

# EGYPS 2020

FEATURES  
EGYPT'S  
UNBRIDLED  
SUCCESSES

STRATEGIC  
CONFERENCE  
DELVES INTO OIL  
AND GAS  
POLICIES

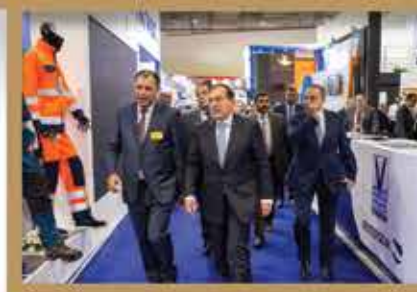
EGYPS 2020  
TECHNICAL  
CONFERENCE ADDRESSES  
MANAGING RISKS,  
INCREASING PRODUCTION

A BENCHMARK FOR  
EXCELLENCE:  
WOMEN IN ENERGY

HSE IN ENERGY: HIGHLIGHTING THE SECTOR'S  
BREAKTHROUGHS

EXCLUSIVE INTERVIEW

**AMBITIOUS ENAP BUSINESS PLAN:** An Interview with  
ENAP's CEO, Andrés Roccatagliata Orsini





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## EDITOR'S LETTER

Egypt hosted the fourth edition of the Egypt Petroleum Show (EGYPS 2020), the biggest oil and gas event in North Africa and the Mediterranean. As a main driver of international collaboration and investments, EGYPS 2020 witnessed a plethora of Memoranda of Understandings (MoUs) and agreements. In this issue, you will find a complete coverage of the event, as well as all the MoUs and agreements signed pre, during and post EGYPS.

This issue we had the chance to interview Andrés Roccatagliata Orsini, Empresa Nacional del Petróleo (ENAP)'s CEO. He talked to us about the recently signed MoU with the Egyptian General Petroleum Corporation (EGPC) on the sidelines of EGYPS 2020 and how this technical collaboration will enable both sides to contribute to the oil and gas sector.

Due to the increasing international fear of COVID-19, the issue further takes a deeper look into the impacts of coronavirus on the global oil and gas industry.

In the research and analysis section, we provide our readers with an analytical report about Egypt's giant petroleum reservoir, the Western Desert. The report highlights the production rates, active agreements, drilling activities and main operators in this rich area.

The 8<sup>th</sup> of March is the International Women's Day, while the 21<sup>st</sup> of March is the Egyptian Mother's Day. Thus, Egypt Oil & Gas team would like to wish the ladies in the petroleum sector a happy and joyful month.

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## PRODUCTION



### ZOHR'S PRODUCTION TO REACH 3 BCF/D IN MARCH

Zohr field succeeded in bringing four wells on stream so that the total number of wells reached 14 wells, whereas a new one is expected to begin production in March bringing the total production capacity to 3 billion cubic feet (bcf). Petro Shorouk stated that the natural gas produced from Zohr field has increased to 2.7 bcf in November 2019.

Atef Hassan, the Chairman of Petro Shorouk, said that his company's investment plan for the Fiscal Year (FY) 2020/21 budget reached \$408 million that will be used to continue the exploratory and developing activities of Zohr field to sustain the rate of production.

### EL MOLLA REVIEWS CRUDE OIL PRODUCTION RATES

Tarek El Molla, Minister of Petroleum and Mineral Resources, reviewed the production rate of crude oil in Fiscal Year (FY) 2019/20 and plans for the production increase in a meeting with the ministry's officials and crude oil producers.

During the meeting, the minister reviewed the performance indicators of health, safety, and environment (HSE) in production sites.

El Molla affirmed the importance of adhering to the agreed plans to improve the production of crude oil

through intensifying exploration and production (E&P), as well as drilling activities. He also noted that efficient solutions should be developed by the Egyptian General Petroleum Corporation (EGPC) in coordination with international oil companies (IOCs) to overcome any challenges. Furthermore, he emphasized the necessity of strict adherence to HSE regulations in all production sites to ensure the safety of personnel and equipment.

### GUPCO TARGETS PRODUCTION OF 77,000 BBL/D IN FY 2020\21

The Gulf of Suez Petroleum Company (GUPCO) has approved a budget of around \$543 million to achieve a production rate of around 77,000 barrels per day of crude oil (bbl/d) in Fiscal Year (FY) 2020\21, according to GUPCO Chairman, Mohamed El Meligy. The announcement came during a meeting held to approve GUPCO's planned budget for FY 2020/21 and the adjusted one for FY 2019/20.

During the meeting, El Meligy featured GUPCO's planned activities during FY 2020/21, which mainly will focus on exploration and production (E&P). These activities target improving the production rates of crude oil, maintaining wells using new technologies, as well as implementing the DSL technology for the first time in Egypt.

### GANOPE TO BOOST PETROLEUM PRODUCTION BY 17%

Ganoub El Wadi Petroleum Holding Company (Ganope) plans to continue developing its fields and achieve a rise in petroleum production by 17% to reach 27,500 barrels per day (bbl/d) in Fiscal Year (FY) 2020/21.

Mohamed Abdel Azim, the Chairman of Ganope, pointed out that the plan involves an expansion in the company's exploration activities by drilling 16 exploratory wells with total investments of \$53 million. He declared that the company will start the mutual project of collecting data and information for

Upper Egypt on a wide area, covering more than 0.5-million-meter square, by using the latest and most updated technologies.

Regarding natural gas delivery, Abdel Azim noted that Ganope's strategy aims at delivering natural gas to 180,000 housing units in Al Fayoum, Beni Suef, Minya, Sohag, Luxor, Qena, and Aswan during FY 2020/21. He noted that the company has succeeded in achieving an excellent rate of natural gas delivery in H1 FY 2019/20 with a capacity of 92,600 housing units.

## INVESTMENTS



### CABINET APPROVES EL MOLLA'S NEW RESTRUCTURING PLAN

A new restructuring plan for the oil and gas sector was approved by Prime Minister Moustafa Madbouly, that was outlined by Tarek El Molla, the Minister of Petroleum and Mineral Resources, during a cabinet meeting. This plan aims to develop and upgrade the entire sector by attracting more investments and providing calibers with training. Additionally, \$31 billion investments were allocated to projects of developing oilfields, while \$4.6 million was directed to five projects aiming at increasing refineries' production to reach 6.4 million tons per year (mmt/y).

El Molla noted that in August 2019, Egypt's production of crude oil, condensates, and natural gas reached 1.9 million barrels of oil equivalent per day (mmbob/d). In December 2019, Egypt's production of natural gas reached unprecedented levels of 7.2 billion cubic feet (bcf/d). Moreover, approximately 1.2 million housing units were connected to the natural gas grid in Fiscal Year (FY) 2018/19; rounding up the total housing units to 10 million units across the country. The minister remarked that as a result of the implemented policies to improve and save energy consumption in refineries and production facilities; Egypt was able to save EGP 300 million.

2019/20, noting that these investments have reached around \$2.35 billion, an increase of around 66% compared to Q1 FY 2018/19. This boost was due to the surge witnessed in the petroleum sector's net investments by about

\$256.4 million, a 52.6% increase. Additionally, the percentage of the new investments pumped to establish companies or to increase capital was raised by about \$837.9 million, representing a 126% increase.

### AGIBA, PHPC TO BOOST INVESTMENTS IN FY 2020/21

Agiba Petroleum Company plans to pump around \$577 million of investments during Fiscal Year (FY) 2020/21. These investments aim mainly to keep up with the previous production rates. Mohamed Baydoun, Chairman and the Managing Director of Agiba said that they are planning to drill five exploratory wells, 58 development wells, and perform 184 well repairs. During FY 2019/20, Agiba drilled 34 development wells, increased Maleha's southwest field production to 9,500 barrels of crude oil per day (bbl/d), and the company's total production to 49,000 bbl/d.

Mohamed Samir, Chairman and the Managing Director of Pharaonic Petroleum Company (PHPC), announced that the suggested plan

for FY 2020/21 includes putting Atoul-1 and Katameya QTS-1 on stream with investments reaching \$277 million. Samir added that the completion of its three concessions during H1 FY 2019/20 contributed to boosting production to 435 million cubic feet per day (mmcf/d), and 8,000 barrels of condensates per day. He noted that a total investment of \$41 million will be directed toward a condensate treatment unit with a capacity of 15,000 bbl/d and two condensate tanks with a total capacity of 120,000 barrels. As for exploration, Samir mentioned that PHPC with BP and the Italian Egyptian Oil Company (IEOC) will implement a joint work program.

### PETROLEUM SECTOR NOURISHES EGYPT'S ECONOMY

Egypt's economy has managed to retain a stable economic growth rate in Fiscal Year (FY) 2019/20, reaching 5.6%, despite the continued slowdown in the global growth rates, Hala El Saeed, Minister of Planning and Economic Development said. El Saeed stressed that the high

economic growth rate achieved during H1 FY 2019/20 resulted partially from the growth in the refining segment of the oil and gas sector.

The minister also showcased the indicators of increasing net foreign direct investments during Q1 FY





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**Colby Fuser, Vice President, Egypt and Libya**

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## ASSEMBLIES

## EL MOLLA REVIEWS RASHPETCO'S BUDGET FOR FYS 2019/20- 2020/21

During Rashid Petroleum Company's (Rashpetco) general assembly meeting, Sabry El Sharkawy, Chairman and Managing Director of Rashpetco, affirmed that the final three wells in the 9B Phase in the West Delta Deep Marine will be linked to production during upcoming months. After linking them, the three wells are expected to add an initial production of around 180 million cubic feet per day of natural gas

(mmcf/d), and approximately 11,000 barrels of condensates. Meanwhile, Phase 10, which is under evaluation, is anticipated to add initial reserves of approximately 236 billion cubic feet of natural gas (bcf). He added that Fiscal Year (FY) 2019/20 budget targets pumping investments estimated at approximately \$167 million, in addition to drilling Monteau well with an initial cost of around \$99 million.

## EL MOLLA REVIEWS QARUN BUDGET FOR FYS 2019/20 -2020/21

During the general assembly meeting of Qarun Petroleum Company, Ashraf Abdel-Gawad, Qarun Chairman, said that the budget allocated for investments in FY 2020/21 reached \$170 million. He noted that these

investments target 33,000 barrels of crude oil per day (bbl/d). This is based on implementing a plan for the drilling activities in the Eastern extended maritime region (BOLT), which

includes drilling five new development wells in addition to an exploration well.

He added that H2 of the current FY will witness eight new well drilling activities; including six development wells and two exploratory wells. He referred to Qarun's

efforts to rationalize expenditures as part of the ministry's strategy to reduce production expenses, which succeeded in saving \$1.4 million during H1 FY 2019/20.

## KHALDA'S INVESTMENTS TO REACH \$792 MM IN FY 2020/21

Khalda Petroleum Company's investments are expected to reach around \$792 million during Fiscal Year (FY) 2020/21. During the company's general assembly meeting, Samir Abaadi, Chairman and Managing Director of Khalda, noted that these investments will be directed toward drilling 80 wells; 29 exploratory wells, and 51 development wells. Additionally, the existing wells will be completed to reach a production rate estimated at 150,000 barrels of crude oil and condensates per day (bbl/d), 715

million cubic feet of natural gas per day (mmcf/d), and 1,357 barrels of butane.

As for the adjusted budget of FY 2019/20, Abaadi clarified that it includes \$732 million of targeted investments, with an \$80 million increase to drill 67 wells of crude oil and natural gas; 30 exploratory wells; and 37 development wells. Abaadi added that H1 FY 2019/20 witnessed the drilling of 30 exploratory and development wells to sustain reserves and production of crude oil and natural gas.

## AGREEMENTS

## EGYPT, ITALY SIGN EPC CONTRACT WORTH \$2.5 BILLION

The Minister of Petroleum and Mineral Resources, Tarek El Molla, and the Italian Ambassador to Egypt, Giampaolo Cantini, witnessed the signing of an Engineering, Procurement and Construction (EPC) contract for establishing a Mazut Hydro-cracking Complex in Upper Egypt.

The contract was signed by the Head of Assiut National Oil Processing Company (ANOPC), Mohamed Badr, and the CEO of Technip Italy, Marco Villa.

The \$2.5-billion-project will contribute to increasing the utilization of the country's resources by using the latest technologies for oil refining.

This will be reached by using mazut hydro-cracking technology, which helps transform lower-value petroleum products into higher-value ones, especially diesel with a production capacity of around 2.8 million tons, in addition to butane and naphtha which will be used in producing high octane.

## PROTOCOLS OF COOPERATION TO SETTLE DECADES-OLD FINANCIAL DEBTS

The Ministries of Electricity and Renewable Resources, Petroleum and Mineral Resources, Finance, and the General Public Sector signed three protocols of cooperation to end the financial debts accumulated for more than 30 years.

The first protocol was signed by heads of some holding companies affiliated to the Ministry of Public Business Sector and the Egyptian Electricity Holding Company, the Egyptian Electricity Transmission Company (EETC); and the Egyptian General Petroleum Corporation (EGPC). The protocol entails a mechanism for public sector companies to pay their due debts to the holding companies affiliated

with the aforementioned ministries and EGPC.

The second protocol involves a mechanism for paying due debts owed to EGPC and its subsidiaries. The protocol was signed by EGPC's CEO and the Egyptian Electricity Holding Company's Chairman.

The third protocol was signed by the Egyptian Electricity Holding Company and the Ministries of Electricity and Renewable Energy, Petroleum and Mineral Resources, and Finance. The protocol aims to resolve any financial disputes and to reach an agreement for any future deals between them.

## EXPORTS

## EGYPT RESUMES NATURAL GAS EXPORTS TO JORDAN

Egyptian natural gas will be re-pumped again to Jordan after it was halted for six days, delivering the same quantities that were previously agreed upon. The Egyptian-Jordanian Fajr for Natural

Gas Transport and Supply Company announced that natural gas will be re-pumped within 48 hours. It should be noted that Egypt provides Jordan with

daily quantities of natural gas ranging from 35 to 70 million cubic feet (mmcf).

The flow of the Egyptian natural gas to Jordan was returned in trial quantities in September 2018 after repeated stoppages since 2011 due to attacks on the pipeline that linked the two countries. In April 2019, after a nine-year halt, the

two countries signed a memorandum of understanding (MoU) according to which Jordan resumed purchasing and selling natural gas with Egypt. Under the signed agreement, Egyptian natural gas supplies were planned to be increased to cover 50% of Jordan's natural gas needs instead of only 10 % in 2018.





UNDER THE HIGH PATRONAGE OF **HE. ENG. TAREK EL MOLLA**  
MINISTER OF PETROLEUM & MINERAL RESOURCES - ARAB REPUBLIC OF EGYPT



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## SDX ENERGY TO DRILL THREE WELLS IN EGYPT

SDX Energy Plc announced that it plans to commence drilling three new wells at South Disouq and West Gharib concessions. SDX is going to drill the first two wells at South Disouq concession, in which it holds 55% working interest.

The first exploration well, Salah, is anticipated to reach a targeted depth of approximately 9,000 feet in late March/early April. The well's initial targets are in the Kafr el-Sheikh and Abu Madi formations, where the company already holds four wells. In addition to that, the company has estimated that the well will have around 71 billion cubic feet of natural gas equivalent (bcf).

## EGYPT, EXXONMOBIL INK TWO AGREEMENTS WORTH \$332 MM

The Minister of Petroleum and Mineral Resources, Tarek El Molla, signed two new exploration and production (E&P) agreements with ExxonMobil and the Egyptian Natural Gas Holding Company (EGAS). The two agreements are worth \$332 million, with a signature bonus of around \$17 million to drill seven wells.

The first agreement was signed for conducting E&P activities in the East

The second well, Sobhi, is anticipated to be drilled in late April/early May and completed in early June reaching a depth of approximately 7,000 feet at Kafr el-Sheikh formation and targeting to reach approximately 33 bcf of natural gas.

Furthermore, SDX planned to drill a third well at the West Gharib concession, where it holds 50% working interest, in early February. This appraisal well is drilled in the Rabul area. If successful, the well is anticipated to produce about 200–300 barrels per day of oil (bbl/d).

Ameryah offshore with investments reaching around \$220 million and a signature bonus of \$10 million to drill four wells. Meanwhile, the second one was signed for E&P activities in North Marakia offshore with investments worth \$112 million and a signature bonus of around \$7 million to drill three wells.

## EGPC, METHANEX SIGN MOU PROMOTING PSM

The CEO of the Egyptian General Petroleum Corporation (EGPC), Abed Ezz El Regal, and Methanex Egypt Managing Director, Mohamed Shindy, signed a Memorandum of Understanding (MoU) in the presence of H.E. Tarek El Molla, Minister of Petroleum and Mineral Resources, to enable collaboration between both parties to embed the culture of Process Safety Management (PSM) within the Egyptian oil and gas sector.

The MoU stipulates the creation of an Egyptian PSM Steering Committee that will drive a robust agenda and roadmap

aimed at institutionalizing PSM within the industry, in accordance with the ministry's Modernization Project and international best practices, guidelines, and standards.

The steering committee will be composed of leaders from the Ministry of Petroleum, EGPC, Egyptian Natural Gas Holding Company (EGAS), Egyptian Petrochemicals Holding Company (ECHM), and Ganoub El Wadi Petroleum Holding Company (Ganope), in addition to Methanex.

## WINTERSHALLDEA SIGNS CONCESSION AGREEMENT FOR EAST DAMANHOUR EXPLORATION

WintershallDea and Egyptian Minister of Petroleum H.E. Tarek El Molla signed a concession agreement for the East Damanhour block. The block is located to the west of WintershallDea's Disouq development in the onshore Nile Delta.

During a first exploration phase of three years, starting in 2020, WintershallDea is planning to drill several exploration wells. The company will begin a three-year exploration phase in the East Damanhour block.

WintershallDea, through its predecessor Dea, started operations in Egypt in 1974. The country is now a core area for the company. It produces gas at Disouq in the onshore Nile Delta, gas and oil in the Gulf of Suez, and gas and condensate from the offshore West Nile Delta project, operated by BP. In recent years

WintershallDea has invested significantly in its operated projects in Egypt.

Comprehensive work programmes at Disouq and in the Gulf of Suez have led to a significant improvement of production, as well as maintaining asset integrity in the mature Gulf of Suez sites.

## DRAGON OIL TO BOOST INVESTMENTS IN EGYPT BY \$650 MM

Dragon Oil is planning to increase its investments in Egypt through acquiring some operating assets in the Western Desert in the next five years.

Through this acquisition, Tayeb Huwair, COO (Non-Operating Assets) at Dragon Oil, pointed out that the company's investments in Egypt will increase by \$650 million, up from \$850 million, to reach about \$1.5 billion.

Huwair noted that Dragon Oil's current production rate in Egypt is approximately 60,000 bbl/d, and the company intends

to increase that production level in the next three years to reach 70,000 bbl/d.

For the West Mediterranean deepwater bid rounds, launched by the Ministry of Petroleum and Mineral Resources, Huwair remarked that Dragon Oil is studying the possibility to participate.

Furthermore, Dragon Oil affirmed that they will continue working with the Gulf of Suez Petroleum Company's (GUPCO) operation team.

## SHELL OPEN TO RECEIVE OFFERS FOR ITS WESTERN DESERT'S ASSETS

Khaled Kacem, Shell Egypt Country Chairman and Managing Director, announced that the company is still open to accepting purchasing offers to its assets in the Western Desert.

Kacem did not reveal any further details nor did he disclose which companies have shown interest nor the final date of accepting offers. Shell announced plans to divest from its onshore assets to focus on its offshore projects in October 2019.

The company's explorations in West Delta have begun, and it is planning to begin drilling operations in Rashid concession in the Mediterranean. It is worth mentioning

that during the Egyptian General Petroleum Corporation (EGPC) and Egyptian Natural Gas Holding Company (EGAS) 2019 bid rounds, Shell won three crude oil concessions and two other concessions for natural gas.

Shell companies are progressing with new offshore activities, including West Delta Deep Marine (WDDM) Phase 9B project, which involves eight new development wells, and exploration in WDDM, for which a second offshore rig has been recently mobilized, which will be followed with exploration in Rosetta as well as the recently awarded Blocks 4 and 6.

## APACHE, PHAROS ENERGY OFFER BUYING SHELL'S ONSHORE ASSETS

Apache Corporation and London-listed Pharos Energy are among the bidders interested in buying Shell's onshore assets in Egypt, according to anonymous sources familiar with the matter.

The sources, who refused to be named as the matter is not public yet, noted that besides Apache and Pharos Energy, Shell's onshore Egyptian assets have drawn interest from other American, Egyptian, Asian and Middle East bidders. They added that Apex

International Energy and Cheiron are among the bidders as well.

It is worth noting that Shell announced in October 2019 selling its onshore upstream assets in the Western Desert to focus on expanding its Egyptian offshore natural gas exploration activities. Moreover, Shell appointed investment bank Citigroup to run the sale, which could fetch around \$1 billion.





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## SAUDI ARABIA

**Saudi Aramco plans to invest \$110 billion in developing unconventional natural gas reserves in Al-Jafoura field.** The field is the largest non-conventional and non-associated natural gas field in the kingdom, while its natural gas resources are estimated at 200 trillion cubic feet (tcf) of wet gas, which is anticipated to gradually increase to 2.2 tcf by 2036.

**It is also expected that Al-Jafoura field will produce approximately 130,000 barrels per day (bbl/d) of ethane, forming around 40% of the current production.** Additionally, it will produce 500,000 bbl/d of natural gas and condensates, accounting for about 34% of the current production.

**Saudi Aramco's overseas business unit, signed a two-year extension deal with Wood's Asset Solutions, the Australian engineering, procurement and construction (EPC) contractor for unconventional gas program.** The two companies inked the original contract in 2014. Under which, Wood's execution teams are going to continue working closely with Aramco to produce and deliver valuable volumes of natural gas from shale and tight reservoirs. Additionally, both companies plan to develop innovative engineering designs and strategies to deliver natural gas with the utmost efficiency.

**Samsung Engineering inked a \$1.85-billion-deal with Saudi Arabia for a natural gas project.** The project is known as Aramco Hawiyah Unayzah Gas Reservoir Storage (HUGRS), located 260 kilometers (km) east of Saudi Arabia's capital Riyadh. The area includes a natural gas injection facility of 1,500 million standard cubic feet per day (mmscf/d) and a natural gas reprocessing facility of 2,000 mmscf/d. According to Samsung Engineering, the project is expected to be finished by

2023, including the execution of EPC process. HUGRS will introduce an innovative way for natural gas production based on regional characteristics.

**Saudi Arabia's crude oil exports stood at 7.373mmbbl/d in December 2019.** The kingdom's crude oil production declined to 9.594 mmbbl/d in December, in comparison to 9.890 mmbbl/d in November, according to the Riyadh-based Joint Organizations Data Initiative (JODI). Exports of refined oil products in December dropped to 1.052 mmbbl/d, from 1.173 mmbbl/d a month earlier, the data showed. Moreover, Saudi demand for oil products in December was 2.043 mmbbl/d, down slightly from 2.102 mmbbl/d in November. The kingdom used 374,000 bbl/d of crude oil to generate power in December, up from 342,000 bbl/d the month before. Furthermore, the data showed that the crude stockpiles dropped by 11.8 million barrels in December, while oil inventories declined to 155.199 million barrels in December, from 167.013 million barrels in November.

**Arabian Pipes Company (APC) inked a new deal with Saudi Aramco to supply steel pipes. The contract timeline is set for 11 months, with a value cost estimated at approximately \$42.6 million.** APC will supply Saudi Aramco with longitudinal submerged arc-welding (LSAW) steel pipes, manufactured in its factory in Jubail industrial city. The financial results of this deal should become in effect during Q3 and Q4 2020.

**Saudi Aramco has been entering the Asian markets gradually, thus recently it has signed a deal with S-Oil, South Korea's third biggest refiner, to supply \$2.6 billion worth of refined oil products to Aramco.** The deal stipulates that S-Oil will supply 10 million barrels (mmbbl) of diesel, up to 15 mmbbl of naphtha, up to 11 mmbbl of jet fuel and up to 8 mmbbl of gasoline to Aramco Trading Singapore.

## U. A. E

**Italian giant, Eni has succeeded in making natural gas and condensates discovery in the Mahani concession.** The Mahani concession was awarded to Eni in the first international competitive exploration licensing round by the Petroleum Council of Sharjah. The Mahani-1 well was drilled to a total of 14,597 feet measured depth. The well encountered a thick gas-bearing limestone reservoir in the Thamama of Lower Cretaceous age. Additionally, the well was tested with flow rates reached up to 50 million standard cubic feet per day (mmscf/d) of lean gas and associated condensates. Furthermore, the area's new phase of exploration will focus on complex sub thrust Jurassic and Cretaceous plays of the Arabian carbonate platform in the inner thrust zone of the Oman Fold belt and requires accurate and sophisticated seismic imaging.

**The Abu Dhabi National Oil Company (ADNOC) announced a new discovery of 80 trillion standard of cubic feet (tscf) of shallow gas in the area between Saih Al Sidirah in Abu Dhabi and Jebel Ali in Dubai of UAE.** The company said that the new discovery will enhance the implementation of the country's target of accelerating the development of hydrocarbon resources as well as achieving self-sufficiency of natural gas. On the same sequence, ADNOC signed a strategic cooperation agreement with Dubai Supply Authority (DUSUP) for further exploration and development operations of shallow gas resources in the area between Abu Dhabi and Dubai after this new discovery. The new discovery was made within an area of 5,000 square kilometers (km<sup>2</sup>) and ADNOC drilled more than 10 exploration wells.

**ADNOC awarded Petrofac Emirates LLC and Sapura Energy two engineering, procurement, and construction (EPC) contracts worth \$1.65 billion for the construction of the Dalma Gas Development Project offshore facilities in Abu Dhabi.** The construction is expected to be completed in 2022 and will enable the Dalma Gas Development project to produce around 340mmscf/d of natural gas. Moreover, 70% of the contracts' total value will flow into the UAE's economy under ADNOC's

In-Country Value (ICV) program, reinforcing its commitment to maximize value for the UAE and enable it to deliver its 2030 strategy.

**KBR Engineering Company has won a major Project Management Consultancy (PMC) contract from ADNOC for services work for Ghasha Concession portfolio of projects.** KBR will be responsible for managing the EPC contractors for Packages A and B of the Dalma Gas Development Project, Packages 1-5 of the Hail and Ghasha Development Project, Hail and Ghasha Islands Project as well as the Deep Gas Project. The operations are expected to be performed over four years with an optional extension for two more years. KBR added that it is expected from Ghasha mega-project to cover about 20% of natural gas needs in UAE by the second half of the decade. Moreover, it is expected that the project will provide more than 120,000 barrels per day (bbl/d) of oil and high-value condensates after being on stream.

**UAE's Sharjah is about to witness a surge in its economic and energy development.** In January, Eni announced achieving a new successful discovery of natural gas and condensates with a flow rate of around 50 mmscf/d. The discovery was made by the Sharjah National Oil Corporation (SNOC) and its partner Eni through the exploration of the Mahani-1 well, which is located onshore in the Area B concession of Sharjah. The Mahani-1 well is considered the first exploration well drilled by SNOC following the acquisition of a new 3D seismic survey covering the territory.

**ADNOC, announced that it has signed an Exclusive Seller Agreement with China's Xiamen Sinolook Oil Company.** The agreement, signed at the 24th World Base Oils and Lubricants Conference in London, stipulates that Xiamen Sinolook Oil will be an exclusive seller of ADNOC's Group III base oil (Adbase) into China, a growing and important market to ADNOC.





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## KUWAIT

The Minister of Oil, Electricity and Water, Khaled Al Fadhel, announced the beginning of the first production trials from Al Wafra and Al Khafji fields at the neutral zone. The pumped crude oil would be increased gradually and would be restored to the regular level by the end of 2020. Al Fadhel noted that the output of Al Wafra field has reached to 140,000 barrel per day (bbl/d), while the output of Al Khafji has reached to 250,000 bbl/d, which indicates that the total production will reach near to 550,000 bbl/d at the end of 2020. The minister said that the Supreme

Petroleum Council approved the oil strategy which targets raising the production to 4 million barrels per day (mmbbl/d) by 2040.

Kuwait's National Petroleum Services (Napesco) was awarded a \$25.4 million tender by Kuwait Gulf Oil Company (KGOC) and the Kuwait-based Saudi Arabian Chevron Incorporation. The tender will extend to five years where Napesco is expected to provide environmental services for sludge treatment.

## OMAN

Oman's natural gas production and imports surged by 0.08% year-on-year (YoY) at the end of November 2019. The country's natural gas production and imports reached around 42.194 billion cubic meters (bcm), of which 3.8% of natural gas was used in industrial projects, about 26.087 bcm. Additionally, Oman's oilfields used around 8.886 bcm of natural gas, representing a 1.5% YoY increase from the previous year. The non-associated production of natural gas, including imports, reached 34.550 bcm in November, whereas the oil-associated production amounted to 7.644 bcm.

The Omani Minister of Oil and Gas, Mohammed Al Rumhi, signed a new Exploration and Production Sharing Agreement (EPSA) with a joint-venturing consortium of Total E&P and PTTEP. This agreement aims to explore and develop the non-associated natural gas resources within Block 12. The agreement stipulates that the two companies are committed to implement seismic surveys and any geophysical studies as well as drilling a specific number of exploratory wells. Moreover, the

minister explained that Block 12 occupies an approximate area of 9,546 square kilometers (km<sup>2</sup>) and is located in central Oman. According to the EPSA, Total E&P is the operator of the block and holds 80% participating interest, meanwhile PTTEP owns the remaining 20% of the interests.

Petroleum Development Oman (PDO) drilled the 1,000th well at the Marmul-Rahab-Thuleilat-Qaharir (RTQ) cluster located in South Oman. The well, MM-1000, which was part of an accelerated program to boost production, was delivered at an impressive timeframe taking only 16 hours. The RTQ cluster currently holds a significant portfolio of hydrocarbon volumes contributing an average of around 81,600 barrels per day (bbl/d). It is expected that about 500 more wells will be drilled in the next few years in the cluster through the Marmul Polymer Phase 3 development and denser waterflood in-fill projects. These projects are supposed to further boost production and add to the country's reserves.

## LIBYA

Libya's NOC announced a drop in its oil production, reaching 123,537 bbl/d during February, with losses exceeding \$1.7 billion. The company said that the drop in production is a result of the blockade of ports and pipelines. According to the statement, the surrounding areas in Libya's southern regions, are facing supply shortages due to the country's instability. Moreover, fuel vessels have evacuated

from Tripoli port after the liquefied petroleum gas (LPG) tanker near the port was hit. NOC is calling for all blockades to be lifted to allow the corporation to resume its production. However, the corporation still able to supply hydrocarbons to the central and eastern regions in sufficient quantities that meet the domestic needs.

## MOROCCO

SDX Energy, the [Middle East and North Africa] MENA-focused oil and gas company, encountered commercial quantities of natural gas at its OYF-2 well in Morocco. SDX, which owns a 75% stake in the area, drilled the OYF-2 at a depth of 1,210 meters, accordingly, the company discovered an excess of commercial natural gas than previously predicted, beating forecasts. Reaching

such a discovery confirms that the company's core production area extends to the north. SDX noted that the recoverable natural gas amounts have reached around 1.3 to 1.9 billion cubic feet (bcf). The discovery will be linked to the company's infrastructure with an estimated cost of approximately \$2 million net to SDX.





# OPEC

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# THE WESTERN DESERT: EGYPT'S GIANT PETROLEUM RESERVOIR



BY AMINA HUSSIEN, REHAM GAMAL & TASNEEM MADI

The Western Desert is enriched by the potential it has for oil and gas exploration as it is the main crude oil producer among other Egyptian regions. This can be demonstrated in the presence of crude oil in large quantities and high production rates in the deep layers of the oil concession areas in the region. The region's production represented 37% and 32.4% of Egypt's total production in Fiscal Years (FYs) 2017/18 and 2018/19, respectively, according to the Egyptian General Petroleum Corporation (EGPC) and Egyptian Natural Gas Holding Company (EGAS) data.

### Bid Rounds

In May 2018, EGPC announced an international bid round, offering 11 concessions; five of which were located in the Western Desert. The offered blocks covered a total area of 12,562 km<sup>2</sup>, according to a statement by EGPC..

The bid round results were announced in February 2019, on the sidelines of the Egypt Petroleum Show (EGYPS 2019). Seven blocks were awarded to major companies; four of which are located in the Western Desert. Three of these blocks

were awarded for Shell, while one was awarded for Eni, according to the statement. The signature bonus of the four concessions totaled \$52.15 million. In addition, the total financial commitments recorded \$74 million to drill 18 exploratory wells, the statement further mentioned..

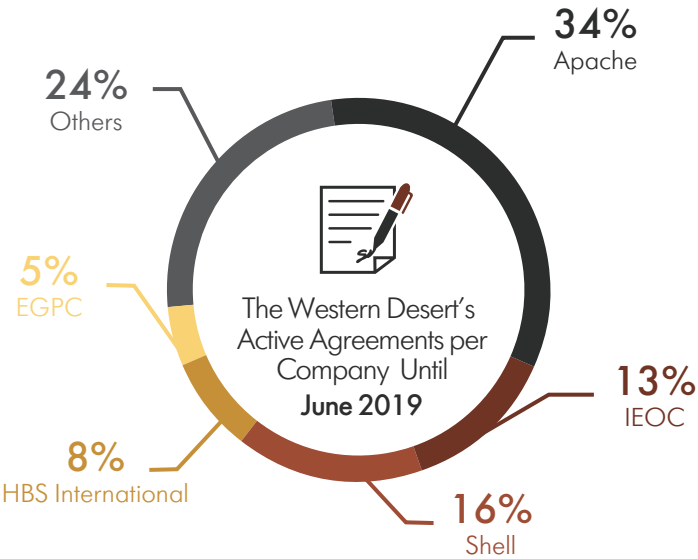
### Active Agreements

From the 1970s to June 2019, over 15 international oil companies (IOCs) have signed 62 agreements to exploit different concessions in the Western Desert. The most active operating company in the region is Apache, where it was awarded 21 concessions with a share of 34% of the signed agreements.

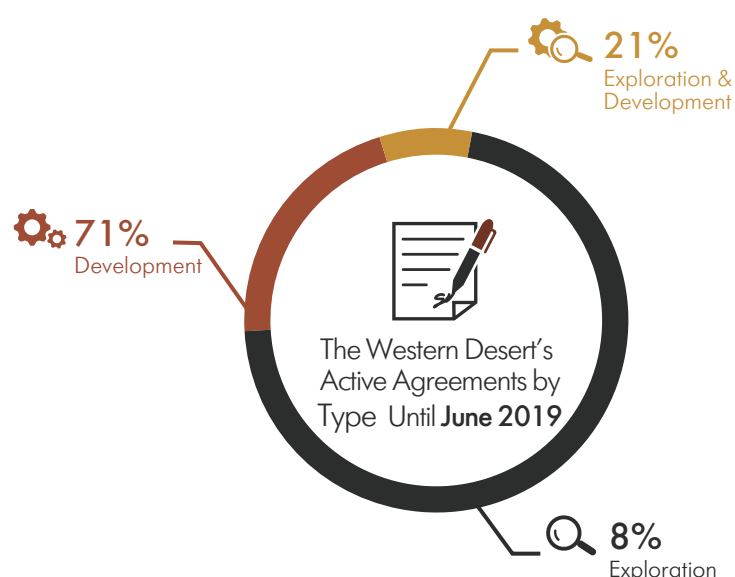
The IOCs are granted the rights to carry out different types of activities according to the type of the signed agreement. Until June 2019, the active agreements accounted for five, 44, and 13 for exploration, development and exploration & development activities, respectively.

## 4 AWARDED BLOCKS IN THE WESTERN DESERT IN 2019

Company	Concession	Signature Bonus (\$ million)	Minimum Financial Commitment (\$ million)	Exploratory Wells	Area (km <sup>2</sup> )
Eni	Southeast Siwa	1.15	17	4	3,013
Shell	Southeast Horus	23	24.5	5	2,508
	South Abu Sennan	1	7.8	3	2,481
	Abu Madi-El Gamil Pipeline	27	24.7	6	3,737

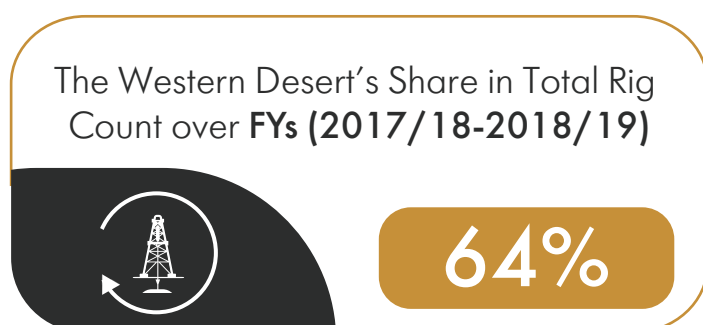






## Drilling Activities

The average number of drilling rigs in the Western Desert fields in FYs 2017/18 and 2018/19 was almost the same with 65 rigs. The Western Desert has a share of 64%, which is the largest share in Egypt's total drilling rigs in the two referred years, according to EGPC.



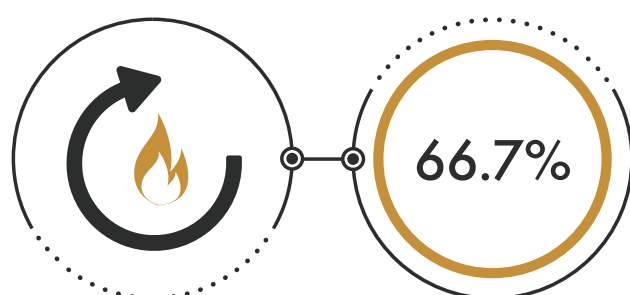
In FY 2017/18, the Western Desert witnessed 14 natural gas discoveries out of a total of 16 new natural gas discoveries made all over Egypt. The discovered resources in the Western Desert added reserves of 129.7 billion cubic feet (bcf) of natural gas, representing more than 70% of the total added natural gas reserves, according to the EGAS's annual report 2017/18.

In FY 2018/19, the drilling activities in the region resulted in achieving 10 out of 15 natural gas discoveries took place in Egypt. The Western Desert's new discoveries added natural gas reserves of 219 bcf, representing about 27% of the total added reserves of natural gas, according to EGAS's annual report 2018/19.

Remarkable oil discoveries were achieved in the Western Desert during FYs 2017/18-2018/19. In May 2018, Eni announced that Agiba Petroleum Co., a Joint Venture (JV) between Eni and EGPC, discovered new resources called A2-X in South West Meleiha license. The discovery was announced to have an initial production rate of 2,300 barrels per day (bbl/d) of crude oil, in addition to 0.4 million cubic feet (mmcf) of associated gas, according to a press release by Eni.

Two months later, Eni announced a second discovery in the same area. The new discovery, called B1-X, was drilled four miles off the A2-X discovery, to a total depth of 14,839 feet. The well has been opened to production with an initial rate of 5,130 bbl/d of light crude oil with low associated gas, Eni revealed in a press release.

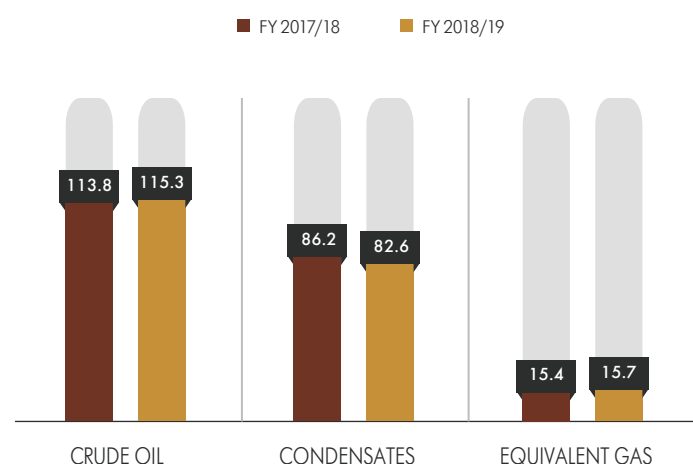
## THE WESTERN DESERT'S SHARE IN TOTAL NATURAL GAS DISCOVERIES IN FY 2018/19



## Petroleum Production

In FY 2018/19, crude oil production represented 54.23% of the Western Desert's total petroleum production in comparison to 52.8% in FY 2017/18. Moreover, condensates production contributed 7.13% of the Western Desert's total production, compared to 7.38% in FY 2018/19. The equivalent gas share in the region's total production decreased from 40.05% in FY 2017/18 to 38.39% in FY 2018/19. It is worth noting that the decrease in equivalent gas' shares between the two mentioned years is offset with the increase in crude oil and condensates shares between the two years, according to EGPC and EGAS data.

## The Western Desert Petroleum Production (boe)(YoY)



## Main Operators

The Western Desert is an attractive region for IOCs, as 16 companies have been awarded concessions and blocks in the region. Shell, Eni, Apache and HBS International (HBSI) are the most active IOCs in the region.

### Apache

Apache started its activities in Egypt in 1994. In 2010, Apache acquired BP's total portfolio in the Western Desert. Since then, Apache became the main operator in the Western Desert and the most active driller among local companies in Egypt. The company is operating in the region, through its JVs, Khaldia Petroleum Co. and Qarun Petroleum Co. In 2018, Apache drilled 70 development wells and 45 exploration wells with a success rate of 67%, according to the company's website.

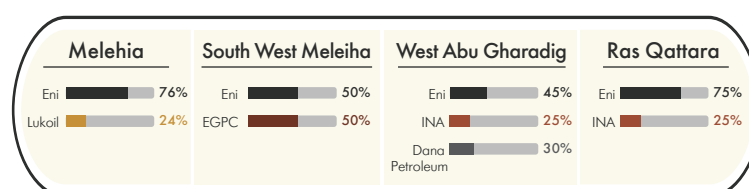
In FY 2018/19, Qarun was able to drill 10 exploratory wells in the Western Desert. Moreover, the average production rate reached 31,700 barrels of oil equivalent per day (boe/d), according to a press release by Qarun.

On the other hand, in FY 2018/19, Khaldia achieved 16 discoveries, with success rate of 88%. The company's crude oil production reached 49 million barrels (mmbbl), while the average natural gas production rate was 752 million cubic feet per day (mmcf/d), Apache revealed in a press release.

### ENI

Eni has been operating in Egypt since 1954, where the company's portfolio includes high margin oil assets in Western Desert. Eni is operating through its subsidiary IEOC in eight concessions in the Western Desert, according to Eni's official website.

## Eni's Shares in the Western Desert Concessions



### SHELL

Shell existed in Egypt since 1911, where the company's upstream activity, mostly focused in the Western Desert in 10 concessions. Shell acquired stakes distributed between 19 crude oil and natural gas producing development leases, existing in Badr El Din and Obaiyed concessions. The company's business portfolio consists

of four exploration concessions, which are in North East Abu El Gharadig, West Sitra, Bed 1 gas, and the West Alam El Shawish concessions, according to Shell's official website.

Shell has been operating since the 1980s through Badr El Din Petroleum Company (BAPETCO), a JV with EGPC. BAPETCO is in charge of developing Shell's fields in the Western Desert. In FY 2018/19, BAPETCO's production levels from the Western Desert fields reached over 124,000 boe/d. In addition, the company has seven active rigs, which supported the drilling of 53 wells in the same year, according to a press release by BAPETCO.

## HBS INTERNATIONAL

HBSI has been operating in Egypt since 1997. The company acquires five concessions in the Western Desert. HBSI's asset portfolio includes development and production leases in the South Dabaa and Ghazalat concessions as well as three new exploration leases in North Ghazalat, South West Alamein, and Halif concessions, the Minister of Petroleum and Mineral Resources, Eng. Tarek El Molla, announced in January 2018.

### Main Fields

Over the past decades, many productive crude oil and natural gas fields have been discovered in the Western Desert. Razzak field is considered one of the oldest oil fields in the Western Desert as its discovery dates back to the 1970s. On the other hand, Abu Gharadig field is marked as the first gas field in the Western Desert.

### MAIN CRUDE OIL FIELDS

The Western Desert has many discovered oil fields such as: Khaldia, El Rizzak, Sitra and Rosa North fields in addition to other significant fields.

#### 1) THE MELEIHA

In 1972, the Meleiha field was discovered by Western Desert Operating Petroleum Co. (WEPCO) when the company drilled its first well Meleiha-1x. The field covers an area of about 100 km<sup>2</sup> and lies in the northern part of the Western Desert, about 60 km south off Matruh City.

In 1978, Agiba was granted the Meleiha concession which covers an area of 1600 km<sup>2</sup>. In 2011, Agiba successfully drilled a new exploratory well, Zarif-1X, South Meleiha with an investment cost of \$3 million. In 2018, Eni engaged in South West Meleiha oil discoveries, through its subsidiary IEOC, according to Eni's website.

#### 2) THE QARUN

The Qarun field is located around 70 km southwest of Cairo. The Qarun field was brought on stream in November 1995, with an average initial production rate of 3,500 bbl/d. In May 1997, Qarun succeeded to complete the permanent facilities and put the field on production with an average production rate of 38,000 bbl/d. In 2010, production facilities in Qarun field were expanded to increase the field's capacity to 66,000 bbl/d, according to Qarun's website.

#### 3) BADR EL DIN

In 1986, Shell succeeded to discover an oil and gas accumulation called Badr El Din field (BED). BAPETCO was initially formed to develop and operate BED-1, Shell's first discovery in the field. The developments of the BED concession led to two significant natural gas discoveries at the BED-2 and BED-3 in the late 1980s, stated by BAPETCO's website.



In **H1 FY 2017/18**, the production from the Badr El Din fields reached **123,000 boe/d**.

#### 4) THE SOUTH GHAZALAT

The South Ghazalat field is located in the Western Desert in the Abu Gharadig basin. In late 2018, the field was discovered through the drilling of the SGZ-6X. In May 2019, EGPC awarded TransGlobe Energy Corporation a 20-year development lease with an optional extension of five years. TransGlobe is the field's operator and targets to install early production facilities to achieve first oil production in Q4 2019, according to TransGlobe's website.

#### 5) THE BERENICE

In 2014, Khaldia further discovered Berenice -1 in the Western Desert, which added reserves of about 8 mmbbl of crude oil, according to EGPC's annual report FY 2014/15. The Berenice field started producing light crude oil in November 2014. In March 2015, three wells were producing more than 9,500 bbl/d. The drilling depth

in the field was approximately 12,000 feet with completed-well costs of \$3 million on average, according to a press release by Apache.

#### 6) THE PTAH

In 2014, Khaldia announced the discovery of Ptah-1 in the Western Desert, with added reserves of 15 mmbbl of crude oil, according to EGPC's annual report FY 2014/15. The Ptah field started producing light oil in December 2014. The field well (Ptah-1X) has a production rate of 2,350 bbl/d, while the second well (Ptah-3X) started production in March 2015 at a rate of 2,000 bbl/d.

### MAIN NATURAL GAS FIELDS

Most of the natural gas fields in the region that were discovered and operated by Khaldia are: Sham, Salam, Um Baraka, and Tarek fields, in addition to other major fields. Further, the Western Desert embraces promising future gas fields such as Melaha Deep and Agiba fields.

#### 1) THE ABU GHARADIG

The Abu Gharadig field was discovered in 1969 as the first large hydrocarbon discovery in the Abu Gharadig Basin. The first crude oil production was in 1973, while natural gas production started in 1975. In 2008, North East Abu El Gharadig (Neag) block started production, while during 2015, the crude oil production rates have been increased from the Neag 1 block reaching 15,000 bbl/d, according to EGAS's website and BAPETCO's Annual Report 2015/16.

#### 2) THE OBAIYED

The Obaiyed gas field is operated by BAPETCO and is located in the Western Desert, 35 km southwest of Matruh. In 1989, Shell was awarded the Obaiyed exploration license, for an area of 4,275 km<sup>2</sup>, then drilled the successful Obaiyed 1-1 well in 1991. The main Obaiyed field discovery took place in 1994 and started production in 1998 at a depth of about 4,000 m.

In 2017, the Obaiyed fields achieved a new increase in production, which amounted to 25 mmcf/d of natural gas and 1,200 bbl/d of condensates after the successful installation of the new compressor unit in the fields. Accordingly, this brought the total production to 515 mmcf/d of natural gas and 47,400 bbl/d of crude oil and condensates, according to a statement by Emad Hamdi, President of BAPETCO, in February 2017.

#### 3) THE ABU SENNAN

The Abu Sennan fields are 10 km South East Neag area and were discovered by Kuwait Energy. In 2012, the field started its production when the first well was tested and drilled with an initial production of 835 boe/d. During H1 2017, Rockhopper Exploration PLC announced that its production from the Abu Sennan fields averaged 3,300 boe/d. The company is currently producing 5,100 boe/d from the field, the company declared in a statement in December 2019.

#### 4) THE QASR

The Qasr Field is located in the northeastern portion of the Shushan basin in the northern part of the Western Desert. The field, discovered in 2003, is considered one of the largest gas fields in the region, with production rates of 670 mmcf/d of natural gas and 30 mmbbl of condensates.

#### 5) THE ALAM EL SHAWISH

In 2012, Shell was granted the right to exploit Alam EL Shawish field. In late 2013, Shell signed an agreement with the Ministry of Petroleum and Mineral Resources (MoP) and EGPC to start its exploration activities within the field.

In 2016, Shell announced achieving a gas discovery in the North Alam EL Shawish concession where the production rates recorded 20 mmcf/d and reserves of 0.5 trillion cubic feet (tcf) of natural gas, which made it one of the largest discoveries during 2016, as stated by the MoP in a press release published in late 2016.

#### 6) SOUTH DABAA

The South Dabaa Block is located north of Badr El Din fields and south of the Razzak field. The block's exploration activities started in early 1998 in the area by HBSI. Furthermore, HBSI made six discoveries before the expiry of the exploration license in mid-2004. In 2011, South Dabaa Petroleum Co. announced the drilling of a new exploratory well in the South Dabaa field with an average of 57.4 mmcf/d of natural gas.





## Field Development Projects

### Field Development Projects in the Western Desert

■ FY 2017/18 ■ FY 2018/19

Project	Operator	Initial Production Rate (mcf/d)	Cost (\$ million)	Start Up
GAS COMPRESSOR	GPC	5	2	OCT. 2017
BTE	BAPETCO/SHELL	30	5	JAN. 2018
NORTH UM BARAKA	BAPETCO/SHELL	20	8	APR. 2018
KARIMA & HG PETROSANNAN	NAFTOGAS	5	6	MAY 2018
NORTH GHAZALAT (S.DABAA)	HBS INTERNATIONAL	5	-	JUL. 2018

## Infrastructure

As the Western Desert is a major producer of both natural gas and crude oil, it has a robust infrastructure to serve the post-production process in the region.

### NATURAL GAS INFRASTRUCTURE

The Western Desert has 13 natural gas pipelines. The northern part embraces seven natural gas pipelines. Meanwhile, the southern part has six natural gas pipelines mainly connecting Abu Sennan, Abu Gharadig, and Badr el Din Fields. General Petroleum Company (GPC) established a plant for gas and condensate processing in Abu Sennan with a capacity of about 85 mmcf/d of natural gas and 3,000 bbl/d of condensates, according to GPC's website. Hence, the southern fields' production is linked to a distribution center on the Mediterranean Coast through Abu Sennan field.

The Western Desert is the second largest petroleum production area in Egypt, representing 32.43% of the total petroleum production, following the Mediterranean Sea that contributed by 38.8% in FY 2018/19. The Western Desert has the potential that encourages the government to work on further developments and attract investors to operate more in them. New discoveries and agreements are capable to attract IOCs and intensify exploration and production (E&P) in the region. This will enhance crude oil and natural gas reserves, and open new horizons towards increasing opportunities in the Western Desert.

## CRUDE OIL INFRASTRUCTURE

The Western Desert has four crude oil pipelines. Three pipelines transport crude oil from the production areas, specifically from Meleiha, Badr El Din, and Abu Gharadig concessions to El Hamra terminal. El Hamra terminal is operated by the WEPCO. The crude oil received by the terminal is controlled and monitored by metering stations, then is shipped by the fourth pipeline, El Hamra-Sidi Kerir, to refineries in Alexandria, according to WEPCO's official website.

### Crude Oil Infrastructure in the Western Desert

Pipeline	From	To	Length (Km)	Diameter (Inches)	Capacity (bbl/d)
Meleiha-El Hamra	Meleiha Fields	El Hamra	167	16	90,000
Badr El Din-El Hamra	Badr El Din 1	El Hamra	128	12	60,000
Abu Gharadig-El Hamra	Abu Gharadig	El Hamra	140	12/16	60,000
El Hamra-Sidi Kerir-Alexandria	El Hamra	Alexandria	90	16	200,000



### Natural Gas Infrastructure in the Western Desert

Pipeline	From	To	Length (Km)	Diameter (Inches)	Capacity (mmcf/d)
Tarek-Ameryia	Tarek	Ameryia	231	34	950
Obaiyed-Tarek	Obaiyed/Salam Connector	Tarek	49.5	32	600
Obaiyed Spurline	Obaiyed	Obaiyed/Salam Connector	41.5	26	480
Salam Spurline	Salam	Obaiyed/Salam Connector	35	22	250
Qasr-Shams	Qasr	Shams	40	24	350
Shams-Obaiyed	Shams	Obaiyed	42	18	240
Salam-Matruh Terminal	Salam	Matruh	75	10	22
BED/AS-Ameryia	BED/Abu Sennan connector	Ameryia	160	24	350
Badr El Din Spur (1)	Badr El Din Fields	BED/Abu Sennan connector	130	20	180
Badr El Din Spur (2)	Badr El Din Fields	BED/Abu Sennan connector	130	16	150
Abu Sennan Spur	GPT	BED/Abu Sennan connector	45	14	-
Abu Gharadig-Dashour (1)	Abu Gharadig	Dashour	260	24	150
Salam-Abu Gharadig	Salam	Abu Gharadig	212	18	187

# EGYPS 2020 FEATURES EGYPT'S UNBRIDLED SUCCESSES



**P**resident Abdel Fattah El Sisi opened the fourth edition of the Egypt Petroleum Show (EGYPS 2020) on February 11. The three-day event was inaugurated under the high patronage of the Egyptian president at Egypt's Al Manara International Exhibition Center, under the theme, 'North Africa and the Mediterranean: Delivering the Energy Needs of Tomorrow'.

The event was attended by His Excellency Egyptian Prime Minister, Mostafa Madbouly; His Excellency Eng. Tarek El Molla, the Egyptian Minister of Petroleum and Mineral Resources in addition to a galaxy of Egyptian ministers, top government officials, senior executives, oil and gas industry's leaders, advocates and partners. Furthermore, EGYPS 2020 witnessed the participation of around 16 CEOs from international oil companies (IOCs) for the first time, which reflects the growing confidence in Egypt and the significant role it plays in the whole region.

EGYPS is one of the most prominent events in the oil and gas sector scene, not only in Egypt but also in the North Africa and the Mediterranean region. This year's edition featured the oil and gas sector's strides toward achieving modernization and transforming Egypt into a regional energy hub.

With being attended by a group of notable officials, the event offered a wide range of experts' insights, policies, and strategies toward developing the sector's value chain, as well as showcasing the region's growing potentials especially after recent discoveries. In addition to that, EGYPS has succeeded to become an established international platform that highlights the sector's unbridled successes and milestones.

In his speech, H.E Eng. Tarek El Molla, the Minister of Petroleum and Mineral Resources, referred to EGYPS as a major platform and one of the important factors in implementing the ministry's strategies and sharing the sector's success stories and reforms.

El Molla praised the attention paid by the Egyptian President to the oil and gas sector, which directly has contributed to achieving tangible milestones internally, regionally, and internationally.

He pointed out that Egypt has managed to overcome many obstacles and reinforced its stability by implementing an inclusive social and economic program. This program led to achieving positive results; including boosting Egypt's growth rates and reducing the budget deficit, the unemployment rate, and the inflation rate. "In addition to that, many national projects were executed, contributing to establishing Egypt as a role model in achieving security, stability and development," El Molla added.

THE OIL AND GAS SECTOR MANAGED TO ACHIEVE A SURPLUS IN EGYPT'S TRADE BALANCE, FOR THE FIRST TIME, IN FISCAL YEAR (FY) 2018/19.

**HIS EXCELLENCY ENG. TAREK EL MOLLA**  
MINISTER OF PETROLEUM AND MINERAL RESOURCES  
ARAB REPUBLIC OF EGYPT

When it comes to the oil and gas sector, El Molla remarked that the sector had faced several challenges which led to the accumulation of the IOCs' arrears, drop in the investments rate, and pausing many projects. All of these consequences resulted







in crude oil and natural gas production deficit. However, the oil and gas sector has succeeded, during the previous four years, in turning out these catastrophes into inspiring success stories.

"The oil and gas sector managed to achieve a surplus in Egypt's trade balance, for the first time, in fiscal year (FY) 2018/19. In addition to that, foreign investments in the oil and gas sector reached \$35 billion and the IOCs' arrears dropped by more than 80%, which helped in retaining the foreign investors' confidence in Egypt and encouraging them to pump new investments," El Molla said.

Furthermore, the minister remarked that the sector's growth has been boosted from -11% to 20%, enabling Egypt to achieve natural gas self-sufficiency. Moreover, El Molla highlighted that Egypt's crude oil and natural gas production has hit its highest rates in history by producing around 1.9 million barrels of oil equivalent per day in August 2019 (mmb/d). Adding to that, the price per equivalent barrel dropped to \$2.9 in FY 2018/19, compared to \$4.2 in FY 2015/16.

Furthermore, El Molla stressed that the sector managed to achieve unprecedented records in connecting housing units to the national gas grid.

Speaking of transforming Egypt into a regional energy hub, El Molla showcased some initiatives in this regard including "developing infrastructure and reinforcing cooperation with our foreign partners," highlighting that "one of the most important practical steps in this regard is the resumption of natural gas exports to Jordan, as well as the arrival of natural gas from the eastern Mediterranean fields to Egypt's liquefaction plants and then re-export it."

Referring to the sector's young professionals, the minister stressed on the necessity of giving more attention to the development of human resources. He explained that "the ministry has been implementing a program to qualify young and middle management cadres, in partnership with major IOCs in their locations inside and outside Egypt," adding that "these calibres' training ranged from 6 months to a year to prepare them to lead the sector in the future."

El Molla pointed out that the success stories in the oil and gas sector stemmed from "the conscious political leadership, as well as the country's political and security stability.

During a tour of the exhibition, President Sisi, accompanied by El Molla attended a presentation from the Middle Management Program's participants. After that, President Sisi engaged with a number of exhibiting companies; including Apache, Wintershall Dea, Bechtel, ExxonMobil, and many more, motivating them to increase their investments in Egypt, especially in the exploration and production (E&P) activities.

In a keynote speech, Christopher Hudson, President of dmg events, referred to the continuous growth of the show to become one of the most significant events in oil industry.

"In recent years, the Egypt Petroleum Show has become the main platform for the African and East Mediterranean energy sector," he commented.

Hudson stated that "our ability to create this unique show is in no small part due to the very active strategic guidance and support of the Minister of Petroleum and Mineral Resources, His Excellency Tarek El Molla," highlighting that "when we started planning the 2020 edition, we formed executive committees and technical committees of industry experts who have worked tirelessly to shape the conference."

Moreover, Hudson stressed that EGYPS provides a unique breadth of insights, policies, strategies, and technical leadership across all elements of the future energy value chain. Thus, "2020 is likely to become a pivotal year for our industry globally and in this region."

With an eye on positioning natural gas as a major component of energy transition, Hudson noted that there is a need to recognise the ever-growing need for responding to the carbon challenge and access to affordable clean energy. In addition to that, Hudson stressed on the significance of attracting new talents to the oil and gas sector, in order to prepare them to be the sector's successful future leaders, harnessing the benefits of a newly digitalised value chain.

Concluding his speech, Hudson stated that over the event's three days, the strategic and technical conferences would review the sector's opportunities and challenges, and feature a remarkable array of speakers providing the full spectrum of policy and commercial viewpoints to shape the industry's future. And as a sign of the event's success, this year's edition has attracted over 1,600 delegates and more than 270 speakers across five conference tracks, in addition to hosting over 400 exhibitors showcasing their latest products, technologies, services and solutions.

The opening ceremony was moderated by the TV Presenter, Osama Kamal, who stressed on the vital role played by the oil and gas sector in achieving Egypt's vision, under Sisi's conscious policies and strategies. Furthermore, Kamal affirmed that Egypt has utilized its oil and gas wealth to accomplish robust growth and reinforce its partnerships and agreements with other countries.

Kamal's remarks were supported by a documentary highlighting the noticeable boom seen in the Egyptian oil and gas sector. The documentary explained how Egypt is enriched by innovative partnerships, new crude oil and natural gas discoveries, and transformation strategies, stating that these factors helped Egypt to gain the required drivers to achieve progress. The documentary also highlighted the significance of the Economic Reform Programme which helped the Egyptian oil and gas sector contributes around 27% of the country's gross domestic product (GDP) in 2018/2019.



# STRATEGIC CONFERENCE DELVES INTO OIL AND GAS POLICIES



The Egypt Petroleum Show (EGYPS 2020) Strategic Conference convened industry leaders from top energy-producing countries to deliberate the transformation of the global energy market to stay abreast of international megatrends across the oil and gas domain.

Tarek Amer, Chairman of the Board of Directors at the Central Bank of Egypt, was one of the key speakers in the first day where he shed light on Egypt's economic status. "I can say today that the Egyptian economy is in a solid position." With the oil sector as a flagship in the country, Amer stated that they are looking forward to more agreements in this regard. "We are very proud to work with the petroleum sector over the last decades. Our banking system continues to support the petroleum sector with all its power," he added.

Amer shared some of the initiatives that Egypt has endeavored since 2016; from abolishing the black market to liberalizing Egypt's foreign exchange regime. "These bold moves were planned very meticulously and its success was the catalyst that jump started the economy and its growth," Amer indicated, adding that the International Monetary Fund (IMF) has had a role in giving a message to international partners that these new policies are market-oriented. "We have a solid banking system that is ready to finance the ambitious financial plans of the government. Many of the petroleum sector's projects have been financed by local banks. In addition, the government is negotiating with the IMF for a structured reform streamlining the investor's environment," the chairman said.

## GLOBAL BUSINESS LEADERS

In the Global Business Leaders session, His Excellency Tarek El Molla, Minister of Petroleum and Mineral Resources, discussed with his Equatoguinean counterpart His Excellency Gabriel Mbaga Obiang Lima, the balancing of supply and demand with geopolitical uncertainties, global trading agreements, and policy objectives. Other speakers in the session were: Frank Fannon, Assistant Secretary at the Bureau of Energy Resources, US Department of State, John Christmann, CEO and President at Apache Corporation, and Brendan Bechtel, Chairman and CEO at Bechtel. The session addressed how geopolitics and foreign trade policies continue to have a major effect on crude oil pricing and supply and demand, giving a glimpse of the new geopolitical power dynamics, new trade alliances, and partnerships that can be expected to dominate oil and gas in the years ahead.

"Talking about oil and gas is not just about sufficiency, but about setting new benchmarks," El Molla said. He went on to discuss how this is evident through the idea of establishing a regional energy hub. In relation to how nations are responding to the global energy challenges, El Molla further looked into the policies, agreements and dialogues that need to be implemented to develop global security of supply. The minister ensured that the East Mediterranean Gas Forum (EMGF) initiative was taken based on actual steps and established foundations, as Egypt does not only have infrastructure, but also has robust reforms as well. "We have well-demonstrated that we are on the right track," El Molla said, adding that "Egypt cannot be a hub without its neighbours so we co-operate [accordingly]."

Meanwhile, Fannon said that a vision needs execution. Creating an inclusive region where all parties can benefit can create political stability, he said, explaining that is the reason why the US fully supports the foundation of EMGF. "We believe energy could be a catalyst among nations for cooperation," Fannon remarked. Nonetheless, this will not be achieved over night; he thought, saying that "What is the best way to eat an elephant? One bite at a time."

Taking a closer look into the US-Mediterranean partnership and its contribution to economic and social development, Christmann said that people are pushing for cleaner energy.



Furthermore, it is not the fossil versus non-fossil conversation anymore, rather it is a holistic incorporation between all energy systems, he said. The Equatoguinean minister shared with the panel one of the most important lessons that he has learned throughout his career in the oil and gas sector. According to Lima, the sector is based on cycles; what might be in style today might be out of style tomorrow. Sometimes the US takes the lead in the market, other times it is China, nevertheless, "we all need each other," he said. Speaking of the technology manifesto, Bechtel deliberated how countries are fostering research and development (R&D) and the creation of disruptive technologies and digitalization strategies. In paving the way for digital policy dialogue, this new technological era impacts and benefits today's society.

## RESHAPING ENERGY MARKETS

The third strategic panel, entitled "Reshaping Energy Markets," witnessed a fruitful discussion from Bernard Looney, the CEO of BP. Looney began his speech praising the role of El Molla, saying that the minister's achievements are evident throughout the entire oil and gas sector, and interweaved in the country's progress toward a safer, stronger, and more fruitful future. He discussed three main things: energy transition, technology, and the human element. In the topic of energy transition, he said that the history of energy always seeks to evolve, transitioning from one phase to another. Looney pointed out that Egypt has a huge increase in energy demand and supply, saying that "Egypt is a case study in how to grow energy and use local resources to do it as cleanly as possible." Looney argued that the second trend of the century is the transformative power of technology. "Technology has transformed entire societies," he concluded.





## PARTNERSHIP'S MILESTONES IN ACHIEVING GROWTH

A panel entitled "The Importance Forward Looking Partnerships to Deliver Growth Aspirations" ended the strategic sessions on the first day of EGYPS. The speakers of the session were Olivier Le Peuch, the CEO of Schlumberger, and Mario Mehren, the CEO of Wintershall Dea. The CEO of Wintershall Dea, opened his speech praising the minister's idea of establishing a regional hub, "First of all, El Molla's idea of creating a Mediterranean natural gas hub is wonderful," he said.

Mehren referred that this a good opportunity for partnership "because it is bringing together nations, it is bringing together companies, it is bringing together different stakeholders to achieve something that would not be able to be achieved on the individual basis," he discussed. Mehren said that these partnerships enable the utilization of the preexisting infrastructure and capabilities within each company. On the other hand, Le Peuch said that his company has been collaborating around the world and establishing partnerships for more than 80 years. He said that his company puts the people first.

## STRATEGIC ROUNDTABLE DISCUSSIONS

Running simultaneously, the North African and Mediterranean Strategic Roundtables examined the regional opportunities across the oil and gas value chain, aiming to promote collaboration, understanding, knowledge-sharing and business opportunity. The first roundtable, entitled Transforming into a Regional Energy Hub was by Osama El Bakly, Chairman at Egyptian Natural Gas Holding Company (EGAS); and Sameh Sabry, Senior Vice President and Managing Director – Egypt at Wintershall Dea. The roundtable presented the possible opportunities to embark on the journey to become a hub for potential investors and strategic partners. Furthermore, Sabry and El Bakly discussed the cutting-edge technologies that are required to achieve this goal.

The second roundtable, Unlocking Energy Efficiency, was set by Eng Abed Ezz El Regal, CEO at Egyptian General Petroleum Corporation (EGPC), and Samir Sarhan; Vice President and Chairman of Air Products. They discussed how Egypt is unlocking the full potential of its natural resources and making them efficient, in addition to the mindset changes that are required to create a transformation culture that buys into and embraces energy efficiency.

The third roundtable was dedicated for bolstering oil and gas infrastructure, ensembled by Eng Waleed Lotfy, Chairman at Petrojet; and Maurizio Coratella, COO – E&C Onshore Division at Saipem. The roundtable conferred how a dialogue on commercial, financial and technical cooperation between all parties is crucial to ensure effective modernization, operation and maintenance of pipelines, terminals, storage facilities and ports.

The fourth and final roundtable aimed at discussing replacing fuels with natural gas, which was debated by Magdy Galal, Vice Chairman for Operations and National Gas Grids at Egyptian Natural Gas Holding Company (EGAS); and Khaled AbuBakr, Chairman at TAQA Arabia.

## ENERGY TRANSITION

The first discussion of the second day, entitled "Responding to Energy Transition and the World's Future Energy Mix", focused on ways to respond to the transition amid a fluctuating market. The session witnessed the participation of four prominent panelists talking about the importance of hydrocarbon industries to the global energy mix. The four leaders were Her Excellency Amani Abou-Zeid, Commissioner of Infrastructure, Energy, ICT and Tourism African Union Commission; Steven Winberg, Assistant Secretary for Fossil Energy US Department of Energy; Ayed S Al-Qahtani, Director of Research Division at the Organization of the Petroleum Exporting Countries (OPEC); and Pál Ságvári, Ambassador-at-Large for Energy Security Ministry of Foreign Affairs and Trade in Hungary.

During the panel, which casts light on energy demand in Africa, Abou-Zeid explained that "Africa will be in a few years the most populous region of the world, and the youngest," adding that "half a billion people in the continent are going to live in urban areas, that are more than rural areas, from here to 2040." She also referred to Africa's richness with both renewables and non-renewable sources of electricity, adding that "40% of the gas discoveries in the world were in Africa," during the period from 2011 to 2018. Yet, "more than half of the population, around 600 million people, does not have access to energy."

As the petrochemical industry is turning into the main source of oil demand, the session discussed petrochemical models, drawing the light to the necessary steps to be prioritized in order to have higher productivity capital and to reach a high position of cost advantage. The panelists further reviewed methods to help the oil and gas industry achieve high profitability and boost returns.

Moreover, the panel went on to discuss the future of energy transition, which is the topic of interest in the global energy industries, reviewing emerging trends like electric cars and SUVs, and the future of oil fueled vehicles, referring to emerging economies role to deal with these changes.

## DELIVERING DOWNSTREAM VALUES

The second session, entitled "Delivering Value across the Downstream Landscape" witnessed a discussion between global business leaders of oil and gas companies. The speakers were Ibrahim Al-Buainain, CEO at Aramco Trading; Saad Helal, CEO at the Egyptian Petrochemicals Holding Company (EICHEM); Andreas Shiamishis, CEO and Executive Member of the Board of Directors at Hellenic Petroleum; Jean Sentenac, President and CEO at Axens; and Stanislas Mittelman, Senior Vice President Africa Division at Total Marketing & Services.

The session reviewed the increasing opportunities in the oil and gas downstream sector. Al-Buainain shared recent challenges and updates facing Saudi Aramco and affecting the global energy industry. He mentioned attacks and successes like SABIC stating that "the acquisition of SABIC was part of Aramco's strategy of growth. Since 2010, Aramco has changed its strategy to become a global energy company and a chemical integration with refining that is in the core of its strategy."

The panel referred to several ways followed by leaders to develop refining efficiencies and boost performance in order to meet growing demands. Helal mentioned that the Egyptian government has been developing the downstream strategy to increase the added value, noting that "without making added value, there is no economy."

"In the future, fossil fuel demand growth will be replaced by petrochemical. So, based on that, most of the players are trying to go more for petrochemicals, which is supposed to grow at a rate of 3% to 4% a year worldwide," Sentenac pointed out.

The panelists further talked about how the petrochemical industry's dynamic could be affected by what is known as plastics circular economy, highlighting the importance of recycling. Moreover, the oil and gas leaders discussed the low sulphur regulations imposed by the International Maritime Organization (IMO) and how they could affect the downstream industry. "The IMO is the last chapter in a very long book, of which the industry has yet to see many chapters," Shiamishis stated.

## EAST MEDITERRANEAN GAS MARKET TRANSFORMATION

The third session, entitled "Transforming the East Mediterranean Gas and LNG Market" included a discussion between global oil and gas leading figures. The session had a discussion between six powerful panelists: Donald Bagley, Vice President Exploration and New Ventures (Europe, Russia, Caspian, MENA) at ExxonMobil; Toulou Onoufriou, President at Cyprus Hydrocarbons Company (CHC); Abdulsamad Abdulrahim, Chairman of the Association of Tanzania Oil & Gas Service Providers; Houda Dabbousi, Vice President Commercial MENA at Royal Dutch Shell; Mathios Rigas, CEO at Energean; and Mahdjouba Belaifa, Head of Gas Market Analysis Department at Gas Exporting Countries Forum Secretariat (GECF).

The session tackled plans in the East Mediterranean region to create natural gas hub, which led countries to put aside their ever-going conflicts and form geopolitical alliances. About whether the East Med is able to achieve sustainable net exports of gas to the world, Bagley said that "there are great signs around that, but it is going to take a sustained and continued exploration efforts to achieve those sorts of goals."

The oil and gas leaders talked about remaining necessary changes in the region's infrastructure and the needed investments to help the hydrocarbon industry meet the market's natural gas and liquefied natural gas (LNG) needs. Summarizing the gas market issues, Rigas noted that investments in the gas fields exist; however, "the real issue right now in the Mediterranean comes around to two points. Number one is infrastructure, and number two gas prices."

The panel also reviewed the future of electricity and energy mix. "If electricity leaders want their young family members, children and grandchildren, to live with electricity as a right, they need to make sure that they have more energy and they have cleaner energy," Dabbousi noted. "Operators need to look at the energy mix very closely and to think about how renewable energy can take more prominent percentage of the energy mix, not only in electrification, but across all energy uses, and how gas being the lowest carbon emitter out of the hydrocarbons to play a role in helping the operators get there and in bridging that renewable space," she concluded.



# EGYPS 2020 TECHNICAL CONFERENCE ADDRESSES MANAGING RISKS, INCREASING PRODUCTION



**T**he fourth edition of the EGYPS 2020 was a chance for oil and gas industry leaders to cast the light over the challenges and prospects of the industry.

However, for the industry technical experts, EGYPS technical conference was a chance to unfold a trove of new ideas and aspirations. Over the conference days, the 36 technical conference sessions were full house, where 144 renowned international technical experts delivered presentations covering 15 technical categories to share their wealth of experience and knowledge.

The hot debates began with a session titled Improving Productivity, Reducing Expenses, which falls under the Operational Excellence (OPEX) technical category. The session included four different technical presentations discussing different aspects of providing further advancements in the oil and gas industry.

A technical session entitled "Mitigating risks and improving asset integrity" that took place in the second day of the conference included three presentations.

The first presentation by Tarique Yusuf, Process Engineer I at Kuwait Oil Company (KOC), addressed "Managing risks to human performance for operational excellence".

Yusuf began his presentation with an introduction about the importance of Operational Excellence (OE) to the oil and gas industry.

Yusuf said that "we have only limited focus on human performance" which is a main element of OE, although it is the reason behind most of the disasters and risks.

Yusuf searched for solutions through adopting an approach addressing organizational factors, job-site conditions, individual behavior and results. He also implemented risk management techniques. He found that human actions were the cause of error in most cases.

Yusuf directed towards human performance improvement (HPI) through reducing errors and managing control during all activities noting that "when we talk about HPI, it's not only when a worker touches an operator, but also when a worker touches a document that influences the plant, process and operation".

He concluded his presentation introducing some initiative he adopted for reducing errors for instrumentation system which emphasizes that carrying out improvements need to necessarily involve large funds, willingness and leadership qualities to help.

The second presentation addressed "Permanent mechanical connector pipeline repair solutions as part of a contingency strategy". The speaker was Andrew Woodward, the Market Manager at Subsea Products, Connector Subsea Solutions (CSS), UK.

"If you have a contingency strategy for pipelines, you can do and you can minimize the many of time that you will expose to the fire of pipelines", Woodward explained.

Woodward believed that "being reactive is significantly more expensive and resource intensive than being proactive".

Additionally, he added that mechanical connector can create pipeline connections equivalent to a good weld.

## MITIGATING RISKS

Mahmoud Hegazy, the Head of Operations at Kuwait Energy, Egypt concluded the session with a presentation on "Mitigating Risks". He introduced his idea about "operation management system (OMS) as integral part of asset management".

Hegazy explained OMS as "inhouse customized software which helps Egypt operations in many ways to overcome business, challenges, data management {and} enhance workflow efficiency, save time and save cost".

He elaborated that this system has several modules. These modules addressed data management and integrations, executive production summary, warehouse management, contract management, budget management, invoices system, tender tracking and economic calculator, and stakeholder management.

Hegazy added that OMS has second phase which presents dashboarding upgrade, calculate direct and indirect well costs, performance board, project management and it performs as analysis platform for material consumption and performance.

In another session, entitled Unlocking Potential of Mature Basins, a group of four presenters discussed how to unlock potential of mature basins in Egypt. They have shared the studies conducted on some fields to increase their production.

The first speaker was Haytham Aly Osman, Drilling Operations Department Manager at Agiba Petroleum Company. He presented an overview of Low Resistivity Low Contrast (LRLC) zone in Bahariya shaly sandstone using new interpretation and evaluation techniques.

According to Osman, the factors affecting LRLC reservoirs are: bed thickness, grain size, mineralogy, clay distribution and water salinity. He talked especially of Dorra field, where the first examination did not show any hydrocarbon or sandstone. He confirmed that the new interpretation and reservoir stimulation jobs have shown different results.

## RAISING PRODUCTION

Nader Mohamed, Section Head, Geologist at Suez Oil Company (SUCCO) presented another successful study in Ras Budran Field especially Matulla, where there was a decline in productivity. "The main challenges are increasing production, adding more additional reserves and increasing the field's lifetime," he explained.

He analyzed the new workflow implemented to increase production. Its stages are: revising old data and reports, geo-seismic interpretation, formation evaluation and integrated work and 3D model. The results of this work flow were meeting the challenges he set in the beginning of his presentation.

Three unites with four bounding surfaces were discovered in Ras Budran. The study showed that Matulla has good sand reservoir quality at the lower unit. In addition, lower Matulla has average proved additional production of 500 BOPD. He concluded by stating that this workflow can be applicable in similar brown fields.

Ibrahim Attia, Senior Geophysicist, South Valley Egyptian Petroleum Holding Co. (GANOPE), displayed his geological study on the Northwestern Red Sea and the southern Gulf of Suez. He applied seismic data conditioning, seismic attribute analysis and geological analysis of the wells.

Islam Zewain, Senior Reservoir Engineer, Gulf of Suez Petroleum Co. (GUPCO), presented a software that assists decision making. He explained that the economic evaluation team at GUPCO is concerned about examining new opportunities. He explained that "the privileges of this software are it is homemade; it gives instantaneous calculation and it respects all production sharing parameters." He clarified the steps of using the software. It starts with general input of data, then production profile and oil prices.

The software is designed to evaluate the success or failure of a certain project or contract based on this input.

The last day of EGYPS 2020 was also a very busy day for technical experts. The first session in the last day discussed "Occupational Health and Safety".





Kareem Rasmy Kamel, the Principal Safety and Loss Prevention Engineer at ENPPI Egypt started the flow of presentations with a discussion of "Risk based approach in design hazard management".

Kamel elaborated through case studies that the early integration of hazard identification and risk assessment methods in the design process "eliminates or minimizes the risks of injury throughout the life of the product being designed".

The second presentation entitled "Attributes of leading organizations: Best-in-class contractor management re-visited" introduced by David Bibby, Manger ISN Software UK LTD UK.

Bibby referred to the contractor management as the main trend for safe operation. He explained that there are ten strategic elements that should be followed for best-in-class contractor management.

## ENHANCING SUSTAINABILITY

The third presentation, introduced by "Mark Woolaghan, Senior Project Manager at Bechtel USA, explained "Upskilling Programs of Egyptian Construction Projects."

Woolaghan presented the efforts of his company to provide skills training programs.

He discussed sustainability from Bechtel's point of view saying that "we improve the quality of life in communities where we work by respecting local cultures, engaging local people, and protecting the environment".

The last presentation of the session was provided by Aimen Badawy, Environmental Manager at BP, under the title "Keeping Mediterranean Skies Clean". Badawy noted that "BP's goal is minimizing the carbon footprints of its operation".

"Environment and Sustainability" was the topic of the second session of the third day. The session started with a presentation entitled "Flare Management Reduction Schemes", introduced by Tamer Aieysh, HSE General Manager at Rashid Petroleum Company (Rashpetco).

Aieysh showed the flare problem especially in his company. He introduced Rashpetco initiative to minimize flared gas to ALARP to minimize environmental footprint.

The second presentation was introduced by Margret Khloian, a graduate student from Kyushu University of Japan under the title of "Unveiling the Mechanisms of Sodium carbonated Gel formation and Potential for CO2 Sequestration for Shallow Formations".

Khloian talked about the problem of CO2 emission and its causes. She concluded that "with the increase in carbon dioxide concentration, there will be an increase in the formation of sodium carbonated-gel. Additionally, Sodium concentration decrease, as it dissolves in solution to form the sodium carbonated-gel."

Section Head in Occupational Health and Safety at Egyptian Natural Holding Company (EGAS), Mohamed Adel Moustafa Abd-Elaziz gave a presentation about "Synthesis of Recyclable Carbon/lignin bio-composite Sorbent for in-situ uptake of BTX Contaminants from Wastewater". He talked about the water pollution and how to get benefits from the wastewater especially BTX.

The last presentation entitled "Instead of banning plastics, recycling is a better compromise to achieve resource saving, waste processing and sustainable environment" and was provided by Ahmed Shoman, Head of Technical Support & Market Development, Egyptian Ethylene and Derivatives Company (ETHYDCO), Egypt.

Shoman saw that "recyclers must work very closely with actors at all stages of value chain to throw off the technical, psychological and economic shackles hindering greater substitution of recycled plastic for raw plastic".

## DEVELOPING UNCONVENTIONAL WELLS

Another session in the last day of the technical conference had four presenters tackling integrated stimulation approaches to develop unconventional wells.

The first presenter was Ahmed Samy Ragheb, Reservoir Engineering Section Head at Esh El Malaha Petroleum Company (ESH-PETCO), Egypt. His presentation was about using stimulation and hydraulic fracturing treatment to develop Thebes reservoir. He mentioned that before this case study, Thebes was not considered as a reservoir and it was not an interesting formation. So, the challenges the team met can be summarized in two points "first, is to introduce Thebes as a new reservoir, second, how to produce from such a tight reservoir with optimum cost," he clarified.

He explained that the team collected all the available data before stimulation and decided to use hydraulic fracture treatment with modifications.

Amr Abdelbaky, Technical Advisor at Halliburton gave a presentation about the execution of an integrated fracture approach in Bahrah well, Mauddud formation in Kuwait.

He explained that since 1936, some zones of the reservoir have not been accessed. He added that during drilling, there was oil in Mauddud formation, but there is no contact between the reservoir and the wells. He added that the team drilled six vertical wells to solve the previous issue. The production increased in the beginning, but then it declined dramatically. So, they needed to increase the contact between the reservoir and the wells, as he explained.

"To increase the contact between the reservoir and the wells, they need to drill horizontal wells and do multi-stage fracture," he clarified. He explained that by using this fracture execution strategy, the team had completed three drilling campaigns from 2015. As a result, "the team

was able to get economical production from a zone which has been left behind since 1936," he concluded.

## SMART SOLUTIONS

Mohamed Aboelenin, Petroleum Engineer at GUPCO, gave a presentation about the execution of smart e-coil for the first time in Egypt. He started his presentation saying that "I will present a multi-discipline project that succeeded to add 2000 b/d from a mature field. He explained that the field is GS327 that produces from Kareem and Asl sandstone reservoirs. He pointed out that producing from this platform was a challenge because it has heavy oil and a sour environment.

He clarified that "the team studied most of the deployment methods that we have in the market and they ended up with choosing smart e-coil" to access the platform. He explained that smart e-coil is used to deploy logging tools with the surface read out and also for conventional operations like cleaning out and milling.

The last presentation was given by Bhargava Ram Gundemoni, Global Business platform E&P at 3M, Germany. It was about using, enhancing and applying ceramic sand screen in Malaysia. He explained that "in Malaysia, the formation sand production is one of the major production challenges in most of the mature fields." He illustrated that ceramic screen were applied in those fields to ensure sand free production. However, after the installation, 7 wells were diagnosed with ceramic screen failure post 6 months to 15 months of the actual production, as he mentioned.

He demonstrated the steps taken to analyze the problem. Tear down investigation and Computational fluid dynamics (CFD) analysis were executed to develop the ceramic screens as he clarified. As a result, "the team did some modification on the design of the end cap section and has implemented some design changes which were later re-evaluated by CFD analysis," he added.

He mentioned that the new modified ceramic screen was applied in S field, well G in Malaysia which had sand production. He explained that "ceramic screen was the best solution on this kind of well," because ceramic sand screens made with sintered silicon carbide offer much higher erosional resistance at speed of 300 ft/s sand impingement velocity.

He concluded by listing the results of using ceramic screens. He stated that the ceramic screen allowed the well potential to be fully unlocked. "The well is producing at 100% chock and did not produce any sand at surface," he added.

In another session, four presenters had discussed latest technologies applied in Egypt and abroad in offshore and subsea operations.

The first presentation was about how to prepare pipelines for intervention and to safely re-root them. The presentation was given by Ahmed Farahat, Project Manager at Global Projects Organization, BP, Egypt.

He mentioned that "intervention of pipelines is a necessity," because there are various damage mechanisms for pipelines such as loss of internal wall thickness. In addition, he explained that having a repair plan would improve overall reliability of the pipeline system and help reroute pipelines from old to new fields.

He gave an example with the intervention process of Valhall offshore field in Norway. He went through the whole processes of the project that included cleaning the pipelines, hydrocarbon de-isolation, soil dredging, concrete removal and installation of driverless mechanical connectors.

He added that "the Egyptian offshore oil and gas pipelines network is really complex and is very large. The ministry needs to think of a contagious plan for the Mediterranean pipelines as well as the Red Sea."

Mahmoud Eissa, Senior Project Engineer at NOSPCO, discussed the execution of the mobile offshore gas production unit (MOPU) in KAMOSE platform.

He discussed the advantages of using a MOPU as it facilitates wells intervention and make it easy to move between locations.

Sylvanie Sieng, Africa Field Development Lead Engineer at Subsea7, gave a presentation about developing long subsea tie-back in a sustainable manner with energy harvesting. She stated that "oil and gas companies are pushing forward technology to produce oil and gas at a lower cost." She mentioned that using renewable energy sources which are available in offshore platforms can provide the power needed at a lower cost.

She clarified the company is working on two power providers for the different kind of subsea equipment that need different power ranges. She said that "the first one is the wave energy convertor and the second one is the offshore wind that can provide all the electricity to the most consuming subsea equipment."

The final presentation of the session was given by Mohamed Maher, SPS lead Engineer at Enppi. His presentation was about optimizing the cost of subsea Xmas tree. He mentioned that "subsea Xmas tree is a vital and critical equipment of the subsea production system. So, the industry needs to optimize its cost."

According to him subsea Xmas tree is vital to controls production flow rate, controls downhole safety valves, monitors pressure and temperature of the production fluid, monitors the sand production rate and provides water or gas injection capability to maintain reservoir pressure or improve recovery.

## FINANCE AND INVESTMENT SESSIONS

# EGYPS 2020 HIGHLIGHTS KEY FINANCIAL EDGES OF EGYPT'S OIL AND GAS SECTOR

In the Egypt Petroleum Show (EGYPS 2020) Finance and Investment Summit, which was convened on the third and the last day of the show, February 13, four significant panel discussions gave insights into the financial side of oil and gas sector, motivating new investments, as well as shedding light on the government efforts to attract more foreign investments.

## EGYPT'S ECONOMY: THE BIG PICTURE

Kicking off the summit, H.E Dr. Mohamed Maait, the Minister of Finance, gave a keynote speech on Accelerating Investments to Fuel National Growth—the Egyptian Story. Maait discussed the latest macroeconomic developments, fiscal developments, as well as the external sector developments, affirming that such updates play a vital role in enhancing the financial prospects of the oil and gas industry.

During his speech, Maait also highlighted how over the last four years and under the Economic Reform Program, the real gross domestic product (GDP) jumped from 4.2% in Fiscal Year (FY) 2013/14 to 5.6% in FY 2018/19. He added that "this year we hope to achieve around 6%. Next year, our target is to reach 6.4%."

On a global scale, the minister remarked that according to The Economist, Egypt is ranked the sixth in achieving one of the highest real GDP growth rates, compared to the Middle East and North Africa (MENA) and emerging countries.

For the components of GDP, Maait mentioned that the contribution of net exports to GDP growth rate has improved from -1.9% in FY 2013/14 to reach currently around 2.3%, adding that "if we look at the contribution of investments, it also increased from 0.2% in FY 2013/14 to around 2.5% now."

For consumption, the minister remarked that it declined to 1.2% after recording around 4.5% in 2013/14. He stressed that "we carefully study our components contributing to GDP growth. We are happy that net exports and investments are contributing better than before. However, we are still looking at restoring the contribution of consumption to grow again. And we are taking many initiatives in this regard."

Maait affirmed that private investments are an essential core for nourishing the Egyptian economy. Thus, "our strategy for coming years is to encourage more private investments," the minister said, adding that "we strongly believe that the private sector has to contribute more to our economy. We rely on it in creating more job opportunities, contributing more to our GDP, and become the main driver for our growth in the coming years."

Afterward, Maait shed light on energy subsidies saying that "we made a significant improvement in rationalizing energy subsidies which were 6.5% in FY 2013/14, but now we are less than 1%." Moreover, the minister commented that "[rationalizing energy subsidy] is a significant measure of our economic reform. It gives us a space to reduce the budget deficit and achieve a primary surplus, [which will help] reduce our debt ratio to GDP."

Affirming on that, Karim Saada, Al Ahly Capital CEO, delivered another keynote speech on Overcoming Uncertainty: A Roadmap to Efficient Energy Investments during which, he tackled the various prospects of financing and supporting the Egyptian oil and gas sector. "What we do is that we inject equity," Saada said, adding that the banking sector spares no effort to attract investments and support the business structure of oil and gas sector.

## INSIGHTS INTO GLOBAL OIL AND GAS INVESTMENT AND FINANCING

The Summit comprised several panels. The first one provided insights into the financial challenges facing the oil and gas sector's investments. The panel was moderated



by Farouk Soussa, Vice President, Economic Research (MENA), Goldman Sachs. It presented five key figures; Regis Monfront, Deputy CEO, Credit Agricole Corporate and Investment Bank; Maria Martin, Head of Corporate Finance, Energean; Helmy Ghazi, Managing Director and Head of Global Banking Egypt, HSBC Bank Egypt; Thomas Hardy, Assistant Director, US Trade and Development Agency; and Karim Badawi, Vice President and Managing Director-Egypt and Mediterranean, Schlumberger.

Speaking of global issues and its impact on energy transition, Monfront began highlighting the "impressive improvement in the situation of Egypt, which means that Egypt will become again a very attractive investment destination." Additionally, he clarified that "energy transition is a long journey. It does not happen overnight," noting that this transition requires shifting to a decarbonized economy. To achieve this, natural gas will have a major role to play, "and Egypt is blessed with significant natural gas resources."

Commenting on the changes occurring on the global landscape of the sector, Martin stressed that many investments were launched in terms of Environment, Safety, and Governance (ESG). She affirmed that "we start looking at the things that make us better."

With an eye on Egypt, Ghazi remarked that there is noticeable progress in the financial side of the oil and gas sector. He stressed that "the Egyptian oil and gas industry is one of the few sectors in Egypt, if not the only one, that was able to attract substantial partners across many years."

Furthermore, Badawi showcased the different projects that have been developed, clarifying that Egypt currently maintains a successful journey towards digitalization and







technological efficiency. He highlighted that the major strategy of the sector's progress is the Modernization Project.

### THE EVOLVING DYNAMICS OF OIL AND GAS PRICING AND ITS INFLUENCE ON HYDROCARBON INVESTMENT DECISIONS

The second panel was moderated by Edward Bell, Senior Director, Market Economics, Emirates NBD. It presented two industry experts; Anne-Sophie Corbeau, Head of Gas Analysis, BP; and Eric Swanson, Corporate Development, Halliburton. The panel discussed the major practices of the sector which influence investment decisions.

Concerning energy transition, Corbeau supported the world's energy transition toward natural gas resources. Additionally, she clarified that the sector's initiatives mainly aim at achieving energy efficiency.

Additionally, Swanson explained that "the industry base shrunk because investors did not find returns." That is why he highlighted the collaboration and alignment that exist between governments, international oil companies (IOCs), national oil companies (NOCs) which represent a key factor in maximizing the use of their assets and increase investments' returns.

### THE IMPORTANCE OF GOVERNMENT PARTNERSHIPS TO DRIVE FOREIGN INVESTMENTS IN THE OIL & GAS INDUSTRY

The third panel of the Summit was moderated by Rafik Selim, Principal Economist – Southern and Eastern Mediterranean European Bank for Reconstruction and Development (ERBD). It saw significant panelists; Steve Lutes, Vice President – Middle East Affairs at the US Chamber of Commerce; Oliver Richards, Country Director – Egypt at the Department for International Trade (DIT – UK); and Jasmine Wahhab, Commercial Counsellor and Senior Trade Commissioner at Global Affairs Canada.

The panelists discussed methods of encouraging finance and investment in the oil and gas sector. Lutes noted that creating a dialogue with governmental officials and policy regulators is conducive to attract investments that grow the US footprint in Egypt.

Richards commented that "47 or 48 billion euros are invested in Egypt in recent years and a big chunk of that in the oil and gas sector."

Concerning the environment and seeing it as a key element in achieving sustainability, under the sector's continuous development, Wahhab showcased Canada's Clean

Resource Innovation Network (CRIN) initiative to produce clean energy. She noted that this initiative will be particularly valuable in Egypt as "it is privileged by the discovery of new resources."

On renewable energy and investment attraction, Wahhab commented on the vital role of the ministry's Modernization Project in addressing these goals. Adding that, the ministry should further create a clearer plan to address climate change so that investors know what to expect.

### STRIKING THE BALANCE BETWEEN PROFITS AND PRODUCTION GROWTH – A CFO'S OUTLOOK

The last panel of the Summit discussed the role of chief financial officer (CFO) in managing costs under the current climate. The panel included presentations by Ahmed Abdel Fattah, Head of Finance at Kuwait Energy Egypt; Hala Borai, Vice President for Financial and Commercial Affairs at the Egyptian Natural Gas Company (GASCO); Ahmad Ali Bin Obood, Chief Financial Officer at Dragon Oil; and Tameer Nasser, Chief Financial Officer – North Africa at Baker Hughes.

Abdel Fattah commented that adopting new initiatives should be on the agenda to overcome challenges and maintain sustainable profits. On the other hand, Borai said that the role of the CFO has changed. "The growth of the company needs to shift, not to focus on the expertise itself [but on skills]," said Borai.

On digitalizing the sector, Bin Obood shared his company's Triple One Project which aims to digitize the whole company. Consequently, Dragon Oil became 40% digitized in 2019. Bin Obood added that the company aims to be 100% automated by the end of the year.

Nasser highlighted that "Egypt is already a gas hub," adding that Egypt is the only country in the East Mediterranean with a ready and well-constructed infrastructure.

### ROUNDTABLE

The Summit was concluded by a roundtable discussion on Steering Investments to Achieve Economic Sustainability. Nevine Mansour, Adviser to Vice Minister for Fiscal Policies at the Ministry of Finance gave a presentation on the measures taken by Finance Ministry to contribute to the reform of the oil and gas sector. She clarified that these measures include introducing the indexation formula which takes into consideration international oil prices and the exchange rate to ensure fair pricing of petroleum products in Egypt.



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# A BENCHMARK FOR EXCELLENCE: WOMEN IN ENERGY

**W**omen involvement in oil and gas sector was the subject of a very rich debate by prominent global energy leaders and stakeholders, who gathered in five panels on the third day of the Egypt Petroleum Show (EGYPS 2020) to address the challenges the industry faces in achieving gender parity and inclusion. Creating a long-term forecast, strategy, and action plan to foster a sustainable, equitable, and inclusive industry of the future were targets of several renowned experts who took part in the debates.

## ADVANCING INDUSTRIES AND ECONOMIES

The Women in Energy conference started by a keynote address by Her Excellency Dr. Amani Abou-Zeid, Commissioner of Infrastructure, Energy, ICT and Tourism of the African Union Commission. Abou-Zeid addressed the importance of diversity for enhancing global economies and industries.

According to her, the oil and gas industry needs to attain innovative technologies and strategies in order to boost the output to face the growing global demand in the Fourth Industrial Age. Hence, the need to have different mindsets is increasing, which makes it vital for the oil and gas leaders to diversify their workforce.

Egypt does not only empower women in the energy sector, Abou-Zeid noted, but also the North African country is challenging the stereotypes tying women down, while guaranteeing their economic involvement in other sectors.

## ECONOMIC EMPOWERMENT

The Women in Energy conference went on to present a gender champions panel, entitled "The Importance of Gender Equality for Economic Empowerment." The panel had two prominent gender champions discussing equality: Shauna Olney, Chief of Gender, Equality and Diversity at the International Labor Organization (ILO); and Gielan El Messiri, Country Representative and Head of Office at the United Nations (UN) Women.

The panel traced gender inequality 8,000 years back in the Neolithic Caves, where one gender used to dominate the other. This inequality has been decreasing over the years. However, the new markets require more work to achieve gender parity.

The discussion further depicted the policies and frameworks that support gender equality and how governmental policies can help industries to include women. The champions talked about the evaluation mechanisms as well as resource needed to support effective policy delivery.

Moreover, Olney and El Messiri discussed socio-economic barriers like the tradition that women working for money, and what can be done to overcome them. They further shared their views on shared responsibility and work-family balance, and what companies can provide to help women achieve this balance.

## GREAT CREW CHANGE

The second panel of the conference, entitled "the Great Crew Change - what it is and how does it impact inclusion and diversity initiatives?", had three main leaders in the oil and gas industry. The panelists were Donna Riley, Vice President - Human Resources (Upstream Regions) at BP; Fabrice Bouchaud, Global HR Director - Workforce Planning and Talent Development at Schlumberger; and Susan Peterson-Sturm, Senior Vice President Digital Transformation at WintershallDea. The panel was moderated by Liana Gouta, Group Director - Energy Policy & International Affairs at Hellenic Petroleum.

The oil and gas industry is expected to witness a great change in its crew as almost 75% of its workforce is aged over 50 years, while around half of the employees are believed to retire during the upcoming seven years. The panelists discussed the measures taken by the sector to face this change as the oil and gas companies, which according to Bouchaud "operate in

a marketplace characterized by high levels of volatility, uncertainty, complexity and ambiguity."

Hence, it is important to diversify the workforce and include everyone in the workplace. Peterson-Sturm highlighted that at WintershallDea she "has 4,000 pioneering colleagues from 60 nationalities in 13 operating countries and that diversity is the company's strength."

Moreover, the panel discussed the best practices followed by different nations to attract millennials, professionals, and the Gen Z to the oil and gas industry. Riley noted that the oil and gas sector would be coming to "a generation of future employees" who would be looking for "an organization that offers flexibility." The industry is hiring people to lead new-tech driven roles that did not exist in the past. Therefore, companies are working and preparing for new roles that might exist in the future.

## ENERGY ROUNDTABLES

To give room for discussion, the conference had two interactive roundtable discussions. The first roundtable, entitled "women on boards, the importance of a gender diverse boardroom to optimize company performance" was led by Yehia El Hussein, Corporate Governance Project Manager at the International Finance Corporation (IFC).

The roundtable discussed the importance of employee experience and how it could be polished through programs and initiatives, boosting profitability and growth. Moreover, El Hussein reviewed workplace inclusion policies, focusing on how they benefit business strategies.

El Hussein talked about how the IFC conducted researches to show company boards the importance of including women and the financial gains that can be achieved for each company because of this. This led the Financial Regulatory Authority (FRA) to announce that boards of directors should have at least one woman. El Hussein expressed his delight that the FRA did not set a percentage for the quota of women inclusion in the boards of directors as many people are "against quotas because they are a stamp against women," and that women would like to be included because of their potential, not just to meet a quota.

The second roundtable, entitled "Learning from Mentors and Eventually Becoming One," was led by Iman Wafy, DCT Assistant Chairman at Pharaonic Petroleum Company; and Karim Soliman, DCT System Supervisor at Pharaonic Petroleum Company.

The roundtable tackled the factors identifying a good mentor and how to seek one. Mentoring and guidance is important for women to climb their career ladder in the oil and gas challenging industry. The oil and gas sector does not "have structural professional programs for mentoring, especially in the governmental part of the oil and gas. There is a desperate need for such program as they will help women in energy to move forward through their career," Wafy said, adding that the sector "needs to work together with IOCs partners to start structuring something formal for these mentorship programs in the oil and gas sector especially for the candidates coming back from the Middle Management program, as they need a lot of mentoring throughout their career progression."

A woman should be sought more to mentor another woman, as "statically women tend to go to women to mentor them," Wafy noted. However, many of the attendees talked about how they were well mentored by a male senior. Mentoring is one of the most powerful and very good tools that women can use," Soliman stated, adding that "to seek a mentor is a very easy step in one's organization, because the person knows who is reputable in his/her organization."







Melissa Jones, Global Manager of Business Development - Downstream and Chemicals at Bechtel; Nana Sarajishvili, Head of Pricing - EMEA at Chevron; Tracy Josefovsky, Vice President - Human Resources at Halliburton; and Yasmine El Sayegh, General Manager - Commercial Excellence (Global Upstream & Integrated Gas) at Royal Dutch Shell, led another panel and a live question and answers (Q&A) session addressing "the Roadmap to Achieving Gender Diversity Across all Levels of the Oil & Gas Industry."

The panel tackled ways for companies to enhance recruitment methodologies in order to enable equal opportunities for both women and men. Industry leaders have to recognize the challenges faced in the hiring process for leadership positions, according to Jones, who explained that when Bechtel is "bringing people into the organization, one of the efforts they try to make is to ensure that there are diverse candidates being selected for the interviews for these positions; that means men, it means talented women. It also means other underrepresented groups."

The panelists further talked about the programs that could enable women to develop their career and broaden their expertise in the oil and gas field. Josefovsky discussed the importance of fulfilling employees, highlighting Halliburton's recommendations and models such as providing child care support and parental leaves for both moms and dads. Furthermore, El Sayegh pointed out the importance of culture explaining that "in Shell, people believe everybody is entitled," adding that "regardless of one's ancestry, one's age, one's color one's gender, or one's preferences, Shell wants everybody to come at the office and be the best selves that they can be."

The session discussed gender equality audits that help oil and gas firms to assess the progress of their gender inclusion plans. "Diversity means that you have a prospect of people from different backgrounds who are part of the team, but the inclusive part is what makes their ideas and contributions meaningful for the organization. And so what is important in that aspect is to ensure that everyone has a seat at the table, and that their opinions are asked for," Jones stated.

## YOUNG LEADERS

Afterwards, a group of young women led a panel to discuss nurturing leaders for the future. The panelists were Heba Aboelnasr, Automotive Lubricants Sales Advisor at Exxonmobil; Farida El Harouni, Student at the American University in Cairo (AUC); Rim Henri, Wireline and Perforation Field Professional at Halliburton; and Amira Mohamed, Student at the AUC.

The four women were selected as finalists in EGYPS 2020 Women in Energy Awards from the Next-Gen Female of the Year and STEM Star of the Year categories. The panelists discussed pursuing STEM studies, while focusing on parental expectations compared to personal goals.

Aboelnasr talked about her experience working in the oil and gas sector and how this actually brought her closer to her child.

She advised young women in energy to "not shy away from who they are; they do not have to act all sure to fit in a male dominated industry, they don't have to act like a man. Science actually says that women have higher emotional intelligence than men. That is a fact and no one could argue with that. In that point, emotional intelligence is a key to any negotiation."

El Harouni was the youngest lady in the panel, who talked about her internships and what inspired her to join the oil and gas industry as an undergraduate research assistant. She expressed her belief in the butterfly effect and how she thinks that her smallest actions could affect the industry. She thinks that the "oil and gas industry internationally has been always introducing some renewable aspects for sustainability, for example. This is the future, because sustainability is thinking about future generations, what will future generations be working in, and the footprints that we are leaving for them as well."

Meanwhile, Mohamed talked about how she has been developing herself, pointing out to the support she received from her family and from her colleagues. She advised everyone to support and help each other to progress and develop their career paths.

Henri also shared with the attendees what got her into the oil and gas sector in the first place, referring to the socio-cultural challenges she had to deal with. She noted that not only strong women can pursue jobs in the oil and gas field, because even if they were shy, the oil and gas sector changes women giving them strength to progress.

## ADVANCING EGYPTIAN WOMEN

The women in Energy Conference was concluded with a panel entitled "Advancing Women in Egypt: where are we in this journey and how much further do we need to go?" The panelists were Engineer. Amira El Mazni, Independent Oil and Gas Consultant; Hussam Abu Seif, Director & General Manager - Egypt, Sudan & S. Sudan at Baker Hughes; Manal Messiha, Vice President - Customer Satisfaction & Quality at Schneider Electric; and Mona Gado, General Manager - Customer Affairs & Gas Supply Contracts at GASCO.

The panelists evaluated the progress of the Ministry of Petroleum and Mineral Resource's structural reform in the Modernization Project. Additionally, the panel talked about the Modernization Project's training and development initiative and how they affect the Egyptian workforce transformation. Gado talked about how modernization is empowering women, as the Egyptian constitution and labor law are empowering them to climb their career ladder and work in higher positions.

The panelists further talked about encouraging women to choose STEM studies, addressing the lack of women in the energy sectors. Messiha addressed the challenges faced in attracting women to have STEM education, stating that the mindset of the community is what ties women with the idea that they can or cannot work in the oil and gas sector. "Everyone needs to have a role in their organizations and in their community to change the mindset of the team," she pointed out. Moreover, the panel discussed the cultural biases challenging women in climbing their career ladders and the importance of addressing these biases.

El Mazni talked about her journey when she first joined the oil and gas industry around 36 years ago. She recalled that she had received trainings and was allowed to visit various fields and refineries in the sector, except in Ras Shokair, which was entirely believed to be a male-dominated environment. Accordingly, she initiated trainings in the sector allowing women to go to Ras Shokair field and stay for two weeks.

Moreover, panelists discussed how the Egyptian economy can be boosted through providing equal opportunities and equal pay for both genders. "Women now are a part of the sustainable growth, they are active members, they are well integrated in the work force of the petroleum sector and they are recognized not only at home as a cornerstone and a pillar of the family, but also as a productive citizen that brings productivity and increases the income and revenue of the country," Gaso said.

Abu Seif took up the assessments to identify female talents, noting that the Middle Management Program is a great step. "The outcome of such a program, that Baker Hughes also pursued, is to build an assessment of the leadership criteria that the sector has in its progress," he stated adding that the "program gave a great opportunity to build assessment procedures to help identify gaps and from these gaps concentrate more technically on whether they are good on decision making, and whether they are able to work in teams."



# HSE IN ENERGY: HIGHLIGHTING THE SECTOR'S BREAKTHROUGHS

**H**ealth, safety, and environment (HSE) was one of the hot topics during EGYPS 2020), where an HSE conference addressed some of the most significant issues related to promoting HSE culture among employees in the oil and gas sector. This was delivered through three panel discussions, a rapid-fire session, and concluded by an HSE Excellence in Energy Awards Ceremony.

The conference began with a keynote speech by Her Excellency, Dr. Yasmine Fouad, the Egyptian Minister of Environment. Fouad focused on the global environment, explaining that overcoming all obstacles requires "implementing a win-win approach [which focuses on] global environmental challenges, [and proposes] some keynote solutions."

Speaking of climate change, the minister clarified that the energy sector is one of the biggest contributors to this issue. To face it, "so many things were done especially in the last five years since the Paris Agreement came into force," she said.

Fouad explained that in order to control climate change, "we need to think of it as a developmental challenge not as an environmental challenge because it hits us all in the country." She remarked that "from that perspective, we created a national council for climate change, headed by the Prime Minister."

The minister also tackled biodiversity, clarifying that "there is a direct impact on diversity from the mining sector." She stressed that "it is not true to tackle biodiversity, away from the climate change, away from the land," highlighting that "from that perspective, Egypt announced a global initiative based on an ecosystem-based approach, which was announced by the Egyptian President, Abdel Fattah El Sisi in 2018, to start looking at linking climate change, biodiversity, and land degradation."

Furthermore, the minister stressed on the importance of considering all environmental aspects from an economic point of view, in regard to "how much money that a company is spending if there is a resource efficiency plan, what will happen if you convert your production into a clean technology, and how much you will save from what you are putting in this company," she explained. This message mainly aims at encouraging the creation of a platform, so that all incidents over various sectors can be managed.

## AN ENVIRONMENTAL POINT OF VIEW

The conference continued with opening remarks by Colby Fuser, Vice President for Egypt and Libya at Halliburton. Fuser pointed out that from an environmental point of view, there is a sufficient amount of chemicals around, in addition to resources that directly impact the environment. He clarified that it is crucial that the environmental side becomes more efficient and effective. Fuser concluded his speech, stressing that "we do find somethings that happen, let us spend some more time on how to investigate them, let us spend some more time on fixing the problems and move forward."

## A PANEL TO RAISE HSE AWARENESS

Afterward, the conference's first panel discussion commenced, in the presence of the Minister of Environment, on 'The Importance of Raising Personnel Awareness within Your Organisation.' The panel was moderated by Olav Skår, Director of Health, Safety, Security, Subsea and Wells at the International Association of Oil & Gas Producers (IOGP). The panel comprised five industry figures: Lucien Bianchi, Global Director of HSE and Service Quality at Halliburton; Ehab Ali, Chairman Assistant for HSE at Khaldia Petroleum; Leigh-Ann Russell, Head of Procurement and Supply Chain Management (SCM) Upstream at BP; Sergey Peresykin, Director of HSE, MENAT and India at Baker Hughes; and Iman Hill, COO at Energean.

Skår initiated the discussion, stating that "as an organisation, in order to drag focus, you need to know the co-state of affairs of your business. You need to understand where you want to be," clarifying that successful leaders will manage to translate their goals into effective steps to accomplish them.

Skår asked the panellists about their approaches to accomplish their goals on HSE. Hill commented that it is important to "collaborate with each other on all aspects of safety. It is not a competitive field; for me, it is a long journey."

For Bianchi, he stated that Halliburton's main goal is accomplishing Goal Zero, which means no harm and all employees are working safely as "everyone has to have the confidence to succeed in doing his work not only on the business level, but also on the personal level."

Speaking of the vital role of human performance, Russell noted that "we want each single person who works on our facilities go back home, in the way they came to work that day. For the environment, we need to adopt the operations that will not create any unnecessary damage to the environment." She added that 80% of safety incidents are caused by the human factor, which means that their organisations' systems need to be improved.

Moreover, Russell mentioned the vital role of the International Association of Oil & Gas Producers (IOGP), in addition to importance of the life-saving rules. These will help create standards that work across the industry in a way that make it easier for employees to return home safely.

When it comes to Baker Hughes, Peresykin remarked that all companies share the target-zero goal, which is all about the language between the top management and employees to help boost employees' performance. This requires paying a great deal of attention to overcoming organisations' weaknesses. Thus, several elements need to be addressed including "the leadership of an organisation; they need to understand human performance and integrating activities to build the human capacity."



Speaking of HSE policies in Egypt, Ali clarified that he always starts by addressing HSE by a supportive documentation system which set the work structure and policies. In addition, he pays a great deal of attention to the lifesaving rules, as "top management are committed to HSE as well as accomplishing their goals." He added that in order to change the HSE culture, it needs to be implemented by each and every member of the organisation.

## HSE LEADERSHIP

The second panel, moderated by Martin Rodriguez-Villa Foerster, Country Director, witnessed an interesting discussion on the importance of leadership commitment. Luciano Scataglini, Global Senior Knowledge Owner at Eni, said that the main characteristics of leadership are to act by example and to demonstrate commitment in all safety matters.

Discussing HSE transformations in the oil and gas sector, Mohamed Kermoud, Global Vice President HSE at Schlumberger, pointed out the effects of differential leadership styles on promoting HSE culture, noting that with leadership comes authority, but not influence. Results will not be achieved if one is not true to oneself and inspirational to others, instead of being authoritative.

Ahmed Soltan, Managing Director, Bifinger-Tebodin, gave out practical advice on tackling the environmental impact of the industry, noting that "we need to give the same attention to the environment as we do to safety."

Chee Tsong Chok, GM Safety and Environment, Conventional Oil and Gas at Shell, advised that "if there is a culture or a behaviour that you want to promote," then organizations should be notified that this is something to you need to work on.

Moving on to the final and third panel, Irene Eleftheriou, Project Engineer/HSE Officer at Cyprus Hydrocarbons Company, gave a presentation on driving sustainable environmental performance within the oil and gas sector.

Sarimah Talib, Head of Sustainable Development, PETRONAS gave remarks on the modification of operations that align with sustainability, adding that Petronas is adhering to its public commitment to reduce flaring.

On Egypt's contribution to the United Nations (UN) sustainability goals, Ahmed Abd Rabo, Assistant Chief of Petroleum Central Department at the Ministry of Petroleum and Mineral Resources, said that Egypt has recognised three goals. These goals include providing affordable and clean energy, being part of the Paris agreement, and responsible production and consumption.

Ashraf Ramadan, Assistant Chairman for Environment at the Egyptian Natural Gas Holding Company (EGAS), discussed the company's car conversion noting that "we have already converted cars to use natural gas instead of liquid fuel, which led to reducing carbon dioxide (CO<sub>2</sub>) emissions." He additionally discussed the company's projects with different international oil companies (IOCs) which add further benefits to the oil and gas sector.

## RAPID-FIRE SESSION

A rapid-fire session showcased the different HSE challenges through four presentations. The first presentation was given by Ahmed Roustom, Risk Assessment and OHS Technical Studies Assistant General Manager at the Egyptian Natural Gas Company (GASCO), tackling how to avoid disasters in the utmost safe process.

The second presentation was on improving refineries' HSE performance through a holistic safety management mode. It was presented by John Fotopoulos, Refinery HSE Director at Hellenic Petroleum.

Yasser Nashaat, Deputy Managing Director for Operations and Engineering at TAQA Arabia, delivered the third presentation on developing strategies to improve road safety and decrease the number of accidents.

Finally, Andreas Zacharia, Operations Officer Air Forces at Cyprus Joint Rescue Coordination Centre, shared international HSE best practices from international companies and neighbouring countries.



# HSE EXCELLENCE IN ENERGY AWARDS: BEST PROJECTS, LEADERS OF THE YEAR



The HSE Conference, which was held in the framework of Egypt Petroleum Show (EGYPS 2020), concluded by delivering the HSE Excellence in Energy Awards. The HSE Excellence awards were divided into four categories, addressing the oil and gas sector's successful projects and leaders that aim at creating a better and safer future.

The first category of the awards was for the Best Health and Safety Project of the Year. The winner was Tamer El-Houry, HSE Specialist at Schlumberger for Modernization of Driving Safety in Egypt through Technology. Meanwhile, Gihan Badie, Country Health Manager at Shell, won the highly recommended project award for Care Delivers World-Class HSE Performance project.

For the Best Environmental Project of the Year, the winner was Hamed Sawsan, QHSE Department Head at Egyptian Bahraini Gas Derivatives Company (EBGDCo.) for the EBGDCo-GPC Gas sweetening and compression terminal. The winner of the highly recommended project of the year was Islam Kharboush, HSE General Manager ESHPETCO.

The third and last category of the awards was for HSE Leader of the Year, and the winner was Mohamed Abdelgalil, Deputy HSE General Manager at Rashid Petroleum Company (Rashpetco).

## WOMEN IN ENERGY AWARDS: FEMALE LEADERS TAKE THE SPOTLIGHT



The third day of the EGYPS 2020 was wrapped up by a gesture in recognition of the exceptional female leaders in the oil and gas sector. The Women in Energy Awards acknowledged these leaders' achievements and contributions, in addition to the energy companies championing diversity within the workplace.

Returning for the third edition, the Women in Energy Awards were led by a high-level and unbiased Regional Select Jury of industry experts and academics, and were fully supported by the Egyptian Ministry of Petroleum and Mineral Resources.

The awards were divided into four categories. The first award was for the Women in Leadership, which addresses women with successful corporate careers and significant contribution to the industry. The winner was Toula Onoufriou, President of Cyprus Hydrocarbons Company, while the highly commended was Nehal Khalil, Media General Manager at Petrojet.

The Next-Gen Female of the Year Award, which honors the young and upcoming future leaders, was awarded to Rim Magdi, Wireline Evaluation and Perforations Field Professional at Halliburton, while Dena Hegab, Drilling Engineer at BP was highly recommended.

The STEM Star of the Year Award, which acknowledges high-potential science, technology, engineering, and mathematics (STEM) female university students with an interest in becoming future leaders was awarded to Amira Mohamed, Student at the American University in Cairo. Farida ElHarouni, Student at the American University in Cairo, was highly commended.

The awards ceremony was concluded with the Employer of the Year Championing Inclusion and Diversity Award, which celebrated regional oil and gas companies that promote gender diversity and inclusion within the sector. Schlumberger was the winner and Wintershall Dea was the Highly commended.

# EGYPS 2020: THE PERFECT PLATFORM FOR ENHANCING COOPERATION

For the fourth consecutive year, the Egypt Petroleum Show (EGYPS 2020) has once again continued to establish itself as a perfect venue for enhancing cooperation among the oil and gas sector's companies. The three-day event witnessed a myriad of agreements signed by the Egyptian Ministry of Petroleum and Mineral Resources, international oil companies (IOCs) as well as national oil companies (NOCs). The aspects of these agreements included, but were not limited to, developing the sector's human resources, boosting production, and utilizing cutting-edge technologies.

Wintershall Dea

On the eve of the EGYPS 2020, Wintershall Dea and the Ministry of Petroleum and Mineral Resources signed a concession agreement for the East Damanhour block. The block is located to the west of Wintershall Dea's Disouq development in the onshore Nile Delta. During the first exploration phase of three years, starting in 2020, Wintershall Dea is planning to drill several exploration wells.

Wintershall Dea will now begin a three-year exploration phase in the East Damanhour block. Sameh Sabry, Wintershall Dea's Managing Director for Egypt, said: "Over the years we have developed extensive knowledge and experience in this area. This, and the block's proximity to our existing Disouq infrastructure, means that we are well placed for a quick development of any discovered volumes."

## METHANEX

The CEO of the Egyptian General Petroleum Corporation (EGPC) and Methanex Egypt Managing Director, Mohamed Shindy, signed a memorandum of understanding (MoU) to enable collaboration between both parties to embed the culture of Process Safety Management (PSM) within the Egyptian oil and gas sector.

The MoU stipulates the creation of an Egyptian PSM Steering Committee that will drive a robust agenda and a roadmap aimed at institutionalizing PSM within the industry, in line with the ministry's Modernization Project and international best practices, guidelines, and standards.

The steering committee will be composed of leaders from the Ministry of Petroleum and Mineral Resources, EGPC, Egyptian Natural Gas Holding Company (EGAS), Egyptian Petrochemicals Holding Company (ECHM) and Ganoub El Wadi Petroleum Holding Company (Ganope) in addition to Methanex. The signing was attended by ECHM Chairman Saad Helal, EGAS Chairman Osama el-Bakly, and members of Egypt's PSM Steering Committee.

## ECHEM, BECHTEL

ECHM signed an agreement with Bechtel to establish a \$6.7 billion petrochemical plant and refinery in the Suez Canal Economic Zone. The agreement aims to fast-track the mega metro-refinery complex project to achieve 20% growth in local production of value-added petrochemical products. Under the agreement, ECHM will begin conducting feasibility studies with an international consultancy.

The agreement was signed by the President of ECHM and the CEO of the Bechtel, in the presence of Tarek Amer, Governor of the Central Bank, and Jonathan Cohen, the American Ambassador to Cairo.

The following day ECHM signed an agreement with a consortium of BSW Group and Shard Capital to develop a refinery and petrochemical complex in New Alamein worth some \$8.5 billion. The facility will produce 1.5 million tons of petrochemical products and another 1 million tons of petroleum products, including kerosene and mazut, per year.

Meanwhile, Bechtel met with Minister of Petroleum and Mineral Resources Tarek El Molla, where the US-based company signed two cooperation agreements with Petrojet and Enppi.

## PETROJET

Petrojet signed several agreements with different IOCs as well as NOCs. First, an MoU was signed by the Chairman and Managing Director of Petrojet Waleed Lotfy, and the Guinean Minister of Mines and Hydrocarbons Gabriel Mbega Obiang. Afterwards, Petrojet signed a related agreement with the Arab Contractors Company to cooperate in projects in Equatorial Guinea.



Petrojet has also led a consortium of Assiut National Oil Processing Company (ANOPC), Technip, ENPPI to sign an Engineering, Procurement and Construction (EPC) contract for establishing a Mazut Hydro-cracking Complex in Assiut. The \$2.5 billion project will contribute to utilizing the country's resources through the latest mazut hydro-cracking technology, which helps transform lower-value petroleum products into higher-value ones, especially diesel with a production capacity of around 2.8 million tons.

Two other deals were signed between Petrojet and Italy's Saipem company for implementing projects in Libya and offering advanced training programs for Egyptian cadres.

Meanwhile, a deal was signed between Petrojet and the newly-established state Wood Technology company (WOTECH) to set up a \$228 million facility north of Cairo that will convert rice straw into wood. The plant, in the Nile Delta's Beheira, will produce 205,000 square meters a year of medium-density fiberboards (MDF), using technologies by Germany's plant engineering firm Siempelkamp, which will help carry out the project. Another contract was signed on the same project with Siempelkamp at investments that are worth about \$230 million.

In addition, Petrojet along with the Egyptian Natural Gas Company (GASCO), and Enppi signed an MoU to expand GASCO's Western Desert gas complex and boost the facility's capacity to 1.5 billion cubic feet per day (bcf/d) from 600 million cubic feet per day (mcf/d).

## SCHLUMBERGER

Three MoUs were signed with Schlumberger during EGYPS 2020. The first agreement was signed between EGPC and Schlumberger to build, operate and transfer Egypt's Upstream Gateway. The agreement will focus on digitally promoting Egypt's oil and gas bid rounds through seamless online access to the sector's data. The Egypt Upstream Gateway is a unique and innovative national project for digitizing subsurface information and delivering a digital subsurface platform to ensure Egypt's subsurface data is kept evergreen. It will also be a platform to promote Egypt's exploration and production potential worldwide.

The MoU was signed by Eng. Abed Ezzal Regal, CEO of EGPC, and Karim Badawi, Managing Director of Schlumberger Egypt and the Eastern Mediterranean, in the presence of Tarek Amer, the Governor of the Central Bank of Egypt (CBE), and Olivier Le Peuch, CEO of Schlumberger International.

The second MoU was signed with the Ministry of Petroleum and Mineral Resources for sustainability. This MoU aims to spread awareness and enhance collaboration on sustainability initiatives. Signing this MoU comes in line with Schlumberger's approach to sustainability which mainly depends on its long-standing culture of social and environment stewardship, in addition to supporting the sector's young professionals. Moreover, it benefits the entire oil and gas sector and its joint venture bodies.

A third MoU was signed between Schlumberger and BP, aiming to boost cooperation in digitization of the East Mediterranean gas upstream market. It was signed by Hinda Gharbi, Reservoir and Infrastructure, Executive Vice President, and Hesham Mekkawy, BP's North Africa Regional President. Under the MoU, the two companies will work together on digitalizing the East Mediterranean gas upstream market.

## BP

An agreement was signed between the ministry and BP for the cooperation in human resources development, which comes within the framework of the Middle Management Program. The agreement aims to ensure the continuous development of Egypt's petroleum sector's youth over the next three years to deliver future leaders to guarantee a successful future.

According to the agreement, BP is committed to implementing an advanced training program to transfer its specialized work experience and qualify trainees. The signing was attended by the Minister of Petroleum and Bernard Looney, CEO of BP. The agreement was signed by Osama Mobarez, Undersecretary of the Technical Office of the Ministry of Petroleum, and Hisham Makkawi, President of BP for North Africa.

BP also signed a cooperation agreement in the field of marine supply with EGPC to collaborate with local companies, as part of efforts to transform Egypt into a regional energy hub, given its strategic location as the center of major global maritime shipping lines, led by the Suez Canal.

## ENAP

Another MoU was signed by EGPC and Empresa Nacional Del Petroleo (ENAP), organized and existed under the laws of the Republic of Chile. Through the MoU, EGPC will be able to meet the growing local demand of petroleum products, develop the exploration and production (E&P) activities, maximize oil production, and boost oil reserves.





Signing this MoU will enable both companies to contribute to flourishing the oil and gas sector in their countries. This could be achieved through exchanging scientific knowledge and technical assistance. In addition to that, this collaboration will help bolster the diplomatic relations between the two countries.

This technical collaboration aims at developing hydrocarbons in the basins in which ENAP operates, exchange of information and operational experience on unconventional reservoirs based on ENAP's activities in tight gas plays and providing EGPC insights on ENAP's corporate health, safety, and environment (HSE) high standards application.

## NEPTUNE ENERGY

Neptune Energy signed an exploration license with EGPC for Egypt's North West El Amal Offshore Concession, underlining the company's commitment to growing its presence in North Africa. Neptune will acquire 100 kilometers square (km<sup>2</sup>) of 3D seismic data and drill one exploration well in the first phase, with two further wells planned in phase two. The signing ceremony was attended by El Molla, Abed Ezz El Regal; Neptune Energy's CEO Jim House, VP North Africa and Asia Pacific Philip Lafeber, in addition to Neptune Egypt's Managing Director Gamal Kassem.

### Petroleum Air Services

Petroleum Air Services (PAS) signed the purchase contracts of two AW139 helicopters, thus expanding its fleet to support the deep-water oil and gas exploration activities in the Mediterranean region. The AW139 aircraft model is considered one of the best-suited models used specifically for deep-water exploration, transporting employees and equipment to offshore bases, used especially in Zohr and North Alexandria offshore fields. With the addition of these two helicopters, PAS fleet from this type will amount to eight helicopters, while the total fleet will amount to 44 aircrafts from different types in both fixed wing and helicopters.

## CAFU

EGPC signed an MoU with CAFU, the MENA region's first on-demand fuel delivery service, to provide regulatory support and enable its launch across Egypt. The agreement is a recognition of Egypt's commitment to develop the digital economy, support sustainability and environmental goals while generating high-tech employment and skills development amongst the Egyptian population. Designed to deliver fuel "anytime anywhere" directly to customers' vehicles, CAFU is a fast, safe and easy-to-use on-demand fuel delivery service available through a mobile app.

## USTDA

Another agreement signed by the Egyptian Ministry of Petroleum and Mineral Resources was with the United States Trade and Development Agency (USTDA) to enhance cooperation in

developing the sector and its infrastructure. USTDA vowed to continue providing training programs and opportunities in human resources, consultations, energy efficiency and other areas.

## ITALY

A consortium of Egyptian companies including EGAS, the Egyptian International Gas Technology (gastec), and the Natural Gas Vehicles Company (CAR GAS) signed two deals with the Italian Landi Renzo company for locally assembling of the natural gas supply stations and the components needed for converting vehicles to run on natural gas in Egypt.

### Cooperation with Somalia

El Molla signed an MoU with his Somali counterpart Abdel Rashid Mohamed Ahmed to enhance co-operation between Egypt and Somalia in the fields of oil, gas and mineral resources and transfer of Egyptian experiences in these areas to Somalia through establishing mutual co-operation between both countries.

## CHEVRON

US oil Chevron signed two agreement with EGPC and Alexandria Mineral Oils Company (AMOC) to cooperate on a commercial and technical basis in the fields of refining crude oil and distributing petroleum products.

## SHELL

Egypt's Ministry of Petroleum and Mineral Resources also signed an agreement with Shell to cooperate in training young calibers and middle managers, in line with the Egyptian petroleum sector Modernization Project.

### Other Highlights

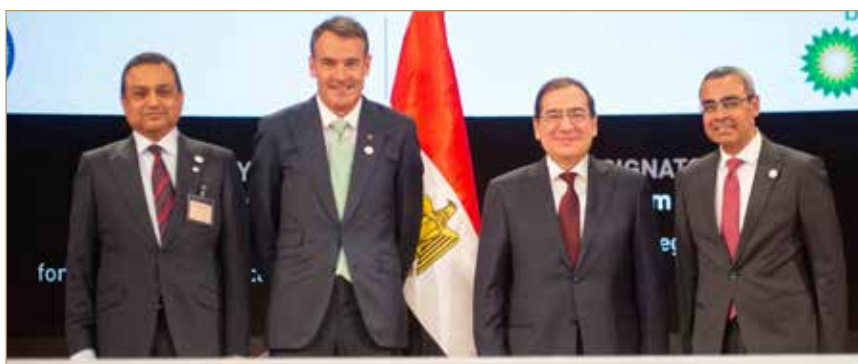
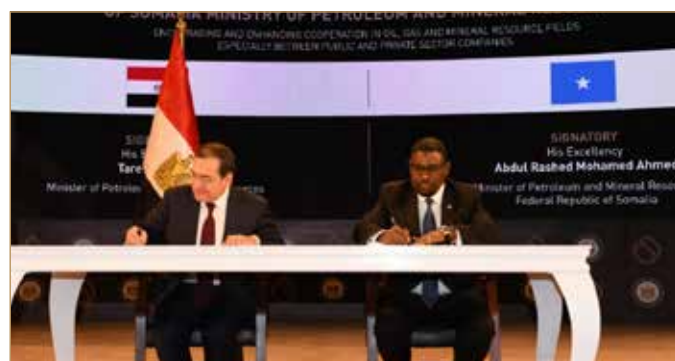
The Egyptian Gas Services Company signed agreements with Clarkson Shipping Agency and the Sahara Petroleum Services Company (SAPESCO) for the provision of support services for natural gas tankers, navigation, and port transactions.

In the meantime, the Suez Methanol Derivatives Company signed an MoU with the Egyptian Maintenance Company to construct a methanol derivatives facility in Damietta.

Furthermore, EGAS, Egyptian Drilling Co., and Vantage International signed an MoU to begin a deep-sea drilling training program.

## POST EGYPS

Egypt inked its first WestMed oil and gas exploration agreements as EGYPS wrapped up. The Ministry of Petroleum and Mineral Resources signed MoUs with five IOCs: Royal Dutch Shell, Chevron, BP, Total, and ExxonMobil for deepwater oil and gas exploration and production off its western Mediterranean coast. The agreements cover seven concessions, and will see exploratory drilling beginning early next year.





# CORONAVIRUS HAUNTS GLOBAL ECONOMY, DAMPENS OIL & GAS PROSPECTS: PART I

BY TASNEEM MADI

In late December, a new outbreak known as COVID-19 or coronavirus appeared in Wuhan, China. The outbreak that typically causes human flu-like symptoms including fever, cough, and shortness of breath that may lead to death, took its toll on travel movement, world stocks and oil prices with estimates that in case of turning into pandemic, Coronavirus could cause an average annual economic loss of 0.7% of global GDP — or \$570 billion.

According to a situation report published on February 22, the disease has spread virtually to 28 countries, where 77,794 cases around the world were infected with the disease. The World Health Organization (WHO) assessed the risk situation in China as "very high", while the regional and global levels were marked as "high". The report further disclosed 76,392 coronavirus cases in China alone, with 2,348 deaths. Global panic has been increasing due to the rise of coronavirus outside mainland China.

## ALL EYES ON CHINA'S ECONOMY

China, whose growth represented about 39.2% of the global economic growth in 2019, according to the International Monetary Fund (IMF), was the biggest victim of the virus until now.

According to a recent Morgan Stanley report, China's economic growth in the first quarter (Q1) of 2020 could fall to as low as 3.5% if the spread of the new coronavirus is not contained fast enough for manufacturing production to resume to normal levels. Meanwhile, Reuters economists forecast that China's economic growth will decrease from 6% in Q4 2019 to 4.5% in Q1 2020, as mentioned on the World Economic Forum (WEF)'s website.

Despite measures taken by Chinese government to shield its economy from the outbreak, a range of early indicators in February confirmed that the outbreak has crippled production in China as factories still below capacity and transport is reduced.

The fact that China has been the largest exporter of commercial services in the world and the second largest importer of goods such as crude oil and iron ore since 2009 will open the door for a domino effect to spread to global market that surely to suffer due to the Dragon's slowdown.

China, the second largest economy in the world, and the locomotive of world growth is becoming a threat for global growth due to COVID-19.

Hence, the global economic and financial integration, which is considered as an important factor for tremendous economic success, has become in this case a source of vulnerability.

## ADDING INSULT TO INJURY FOR GLOBAL OIL MARKET

Coronavirus outbreak seemed to be the last thing that oil sector wanted to see after a tumultuous year of trade war, strikes on Saudi oilfields and threats of war between Iran and the US in addition to the current outages in Libya.

The International Energy Agency (IEA) announced that the global oil demand has been heavily hit by the coronavirus and the widespread shutdown of China's economy. Accordingly, the global oil demand is expected to drop by 0.435 million barrels per day (mmbbl/d) in Q1 2020, according to the IEA's Oil Market Report (OMR), in February 2020. Meanwhile, the global oil supply decreased by 0.8 mmbbl/d to 100.5 mmbbl/d, due to a blockade in Libya and the UAE's decrease in output.

As a result of the supply and demand movements, Brent crude oil prices has already fallen by 23.5% since the first case in China, from \$66 per barrel on December 31, 2019 to reach \$50.52 on February 28, 2020. Moreover, the US West Texas Intermediate crude decreased by 26.7%, from \$ 61.06 per barrel since December 2019 to \$44.76 per barrel on February 28, 2020.

According to analysts the situation would have been worse for the prices, if it were not for heightened tensions in the Mideast and the shut-in of about 1mn b/d of Libyan output.

The serious situation prompted the Organization of the Petroleum Exporting Countries (OPEC) to revise its outlook for global oil demand growth to 0.99 million barrels per day (bpd) in 2020.

In the meeting, scheduled for the first week of March, OPEC and its allies are expected to make a substantial cut in oil production as global energy producers scramble to respond to the coronavirus outbreak that has crippled demand.

Earlier this month a technical meeting of the top OPEC and non-OPEC members of the alliance recommended reducing production by an additional 600,000 b/d to help balance the market.

However, the uncertainty surrounding the impact of the coronavirus and Russia's reluctance to approve more cuts still representing the main obstacles for the members to reach a unified stance, where Saudi Arabia is pushing to make a substantial cut in oil production.

According to Oslo-based consultancy Rystad Energy, coronavirus could cut oil industry investment by tens of billions of dollars this year and delay the delivery of offshore installations currently being built in Asia.

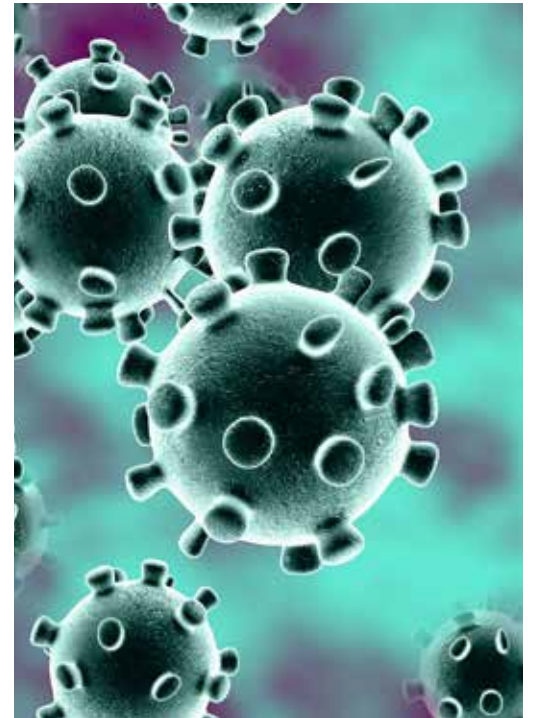
Lower oil prices will result in oil and gas companies scaling down their flexible investment budgets, especially shale operators in the US as well as some offshore exploration and production players, Rystad told Reuters. "Experts do not yet know when the effects of the epidemic will ease, but one thing remains clear: the situation will worsen in March and the impact of the virus is not limited to Chinese fabrication yards – it affects the entire global service industry," it added.

The oil and gas sector will not be the sole victim for the virus, as analysts have warned that transport groups, hospitality chains, airlines, luxury goods makers and retailers will be among those hardest hit by the coronavirus.

Stock markets also began to act in a nervous way with slide in stocks coming in a stunning speed, as investors grapple with evidence that the deadly coronavirus epidemic is spreading beyond China to other countries, including Italy, South Korea and Iran.

## COVID-19: POLITICS, INTERNATIONAL RELATIONS

Throughout human history, epidemics were game changers that altered the course of history several times. Coronavirus still can't be compared to those plagues that



had devastated humanity. However, in modern societies a health emergency combined with a global recession can take its toll on politics too.

COVID-19 has become the biggest crisis for China's Communist Party since China's last outbreak of a mystery disease in 2002-2003. SARS, or severe acute respiratory syndrome, killed nearly 800 people.

Chinese president, Xi Jinping, is scrambling to contain the virus, but the government, worried that a sudden economic slump could undermine its grip on power, is also working to get vital industries back on track and reopen factories.

While Chinese officials are working to persuade the public that the government is taking swift action, much of the country remains in lockdown, with hundreds of millions of people facing hard limits on going outdoors.

The Chinese government also was under fire from international media that kept accusing it of hiding the real situation in China.

The US president was not luckier than his Chinese counterpart in his share of coronavirus criticism. After fierce criticism for his rosy statements, Trump began his war of words against Democrats, who he accused of trying to weaponize the situation to hurt him and said the media was "doing everything they can to instill fear in people, and I think it's ridiculous." The people who weren't giving him credit for his handling of the situation "don't mean it. It's political."

In European Union, many analysts see the outbreak as another test for the European unity and trust.

The dealing with the coronavirus has turned into a chance for opposition parties across the world to attack and criticize their regimes including the far right parties in Europe who used the disease as tool to spread their anti-migrants campaigns.

Still biggest fears of the analysts lie on the fact that it will be much harder to contain the virus when it spreads to poorer nations, with less-developed health systems.





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# AMBITIOUS ENAP BUSINESS PLAN:

## AN INTERVIEW WITH ENAP'S CEO, ANDRÉS ROCCATAGLIATA ORSINI



### How does the company ensure viable operations through its two business lines: Exploration and Production (E&P); and Refining and Commercialization (R&C)?

ENAP has a business plan aimed at guaranteeing sustainability and financial viability of operations in Chile and abroad which has had an enormous impact on costs and expense containment as well as more efficiency and productivity in each business line. This has enabled the company to achieve a 10% increase in productivity in the areas of R&C, which includes Gas and Energy (G&E), in addition to E&P. The company also maintains an approved investment plan for \$2,500 million up to 2023 for its business lines, in order to continue being a relevant stakeholder in each one of the territories where it operates.

### What are the company's ambitions to promote a sustainable energy future for the countries in which it operates?

Even though projections for the industry indicate that in the coming decades oil and gas will still be an important part of the matrix, ENAP has set a purpose to improve its value offer in its traditional business and, in parallel, collaborate to reduce carbon emissions. Thus, without neglecting the core of the business, we are committed to identifying opportunities to boost alternative energy solutions and cleaner fuels.

### Can you share with us the latest innovative energy solutions that the company offers?

Currently, the company has a project portfolio for producing cleaner fuels with lower emissions and promoting renewable energy. In this context, ENAP is part of a council driven by the Chilean government to promote the green hydrogen industry, in order to take advantage of the country's potential of producing fuel, which today appears to be the solution to mitigate the global greenhouse gas emission.

### ENAP has started a strong exploratory campaign of new gas reservoirs and established new alliances with other companies in order to diversify its portfolio. Can you elaborate on that?

We seek to maximize our production in compliance with the campaign foreseen for this year for the E&P of wells. We have a challenging program for the company, so we are constantly analyzing new

business opportunities in the catchment areas where we have experience and have obtained good results, such as Egypt and Ecuador. In view of this same goal, we have created alliances and collaboration instances, like the ones with YPF in Argentina, or the one we have just materialized in Egypt by signing a Memorandum of Understanding (MoU) with the Egyptian General Petroleum Corporation (EGPC). This agreement aims at exchanging technical knowledge with a special focus on the development of nonconventional resources, in accordance with EGPC's support for high health, safety, and environment (HSE) standards.

### This year, ENAP have sought to identify the company's core value proposition. How has this enhanced the company's business plan and the principles that should guide its actions?

ENAP is responsible for producing and distributing 100% of the gasolines consumed in Chile and 60% of diesel, since it is the only company that refines fuels in this market. Additionally, the E&P of hydrocarbons, in Chile and in our international subsidiaries, is a key part of the core of ENAP's business, so it is in our interest to continue strengthening both areas. To further guarantee this strategic role, the company seeks to be a model of efficiency and productivity in all the markets where it operates by means of an operational, commercial and financial excellence-based management, in addition to full commitment to the safety of the people, the environment and the neighboring communities.

### Furthermore, an organization restructure was carried out in Egypt's branch last summer. How does this reflect the best practices of management and corporate governance?

At the beginning of 2019, after the new government took place in Chile, Enap executed an important organization restructure inside its upstream and downstream business in Chile and Argentina. During July 2019, an organization restructure was carried out in Egypt branch in order to strengthen ENAP position in Egypt.

The new board and administration is determined to grow its operation and investment in Egypt. For that reason, a new General Manager, Roberto McLeod, has joined the branch by the end of August 2019. McLeod has developed most of his career inside ENAP being previously the General Manager in Ecuador and Egypt branches. Due to his large experience in the industry and the country, ENAP expects to fulfill its expectation to grow in Egypt.

### ENAP recently signed a memorandum of understanding (MoU) with EGPC on the sidelines of the Egypt Petroleum Show (EGYPS 2020). How will this technical collaboration enable both companies to contribute to the oil and gas sector?

ENAP and EGPC are both state oil companies, nonetheless, ENAP has extensive experience in the exploration, appraisal and development of petroleum

and gas reservoirs both in Chile and abroad, in addition to refining, transporting and commercializing hydrocarbons, liquefied natural gas (LNG), liquefied petroleum gas (LPG,) and wind-power projects in Chile. Accordingly, the current MoU has two main focuses; the first one is to introduce EGPC personnel to the application of ENAP operational standards related to the different stages of the oil and gas industry with a special focus in E&P, plus providing EGPC insights on ENAP's corporate HSE high standards and programs. And the second focus is exchange of information and operational experience on unconventional reservoirs based on ENAP's activities in tight gas plays since ENAP has successfully developed a tight gas field in Southern Chile with huge improvements in terms of decreasing the costs and increasing productivity, which are the main challenges in these types of reservoirs.

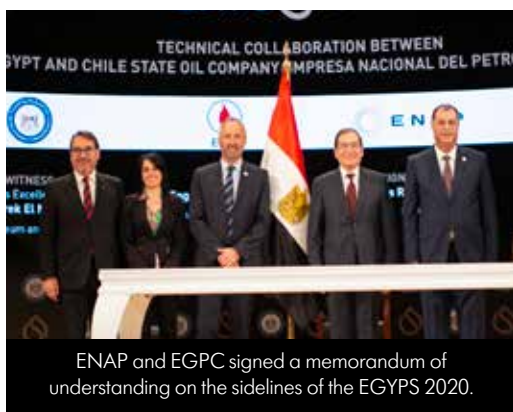
Since Egypt has started exploring and producing gas from unconventional plays (Obaiyed, Apollonia) and would probably face very similar challenges in order to develop its own gas resources, the transition from conventional to unconventional can rejuvenate mature basins and provide amount of new resources. However, to be economically successful, this will require a lot of effort and help. Hence, to strengthen the traditional diplomatic relation between the two countries and to promote the exchange of scientific knowledge, technical assistance and cooperation in the different segments of the oil and gas industry. Therefore, ENAP initiated this MoU and it was welcomed and appreciated by all Eng. Abed Ezz El Regal, EGPC CEO and his excellency Eng. Tarek El Molla, Minister of Petroleum and Mineral Resources.

### What are the company's latest developments in East Ras Qattara concession in the Western Desert?

ERQ concession in the Western Desert was acquired by Enap as an operator in 2004 with 50.5% participation interest with Kuwait Energy Egypt, who holds 49.5%. As a result of the effective cooperation and constant support from both the Ministry of Petroleum and Mineral Resources, in addition to EGPC, Enap, through its Joint Venture (JV), PetroShahd, resumed its drilling activities in 2018 by executing intensive development and exploration programs in East Ras Qattara concession to maximize production and add more reserves. During 2019, PetroShahd putting seven development wells on stream, which boosted the daily production by more than 3,000 barrels per day (b/d) and identified the unseen potential by adding new reservoir targets to ERQ drilling inventory.

Additionally, such drilling results has driven ENAP to consider acquiring new seismic with the top-notch technology available in the market over the main development leases to unlock all potential that is currently under evaluation like the Jurassic Gas Condensate potentiality and the Turonian reservoir.

Also, it is worth mentioning that in 2016 we have constructed a crude oil main pipeline at the length of 87 kilometers (km) to transport crude oil produced from East Ras Qattara Concession to PetroShahd receiving facilities at Qarun area. The pipeline was constructed as an alternative to trucking operations



ENAP and EGPC signed a memorandum of understanding on the sidelines of the EGYPS 2020.





and contributed significantly in eliminating the risk of trucking operations and HSE hazards.

### How is the company planning to further grow its operations and investments in Egypt?

As I said before, we want to grow in Egypt because this is a country that we trust and we have had a very successful history here. Egypt has stable institutions and Egypt's economy is becoming stronger. Actually, we are looking forward for more cooperation between both countries, especially after the meetings held in the last week of February in Cairo with President Abdel Fattah El Sisi, the Egyptian Prime Minister Moustafa Madbouly, and Head of Chilean Parliament, Ivan Flores, and his delegation where El Sisi expressed Egypt's aspiration to develop more relations with Chile, highlighting the historical relationship between the two countries, as the diplomatic relationship goes back to 90 years of cooperation.

Accordingly, we want to be part of the cooperation that exist between both countries. For that reason, we have chosen Egypt as one of the countries where we will increase our upstream portfolio.



Egyptian Prime Minister Moustafa Madbouly in a meeting with Head of Chilean Parliament, Ivan Flores, and his delegation.

### What are the company's future plans to expand its global position?

The company's main purpose is to be profitable and efficient by maximizing production and leveraging all business opportunities to improve its competitive position. Therefore, the strategic plan's top priority is to continue strengthening the upstream business, both in Egypt and Ecuador; two countries where ENAP has obtained very good results and where the institutional and economic guarantees to grow are met. Likewise, if any opportunity is spotted within Latin America enabling us to apply our technical knowledge, we will assess that as well.

“WE WANT TO GROW IN EGYPT BECAUSE THIS IS A COUNTRY THAT WE TRUST AND WE HAVE HAD A VERY SUCCESSFUL HISTORY HERE. EGYPT HAS STABLE INSTITUTIONS AND EGYPT'S ECONOMY IS BECOMING STRONGER. ACTUALLY, WE ARE LOOKING FORWARD FOR MORE COOPERATION BETWEEN BOTH COUNTRIES.”



# PORE, FRACTURE PRESSURE MODELING: CORE METHOD FOR WELLS' PLANNING, EXECUTION

PREPARED BY DINA EL BEHIRY

**S**afe drilling is seen as a top priority in the exploration and production (E&P) activities of the oil and gas sector. Thus, having any abnormal formation pressure will directly influence drilling operations. Accordingly, ideal pore pressure and fracture modeling is highly required for wells' planning and execution.

Pore pressure is the pressure exerted by fluids on the pore space of the matrix. Based on its value in comparison with the hydrostatic pressure; the fluid's pressure, at a given point of equilibrium, can be classified into normal, abnormal, and subnormal.

Hence, any changes that occur in the pore pressure will deeply impact E&P. This is because it is one of the critical parameters for designating the reliability and success of casing design. It is important to highlight that casing design is a vital step for any successful well design.

A sample paper tackling this issue is entitled Pore and Fracture Pressure Modeling Using Direct and Indirect Methods in Badri Field, Gulf of Suez, Egypt. The paper was published in 2019 on the Journal of African Earth Sciences. It was authored by A.E. Radwan, from the Exploration Department at the Gulf of Suez Petroleum Company; A.M. Abudeif; M.M. Attia; and M.A. Mohammed from Faculty of Science, Sohag University.

The main objective of the paper is to make new advances in the pore pressure and fracture models for the Badri field at the Gulf of Suez, to specify the geo-pressured zones in the subsurface sedimentary section, as well as to understand the pore pressure distribution in subsurface formations.

## GEOLOGIC BACKGROUND

Badri field is geologically known as the Suez rift and is located at the Gulf of Suez. Hydrocarbon was discovered in the Miocene successions, where oil and natural gas resources were locked into Belayim and Kareem reservoir formations. The rocks of these formations were composed of sandstone comprising the seafloor of deeper formations in Zeit, South Gharib, Belayim, and Kareem formations.

According to the paper, Badri field is bounded by an E-dipping extensional fault at the eastern and western parts with a respective throw of approximately 1,500 feet (ft) at the top of Belayim formation, and around 250–800 ft separating Badri field from El Morgan field.

## MATERIALS AND METHODS

The study of the Badri field was conducted on four wells; X1, X2, X3, and X4. The study used all available data including well logs (density, resistivity, neutron, and sonic), drilling data, and reservoir data. Furthermore, it depended on the integration of geology, in addition to accurate reservoir data and drilling events to reach an ideal geo-pressured evaluation.

The technology implemented in this study was Schlumberger's Techlog® software. This software helped in the calculation and interpretation of the data for output models. The study was classified into five stages:

### DATA COLLECTION

At this stage, all required geological, drilling, and reservoir data are collected. These data include mud and electric logging data, directional surveys, temperature, mud weights, equivalent circulation density, drilling events, core data, structure, reservoir pressure data, well and production reports, etc. Collecting these data will help in pore pressure interpretation.

### QUALITY CONTROL AND DATA SUMMARIZATION

This stage is very critical because all unusual data affects the following processes. During this stage, all collected geological, drilling and reservoir data will be re-checked to assure their suitability to the calculation stage.

Moreover, this step includes environmental corrections, which entails correcting logging data for several unwanted environmental effects using suitable mathematical relationships and Schlumberger's charts. For this study, it comprises some preliminary corrections for borehole effects, formation temperature with depth,  $\gamma$  Gamma-Ray for borehole variations, etc. These corrections are carried out before the interpretation processes.

### CALCULATION PROCESS

This stage comprises several calculations including lithology discrimination, overburden stress, hydrostatic pressure, pore pressure, and fracture pressure.

For lithology discrimination, Gamma-Ray; density; sonic; and neutron logs were used to discriminate between sand and shale lithology. It is worth noting that the selection of shale intervals greatly affects the results of the pore pressure fracture gradient (PPFG) model.

For the overburden stress ( $\sigma_v$ ), it is defined as the weight of the overburden rock. It is computed by using the density log.

When it comes to estimating the hydrostatic pressure, water density value is used as the average value of water density which is used in the hydrostatic pressure gradient.

After selecting the shale intervals, the normal compaction trend (NCT) will be performed, noting that the interpreter experience plays a major role in picking NCT for each type of logs including resistivity, sonic and density logs.

This is followed by the estimation of pore pressure. Then, once the overburden and pore pressure are calculated, the fracture pressure can be estimated.

### MODEL CALIBRATION

During this stage, drilling tests and events, and reservoir pressure are used to adjust the pore pressure and fracture gradient calculation. Furthermore, the interpretation of the output is used to evaluate the pressure system.

### FINAL MODEL

In this stage, all data are plotted to create the PPFG model for the area under study including formation tops, overburden stress, interpreted pore pressure, fracture pressure, drilling events, repeated formation test and leak off test, etc.

### RESULTS AND RECOMMENDATIONS

This study managed to analyze several sets of data including well logs, mud logs, drilling reports, and reservoir data. Accordingly, the study resulted in estimating pore pressure of the four wells under study; X1, X2, X3, and X4. In addition to that, the pore pressure calculations estimated by indirect calculations were linked to direct measures to define the geo-pressured areas in the Badri field. It was found out that there were four over-pressured zones and two subnormal ones. On the other hand, there were some normal pore pressure zones observed in the upper part of Zeit formation, as well as three parts in Belayim formation.

Consequently, the study suggested using the high mud weight at the base of Zeit shale and the south Gharib formation to reduce problems faced during drilling. However, low mud weight is highly recommended to be used in the reservoir section to avoid any lost circulation.

Furthermore, the paper weighs in on the importance of implementing several techniques for pore pressure estimation in the Gulf of Suez. This will help understand the uncertainties of each method to determine the best one for studying the field basin.





تحت رعاية فخامة الرئيس عبد الفتاح السيسي رئيس جمهورية مصر العربية  
HELD UNDER THE PATRONAGE OF HIS EXCELLENCY ABDEL FATTAH EL SISI, PRESIDENT OF THE ARAB REPUBLIC OF EGYPT



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# OIL & GAS INDUSTRY DEVELOPMENT IN EGYPT

**O**il field data is one of the most high-valued and highly effective elements in oil & gas industry.

Offset wells data availability, accuracy and analysis are Key Performance Indicators (KPI) for finding new discoveries with high investment return.

Offset wells data or the technical information bank is a treasure that should be collected, reviewed and updated to help obtaining good well planning and optimization of oil and gas well drilling phase, then the subsurface reservoir exploitation can be optimized for recovering the maximum amount of reserved hydrocarbons (high recovery factor).

Big companies and organizations in oil and gas industry worldwide are spending huge sums of money to obtain enough, reliable and accurate field data to help making decisions related to well planning, field development, well operations optimization and advanced technologies application.

The offset wells data process mechanism should include:

1. Data measuring, estimating and collecting by using the appropriate tools and techniques.
2. Reviewing the collected data and excluding the illogical and wrong data to get more reliable and viable information.
3. Data analysis by using advanced techniques and software for introducing the final product in a shape of

statistics, tables, charts and algorithms which can be used to achieve the final project objectives to optimize performance on economic-wise basis.

The technical oil field data/history represents a strategic deposit, so we should have a very strict conservation mechanism that should includes information security system, back-up system, analytical system and communication/data flow system that allows the best use of this data, which can be considered as a great fortune with an important strategic dimension.

Thus, one of the basic 7 pillars for petroleum industry development in Egypt, which was introduced by the Ministry of Petroleum and Mineral resources, is the digitalization of oil fields data and setting up data hub system which aims at collecting the oil & gas industry data to provide it for the upcoming oil & gas projects studies.

Today, all concerned parties are looking forward to witnessing this necessary transforming that will create a new data flow medium which will greatly affect the performance level and of course will lead to several new discoveries.



**Eng. Mohsen Ahmed Farhan**  
Drilling Department Head  
General Petroleum Company (GPC)

# R-FACTOR, ROR-BASED FISCAL SYSTEMS APPLICATIONS

**N**ational oil companies (NOCs) strive to encourage international oil companies (IOCs) to develop their petroleum resources. To achieve this objective, companies must assess their position in the global marketplace and evaluate their petroleum fiscal system through progressive systems such as rate of return (ROR), R-Factor-based profits, or production sharing.

To encourage oil exploration and production (E&P) activities, host countries (HC) should focus on minimizing the investment risk. According to its general fiscal policy needs, the HC may seek different levels of front-loading at different points in time. In order to do so and simultaneously maintain a reasonable level of investment incentives, the government would need to seek a tradeoff between regressive systems that contains signature bonus, cost recovery limits, and royalties, in addition to such progressive systems.

The main challenge of fiscal policy is to develop a system that allocates risks equitably. Thus, policy makers should consider the conflicting interests of IOCs and HCs. It is

therefore desirable to enter enough flexibility into the petroleum fiscal system to allow for automatic adjustments to unexpected changes such as price volatility to minimize the need and cost of negotiations and/or renegotiations about the economic terms.

Many petroleum fiscal systems around the world exhibit some form of flexibility. Very few of them effectively and efficiently target the economic rent. For instance, fiscal systems that use sliding scales based on daily or cumulative production targets are insensitive towards changes in prices and costs. Therefore, in a dynamic environment like the one that characterizes the oil industry, these systems are more likely to produce a misalignment of interests between the HC and IOC, as the recent surge in contracts renegotiations suggests. On the other hand, these systems are relatively easy to administer and may prove reasonably efficient in sharing the rent between the IOC and the HC when project uncertainty is low, especially if used in conjunction with price indices.

R-Factor and ROR-based fiscal systems lower the project risk by introducing flexibility in the fiscal package to suit the profitability of the particular project. Because of their flexibility, these types of arrangement are more likely to encourage the development of marginal fields or of complex projects with a long lead-time for implementation. In addition, the use of R-factor and ROR-based systems normally lowers the break-even price of a project. This, in turn, makes these projects more attractive to contractors and less risky for project financing.

These types of systems should be further utilized in developing mature fields or in gas pricing proposals under close monitoring.

**Hany Shaker**  
General Manager for Feasibility Studies and Projects Evaluation at  
Egyptian General Petroleum Corporation (EGPC)







# LINKS & GAINS

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## Annual Inflation Headline CPI (%)

DEC 2019 **7.1** ↑ JAN 2020 **7.2**



## Net International Reserves (\$ billion)

DEC 2019 **45.42** ↑ JAN 2020 **45.46**

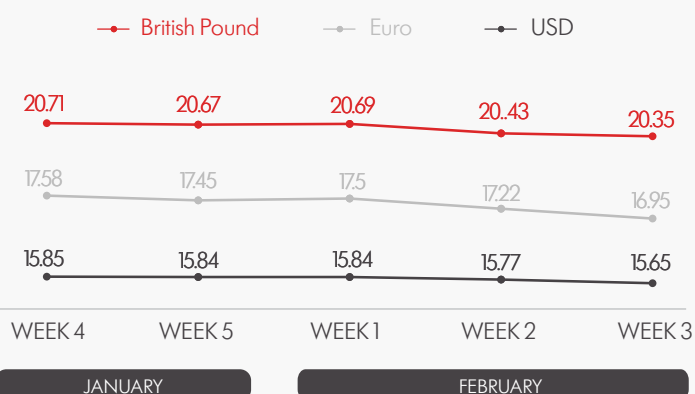


## Non-Oil Private Sector PMI (Points)

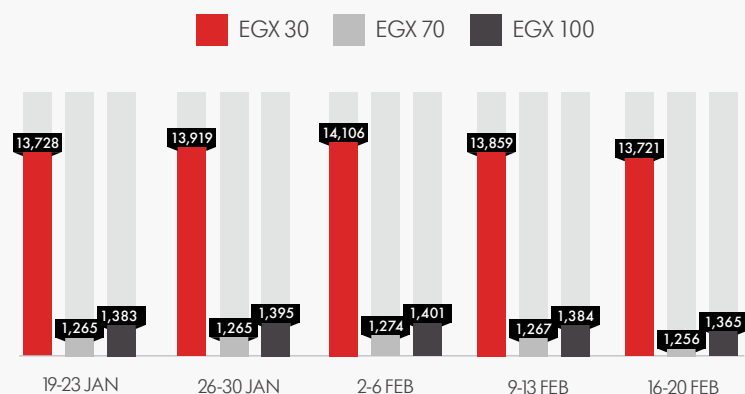
DEC 2019 **48.2** ↓ JAN 2020 **46**



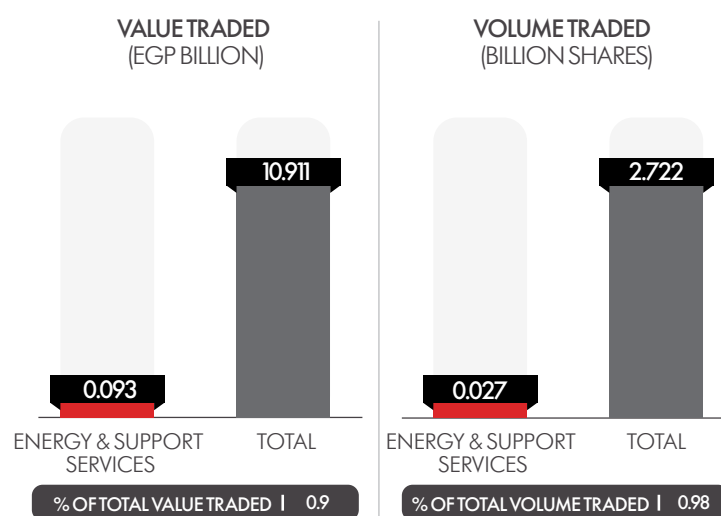
## Exchange Rates



## Capital Market Indicators



## Energy &amp; Support Services Sector Financial Performance in January 2020



National Drilling

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
USD	NA	NA



Alexandria Mineral Oils Co.

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	3.65	▲ 0.55



Egypt Gas

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	52.61	▼ 5.21



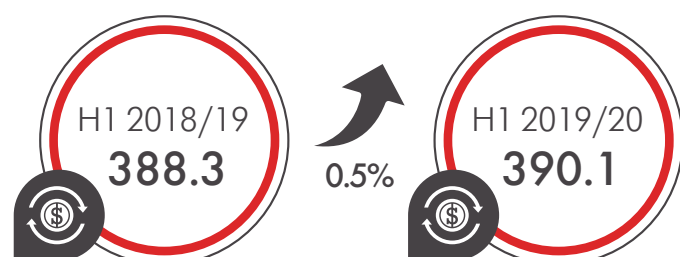
Sidi Kerir Petrochemicals

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	9.7	▲ 8.02

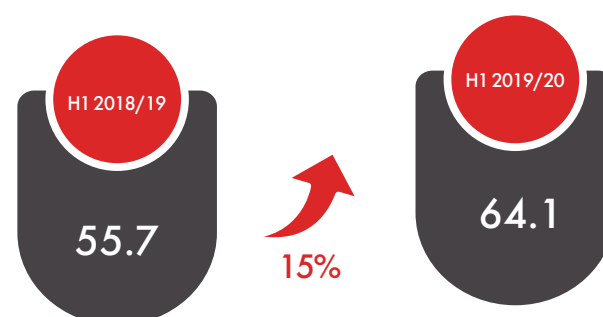




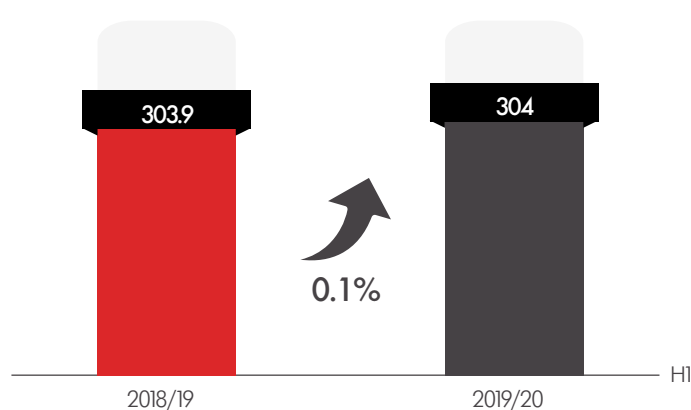
Government Revenues (EGP billion) (YoY)



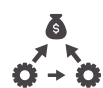
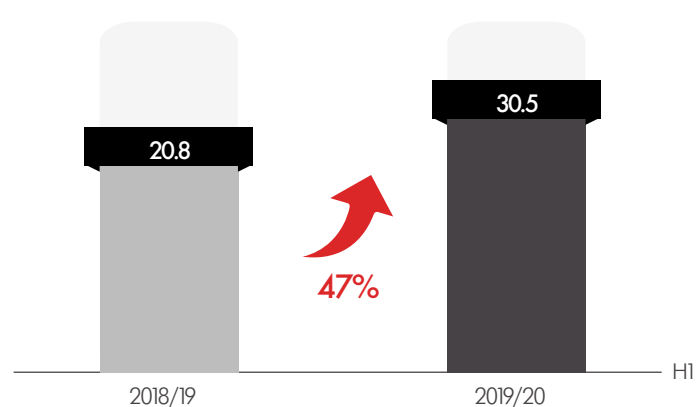
Government Investments (EGP billion) (YoY)



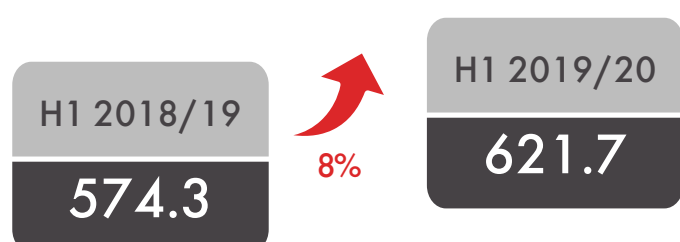
Tax Revenues (EGP billion) (YoY)



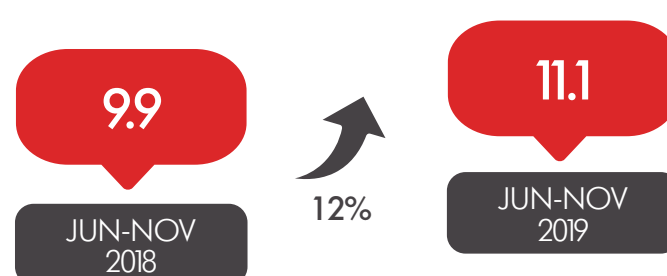
Primary Surplus (EGP billion) (YoY)



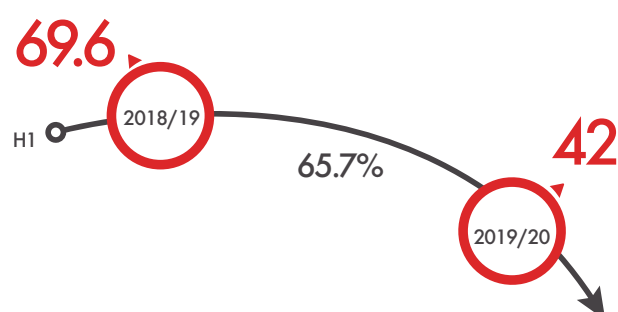
Government Expenditure (EGP billion) (YoY)



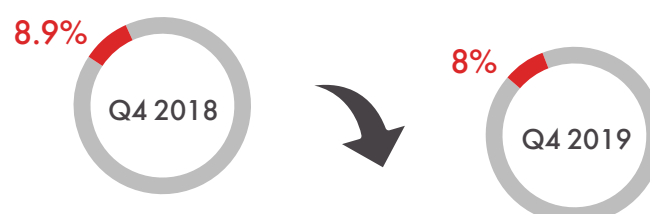
Remittances from Egyptians Abroad (\$ billion) (YoY)



Subsidies Expenditure (EGP billion) (YoY)



Unemployment Rate (YoY)



Suez Canal revenues recorded  
**EGP 14.9 billion** in H1 2019/20

Source of Raw Data: The Egyptian Cabinet, CAPMAS, MoF.



## ZOHR LATEST UPDATES

Wells Brought Online  
4Total Number of  
Producing Wells  
14Developments by the end of  
Mar. 2020Production  
3 bcf/dTotal Number of Wells  
15

## 9 E&amp;P AGREEMENTS SIGNED IN JANUARY



Location

The Mediterranean Sea  
The Western DesertDrilling  
Commitment

38

Minimum  
Investments

\$452.3 million

Signature  
Bonus

\$84 million

EXXONMOBIL & EGAS SIGNED 2 AGREEMENTS  
IN JANUARYMinimum Investments  
\$332 millionSignature Bonus  
\$17 millionDrilling Commitment  
7 wellsLocation  
Mediterranean Sea

## AGREEMENTS SUMMARY



Concession

Signature Bonus  
(\$ million)Minimum Investment  
(\$ million)

Drilling Wells

East Ameryah Offshore

10

220

4

North Marakia Offshore

7

112

3



## SDX PLANS DRILLING 3 WELLS IN 2020



Well Type



Concession



Completeness Date

Estimated  
Reserves(bcf)Estimated Added  
Production (bbl/d)Exploration  
(Salah)

South Disouq

April

71

-

Exploration  
(Sobhy)

South Disouq

June

33

-

Development

West Gharib

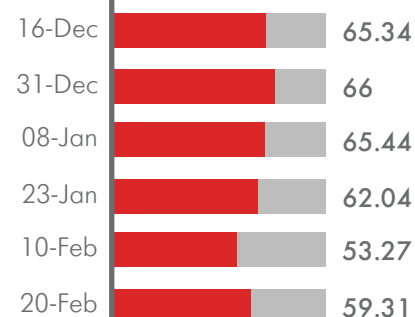
-

-

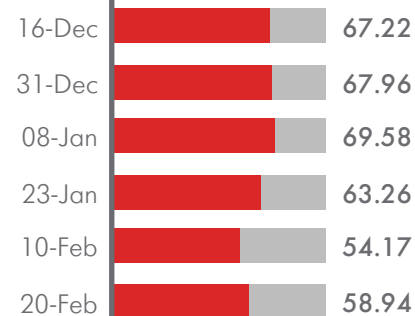
200-300

INTERNATIONAL  
OIL PRICES

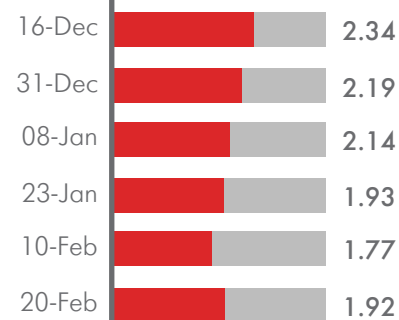
## BRENT PRICES (\$/bbl)



## OPEC BASKET PRICES (\$/bbl)



## NATURAL GAS PRICES (\$/mmBtu)







## MoUs & AGREEMENTS IN EGYPS 2020

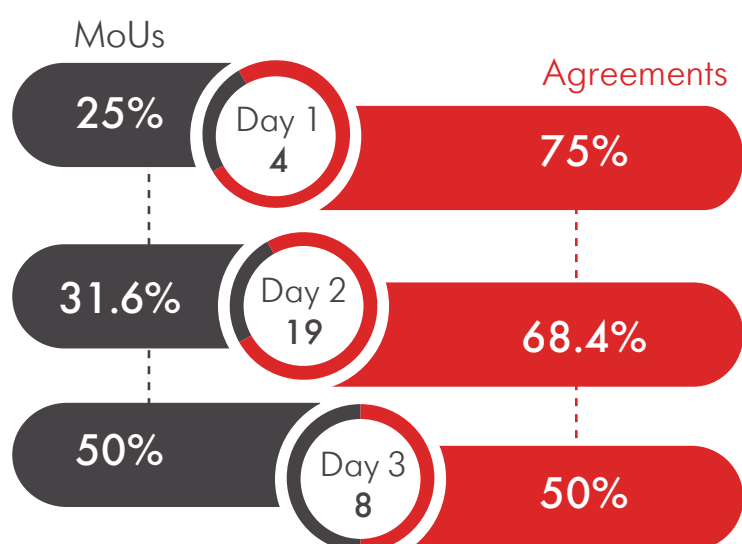
Agreements  
20

31

MoUs  
11



### MoUs & AGREEMENTS IN 3 DAYS



### 10 AGREEMENTS SIGNED BY GOVERNMENT INSTITUTIONS

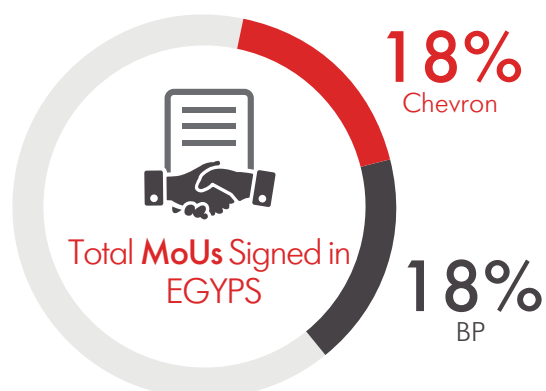


### 9 Agreements signed between international & national companies



### 1 E&P AGREEMENTS WAS SIGNED

Company	Concession	Drilling Commitment	Signature Bonus (\$ million)	Minimum Investments (\$ million)
Neptune Energy	North West El Amal	3 Wells	11	35

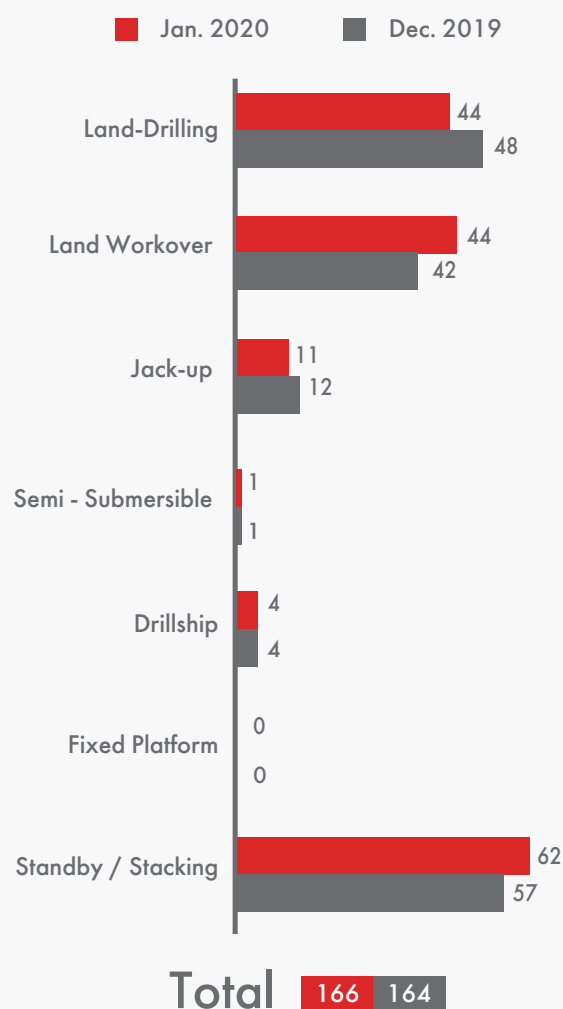


### 5 MoUs SIGNED BY GOVERNMENT INSTITUTIONS

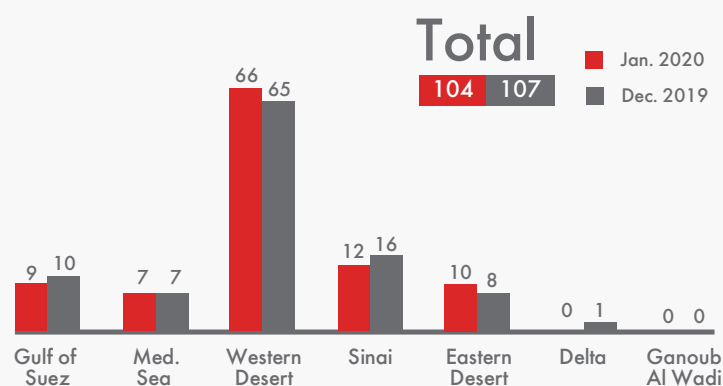


### 6 MoUs signed between international & national companies

## EGYPT RIG COUNT PER TYPE Jan. 2020

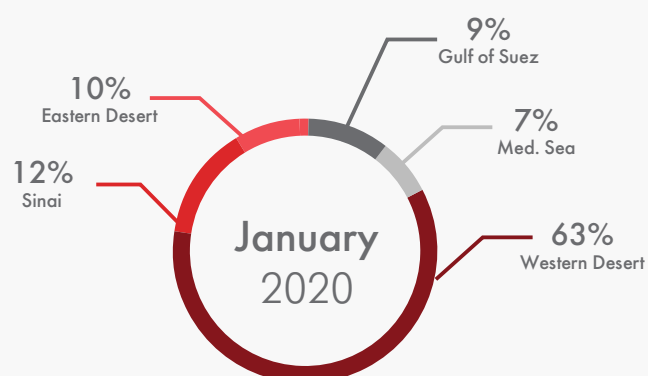


## EGYPT RIG COUNT PER AREA Jan. 2020



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

## Distribution of Rigs



## EGYPT PRODUCTION JAN. 2020

**Total**

537,783	BBL/D
6,437	BCF/D
6,280	MMF/D
88,118	BBL/D

Numbers are calculated per day on average.

	CRUDE OIL	NATURAL GAS	SOLD GAS	CONDENSATES
MEDITERRANEAN SEA	367	4.042	3944	34,491
EASTERN DESERT	63,479	0.011	10	29
WESTERN DESERT	299,322	1.257	1226	41,409
GULF OF SUEZ	123,734	0.166	162	1,624
DELTA	173	0.962	938	9,881
SINAI	50,553	0	0	684
UPPER EGYPT	155	0	0	0

## DRILLING UPDATE JAN. 2020

REGION	COMPANY	WELL	WELL TYPE	RIG	DEPTH	WELL INVESTMENTS (M\$)
EASTERN DESERT	GPC	BAKR - 132	Development	ST - 4	5,348	1.577
	GPC	NAO 3/5 D	Development	ADMARINE-3	5,223	3.429
	GPC/SCIMITAR	ISS-159	Development	OGS-9	1,923	1.002
MEDITERRANEAN	NOSPCO	KAMOUS MAIN-2	Development	EL QAHER I	2,279	16.3
	PETROBEL	ZOHR 17 HOR	Development	SAIPEM 10K	5,397	24.819
	RASHPETCO	MONTU-1X	EXP	DISCOVERER INDIA	4,750	81.16
WESTERN DESERT	BAPETCO	BED3 C11-A	EXP	EDC-52	12,116	1.9
SINAI	MEDITERRA	ASL-37	Development	EDC-67	6,650	1.3
	PETROBEL	112-183	Development	EDC-55	9,570	1.5
	PETROBEL	113-205	Development	ST-1	9,121	1.7



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