



AN OVERVIEW OF EGYPT'S PETROLEUM PRODUCTION IN 2018







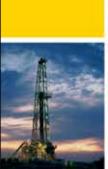
INNOVATION

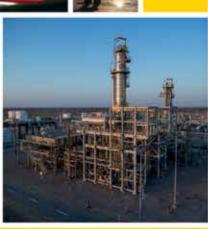
www.shell.com/innovation

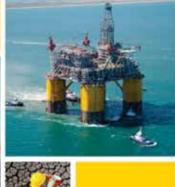
































Proserv. is one of the leading petroleum services companies that professionally maintains joint efforts and facilities to oil and natural gas companies and provides high quality business services.

UPSTREAM



Specialized in providing manpower and payroll services through competent professionals for both off shore / on shore rigs and office staff, in addition to a wide range of other services, including:

- Rig Man-up
- Oil & Gas Training
- Expats Work Permits
- Engineering & Inspection
- General Procurement

MIDSTREAM



Our JV partner owns the biggest refinery in the world, and since the oil production process will be end to end, our plant will meet its market needs and quality standards.

DOWNSTREAM



We established a JV with one of the leading integrated companies in the energy sector, involved in refining,4 lubricant blending, storage, aviation and retail.

LOGISTICS



Supporting Proserv. business lines through efficiently managing warehouses' facilities all over Egyptian provinces. Maintaining and coordinating fleet movement and ensuring safety measures by following international HSE standards and procedures.

9 B, Road 199., Degla, Maadi - Cairo, Egypt T. +2 (02) 251 66 380 / +2 (02) 251 77 045 +2 (02) 251 90 702 / +2 (02) 251 99 123

+2 (02) 251 66 386 M. +2 012 811 16 565

Email: info@proservholding.com

265 BD Zerktouni C/O Busines Connecting Networking - Casablanca - Morocco

108, Hookham Frere ST., G'Mangia PTA

Office No. 1304 Regal Tower Business Bay Office, PO Box 30280, UAE

Laban District, PO Box 55375 Riyadh 11534, KSA

EDITOR'S LETTER

Egypt holds one of the largest proven hydrocarbon reserves in Africa and is a strategic point of interest in the international energy market. Since 2016, the country's oil and gas sector has undergone a full transformation through the Ministry of Petroleum and Mineral Resources' Modernization Project. The sector's modernization looks at achieving a comprehensive development and change in the sector's whole value chain.

In February, the country hosts the third edition of the Egypt Petroleum Show (EGYPS 2019), the largest oil and gas event in North Africa, and brings not only its own oil and gas sector, but the whole region's sector under the spotlight. EGYPS is an opportunity to learn more about Egypt's position in the international market and be part of the sector's growth.

In this context, in this issue we highlight Egypt's position in Africa in an article comparing the Arab Republic to other major natural gas producers in the continent. Our Research & Analysis division has also contributed with a report on Egypt's petroleum production in 2018.

With this issue, you will find a special supplement prepared in cooperation with Egypt's Ministry of Petroleum and Mineral Resources. The supplement brings you a full picture of the ministry's Modernization Project, from its idealization to implementation, and its seven pillars. In the supplement, you can also find a collective interview with young professionals participating in the modernization of the oil and gas sector.

As always, thank you for your support and readership. We hope this issue brings you valuable insights.

Editor in Chief

msomensi@egyptoil-gas.com

INSIDE THIS ISSUE _



- P.16 -

EGYPT'S PLACE IN AFRICA'S NATURAL GAS **SCENE**

Editor in Chief

MARIANA SOMENSI Managing Editor

MOSLEM ALI

Senior Editor

MAI ELGABRY

Editors

DINA FI -BEHIRY

MAI EL GHANDOUR

Senior Writer

SARAH SAMIR

Research & Analysis Manager

MAHINAZ EL BAZ

Research Analysts

AMINA HUSSEIN

REHAM GAMAL

Junior Research Analysts

TASNEEM MADI

Chief Reporter

WAEL EL-SERAG

Market Researcher

HAGER MAGDY

Business Development Director

AYMAN RADY

Creative Art Director

OMAR GHAZAL

Art Director

MAGED KHATTAB

Graphic Designers

MARIAN WAEL

YASMEEN MEGAHED

3D Visualizers MINA BOUSHRA

MONA ASHRY

Photographer

AMIR WILLIAM

Operations & Financial M.

ABDALLAH ELGOHARY Marketing Executive **MENNA MOHY**

> Web Master **OLFAT KAMEL**

Administration

TAGHREED MOUNIR Accountants **MAHMOUD KHALIL** MOHAMED NAGY Production Advisor **MOHAMED TANTAWY** Legal Advisor

MOHAMED IBRAHIM

Distribution Officers

MAHSOUB KENZI

MOHAMED EL-SAYED **MAHMOUD NABIL**

-P.18-

AN OVERVIEW OF EGYPT'S PETROLEUM PRODUCTION IN 2018



- P.20 -

AN INTERVIEW WITH REBECCA HEWLETT, XODUS GROUP'S LONDON OPERATIONS DIRECTOR

– P.22 –

HOW MACHINE LEARNING AND AI INDUSTRY INITIATIVES ARE SHAPING THE OIL AND GAS INDUSTRY



- P.24 -

NOV EXPANDS FOOTPRINT IN EGYPT WITH NEW **BUSINESS UNIT**

P.27 -

EXPLORING FRONTIER BASINS IN UPPER EGYPT





Egypt's Leading Oil And Gas Monthly Publication

PROUDLY THE OFFICIAL PUBLICATION



13D Sherif Salama Street - Lasilky Division - New Maadi, Cairo, Egypt

PUBLISHER MOHAMED FOUAD

This publication was founded by MOHAMED FOUAD AND OMAR DONIA. All rights to editorial matters in the newspaper are reserved by Egypt Oil and Gas and no article may be reproduced or transmitted in whole or in part by any means without prior written permission from the publisher.

(+20) 2 25164776 (+20) 2 25172052

(+20) 2 27547569



info@egyptoil-gas.com

(+20) 2 25172053



www.egyptoil-gas.com



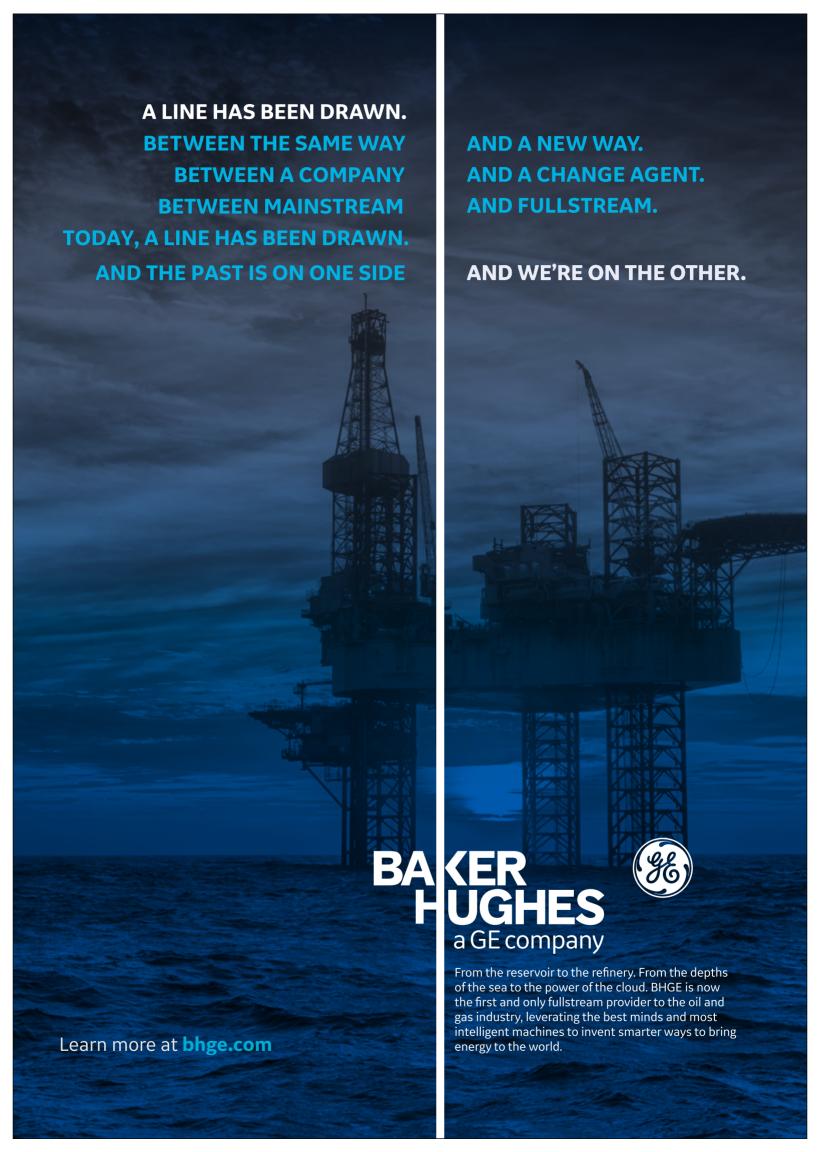




/EgyptOilandGas

/EgyptOilandGas

/EgyptOilandGas



9.5 M HOUSEHOLDS LINKED TO GAS GRID: EL MOLLA

Egypt has been working on linking households to natural gas grid in 2018 at an unprecedented rate, boosting the total households linked to the grid to 9.5 million residential units. The figures were revealed by Minister of Petroleum Tarek El Molla during his visit to Aswan to follow

up on several projects. Local authorities have been working on facilitating monthly payments to EGP 30 to be installed over six years, El Molla said. Linking households to the national gas grid started in Aswan in 2009, said Wael Gowaved, Head of Egypt Gas.

EGAS TO INCREASE GAS OUTPUT BY 1.5 **BCF/D IN 2019**

The Egyptian Natural Gas Holding Company (EGAS) plans to add 1.5 billion cubic feet per day (bcf/d) to the national gas grid in 2019, through executing development projects in Zohr gas field, North Alexandria, and 9B phase of Western Burullus. EGAS targets boosting

total natural gas output to around 7 bcf/d by the end of 2019. The firm is working in cooperation with international oil companies (IOCs) to develop mega natural gas projects in the Mediterranean Sea and the Nile Delta fields, aiming to boost output to 8 bcf/d by 2021.

EGYPT SIGNS 12 AGREEMENTS WITH IOCS IN 2018: EL MOLLA

Egypt signed over 12 exploration and production (E&P) agreements with international oil companies (IOCs) during 2018, Minister of Petroleum Tarek El Molla said. Egypt launched two E&P bid rounds for the Egyptian Natural Gas Holding Company (EGAS) and the Egyptian General Petroleum Corporation (EGPC),

as the minister noted. Egypt will launch a third tender soon, according to the minister. The minister's comments came during a phone interview with Ten TV channel. Upon launching the first phase of Zohr field, natural gas production increased by 6 times, helping Egypt achieve self-sufficiency in September 2018, El Molla pointed out.

ELECTRICITY DEBTS TO PETROLEUM SECTOR REACH EGP 150 B

The Ministry of Electricity and Renewable Energy's debts to the Egyptian General Petroleum Corporation (EGPC) reached EGP 150 billion at the end of November 2018. The Egyptian Electricity Holding Company (EEHC) pays between EGP 8 billion and EGP 10 billion annually in

exchange for fuel consumption in electric power plants. The paid amount is low compared to the arrears owned to EGPC, the sources pointed out. EEHC increased the amounts paid annually starting 2019 not to be less than EGP 15 billion per year, in order for EGPC to be able to provide demands.

EGYPT PAYS \$450 M FOR FUEL **MONTHLY IMPORTS**

Egypt pays around \$450 million per month for fuel imports in order to cover local demand. Benzene, diesel and butane are the most imported petroleum products. The imported fuel will be decreased during 2019 as new refining units and the Egyptian Refining Company will be

operating. Meanwhile, Egypt's crude oil and condensates production rose to 660,000 barrels per day (b/d). The increase in production and the rehabilitation of refineries will enable the sector to reach self-sufficiency of petroleum products as Egypt will only need to import crude oil.

EGYPTIAN BUTANE IMPORTS PLUNGE BY 40.34% YOY

Egyptian butane imports decreased by 40.34% year-on-year (YOY) reaching 126,000 tons in October 2018, compared to 211,200 in October 2017. Statistics published by the Central Agency for Public Mobilization and Statistics (CAPMAS) reveal that butane consumption fell by 10.3% YOY, falling to 306,000 tons in October 2018 from 341,200 tons in the

same month of 2017. Meanwhile, the country's butane output increased by 5.3%, producing 143,000 in October 2018 compared to 135,800 in the October a year earlier. Egypt's monthly butane imports rose by 11.5% from the 113,000 tons of butane imported in September.

EGYPT'S NATURAL GAS OUTPUT **INCREASES 27.7% YOY**

Egypt's natural gas output increased by 27.7% year-on-year (YOY) to reach 4.176 million tons in October 2018, up from 3.27 million tons in October 2017. The monthly bulletin published by the Central Agency for Public Mobilization and Statistics (CAPMAS) reveals that

Egypt's consumption of natural gas grew by 5.5% YOY to reach 3.904 million tons in October 2018, up from the 3.7 million tons consumed in the same month a year earlier. Monthly figures show that Egypt's natural gas production grew by 0.41% in October 2018, up from the 4.159 million tons produced in September 2018.

PETROLEUM PRODUCTS **CONSUMPTION FALL BY 7.4% YOY**

Egypt's consumption of petroleum products dropped by around 7.4% year-on-year (YOY) in October 2018 to 2.749 million tons, compared to 2.969 million tons in October 2017. Statistics published by the Central Agency for Public Mobilization and Statistics (CAPMAS) show that petroleum product's output slightly dropped by 0.07% from 2.818 million tons in October 2017, to 2.816 million tons in the same month of 2018. Egypt's consumption of petroleum products increased by around 6.34% month-on-month, down from the 2.585 million tons produced in September

EGYPT TARGETS INCREASING **REFINERIES PRODUCTION BY 5 M TONS**

Egypt targets increasing refineries' production by 5 million tons in 2019. The planned increase comes to cover growing fuel demands in light of recent industrial and electricity projects that depend on fuel, in addition to the growing market demand of benzene, diesel and butane.

Current production of refineries is almost 38 million tons per year, which covers between 50% and 70% of the local market's demands of different fuels. Egypt is conducting several expansion projects in its refineries, for which the investments will exceed \$8 billion.

PETROLEUM MINISTRY PAYS \$18 M/YEAR FOR RENTING BW GAS **REGASIFICATION UNIT**

The Ministry of Petroleum (MoP) pays around \$18 million per year to Norwegian-Singaporean BW Gas Solutions Company for renting the floating storage regasification unit (FSRU) located in Egypt's Arab Petroleum Pipelines Company (SUMED)'s port in Ain Sokhna. The FSRU, which is not working at the moment, has a liquefied natural gas (LNG) cargo ready to be pumped into the national gas grid when necessary as a backup to securing the local market's demands. BW Gas' FSRU's contract was not terminated in case of emergencies, allowing maneuvering in supplying gas and securing any amounts needed in the market.

EGYPT DIESEL PRODUCTION FALLS 5.96% IN YOY

Egypt's diesel output fell by 5.96% yearon-year (YOY) in October 2018 recording 552.000. down from 587.000 tons in September 2017. Statistics published by the Central Agency for Public Mobilization and Statistics (CAPMAS) revealed that the country's diesel consumption decreased 4.82% in October 2018 reaching 1.145 million tons, compared to 1.203 million tons in the same month of the previous year. Monthly figures show that diesel consumption grew by 5.24% from the 1.088 million tons consumed during August 2018, while production rate stayed the same in the two months.

EGYPT HAS 19,000 NEW GAS-POWERED **VEHICLES IN 2018**

Egypt started running 19,000 vehicles with natural gas in 2018. The number of cars converted to natural gas reached 256,000 vehicles since the start of the conversion activities. The initiative will decrease benzene and diesel import bills and eventually decrease fuel subsidies allocations during the upcoming years,

as citizens gradually shift to gas-powered cars. Egypt's natural gas production was increased to exceed 6.6 billion cubic feet per day (bcf/d).



GPC SEEKS EGP 2.4 B BANKING **FINANCE**

The General Petroleum Company (GPC) has started negotiating with a number of banks to obtain a EGP 2.4 billion finance. During Q4 2017, GPC obtained around EGP 2.3 billion from a banking consortium including the National Bank of Egypt (NBE), Banque Misr, Union National

Bank-Egypt (UNB), and EG Bank. The fund was targeted at the company's expansion projects, including 16 new onshore and offshore wells and two offshore platforms. in addition to covering some finance needs. This covers around 85% to 90% of the company's expansion investment

EGYPT TALKS \$500 M WITH HSBC

HSBC Egypt agreed to be the financial consultant to secure a \$500 million loan to finance the imports of the market's demands of diesel, benzene and mazut, in addition to paying a part of arrears to international oil companies (IOCs). The bank will cooperate with HSBC LIAF to market and collect the fund from

banks working in the Gulf. The loan will arrange the Egyptian General Petroleum Corporation (EGPC)'s owned crude oil cargoes as guarantees. The loan tenor will be for five years. Since the floatation of the Egyptian pound in November 2016, EGPC is depending on international banks and its branches in Egypt to secure most of its financial needs

EGYPT, ARAMCO TO COMPLETE **MAZUT STORAGE UNITS IN MARCH: EL MOLLA**

The Egyptian Ministry of Petroleum and Saudi Aramco are working to construct several mazut storage warehouses by March 2019, Minister of Petroleum Tarek El Molla said. The joint project will enable other companies to store petroleum products in warehouses. Egypt will also

increase the number of diesel storage warehouses in the Sidi Kerir area in cooperation with Aramco, the minister added. The minister's comments came during a meeting with the ministry's undersecretaries and chairmen of holding companies at the end of 2018.

ZOHR PRODUCTION TO REACH 3 BCF/D OF GAS IN 2019

Egypt's Zohr natural gas field is expected to produce 3 billion cubic feet per day (bcf/d) by the end of 2019, spokesman for the Ministry of Petroleum (MoP), Hamdy Abdel Aziz said. The field's original development plan projected a maximum capacity of 2.7 bcf/d, making the spokesman's latest statement

a significant revision from original estimates. Operating company Eni expects to reach several important milestones in 2019. The company's drilling of the tenth well is expected to produce around 200 million standard cubic feet per day (mscf/d), a source revealed in December.

EGYPT PAYS \$3.1/MTU FOR GAS FROM NORTH ALEXANDRIA, WDDM FIELDS

The Egyptian General Petroleum Corporation (EGPC) pays \$3.1 per 1 million thermal unit (mtu) of natural gas from the North Alexandria project and West Delta Deep Marine (WDDM). The price was

affected by the decrease in the price of Brent crude, which recently reached \$53 per barrel. Egypt buys natural gas shares of international oil companies (IOCs) in natural gas concessions in order to cover local market's demands.

PETROGAS TO FILL 308 BUTANE **CYLINDERS IN FY 2019/20**

Petroleum Gas Company (Petrogas) plans to fill 3.9 million tons, equivalent to 308 butane cylinders in fiscal year (FY) 2019/20 to cover local market's demands, said Adel Al Shuwaikh, head of the company. The company plans to keep, develop, and increase the efficiency of productive assets, in addition to conducting rehabilitation and renewal processes on the equipment of the health, safety and

environment (HSE) systems, Al Shuwaikh added. Al Shuwaikh's comments came during the general assembly chaired by Minister of Petroleum Tarek El Molla to review the company's budget plans for FY 2019/20. Petrogas's suggested investment plan includes several projects that aim to boost production lines, including a project to develop cylinders for filling.

EGYPT ADDS 240,000 B/D OF CRUDE **OIL IN 2018**

The Egyptian oil and gas sector added 240,000 barrels per day (b/d) of crude oil to production in 2018. Around 100,000 b/d of crude were added to production through production enhancement activities, and 27,000 b/d were added through newly-discovered oil fields that started production in 2018. Egypt added

113,000 b/d of crude oil to production due to development wells, of which the oil and gas sector plans to double production capacities. Egypt currently produces around 660,000 b/d of crude oil and condensates, which are pumped into local refineries to extract petroleum products to cover local market's

CORC TO REFINE 7.8 M TONS OF PETROLEUM IN FY 2019/20

Cairo Oil Refining Company (CORC) plans to refine 7.8 million tons per year of petroleum during fiscal year (FY) 2019/20, said Gaber Hassan, head of the company. The 7.8 million tons will be refined at the Mostorod and Tanta refineries, and will include 750,000 tons belonging to Egyptian Refining Company (ERC), Hassan noted. Hassan's comments came

during the general assembly chaired by Minister of Petroleum Tarek Fl Molla to review the company's budget plans for FY 2019/20. CORC will refine the amount to produce 82 000 tons of butane: 183 000 tons of naphtha; around 1.2 million tons of different types of benzene; 1.2 million tons of diesel; and 3.6 million tons of

SOPC TO PRODUCE 2 M TONS OF PETROLEUM PRODUCTS IN FY 2019/20

Suez Oil Processing Company (SOPC) plans to produce 2 million tons per year of different petroleum products in fiscal year (FY) 2019/20, said Mohamed Eliwa, head of the company. The company will conduct a number of projects with investments around EGP 700 million, Eliwa stated. The plan includes a rehabilitation program for the coking complex and the butane producing unit, which aims to secure high-quality petroleum products through boosting diesel and butane production capacity, he added. The company will also establish an asphalt production plant and a boiler for producing the steam required for electricity and petroleum rationalization projects.

NPC TO PRODUCE 4 M TONS OF PETROLEUM PRODUCTS IN FY 2019/20

Nasr Petroleum Company (NPC) plans to produce 4 million tons per year of petroleum products during fiscal year (FY) 2019/20, said Nabil Fahmy, head of the company. The company will establish crude oil distillation apparatus with production capacity of 1.2 million

tons per year, Fahmy noted in the general assembly chaired by Minister of Petroleum Tarek El Molla, who reviewed the budget plans for FY 2019/20. NPC also plans to develop the health, safety and environment (HSE) systems, especially in terms of early alerts and automatic firefighting.

EGYPT TO INTRODUCE FUEL PRICING **MECHANISM ON 95-OCTANE IN APRIL**

Egypt will introduce an automatic price indexation mechanism on 95-octane benzene in April 2019. The new system. will allow the price of 95-octane to fluctuate according to international prices, but will price-cap changes at 10%.

"This does not mean an increase in price during the second quarter of this year," El Molla said, adding that "the price may fall or rise or stabilize at its current rate." The current price of 95-octane is EGP 7.75 per liter, and will be re-priced for the first time at the beginning of April.

AMOC TO DELAY IPO: GOVERNMENT **OFFICIAL**

Alexandria Mineral Oils Company (AMOC) will delay its initial public offering (IPO) on the Egyptian Exchange Market (EGX) after the company posted lower-thanexpected profits. The IPO will take place once profits recover to the previous growth rates. AMOC's profits decreased by 37.13% during Q1 2018/19 to reach EGP 253.09 million, compared to EGP 402.6 million during the same period in FY 2017/18. The shareholders requested the company to postpone the offering over fears that the profit squeeze would hurt its share price



SAIPEM TO CONDUCT \$1.2 B WORTH EPCI PROJECT IN ZOHR

Saipem was in talks with Belayim Petroleum Company (Petrobel) in December over a \$1.2 B worth offshore contract addendum for an engineering. procurement, construction and installation (EPCI) project for Zohr field, which ramped up to plateau phase. According to the new addendum, work

will include installing infield clad lines, a second 30-inch diameter gas pipeline for exports, as well as umbilicals and electrical/fiber optic cables. The new addendum also includes EPCI work aimed for developing Zohr field up to 1.700 meters of 10 wells.

MARIDIVE PROFIT INCREASES BY 24.4% IN NINE MONTHS

Maridive Group's total financial statements revealed that the company's profit increased by 24.4% during the first nine months of 2018, compared to the previous year. The company's total profit reached \$18.28 million in the period from January to September 2018, compared to \$14.69 million profit achieved in the same period of 2017. Maridive Group,

established in 1978 in Port Said, is the largest company providing offshore marine and oil support services in Egypt. It is also the largest regionally in terms of fleet size. The group owns 59 marine units and service boats representing the largest integrated fleet operator for oil services in the region.

EGYPT PAYS \$35 M TO DANA GAS

Egypt paid an additional \$35 million to Dana Gas in late December as a part of its overdue, the company announced. Dana Gas further received \$9.3 million from the sale of 157,350 barrels of condensates from Egypt's El Wasatani field. The two payments were received in US dollars. The company received a total of \$199 million from Egypt during 2018, compared to \$164 million received in 2017, increasing by 21% year-on-year (YOY). Patrick Allman-Ward. Dana Gas CEO, said the payments enable the company to complete its final preparations to drill its first offshore deepwater exploration well in Block 6 at North El Arish Concession area by early in 2019.

ENI PAYS \$1 B OVER THREE YEARS FOR ZOHR DRILLING RIG RENTAL

Egypt paid a total of \$1 billion over three years for renting Saipem 10000 drilling rig, which is working in the Zohr natural gas field. Eni spent around \$1 million per day for renting the driller. Drilling one well in the Zohr field, in the Mediterranean deep water, requires around two months, the

source said, adding that the company is currently preparing to drill the tenth well. Eni aims to start drilling the tenth well in Zohr with a \$300 million cost, and with production capacity reaching 200 million standard cubic feet per day (mscf/d) in January 2019.

SHELL INCREASES IDKU LNG EXPORTS **TO 520 MSCF/D**

Egypt's liquefied natural gas (LNG) exports via the Idku liquefaction plant have increased by 73.3% since November to reach 520 million standard cubic feet per day (mscf/d). In November the plant operator Shell had increased LNG exports from the terminal to 300 mscf/d, up from 250 mscf/d in October. The exported LNG

comes from the production shares of Shell and Malaysia's Petronas, as well as Egypt's two main state-owned oil and gas firms. The Ministry of Petroleum plans to operate the Idku plant at maximum capacity in order to export LNG to global markets by fiscal year 2020/21.

BIDDERS TO OFFER \$2 B FOR EDISON E&P ASSETS

Apex International Energy and Neptune Energy are among companies considering bids to purchase up to \$2 billion of Edison's exploration and production (E&P) assets in Egypt and Italy. The auction may

include L1 Energy's DEA Deutsche Erdoel AG. Edison parent company EDF is selling oil and gas assets to increase investment in its nuclear and renewable energy arms.

SDX ENERGY ANNOUNCES OPERATIONAL UPDATES IN EGYPT

SDX Energy Corporation announced operational updates in its Egyptian operated wells. The SRM-3 well is located in South Ramadan. The well reached a 15.635-feet depth, encountering around 75 feet of net conventional oil pay in its Matulla section, in addition to 20 feet of the new conventional oil pay in the brown limestone formation and around 15 feet in the Sudr section. Meanwhile, the development lease application that was submitted by SDX Energy and its partner for the South Discoug concession has been approved by authorities and construction of the central facility and pipeline have started.

ENI INVESTS \$13 B IN EGYPT OVER **THREE YEARS**

Italian Eni invested \$13 billion in Egypt over the past three years as Egypt comes ahead of the countries in which the company is interested to invest in said Claudio Descalzi, Eni CEO. This comes during Descalzi's meeting with the Egyptian Prime Minister Mostafa Madbouly. The meeting also was attended by Minister of Petroleum Tarek El Molla and a delegation from Eni.

DANA GAS TO INVEST \$5 B IN EGYPT

Dana Gas plans to increase its investments in Egypt to \$5 billion in the upcoming years. The company's investments in Egypt reached around \$2 billion since 2007, and the company ranks the fifth position in natural gas discoveries. During the Davos World Economic Conference in Switzerland, where the Prime Minister Moustafa

Madboly met Dana Gas CFO Patrik Word. the company praised the superior efforts that the Egyptian government is exerting to reduce arrears to international oil companies (IOCs). From his part, Madboly confirmed providing Dana Gas with all the needed support to help increase its investments in Egypt.

EL SISI PRAISES ENI BUSINESS IN **EGYPT**

The Egyptian President Abdel Fattah El Sisi met with Eni's CEO, Claudio Descalzi, as a regular follow up on the updates of Eni's work in Egypt. El Sisi praised Eni's efforts which contribute to the best use of Egypt's natural gas resources, in addition to the professionalism and the global standards that Eni follows in

conducting its activities in Egypt. Egypt is looking forward to boosting cooperation with Eni to achieve growth for the two sides, El Sisi noted, urging the ministry of petroleum to cooperate with Eni and ease any obstacles facing the company's work.

EDT OFFSHORE TO INVEST IN EGYPT'S **DAMIETTA PORT**

EDT Offshore, a logistic support provider in the exploration and production (E&P) field, is studying Egypt's Damietta Port to invest in it. A delegation from the company met with Tarek Shahin, Damietta Port Authority's Chairperson, in order to discuss cooperation between the two sides and to study investment

opportunities in the port. The company showed interest in investment opportunities in oil and gas power-ships due to the ports' location near natural gas fields. EDT made a presentation of its work fields and the markets it targets, as well as its different activities across the world.

PETROBEL AWARDS RIG CONTRACTOR TO SHELF DRILLING

Belayim Petroleum Company (Petrobel) awarded a contract for one of Shelf Drilling's jack-up rigs to operate in the Gulf of Suez. The one-year contract of the Trident 16 jack-up drilling rig is planned to start operating in Q1 2019. The contract contains in agreeable terms for both firms. The Modec 300

C-38 Trident 16 jack-up rig has been built in 1982 and was last upgraded in 2012. Shelf Drilling Offshore Company is the world's largest contractor of jack-up rigs. The company is headquartered in Dubai and has rig operations across core operating regions - Southeast Asia, India, West Africa, Middle East, North Africa, and the Mediterranean



WHEN EVERY DEGREE COUNTS, THERMOSAFE YOUR ASSETS TO THE EXTREME.

VISIT US AT EGYPS 2019 STAND 2B70 HALL 2



Applied **Performance**

The coatings in the Thermosafe range are proven to enhance overall operational efficiency and on-site safety, in the extreme environments of onshore oil and gas facilities. With a range of products to fit your specific requirements, Thermosafe protective coatings work for you, not against you. If you want to safeguard your assets and enhance performance, work a little smarter. Apply Jotun's Thermosafe.

Jotatemp 1000 CERAMIC Jotatemp 540 ZINC Jotatemp 250 **Jotachar** 1709 **Jotatherm** TB550

jotun.com/thermosafe



SAUDI ARABIA



Saudi Aramco announced on December 27 the establishment of the Saudi Aramco Retail Company (RetailCo), a wholly owned subsidiary, to satisfy the consumers' needs of fuel. The RetailCo aims to expand the fuel retail stations over the kingdom, deliver Saudi Aramco brand position, innovate experience for fuel and non-fuel associated activities, and create a profitable business that can adapt to the market's dynamics.

Saudi International Petrochemical Company (Sipchem) has declared that its affiliate EVA Film Plant (EVA), owned by Saudi Specialized Products Company (SSPC), began commercial operations on January 1. After successfully ending the plant's performance tests, the production capacity will reach around 4,000 metric tons (MT) of Ethylene Vinyl Acetate Film, according to a company statement.

ARLANXEO, a joint venture (JV) between Saudi Aramco and German LANXESS, became fully owned by Saudi Aramco after purchasing the remaining 50% stake. The \$1.7 billion stake comes in line with Aramco's strategy to diversify its downstream portfolio as well as generate more revenues and enhance the company's abilities over the energy value chain. ARLANXEO will remain at its current base in Netherlands and will continue serving the development, production, marketing, sale and distribution of specialty chemicals and synthetic rubber

The Saudi petrochemicals industry generates around \$12 billion, said Yousef Al-Benyan, Deputy Chairman of Saudi Basic Industries Corp's (Sabic). Sabic's domestic sales reached 2.7 million tons, covering around 94% of the kingdom's consumption. The corporation recorded a net profit reaching \$4.8 billion during the first nine months of 2018, increasing by 24.23% year-on-year (YOY) from \$3.93 billion last year. In the Q3 of 2018, the company generated a net profit of \$1.63 billion, a 5.35% YOY increase from \$1.54 billion.

Saudi Arabia announced that its oil and natural gas reserves have increased following an external audit conducted in preparation for the company's long-awaited initial public offering (IPO). Saudi reserves increased by 2.2 billion barrels to 263.1 billion barrels of oil at the end of 2017, while natural gas reserves rose to 319.5 trillion cubic feet, according to US consultants, DeGolyer and McNaughton (D&M).

Saudi Arabia plans to construct an oil refinery in Pakistan to help overcome the current Pakistani account deficit caused partly by high oil prices. The refinery is set to be established in Pakistan's deep-water port of Gwadar. In 2018, Saudi Arabia offered a \$6 billion package to help Pakistan, including financing crude imports.

TUNISIA



Tunisia plans to double its natural gas production to 65,000 barrels of oil equivalent per day (boe/d), up from the current production level of 35,000 boe/d. The country will be able to achieve its target by June 2019. The \$700-million project will be jointly owned by Austria's OMV and Tunisian national oil company ETAP.

IRAQ

November.



The Iraqi Oil Ministry has announced signing a deal with Schlumberger to drill 40 wells in the giant Majnoon oilfield.

The agreement with the international services firm aims to increase production from the field. A separate deal was signed by field operator Basra Oil Company (BOC) and state-run Oil Exploration Company on December 19 to conduct a seismic survey in Majnoon to boost its production. Crude oil output from Majnoon currently exceeds 240,000 barrels per day (b/d).

Iraq's exports from Kirkuk oilfields to the Turkish Ceyhan port will remain between 80,000 to 90,000 b/d as most of the produced crude oil from Kirkuk is directed to the northern refineries. The current production level at Kirkuk oilfield has reached 370,000 b/d.

Iraq's oil exports increased in December 2018 to hit 3.726 million b/d, Thamer Ghadhban, Iraqi Oil Minister, said. Exports level in November the same year reached about 3.372 million b/d. In December, the exports from Iraq's Basra increased to around 3.63 million b/d, up from 3.363 million b/d in

Halliburton has inked two contracts with Eni's Iraqi subsidiary to provide integrated drilling services at Eni's Zubair oilfield located in Southern Iraq. According to the signed contracts, Halliburton will use from four to six rigs to drill development wells during the coming two years, the company said in a statement.

The Iraqi-focused producer Genel Energy plans to increase production in 2019 through the exploration of three more wells in Kurdistan's Taq Taq field. Genel Energy production from TaqTaq and Tawke oilfields reached around 33,690 b/d in 2018, with around 36,920 b/d at the Q4 2018. For 2019, the company expects having a production record close to the one achieved in the Q4 2018. The company decided to boost production after generating material free cash flow during last year.

KUWAIT



Light crude production in Kuwait is expected to increase reaching 250,000 barrels per day (b/d) in the next three years, and 300,000 b/d by 2023. Currently, crude oil output level is 180,000 b/d, while natural gas level is 0.5 billion cubic feet.

Kuwait's Al Zour oil refinery is expected to start operations by 2020 with a refining capacity of 615,000 b/d. Around 76% of the project was completed, according to a statement made by the head of the institutional planning team at Kuwait Integrated Petroleum Industries Company (KIPIC).

Kuwait National Petroleum Company (KNPC) inked a deal with Agility Public Warehousing worth \$21.5 million.

The five-year deal aims to provide KNPC with warehouse management services and support the company's operations by securing spare parts for operation and maintenance without any

MARIDIVE GROUP











ENDLESS SEA, ENDLESS GROWTH...

PROVIDING
A WIDE RANGE
OF SERVICES

MARINE WORKS
OFFSHORE CONSTRUCTION
SURVEY
DIVING SERVICES

VISIT US AT EGYPS 2019

STAND 2F60 HALL 2

www.maridivegroup.net

UAE



The Abu Dhabi Polymers Company (Borouge) has started constructing the fifth polypropylene unit (PP5) at the Borouge 3 plant in Ruwais. The PP5 will produce 480,000 tons per year, increasing the facility's capacity by more than 25% to reach 2.24 million tons per year. The unit is being constructed by Italian engineering company Maire Tecnimont and is expected to come on stream in Q3 2021.

Abu Dhabi National Oil Company (ADNOC) and Abu Dhabi government have awarded Austria's OMV a 5% stake in the Ghasha ultra-sour gas concession. The project is expected to be linked to production in the middle of the next decade and is expected to produce more than 1.5 billion cubic feet of gas per day (cf/d) which will provide over two million homes with electricity. After completing the project, it will produce more than 120,000 barrels of oil and high-value condensate per day (b/d).

China's ZhenHua Oil Company, through its subsidiary North Petroleum International Company, acquired a 4% stake at the onshore concession in the Rub' al Khali Basi, which is owned by ADNOC and covers 14 oil fields. The oil production of the Middle Eastern block is expected to grow to reach 2 million b/d over the coming four years.

ADNOC awarded two offshore blocks to Eni and PTT **Exploration and Production Public Limited (PTTEP) for** oil and gas exploration and production (E&P). Eni and PTTEP will hold 100% of the concessions' stakes during the exploration phase and invest around \$230 million on exploring and estimating the discoveries in block 2 along with finalizing the exploration and estimation plans for block 1. After completing the exploration phase successfully, the two companies will be able to develop any discoveries with ADNOC having the option to hold 60% in the production phase.

IRAN



Iran announced on December 26 not facing any problems in selling Iranian crude oil to non-governmental traders. Iran started exporting its crude oil to the private traders since October and could sell 3 million barrels soon. Despite the US sanctions on Iran, Iran could sell 280,000 barrels of crude to private companies in October and 700,000 barrels in November.

Iran will stand against US sanctions considering them "fully illegal", Bijan Zanganeh, Iranian Oil Minister, said on January 10, announcing that Tehran would not comply with the sanctions. Iran would not prevail any details concerning the volume or the destinations of its oil exports as long as it is under the sanctions. Besides, Iraq had not agreed with Iran about how to develop joint oil fields.

The Iranian gas output has increased in the last ten months by 35%, compared to 2012 output, Iranian Oil Minister Bijan Zanganeh said on January 21. The Minister explained that Iran has produced around 840 million cubic meters of gas per day during the last ten months.

OMAN



Malaysia's Petroliam Nasional Bhd (PETRONAS) has acquired 10% stake in Oman's onshore gas field from Oman Oil Company Exploration and Production LLC (OOCEP).

The acquisition was done through PETRONAS's subsidiary PC Oman Ventures Ltd in Block 61 from the Oman Oil Company Exploration and Production's (OOCEP) subsidiary Makarim Gas Development (MGD), after fulfilling the conditions of the transaction. BP Exploration Ltd (Epsilon), the operator of the block holds 60 per cent stake while PC Oman Ventures now holds a 10% stake in Block 61. The remaining 30% is owned by Makarim Gas Development.

Italy's Eni and OOCEP won an Exploration and Production Sharing Agreement (EPSA) for block 47 in Oman. The exploration phase is expected to begin in 2019. Eni will be the block's operator, holding 90% interests of the block, while OOCEP will own the remaining 10%. The block was awarded to Eni and OOCEP after they had taken part in the 2017 Oman Licensing Round. Block 47 is located onshore in the Omani A'Dakhiliyah Governorate and it covers an area of around 8,524

BP and Eni signed a heads of agreement (HoA) with the Omani Ministry of Oil and Gas for more exploration **opportunities in the country**. Under the agreement, the two companies plan to enter discussions with the Omani ministry to finish the details of a new EPSA agreement for block 77 in Oman that covers a total area of around 3,100 km2 and is located in central Oman.

LIBYA



Libya's National Oil Company (NOC) declared that oil and gas revenues in November 2018 declined to be \$2.4 billion, down from \$2.87 billion in October. Despite the reduced revenue, November's returns is the highest monthly figure in 2018 and the full-year revenue is anticipated to rise by 76%. Currently, Libya's oil production is around 1.15 million barrels per day (b/d). The production level is affected by security

Libyan largest oil field, Sharara field, may lose around 8,500 b/d of crude because of looting. This accident will result in many damages to the Sharara oilfield's infrastructure and losses to the Libyan economy. The field is the biggest in Libya with production capacity of around 315,000 b/d. Since it was shut down, Libya's oil production has reduced by around 300,000 b/d.



EGYPT'S PLACE IN AFRICA'S NATURAL GAS SCENE

BY SARAH SAMIR

Natural gas is one of the most important energy resources for Africa. Recently, the industry has witnessed great leaps that changed the continent's views of the product. Africa owns 7.1% of the world's total proven reserves, of which most are found in Nigeria, Algeria, Egypt, and Libya, according to a BP statistical review published in 2018. Egypt is not only among the countries with the highest reserves and production, but also stands out as one of the top natural gas consumers in the continent.

EGYPT'S NATURAL GAS INDUSTRY ON THE RISE.

Egypt has a flourishing natural gas industry as it is ranked on the top of the 20 natural gas producers in the world, according to the World Energy Council. Moreover, Egypt is among the top four natural gas producers and consumers in Africa.

The country comes in the third place compared to other African countries in terms of natural gas proven reserves. Egypt had 62.8 trillion cubic feet (tcf) by the end of 2017 in proven reserves. Egypt comes after Nigeria, which owns 183.7 tcf, and after Algeria, which owns 153.1 tcf. Following Egypt, Libya takes the fourth place, as it recorded 50.5 tcf of proven reserves by the end of 2017, according to the BP review.

Egypt's natural gas reserves are expected to increase in the coming years thanks to recent natural gas prominent discoveries, an article published by the US Energy Information Administration (EIA) recently noted. The growing reserves will further enhance production and trade.

In terms of production, Egypt has been regarded as the second top natural gas producing country in Africa, recording 1.73 billion cubic feet (bcf) in 2017, compared to Algeria producing 3.22 bcf; Nigeria, 1.667 bcf; and Libya, with around 406 million standard cubic feet (mmscf).

NATURAL GAS CONSUMPTION

Egypt is the top African consumer of natural gas. The country used 56 billion cubic meters (Bcm) in 2017, compared to 38.6 Bcm consumed by Algeria, 4.4 Bcm used by South Africa, and 1.1 Bcm of natural gas consumed by Morocco during the same year, according to the BP review. The country's natural gas consumption is expected to grow to 9 billion cubic feet per day (bcf/d) by fiscal year (FY) 2020/21, Egyptian media reported in September.

Egypt continues with its industrial development plans and encourages households to use natural gas instead of butane.

EGYPT'S DEVELOPMENTS ENHANCING PRODUCTION

Egypt has been conducting several developments on the existing natural gas fields, and adding new fields to production in the past two years. The recent discoveries enabled Egypt to increase natural gas output by around 21.59% in 2017 from the 1.423 bcf produced in 2016.

The Ministry of Petroleum has been speeding up the development of natural gas fields and adding them to the production map, boosting output to around 6.6



bcf/d of the product in September 2018. This enabled Egypt to achieve self-sufficiency of natural gas and halt liquefied natural gas (LNG) imports. Meanwhile, Nigeria's natural gas output averaged 7.9 bcf/d in 2018, as announced by the Nigerian National Petroleum Corporation (NNPC).

New discoveries such as Zohr, Noor, North Alexandrian, and Nooros fields will help Egypt achieve its target to boost natural gas production to 7 bcf/d by the end of 2019, according to the Ministry of Petroleum spokesman, Hamdy Abdel Aziz, who talked to the media back in December. This comes as Zohr alone is expected to see an increase in production to 3 bcf/d by the end of the year.

NATURAL GAS INVESTMENTS

Successfully diversifying investors, natural gas fields have seen several sales of stakes during 2018. Russia's Rosneft acquired 30% and UAE's Mubadala bought 10% in Shorouk Concession through buying parts of Eni's shares in the concession, of which Zohr mega field is part. Additionally, Eni sold 25% and 20% of Noor concession to BP and Mubadala, respectively. Egypt had a total of four international oil companies (IOCs) operating in Zohr, and total three foreign partners in the Noor field. This diversity of companies helps Egypt introduce different expertise and technologies in the sector.

To further attract foreign investments and enhance natural gas exploration, the Ministry of Petroleum is working on drafting a new E&P agreement model. The new model will have partners covering the E&P cost and receiving shares of the production in return. The companies will have the freedom to sell their shares of production to buyers of their own choice. The new model will not only boost exploration activities in Egypt's natural gas fields, but it will also encourage natural gas trade movement.

Additionally, the ministry has been dedicated to settle its arrears to IOCs, which attracts companies to invest more in the country. IOCs' arrears had recorded \$6.3 billion before 2014; yet, it has been decreasing as the petroleum ministry repaid parts of it until it reached \$1.2 billion in 2018. The oil and gas sector is planning to totally settle arrears by the end of 2019.

RISING NATURAL GAS EXPORTS

Egypt stands out in terms of developing natural gas trade. The country has been conducting several developments on natural gas fields, enhancing production and allowing re-exporting gas.

Egypt started re-exporting gas via its Idku liquefaction plant. Shell, Petronas, and Egypt's two main stateowned oil and gas firms managed to export 520 mmscf/d of gas through Idku as media reported early in January 2019. Moreover, Egypt reached an agreement with Jordan in 2018 to restart exporting natural gas to the neighboring country in early 2019 via the pipeline linking the two countries.

In 2017, Egypt was the fifth exporter of LNG in Africa. The top African gas exporter was Algeria, which exported 16.6 Bcm of LNG and 36.4 Bcm of natural gas via pipelines. Nigeria exported 27.8 Bcm of LNG, while Angola exported 5 Bcm, and Equatorial Guinea exported 4.8 Bcm of LNG. Libya exported 4.4 of natural gas via pipelines.

With the measures and developments adopted by the Egyptian oil and gas sector, Egypt is continuously enhancing its position in the African market. In the natural gas market, in particular, the recent discoveries, the liberalization process, and achieving self-sufficiency represent milestones for Egypt's transformation into a regional energy hub.



THE TECHNICAL ADVISOR TO THE OIL AND GAS INDUSTRY

We build trust and confidence

DNV GL is a global quality assurance and risk management company. From project initiation to decommissioning, we support customers around the world in enhancing safety, increasing efficiency and managing risk in projects and operations. Drawing on more than 150 years of deep technical experience and our position as the industry's partner for setting standards, our global network of experts brings innovative solutions to our customers' challenges at every stage of the oil and gas value chain.

DNV GL is proud to be a strong partner of Egypt's energy industry.

Don't miss our technical experts at EGYPS 2019, stand 2A10 in HALL 2 and join us for our free technical briefings.

DNV GL Egypt

Cairo Business Plaza building, 424 - Sector 3, North 90th Street, 11835 New Cairo. Phone: +202 23066063

www.dnvgl.com/oilgas

SAFER, SMARTER, GREENER

DNV-GL

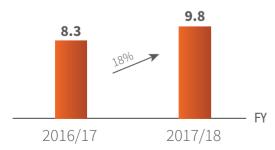


AN OVERVIEW OF

EGYPT'S PETROLEUM PRODUCTION IN 2018

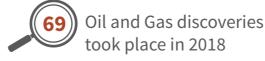
he petroleum sector is one of the key factors affecting Egypt's economic growth. Petroleum and gas extractions within the sector in the Fiscal Year (FY) 2016/17 reached EGP 281,721 million, representing 8.3% of the total GDP while in FY 2017/18 the petroleum and gas extractions increased to around EGP 423,381 million representing 9.8% of the total GDP with a rate of change of about 18% year-on-year (YOY), according to the Central Bank of Egypt (CBE). Currently, the Ministry of Petroleum and Mineral Resources (MoP) is implementing a modernization program, which aims to reach the sector's full potential by 2021 and act as a sustainable development engine.

Petroleum Sector Share in GDP (%) (YoY)



Major international oil companies (IOCs) have been attracted to Egypt ever since the government started planning to expand the petroleum sector and proceed in old discoveries as well as new where large area of the country has not been explored yet.

During 2018, 69 oil and gas discoveries were the result of the MoP's continuous efforts and achievements,



which accordingly boosted Egypt's oil production and petroleum reserves, declared the MoP.

1- CRUDE OIL

Egypt has a long history as an oil-producer as the first discovered oil field was explored around 140 years ago. Since then, Egypt was able to save its position as one of the largest crude oil producers in the continent. Egypt's crude oil production is supported by its developed infrastructure, low production costs, and relatively large volumes of both onshore and offshore fields.

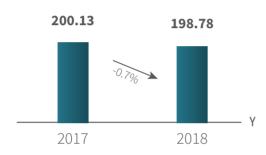
During 2018, the Egyptian government announced 51 crude oil discoveries. The government faced the natural decline in the production of oil fields by adding

36 exploratory wells to the production map with initial average production of 27,000 barrel per day (b/d), in addition to 175 development wells with initial average production of 113,000 b/d. However, the total crude oil production decreased by around 0.7% to reach around 198.78 million barrels in 2018 compared to 200.13 million barrels in 2017.



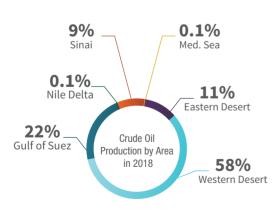
In 2018, the MoP announced **51** crude oil discoveries

Total Crude Oil Production (mb) (YoY)



The Gulf of Suez has supported oil production in Egypt since the 1960s, however, most of its fields are now mature. Since 2000, the Western Desert has emerged as the country's key oil-producing area and has compensated a large part of the declining production from the Gulf of Suez.

Egypt's crude mainly comes from the Western Desert and the Gulf of Suez, recording 115.44 million barrels and 43.25 million barrels sharing with 58% and 22% of the total crude oil production respectively. The remainder comes from the Eastern Desert and Sinai fields at amounts of 22.12 million barrels and 17.50 million barrels, representing 11% and 9% respectively.



The production coming from the Mediterranean, Nile Delta, and Upper Egypt combined does not exceed 1% of the country's total production in 2018.

2- NATURAL GAS

Regarding natural gas, the MoP announced 18 new discoveries in 2018. The year has seen unprecedented production rates where the current total natural gas

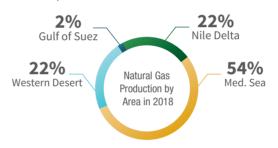
Total Natural Gas Production (bcf) (YoY)





output exceeds 2,152 billion cubic feet (bfc) compared to 1,795 bcf in 2017 with an increase of about 20% YoY.

The Mediterranean Sea is considered Egypt's richest part in natural gas as in 2018, its production reached 1,162 bcf representing 54% of natural gas production. The Nile Delta came in second place at an amount of 480 bcf followed by the Western Desert at an amount of 470 bcf, both accounted for around 44% of the total

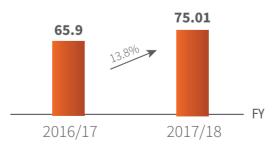


gas production. The Gulf of Suez produced 38 bcf and finally, the Eastern Desert produced only 2 bcf.

These production rates arose from the completion of developing new phases of four mega projects in the Mediterranean Sea.

All these developments contributed to achieving self-sufficiency of locally produced natural gas and considered to be a bold step for Egypt towards being a natural gas regional hub by 2019.

Investments in Natural Gas (EGP billion) (YoY)



It is worth mentioning that natural gas investments in Egypt increased from EGP 65.9 billion in FY 2016/17 to EGP 75.01 billion in 2017/18 with an increase of 13.8% YoY, according to CBE.

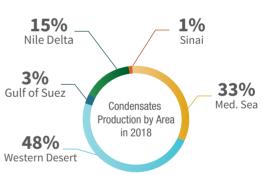
3- CONDENSATES

The total production of condensates increased by 7.1% reaching 32.23 million barrels in 2018 compared to 30.09 million barrels in 2017. Condensates productionduring 2018 witnessed a fluctuating pattern pattern of increasing and decreasing growth rates of the production.

Total Condensates Production (mb) (YoY)



For the production areas of condensates, the Western Desert production reached 15.44 million barrels, representing the highest production level with around 48% of the total production followed by the Mediterranean Sea that contributed with 10.789 million barrels, representing 33% of the total production, and then Delta shared by 15% at an amount of 4.96 million barrels. On the other hand, the Gulf of Suez contributed only by 0.834 million barrels, representing 3% and Sinai came in the last place with a production of 0.192 million barrels and a share of only 1% of the total production.



The state's plan to increase the hydrocarbons domestic production and narrow the market gap is supported by the exploration and development activities resulted in a significant number of discoveries and increased production for crude oil, natural gas and condensates.

In order to achieve further significant increases in the production, the state is not only supporting exploration in the most known producing areas, but also moving towards highlighting the less known frontier regions such as the Red Sea and Upper Egypt.

Moreover, the MoP has been working on reducing its arrears to the IOCs, as the debt reached its lowest level since 2010, recording \$1.2 billion in December 2018. The reduction in arrears has a positive future with direct impact on the increase of the Exploration and Production (E&P) investments which finally result in increased level of petroleum production.

Xodus Commitment to the Egyptian Energy Sector: AN INTERVIEW WITH REBECCA HEWLETT, **XODUS GROUP'S LONDON OPERATIONS DIRECTOR**

🖊 odus Group is an international energy consultancy founded in 2005 to provide an integrated approach for energy Challenges. As a sign of its commitment to the Egyptian oil and gas sector, the company has a newly-opened office in Cairo, and looks at expanding its presence in the Egyptian oil and gas sector. Egypt Oil & Gas spoke to Rebecca Hewlett, Xodus Group's London Operations Director, who gave us a deeper understanding of the company's activities and aspirations in Egypt.

FOR THOSE WHO HAVEN'T **ENCOUNTERED XODUS GROUP, CAN** YOU BRIEFLY OUTLINE THE COMPANY IN TERMS OF SKILLS, CAPABILITY AND HISTORY IN EGYPT?

Our experts of engineering, scientific and advisory teams support oil and gas, liquefied natural gas (LNG), renewables, and utilities for clients across the globe using critical thinking to overcome challenges, promote sustainability, and maximise return on investment (ROI).

Our integrated approach comprising technical, commercial and financial disciplines lends itself to tapping into complex transactions in the Mergers and Acquisitions (M&A) space as well as design, assessment, and optimisation of assets.

Since 2009, we have executed more than \$2.2 million worth of work in Egypt, primarily carried out by our UK offices in London and Aberdeen. Egypt's oil and gas industry has witnessed a resurgence in investments and in 2017, and we appointed a country manager, Eng. Salah Tantawy, to support our growth strategy.

Our advisory teams work closely with operators, private equity houses, banks, and infrastructure partners to support mergers, acquisitions, concession amendment negotiations and bid round preparations. Typically, we advise on \$10 to \$20 billion worth of transactions per year. We can offer multi-client solutions for bid round evaluations in frontier areas as well as solutions for individual clients.

XODUS GROUP IS AN EXHIBITOR AT THE 3RD EGYPTIAN PETROLEUM SHOW, WHAT WILL YOU SHOWCASE AND WHAT DO YOU HOPE TO ACHIEVE FROM YOUR PRESENCE IN THE EXHIBITION?

We will be at Stand 3A71, and we will have a senior team engaging with business leaders in the exhibition and the strategic conference. Our aim is to listen carefully to the challenges faced by operators and investors in Egypt and help build solutions that will add value to their business. By attending the strategic conference, we will have a deeper understanding of the key issues and priorities of the country and that will help us focus on the Egyptian exploration and production (E&P) sector as it continues to grow.

XODUS GROUP HAS ACCESS TO A VERY BROAD RANGE OF SKILLS. ARE THERE SPECIFIC AREAS THAT YOU ARE TARGETING TO GROW YOUR BUSINESS

The current government has taken decisive steps to modernize the oil and gas sector and stimulate

Xodus will focus on opportunities across advisory, field development, and asset optimization. Egypt has been an international market leader in both bid rounds for new exploration concessions and M&A following the downturn over the past few years. Xodus advisory is well placed to support companies looking to enter the Egyptian market through acquisition of concessions through bid rounds or existing assets.

As producing assets approach is the end of their development leases, Xodus can also help operators create new strategies for governmental assets and work to amend concession agreements to support further investment and greater recovery. We also aim to support field development and re-development offshore in all water depths up to and including ultradeep water in the Mediterranean and potentially the Red Sea. This is supported by sub-surface and production technology skills that can optimise recovery solutions and offer strategic approaches for water management.

For operating assets, we believe our integrity management tool XaminTM offers a unique, fullyflexible solution, ideally suited to the Egyptian market. We have many other clever tools that can support production optimisation and improved recovery.

Our environmental teams can offer support to the development of management systems required to secure International Finance Corporation (IFC) funding and work to improve emission monitoring, reporting, and reduction as well as the development of Environmental and Social Impact Assessments (ESIA) and Corporate Social Responsibly (CSR) strategies.

DOES XODUS HAVE A PRESENCE IN EGYPT?

Our Cairo office has been up and running for one year now and is conveniently based in Maadi. We have a general manager, Salah Farid Tantawy, in Egypt and he has almost 40 years' experience working in oil and gas. He joined Xodus from PICO Petroleum Integrated Services where he was a project general



manager for the Amal-C platform installation in the Gulf of Suez. His experience in managing multi-milliondollar projects and knowledge of the Egyptian oil and gas sector is helping us attract new businesses as well as reinforcing already established partnerships. There is fantastic talent available in Egypt and as the business grows, we would be delighted to use that capability where appropriate.

WHAT DIFFERENTIATES XODUS GROUP FROM OTHER CONSULTING COMPANIES **OPERATING IN EGYPT?**

We have broad experience in Egypt ranging from M&A advisory services to onshore and offshore field development and execution support. We love solving complex problems and our integrated teams including sub-surface, wells, production technology, facilities and financial expertise offer a unique capability in the market

Some of our other recent work has covered design work for offshore platforms and pipelines, independent verification and integrity management scopes, including life extension, debottlenecking, and replacement of ageing infrastructure.

LOOKING AHEAD, IN FIVE YEARS' TIME, WHAT WOULD YOU LIKE XODUS **GROUP'S BUSINESS IN EGYPT TO LOOK** LIKE AND HOW DO YOU THINK EGYPS **CAN HELP ACHIEVE THAT?**

There are huge opportunities in Egypt with respect to development of new fields as well as improving operations of existing developments to maximise recovery and value to stakeholders.

Looking ahead, we can leverage our international experience in renewable energy and involvement in windfarms, interconnector cables and solar energy, and transfer learnings to offshore and onshore greenfield and brownfield developments in the oil and gas industry.

EGYPS will provide us with an opportunity to gain insights into the oil and gas developments in the region and meet with like-minded businesses.





"WE SERVE YOU WHEREVER YOU ARE"

Pan Marine Group is a ONE-STOP service provider to our clients in Egypt through the following Four companies:

- 1- Pan Marine Shipping Services
- 2- Pan Marine Logistics Services
- 3- Pan Marine Petroleum Services FZ
- 4- Medkon Lines Egypt S.A.E

Our customers are our greatest asset; we aim to provide them with a one-stop service in the most economical way through understanding their needs, solving their problems, and being a supportive consultant.



VROON OFFSHORE SERVICES

"CONNECTING MARKETS"

VROON OFFSHORE SERVICES excels in the provision of diverse services and solutions for key offshore-support needs, including platform supply, emergency response and rescue, anchor handling tug supply, walk to work crew transfer and subsea support. In addition, VOS offers a wide range of complementary offshore services, such as seismic/survey support, maintenance, engineering and scientific support.

With our versatile fleet and highly qualified and experienced colleagues, we are committed to providing safe, reliable and cost-effective services.

Vroon Offshore Services is an international operator with a strong geographical presence in Northern Europe, the Mediterranean, North Africa, the Indian Ocean and Asian regions.

"TOGETHER, YOUR PARTNERS IN EGYPT"





WWW.PAN-MARINE.NET



ABERDEEN | DEN HELDER | GENOA | SINGAPORE

WWW.VROONOFFSHORE.COM



NORTH AFRICA AND THE MEDITERRANEAN DELIVERING THE ENERGY NEEDS OF TOMORROW

VISIT US AT STAND

2D68 HALL2

HOW MACHINE LEARNING AND AI INDUSTRY INITIATIVES ARE SHAPING THE OIL AND GAS INDUSTRY

BY VINODKUMAR RAGHOTHAMARAO, DIRECTOR CONSULTING, ENERGY WIDE PERSPECTIVES & STRATEGY, IHS MARKIT EMEA

il and gas companies operate in dynamic and complex environments where they face constant challenges, especially in terms of supply and demand. They have been adopting digital technologies for years, helping to increase the recovery of fossil resources, improve production processes, reduce costs and improve safety. Currently, they are merging from the oil prices downturn leaner and more efficient.

Although technology and broader forms of innovation certainly deserve some of the credit for these gains especially around enabling lower-cost design concepts, raising well productivities, and improving coordination among functional groups and assets—the call on technology is still likely to rise substantially over the coming years.

As the oil and gas industry continues to adapt to a sustained period of volatility, companies are taking concrete steps to reduce costs and raise efficiencies. Technology and innovation are at the heart of many of these efforts and in certain "pockets of excellence" are helping to reduce facility costs by 5–15%, lower operating costs by 10-70%, and raise production efficiencies by 5-20%.

The oil and gas sector has a relatively long history with digital technologies, notably in upstream, and significant potential remains for digitalization to enhance operations further. Now, with the oil prices steadily increasing, the time has come to evaluate, adapt and embrace new technological initiatives. Machine learning and artificial intelligence (AI) are the two key technological initiatives driving the tectonic shift within the oil and gas industry.

MACHINE LEARNING

Machine learning and other big data applications could save the oil and gas industry as much as \$50 billion in the coming decade, according to McKinsey. Since the cratering of the global oil price in late 2014, companies have increasingly been looking at technology to reduce costs, improve efficiency and minimize downtime.

Machine learning, the ability for computers "to learn without being explicitly programmed" is one of the subfields of the big data revolution that has been applied to modern business since the 1990s, and is coming to the aid of the hydrocarbons sector in the oil price slump.

Of all the parts of the oil and gas industry rife for the rollout of machine learning, the upstream sector is the obvious choice.

Reliant on Bayesian statistics, a branch of mathematics that employs "degrees of belief" to interpretations of probability, machine learning creates and uses algorithms to make predictions on data. The exploration phase, dependent on the interpretation of layers of information riddled with uncertainties, is a perfect fit for the machine learning approach. The

rapid identification of patterns working across multiple variables had been a time-intensive process; this can now be partially-automated and optimised with oversight from experienced professionals. Reservoir modelling, and trying to find out how a formation will react to particular drilling techniques, can also be verified using a combination of algorithms and fuzzy logic, a technique used for prediction when information is either unreliable and/or incomplete.

Testing the waters "virtually" before a drill ever disappears downhole could save a company anywhere between millions and billions.

Looking back at past failures and applying the lessons learned is a fundamental problem-solving technique. Machine learning can speed up this process and widen the search net when seeking prior instances of similar problems in a case library. Trawling through a database of logged events for a description that matches the issue at hand, solutions can be accessed in real-time to provide an essential guide for personnel on the ground to use as a troubleshooting tool.

ARTIFICIAL INTELLIGENCE

Deep learning (which is one of the methods of Machine Learning) and the Internet of Things (IoT) are two aspects of AI that could potentially revolutionize the oil and gas industries. Having already made quite a storm in various other industries including consumer electronics, this could not come at a better time for the oil industry as it currently faces dramatic drops in the price of oil. While there is no doubt several AI practical applications already in place will indeed help these industries improve, the following five have the potential to make a significant difference across the board:

- 1. Rig diagnostic bots: In the same way that bots are being used in customer service departments, field technicians can interact with diagnostic applications through voice controls. This is made possible through the use of deep learning and natural language processing algorithms that enable remote diagnostics at the touch of a button.
- 2. Risk detecting deep learning algorithms: It is very difficult for a human to be able to see in all the nooks and crannies of pipelines; so instead, scientists and computer programers use algorithms to reveal patterns and weaknesses that may have otherwise been left undetected. Drones are now being used at a number of oil and gas sites to inspect pipelines. They are able to record footage in real-time as they



fly through the pipelines trying to detect any cracks or leaks. Once the drone footage has been received, deep learning algorithms are set to work finding any pixel signatures that may indicate a crack or leak.

- 3. Using deep learning algorithms to spot anomalies: Various oil and gas companies have benefited from using sensors attached to equipment such as rack rods or rod pumps to gather data. However, trying to detect anomalies in this way is very difficult. Using deep learning algorithms, experts can see anomalies that conventional methods would have missed and can alert the rig's command center in advance.
- 4. One key area of the industry that AI could help with is in sourcing the best drilling locations. Currently, there are far too many false positives when it comes to locating suitable places to drill for oil, and AI could cut that number down significantly. Al could also be used to determine the most cost-effective shipping routes for vessels carrying gasoline while taking factors such as whether into consideration.
- 5. Other areas that AI will be used in the energy industry include robotic automation various tasks including ship vetting, and improved automated drilling.

DRILLING PROCESS

The drilling process in the upstream sector is one of the riskiest and most expensive ventures; hence, this needs to be accomplished with detailed planning and effective execution. Applying machine learning and AI in the operational planning and execution stages can help improve the well planning process, the real-time drilling optimization, the friction drag estimation, and other well predictions.

In addition to this, the technique can also be applied in the field of geophysical aspect, where there are well variables such as the Rate of Penetration (ROP) improvement, well integrity, drilling equipment condition recognition, real-time drilling risk recognition, and of course the operational decision A lot of factors need to be taken into consideration while applying techniques like machine learning in drilling. Few to name are the traditional data such as pressure differentials at various points, thermal gradient, permeability, porosity, and seismic vibrations.

RESERVOIR MANAGEMENT

Reservoir being the core of the entire operation in upstream, needs to be maintained and optimized to increase the longevity of the whole production cycle. Therefore, the reservoir, the facility and the well need to be managed, and this requires an integration of multiple disciplines, such as geology, seismic interpretation, reservoir engineering, production techniques and various other operations. Al techniques are applied in activities like reservoir characterization, modelling and field surveillance.

Fuzzy logic, expert systems and artificial networks are used to accurately characterize reservoir for optimum production output. Complex logics are required to derive a relationship between critical functions like algorithms defining relationship between seismic attributes, and target lithological properties such as well logs and sand properties.

PRODUCTION PARAMETER **OPTIMIZATION**

With the oil prices fluctuating, new venture in exploration seems to be slowed down. In such a scenario, companies need to optimize the production and manage the decline in production. Decline Curve

Analysis (DCA) is one technique used to estimate future production based on the historic data. However, the well's decline towards the end of its life follows a nonlinear pattern and usually declines quicker at its depletion stage.

Production optimization basically deals with the smart management of parameters that will enhance the well's life such as pressure, flowrates, and thermal characteristics of injected fluid mixture. Machine learning algorithms can be used to analyze the sensor data, which is collected in massive volumes to determine the health of the system and to identify the optimum operating environment.

The value of AI and machine learning can be applied in a different statistical model, which can help improving asset management decision. Effective adoption of these learning techniques will be dependent on the integration, with data visualization and effective user interface design.

FIELD EQUIPMENT MANAGEMENT

Often the fields and the wells are in remote locations, and gathering data on the status of the pumps and well physically becomes a tedious job. This would sometimes make the data sparse and difficult to access; however, the cost of equipment and the potential it must deliver, needs to be optimized. With the advance in technology, Oil & Gas IoT sensor data is collected at the server level. This data is enriched with other well information and geological complexities to create a more complete picture with the help of various

algorithms of what is happening in the field, or might happen if certain parameters are to be ignored; for example, situations like equipment failure, its reason for failure, and how it arrived at that stage. Such techniques help in increasing the life of the equipment with less risk of accidents and lower maintenance cost for best possible results.

ROAD AHEAD

Through the use of deep learning and IoT, new predicting and monitoring technologies for the oil and gas industries have emerged that could completely transform them. Being able to predict what is coming and see beyond what is currently seen allows companies to deal with potential problems before they happen, saving them time, money, and bad publicity.

A future where we are surrounded by Al incorporating deep learning and IoT is imminent. Going forward, the impact of machine learning and AI has already been realized in the industry. Early adopters are taking advantage with a head-start in the competition to protect their assets. Tightening research and development budgets are prompting oil and gas firms and their suppliers to think differently about both how they source new technologies and where they direct scarce resources. These evolving technology approaches are likely to outlast the current downturn and could lead to real changes in companies' overall business strategies.



NOV EXPANDS FOOTPRINT

IN EGYPT WITH NEW BUSINESS UNIT

Tational Oilwell Varco (NOV) is expanding in Egypt by introducing a new business unit within its group as a Completion and Well Construction Products provider. NOV has the knowledge and knowhow for optimizing and reducing the number of drilling days by utilizing its technology for its completion system design.

NOV technology offers completion deployment reduction for frac sleeves (including dissolvable balls and seats); and zonal isolation options, such as the multistage fracturing completion systems (MFS) consisting of sleeves, either cemented or open hole with packers, increasing efficiency both in terms of

Recent success of having NOV Liner Hanger System was deployed in Egypt on December 31, 2018 where NOV Completion team successfully ran the first Liner Hanger in the country with Onshore Sinai, one of the major Exploration and Production (E&P) companies. Running liners is not without risk. Wellbores take on many characteristics that are often challenging to liner deployment. Wells with high pressure differentials and extreme temperature ranges can threaten tool integrity.

This can lead to nonproductive time (NPT), which drives up cost. These extreme environments require liner system solutions that can effectively manage the liner to total depth while mitigating risks and withstanding severe conditions. NOV Liner Hanger technology has been cutting their teeth to help the operator to drill and complete the Liner installation successfully using its high-strength running tool, which connects the drill pipe used to run the liner and the liner hanger assembly.

More importantly, however, the tool allows operators to get rough with the liner by rotating and reciprocating it to get to the bottom without the fear of premature release. Once the liner has reached setting depth, it can be released from the running tool very easily. A debris exclusion system, which completely seals the liner top and prevents the entry of drill cuttings, mud solids and cement into the liner, is another feature; especially in extended reach wells, the entry of debris into the liner top can potentially prevent the release of running tools, which leads to expensive remedial actions.

Other differential tools include a ball seat that is located in the running string, and a compact top drive plug dropping cementing manifold with high torque, pressure and tensile ratings. Reservoirs are commonly extremely sensitive to pressure surges. If a pressure surge is strong enough to cause a weak formation to break down, then an adequate cement job is at risk, which could lead to future remedial work. Consequently, a key component of a successful liner job is to end up with a good cement bond across specific zones.

The technologies used in this well were not new, from the standpoint that the products already existed, but the way of deployment is noteworthy and helped the operator to meet a key requirement: reduction of drill time; and smooth deployment of the system, achieving the operator's KPIs of installing a Liner system, where the Liner systems help reduce capital expenditure (CAPEX) by eliminating the need to extend a single, long casing string to the top of the wellbore. A liner hanger allows the liner (casing below the liner hanger) to be suspended in the previous casing string to reduce material cost and provide completion solution options.

The choice of which type of liner drilling system to deploy depends upon the well's requirements, and must also account for the added risks associated

> with more sophisticated assemblies, and the extra costs.

> NOV Completion Solutions will continue to develop additional products and extend



applications of its Completion and Well Construction Systems for the different Egyptian E&P operators' challenges, cost optimizations and applications' needs.

The oil and gas domain requires constant improvement of technologies in the exploration, development, drilling, and production sectors. In this era, "We understand that today's solutions will not be good enough for tomorrow. Our ability to integrate leading products delivers greater certainty, quality, and improved process technologies. We partner with E&P companies to reduce the NPTs, and to configure and construct comprehensive solutions that fit their needs. Whether it's a single piece of quality equipment or an expertly designed system, you can count on us to deliver on time and on budget," said Tamer Shaker, Regional General Manager Middle East & North Africa at NOV Completion Solutions.

NOV has substantial investments in over 14 locations in the UAE - from manufacturing and assembly to maintenance and certification facilities. NOV is present in over six locations throughout Egypt, Algeria, Saudi Arabia, UAE, Kuwait, and Oman. The company has manufacturing facilities for its Completion and Well Construction Business Unit in different MENA locations. "Moreover, in every country in the Mena region we support our customers with a professional sales and technical force team and maintenance facilities," said Shaker.

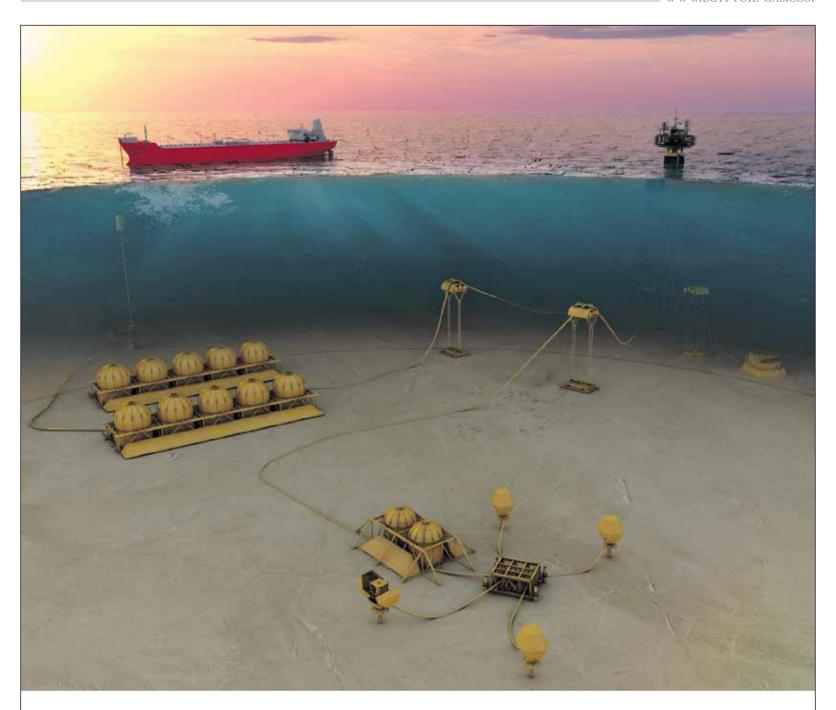
NOV is the backbone of the oil and gas industry with singular focus on delivering the finest products and services on time and on budget, where today's catchphrase is "how to being part of the process of reducing the lifecycle of drilling and production to produce effectively while maintaining quality and safety." The company has the technical expertise to create optimized drilling and production system designs.

NOV's completion system excellent capabilities extend to the following categories: Frac Lower Completion systems, Well Construction Products and Open Hole applications, Intervention Equipment, "fit for purpose". NOV is also adept at coiled tubing intervention systems design.



 \mathbb{Q} our ability to integrate leading products delivers greater certainty, OUALITY, AND IMPROVED PROCESS TECHNOLOGIES. WE PARTNER WITH E&P COMPANIES TO REDUCE THE NPTS, AND TO CONFIGURE AND CONSTRUCT COMPREHENSIVE SOLUTIONS THAT FIT THEIR NEEDS..

TAMER SHAKER Regional General Manager Middle East & North Africa at NOV Completion Solutions



Reliable innovation for over 30 years.

You can't spell innovation without NOV. For more than three decades, NOV has been a driving force in offshore innovation and subsea infrastructure.

From intelligent risers, subsea storage and subsea water treatment to flexible pipe systems that ensure maximum uptime, NOV is proud to be a leader in the Norwegian offshore industry.

To find out more, visit nov.com/subsea



© 2018 National Oilwell Varco | All Rights Reserved

NEW TECHNOLOGY AND RE-EVALUATION OF OLD DATA



identify new resources. Technological progress, improved mapping, more data, and a greater understanding of the geology can contribute to reducing exploration risk and making further discoveries. Technology development could also reduce the cost of hunting for oil and gas, and thereby make more and smaller prospects interesting to explore.

One of the important impacts of the new technology is that it helps us to re-evaluate the old data of well logs using new techniques; The idea is by reviewing the petrophysical evaluation for the old data leads to catch new potentials, which were not considered before. The re-evaluation, using different parameters to the results, has an important role in changing our ideas and thinking out of the box that can lead to discovering new pay phenomena in mature producing fields. There are many successful analogues that were achieved depending on the idea of re-evaluation of logs for old dry wells in Egypt, alongside the study of its impact on the production and adding new zones.

Finding oil and gas deposits is becoming increasingly difficult. Technological advances have provided better data and improved tools, contributing to a new understanding of the geology thus making it possible to

identify new play and prospect concepts. That could help to reduce exploration risk and make further discoveries. The industry must exploit the possibilities offered by integrating geoscience expertise with digital technology to

BY DR. AHMED SULTAN

Petrophysics Department Manager. Tharwa Petroleum Company.



EXPLORING FRONTIER BASINS IN UPPER EGYPT

The southern province of Egypt is enriched by impressive geological variation in the surface; extending from the pre-Cambrian basement of the Red Sea hills, passing through the westward Eocene plateau to the Jurassic and Paleozoic outcrops at El Gilf El Kibir area. Several Cretaceous sedimentary basins were recognized on the magnetic and gravity maps. This area was abandoned, and the exploration interest waned since several years. My personal opinion about leaving this area without exploration is the concept of a paradigm, which is about an idea entrenched in someone's mind which prevents him from thinking 'out of the box' and finding out new methods of oil exploration.

The first attempt to test the probability of finding petroleum in these basins was by Repsol in 1993. Repsol awarded an acreage of 80,000 km² in Upper Egypt around Komombo-Sin El Kaddab basins, down to latitude 23° 30'N. They acquired 2D seismic survey on both sides of the of the Nile River and drilled five exploratory wells near Komombo city. One of the positive results in their exploration program, was the tested 37° API oil of Komombo-1 well (1997) in Komombo basin which opened the hydrocarbon exploration strategy for the southern part of Egypt and changed the classical concepts about the area.

Then, Repsol relinquished the area after accomplishing their exploration program. The area was awarded to the Centurion company at the beginning of the 21st century. The exploration program of the company was very successful and resulted in few new discoveries started by Al Baraka-1 well that produced oil from Abu Ballas sandstone, Lower Cretaceous-Aptian. This was followed by a series of successful wells in Komombo basin at the west of the Nile River, followed by drilling activities by Trans Globe Energy company in Nuqra Basin to the east the Nile River with shown oil and gas discoveries. The Recent discoveries in Komombo area re-triggered the interest and attracted the international companies to invest in Upper Egypt.

In my opinion, the Nile Valley basins possess all the elements of a working petroleum system. This is simply proven by producing oil from Al Baraka and west Al Baraka oil fields. However, the vast acreages in upper Egypt need more drilling activities to unleash its hidden resources in the subsurface.

Moreover, I believe that the strong and potential rock source and the several intervals of oil show greater hope in this low-cost drilling onshore area. Upper Egypt basins



require more efforts to bring the underground reserves to the surface.

AHMAD MOSTAFA

Exploration section head South Valley Egyptian Petroleum Holding Company (GANOPE)



One source for all your power and automation needs

ABB offers products, systems and services across the entire hydrocarbon value chain. We provide our customers an integrated approach for automation and electrical needs that reduces cost, keeps customers on schedule, and minimizes risk. ABB has a strong track record for optimized execution in this industry and ensuring reliable operations, functional safety, system availability and compliance with environmental requirements. abb.com/africa





Annual Inflation Headline CPI

NOV 2018

DEC 2018

15.60%

11.97%

Net International Reserves (\$ billion)

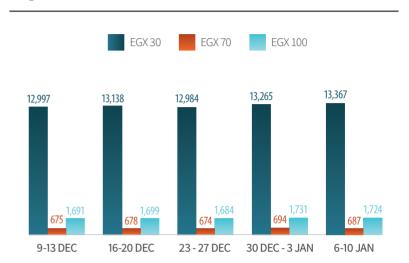
NOV 2018

DEC 2018

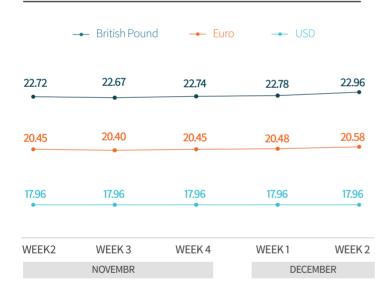
44.51

42.55

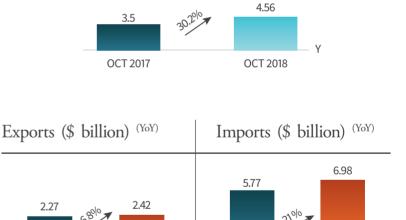
Capital Market Indicators



Exchange Rates



Trade Deficit (\$ billion) (YoY)



OCT 2017

OCT 2018

Key Balance of Payments' Accounts (\$ billion) (YoY)



OCT 2017

OCT 2018

 $Sources of Raw \, Data: \, Central \, Bank \, of \, Egypt, \, Central \, Agency \, for \, Public \, Mobilization \, and \, Statistics, \, Egyptian \, Exchange \, .$



PROVIDING QUALITY SOLUTIONS

SEAHARVEST OIL & GAS SERVICES aims to be the customer first choice for innovative tailored solutions in the oil-field industry. Servicing under the framework of adding value to all its Stakeholders: Employees, Customers, Business Partners, Stock Holders and the community operating in.

ASSET INTEGRITY DEVELOPMENT (AID)

- a. Cold Repair
- b. Leak Control
- c. Vapor Phase Corrosion Inhibitor
- d. Rig Audit and Inspection

RIG EQUIPMENT (RE)

- a. Digital Rig Instrumentation
- b. Automatic Driller
- c. Electronic Drilling Recorder
- d. Pit Volume Totalizer

DRILLING SOLUTION (DRG)

- a. Downhole Equipment
- b. Drilling Jar & Shock Subs
- c. Casing Accessories
- d. Floating Equipment

CHEMICAL SUPPLIES (CS)

- a. LafargeHolcim Class G Cement
- b. Performance Enhancement **Chemical Supplies**

b. Progressing Cavity Pump System

ARTIFICIAL LIFT SYSTEMS (ALS)

- a. Sucker Rod System
- c. Hydraulic Lifting & Jet Pump
- d. Wellhead & Christmas Tree

DRILLING SERVICES & SUPPLIES (DSS)

- a. Supply House
- **b.** Logistic Management Services
- c. Dope & Lubricants

www.seaharvest.org

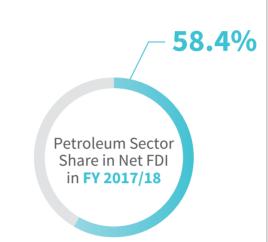


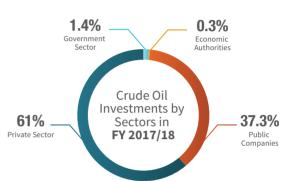
Natural Gas Consumption by Sector in FY2017/18 (bscf)



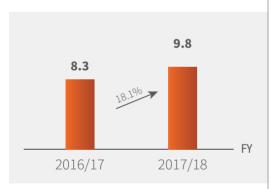


Net FDI in the Petroleum Sector in **FY 2017/18** reached \$ 4.5 billion





Share of Petroleum and Gas Extractions in GDP(YoY) (%)





Maridive's Net Profits (\$ million) (YOY)



Egypt's fuel subsidies decreased by



14.7 % in H1 of FY 2018/19 recording \$2.42 billion



GPC's total crude oil production reached

97,400 boe/d

in (July-December) 2018





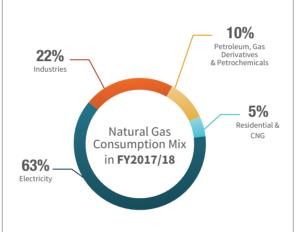
Egypt spent around **EGP 45** billion on fuel subsidies during H1 FY 2018/19



- Egypt will introduce the automatic price indexation mechanism on 95-octane benzene in April 2019.
- It will allow the price to fluctuate according to the international Brent oil prices, exchange rate and transportation costs, but will cap price changes at ±10%.
- The current price of 95-octane is **EGP 7.75 per liter** representing around 4% of Egypt's total benzene consumption.

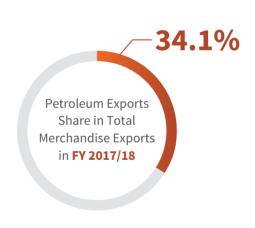


Egypt's petroleum exports increased by \$ 1.1 billion in **Q1 2018/19**.



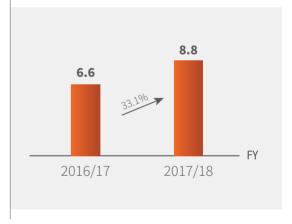


The total production of the **Western Desert** represents about 60% of Egypt's crude oil production





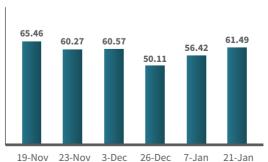
Petroleum Exports (\$ billion) (YoY)



BRENT PRICES

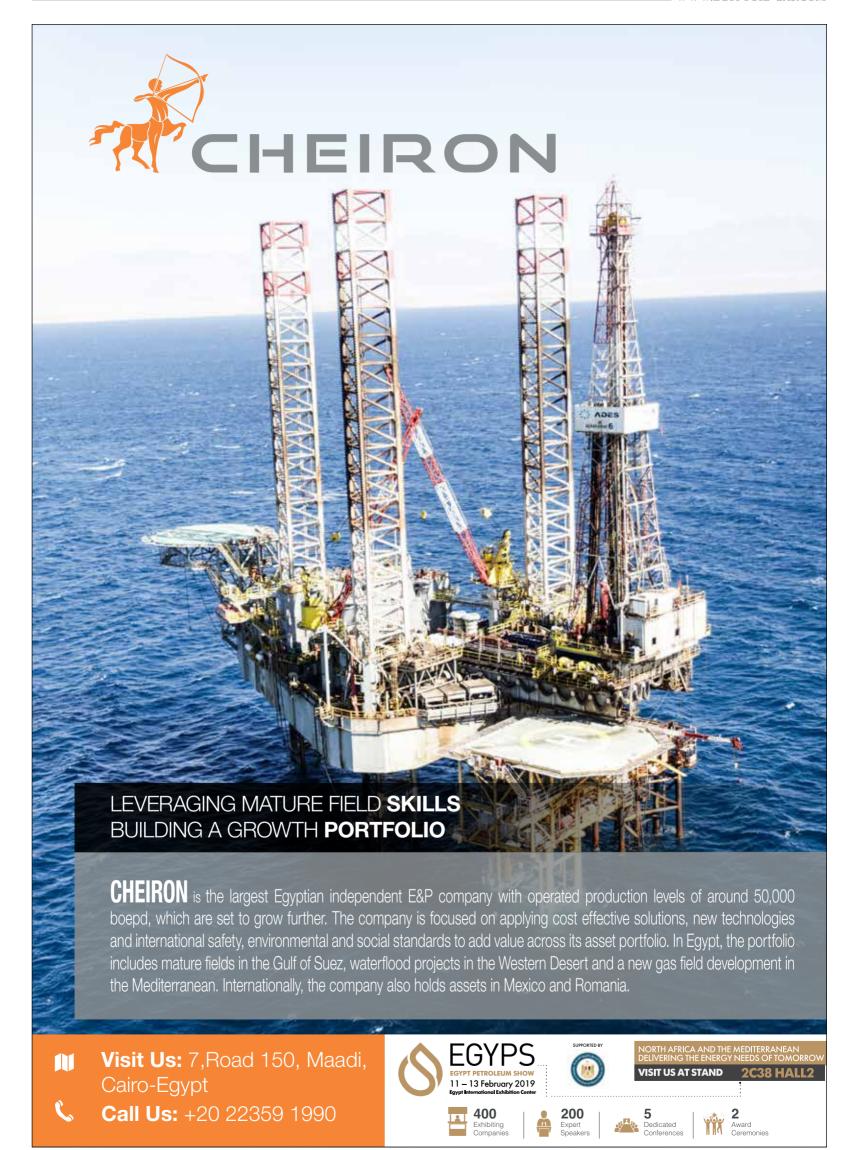


OPEC BASKET PRICES

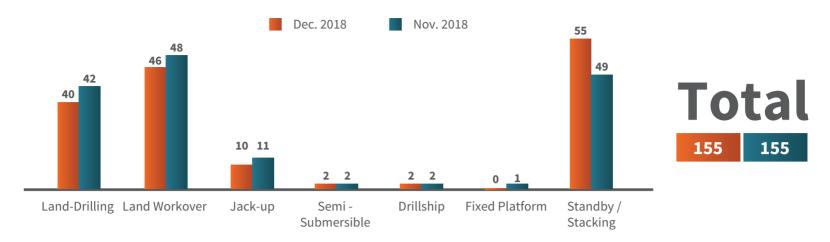


NATURAL GAS PRICES



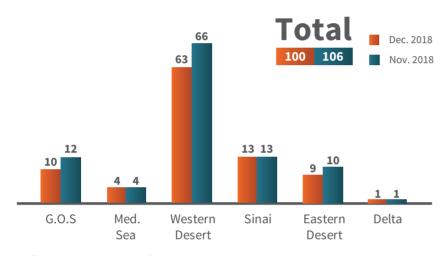


EGYPT RIG COUNT PER TYPE Dec. 2018



EGYPT RIG COUNT PER AREA Dec. 2018

Distribution of Rigs



The difference between the total of Rigs per Area and per type is due to the Stand By / Stacking number.



Egypt Production Dec. 2018

Total						
566,266	B/D					
6.5243	BCF/D					
6350	MCF/D					
92,074	B/D					
	,					

Numbers are calculated per day on average.

2010	CRUDE OIL	GAS	SOLD GAS	CONDENSATES
MEDITERRANEAN SEA	589	3.7665	3666	31,169
EASTERN DESERT	67,634	0.0067	6	0
WESTERN DESERT	319,639	1.3093	1274	44,581
GULF OF SUEZ	127,518	0.1017	99	2,396
DELTA	232	1.3402	1304	13,465
SINAI	50,460	0.0001	0	463
UPPER EGYPT	193	0	0	0

Egypt Drilling Updates

REGION	COMPANY	WELL	WELL TYPE	RIG	DEPTH	WELL INVESTMENTS
EASTERN DESERT	MAGAPETCO	EEMM-42	EXP	ZJ-45 L	4,692	1,100 M\$
	SCIMTAR	ISS-151	Development	OGS-9	2,160	450,300 \$
WESTERN DESERT	BAPETCO	BED3 C18-E	W.Inj.	EDC-42	11,292	2.500 M\$
	BAPETCO	SITRA 8-DO	Development	EDC-51	11,224	1.900 M\$
	AGIBA	SE-40	Development	ST-6	6,505	1.100 M\$
	KHALDA	MRZK - 187	Development	EDC-61	7,576	1.561 M\$
		HAZEM N-2	Development	EDC-11	15,400	3.215 M\$
		CHELSEA S-2	Development	EDC-58	14,706	2.637 M\$
		HAYAT-72	Development	EDC-67	9,300	1.200 M\$
		MENES-8	Development	EDC-17	12,100	1.574 M\$

^{*}DRILLING updates are for December 2018.



















Sahara Integrated - SI provides leading edge integrated solutions for each process in the Oil & Gas Industry. With professional teams and in collaboration with its partners, SI delivers turnkey project solutions.



VISIT OUR BOOTH in EGYPS 11-13 February 2019 Stand # 2H30 - Hall 2





Embracing responsibility, increasing efficiency and sustainable growth – these are the ingredients of DEA's success story. The Mittelplate Drilling and Production Island at the edge of the Wadden Sea National Park in Germany is a good example of DEA's approach towards the environment. DEA is currently producing more than 50% of Germany's domestic crude oil from Mittelplate and has been operating the field without any harmful influence on the nature reserve for 30 years now. DEA takes responsibility towards humankind and the environment in all its upstream activities – in countries like Germany, Norway, Denmark, Egypt, Algeria and Mexico – every day.



Growing with **Energy**