.com
OCTOBER 2019			
1-3	Congo International Oil & Conference and Exhibition (CIEHC 2019)	Brazzaville, Congo	www.ametrade.org
7-9	Offshore Energy Exhibition & Conference	Amsterdam, The Netherlands	www.offshore-energy.biz
9-11	AOP 2019 (Africa Oil & Power)	Cape Town, South Africa	www.africaoilandpower.com
10-11	3rd Africa Oil & Gas Local Content & Sustainability Summit	Accra, Ghana	www.ametrade.org
15-17	MOC 2019 (Mediterranean Offshore Conference & Exhibition)	Alexandria, Egypt	www.moc-egypt.com
29-31	5th Annual Southern Africa Power Summit 2019	Cape Town, South Africa	www.ssapower.com
NOVEMBER 2019			
11-14	ADIPEC 2019	Abu Dhabi, UAR	www.adipec.com
26-27	GECF 5th Gas Summit	Malabo, Equatorial Guinea	www.yearofenergy2019.com
DECEMBER 2019			
4-5	Oil & Gas Non-Metallics 2019	London, UK	www.ami.international
10-11	BBTC MENA 2019 – Bottom of the Barrel Technology Conference	Bahrain	www.bbtc-mena.biz
10-12	9th Middle East Artificial Lift Forum (MEALF 2019)	Muscat, Oman	www.mealf.net
MARCH 2020			
15-17	NAPEC - North Africa Petroleum Exhibition & Conference	Oran, Algeria	www.napec-dz.com

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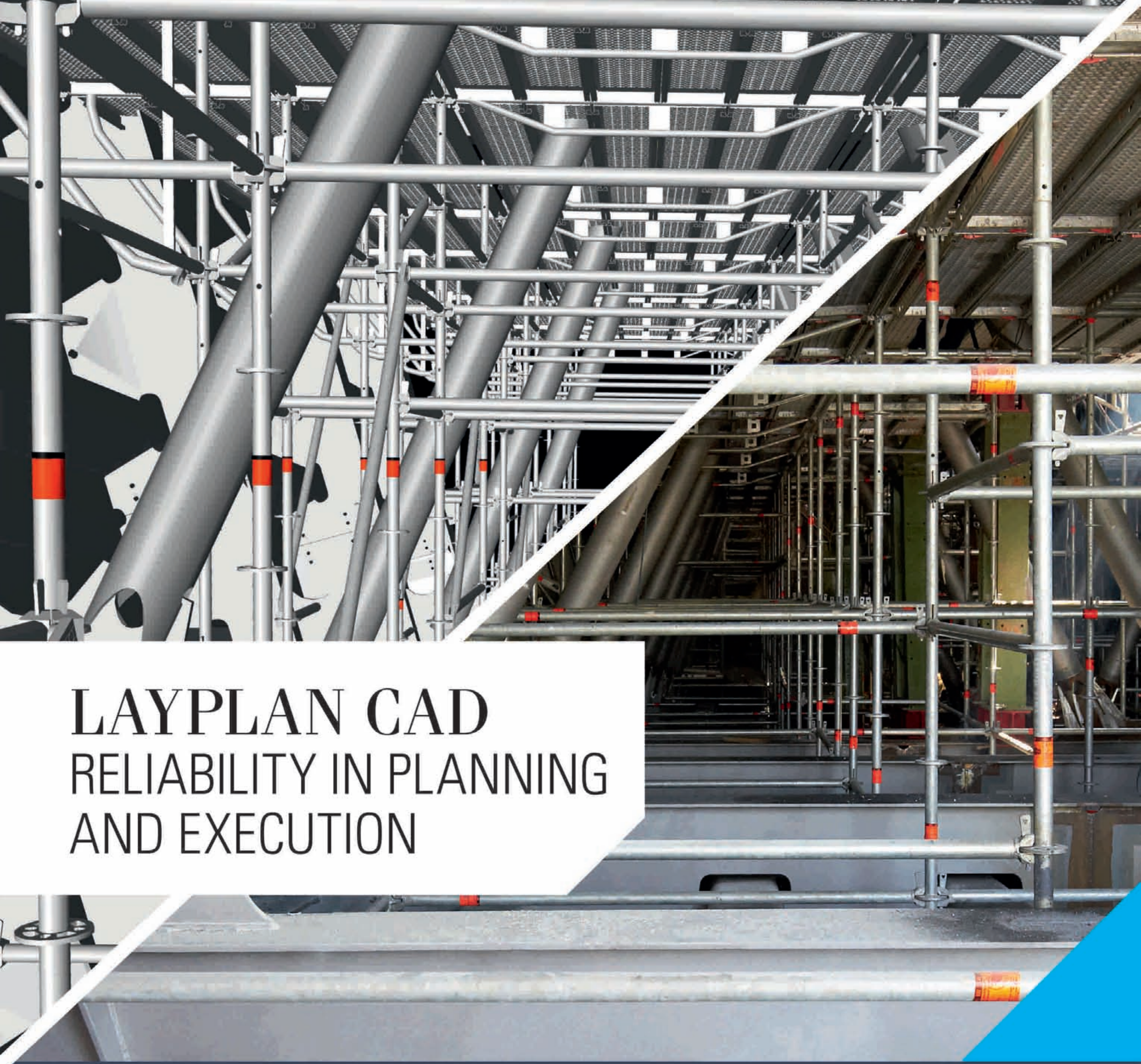

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