EGYPT OIL&GAS NEWSPAPER

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A RELIABLE PARTNER IN EGYPT:

INTERVIEW WITH DAWN SUMMERS, WINTERSHALL DEA'S NEW COO

wintershall dea

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EDITOR'S LETTER

Silver Lining Looms Behind Pandemic's Dark Cloud

The good news of the slumping numbers of coronavirus infections in Egypt is infusing optimism into all sectors in the country including the oil and gas sector which has recently celebrated new promising discoveries.

Although oil companies are still far from their pre-coronavirus revenues and had to continue with measures that can mitigate their losses, optimism isgrowing in oil marketsasprices jumped to a four-month high in July, rallying on hopes of economic stimulus and the rise in demand.

Such optimism can be sensed in an interview with Dawn Summers, WintershallDea's new COO, who talked with Egypt Oil and Gas about the priorities and challenges in her new role.

Our industry insights section focused on efforts to mitigate the negative effects of COVID-19 on the industry highlighting the role of financial stimulus to save stumbling companies. Our writers cast light over the shift in oil consumption and its relation with the economic slowdown. We also shared the fears and dreams of petroleum engineering students and fresh graduates who seek to join the sector in such a hard time.

We also sent a message of gratitude to the heroes of the industry who had to keep their positions on the frontlines during the pandemic.

In the research and analysis section, we are tracing the downstream activities development over fiscal years (FYs) (2014/15-2018/19)

The effects of coronavirus on world alliances and coalitions were highlighted in our political section.

We wishyou an enjoyable and informative reading and to remember that there is always a silver lining even in the middle of a pandemic.

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EGYPT'S LEADING OIL AND GAS MONTHLY PUBLICATION

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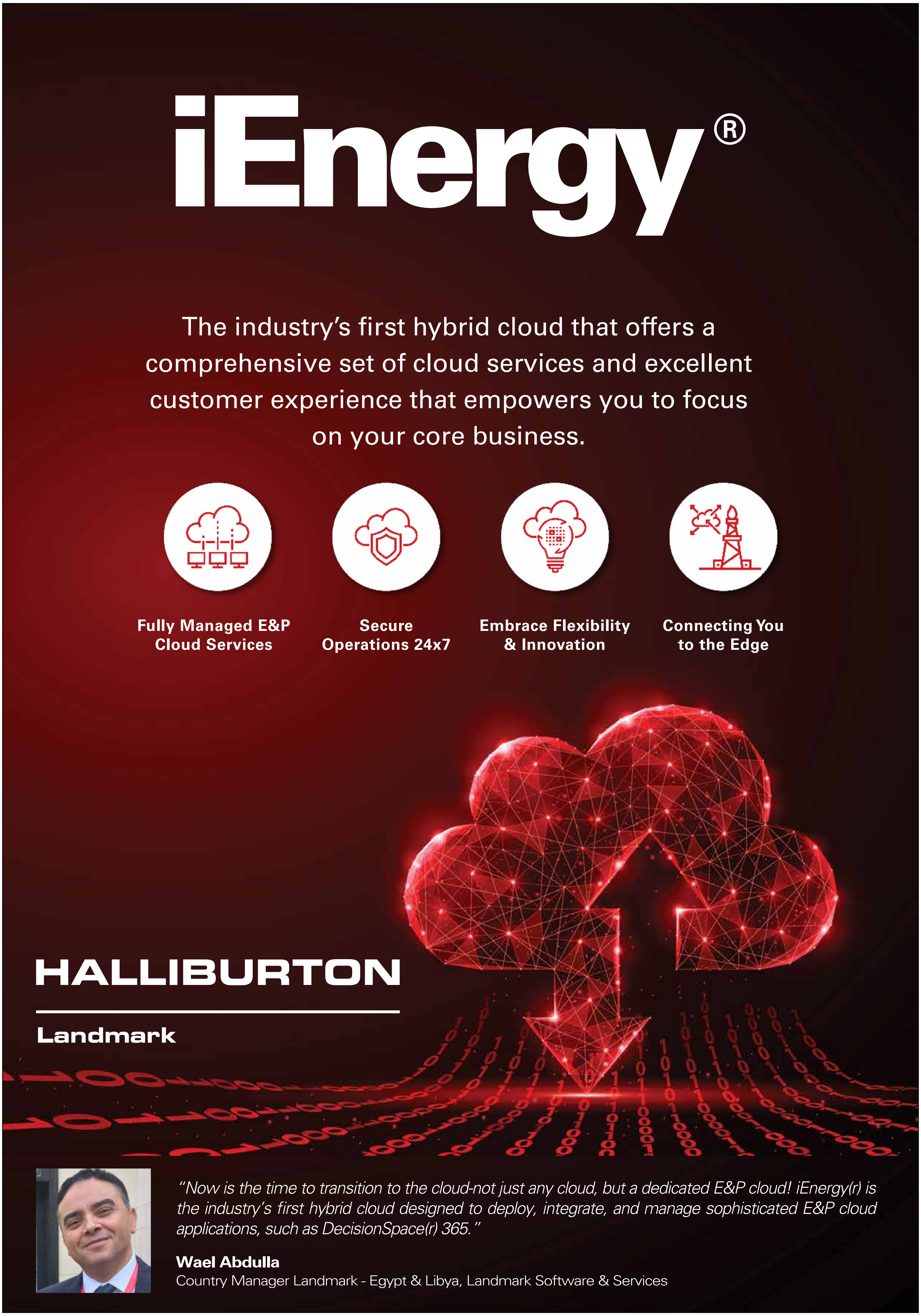
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EXPLORATION & PRODUCTION

NEW PETROLEUM DISCOVERY IN GULF OF SUEZ

The Ministry of Petroleum and Mineral Resources announced a new petroleum discovery in the shallow waters of Geisum Concession at the south of the Gulf of Suez.

The initial production rate of the new discovery (GNN-4) is 2,000 barrels per day (bbl/d) of crude oil. The indications showed that there areabout 70 million barrels (mmbbl) of extractable crude oil.

The new discovery was achieved by the PetrogulfMisr, on behalf of Egyptian General Petroleum Corporation (EGPC), in addition to Pico GOS Petroleum Company limited, and Kufpec Egypt limited. Also, Ganoub El Wadi Petroleum Holding Co. technically supervised the petroleum concession.

The successful exploration in the current fields indicates that there are more oil wealth and resources that have not yet been discovered and that modern and advanced geological technologies contribute to achieving more discoveries.

GPC ADDS 1,500 BARRELS OF CRUDE OIL TO DAILY PRODUCTION

The General Petroleum Company (GPC) announced that it managed to add 1,500 barrels of crude oil to its daily production despite the current circumstances and production challenges.

This achievement was implemented by revitalizing the company's old fields in the Western Desert and drilling the South West Sennan-45 Well, which successfully targeted the sandstone reservoir for Abu Rawash C.

This progress is considered proof that the company's old wells still have high petroleum potential that only needs more updated geological and engineering studies in order for such success to recur in the future.

DOWNSTREAM

EL MOLLA REVIEWS THREE REFINERY PROJECTS WORTH $2.8 B

The Minister of Petroleum and Mineral Resources Tarek El Molla reviewed the implementation progress of three giant projects. These include the expansion project for Midor refinery in Alexandria, the octane production complex project of the Assiut Oil Refining Company (ASORC), and the asphalt production unit of Suez Oil Processing Company (SOPC), with investments of $2.8 billion.

El Molla noted that Midor project costs reached $2.3 billion aiming to increase the production capacity by 60%. The octane complex costs $450 million with a production capacity of 800,000 tons per year, while the asphalt production unit costs $64 million to produce 1,200 tons per day. The minister stressed the importance of national resources in establishing these projects by the national oil companies (NOCs).

MOP EXCEEDS NATURAL GAS DELIVERY RATE

The Ministry of Petroleum and Mineral Resources delivered natural gas to about 1.070 million housing units in fiscal year (FY) 2019/20, achieving 107% of the original plan.

Tarek El Molla, the Minister of Petroleum and Mineral Resources, stated that the ministry managed to deliver natural gas to 66 new provinces during that time. With the expansion of natural gas delivery, the ministry has managed to reduce the financial burdens of subsidizing butane cylinders. The minister added that since the project began, the ministry delivered natural gas to 11.1 million housing units, thus saving about 200 million butane cylinders yearly.

Additionally, the ministry's plan aims to deliver natural gas to 3.4 million units between FY 2018/19 and FY 2021/22. Taking into consideration that the ministry delivered natural gas to 2.3 million units from FY 2018/19 to FY 2019/20, the ministry targeted to deliver natural gas to one million units more during the current fiscal year. Accordingly, the ministry would have completed its initial plan in three years only instead of four.

MOP TO DELIVER NATURAL GAS TO 1 MM HOUSEHOLDS IN FY 2020/21

The Minister of Petroleum and Mineral Resources Tarek El Molla stated that the ministry aims to deliver natural gas to one million households in fiscal year (FY) 2020/21.

In a meeting with Prime Minister MoustafaMadbouly, El Molla reviewed several ongoing projects that are expected to be finished soon. During the meeting, it was noted that Egypt has an adequate amount of petroleum products and butane cylinders, whereas Madbouly recommended increasing the stock to take advantage of the current oil price drop.

Additionally, Madbouly reviewed the ongoing cooperation projects with international oil companies (IOCs), noting that the country is keen to increase the number of projects for exploration and production (E&P).

PETROJET FINALIZES TRIAL OPERATIONS FOR NATURAL GAS GRID IN ABU DHABI

Petrojet announced that it has successfully finalized the trial operations for phase one of the natural gas grid in Abu Dhabi in the United Arab Emirates (UAE).

The project operations included designing, supplying, implementing, and operating a natural gas pipeline in favor of Abu Dhabi National Oil Company for Distribution (ADNOC Distribution).

This came under the Ministry of Petroleum and Mineral Resources' support for sector companies to operate abroad. Petrojet announced in May that it was assigned to assist Baker Hughes in manufacturing and supplying seven deep-water equipment for liquefied natural gas (LNG) project in Mozambique.

CABINET WAIVES EGP 5.3 B OF NATURAL GAS ARREARS

The Cabinet waived EGP 5.3 billion worth of natural gas arrears owed by factories in support of local industries and preserving investments.

The Cabinet approved the proposal submitted by the Ministry of Petroleum and Mineral Resources for waiving the natural gas-overdue bills of public and private sector factories. This decision came after some factories halted operations due to their accumulated debts. The proposal also included the exemption of penalties for exceeding contractual quantities of natural gas outlined in the original agreement. The exempted amount is estimated at around 5.3 billion.

It should be noted that the ministry previously reduced the price of natural gas for factories to reach $4.5 per million British thermal units (mmBtu). This is in addition to scheduling debts of natural gas for periods of up to five years, to encourage and support the local industry.

NVGC DELIVERS NATURAL GAS TO 173,434 FACILITIES IN BENI SUEF

Nile Valley Gas Company (NVGC), a subsidiary of Taqa Gas, delivered natural gas to 915 households in Beni Suef in May alone, bringing the total number of facilities that were connected to the natural gas grid in the governorate to 173,434.

This was included in a report sent to the Governor of Beni Suef Mohamed Hany Ghoneim. The report stated that natural gas delivery to Bayad El-Arab region and the village of Sheikh Ali is currently underway in addition to connecting natural gas to new neighborhoods East of the Nile in the new Beni Suef city.

The project continues to deliver to several cities in Beni Suef including; Al-Wasiti, Al Fashn, Biba, and Samasta, as well as to villages including; Al-Zarabi and Al-Dawia.

PETROLEUM MINISTRY TO CONSTRUCT NGC IN BENI SUEF

The Cabinet has allocated a plot of land to the Ministry of Petroleum and Mineral Resources to construct a natural gas compressor (NGC) plant in Beni Suef. The land, located in the Eastern road in Beni Suef, will be utilized by the ministry to set up a natural gas compressor plant in order to increase the efficiency as well as the pressure of the natural gas grid within the province.

Additionally, the Cabinet agreed to adopt the decision of the Ministerial Committee, which was held on June 9, to settle investment contracts' disputes between Petroceltic company and the Egyptian General Petroleum Corporation (EGPC).

TRANSGLOBE EGYPT PRODUCTION RECORDS 12,506 BBL/D IN JUNE

TransGlobe's oil production rates in Egypt recorded 12,506 barrels of per day (bbl/d) in June (until June 19) compared to 12,544 bbl/d in Q1 2020.

Oil production until June decreased mainly due to natural declines in Egypt. However, June production has positively impacted Q2 through successful well maintenance in May and timing of production recognition. The company added that the SGZ-6X well in South Ghazalat kept a production rate of 200-250 bbl/d of light and medium crude. On the other hand, the Eastern Desert's production remained on pause for Q2 as per the company's 2020 budget.

TransGlobe is still in talks with the Egyptian General Petroleum Corporation (EGPC) to reduce operational expenditures, in addition to amending, extending, and consolidating the company's Eastern Desert concession agreements. The company has also stated that it had three reported cases of COVID-19 within its joint venture quarters in Egypt, and all cases have recovered and returned to work without any infection spread reported.

PHAROS PRODUCTION MOUNTS TO 5,979 BBL/D IN EGYPT

Pharos Energy's Egypt production has amounted to 5,979 barrels of oil per day (bbl/d) in H1 2020.

Accordingly, the company managed to align the production of El Fayum Concession with the Egypt 2020 production guidance of 5,000-6,000 bbl/d. The company added that moving forward, the focus will be on production from existing wells through re-completions, new producing zones, and the conversion of selected existing production wells to injector wells.

Per the statement, Pharos has put all Egypt's drilling activities on hold, noting that the existing producing wells will go into natural decline until there is enough cash flow to restart the drilling activity.

ENERGEAN AMENDS EDISON E&P ACQUISITION FOR $178 MM

Energean announced that it has received a discount for its acquisition of the Edison E&P, paying only $178 million from an initial $750 million.

The company will gain operations in Egypt, Italy, UK, Croatia and Malta with 226 million barrels of equivalent (mmboe) 2P reserves and 2C resources.

Energean explained that it expects to pay a contingent payment for its first natural gas production from Cassiopea if natural gas price is recovered. By all of that, the company will have reserves and resources of more than of 800 mmboe, with plans to produce more than 130,000 boe/d to make it one of the largest E&P companies listed on the London Stock Exchange.

This was approved in Energean's general meeting, which also saw the approval of the addition of UK North Sea to the company's expanded portfolio including interests in two recent, material gas discoveries.

The company entered into a conditional sale and purchase agreement to acquire Edison E&P for $750 million on July 4, 2019. Both parties have agreed on several amendments to the deal after negotiations.

BAKER HUGHES TO DECREASE OPERATIONAL COSTS IN EGYPT

Tameer Nasser Director and General Manager at Baker Hughes stated that the company plans to decrease its operational costs in Egypt in line with the government's plan to attract new investments.

Nasser's remarks came during a meeting with Mohamed Abdel Wahab, CEO of the General Authority for Investment and Free Zones (GAFI), where they discussed Baker Hughes' current and future investments in Egypt. They also discussed increasing the company's business in Egypt, implementing digitization via artificial intelligence (AI) solutions, and introducing innovative technologies to reduce carbon emissions.

Nasser stated that the company plans to expand its business in Egypt by supporting the petroleum sector's digitalization shift, providing youth training in the United Arab Emirates (UAE), United States (US), United Kingdom (UK), Germany, and Italy. Baker Hughes is also working to develop Egyptian companies as part of its global supply chain in Mozambique to compete in regional and global markets.

SDX SELLS 50% OF NORTH WEST GEMSA LICENSE FOR $3 MM

SDX Energy has announced that it sold 50% working interest in the North West Gemsa license which is located in the Eastern Desert, to Gulf Energy, a private Egyptian oil and gas company, for an amount of $3 million.

It stated that the purchaser company will use $1.4 million to discharge the company's remaining liabilities on the license.

The company elaborated that this action is part of SDX's ongoing focus and commitment to capital discipline and careful management of the Group's portfolio whilst also providing additional cash to further strengthen its balance sheet.

SUKARI PRODUCTION INCREASES 11% IN Q2 2020

The Sukari gold mine showed a significant 11% improvement in production in Q2 compared to Q2 2019 with production amounting to 130,994 ounces (oz).

Centamin, the operating company of the mine, stated that this surge was a result of "an increase in mill feed head grade and the deferral of planned maintenance programs from Q2 to H2, resulting in more tonnes processed and greater production volumes." In parallel, the statement showed that there was a 16% increase in gold sales during Q2 2020 with 130.745 oz sold, compared to 112.764 oz sold in Q2 2019.

Drawing on that, the average realized price of gold recorded $1,731 per ounce, denoting a 32% year-on-year (YoY) increase, and gross revenue for Q2 2020 recorded $227 million with 54% YoY improvement. The company generated $144 million net cash flow from its operations, denoting a 151% YoY improvement. Moreover, the state has earned $6.8 million in royalty payments and the company paid $58.5 million in profit shares to the Egyptian Mineral Resources Authority (EMRA).

SCHLUMBERGER INTRODUCES PNX TECHNOLOGY TO EGYPT

Schlumberger has introduced Pulsar Multifunction Spectroscopy (PNX) technology for the first time in Egypt in cooperation with the General Petroleum Company (GPC).

PNX is the new generation of Reservoir Saturation Tool (RST) and aims to increase production efficiency from depleted oil and gas fields in addition to increasing their economic value. It is also utilized to evaluate the formation and saturation of oil-bearing layers with high accuracy.

GPC has taken advantage of this technology in two offshore wells in a production field that has been operating since 2004, but was closed for producing water only. After taking the needed prosecutions, the wells are now fully operational and producing crude oil.

After the Hamd-4 and Hamd-6 wells have been repaired, they are now producing at a rate of 1,800 barrels of crude oil (bbls) with only 0.5% of water, and 1,900 bbls with 3% of water, respectively.

SAUDI ARABIA

Saudi Arabia and Kuwait have resumed oil production at jointly-operated Khafji and Wafraoilfields on July 1. Khafji's oil field, which was halted for a month so as to comply with the June OPEC+ production cuts, is expected to be about 80,000 barrels per day (bbl/d) on resumption. The Kuwait Gulf Oil Company (KGOC) maintained that production will increase to 100,000 bbl/d after two months of production. Furthermore, production is expected to reach 175,000 bbl/dd from the Khafji field by the end of the year. With regards to the Wafra field, production will start on July 1, with an initial output of 10,000 bbl/d. By August it will rise to 70,000 bbl/d, and then further increase to 145,000 bbl/dd by the end of 2020.

Saudi Aramco, the world's largest oil company, has announced its completion of the 70% stake acquisition in the petrochemical company Saudi Basic Industries Corporation (SABIC) from the Public Investment Fund (PIF). The completion of the acquisition is set to enhance Aramco's petrochemical strategy by integrating upstream production with SABIC feedstock; expanding capabilities in procurement, supply chain, manufacturing, marketing and sales; complementing geographic presence, projects and partners; and increasing the resilience of cash flow generation. This integration is part of Aramco's long-term plans in the petrochemical industry's downstream strategy to grow its integrated refining and petrochemicals capacity and create value from integration across the hydrocarbon chain.

Saudi Aramco is set to reorganize its downstream business and enhance integration across the hydrocarbon value chain in order to enhance financial performance and value creation. The company's new-look downstream operating model will include four commercial business units: fuels (includes refining, trading, retail and lubes), chemicals (including power and pipelines), distribution and terminals. These units will be supported by manufacturing, affiliates affairs, and strategy & marketing. This reorganization is an attempt to enhance Aramco's business efficiency in existing downstream assets but does not fundamentally change the company's overall business structure. The company's underlying downstream strategy focuses on creating growth opportunities across the hydrocarbon chain.

NORWAY

Equinor and its license partners Source Energy AS and Wellesley Petroleum AS have made a natural gas and condensate discovery in the exploration well 30/2-5 S Atlantis. Initial findings estimate the proven reserves to be between 3 and 10 million cubic meters (mcm) of recoverable oil equivalent, which correspond to 19-63 million barrels of oil equivalent (mmboe). This is the first exploration well to be drilled in production license 878. The license was awarded in the Awards in Predefined Areas 2016 (APA 2016). The license owners will now decide whether to pursue discovery in the area.

Europe's largest oil-producing nation, Norway, has no plans to further extend the record OPEC+ production cuts in July. At present, Norway is complying with the OPEC+ deal by cutting output by 250,000 barrels per day (bbl/d) in June. However, the nation will reduce the cuts by 134,000 bbl/d in H2 2020 as originally planned. The Norwegian government believes that the latest decision to prolong cuts underscores their initial efforts.

Norway intends to profoundly increase Arctic oil exploration by offering up 125 new oil exploration permits in the Arctic Barents Sea. Norway's 25th licensing round will offer up the opportunity to explore in eight previously unexplored regions in the Arctic Barents Sea. There will be a range of permits available. However, this decision is not without its controversies and Norwegian environmentalists have berated the decision.

The Petroleum Safety Authority (PSA) Norway has granted Spanish oil company Repsol's subsidiary, Repsol Norge, a production license extension of two years at the Rev field. The Rev field is part of production license 038 C, for which Repsol owns 70% and Petoro the remaining 30%. The production license was previously due to expire on 1 April 2021 but has now been extended to 31 December 2023. Rev field was discovered in 2001, and the plan for development and operation was approved in 2007. Production started in 2009. The field is located in Block 15/12, approximately 4kilometers (km) south of the Varg field in water depths of 90 to 110 meters.

BRAZIL

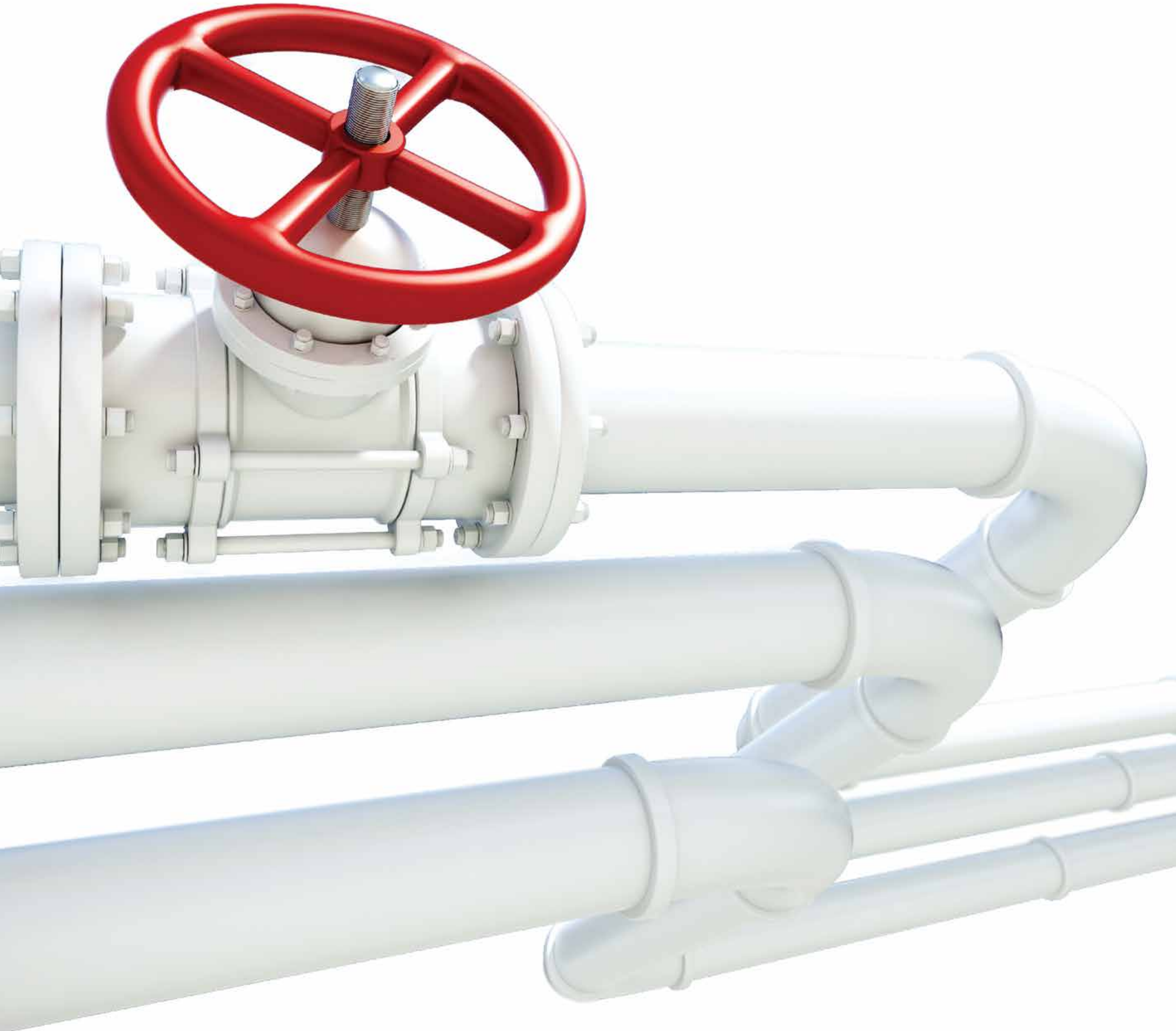
Brazil's Petrobras announced on July 14 that the company's four platforms in the Buzios oilfield located in the Santos Basin yielded a record daily production. The four platforms: P-74, P-75, P-76, and P-77, produced a combined 674,000 barrels of oil per day (bbl/d) and 844,000 barrels of oil equivalent per day (boe/d). This is the second time in a matter of weeks that the production record has been broken, with the same four platforms previously producing 664,000 bbl/d and 822,000 boe/d on June 30. Petrobras said that it has managed to sustain production levels at its refineries at a level close or higher than those before the pandemic.

French company Total has announced a ramp-up in production following the launch of the Floating Production Storage and Offloading (FPSO) P-70 of the lara cluster (Block BM-S-11A), located in the deepwater Santos Basin pre-salt offshore Brazil. The ramp-up of lara's production reflects Total's growth strategy in the Brazilian deep offshore, where the group focuses on giant projects that produce barrels of oil at a competitive cost. With a production capacity of 150,000 barrels of oil per day, this new unit will double the overall production capacity of the lara cluster and will produce the reserve of the Atapu field. The Berbigão field was initiated in November 2019 with the FPSO P-68. The newest addition of the FSPO P-70 marks the latest stage of Total's expansion policy in Brazil.

Saipem has been awarded a $325 million contract by Brazil's state-run oil company, Petrobras, for the installation of a rigid riser-based subsea system offshore Rio de Janeiro. The contract includes the Engineering, Procurement, Construction and Installation (EPCI) of the Steel Lazy Wave Risers (SLWR), and associated flowlines between all wells and the FPSO. The specifics of the deal include five production and five injection risers and flowlines for a total length of 59 kilometers(km), a 16 km-long gas export line to be connected to an existing pipeline, 11 rigid jumpers, and 21 foundation subsea structures (risers and PLETs). This EPCI will be undertaken in the Búzios pre-salt and Saipem will use its state-of-the-art field development ship (FDS) for all the subsea works.

TRACING THE DOWNSTREAM ACTIVITIES DEVELOPMENT
OVER FYS (2014/15-2018/19)

BY AMINA HUSSEIN, REHAM GAMAL, AND TASNEEM MADI



Downstream activities in the petroleum sector are essential for securing and meeting the domestic demand of natural gas. With this regard, the Egyptian Natural Gas Holding Company (EGAS) started natural gas connection activities in 1981. The activities target connecting natural gas to the consuming sectors, represented in industrial, commercial, and residential sectors, to replace butane with natural gas.

Since starting the activity and until June 2019, over 10 million residential consumers, 2,531 industrial facilities and 20,617 commercial units were connected to natural gas. Thus, with the increasing reliance on natural gas, many natural gas grid projects have been implemented to link between the natural gas fields and facilities, bringing the grid's length to about 60,000 km in June 2019, as explained in EGAS Annual Reports (2014/15-2018/19).

Furthermore, in 1985, EGAS started the activity of converting vehicles into natural gas. Over the last five years, EGAS succeeded in expanding the use of natural gas as fuel for vehicles through the establishment of new gas fueling stations and conversion centers. From the start of the activity until June 2019, the number of Total converted vehicles reached 275,968, as explained in EGAS Annual Reports (2014/15-2018/19).

NATIONAL GRID DEVELOPMENT

In light of the upgrading plan for the national gas grid and preserving assets complying with the standard maintenance procedures for gas pipeline projects, EGAS has been successfully working on a number of national gas grid pipeline projects since Fiscal Year (FY) 2014/15 and until FY 2018/19. Over the referred period, 31 natural gas pipelines were constructed with total costs of EGP 8.7 billion, EGAS Annual Reports (2014/15-2018/19).

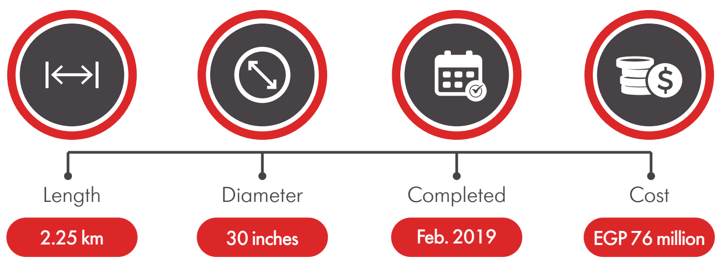
In FY 2014/15, the petroleum sector succeeded in completing nine natural gas pipeline projects, representing the highest number of implemented projects over the referred period. The projects added length to the grid totaled 215 km with total costs of EGP 1.3 billion. By the end of the year, the natural gas national grid reached a total length of 40,000 km with a capacity of 7.6 trillion cubic feet (tcf) of transported natural gas, according to EGAS Annual Report 2014/15.

Over the period from FY 2015/16 to FY 2017/18, more than 15 natural gas pipeline projects were implemented with total costs of EGP 3.5 billion. Over this period, the natural gas national grid reached a total length extended from 44,000 km to 51,000 km, while the natural gas capacity increased from 7.7 tcf to 8.5 tcf, respectively.

In FY 2017/18, the total imported quantities of natural gas supplied to the national gas grid were significantly reduced by 40% to reach 221 billion cubic feet (bcf). This was achieved through the discovery of new gas fields and increase in natural gas production by 29%. The increase in production led to saving hard currency for developing the national grid development projects, explained in EGAS Annual Reports (2015/16-2017/18).

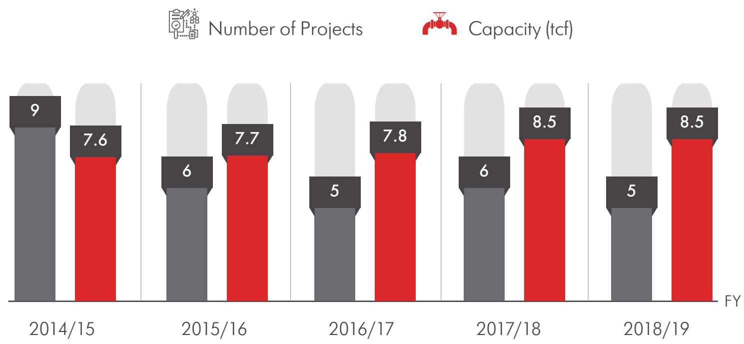
Accordingly, FY 2018/19 witnessed the execution of five natural gas pipeline projects with relatively tremendous costs of EGP 3.9 billion compared to EGP 1.6 billion in FY 2017/18. The projects' pipeline length reached 292 km. The Egyptian LNG (ELNG) pipeline, one of the five pipelines, was established and extended from the national grid to feed Idku liquefaction plant with natural gas from the grid. During the year, Egypt succeeded to reach self-sufficiency and stopped importing Liquefied Natural Gas (LNG).

ELNG Pipeline



It is worth mentioning that the length of the natural gas national grid increased by 50% in FY 2018/19 compared to FY 2014/15 as it extended from 40,000 km up to 60,000 km. Meanwhile, the natural gas capacity rose by 12% from 7.6 tcf to 8.5 tcf, stated in EGAS Annual Report 2018/19.

National Gas Grid Development



NATURAL GAS CONNECTION

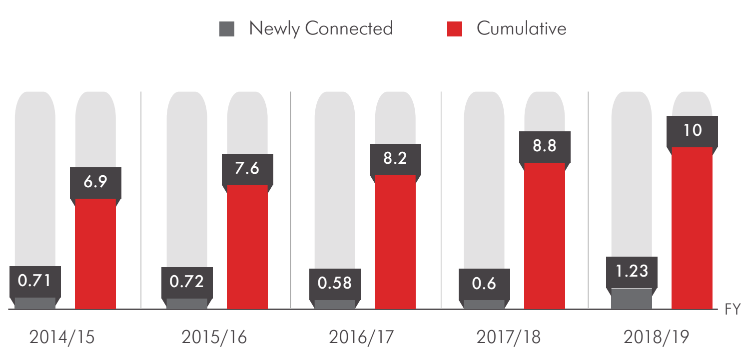
The residential sector along with the commercial sector consumes around 3% of the country's natural gas supply annually, according to EGAS annual reports. Over the period from FY 2014/15 to FY 2018/19, EGAS succeeded in connecting a total of 3.8 million residential units to the national gas grid. Annually the Ministry of Petroleum and Mineral Resources (MoP) connects an average of 0.77 million units to the grid, according to EGAS Annual Reports (2014/15-2018/19).

Over the referred period, the total number of residential units connected to the national gas grid increased by 45% to record 10 million units in FY 2018/19 compared to 6.9 million units in FY 2014/15, according to EGAS Annual Reports (2014/15-2018/19).

FY 2016/17 witnessed the lowest amount of connected residential units to natural gas with 0.58 million units. The relatively low level of connections in FY 2016/17 and the following year resulted in the increase in cost of connecting houses to the national grid. During the two years, EGAS has increased the cost of connecting residential units to natural gas from EGP 1,000 to EGP 1,800.

Following this decision, the government launched an initiative to deliver the natural gas to houses for EGP 30 per month over the course of six years; accordingly, FY 2018/19 witnessed a significant leap, achieving the highest residential connections since beginning of the activity at 1.23 million residential units, according to EGAS Annual Report 2018/19.

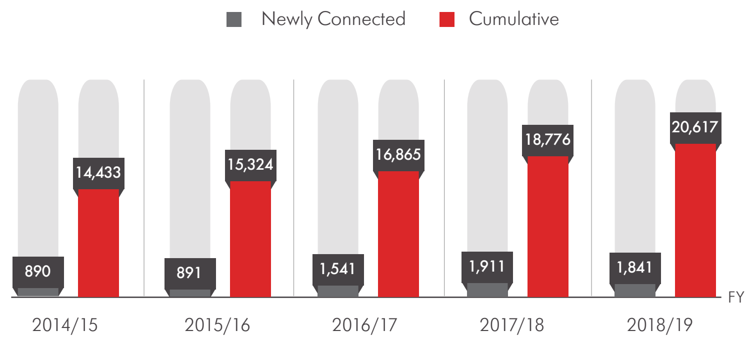
Residential Units Connected to Natural Gas (million)



As for the commercial units, EGAS was able to connect a total of 7,074 units over the period from FY 2014/15 to FY 2018/19. On average, the MoP connects 1,415 commercial units annually to the national gas grid, according to EGAS Annual Reports (2014/15-2018/19).

As a result of the expansion in connecting different areas to the natural gas grid, FY 2017/18 witnessed the highest number of commercial units connected to the national gas grid with 1,911 units.. The total number of commercial units connected to the national grid increased by 43% from 14,433 units in FY 2014/15 to 20,617 units in FY 2018/19, according to EGAS Annual Reports (2014/15-2018/19).

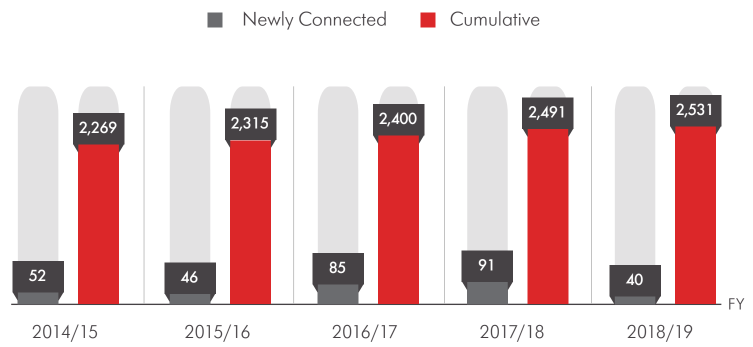
Commercial Units Connected to Natural Gas



The energy-intensive industries represent a relatively significant portion of Egypt's domestic natural gas supply with 22.5% in FY 2018/19, as mentioned in EGAS Annual Report 2018/2019. These industries include light industries like textiles and food, as well as heavy industries like steel and cement. According to EGAS, iron and steel manufacturers used 73.5 bcf (15%) of natural gas in FY 2018/19.

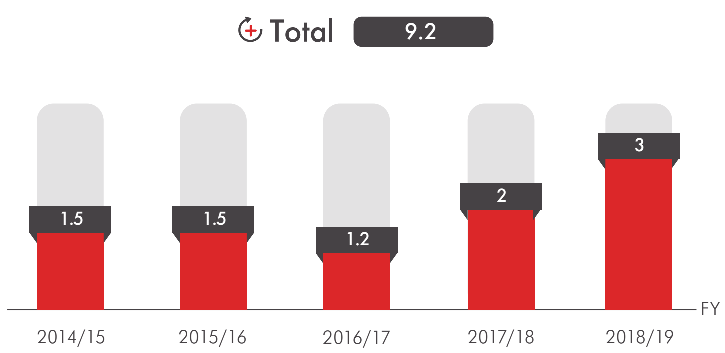
Over the period from FY 2014/15 to FY 2018/19, EGAS connected a total of 314 industrial facilities to natural gas, with an average of 63 units per annum. The growth rate of the total industrial facilities connected to natural gas, over the whole period, recorded at 12%, as the number increased from 2,269 units in FY 2014/15 to 2,531 in FY 2018/19, according to EGAS Annual Reports (2014/15-2018/19).

Industrial Facilities Connected to Natural Gas



The Local Distribution Company (LDC) plays a vital role in downstream activities through pumping investments to implement natural gas connection projects. Over the period from FY 2014/15 to FY 2018/19, the total investments spent by the LDCs on the natural gas connection projects amounted to EGP 9.2 billion. As a result of the increasing activity in connecting various units to natural gas, the investments implemented by the LDCs doubled in FY 2018/19 to reach EGP 3 billion compared to EGP 1.5 billion in FY 2014/15, according to EGAS Annual Reports (2014/15-2018/19).

LDCs' Investments on Natural Gas Connections (EGP billion)

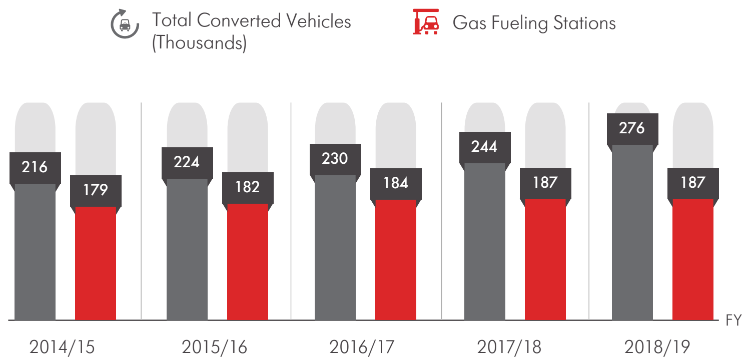


VEHICLES CONVERSION INTO NATURAL GAS

After 1985, the MoP has launched two affiliated companies, namely Car Gas and the Egyptian International Gas Technology (GASTEC). These companies are responsible for establishing Compressed Natural Gas (CNG) fueling stations and converting vehicles to run on natural gas. As a result, the private sector companies were allowed to contribute in the Natural Gas Vehicles (NGV) activity such as the entrance of Shell/Gas Express, Master Gas, Arabia Gas and Total Egypt. At the end of March 2017, Egypt was ranked as one of the pioneering countries in the NGV field, where the total amount of gas sales reached 217.9 billion cubic feet (bcf), according to GASTEC's website.

Over the period from FY 2014/15 to FY 2018/19, converting vehicles into natural gas activity has achieved unprecedented results, where a total of 71,912 new vehicles were converted into natural gas through 72 conversion centers and 187 gas fueling stations. On an annual basis, residential and CNG consumption represented about 5% of total natural gas consumption, stated in EGAS Annual Reports (2014/15-2018/19).

Vehicles Conversion into Natural Gas



In the framework of completing the activity's expansion programs, in FY 2014/15, 11,500 vehicles were converted through 71 conversion centers and 179 gas fueling stations. Hence, the total number of converted vehicles reached 216,000 vehicles this year. Since then, the conversion of vehicles has been following an increasing trend, explained in EGAS Annual Reports (2014/15-2018/19).

Over the period from FY 2015/16 to FY 2017/18, more than 20,000 vehicles were converted through establishing nine new gas fueling stations. Within this period, FY 2017/18 witnessed a rebound where the newly converted vehicles increased by more than 100% to reach 13,732 vehicles, due to the establishment of four new gas fueling stations and one new conversion center. Gas fueling stations reached 187 stations, while conversion centers reached 71 centers in FY 2017/18. In FY 2018/19, the number of newly converted vehicles jumped by 135% reaching 32,280 due to the establishment of a new gas fueling station and a conversion center. Thus, conversion centers reached 72 centers, during FY 2018/19. It is worth noting that the total number of converted vehicles into natural gas increased by 28% in FY 2018/19, in comparison to FY 2014/15. Accordingly, the converted vehicles totaled 267,000, according to EGAS Annual Reports (2015/16-2017/18).

Over the referred period, the downstream activities witnessed remarkable progress. This came in line with the digitalization plan which the petroleum sector started implementing in 2014. The plan adopted a digital transformation strategy to improve the sector's efficiency. In light of this strategy, downstream activities have been monitored and controlled by EGAS through a collective database. Accordingly, EGAS was able to achieve its targets and expansion plans as part of modernizing the sector.

Complying with the strategy, in FY 2019/20, over 40,000 cars were converted into natural gas where the gas fueling stations reached 206 and three car convention centers were constructed bringing them to 74 centers. The MoP targets 147,000 cars to be converted in the next three years with investments of EGP 1.2 billion, according to a ministerial press release reported on July 19, 2020.

Moreover, by offering more incentives, the government has reached unprecedented numbers in delivering natural gas to different consumers. Natural gas was widely delivered to 1.070 million residential units, as stated in a ministerial press release reported on July 5, 2020.

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A RELIABLE PARTNER IN EGYPT:

INTERVIEW WITH **DAWN SUMMERS**, WINTERSHALL DEA'S NEW COO

wintershall dea

In June 2020, Wintershall Dea gained a new Chief Operating Officer, Dawn Summers. Among her responsibilities, Dawn oversees the company's Europe, Middle East and Africa businesses. Dawn's 25-year career in the industry spans 20 years at BP as well as Genel Energy, Origin Energy and Beach Energy. She talked with Egypt Oil and Gas about priorities and challenges in her new role.

What attracted you to Wintershall Dea, and as you settle in, what challenges and opportunities are you most excited about?

Operating in 13 countries with employees from over 50 nations, Wintershall Dea is a diverse and forward looking company. Being part of a team which is committed to shaping the future of energy and securing growing energy demand in a sustainable way, and as Europe's leading independent gas and oil company, is very exciting!

Around 70% of our portfolio is gas. This together with focussed investment in technology and innovation and underpinned by people – our technical expertise, the know - how of our employees and long standing partnerships – are key ingredients in producing our resources in the most energy and climate efficient way as possible.

I believe that we have a huge opportunity to play a significant part in the "jigsaw" of making the world a better place for us, our families, our children's families and generations to come, by delivering energy to the highest environmental and safety standards.

> MY TOP PRIORITY FOR EGYPT IS TO CONTINUE TO BE A RELIABLE PARTNER AND TO BUILD ON OUR EXISTING, TRUSTED RELATIONSHIPS WITHIN THE COMMUNITIES IN WHICH WE OPERATE.

As the board member responsible for Wintershall Dea's operations in Egypt, what are your priorities for the country?

Wintershall Dea has a long history in Egypt. For over four decades we have been a stable investor and a reliable partner in the country. Alongside Russia, Germany, Norway and Argentina, Egypt is one of our 5 core, established business units producing on average 38,000 bpd in 2019.

My top priority for Egypt is to continue to be a reliable partner and to build on our existing, trusted relationships within the communities in which we operate.

2020 will see us continue to work on maintaining safe and efficient operations and delivering the most value from our operated assets, at Disouq and in the Gulf of Suez. At the same time, we continue to support our partner and operator BP as it progresses Raven, the final field in the offshore West Nile Delta project. We are also looking forward to starting exploration activity in 2020, as we plan to commence exploratory drilling at East Damanhour, an initial three year drilling program of 5 to 7 wells.

For the future, the Eastern Mediterranean is a promising region for new gas developments, with Egypt at its core. Wintershall Dea supports the development of a regional energy hub and is an active member of the East Med Gas Forum's Industry Advisory Committee.

Can you give us an update on how the ongoing COVID-19 pandemic, and the oil price situation, is impacting Wintershall Dea and operations in Egypt in particular?

Our top priority is always the safety and wellbeing of our employees. As part of our COVID-19 response, we developed and implemented procedures that both minimized the risk to our employees and service providers and enabled the continued supply of energy to the market. We have done and will continue to do everything we can to prevent the spread of the virus.

Having been with the company a short while, I am very proud and impressed by Egypt's achievements this year. Despite the challenging times that we face, the team have done an outstanding job at adapting to new ways of working and continue to deliver safely and efficiently. Not an easy task and it's testament to the business' strong leadership, team spirit and supportive culture, and also, the pre-investment made by Wintershall Dea in "smart" operations, digitalization and IT infrastructure.

> *FOR THE FUTURE, THE EASTERN MEDITERRANEAN IS A PROMISING REGION FOR NEW GAS DEVELOPMENTS, WITH EGYPT AT ITS CORE. WINTERSHALL DEA SUPPORTS THE DEVELOPMENT OF A REGIONAL ENERGY HUB AND IS AN ACTIVE MEMBER OF THE EAST MED GAS FORUM'S INDUSTRY ADVISORY COMMITTEE.*

Following the signing of the concession agreement for East Damanhour in February, what are your plans for progressing exploration?

We were delighted to sign a concession agreement with His Excellency the Petroleum Minister Tarek El Molla, for exploration of the East Damanhour block. The block is in the onshore Nile Delta near to our Disouq development - an area we know very well and have infrastructure nearby, which means we are well placed to develop any discovered volumes.

As I mentioned earlier, the initial three year drilling program involves several wells that we plan to commence later this year. East Damanhour is a priority for us in Egypt and we are looking forward to getting started.

Do you have further growth plans in Egypt?

Our immediate focus is ensuring the continued, safe and efficient operations of our Gulf of Suez and Disouq operated assets, supporting our partner and operator BP deliver a safe start-up of Raven, and commencing the exploration drilling program for East Damanhour.

For the future, as I've said, we see the Eastern Mediterranean – with Egypt at its heart - as a promising region for new gas developments. We also support the development of a regional energy hub and are an active member of the East Med Gas Forum's Industry Advisory Committee.

Longer term, we want to grow and will, of course, take our time to find opportunities that offer the best value and that are aligned with our wider portfolio and strategy.

You have worked internationally for many years now, in many countries around the world. In that context what are your impressions of the sector in Egypt?

My initial impressions of Egypt, albeit formed at a distance given COVID-19 travel restrictions, are positive. For example recent economic reforms and the E&P sector modernization program. I also believe that this has been a joint industry and government effort, and His Excellency Tarek El Molla has done a lot to bring the sector forward.

Wintershall Dea is playing a role. For example, Sameh Sabry, our Manging Director for Egypt has just been made joint chairman of the Egypt Oil and Gas technical committee. This is great news and very much in line with our desire to contribute for the benefit of the sector in Egypt overall.

And looking at the future, what role do you see for an Eastern Mediterranean Energy Hub and the development of the industry?

The hub development, centred on Egypt, is indeed another reason to be optimistic. Clearly Egypt has the location, infrastructure, and political will to make a hub happen, as well as having attractive undeveloped resources. We support the development and are playing an active role in the East Med Gas Forum's industry advisory committee. For us, the ability to use Egypt as a base for wider activities in the region is very attractive.

How exactly the current crisis will play out in Egypt and impact its future development is hard to predict but what we can say is, the fundamentals are in place.

On a different issue: Wintershall Dea was recognized at EGYPS 2020 as an employer that champions diversity and inclusion. Is this, and women in energy and in leadership, something you want to personally push forward?

I am a huge supporter and strongly believe that companies that choose to put diver sityand inclusion - in its widest sense - at the top of their agenda have a more engaged workforce, encourage innovation and achieve better business outcomes.

So, I am very pleased that Wintershall Dea has been recognized as an employer that champions this very important topicand is a strong promoter of women in energy.

Finally, can you give us a little insight into Dawn Summers, not the COO but the person? What is important to you outside of the office?

My family are my most important priority. I am also a big fan of travel, exploring new places and experiencing different cultures. As an engineer, I consider myself very fortunate to be part of an industry that has enabled me to visit and work in many different parts of the world.

I also love the outdoors and in particular, sailing. Being out on the water brings a great sense of freedom and release, and I rather enjoy sailing in choppy waters, so maybe it's also good practice for being a gas and oil COO right now!

HAS COVID-19 KNOCKED THE WIND OUT OF EGYPT'S TRANSITION TO RENEWABLES ?

BY JACK BECKFORD

Against the background of low oil prices, the market has been flooded with cheap energy which threatens to derail the global transition to renewables. The Financial Times maintains that the perfect storm of disruption to supply chains, coupled with historically low oil prices, could potentially alter governments' policies towards energy transition. However, Omar Nagi, Head of Wind Energy at Infinity Energy, views this as a chance to accelerate the low carbon economy and set the world on a green path.

According to Fitch Solutions' BMI Research Egypt Power report, renewable energies in Egypt pre-pandemic were set to experience exponential growth, with predictions that renewables would become the fastest-growing energy sector up until 2028. What's more, the International Renewable Energy Agency's (IRENA) report for Egypt in 2018 predicted that 42% of Egypt's energy would derive from renewables by 2035. So the interest in transitioning to renewables is undeniable and the sector has recently made a lot of headway, but will Egypt's renewable sector be able to weather the COVID-19 storm?

EGYPT'S PRE-PANDEMIC INVESTMENT LEVELS

Omar Nagi believes that Egypt was one of the first countries to support the growth of renewable energy, pointing to the first renewable energy strategy adopted in 1982. This progress has continued in Egypt's renewable sector and was described in January 2020 by Mohamed Salah Al-Sobky as "very positive" in a New and Renewable Energy Authority (NREA) report.

According to Oxford Business Group's 2019 Egypt energy report, it sees Solar and Wind energy as the driving factors behind Egypt's renewable progress. The construction of Benban Solar park and the West Bakr wind farm are cited as the embodiment of this success:

In November 2019, Egypt completed the construction of the 1.4-GW Benban Solar Park in the Aswan Governorate in Upper Egypt. The park has attracted a staggering $2 billion in investment, with around 30 companies already establishing energy projects and commercial operations at the site. Secondly, construction began in October 2019 on the 250-MW West Bakr wind farm, located 30 km north-west of the town of Ras Ghareb on Egypt's east coast. When completed, there will be 96 turbines at the site, which will produce enough electricity to power 350,000 homes. It aims to be operational in 2021 at a total estimated cost of $325 million.

COVID-19 FALLOUT

The pandemic has, in the short-term, put the brakes on Egypt's renewable transition. For example, domestic firm, Inter Solar Egypt, has postponed construction of four solar plants because of the disruption to supply chains and uncertainty over the future price of imported components.

That said, there is still a desire to maintain pre-pandemic levels of investment. The World Bank's Multilateral Investment Guarantee Agency (MIGA) pledged $52.35 million to Scatec Solar on March 31 to fund six new solar power plants at Benban Solar Park. Hiroshi Matano, Executive Vice-President of MIGA said of the deal: "In the face of uncertainty arising from the COVID-19 pandemic, MIGA remains committed to helping drive foreign direct investment (FDI) by supporting investors who are helping Egypt achieve its long-term goals of diversifying its energy mix."

Furthermore, according to Donia El-Mazhgouny, an energy expert and founder of Mazghouny & Co, the pandemic fallout will only be a temporary blip stating: "The progress achieved in the renewables market in Egypt over the past year or so was, and continues to be, driven by the expectation of increasing electricity prices. Beyond the 5-year price stabilization decision recently announced, this expectation still holds true and remains reason enough to push commercial and industrial off-takers to seek private electricity generation sources."

DESPERATE TIMES CALL FOR DESPERATE MEASURES

According to Hatem Tawfik, managing director of Cairo Solar, the biggest challenge facing the renewable sector in Egypt at present is cheap natural gas disincentivizing the removal of gas subsidies. This represents a significant threat to the renewable industry as their energies will be rendered uncompetitive in comparison to natural gas. These fears were confirmed when the Egyptian government lowered the price of natural gas by 25% for the entirety of the industrial sector so as to prevent an industry crisis. However, Yassen Abdel Ghaffar, Managing Director of SolarizEgypt, believes this will be a one-off measure saying "the macroeconomic picture suggests that subsidies are not sustainable; this is a one-timer as a response to Covid-19 but Egypt's budget cannot handle such subsidies for more than a few years." To further back this up, the Finance Ministry announced in April that it will halve fuel subsidies for the coming fiscal year to EGP 28.1 billion, down from EGP 52.9 billion in FY 2019-2020.

Another major issue threatening the renewable sector at present are energy generation limits. The Egyptian government has limited production so as not to exacerbate the existing oversupply issue. On 20 May, the Egyptian Electric Utility and Consumer Protection Regulatory Agency (EgyptERA) capped private-sector solar production by amending Egypt's net metering system. The maximum capacity for plants owned by one customer should not exceed 25 MW in aggregate or 20 MW per project. However, Donia El-Mahgouny points out that this does not apply to larger projects such as Benban where "the government is ensuring payment of the developers' invoices as per the PPAs payment schedule, without impact from Covid-19."

Moreover, the amendment stipulates that the State will pay a lower price for excess feed by pegging it to the most recent purchase price agreement signed between the state-owned Egyptian Electricity Transmission Company (EETC) and any solar player. There's also a new "balancing fee" which was introduced to account for the cost of balancing renewable electricity on the national grid. This has led to the rising cost of projects as a result of the EETC raising the cost-sharing bill.

EGYPT'S FUTURE IS BRIGHT

Notwithstanding these recent difficulties, it's not all doom and gloom - the future for renewables remains bright in Egypt. Yaseen Abdel Ghaffar believes that "in the medium and long-term solar will remain the lowest Levelized cost of energy due to Egypt's incredible solar irradiance. Grid-parity has been achieved several years ago and as subsidies are gradually removed, the case for solar is becoming impossible to ignore."

Furthermore, Donia El-Mahgouny believes that renewables will play a pivotal role in Egypt's future energy mix, especially the different solar and wind applications, such as water treatment and e-mobility. However, in order to achieve renewable targets in an organic way, "the government should facilitate distributed electricity generation, not only focus on utility-scale projects. Power-to-X would be key in my view in accelerating the shift in the energy mix."

Egypt's renewable transition has no doubt faced setbacks, just like most industries. However, the sector's future looks bright as the government commits to diversifying its energy mix and reducing its dependence on a single energy resource. With the inevitable rise of Egypt's economy and predicted population growth, there will be an impending energy demand which will require renewable energies. Pre-pandemic, the government had made significant inroads into its transition to renewables, but now appropriate planning is necessary for the next stage in the "post-coronavirus" era in order to build on this progress.

WILL FINANCIAL STIMULUS BE ENOUGH TO RECOVER FROM A PANDEMIC?

BY RANA AL KADY

To begin with, it is important to note that the recent developments of the COVID-19 pandemic have differed based on several elements. While some countries have cases that increase at an exponential rate, some have managed to keep the spreading of the virus under control. With the current number of international COVID-19 cases beginning to stabilize and decrease slowly, new and innovative financial programs and incentives have been developed to aid in the economic recovery process of various sectors, with priority given to oil and gas sectors.

The oil and gas industry has taken a huge hit since Q1 2020.With confinement and lockdown measures implemented in 187 countries, oil and gas employees have limited the need for having on-site staff workers. This, in turn, has resulted in an economic downturn that can be revived with the aid of efficient financial programs and incentives made accessible and sufficient for the industry.The main aim ofsuchfinancial programs and incentives isto be able to help people in the industry recoverfrom the economic downturn that resulted from the worst pandemic within the last century.

Currently, there have been several fiscal plans and financial incentives that were developed with the aim of helping and supporting the oil and gas industry to emerge from the pandemic on a strong note. At the moment, the many question the ability of the oil and gas industry to recover at a fast pace, post-COVID-19. Others, however, consider this situation a one in a million opportunity to create, amend, and develop a more sustainable system for the oil and gas industry in order to be able to stand strong in the event of a future global crisis, whatever it may be. The need for a post-COVID-19 financial recovery programme is more urgent now than ever to withstand difficult downfalls.

ECONOMIC RECOVERY

From an economic perspective, recovery is possible via national programs that help soften the impact of the huge losses in revenue and speed up the recovery period. In order for a company to properly understand what financial programs or incentives to adopt, it is essential that an efficient assessment is carried out to accurately identify the necessary route to take to recover (financially) from the long-lasting effects of the pandemic. For instance, anefficiently executed assessment will identify whether the company in question should consider debt financing, additional credit support from either investors or banks, capital raising, government support, etc.

Such financing initiatives offer different forms of aid in unique ways. For example, debt financing refers to when a company sells debt items or instruments to a potential investor, then that particular investor turned creditor will be paid the interest placed on the debt.Additionally, capital raising refers to the selling of more shares to either current or potential investors. Credit support often refers to the unconditional letter of credit attained, from the bank, which ensures punctual payment of any transactions. Finally, government support refers to the policies implemented and amended under the emergency situations that occurred as a result of a global crisis; this takes place in the form of loans, tax reductions, funds, etc.

While financial initiatives, programs, and loans are beneficial and often required during a global crisis, there remain liabilities and risks that must be assessed and managed to avoid further issues.It is the responsibility of the company to determine the most beneficial financial program. However, it must be understood that implementing financial programs or initiatives without cutting on operational costs and/or other unnecessary expenses, will not be an effective plan; both measures must take place to soften the impact of the pandemic on each individual organization as well as the oil and gas industry, overall.

As suggested by a Financial Analyst, who prefers to remain anonymous, "Small companies think that taking a fund or a loan will help them, but they do not know that the payback period is very short and COVID-19 is not over yet. For small companies, the best thing to do is use operational efficiency strategies. The same thing can be done for large companies as well, but large companies are already laying off employees and cutting salaries instead of getting loans and funds".

ADVANTAGES AND DISADVANTAGES OF FINANCIAL PROGRAMS AND INCENTIVES

While financial programsand incentives could help organizations and individuals get stand tall again, such financial initiatives are seen as an aid as opposed to a complete solution.In fact, there are multiple advantages to adopting such financial programs, initiatives and loans.For example, because of the global crisis, there are various funds that organizations can apply for without having to pay back the money received. Additionally, funded projects aim to develop business and encourage new ideas to be implemented. On another note, loans can be applied to any department in a company, offering flexibility to business development; this is not the case with funding, however. Finally, tax incentives are often offered during difficult times, making the incentive attractive at low rates or cuts.

However, at the same time, there are various disadvantages to adopting such financial programs, initiatives and loans. For instance, funding is often competitive and difficult to attain, especially for SMEs. As for loans, the interest rates associated with loans during difficult times where there is a high demand are usually very high; this, of course, is in addition to the fact that the entire loan must be paid in full along with the high interest rate values.Also, the process of acquiring a grant is time-consuming and cannot be attained at a fast enough pace for an organization to benefit from immediately. Finally,organizations must take care of the fact that all financial loans need to be repaid, regardless of the economic environment. This means that if the company continues to struggle, it will become harder and harder to pay back any form of borrowed money at climbing interest rates.

CASE STUDY

An example of oneof the more successful financial initiative that was implemented recently was that of a Government policy released in Lithuania. The financial initiative aimed to help the liquidation of Small-to-Medium Enterprises (SMEs) and recover from the pandemic's impact at a fast pace. This initiative is called the Business Support Fund; this is mainly supported by two private limited organizations called 'Valstybinis Investicinis Kapitalas' and 'Valstybinis Investicijų Valdymo Agentūra', owned by the Ministry of Economy and Innovation and Ministry of Finance, respectively. This initiative could support companies with funds of EUR 1 million or up to EUR 100 million for all SMEs participating in total. The Lithuanian Government aims to aid Large companies and save them from closing, which could even result in a further downturn in the economy. Various countries like Canada and India have implemented similar measures to keep the industry standing tall until business as usual.

To conclude, new financial initiatives for companiesare available on a day to day basis due to the current economic stance of the community. The oil and gas industry has suffered financially from the global pandemic. However, there is hope for the future as the number of COVID-19 cases decline and companies slowly begin to operate as usual. It is important to keep in mind that financial incentives, loans, and programs are not enough to resolve the situation in the industry as cost-cutting strategies must be implemented in parallel.

PETROLEUM CONSUMPTION SHIFT IN COVID-19 TIME

BY JASMINE SHAHEEN

Ever since the outbreak of the first coronavirus case in Egypt back in February, one-by-one, several industries began slightly shifting their mode of behavior, anticipating the inevitable shift of the economy. The past few months have also witnessed a shift in the consumption of petroleum products as it was largely affected by the decrease of transportation and the halting of almost all flights inside and outside of the country.

GLOBAL SUPPLY AND DEMAND

On a global scale, with the continued lockdown on air travel in several places, the pandemic is still dominating the oil demand as it remains to decrease constantly. Before the pandemic, it was estimated that the world was consuming about 100 million barrels per day (mmbbl/d). Now, during the pandemic, it is estimated that from February to March, the world consumed about 30 mmbbl/d less in demand. The International Energy Association (IEA) has stated in its report of the oil outlook of June 2020, that oil demand is expected to fall to its lowest point yet by 8.1 mmbbl/d, noting that the demand for jet fuel has a hand in the decline of the overall demand and the recovery seems unlikely before 2021.

To get a clearer picture of how the coronavirus played a role in Egypt's oil and gas consumption, it is better to examine consumption rates pre-coronavirus outbreak. National consumption of petroleum for example has decreased significantly by 11.53% in April 2020 compared to April 2019, according to the Central Agency for Public Mobilization and Statistics (CAPMAS).

THE CONSUMPTION SHIFT

However, as life begins to return to a new normal, and with the ease of lockdown restrictions that were once imposed on Egypt these past few months, there are signs that consumption levels may return to normal. According to Al-Mal newspaper, the Ministry of Petroleum and Mineral Resources (MoP) began importing the market's needs for gasoline and diesel at pre-pandemic rates. Recently, the consumption of gasoline and diesel ranged from 11,000 to 13,000 tons and 21,000 to 25,000 tons, respectively, due to the previously imposed curfew.

Ibrahim Kshanh, Energy Management Expert, stated that the pandemic certainly played a role in the lower demand and consumption of fuel in Egypt, indicating that it is an expected result of "[the] reduction in international and domestic travels, as well as the reduction in many commodities consumption which means less energy consumption for industrial activities."

There has been an obvious correlation with the flourishing of oil prices, and any talk of vaccine news. As soon as the American biotechnology company Moderna Inc. announced that its vaccine showed signs of creating an immune-system response to the virus, the market began to gain some ground. With the Brent crude already on the rise recording $43.79 on July 15, showing significant progress since its fall down in April to $18.4. While there is no tangible evidence that the oil demand will be back to its pre-pandemic levels any time soon, the question remains: could things differ if a vaccine was developed? Experts weigh in as Kshanh remarked that the existence of a vaccine will not make any substantial change in the oil and gas industry at least until the end of the year. It appears that up until this moment, there is not a clear-cut indication of when the energy market will return to its former glory.

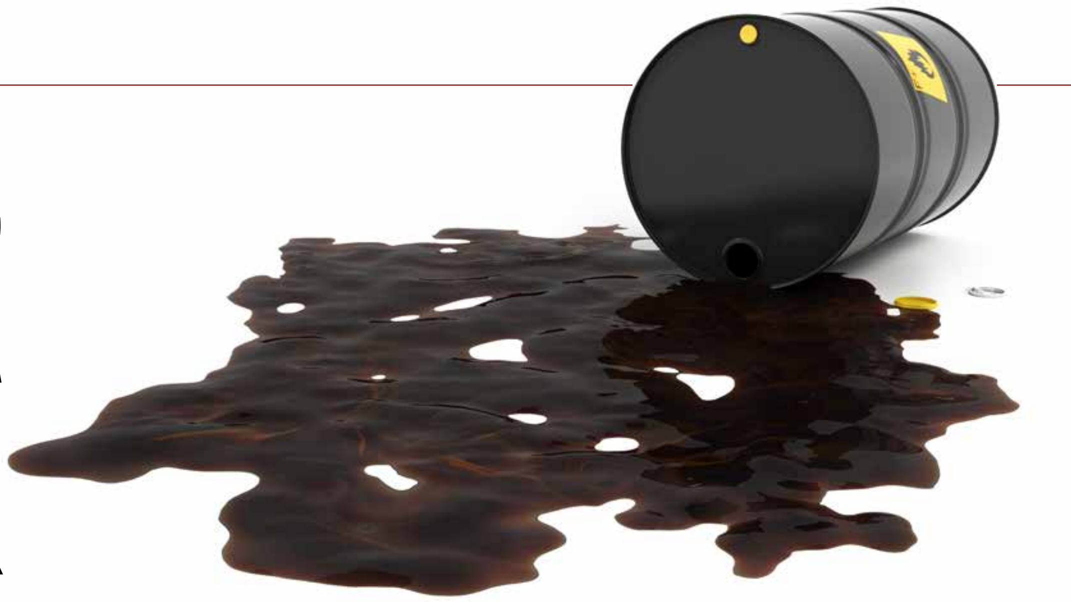
ECONOMIC CORRELATION

As the consumption of petroleum is an emblem for economic development, it is essential to take a closer look at the economic perspective. Petroleum consumption is closely related to economic growth; as rising per capita oil consumption suggests an augmentation of consumption levels by industries. Thus, indicating a booming business and growth within the industrial sector and becomes an indicator of economic development.

Such circumstances beg the question: how has this temporary oil slump reflected on the country? It certainly has taken its toll when it comes to trade. The decline in consumption has disturbed the import-export balance in this short time. This is clear in CAPMAS's Monthly Bulletin of Foreign Trade Data which denotes a drastic decline in petroleum exports by 78.4% in April 2020 compared to April 2019. Not only that, but petroleum imports have decreased significantly in the same period by 47.5% compared to April 2019. This was expected as a result of the obvious reductions in road transport and air travel all over the world.

Kshanh denoted that, with the return to a new normal, "the demand for petroleum products will start to increase. [On a national level], this impact will increase the imports of petroleum products and the subsidy bill." Adding that, on a global level, "Egypt will get benefit after the return of the world trade traffic through imports of the Suez Canal and remittances from workers abroad."

Despite the slight instability in the economy, Egypt remains on steady ground. In a statement by Leila Benali, Chief Economist at the Arab Petroleum Investments Corporation (APICORP), she noted that "the three major countries where you will see the highest planned and committed investments are Saudi Arabia, the UAE, and Egypt, and we are seeing more than $60 billion that should be injected in the energy sectors, respectively, over the next five years." The International Monetary Fund (IMF) has also maintained Egypt's forecast of economic growth at 2%. Making Egypt one of the very few countries expected to record positive growth for 2020. With that, the future for the Energy sector in Egypt does not seem so bleak after all.



JOINING THE PETROLEUM SECTOR IN THE COVID-19 ERA

BY MAI EL GHANDOUR

When it comes to job hunting in the midst of a pandemic, the COVID-19 generation has seen it all. From interviews on Zoom, to the horror of maskless face-to-face interviews, and to the constant disappointment of rejection letters; there is no surprise that the current crisis will have a profound impact on all industries. However, the oil and gas sector can learn from this crisis. It can actually be acatalytic moment to accelerate permanent shifts, flatten hierarchies, reduce bureaucracy, and push decision-making to the limit. In short, paving the way for a new era of future opportunities.

EMBARKING ON AN OIL AND GAS CAREER POST COVID-19

According to an article published by Mckinsey& Company titled Oil and Gas after COVID-19: The Day of Reckoning or a New Age of Opportunity, although the oil and gas industry may no longer seem the best choice for employees nowadays, new talents and engineers are required more than ever. Many young people are starting to think that the sector is placed on the wrong side of the transition. But in reality, the misalignment is between career-progression timeframes and the expectations of the new generation of talents.

In an online survey entitled "Embarking on an Oil and Gas Career Post COVID-19" conducted by Egypt Oil & Gas (EOG) in July to help in understanding the current expectations and aspirations of petroleum students, 42% indicated they were indifferent when it comes to coping with a new normal. However, out of 54 individuals, 83.3% thought that joining the oil and gas sector this year ranges from hard to extremely hard. Moreover, from the fresh graduate respondents who are still unemployed, 67% reported that they are facing recruitment barriers.

Mohamed Elshawaf, Production Field Engineer at Khalda Petroleum Company and Non-Technical Deputy Manager at Society of Petroleum Engineers (SPE) Egypt YP told Egypt Oil & Gas, "Joining the oil industry in this tough period is very difficult and full of challenges. One per 40 engineers is given the opportunity and do not have the luxury of selecting which field to join. You must create your opportunity yourself."

A GENERATION OF STRONG AMBITIONS

The survey findings have further shown that 56% of petroleum engineering students and fresh graduates strive to be leaders in the future, taking on managerial positions as their long-term career objectives.

When it comes to how the COVID-19 generation will change the petroleum sector in the future, 40.7% of the respondents choose to be more efficient; optimizing production while cutting costs. Furthermore, the respondents have proposed an array of suggestions to overcome the challenges of the sector, most of which endorse personal development and skill improvement. "Exploiting these hard times in taking courses, improving your skills and pursuit some online self-owned business," one respondent recommended.

However, 63% said their high grades is what makes them a stronger candidate, while 50% chose to join the petroleum sector because they are passionate about it.

OVERCOMING COVID-19 CHALLENGES

While many summer internships, field trips and training sessions were called off, they were replaced by a series of webinars and online trainings.

When the world was swept by COVID-19, SPE responded auspiciously. The SPE community has remarked that health and safety are guiding their decision-making process. To adapt to the new conditions, SPE began exploring online options for many programs. SPE also bolsters networking, as being part of the SPE community facilitates getting in touch with other while working from home.

According to Elshawaf, "SPE is a world of opportunities in all aspects, whether you are an SPE volunteer or you interact with SPE events. In SPE, we provide a direct connection between students or fresh graduates and industry leaders and decision makers. We also in SPE Egypt, especially, make different programs like Education Week and the Leadership Development Program for students and fresh graduates to reduce the gap between what they have studied and the knowledge in work field on both sides of technical and soft skills needed. We also organize a monthly technical event with a part of networking time between attendees for the same purpose. I am proud of being one of the SPE volunteers."

Meanwhile, on July 7, AUC's SPE received the Student Chapter Excellence Award for "accomplishing an admirable level of success." Members of the SPE board noted the challenges of receiving this award during COVID-19, but with the help they garnered on-campus and online during the year, they did it. It is important to note that he Student Chapter Excellence Award is the second-highest award student chapters can receive.

CHANGE AGENTS

The EOG survey signaled a 33.33% of those with more than two years of experience saying that after the COVID-19, they cannot wait to jump from one milestone to another. On the other hand, 56% of fresh graduates that are still unemployed expressed that after being quarantined for so long, they just wish to join any oil company as soon as possible. This implies that there is a gap between the ambitions of one generation and another that has been most likely created by the COVID-19 pandemic.

Elshawaf summarized the tools that helped him prepare for the new normal and secure a career in the petroleum in these unprecedented times. "Network is the most effective and powerful tool in our industry for everything whether for hiring or technical support," he said, adding that "volunteering in SPE and engaging with its different activities while being a student or graduate makes you enter the world of opportunities." He further elaborated that one must be resilient and flexible for any opportunity and prepare for all options with both variety of technical and non-technical skills. In addition to being an expert in technical knowledge and aware of the new technologies, you must build on "your innovation and creating new solutions and ideas from scientific research for our industry," he said.

Shauna Noonan, 2020 SPE President, wrote on Twitter: "In my 30 years as an SPE member I have been through ups and downs both professionally and personally, with the one constant being the support of my SPE "family." As we help one another through these turbulent months, let's showcase to the world the compassionate side of oil and gas."

If you are still embarking on your oil and gas career, but feel the road ahead is already bumpy, you are not alone. Many graduates are experiencing disruptions to their plans. Just be patient with the slower-than-normal hiring and on boarding at this time. And finally, be proud of yourself for facing challenges that not many will ever experience.

THE COVID-19 FRONTLINE **HEROES**

BY FATMA AHMED

Amid the coronavirus outbreak and shutdowns that are imposed on most industries around the world, some workers have to continue their missions and take risks in order to serve others. During the crisis, workers of fuel stations kept their positions in the frontlines of the pandemic to keep delivering energy and fuel across Egypt.

International oil companies (IOCs) and national oil companies (NOCs) started applying several precautionary procedures in their fuel stations in order to keep workers and customers safe while keeping the workflow unaffected.

WHAT ARE THESE PRECAUTIONARY PROCEDURES?

The Ministry of Petroleum and Mineral Resources (MoP) issued some strict instructionsfor the sector's companies to follow,obliging their employees and visitors to wear face masks in the workplaces. The MoP also provided sanitizing units to be installed at the gates of most of petroleum companies and sites.Such procedures were meant to ensure the protection of workers especially in fuel stations as well as the customer service employees for natural gas delivery, who are more exposed for infections.

OPERATION SUSTAINABILITY

According to the IHS Markit, extreme lockdown measures have hammered gasoline demand, with retail gasoline demand expected to decrease 48% during 2020. Moreover, it was forecasted that gasoline sales will remain below their pre-COVID level for at least another year.

However, margins have already started trending upwards and retail station's fuel earnings are actually higher than they were before COVID-19. The main reason is because IOCs beganexploringnew ways and solutions to pass through these crises and began deducting their expenditures and implementing cost efficiency strategies.

For example, ExxonMobil announcedin April 2020 that it deducted its capital spending of the year by 30% and lowered cash operations by 15% to cope with the demand decline as a result of coronavirus spread. The company said that such measures were applied so as to increase efficiencies and reduce costs.

Moreover, Total decided to cut its CAPEX costs throughout 2020 by more than 20%, reducing net investments to less than $15 billion. The Chairman and CEO of Total, Patrick Pouyanne, announced, that they saved $800 million on operating costs instead of $300 million. However, the company tried to keep the workflow operating as usual without affecting the production cycle or the workers' stability.

Mohamed Abdel Baky, an employee at one of Total's fuel stations that spreads allover Egypt, said that operations during curfew was decreased to about 60% to 70%, but this did not affect the stability of the workers. "Our company supported us by adding EGP 600 to our salaries since the start of the crises," added Abdel Baky.

Atef Farrag, an employee at a fuel station for a private Egyptian Company, told EOG that"despite the decrease in his company's revenues by nearly 50%, the company did not lay off any one or deduct our salaries."

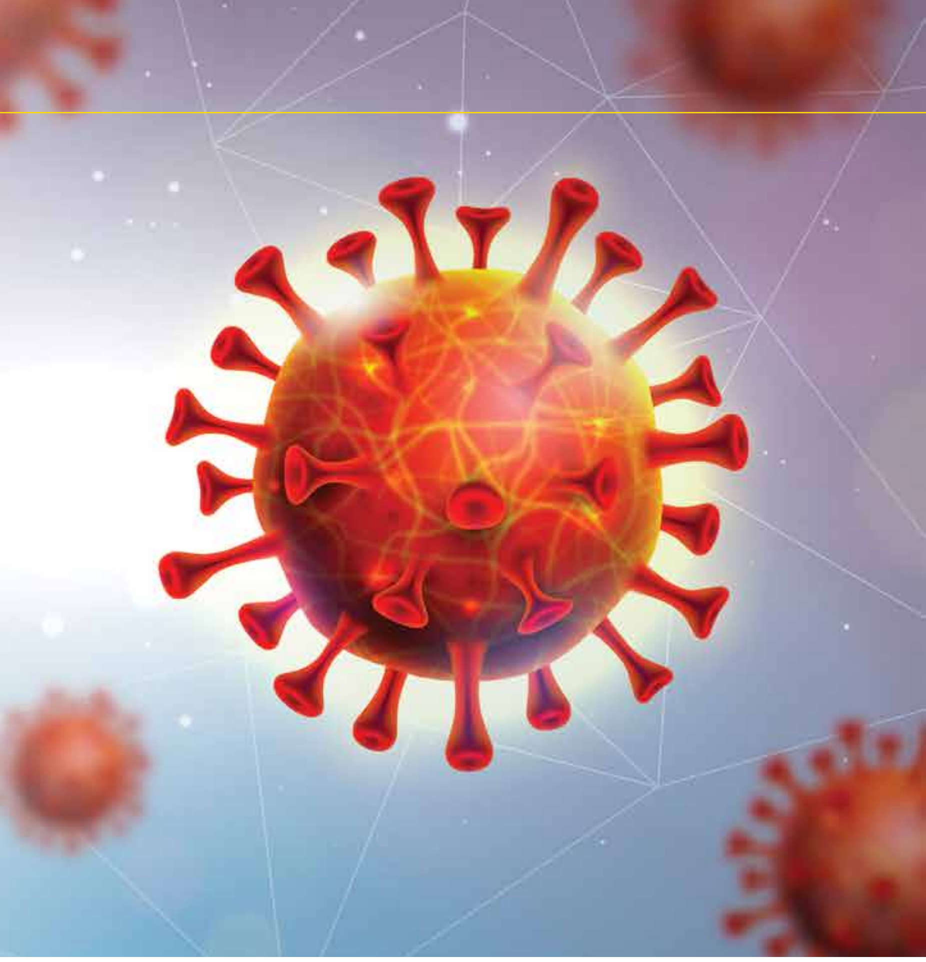
FUEL STATIONS SITUATION AND HSE CULTURE

Fuel stations carried on with their operation, but with special care from the owners. Additionally, health, safety and environment(HSE) culture became increasingly important during this time. Despite employees' fear of infection, Farrag did not hesitate to go to work, knowing that measures were taken to ensure his health and safety. Farrag admits that he even started to have more HSE awareness and take more precautions. "The administration reduced the workforce especially during the curfew to be eight instead of 12 to keep them safe as well as customers," Farragadded.

Abdel Baky added that, "the station is sanitized every hour and Total administration stressed on social distance at not less than 1.5 meters. Abdel Baky pointed out that Total is fully responsible for any worker or employee if any infection had taken place in terms of health care and financial issues until the recovery.

A manager of a private fuel station, preferring anonymity, told EOG that "the station is sanitized twice per day since the start of [the] pandemic and there is a stress on the personal hygiene for the workers in addition to applying the precautionary procedures and the station is provided by the needed carbon and foam fire extinguishers."

Wael Abdel Ghany, CEO of Intelligent Safety Solutions (ISS), And member of the EOG Technical Committee concluded that HSE culture is enhanced during the coronavirus' existence. He also noted that HSE culture is now a habit and a style of life for oil and gas employees. Abdel Ghany elaborated that throughout his experience in the oil and gas industry, he noticed that HSE culture is improving over time in Egypt. This point was proven correct when the oil and gas sector in Egypt managed to stand up against the pandemic and push ahead.



CORONAVIRUS
TESTS COHESION OF OLD ALLIANCES

BY **IHAB SHAARAWY**

The coronavirus has created a global, political, societal, economic and commercial crisis. The crisis not only can be seen as a disruptive period of uncertainty and danger, but also can be seen as a defining moment for the world order and the alliances that have been shaping that order for a long time.

In spite of the role globalization has ironically played in spreading the coronavirus, the new virus is shaping up what is going to be a tough test for globalization itself and coalitions and alliances that struggled to stay intact in the face of the pandemic.

The coronavirus emergence has brought into question what political, economic and even defense alliances that shaped the world order are about.

ANOTHER THREAT TO EUROPEAN UNITY

Since the beginning of the crisis, every European government was struggling to protect its population and economy. Rich countries like Germany were not digging deeper in to their pockets to help out poorer Italy and Spain, while the European Union's (EU) open-border Schengen agreement was in tatters, with travel restrictions in place between the European neighbors.

This had promoted the Eurosceptic beliefs that the EU is morelike a marriage of convenience than a union bounded by a sense of solidarity, in bad times as well as good. It also helped the narratives about the collapse of the integration to spread across the union.

Tamás Deutsch, a member of the European parliament (MEP) from the Hungarian governing party argued that "millions of EU citizens feel that Europe has let them down (...) China and Russia are sending medical tools. Currently, unfortunately, it is not the EU institutions that help the member states."

In fact, EU nations have struggled to coordinate a response to the coronavirus pandemic, which has claimed more than 135,000 lives on the continent. The bloc's economy is projected to contract by 8.3% in 2020.

EU leaders at last had to consider a new proposal for an economic rescue package in July in a bid to break the deadlock after four days of fractious talks that were described as some of the most bitterly divided in years.

However, a deal was reached after a marathon of negotiations that almost became the longest in EU history. The deal, that involves €750billion ($859billion) in grants and loans to counter the impact of the pandemic in the 27-member bloc, was described by the French President Emmanuel Macron as historic.

However, many analysts see the stimulus package as a seed for more division as it will be mostly paid out in grants rather than bailout loans, which in the eurozone crisis came with interest rates and austerity strings attached, building anger among voters especially in southern Europe.

ANOTHER FRACTURE IN TRANSATLANTIC ALLIANCE

Covid-19 symptoms has also appeared on the transatlantic alliance that has served as the unshakable foundation of European stability for more than 70 years.

The relations between the EU and the US entered another chapter of tension when the union declined to include the US in its list of "safe countries," meaning that American travelers will be unwelcome inside the bloc for the foreseeable future, due to the high US coronavirus infection numbers. Controversially, the list of safe countries includes China -- the country where the virus originated.

The European decision came after a similar action by the US in the beginning of the crisis. The European decision was seen as a reflection to a rising sentiment that the US has left them alone in the midstof the pandemic.

A recent poll of thousands of European citizens found that the majority have an increasingly negative view of the US as a result of the coronavirus crisis, with just 2% of the surveyed Europeans see the US was helpful in the fight against Covid-19.

Around two-thirds ofthe people surveyed said that their view of the US had worsened during the health crisis, the European Council on Foreign Relations (ECFR) think-tank, which provides research on European foreign and security policy, said.

The poll also found that Covid-19 had increased Europeans' negativity towards both Russia (which is perceived to have not taken active international role in resolving the crisis) and China, where the pandemic was first reported in December. This was particularly so in France and Denmark, where 62% of respondents reported a more negative view of China.

ECONOMIC ALLIANCES NOT IMMUNE EITHER

The coronavirus also had an important role to play in breaking up the Saudi Arabia-Russia oil alliance, when Russia refused to reduce oil production in order to keep prices for oil at moderate level after the drop of demand due to coronavirus lockdown restrictions. This economic conflict resulted in a sharp drop in oil prices over the spring of 2020.

The Organization of the Petroleum Exporting Countries(OPEC) had to slash oil production in April to the lowest level since the Gulf War in 1991, as it escalated efforts to revive global markets just as a resurgence of the coronavirus startedthreatening demand again.

However, the initial failure to reach a deal cast light over instability of the coalition that used to control the oil market for years.

The World Trade Organization (WTO) report to this year's United Nations High-level Political Forum (HLPF) highlights that a rise in trade-restrictive measures since 2019 — especially between major economies — and the suspension of activities of the WTO's Appellate Body have created new challenges for the multilateral trading system. In addition, the COVID-19 crisis is having a major impact on global supply and demand, leading to disruptions in global supply chains for both goods and services.

At this time of crisis, the multilateral trading system becomes all the more important, providing a forum for a coordinated response to the Covid-19 pandemic, the report says.

For many experts, the post-coronavirus world represents a step-change in world order, pushing countries toward isolation and setting the stage for conflicts.

However, it may be unfair to blame the pandemic for all evils. Even before the pandemic, the EU for example, was already suffering a group of setbacks including the Brexit divorce, climate change issues, migrants and budget complications.

Besides, it was normal that after nearly four years of US President Donald Trump's America First policy, that allies have become divided on issues that require an urgent and unified response, ranging from the Middle East, arms control, trade and China and to the coronavirus.

After all, a pandemic may be only the last nail in the coffin that was in the making for a while.

NANOPARTICLE TECHNOLOGY: OPTIMIZING DRILLING TECHNOLOGY IN EGYPTIAN OIL,GAS FIELDS

BY JACK BECKFORD

To maximize profitability on Egypt's exciting opportunities, efficient drilling operations are required. Drilling fluids area vital component of drilling efficiency. They fulfill several vital functions including controlling pressure, carrying cuttings and cooling bit and drill strings, and stabilizing wellbore as well as controlling fluid losses.Due to its substantial impact on operational efficiency, it comes as no surprise that drilling fluid technology is one of the most targeted and developed technologies worldwide.

This topic is discussed in the paper: Nanoparticle-based Drilling Fluids as Promising Solutions to Enhance Drilling Performance in Egyptian Oil and Gas Fields. The paper, which is written by Ahmed Mady, from the Department of Petroleum Engineering at Future University Egypt (FUE); and Abdel Sattar Dahab, an academic from the Department of Petroleum Engineering at Cairo University; discusses the latest applications of nanoparticle (NP) technology to drilling fluid. The paper's most valuable findings showcase the efficient use of Nanoparticles (NPs) in the drilling fluid industry.

NANOPARTICLES AND THEIR USES

Nanotechnology has opened the door to the development of a new generation of fluids mixed with nanosized particles for drilling, production, and stimulation-related applications. NPs are additives used to enhance the properties and improve the performance of the drilling fluid to mitigate drilling problems. NPs have a simple structure with a size in the range of nanometers. The effectiveness of NPs is down to their small sizes and thus, high surface-area-to-volume ratio. NPs are also starting to show promising enhancements on the rheological scale (the measure of matter flow) and filtration characteristics of the drilling fluid (mud).

Another practical use of NPs is in avoiding swelling and collapse of shale formations, which is a common occurrence with water-based mud. This inconvenience causes drilling complications and reduces project profitability. In this instance, adding NPs helps to minimize shale permeability and thus, promote wellbore stability. This use is two-fold and can be used for offshore wellbore stability analysis due to the narrow mud weight window in these offshore wells.

NPs can also be used to increase the fracture pressure of the rock, widen the mud window, and consequently enhance the well integrity and mitigate mud losses. Finally, NP-based drilling fluids can enhance the lubricity of operations, making them a good option for lateral drilling in shales.

EGYPTIAN SHALE FORMATIONS AND PREVIOUS TESTING

The research focuses on two widely distributed black shales in Egypt from different geologic ages. The samples hail from two separate formations: the Duwi Formation at Safaga, Quseir area, and the Dakhla Formation, which is located in the south of Egypt. The shale deposits at these sights have historically been tested by the rock eval pyrolysis (REP), which is used for calculating shale oil potentiality.

The results from REP found that Duwi shale is evaluated as a very good source rock with total organic carbon (TOC) exceeding more than 2 weight percentage (wt.%).With regards to the Dakhla Formation, it consists of light pink weathering calcareous and gypsiferous shales and marls, grading upward to grey and brown highly fissile shale.

Thanks to new technologies, rock types can now be analyzed using the X-ray diffraction (XRD) technique, which evaluates the mineral composition of each sample.

X-RAY DIFFRACTION ANALYSIS

XRD is the experimental science that determines the atomic and molecular structure of a crystal. The crystalline structure causes a beam of incident X-rays to diffract into many specific directions and then measures the intensities and scattering angles of the X-rays that are scattered by the material.

The Duwi shale sample, when analyzed by the XRD technique, showed that the bulk minerals are mainly quartz, calcite in addition to their clay minerals, which are mainly smectite and kaolinite. In turn, the analysis of the bulk Dakhla sample showed that it is composed mainly of clay minerals with very small quartz content.

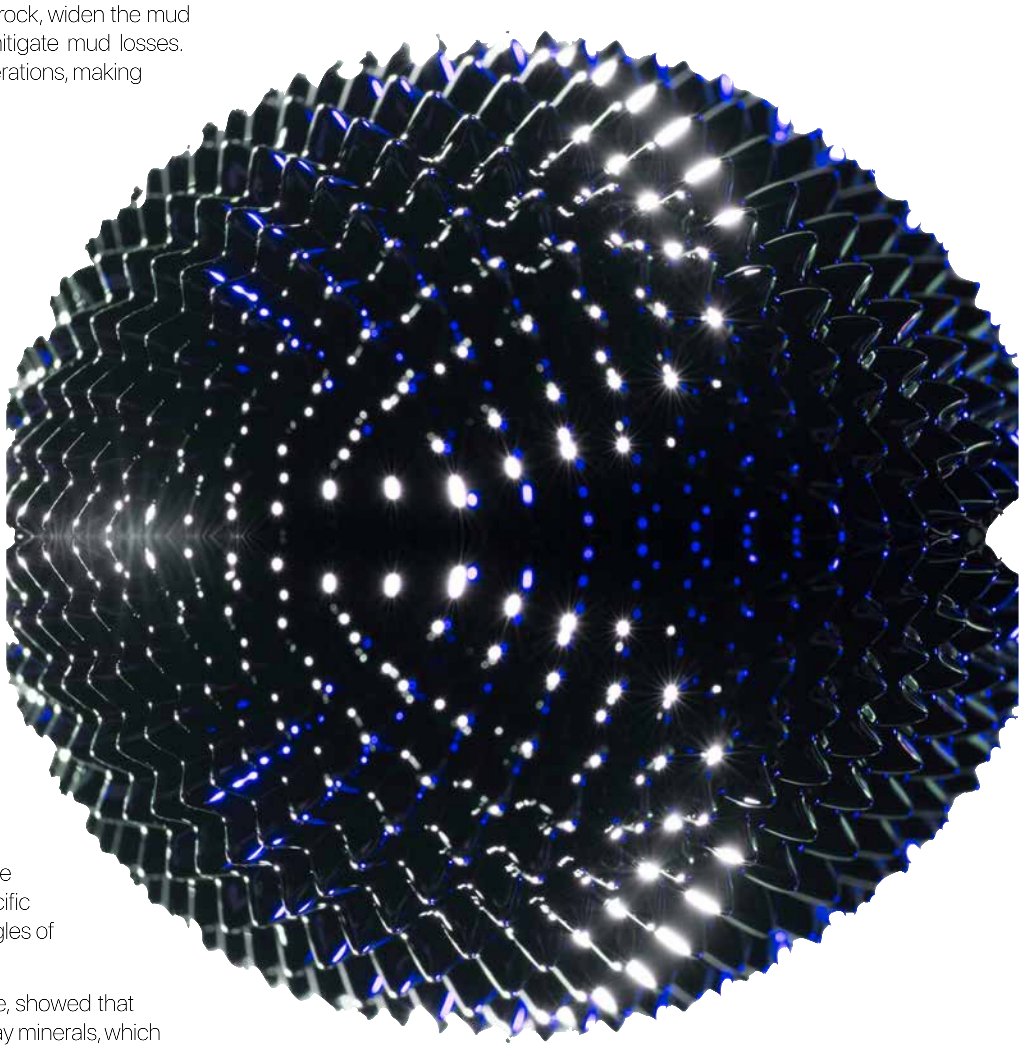
XRD analysis was used to help distinguish clay size fractions. The data showed that Dakhla shale has a Na-montmorillonite content of 80%, which indicates a higher likelihood of swellability. Meanwhile, the Duwi shale had a lower montmorillonite content and a higher calcite ratio, meaning less likelihood of swelling.

FIELDWORK FINDINGS

The following conclusions were made concerning the practicalities of NPs: NPs-concentrations of less than 1.0 wt.% are recommended for generating a good quality filter cake and enhance rheological performance. Using higher NPs-concentrations can result in reduced filter cake efficiency. The optimum filter cake characteristics were found to occur between 0.3–0.5 wt.%.

Furthermore, metal oxide NPs are considered to be the most promising in the field of drilling fluids industry. The metal oxide NPs have many of the characteristics that are successful such as stability in suspensions, suitable surface charge, and have the most dominant parameters in proper functionality.

NPs can effectively plug the shale formations and act as a bridging material when mixing with water-based drilling fluids. This can provide better wellbore stability and provides an environmental solution for biologically sensitive areas where previously the usage of oil-based mud was commonplace.



LINKS & GAINS HOSTS A LEGAL WEBINAR: THE ENERGY HUB EXPERTS TALK

BY MOHAMED AGAMY - LINKS & GAINS

A very tremendous discussion was held over a webinar on July 21 that brought on board diverse experts from the oil and gas industry, which we call the Energy Hub.

LINKS & GAINS
ATTORNEYS AT LAW

The discussion was moderated by the Managing Partner of Links & Gains Law Firm, Mohamed Agamy, who shot several questions that covered most of the challenges, opportunities and the transformation activities in the energy sector.

The talk began with a global view on the oil and gas industry and the pricing impact on cross border transactions. Ayad Ridha, the Partner of LXL-London, explained the market challenges from all possible causes and consequences of the falling oil prices, greeted by consumers and companies dues. The benefits and positive forecasting post covid-19 have also been highlighted.

From another angle, digital transformation was the main theme as Tamer Naser, Director and General Manager of Baker Hughes, talked about the embracing of technology and the current reshaping of the operating landscape. Digital solutions are considered the reap of improved productivity, higher efficiency, and increased cost savings. The oil and gas industry is not a stranger to this and is progressing towards digital maturity. The investments in oil and gas are expected to reach a high peak particularly in those coming days of the new philosophy on technology and sustainable projects.

However, Egypt's role to be turned into the premier regional energy hub became a tangible goal, and this was the core conversation made by Mohamed Fouad, Managing Partner of Egypt Oil & Gas information Services. In this regard, Fouad shed light on the potential opportunities associated with operational steps to promote Egypt as a regional energy hub under the Modernization Program, launched in 2016. These steps have included the establishment of the Eastern Mediterranean Gas Forum (EMGF).

The webinar was also enriched with the role of renewables in Egypt, including the accomplished and promising projects of solar and wind across Egypt. This discussion was powered by the highly informative Ahmed Gasser, the North Africa Director at GE Renewable Energy. Gasser's takeaways were mainly focused on the latest development of the electricity sector generated by REN Energy, and how batteries could transform clean energy.

After the entire discussion, the legal insights on the supply chain and procurement challenges was discussed by Hossam Tawfiq, the Counsel and Group Contract Leader of Yokogawa, MEA, who walked through the various challenges that urge a quick response from the legal sector to the energy sector.

THE VALUE OF BIG DATA IN OIL,GAS INDUSTRY

Have you ever imagined the volume of data that had been acquired in the Egyptian oil and gas fields over the last century? The growing technologies in upstream, midstream and downstream are accumulating massive datasets in the oil and gas industry every day. This poses a great challenge of the high technology and security required to manage and store these data.

For example, the acquisition and processing of seismic data in an exploration program requires huge amount of storage and highly advanced software and sensors to transform these data into value to find oil.

The term big data is broadly used to refer to the new technologies in managing and processing huge amounts of datasets. It includes six main characteristics of volume, variety, velocity, veracity, value, and complexity. In our case, these datasets are recorded in different varieties and generated in large volumes in various operations of upstream and downstream in the oil and gas industry. The amount of data about the region or the field of study you are working on determines, to a large extent, the success ratio you can achieve. This is only accomplished if you can turn it into knowledge and value.

Another challenge that petroleum companies face is that they receive enormous amounts of data from different sources in various formats. These companies have to use unique tools to analyze and integrate these data to transform it into a coherent model to reduce exploration and drilling risks.

Unfortunately, in many cases, big data is not well exploited since companies are better at collecting data about neighboring fields and petroleum provinces. The daily production of thousands of wells are about well logging rather than analyzing that data and designing models to understand their own oil or gas fields. The game is not about the big data that we have, it is about our ability to manage these data to transform it into value to reduce risks in the exploration and drilling process. Moreover, it is not just big data; it is the right big data that matters since the "garbage in, garbage out" issues lead to biased and incomplete conclusions. It is worth mentioning that the Egypt Upstream Gateway(EUG) project introduces a significant step on embracing big data in the Egyptian petroleum sector.

Ahmad Mostafa

Exploration Department Head South Valley Egyptian Petroleum HoldingCompany (GANOPE)

FLARED AND ASSOCIATED GAS ECONOMIC UTILIZATION

It is well known that the petroleum industry at first was somewhat indifferent about the environmental impact of the exploration and production processes. As a result of this neglect, there have recently been some incidents related to petroleum activities that have led to great damage in the surrounding environment. Thus, petroleum industry leaders have begun to pay great attention to the environmental impact of petroleum activities.

In the last decade, Egypt witnessed remarkable activities in the production and development of oil and gas fields, which was accompanied by an increase in the amount of gases burned.Burning the associated gas or what is called Associated Petroleum Gas (APG) flaring is considered one of the operations that causes harm to the environment. Hence, the Egyptian Ministry of Petroleum and Mineral Resources gave great attention to environmental issues in general and exploiting associated gas and flaring gases in particular. This is evident in the issuance of a new gas law that regulates the sale and purchase of gas inside Egypt, as well as in changing some provisions of production sharing agreements to allow partners to exploit these gases in development projects that achieve economic feasibility for all parties.

The main constraint for investment in gas flaring reduction is the marginal economics of APG utilisation projects, which is largely due to low gas prices, small and scattered volumes of gas flares, and high capital expenditure requirements for such investments. A key component to successfully achieving gas flaring reductions is the use of incentives for APG utilization beyond any direct regulatory provisions. This includes all factors that may contribute to the favourable economics of such investments. The most obvious incentives are related to gas markets and the ability of contractors to sell at a competitive gas price and to a number of different consumers. Secondary incentives are the creditworthiness of gas buyers, which can lead to pricing and market arrangements of products that use gas as an input.

In Egypt, the Egyptian Natural Gas Company (EGAS) as the single buyer of gas is heavily reliant on offtake volumes from power generators. Upstream contractors will consider these interlinkages when making an APG reduction investment decision.Therefore, it is now possible to exploit these gases in gas-to-liquid (GTL) projects or convert them to other products that are imported from abroad such as liquefied petroleum gas (LPG).

Hany Shaker Hashem

GM for Feasibility Studies and Project Evaluation at the Egyptian General Petroleum Company (EGPC)

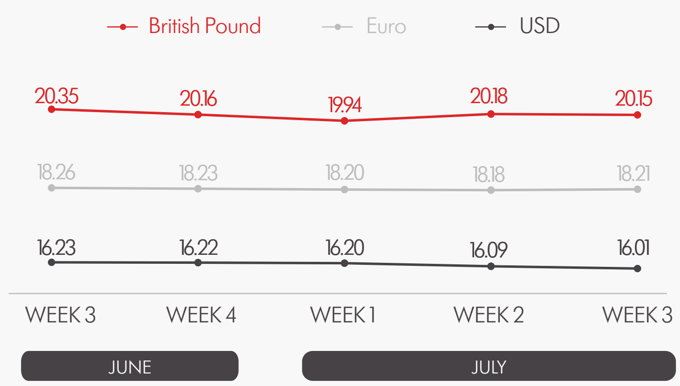
EGYPT OIL&GAS RESEARCH & ANALYSIS

Annual Inflation Headline CPI (%)
MAY 2020: 4.7 — JUNE 2020: 5.6

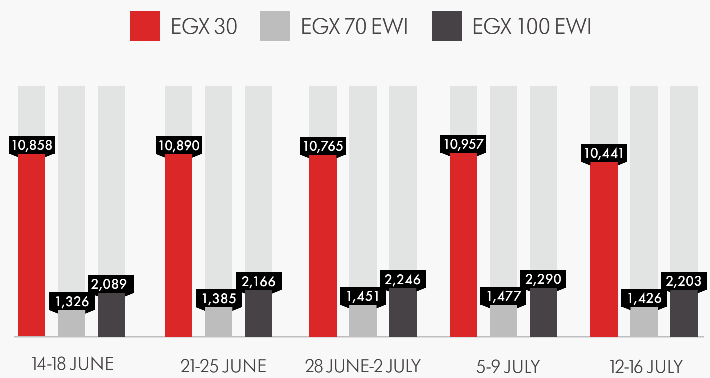
Net International Reserves ($ billion)
MAY 2020: 36 — JUNE 2020: 38.2

Non-Oil Private Sector PMI (Points)
MAY 2020: 40.7 — JUNE 2020: 44.6

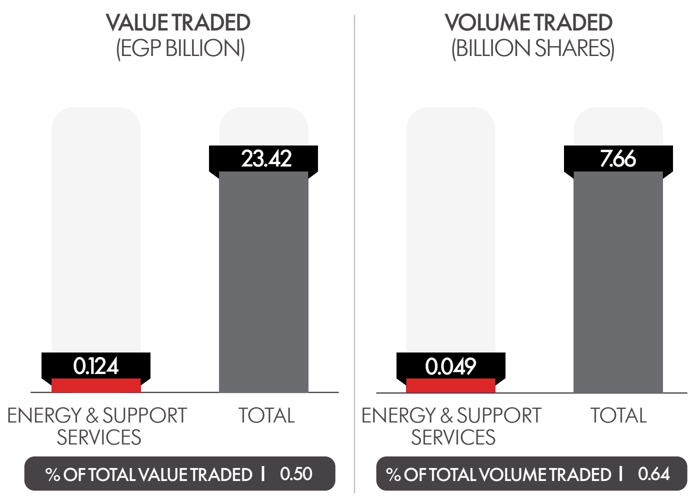
Exchange Rates



Capital Market Indicators



Performance of Petroleum Companies in the Egyptian Exchange in June 2020



National Drilling

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
USD	4.96	0

Alexandria Mineral Oils Co.

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	2.27	▼ 37.47

Egypt Gas

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	54.69	▼ 1.46

Sidi Kerir Petrochemicals

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	5.75	▼ 35.97

Source of Raw Data: CBE, CAPMAS, Egyptian Exchange, HIS Markit

GPC ADDS NEW WELL TO PRODUCTION IN THE WESTERN DESERT IN JUNE

Field: South West Sennan	Well: South West Sennan-45
Reservoir: Abu Rawash C	Crude Oil Production: 1,500 bbl/d

12 NEW PETROLEUM AGREEMENTS APPROVED BY THE CABINET IN JUNE

- Investments: $1 billion
- Signature Bonus: $19 million
- Drilling Commitment: 21 Wells
- Location: East & West Mediterranean, Red Sea & Western Desert
- 8 IOCs: Chevron, Edison, BP, Total, Shell, Nobel, Kufpec & Mubadala

3 REFINING PROJECTS WITH INVESTMENTS COST OF $2.8 BILLION

1st Project: Midor Expansion Project

- $2.3 billion — Cost
- Increase by 60% — Production Capacity

2nd Project: Octane Production Complex of ASORC

- $250 million — Cost
- 800,000 t/y — Production Capacity

3rd Project: Asphalt Production Unit of SOPC

- $64 million — Cost
- 1,200 t/d — Production Capacity

PETROLEUM SECTOR CONTRIBUTION TO TOTAL INVESTMENTS IN Q2 2019/20 (%)

Natural Gas	Crude Oil	Petroleum Refining
9.4	1.7	0.2

MOP TARGET FOR NATURAL GAS DELIVERY IN FY 2020/21

1 million households

PETROLEUM SECTOR'S BUDGET SURPLUS FROM (JUL. 2019-MAR. 2020)

+ EGP 20 billion

PETROLEUM SECTOR IN FY 2020/21 BUDGET (EGP BILLION)

- Petroleum Products Subsidy: 28.2
- Natural Gas Delivery: 3.5

INTERNATIONAL OIL PRICES

BRENT PRICES ($/bbl)

04-May	27.2
27-May	34.74
03-June	39.79
23-June	42.63
07-July	43.08
20-July	43.28

OPEC BASKET PRICES ($/bbl)

04-May	18.36
27-May	29.03
03-June	35.47
23-June	39.85
07-July	43.15
20-July	43.03

NATURAL GAS PRICES ($/mmBtu)

04-May	1.99
27-May	1.72
03-June	1.82
23-June	1.64
07-July	1.88
20-July	1.65